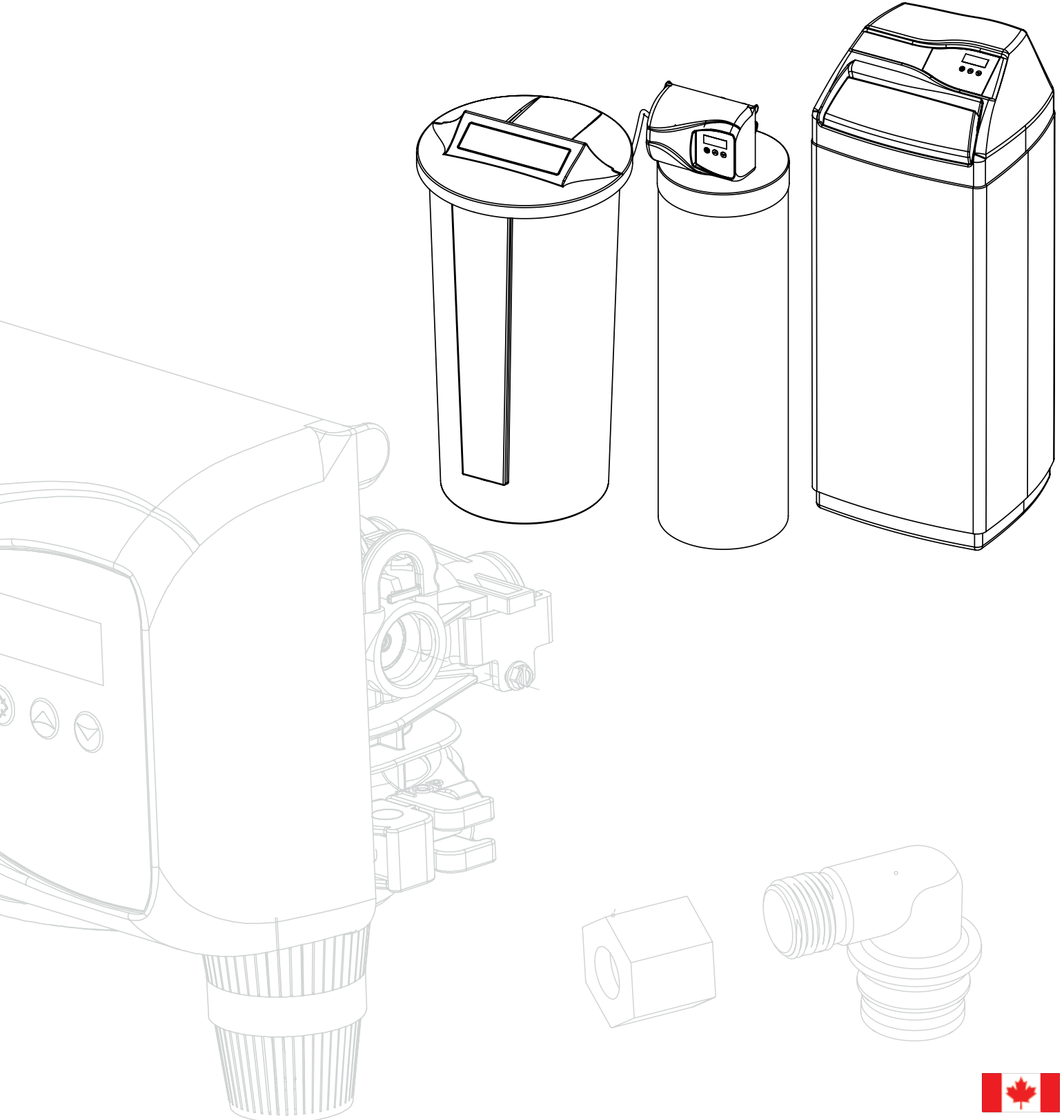


**6200 SXT Automatic Meter Initiated Water Softener**



# Introduction

## Read this Manual First

- Read this manual thoroughly to become familiar with the device and its capabilities before installing or operating your Water Softener. Failure to follow instructions in this manual could result in personal injury or property damage. This manual will also help you to get the most out of your softener.
- This system and its installation must comply with state and local regulations. Check with your local public works department for plumbing and sanitation codes. In the event the codes conflict with any content in this manual the local codes should be followed. For installations in Massachusetts, Massachusetts Plumbing Code 248 CMR shall be adhered to. Consult your licensed plumber for installation of this system.
- This water softener is designed to operate on pressures of 20 psig 125 psig. If the water pressure is higher than the maximum use a pressure reducing valve in the water supply line to the softener.
- This unit is capable of operating at temperatures between 40°F and 110°F (4°C - 43°C). Do not use this water softener on hot water supplies.
- Do not install this unit where it may be exposed to wet weather, direct sunlight, or temperatures outside of the range specified above.
- Do not use water that is microbiologically unsafe without adequate disinfection before or after this system.
- This publication is based on information available when approved for printing. Continuing design refinement could cause changes that may not be included in this publication. WaterGroup reserves the right to change the specifications referred to in this literature at any time, without prior notice.

## Safety Messages

Watch for the following safety messages in this manual:

**NOTE:** used to emphasize installation, operation or maintenance information which is important but does not present a hazard.

**Example: NOTE:** Check and comply with you state and local codes. You must follow these guidelines.

**CAUTION:** used when failure to follow directions could result in damage to equipment or property.

**Example:**



**CAUTION! Disassembly while under pressure can result in flooding.**

**WARNING:** used to indicate a hazard which could cause injury or death if ignored.

**Example:**



**WARNING! ELECTRICAL SHOCK HAZARD! UNPLUG THE UNIT BEFORE REMOVING THE COVER OR ACCESSING ANY INTERNAL CONTROL PARTS**

**NOTE:** Do not remove or destroy the serial number. It must be referenced on request for warranty repair or replacement

# How Your Water Conditioner Works

## Why Water Gets Hard And How It Is Softened

All of the fresh water in the world originally falls as rain, snow, or sleet. Surface water is drawn upward by the sun, forming clouds. Then, nearly pure and soft as it starts to fall, it begins to collect impurities as it passes through smog and dust-laden atmosphere. And as it seeps through soil and rocks it gathers hardness, rust, acid, unpleasant tastes and odors.

Water hardness is caused primarily by limestone dissolved from the earth by rainwater. Because of this, in earlier times people who wanted soft water collected rainwater from roofs in rain barrels and cisterns before it picked up hardness from the earth.

Some localities have corrosive water. A softener cannot correct this problem and so its printed warranty disclaims liability for corrosion of plumbing lines, fixtures or appliances.

Iron is a common water problem. The chemical/physical nature of iron found in natural water supplies is exhibited in four general types:

1. **Dissolved Iron**—Also called ferrous or “clear water” iron. This type of iron can be removed from the water by the same ion exchange principle that removes the hardness elements, calcium and magnesium. Dissolved iron is soluble in water and is detected by taking a sample of the water to be treated in a clear glass. The water in the glass is initially clear, but on standing exposed to the air, it may gradually turn cloudy or colored as it oxidizes.
2. **Particulate Iron**—Also called ferric or colloidal iron. This type of iron is an undissolved particle of iron. A softener will remove larger particles, but they may not be washed out in regeneration effectively and will eventually foul the ion exchange resin. A filtering treatment will be required to remove this type of iron.
3. **Organic Bound Iron**—This type of iron is strongly attached to an organic compound in the water. The ion exchange process alone cannot break this attachment and the softener will not remove this type of iron.
4. **Bacterial Iron**—This type of iron is protected inside a bacteria cell. Like the organic bound iron, it is not removed by a water softener.

When using a softener to remove both hardness and dissolved iron it is important that it regenerates more frequently than ordinarily would be calculated for hardness removal alone. Although many factors and formulas have been used to determine this frequency, it is recommended that the softener be regenerated when it has reached 50–75% of the calculated hardness alone capacity. This will minimize the potential for bed fouling.

If you are operating a water softener on clear water iron, regular resin bed cleaning is needed to keep the bed from coating with iron. Even when operating a softener on water with less than the maximum of dissolved iron, regular cleanings should be performed. Clean every six months or more often if iron appears in your conditioned water supply. Use resin bed cleaning compounds carefully following the directions on the container.





**CAUTION!** Do not use where the water is microbiologically unsafe or with water of unknown quality without adequate disinfection before or after the unit.

# Performance Data Sheet

| Unit Item #   | 4621         | 4622         | 4623         | 4624         | 4625         | 4626         | 4627         |
|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Model #   | DC20SXT      | DC30SXT      | DT20SXT      | DT30SXT      | DT40SXT      | DT60SXT      | DT90SXT      |
| Tank Size   | 9 x 35       | 10 x 35      | 9 x 35       | 10 x 35      | 10 X 47      | 12 X 52      | 14 X 65      |
| Media (CF)  | 0.75         | 1            | 0.75         | 1            | 1.25         | 2            | 3            |
| Service Flow Rate (gpm)                             | 8            | 9            | 8            | 9            | 9            | 12           | 15           |
| Total Softener Capacity (10lbs of salt/CF of Resin) | 22,500       | 30,000       | 22,500       | 30,000       | 37,500       | 60,000       | 90,000       |
| Capacity* - 6 lbs salt/CF of Resin (Efficiency)     | 13900 (3100) | 18526 (3087) | 13900 (3100) | 18526 (3087) | 21026 (3504) | 24780 (4130) | 37170 (4130) |
| Capacity* - 3 lbs salt/CF of Resin (Efficiency)     | 9292 (4100)  | 12390 (4128) | 9292 (4100)  | 12390 (4128) | 13016 (4338) | 13960 (4653) | 20940 (4130) |
| Capacity* - 2 lbs salt/CF of Resin (Efficiency)     | 6717 (4497)  | 8957 (4497)  | 6717 (4497)  | 8957 (4497)  | 9236 (4618)  | 9660 (4830)  | 14490 (4130) |
| Capacity (Theoretical) @ 6 lbs of Salt/CF of Resin  | 13500        | 18000        | 13500        | 18000        | 22500        | 36000        | 54000        |
| Capacity (Theoretical) @ 3 lbs of Salt/CF of Resin  | 6750         | 9000         | 6750         | 9000         | 11250        | 18000        | 27000        |
| Backwash Flow Rate (gpm)                            | 1.5          | 2            | 1.5          | 2            | 2            | 3            | 4            |
| Injector Size                                       | #00          | #00          | #00          | #00          | #00          | #00          | #0           |
| Brine Line Flow Control (gpm)                       | 0.125        | 0.125        | 0.125        | 0.125        | 0.25         | 0.25         | 0.5          |
| Slow Rinse Flow Rate (gpm) @ 40 psi inlet pressure  | 0.25         | 0.25         | 0.25         | 0.25         | 0.25         | 0.25         | 0.25         |
| Regeneration Time Steps @ 6 lbs salt/CF of Resin    | 6            | 6            | 6            | 6            | 6            | 6            | 6            |
| Brine Draw & Slow Rinse Time (Minutes)              | 25           | 33           | 25           | 33           | 41           | 60           | 60           |
| Backwash Time (Minutes)                             | 5            | 5            | 5            | 5            | 5            | 5            | 5            |
| Rapid Rinse Time (Minutes)                          | 5            | 5            | 5            | 5            | 5            | 5            | 5            |
| Brine Refill Time (Minutes)                         | 12           | 16           | 12           | 16           | 10           | 16           | 12           |
| Total Regen Time (6 lbs/CF) Minutes                 | 47           | 59           | 47           | 59           | 61           | 86           | 82           |
| Regeneration Time Steps @ 3 lbs salt/CF of Resin    | 3            | 3            | 3            | 3            | 3            | 3            | 3            |
| Brine Draw & Slow Rinse Time (Minutes)              | 19           | 25           | 19           | 25           | 31           | 50           | 60           |
| Backwash Time (Minutes)                             | 5            | 5            | 5            | 5            | 5            | 5            | 5            |
| Rapid Rinse Time (Minutes)                          | 5            | 5            | 5            | 5            | 5            | 5            | 5            |
| Brine Refill Time (Minutes)                         | 6            | 8            | 6            | 8            | 5            | 8            | 6            |
| Total Regen Time (3 lbs/CF) Minutes                 | 35           | 43           | 35           | 43           | 46           | 68           | 76           |
| Regeneration Time Steps @ 2 lbs salt/CF of Resin    | 2            | 2            | 2            | 2            | 2            | 2            | 2            |
| Brine Draw & Slow Rinse Time (Minutes)              | 17           | 23           | 17           | 23           | 29           | 46           | 60           |
| Backwash Time (Minutes)                             | 5            | 5            | 5            | 5            | 5            | 5            | 5            |
| Rapid Rinse Time (Minutes)                          | 5            | 5            | 5            | 5            | 5            | 5            | 5            |
| Brine Refill Time (Minutes)                         | 4            | 5            | 4            | 5            | 3            | 5            | 4            |
| Slow Rinse Flow Rate (gpm) (Minutes)                | 0.25         | 0.25         | 0.25         | 0.25         | 0.25         | 0.25         | 0.25         |
| Total Regen Time (2 lbs/CF) Minutes                 | 31           | 38           | 31           | 38           | 42           | 61           | 74           |
| Regen Water Consumed - 6 lbs salt/CF - Gallons      | 23           | 30           | 23           | 30           | 33           | 49           | 69           |
| Regen Water Consumed - 3 lbs salt/CF - Gallons      | 20           | 27           | 20           | 27           | 29           | 45           | 66           |
| Regen Water Consumed - 2 lbs salt/CF - Gallons      | 20           | 26           | 20           | 26           | 28           | 43           | 57           |
| Conv. Regen Water - 6 lbs salt/CF - Gal             | 47           | 57           | 47           | 57           | 58           | 79           | 109          |
| % Difference in Regen Water Saving                  | 51%          | 47%          | 51%          | 47%          | 43%          | 38%          | 37%          |

\* Manufacturer's internal testing based on NSF 44 Standard method

# Specification

|   |         |           |            | Capacity Grains  |                  |                  |                         |                          |                                      |                     |                       |     |
|---|---------|-----------|------------|------------------|------------------|------------------|-------------------------|--------------------------|--------------------------------------|---------------------|-----------------------|-----|
| Unit †<br>Item #  | Model # | Tank Size | Media (CF) | 10 lbs of        | 6 lbs of         | 3 lbs of         | Service Flow Rate (gpm) | Backwash Flow Rate (gpm) | Brine Tank Dimension (W X D X H) in. | Salt Capacity (lbs) | Shipping Weight (lbs) |     |
|   |         |           |            | Salt/CF of Resin | Salt/CF of Resin | Salt/CF of Resin |                         |                          |                                      |                     |                       |     |
| <b>Duro Cabinet Softeners</b>   |         |           |            |                  |                  |                  |                         |                          |                                      |                     |                       |     |
|  | 4621    | DC20SXT   | 9 x 35     | 0.75             | 21,400           | 16,200           | 11,600                  | 8                        | 1.5                                  | 14 x 22 x 42        | 250                   | 90  |
|   | 4622    | DC30SXT   | 10 x 35    | 1                | 30,000           | 23,000           | 16,000                  | 9                        | 2                                    | 14 x 22 x 42        | 240                   | 105 |
| <b>Duro Twin Tank Softeners</b>   |         |           |            |                  |                  |                  |                         |                          |                                      |                     |                       |     |
|   | 4623    | DT20SXT   | 9 x 35     | 0.75             | 21,400           | 16,200           | 11,600                  | 8                        | 1.5                                  | 18 X 35             | 224                   | 85  |
|   | 4624    | DT30SXT   | 10 x 35    | 1                | 30,000           | 23,000           | 16,000                  | 9                        | 2                                    | 18 X 35             | 224                   | 100 |
|   | 4625    | DT40SXT   | 10 X 47    | 1.25             | 37,500           | 28,750           | 20,000                  | 9                        | 2                                    | 21 X 36             | 308                   | 140 |
|   | 4626    | DT40SXT   | 12 X 52    | 2                | 60,000           | 46,000           | 32,000                  | 12                       | 3                                    | 21 X 36             | 308                   | 190 |
|   | 4627    | DT90SXT   | 14 X 65    | 3                | 90,000           | 69,000           | 48,000                  | 15                       | 4                                    | 21 X 36             | 308                   | 230 |

NC indicate cabinet model, NT indicate twin tank model  
 Working Temperature = 34-110°F (1-43°C)  
 (Do not subject the unit to freezing temperatures)  
 Working Pressure = 20-125 PSIG (137-861 kPa)  
 Voltage = 120V / 60 Hz  
 Pipe Size = 3/4"

- At the stated service flow rates, the pressure drop through these devices will not exceed 15 psig.
  - Changing salt settings from factory setting may require changing injector sizes to achieve stated capacities
  - The manufacturer reserves the right to make product improvements which may deviate from the specifications and descriptions stated herein, without obligation to change previously manufactured products or to note the change.
  - Do not use water that is microbiologically unsafe without adequate disinfection before or after the system.
  - Iron content must not exceed 1 ppm. Beyond 1 ppm an iron softener must be used. Periodic media cleaning is required by Pro-Res Cleaner is iron level exceed 0.3 ppm
- † USA customers will need to add "-4" to the item numbers for ordering.

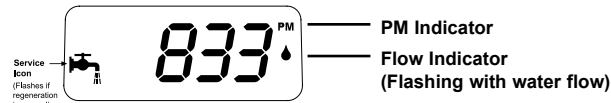
## How a Duro Water Softener Works

Water softeners remove hardness in the water by exchanging particles in the water, or ions. They remove hard ions the calcium and magnesium in the water by trading it for sodium ions producing soft water. Unlike the calcium and magnesium, sodium stays dissolved in water and does not form a scale. Sodium also does not interfere with the cleaning action of soaps. The sodium is released by a charged resin contained in the softener, this resin also traps the calcium and magnesium ions. Eventually this resin releases all of its sodium and has filled up with other ions, so it then must be regenerated. Regeneration is accomplished by washing the resin with a salt saturated brine solution that removes the calcium and magnesium while replenishing the sodium. This is why the softener requires a brine tank and salt.

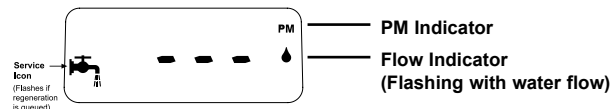
The water softener can run for days before running out of sodium, and when it does, the sodium is replenished in only a matter of a few hours.

In normal operation, the Time of Day display will alternate being viewed with the Volume Remaining display. This display will be in gallons or liters. As treated water is used, the Volume Remaining display will count down from a maximum value to zero or (---). Once this occurs, a regeneration cycle will be initiated at the Set Regeneration Time. Water flow through the valve is indicated by the Flow Indicator that will flash in direct relationship to flow rate.

**Example** 833 Gallons of Treated Water Remaining



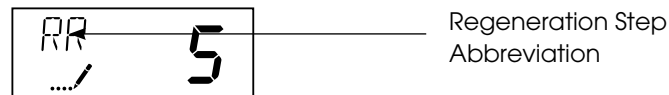
0 Gallons of Treated Water Remaining




## Timer Behavior During Regeneration

In regeneration, the control will display a special regeneration display. In this display, the control will show the current regeneration step abbreviation the valve is advancing to or has reached and the time remaining in that step. The step abbreviation displayed will flash until the valve has completed driving into this regeneration step position. Once all regeneration steps have been completed, the valve will return to Service and resume normal operation.

**Example** Less than 6 minutes remaining in Regeneration Step Rapid Rinse

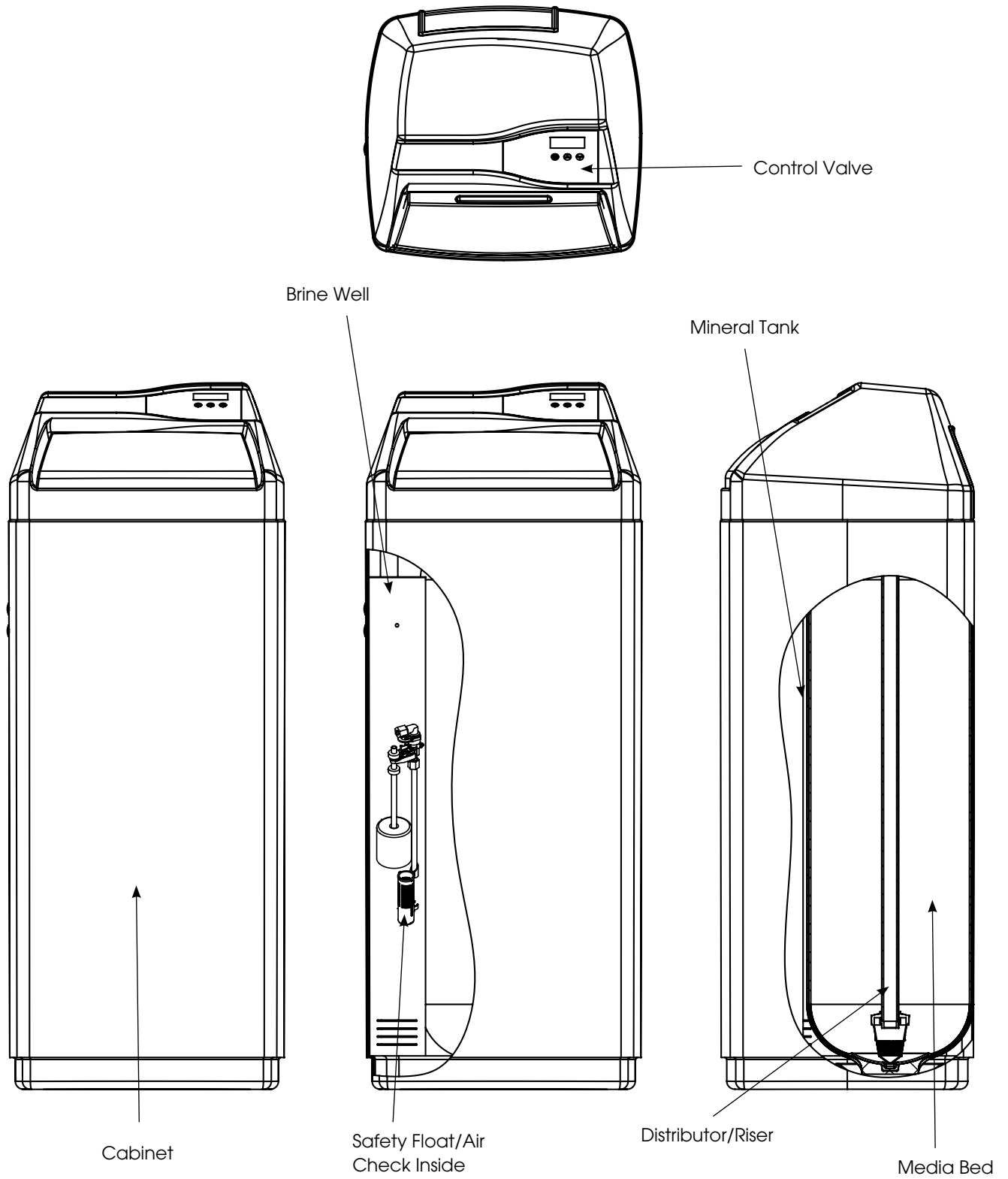


Pushing the  during a regeneration cycle will immediately advance the valve to the next cycle step position and resume normal step timing.

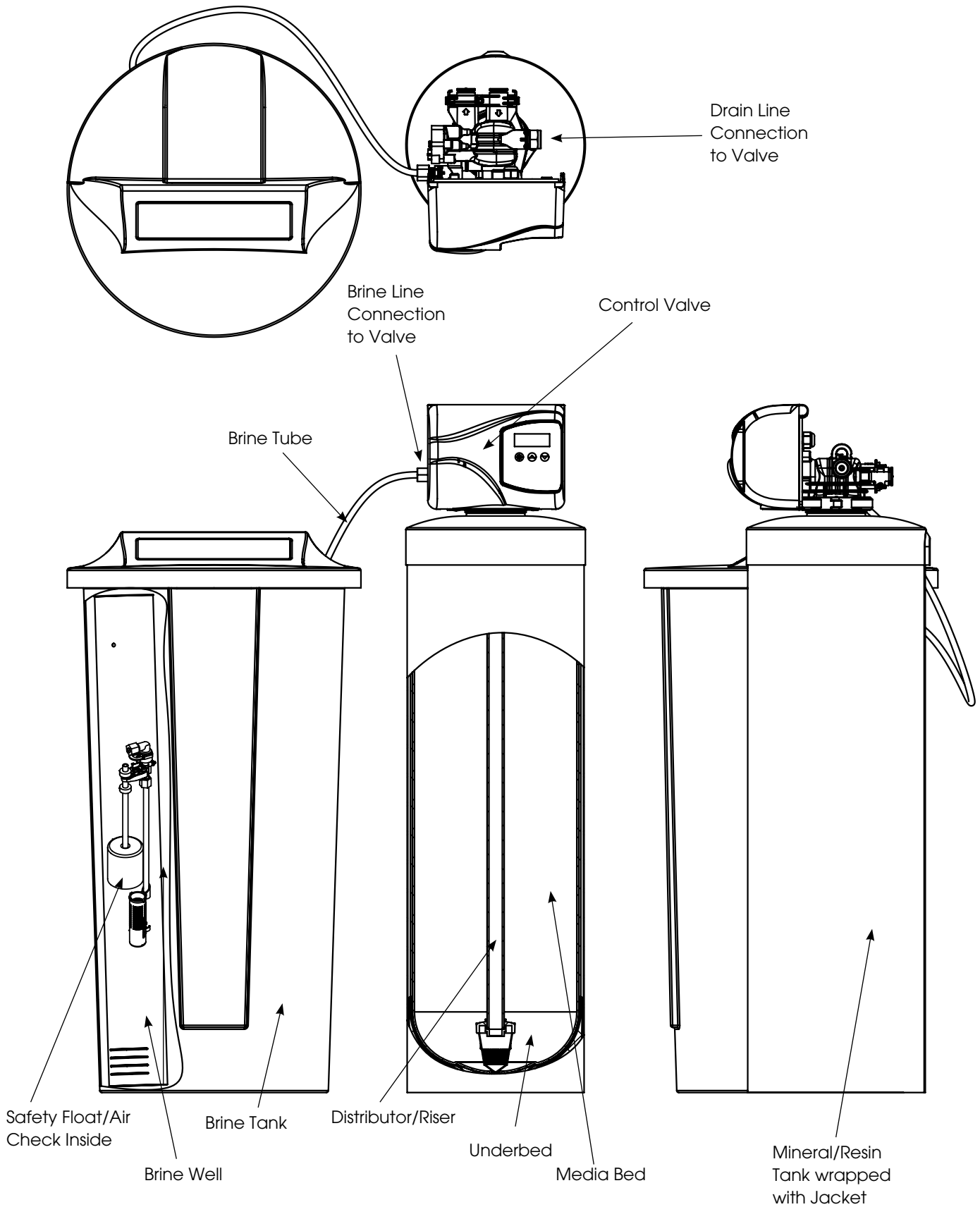
Please see the control valve manual for different regeneration step abbreviations.

# Familiarize yourself with the unit and components

## Cabinet Model




# Twin Tank Model



# Installation Instructions

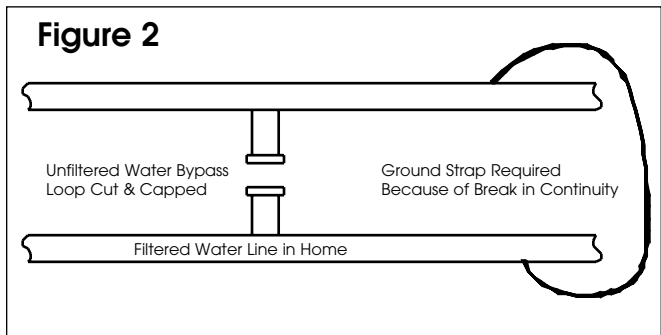
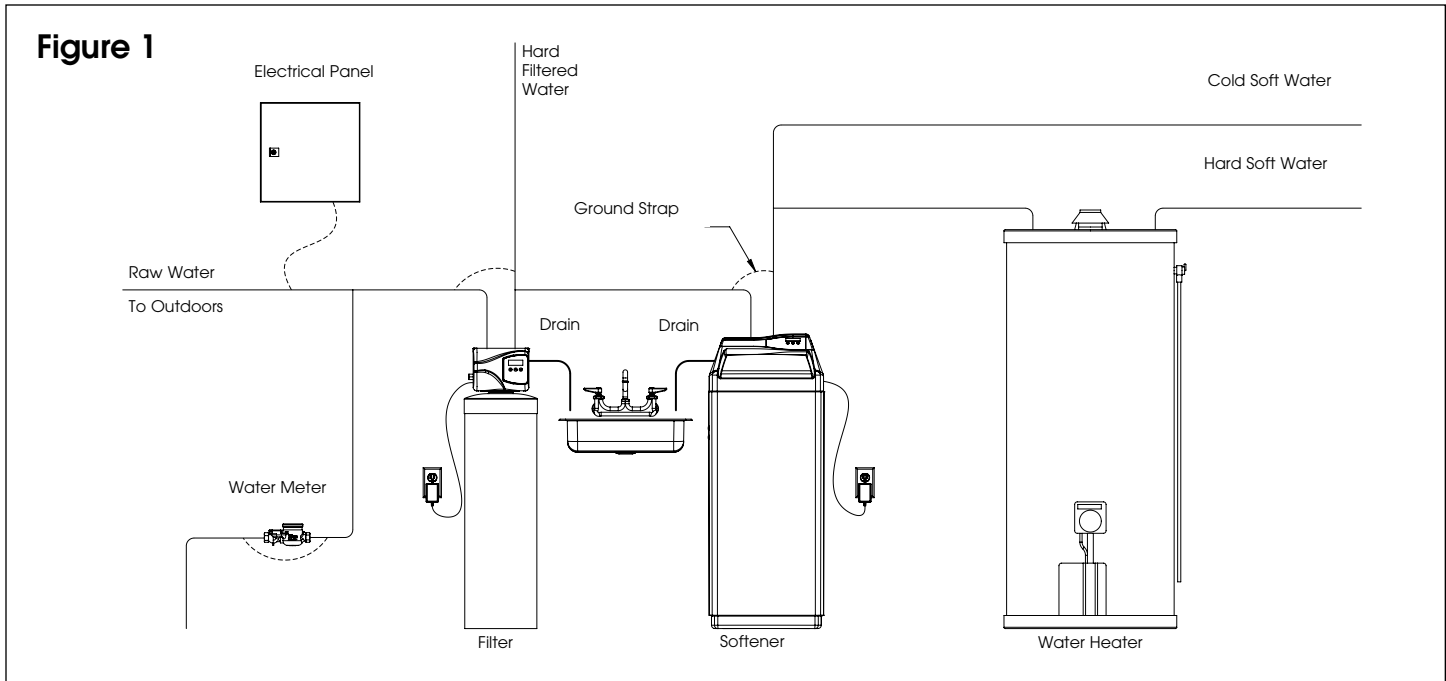
Check your water hardness. Use test strips (Part # 2793828-20) to get an estimation of water hardness and contact your local distributor to use WaterGroup laboratory for complete water analysis free of cost and no obligation to you.

 All government codes and regulations governing the installation of these devices must be observed.

 If the ground from the electrical panel or breaker box to the water meter or underground copper pipe is tied to the copper water lines and these lines are cut during installation of the Noryl bypass valve and/or poly pipe, an approved grounding strap must be used between the two lines that have been cut in order to maintain continuity. The length of the grounding strap will depend upon the number of units being installed and/or the amount of copper pipe being replaced with plastic pipe. See Figure 1.

In all cases where metal pipe was originally used and is later interrupted by poly pipe or the Noryl bypass valve as in Figure 1 or by physical separation as in Figure 2, an approved ground clamp with no less than #6 copper conductor must be used for continuity, to maintain proper metallic pipe bonding.

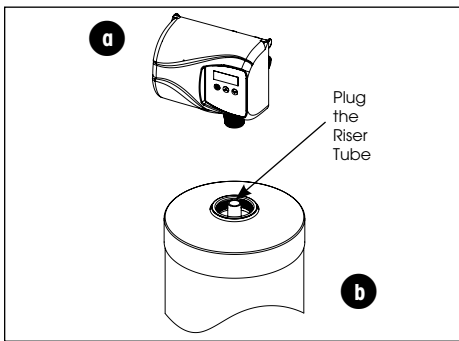
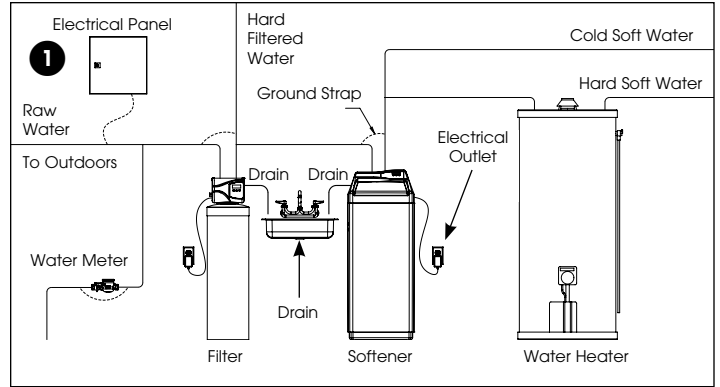
**NOTE:** Check your local electrical code for the correct clamp.



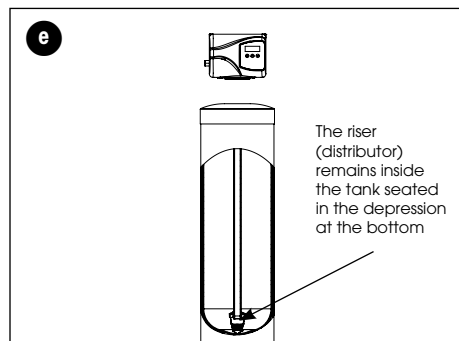


# Preparations

- Determine the best location** for your water softener, bearing in mind the location of your water supply lines, drain line and 120 volt AC electrical outlet. Subjecting the softener to freezing or temperatures above 43°C (110°F) will void the warranty.
- Media Installation (When Necessary).** Models including and higher than 1.5 CF of media are shipped with separate media in pails or boxes. Models lower than 1.5 CF of media come loaded with media and this step can be skipped for new installation.



a) Remove the valve from the mineral tank.

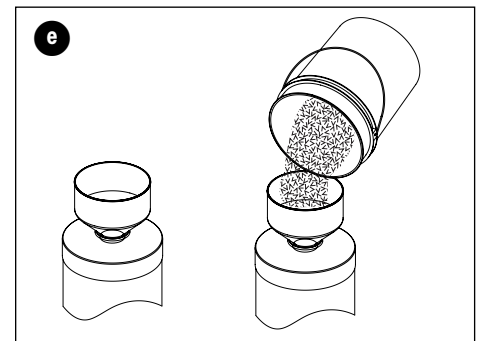


b) Temporarily plug the open end of the riser tube to ensure that no resin or gravel falls down into the distribution.

The riser (distributor) remains inside the tank seated in the depression at the bottom

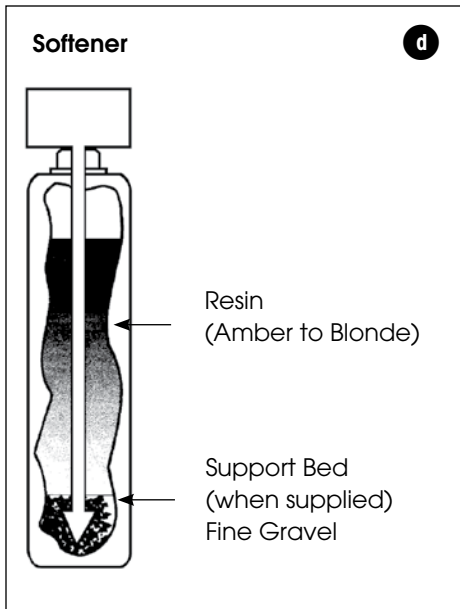
Plug tube with a tape.

Remove after media is loaded



Fill support bed first (if supplied)

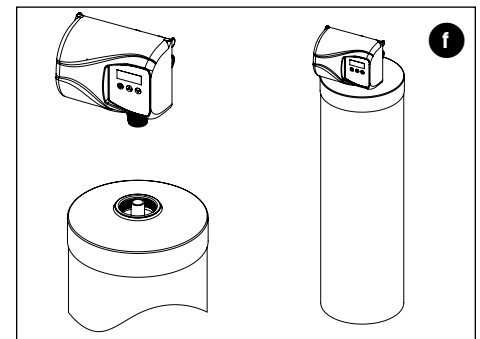
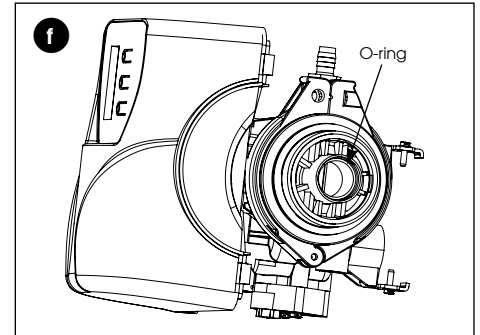
The media will not always spill down inside the tank and may need to be swept inside.



- c. Fill mineral tank one quarter full of water to protect distribution during gravel installation.
- d. Place the media into the tank in the order indicated above. Slowly and carefully add the gravel support bed and the softener or filtration media leveling each layer as it is placed into the tank.

- e. Fill support bed (if supplied) first. During the filling process, ensure the distributor tube stays on the bottom of the tank, reasonably centered. Remove the tape from the distributor once media is loaded. Whenever possible, fill the tank outdoors to avoid problems with dust. If filling indoors, a dust mask should be worn.

The large funnel (sold separately part # 43000) makes filling the tank easier and neater. (Or an empty 1 gallon or 4 liter container with the bottom cut out makes a good funnel.)



- f. Unplug the riser tube, carefully position the valve over it and turn the valve into the threads in the fiberglass tank, tightening securely into tank. Note: Ensure that the internal O-ring in the valve fits securely over the riser tube. Silicone grease (part # 92360) or other food grade lubricant may be applied to the O-ring to ease installation of the riser tube.



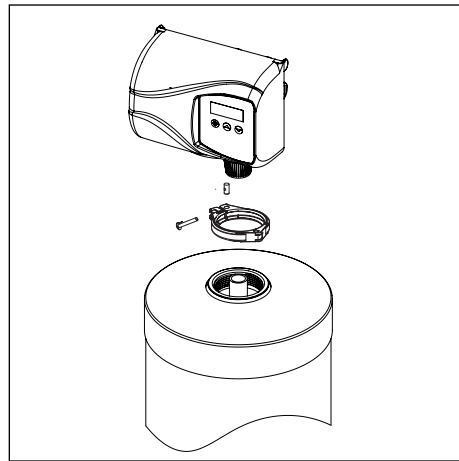
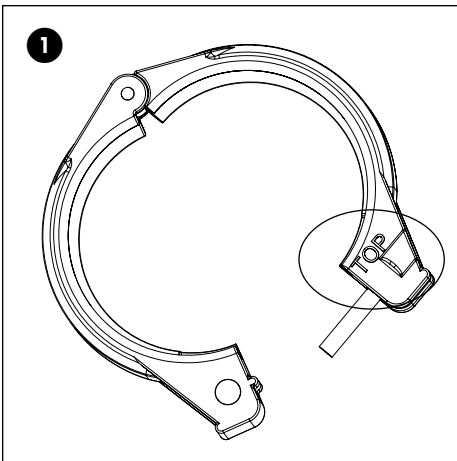
**DO NOT use petroleum based lubricants as they will cause swelling of O-ring seals.**

The softener or filter is now charged with softening resin.


- g. It is recommended that the softener or filter tank now be completely filled with water (SLOWLY) to soak the resin or filtration media before startup. This will allow the media to absorb water as well as help displace any trapped air. This will reduce the chance of backwashing resin or filter media out of the tank during the initial backwash on startup.
3. Outside faucets used to water lawns and gardens should not supply softened water. A new water line is often required to be connected to supply hard water to the inlet of the water softener and to the outside faucets.

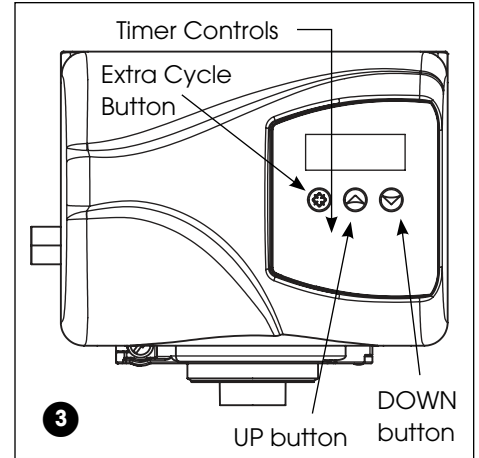
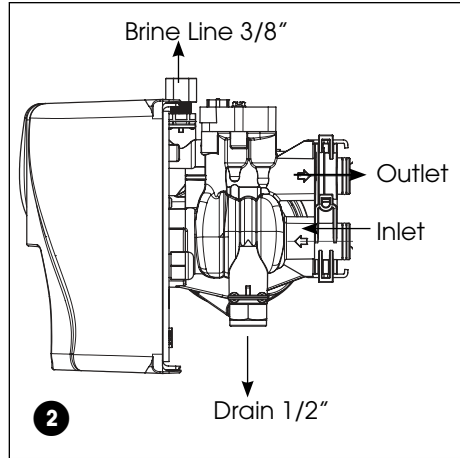
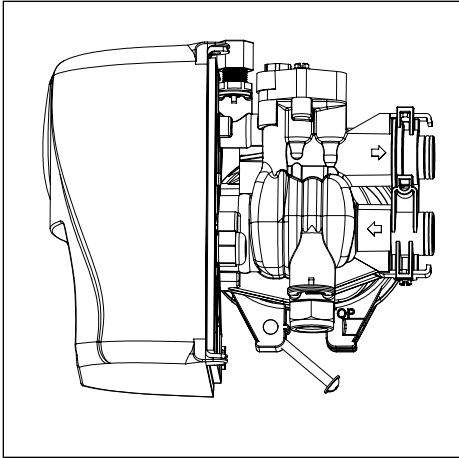
Cut the water line between where it enters the house and before any lines that branch off to feed the hot water heater or other fixtures in the house and as near the desired location of the water softener as possible. Install a tee fitting on the feed end of the cut pipe, and an elbow fitting on the other end. Install piping from the tee to the inlet of the water softener and from the elbow to the outlet of the softener. To sever the water lines which branch off to feed any outside faucets, cut the branch lines approximately two inches from the fitting on the main water line. Install an elbow on the end of the pipe nearest the outside faucet and a cap on the end connected to the existing water line. Install piping from the tee installed on the inlet line to the water softener to the elbow installed on the pipe to the outside faucet. Following this procedure will result in all lines in the house, with the exception of the outside faucets, but including the water heater and therefore the hot water lines, being supplied with soft water.

## Installation Steps:



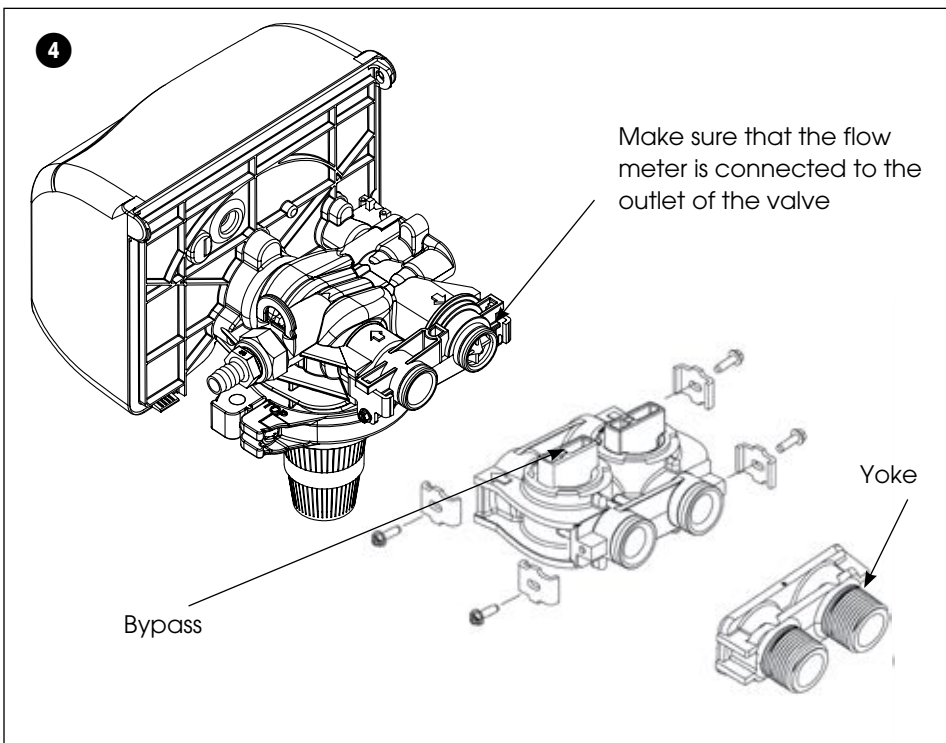
1. Clamp Ring – The clamp ring connects the control valve to the tank and provide an easy way to disconnect tank during control valve servicing. Make sure that the clamp ring screw is tightened

 The "Clamp Ring" should secure the valve with the top of the flange facing up. Please note "top" on the clamp ring.




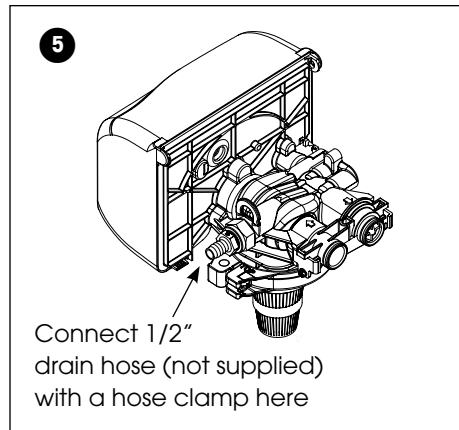
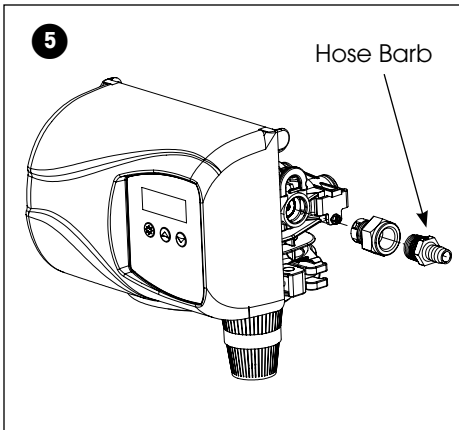
2. Familiarize yourself with the location of the inlet, outlet and drain on the control valve. Be very careful not to get the controls wet.

3. Familiarize yourself with the buttons on the timer control.



4. Attach the bypass valve to the control valve (and yoke if plastic bypass is used). Connect the inlet and outlet of the water softener to the plumbing in the house. The control valve must not be submitted to temperatures above 43°C (110°F). When sweat fittings are used, to avoid damaging the control valve, solder the threaded copper adapters to the copper pipe and then, using Teflon tape, screw the assembly into the bypass valve.

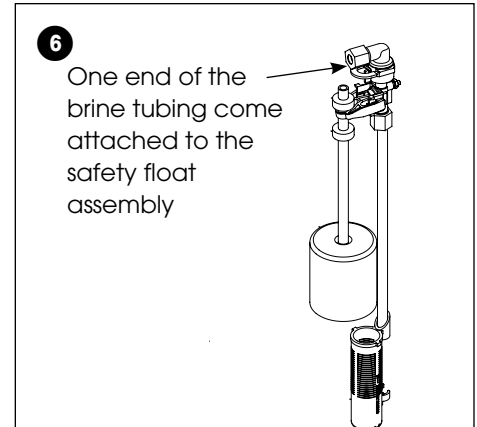
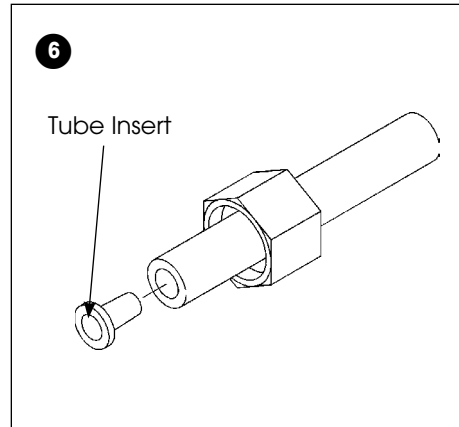
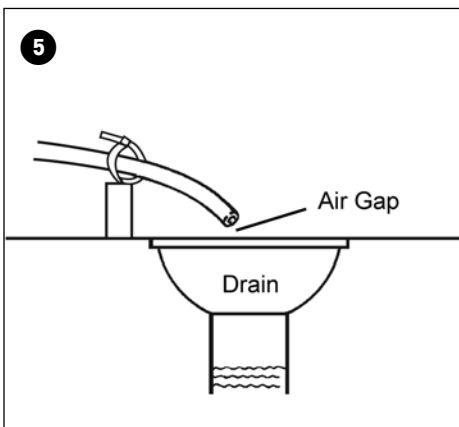
 Do not use pipe thread compound as it may attack the material in the valve body



5. Drain Line Connection: Using teflon tape, screw the 1/2" hose barb into the drain port in the valve. Attach 1/2" drain hose to the hose barb and tighten securely with a hose clamp. Run the drain line to a floor drain or a laundry drain. Complete any necessary plumbing.

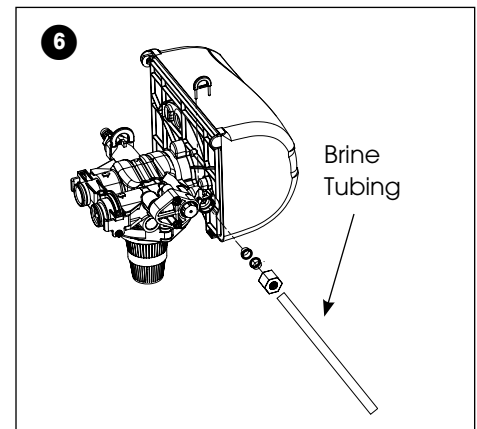
**! Waste connections or drain outlet shall be designed and constructed to provide for connection to the sanitary waste system through an air-gap of 2 pipe diameters or 1 inch (22 mm) whichever is larger.**

**! Never insert drain line directly into a drain, sewer line, or trap. Always allow an air gap between the drain line and the wastewater to prevent the possibility of sewage being back-siphoned into the conditioner.**

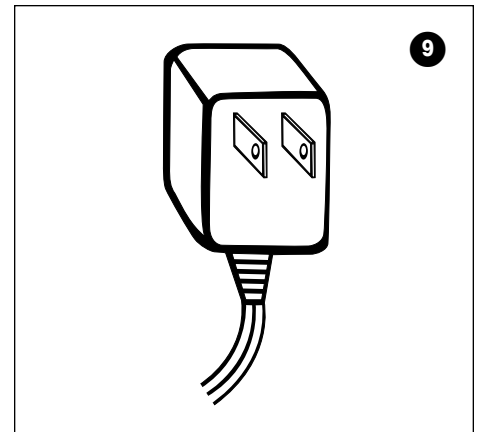
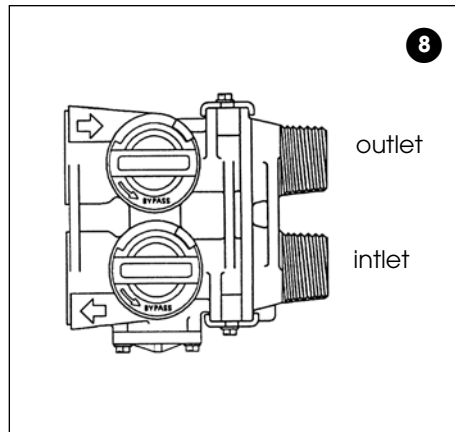
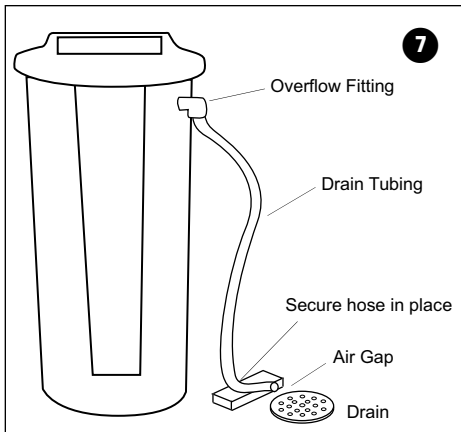


6. The brine line is connected to the safety float assembly of the brine tank. Pull the 3/8" brine line through the hole in the back of the brine tank. Connect the brine line to the fitting on the side of the valve using the nut and ferrule. Tighten snugly. Remove the nut from the brine line of the valve and push the other end of the brine tube inside it. Make sure that the brass insert is snugged inside the brine tubing. The brine tubing should pass through both plastic inserts of the black nut.

7. Overflow Connection (Optional): In the event of a malfunction, the brine TANK OVERFLOW will direct "overflow" to the drain instead of spilling on the floor. This fitting should be installed at the side of the cabinet or brine tank. To connect the overflow line, drill the hole on the side of the tank, 2 to 3 inches below from the top of the brine tank. Insert overflow fitting (sold separately part # 33006) into tank and tighten with plastic thumb nut and gasket as shown. Attach length of 1/2-inch (1.3-cm) I.D. tubing (not supplied) to fitting and run to drain. Do not elevate overflow line higher than overflow fitting.

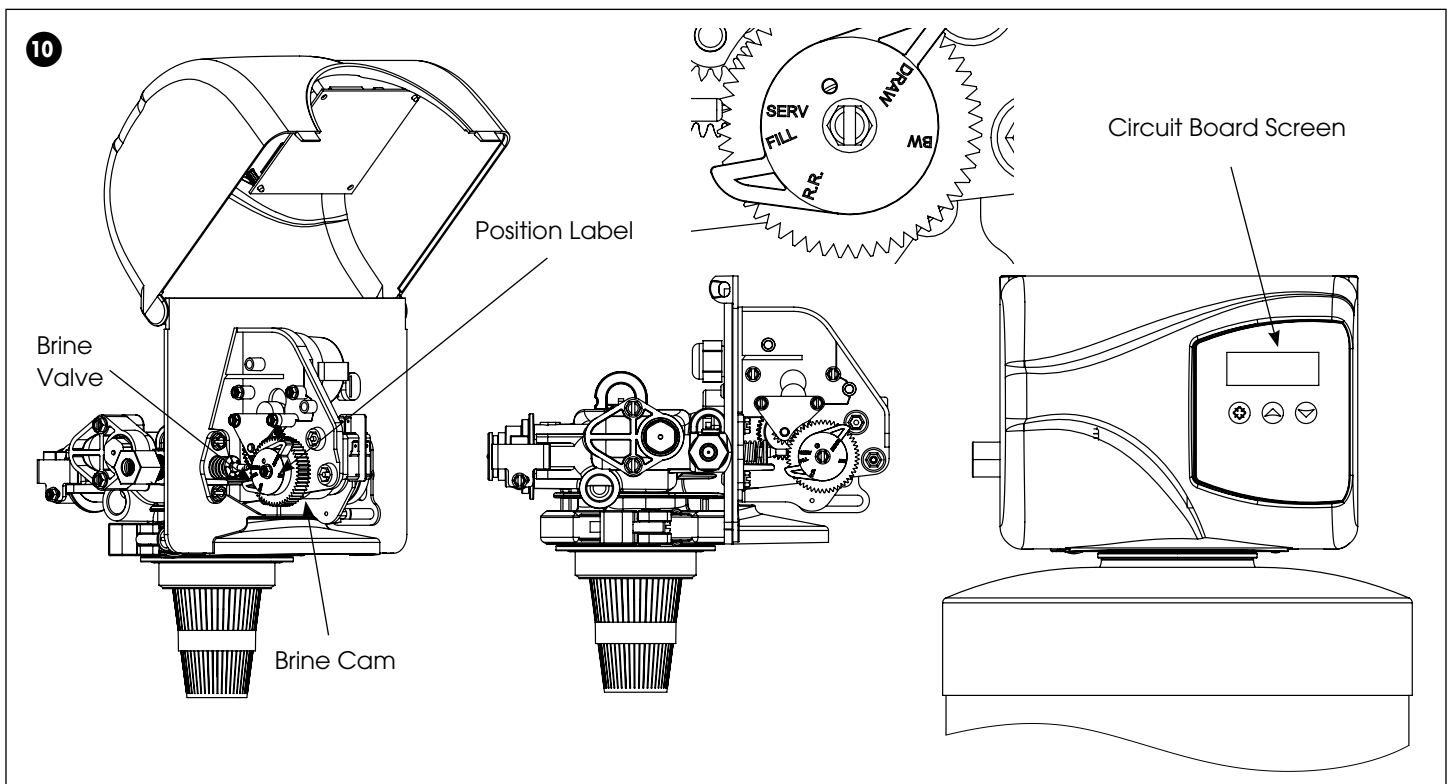


Do not tie into drain line of control unit. Overflow line must be a direct, separate line from overflow fitting to drain, sewer or tub. Allow an air gap as per drain line instructions



8. Make sure the bypass valve is in the service position.

9. Plug the 24-volt transformer into a 120 VAC 60 Hz outlet.



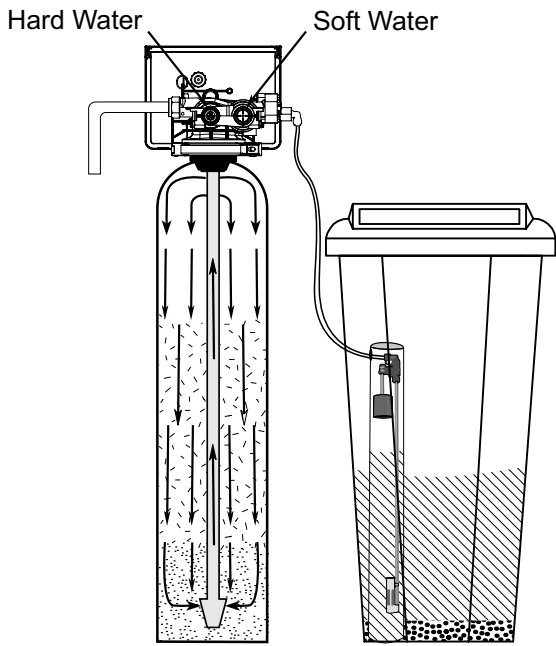
10. This valve has four positions: 1) Brine/Rinse 2) Backwash 3) Rapid Rinse and 4) Brine Refill. When the valve is in the Service position (⊗) must be pressed and held for 5 seconds before it activates. Press and hold the ⊗ pic for 5 seconds to advance the valve into the "1" Brine/Rinse position. Press once more to advance to the "2" position.

The valve position during regeneration and servicing can be checked in the circuit board screen as well as the position label on the cam.

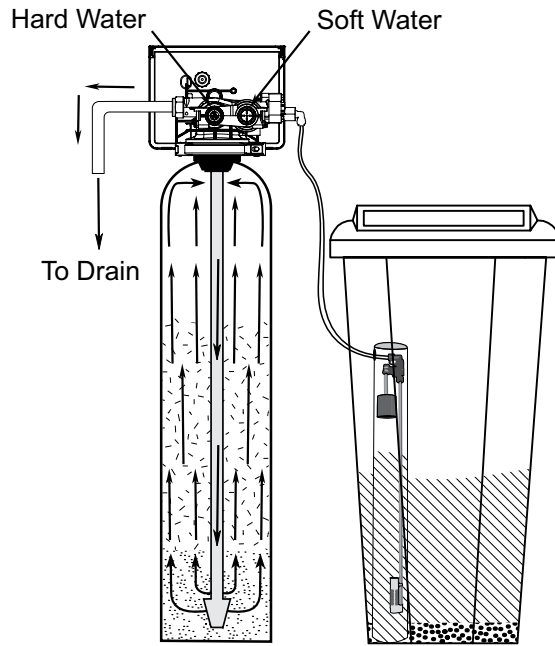
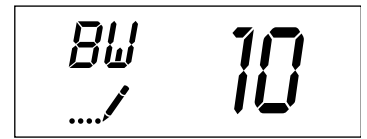
| Cycle Step | Abbreviation |
|------------|--------------|
| BD         | Brine Draw   |
| BW         | Backwash     |
| RR         | Rapid Rinse  |
| BF         | Brine Refill |
| SV         | Service      |

# Water Conditioner Flow Diagrams

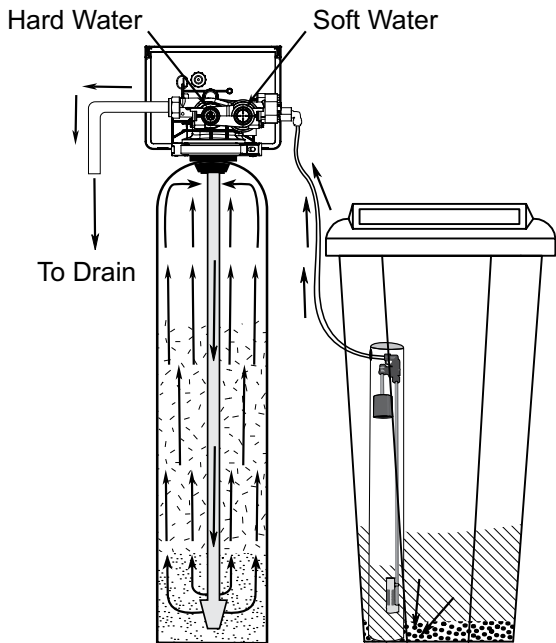
**Service Position**



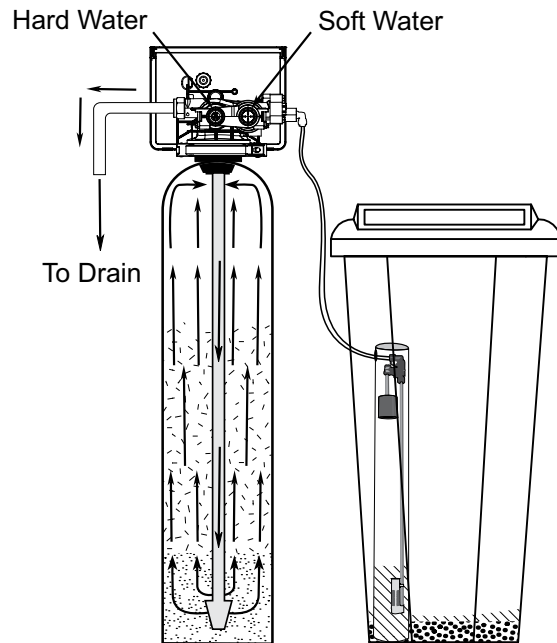
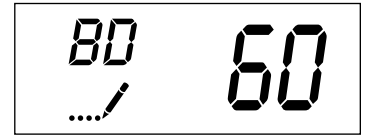
**Backwash Position**



**Brine Rinse Position**



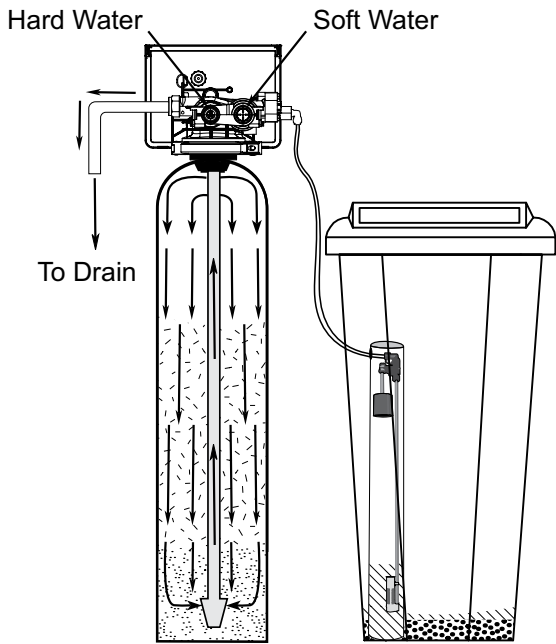
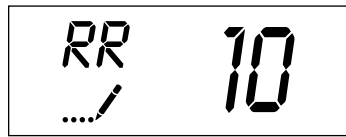
**Slow Rinse Position**



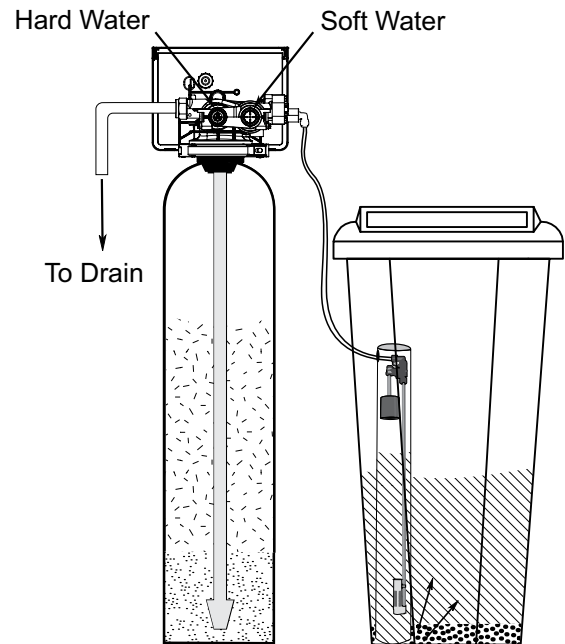
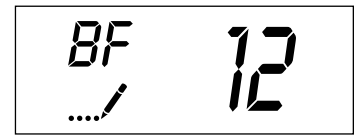
11. Press the extra cycle button to advance the valve to the "2" Backwash position. Slowly turn on the water supply and allow the unit to backwash until the air purges out of the tank and clears the system.

12. Press once more to advance to the "3" Rapid Rinse position and allow water to run to drain for 2 Minutes.


### Rapid Rinse Position



### Brine Refill Position





13. Press once more to advance to the "4" Brine refill position. Wait until the water level reaches 6" in the brine tank. Water can be added to the tank to speed up the filling but the valve should be in the Brine Refill position for a minimum of two minutes to purge the air out of the injector set.

14. Press  to advance the valve from the Brine Fill position through service to the "1" position Brine/Rinse position. Verify that water is being drawn from the tank. If not, repeat step 9.

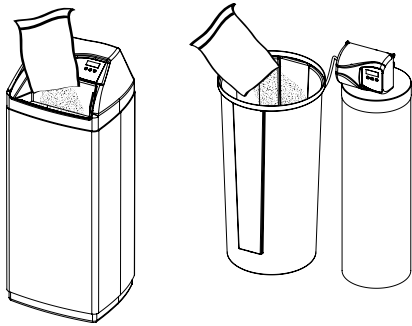
15. Press  button to advance the valve to the "2" Backwash position

16. Press  to advance the valve to the "3" Rapid Rinse position

17. Press  to advance the valve to the "4" Brine Fill position until there is 6" of water in the brine tank.

Press  to advance the valve back into the service position indicated by the  in upper left corner of the display.





18. Put 40 kgs of crystal water softener salt in the brine tank. The unit will automatically fill the water to the correct level when it regenerates.



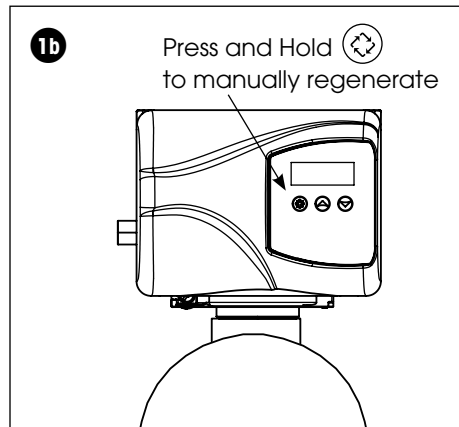
19. Set time of the day in the control valve and program the user section of the control. Refer to control valve programming section in this manual.

**Optional Sanitization Procedure:** We recommend that all new water conditioners be disinfected as part of the startup.


## Water Softener Sanitization



1a. Pour entire packet of Sani-System Liquid Concentrate – Part # 50032 (24 packets) into the brine well. If no brine well is present, pour entire packet into bottom of brine tank when salt is nearly empty.



1b. Manually regenerate the softener according to the manufacturer's specifications.

Sanitization can also be achieved by the application of chlorine in the regeneration cycle of the conditioner. A liquid solution of 5.25% sodium hypochlorite (commonly referred to as household bleach) is recommended as a suitable disinfectant. Use only unscented products. For every cubic foot of resin in the softener, pour approximately two (2) tablespoons of sodium hypochlorite into the brine well tube. The brine tank refill step of regeneration should add the correct amount of water to the brine tank. If not, the water can be added manually now. Press and hold the  to begin a manual regeneration. Allow softener to complete the Brine/Rinse cycle, then let the manual regeneration continue until the brine tank is refilled again with the correct amount of water.

**NOTE: ALL STATE AND LOCAL GOVERNMENT CODES GOVERNING INSTALLATION OF THESE DEVICES MUST BE OBSERVED.**

# Programming Instructions

## Set Time of Day

Press and hold or buttons until display reads TD



Adjust the displayed time with or buttons. Press to resume normal operation

## Queuing a Regeneration

1. Press the button. The service icon will flash to indicate that a regeneration is queued.
2. To cancel a queued regeneration, press the button.

## Regenerating Immediately

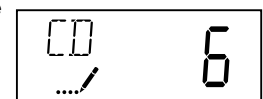
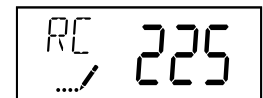
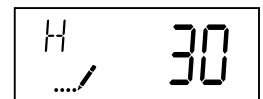
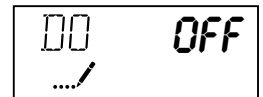
Press and hold the button for five seconds.

| User Programming Mode Options |                     |   |
|-------------------------------|---------------------|---|
| Abbreviation                  | Parameter           | Description   |
| DO                            | Day Override        | The timer's day override setting<br><b>THIS IS AN OPTION ONLY. PLEASE DO NOT ADJUST BEFORE CONSULTING AN AUTHORIZED DEALER.</b> |
| RT                            | Regeneration Time   | The time of day that the system will regenerate (meter delayed, timeclock, and day-of-week systems)                             |
| H                             | Feed Water Hardness | The hardness of the inlet water - used to calculate system capacity for metered systems   |
| RC                            | Reserve Capacity    | The fixed reserve capacity  |
| CD                            | Current Day         | The current day of week   |

## User Programming Mode Steps

**Note:** Use and Down button to adjust values for parameters

1. Press the and buttons for five seconds while in service, and the time of day is NOT set to 12:01 PM.
2. Use this display to adjust the Day Override. Adjust this to OFF parameter for softeners.
3. Press the button. Use this display to adjust the Regeneration Time.
4. Press the button. Use this display to adjust the Feed Water Hardness in grains per gallon (gpg).



### Hardness Compensation

1 mg/l of iron = 4 gpg

1 mg/l of manganese = 8 gpg

Maximum iron is not to exceed 1.5 mg/l total iron

Recommend the addition of a Res-up feeder when the total iron exceeds 0.5 mg/l

5. Press the button. Use this display to adjust the Fixed Reserve Capacity. This option setting is identified by "RC" in the upper left-hand corner of the screen. 75 gallons X # of people in the house = RC
6. Press the button. Use this display to set the Current Day of the Week. This option setting is identified by "CD" in the upper left hand corner of the screen. This option is only available after the Day of the Week control is set to 'ON' in the Master Programming. Refer to the valve manual for details.
7. Press the button to end User Programming Mode.

In the second level mode, the control valve has been programmed as per the following main parameters related to regeneration. For more information on master programming manual, read control valve manual part # 54802

The valve has been pre-programmed with factory settings as shown in the following chart:

| Regeneration Cycle Step Programming |            |                 |
|-------------------------------------|------------|-----------------|
| 1. Brine Rinse                      | 60 minutes |                 |
| 2. Backwash                         | 10 minutes |                 |
| 3. Rapid Rinse                      | 10 minutes |                 |
| 4. Brine Refill                     | 12 minutes | DC20SXT/DT20SXT |
|                                     | 16 minutes | DC30SXT/DT30SXT |
|                                     | 10 minutes | DT40SXT         |
|                                     | 16 minutes | DT60SXT         |
|                                     | 12 minutes | DT90SXT         |

# Diagnostic Programming Mode

| Diagnostic Programming Mode Options |                  |  |
|-------------------------------------|------------------|--|
| Abbreviation                        | Parameter        | Description  |
| FR                                  | Flow Rate        | Displays the current outlet flow rate  |
| PF                                  | Peak Flow Rate   | Displays the highest flow rate measured since the last regeneration  |
| HR                                  | Hours in Service | Displays the total hours that the unit has been in service   |
| VU                                  | Volume Used      | Displays the total volume of water treated by the unit   |
| RC                                  | Reserve Capacity | Displays the system's reserve capacity calculated from the system capacity, feed water hardness, and safety factor |
| SV                                  | Software Version | Displays the software version installed on the controller  |

**NOTES:**

Some items may not be shown depending on timer configuration.  
 The timer will exit Diagnostic Mode after 60 seconds if no buttons are pressed.  
 Press the Extra Cycle button to exit Diagnostic Mode at any time.

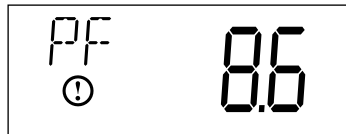
**Diagnostic Programming Mode Steps**

1. Press the and buttons for five seconds while in service.

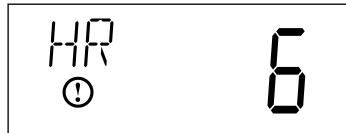
2. Use this display to view the current Flow Rate. This option setting is identified by "FR" in the upper left hand corner of the screen.



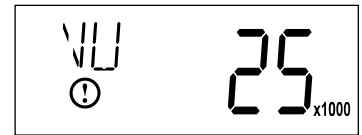
3. Press . Use this display to view the Peak Flow Rate since the last regeneration cycle. This option setting is identified by "PF" in the upper left hand corner of the screen.



4. Press . Use this display to view the Hours in Service since the last regeneration cycle. This option setting is identified by "HR" in the upper left hand corner of the screen.



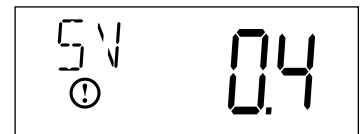
5. Press . Use this display to view the Volume Used since the last regeneration cycle. This option setting is identified by "VU" in the upper left hand corner of the screen.



6. Press . Use this display to view the Reserve Capacity. This option setting is identified by "RC" in the upper left hand corner of the screen.



7. Press . Use this display to view the Software Version. This option setting is identified by "SV" in the upper left hand corner of the screen.



8. Press to end Diagnostic Programming Mode.

# Controller Behavior

## Control Operation During Programming

The control will only enter the Program Mode with the valve in Service. While in the Program Mode, the control will continue to operate normally, monitoring water usage and keeping all displays up to date. Control programming is stored in memory permanently, eliminating the need for battery back-up power.

## Meter Immediate Control

A meter immediate control measures water usage and regenerates the system as soon as the calculated system capacity is depleted. The control calculates the system capacity by dividing the unit capacity (typically expressed in grains/unit volume) by the feedwater hardness and subtracting the reserve. Meter Immediate systems generally do not use a reserve volume. However, in twin tank systems with soft-water regeneration, the reserve capacity should be set to the volume of water used during regeneration to prevent hard water break-through. A Meter Immediate control will also start a regeneration cycle at the programmed regeneration time if a number of days equal to the regeneration day override pass before water usage depletes the calculated system capacity.

## Meter Delayed Control

A Meter Delayed Control measures water usage and regenerates the system at the programmed regeneration time after the calculated system capacity is depleted. As with Meter Immediate systems, the control calculates the system capacity by dividing the unit capacity by the feedwater hardness and subtracting the reserve. The reserve should be set to insure that the system delivers treated water between the time the system capacity is depleted and the actual regeneration time. A Meter Delayed control will also start a regeneration cycle at the programmed regeneration time if a number of days equal to the regeneration day override pass before water usage depletes the calculated system capacity.

## Time Clock Delayed Control

A Time Clock Delayed Control regenerates the system on a timed interval. The control will initiate a regeneration cycle at the programmed regeneration time when the number of days since the last regeneration equals the regeneration day override value.

## Day of the Week Control

This control regenerates the system on a weekly schedule. The schedule is defined in Master Programming by setting each day to either "off" or "on." The control will initiate a regeneration cycle on days that have been set to "on" at the specified regeneration time.

## Control Operation During a Power Failure

The SXT includes integral power backup. In the event of power failure, the control shifts into a power-saving mode. The control stops monitoring water usage, and the display and motor shut down, but it continues to keep track of the time and day for a minimum of 48 hours.

The system configuration settings are stored in a non-volatile memory and are stored indefinitely with or without line power. The Time of Day flashes when there has been a power failure. Press any button to stop the Time of Day from flashing.

If power fails while the unit is in regeneration, the control will save the current valve position before it shuts down. When power is restored, the control will resume the regeneration cycle from the point where power failed. Note that if power fails during a regeneration cycle, the valve will remain in its current position until power is restored. The valve system should include all required safety components to prevent overflows resulting from a power failure during regeneration.

The control will not start a new regeneration cycle without line power. If the valve misses a scheduled regeneration due to a power failure, it will queue a regeneration. Once power is restored, the control will initiate a regeneration cycle the next time that the Time of Day equals the programmed regeneration time. Typically, this means that the valve will regenerate one day after it was originally scheduled. If the treated water output is important and power interruptions are expected, the system should be setup with a sufficient reserve capacity to compensate for regeneration delays.

# During Regeneration

## Automatic Bypass

The regeneration cycle lasts approximately 2 hours, after which soft water service will be restored. During regeneration, hard water is automatically bypassed for use in the household. Hot water should be used as little as possible during this time to prevent hard water from filling the water heater.

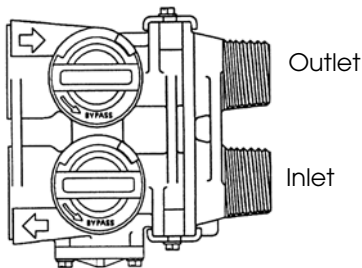
**IMPORTANT: This is why the automatic regeneration is set for sometime during the night and manual regenerations should be performed when little or no water will be used in the household.**

## New Sounds

You may notice new sounds as your water softener operates. The regeneration cycle lasts approximately 2-1/2 hours. During this time, you may hear water running intermittently to the drain.

# Water Bypass

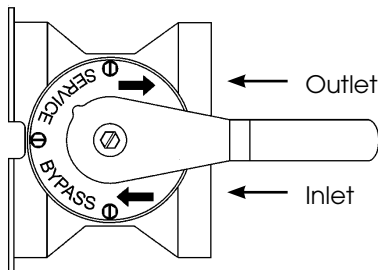
Figure 5A



## Manual Bypass (Figure 5A)

In case of an emergency such as an overflowing brine tank, you can isolate your water softener from the water supply using the bypass valve located at the back of the control. In normal operation the bypass is open with the ON/OFF knobs in line with the INLET and OUTLET pipes. To isolate the softener, simply rotate the knobs clockwise (as indicated by the word BYPASS and arrow) until they lock. You can use your water related fixtures and appliances as the water supply is bypassing the softener. However, the water you use will be hard. To resume soft water service, open the bypass valve by rotating the knobs counter-clockwise.

Figure 5B



## Stainless Steel Bypass (Figure 5B)

In normal operation the bypass lever is aligned with the inlet/outlet with the pointer on SERVICE. To isolate the softener or filter, rotate lever counter clockwise until it stops and pointer indicates unit is in bypass.

You can use your water related fixtures and appliances as the water supply is bypassing the softener and filter. However, the water you use will be hard or untreated. To resume treated water service, open the bypass valve by reversing the rotation of the lever.

# Maintenance Instructions

## Checking the Salt Level

Check the salt level monthly. Remove the lid from the cabinet or brine tank, make sure salt level is always above the brine level

**NOTE:** You should not be able to see water

## Adding Salt

Use only clean salt labeled for water conditioner use, such as crystal, pellet, nugget, button or solar.

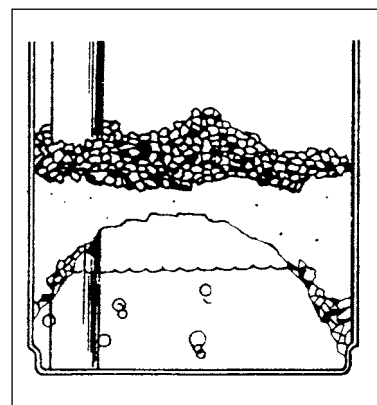
The use of rock salt is discouraged because it contains insoluble silt and sand which build up in the brine tank and can cause problems with the system's operation.

Add the salt directly to the tank, filling no higher than the top of the brine well.

## Bridging

Humidity or the wrong type of salt may create a cavity between the water and the salt. This action, known as "bridging", prevents the brine solution from being made, leading to your water supply being hard.

If you suspect salt bridging, carefully pound on the outside of the plastic brine tank or pour some warm water over the salt to break up the bridge. This should always be followed up by allowing the unit to use up any remaining salt and then thoroughly cleaning out the brine tank. Allow four hours to produce a brine solution, then manually regenerate the softener.



**CAUTION!** Liquid brine will irritate eyes, skin and open wounds - gently wash exposed area with fresh water. Keep children away from your water conditioner.

## Care of Your Softener

To retain the attractive appearance of your new water softener, clean occasionally with a mild soap solution. Do not use abrasive cleaners, ammonia or solvents. Never subject your softener to freezing or to temperatures above 43°C (110°F).

## Servicing Components.

- The injector assembly should be cleaned or replaced every year depending on the inlet water quality and water usage.
- The seals and spacer cartridge should be inspected/cleaned or replaced every year depending on the inlet water quality and water usage.

Please refer to the servicing section of this manual for step by step procedure.

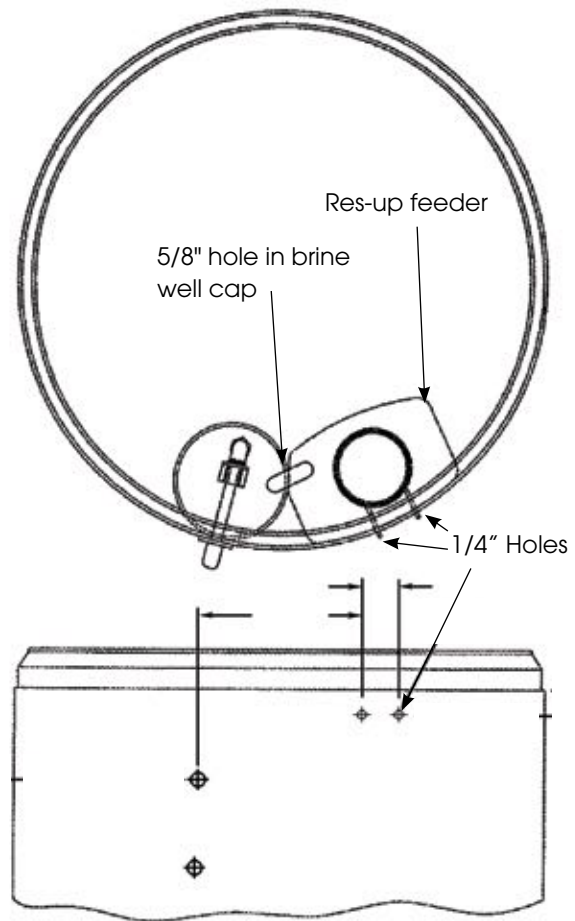
Not following the above will void all warranty on the control valve.

## Resin Cleaner

An approved resin cleaner MUST be used on a regular basis if your water supply contains iron. The amount of resin cleaner and frequency of use is determined by the quantity of iron in your water (consult your local representative or follow the directions on the resin cleaner package).

# Res-Up<sup>®</sup> Feeder Installation Instructions

1. Remove top cover, fill the Res-Up<sup>®</sup> Feeder (plastic container) to the top with water so that the wick retaining clip, tube and wick are wetted, allow to soak for 15 minutes or more.
2. Empty water and pull tube and wick through Feeder until slack is removed from inside. The outlet end tube and wick must be below the bottom level of the Res-Up<sup>®</sup> Feeder.
3. Drill two 1/4" holes in brine tank as shown.
4. Drill a 5/8" hole in the brine well cap.
5. Clip mounting bracket over feeder with "hooks" pointed up. Insert end of tube in the brine well cap and mounting bracket with the 1/4" holes in the brine tank, rotating feeder downward into position as shown in Figure 1.
6. Fill Feeder with Res-Up<sup>®</sup> Cleaner to "Fill Line" on label.
7. Replace cover on Feeder and automatic feeding will occur in a few hours.



Res-Up Feeders attach to your brine tank and automatically dispense the Res-Up cleaner into the brine solution where it cleans the resin during the regeneration cycle.

The feeder hooks onto the tube inside your brine tank and you just pour some chemical in it and your water softener should last significantly longer. A res-up feeder is essential if your raw water contains measurable amounts of iron.

| Res-up Feeder Bottle (Chemical sold Separately)   |
|---|
| The 12 cc feeder (Part # 33010) is for softeners up to 64,000 grains (2 ft3 of resin) . |
| The 30 cc feeder (Part # 33018) is for larger softeners over 64,000 grains.             |
| Pro-Res Care Chemicals  |
| Item #45147 Pro-ResCare - Gallon  |
| Item #45148 Pro-ResCare - Quart   |

# Servicing 6200 Valve

## Before Servicing

1. Turn off water supply to conditioner :
  - a. If the conditioner installation has a 3 valve bypass system first open the valve in the bypass line, then close the valves at the conditioner inlet & outlet.
  - b. If the conditioner has an integral bypass valve, put it in the bypass position.
  - c. If there is only a shut-off valve near the conditioner inlet, close it.
2. Relieve water pressure in the conditioner by stepping the control into the backwash position momentarily. Return the control to the In Service position. (Refer to programming instructions)
3. Unplug Electrical Cord from outlet.
4. Disconnect brine tube and drain line connections.



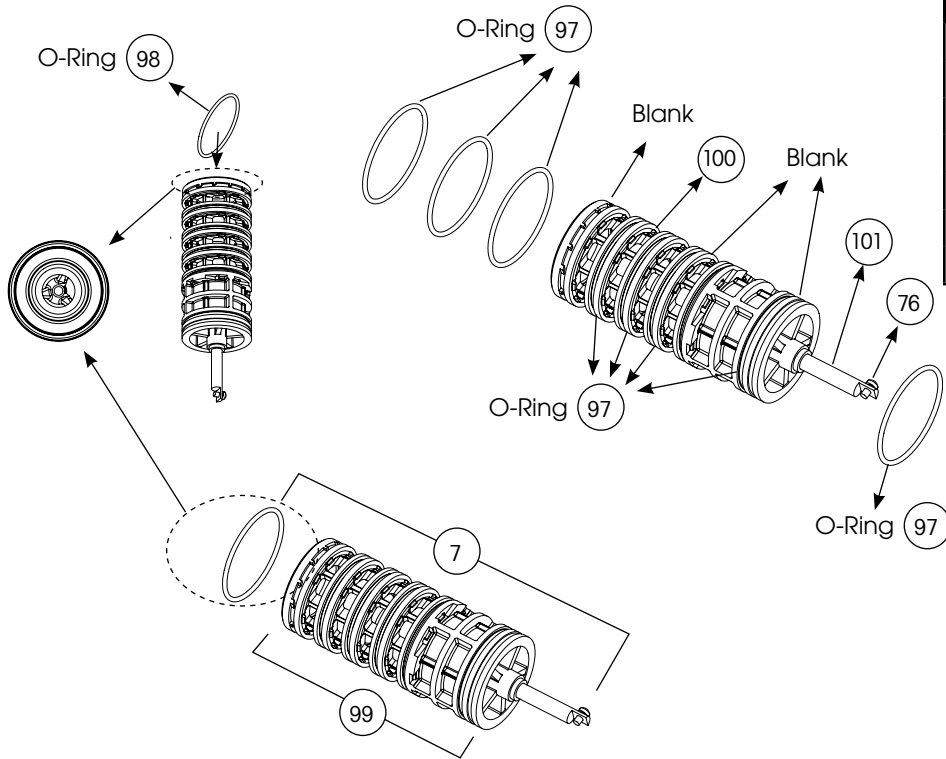
**WARNING! ELECTRICAL SHOCK HAZARD! UNPLUG THE UNIT BEFORE REMOVING THE COVER OR ACCESSING ANY INTERNAL CONTROL PARTS.**



**CAUTION! Disassembly while under pressure can result in flooding. Always follow these steps prior to servicing the valve.**

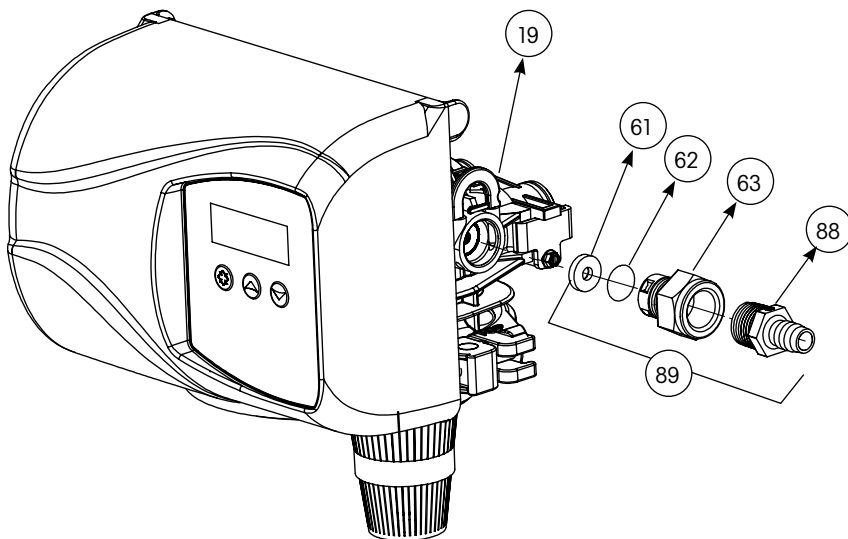


## 6200 Service Kits – Piston and Cartridge Assembly



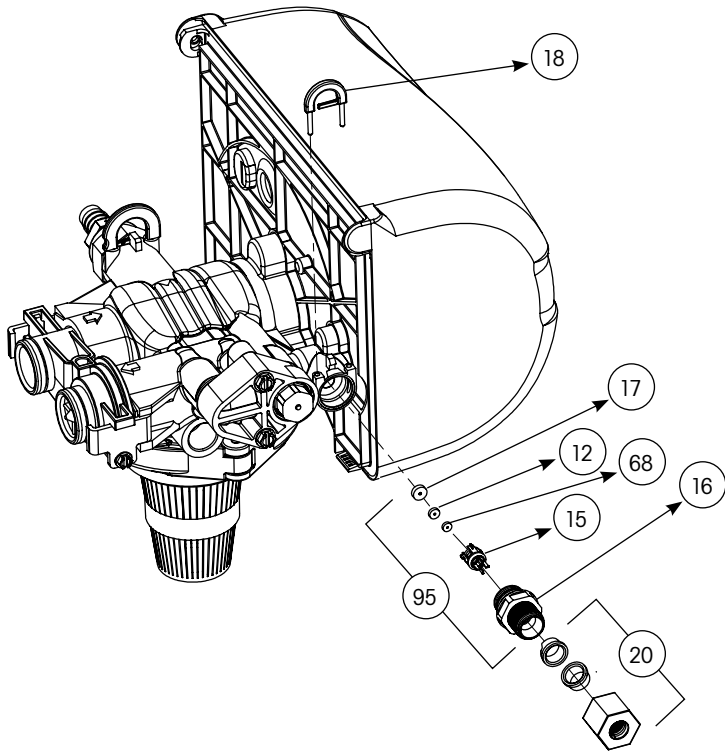
| Dwg # | Part #   | Part Description               |
|-------|----------|--------------------------------|
| 7     | 61799-01 | Cartridge Assembly with Piston |
| 76    | 11335    | Screw, 4-40X3/16               |
| 97    | 16394    | O-Ring, 029                    |
| 98    | 13287    | O-Ring, 123                    |
| 99    | 61799    | Seal and Spacer Cartridge      |
| 100   | 42920    | Piston                         |
| 101   | 19984    | Piston Rod                     |

## 6200 Service Kits – Drain Line Flow Control Kits



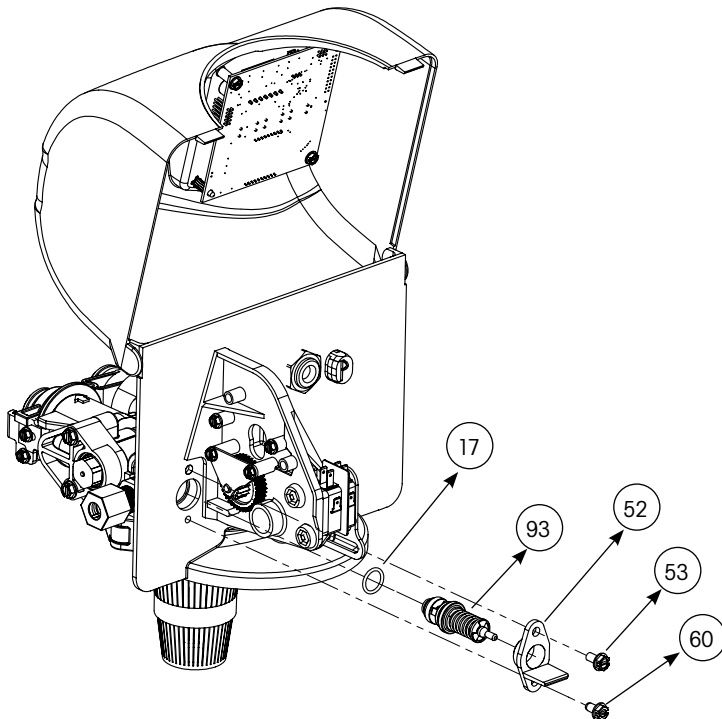
| Dwg # | Part #   | Part Description                  |
|-------|----------|-----------------------------------|
| 61    | 12085    | Washer, Flow, 1.2 GPM             |
|       | 12086    | Washer, Flow, 1.50 GPM            |
|       | 12087    | Washer, Flow, 2.0 GPM             |
|       | 12088    | Washer, Flow, 2.4 GPM             |
|       | 12089    | Washer, Flow, 3.0 GPM             |
|       | 12090    | Washer, Flow, 3.5 GPM             |
|       | 12091    | Washer, Flow, 4.0 GPM             |
|       | 12092    | Washer, Flow, 5.0 GPM             |
| 62    | 11183    | O-Ring, 017                       |
| 63    | 11385-01 | Adapter, Fitting, DLFC            |
| 88    | 13308    | Hose Barb, Straight, DLFC, 1/2"   |
|       | 12388    | Hose Barb, 90 Deg, DLFC, 1/2"     |
| 89    | 60705-XX | DLFC Assembly, XX GPM For < 7 GPM |
|       | 60706-XX | DLFC Assembly, XX GPM For > 7 GPM |
| 19    | 18312    | Retainer, Drain                   |

## 6200 Service Kits – Brine Line Flow Control Kits



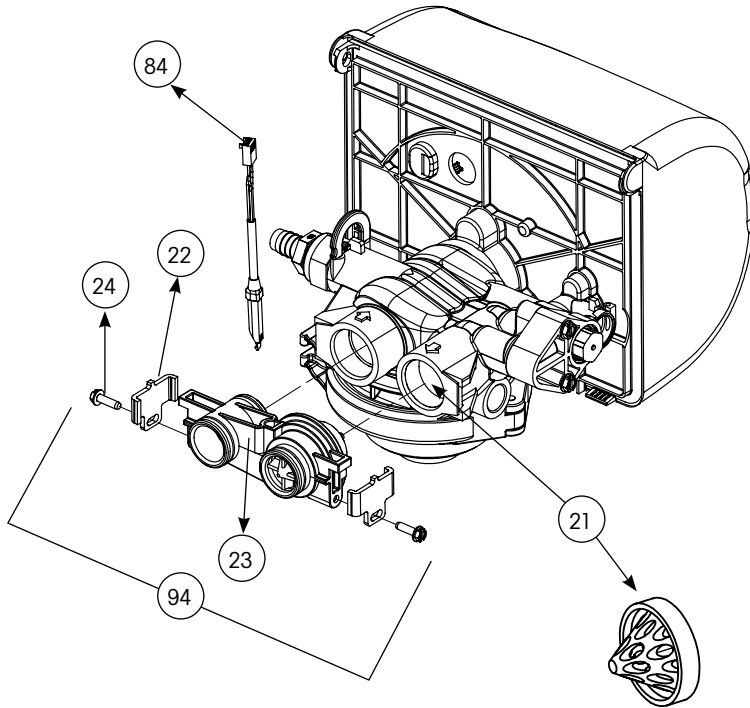
| Dwg # | Part #   | Part Description              |
|-------|----------|-------------------------------|
| 17    | 13302    | O-Ring, 014                   |
| 12    | 10141    | O-Ring, 010                   |
| 68    | 17307    | Washer, Flow, 0.125 GPM       |
|       | 12094    | Washer, Flow, 0.25 GPM        |
|       | 12095    | Washer, Flow, 0.5 GPM         |
|       | 12097    | Washer, Flow, 1.0 GPM         |
| 15    | 19334    | Retainer, Flow Washer, BLFC   |
| 16    | 19335    | Fitting, BLFC, 3/8"           |
| 20    | 19625    | Nut, Assembly, 3/8" Plastic   |
| 95    | 60422-XX | BLFC Assembly, Specify XX=GPM |

## 6200 Service Kits – Brine Valve

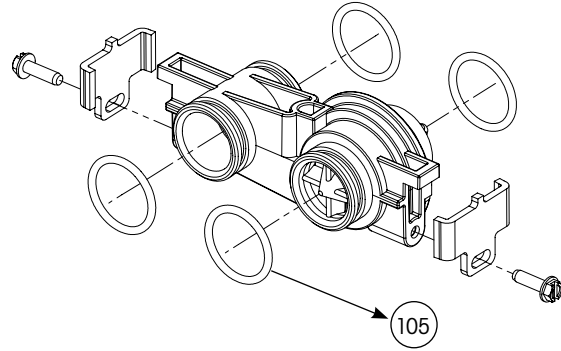


| Dwg # | Part #   | Part Description       |
|-------|----------|------------------------|
| 17    | 13302    | O-Ring, 014            |
| 93    | 60032    | Brine Valve Assembly   |
| 52    | 40055-06 | Bracket, Plastic       |
| 53    | 15137    | Screw, Hex Washer Head |
| 60    | 40134    | Screw, Self Tap        |

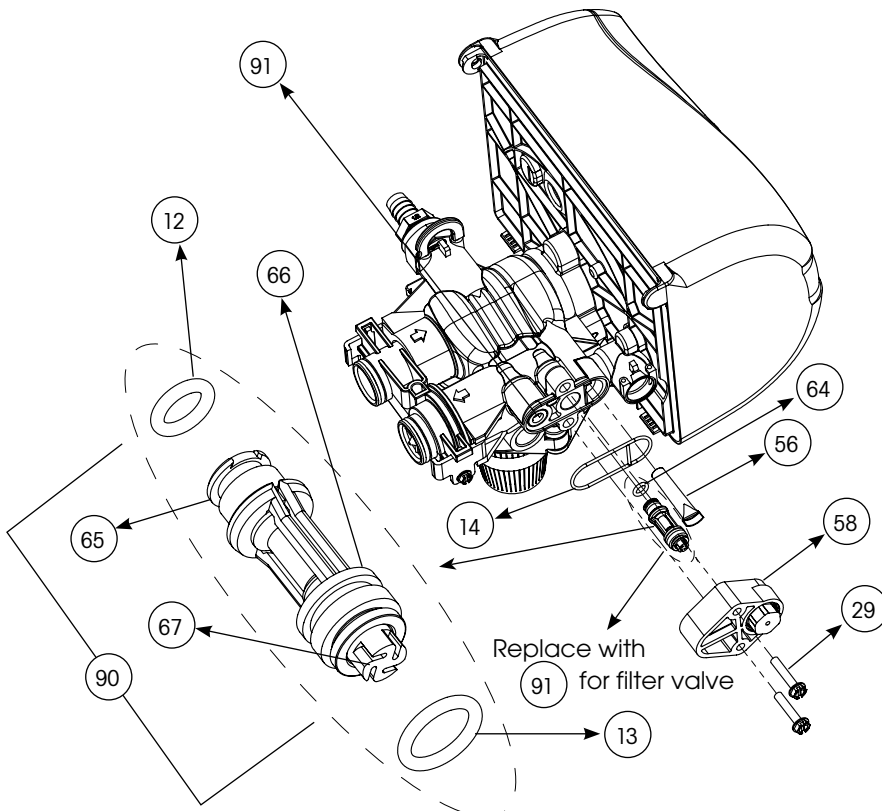
## 6200 Service Kits – Flow Meter



| Dwg # | Part #   | Part Description               |
|-------|----------|--------------------------------|
| 84    | 19791-01 | Cable, Meter                   |
| 22    | 19569    | Clip, Flow Meter               |
| 24    | 13314    | Screw, Slot Hex, 8-18 X0.6     |
| 23    | 19797    | Meter, Assy, 3/4" Dual Port    |
| 105   | 13305    | O-Ring, -119                   |
| 21    | 14613    | Flow Straightener              |
| 94    | 60626    | Meter Only, Electronic Turbine |

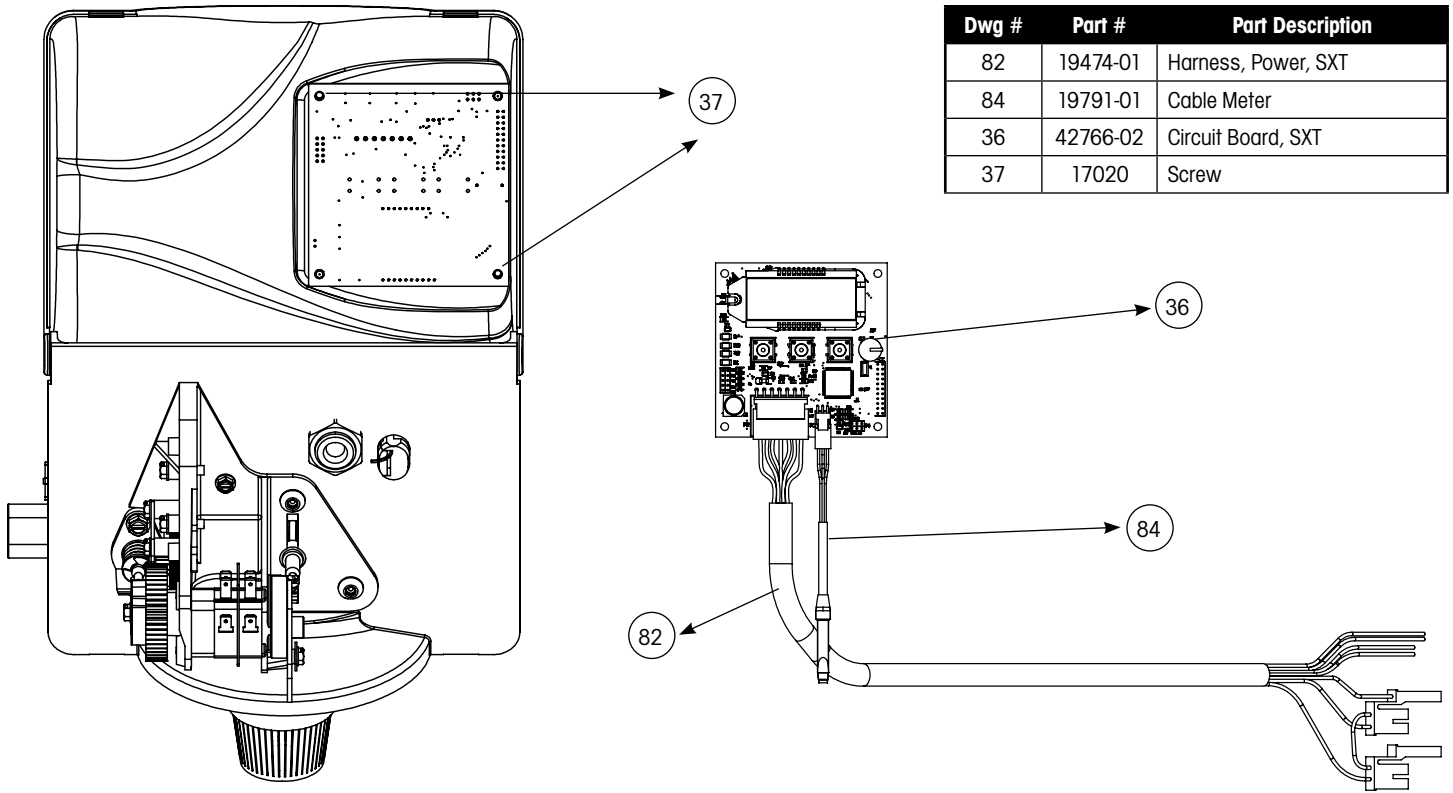


## 6200 Service Kits – Injector Assembly

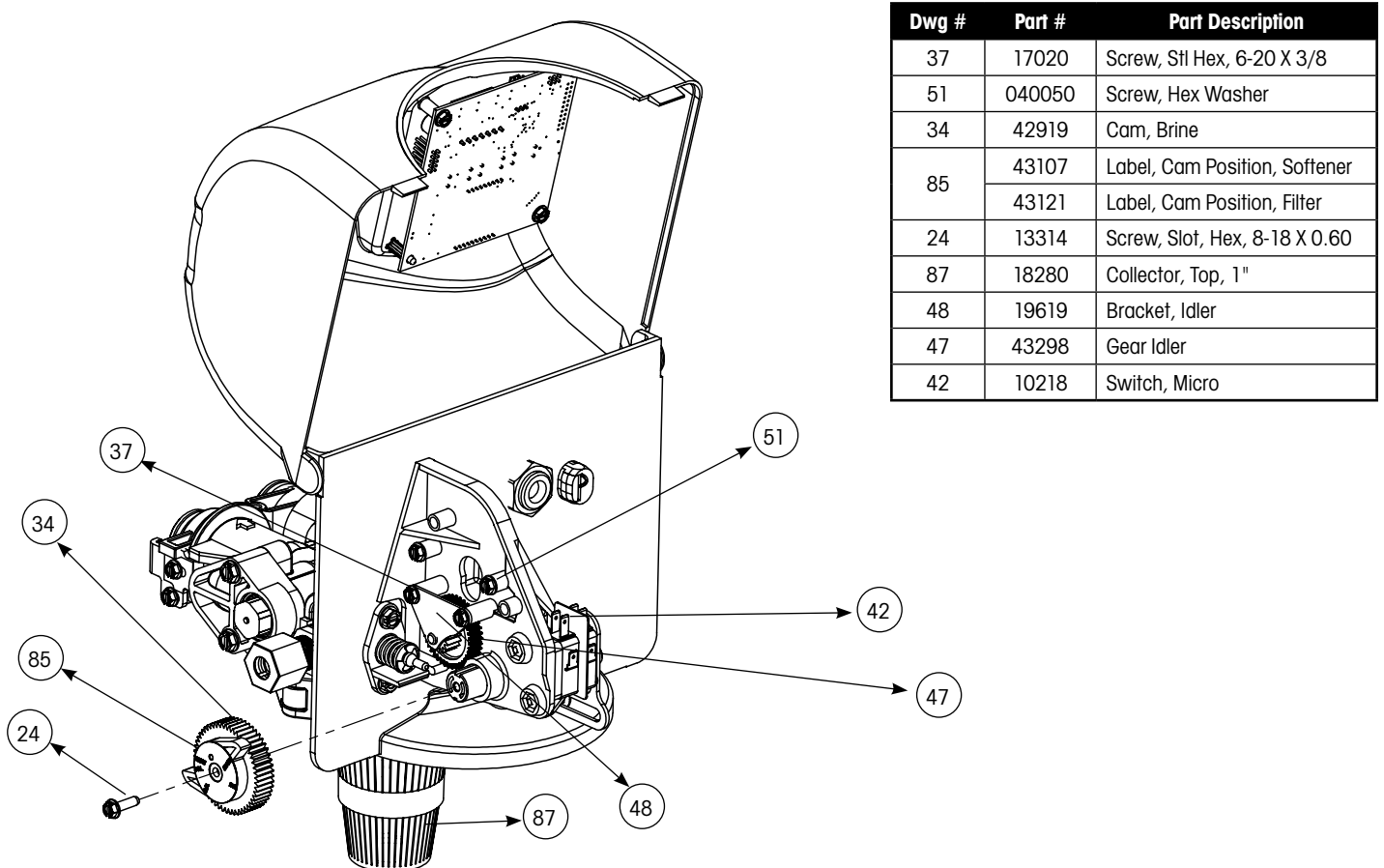


| Dwg # | Part #   | Part Description                   |
|-------|----------|------------------------------------|
| 91    | 18276-01 | Plug, Injector, Assembly           |
| 64    | 040095   | Flow Dispensor                     |
| 56    | 40058    | Screen, Injector                   |
| 58    | 40079-20 | Cap, Injector, Regulated, Softener |
|       | 18277    | Cap, Injector Filter               |
| 29    | 18262    | Screw, #10-24 X 1                  |
| 14    | 040064   | Seal, Injector, Softener           |
|       | 18301    | Seal, Injector, Filter             |
| 66    | 18275-X  | Throat, Injector, Specify Size X   |
| 65    | 18274-X  | Nozzle, Injector, Specify Size X   |
| 12    | 10141    | O-Ring, -010                       |
| 67    | 18273    | Generator, Vortex                  |
| 13    | 13771    | O-Ring, -012                       |
| 90    | 61514-XX | Injector Assembly, Specify Size XX |

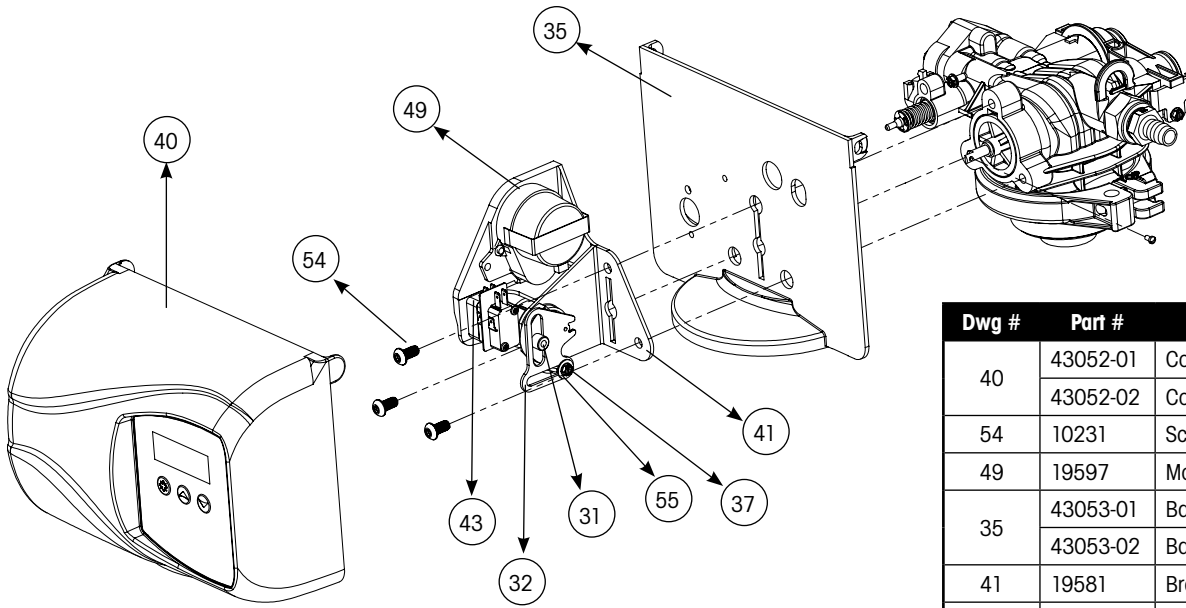
## 6200 Service Kits – Circuit Board



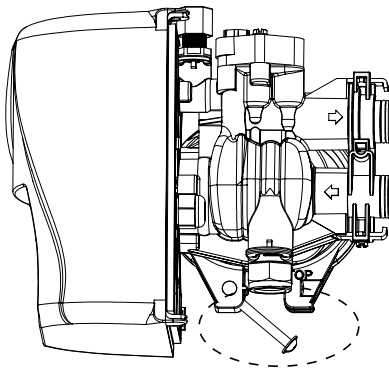
## 6200 Service Kits – Other Parts



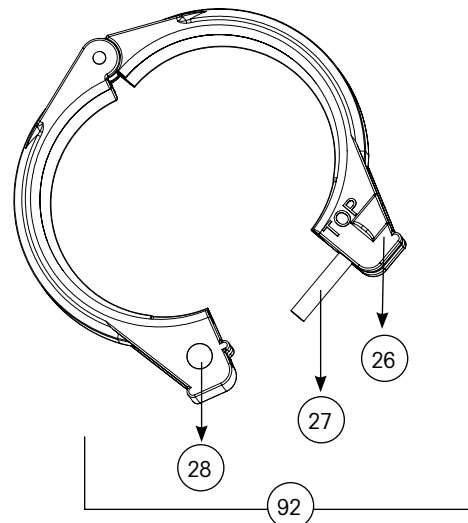
# 6200 Service Kits – Other Parts Continued



| Dwg # | Part #   | Part Description              |
|-------|----------|-------------------------------|
| 40    | 43052-01 | Cover, Black                  |
|       | 43052-02 | Cover, Cream                  |
| 54    | 10231    | Screw, Slot Hex, 1/4-20 X 1/2 |
| 49    | 19597    | Motor, 24V, 50/60 Hz          |
| 35    | 43053-01 | Backplate, Black              |
|       | 43053-02 | Backplate, Cream              |
| 41    | 19581    | Bracket, Drive                |
| 43    | 10302    | Insulator, Limit Switch       |
| 32    | 019688   | Link, Piston Rod              |
| 31    | 019493   | Shaft, Drive                  |
| 55    | 13363    | Washer                        |
| 37    | 17020    | Screw, Hex, 6-20 X 3/8        |

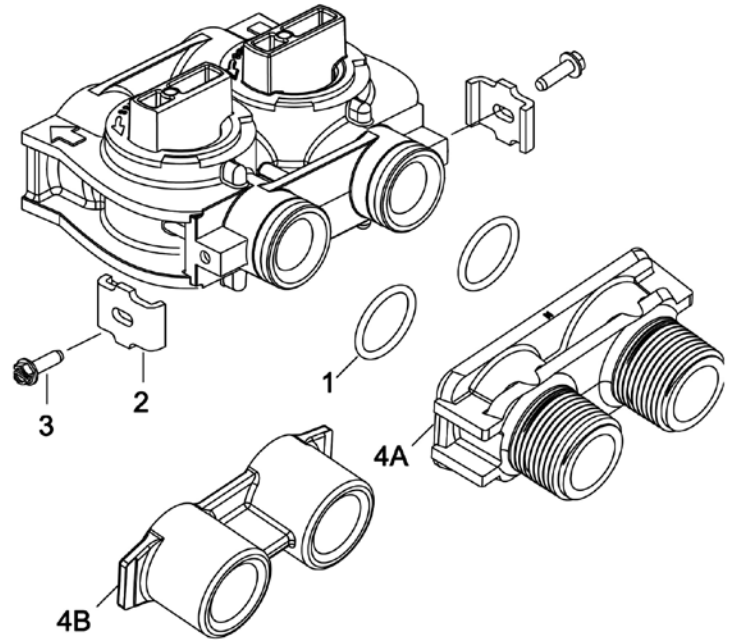


| Dwg # | Part # | Part Description       |
|-------|--------|------------------------|
| 28    | 19998  | Shaft, Drive           |
| 27    | 40057  | Screw, Hex Washer Head |
| 26    | 40254  | Clamp, Ring            |
| 92    | 60503  | Clamp Ring Assembly    |



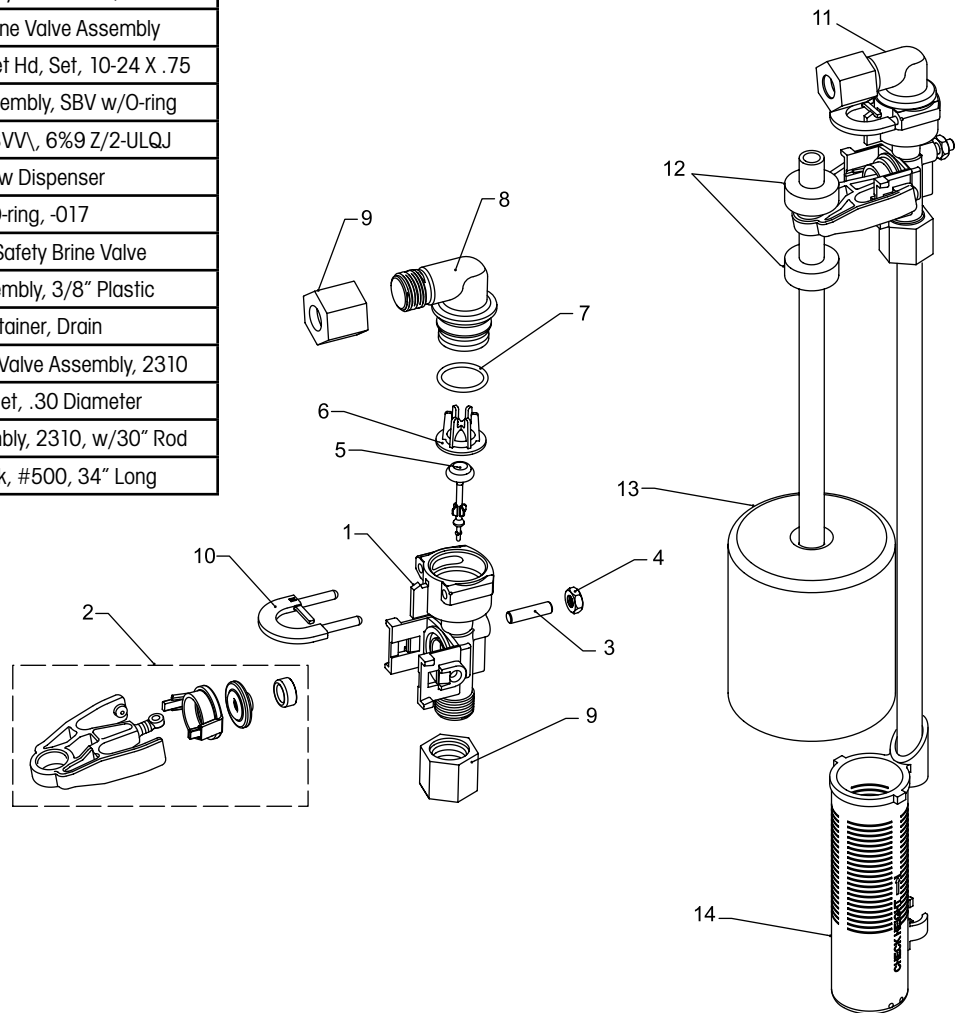
## Bypass Valve Assembly & Yokes (Plastic)

| Item No. | Quantity | Part No. | Description                        |
|----------|----------|----------|------------------------------------|
| 1        | 2        | 13305    | O-ring, -119                       |
| 2        | 2        | 13255    | Clip, Mounting                     |
| 3        | 2        | 13314    | Screw, Hex Washer Head, 8-18 x 5/8 |
| 4A       | 1        | 18706    | Yoke, Plastic, 1" NPT              |
|          |          | 18706-02 | Yoke, Plastic, 3/4" NPT            |
| 4B       | 1        | 13708    | Yoke, Brass, 3/4" NPT              |
|          |          | 13708NP  | Yoke, 3/4" NPT Nickel Plated       |
|          |          | 13398    | Yoke, Brass, 1" NPT                |
|          |          | 13398NP  | Yoke, 1" NPT Nickel Plated         |
|          |          | 40636    | Yoke, 1 1/4" NPT                   |
|          |          | 40636-49 | Yoke, 1 1/4" Sweat                 |



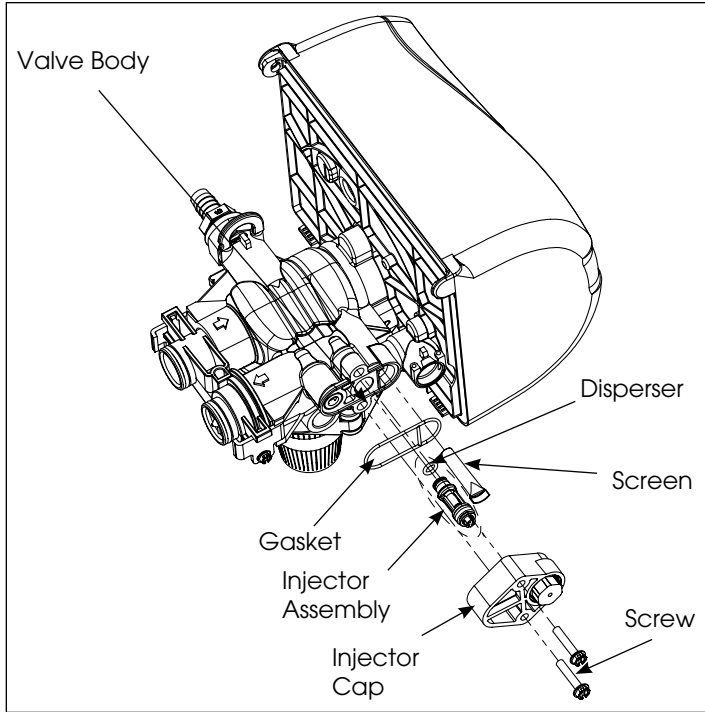
## 2310 Safety Brine Valve

| Item No. | Quantity | Part No. | Description                        |
|----------|----------|----------|------------------------------------|
| 1        | 1        | 19645    | Body, Safety Brine Valve, 2310     |
| 2        | 1        | 19803    | Safety Brine Valve Assembly        |
| 3        | 1        | 19804    | Screw, Socket Hd, Set, 10-24 X .75 |
| 4        | 1        | 19805    | Poppet Assembly, SBV w/O-ring      |
| 5        | 1        | 19652-01 | 3RSSHW \$V\\$, 6%9 Z/2-ULQJ        |
| 6        | 1        | 19649    | Flow Dispenser                     |
| 7        | 1        | 11183    | O-ring, -017                       |
| 8        | 1        | 19647    | Elbow, Safety Brine Valve          |
| 9        | 2        | 19625    | Nut Assembly, 3/8" Plastic         |
| 10       | 1        | 18312    | Retainer, Drain                    |
| 11       | 1        | 60014    | Safety Brine Valve Assembly, 2310  |
| 12       | 2        | 10150    | Grommet, .30 Diameter              |
| 13       | 1        | 60068-30 | Float Assembly, 2310, w/30" Rod    |
| 14       | 1        | 60002-34 | Air Check, #500, 34" Long          |

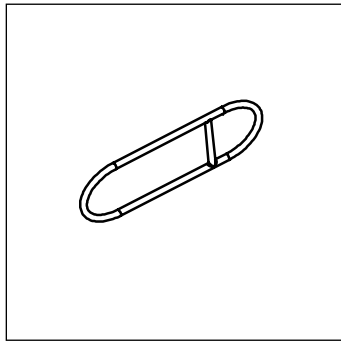


42112\_REVA

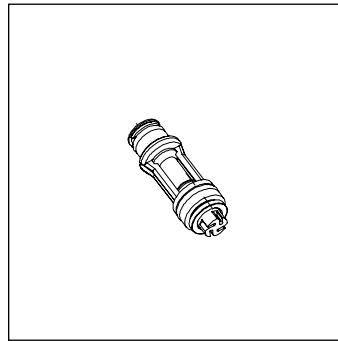
# Servicing 6200 SXT Upflow Control Valve – Replacing Injectors and Screen



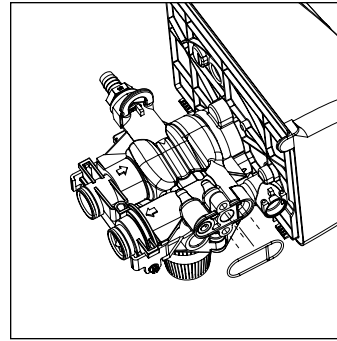
1. Unscrew the injector cap from the valve body.



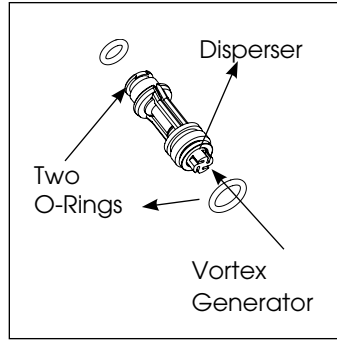
2. Discard gasket.



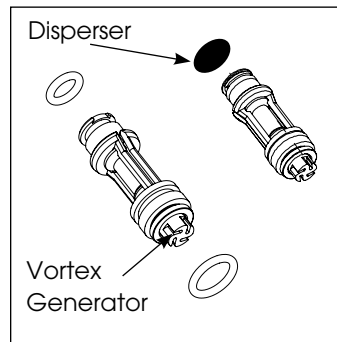
3. Remove injector assembly from the valve body and discard it.



4. Apply silicone lubricant to the gasket and install around oval extension on injector cap.

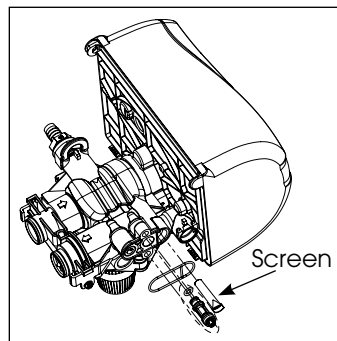


5. Apply silicone lubricant to two new o-rings and install over 2 bosses of the new injector assembly.



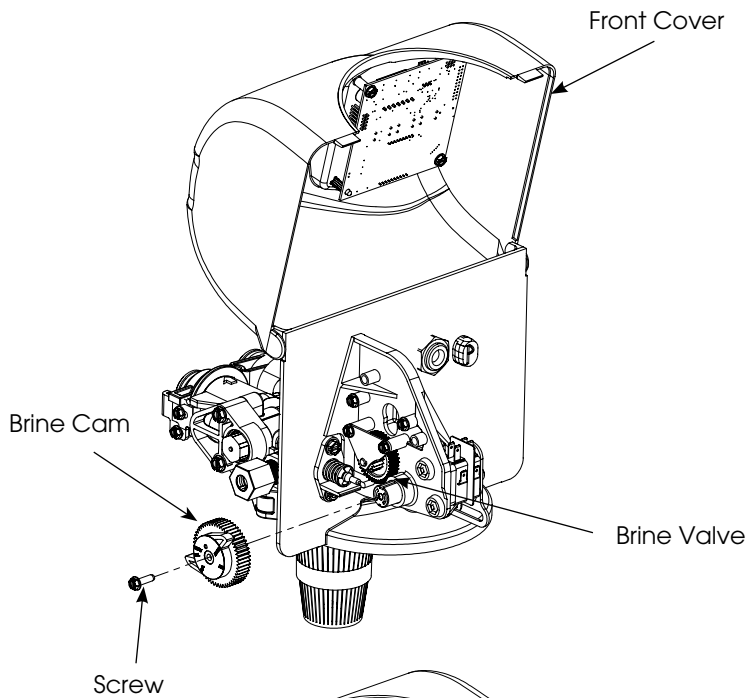
6. Apply silicone grease to the dispenser and press it on the surface of the injector assembly.

7. Screw in new injector throat and nozzle (make sure that vortex generator is installed in the injector body), be sure they are seated tightly.

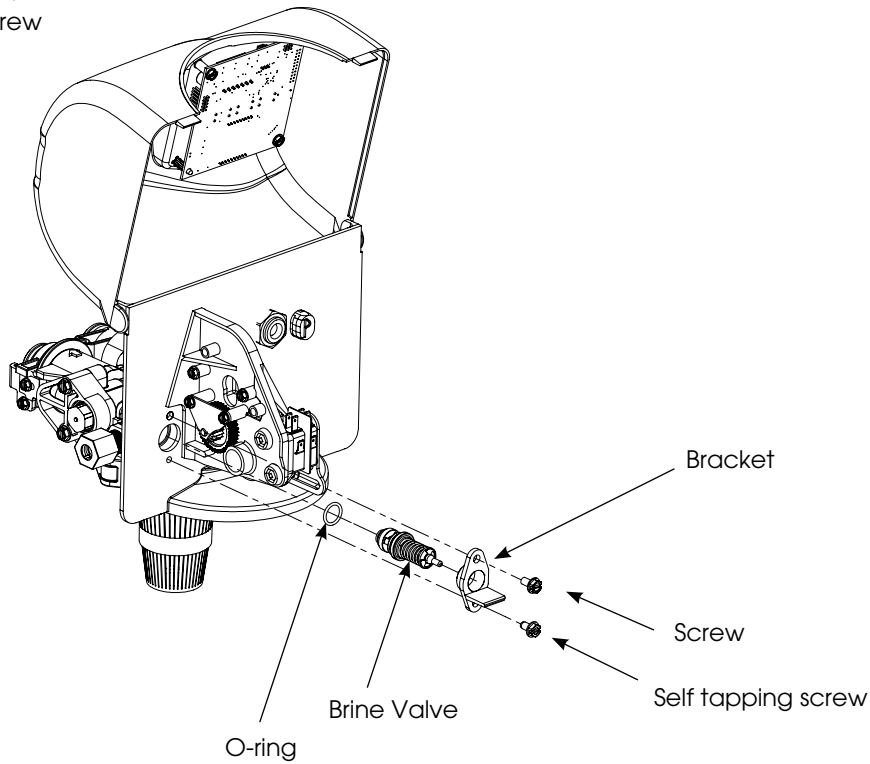


8. Install a new screen.  
9. Tighten injector cap on to the valve body.

# Replacing Brine Valve

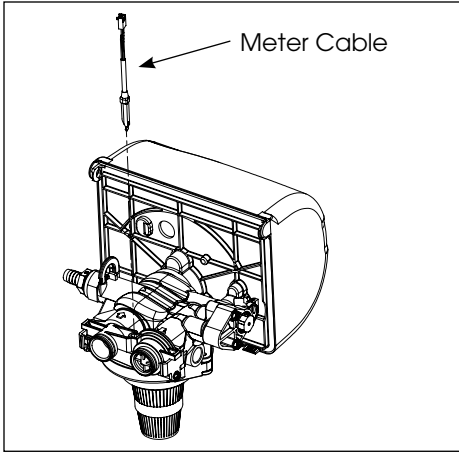


1. Open the front cover of the powerhead, unscrew the brine cam and push the brine valve in order to remove the cam.
2. Remove the two screws from the grey brine valve bracket and remove it from the valve back plate.
3. Pull brine valve from injector body. Also remove and discard o-ring at bottom of brine valve hole.
4. Apply silicone lubricant to new o-ring and install at bottom of brine valve hole.
5. Apply silicone lubricant to o-ring on new valve assembly and press into brine valve hole. Be sure shoulder on bushing is flush with injector body.
6. Reinstall the brine valve bracket. Make sure to use self tapping screw at the bottom of the bracket. Reinstall brine cam. Close the front cover of the control valve.

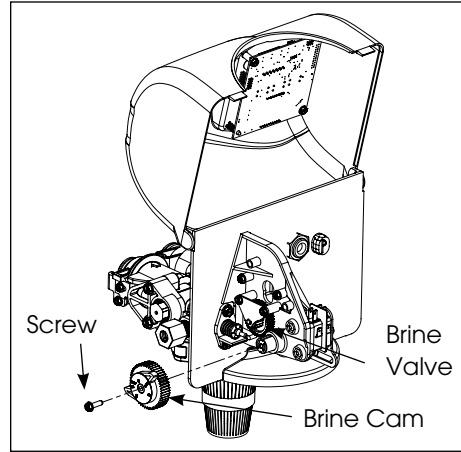




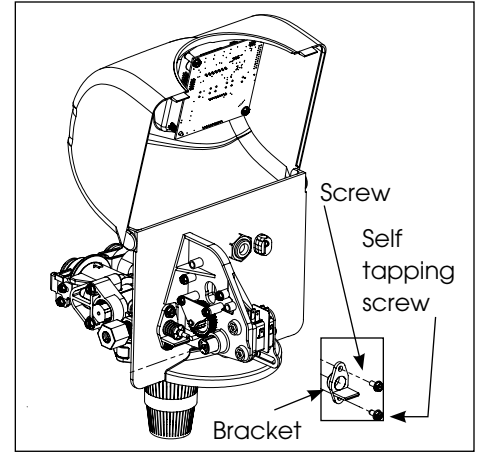
# Timer Replacement



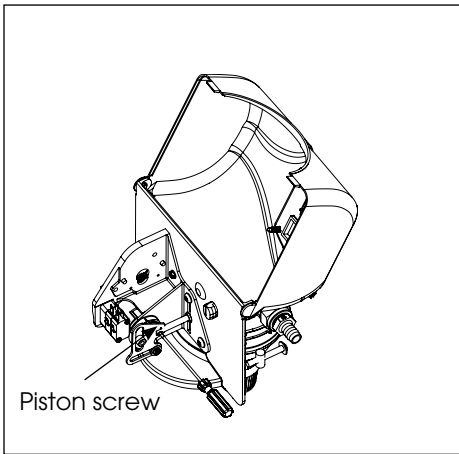
1. Disconnect the meter cable from the meter.



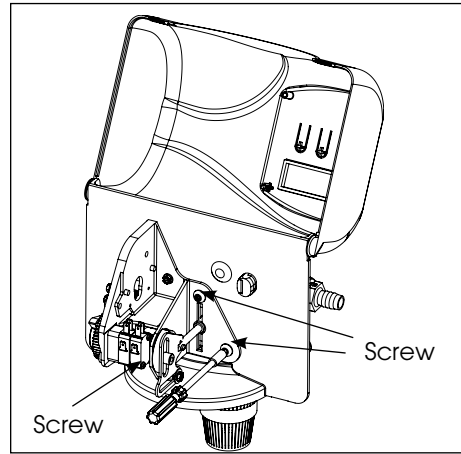
2. Open the front cover of the control valve, unscrew the brine cam and push the brine valve in order to remove the cam.



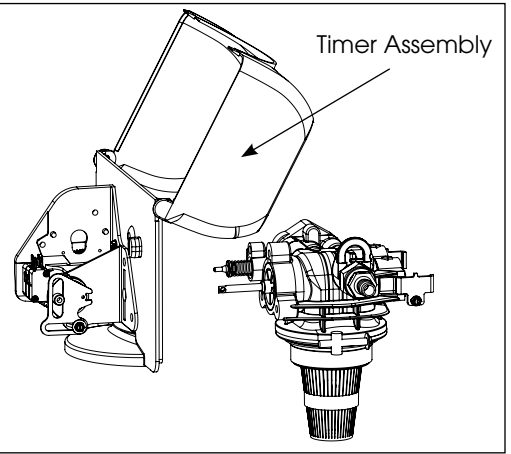
3. Remove the two screws from the grey brine valve bracket and remove it from the valve back plate.



4. Remove the piston screw from the piston rod.



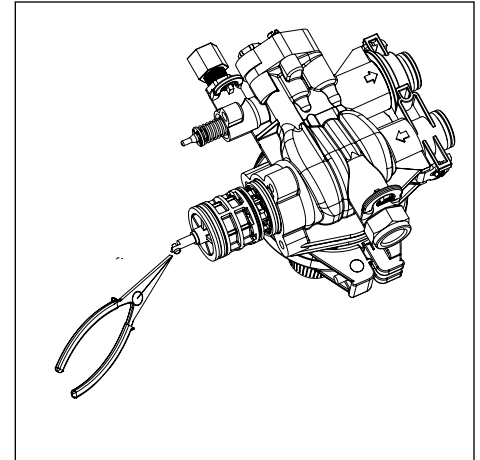
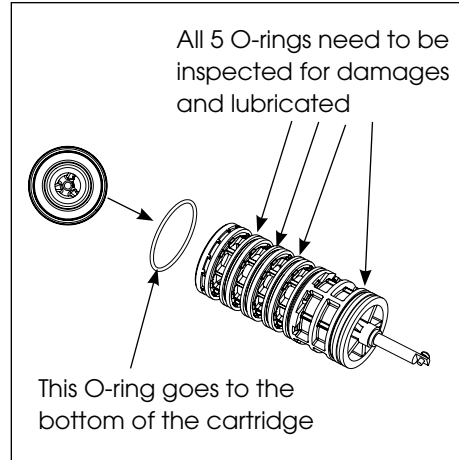
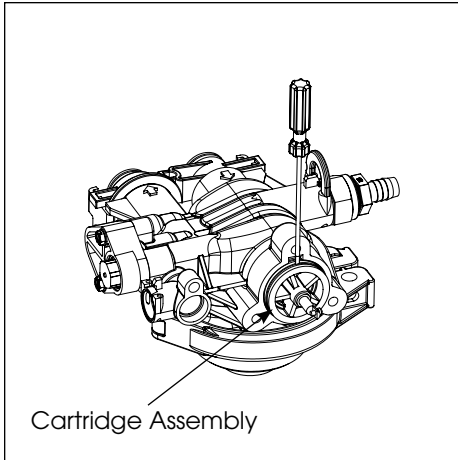
5. Remove the three screws from the front bracket. The entire timer assembly will disconnect from the valve body.



6. Replace the timer with a new one. Attach the three screws to the front bracket and piston screw to the piston rod. Reinstall the brine valve bracket. Reinstall brine cam. Close the front cover of the control valve.

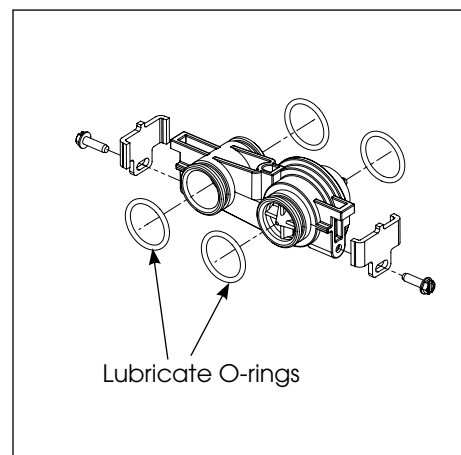
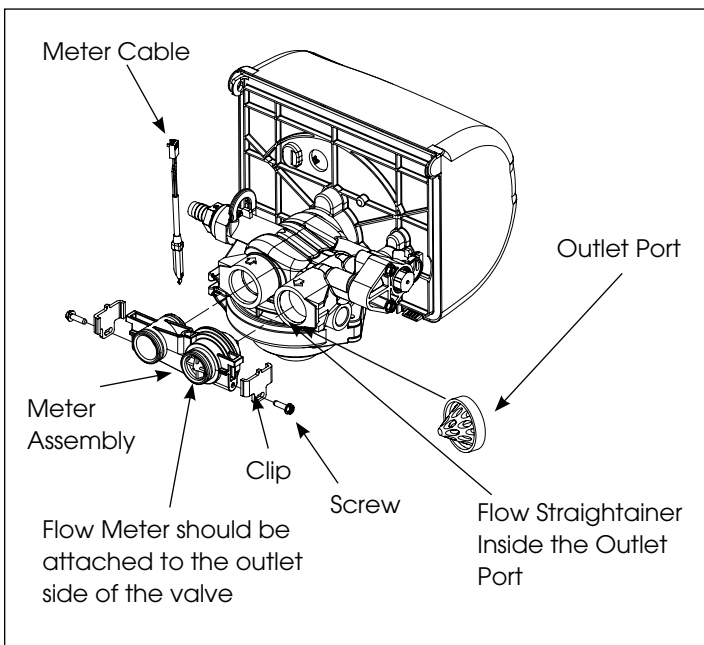
7. Reconnect meter cable.

## Piston Cartridge Assembly Replacement



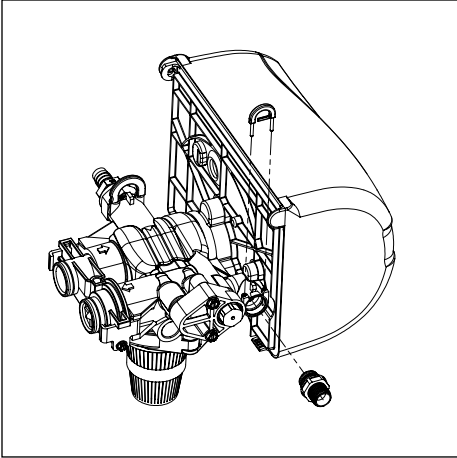
1. Follow steps 1 to 5 of timer replacement.
2. Use a flat head screw drive on the notch of the valve body as shown to loosen the piston cartridge, pull the cartridge out of the body using pliers.
3. Inspect the inside of the valve to make sure that there is no foreign matter that would interfere with the valve operation.
4. Put food grade silicone grease on the o-rings of the new piston cartridge assembly and install it inside the valve body.
5. Reinstall the timer assembly, brine valve bracket and meter cable.

## Meter Replacement and Service

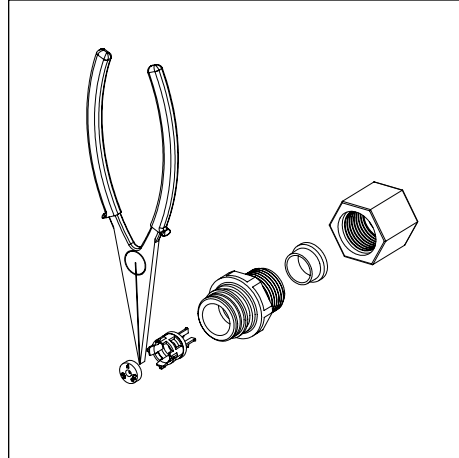


1. Disconnect the meter cable from the meter.
2. Remove two screws and clips at bypass valve or yoke. Pull resin tank away from plumbing connections.
3. Pull meter module out from control valve.
4. Apply silicone lubricant to four new o-rings and assemble to four ports on new meter module.
5. Assemble meter to control valve. Note, meter portion of module must be assembled at valve outlet.
6. Push resin tank back to the plumbing connections and engage meter ports with bypass valve or yoke.
7. Attach two clips and screws at bypass valve or yoke. Be sure clip legs are firmly engaged with lugs.

## Servicing and Replacing Brine Line Flow Control (BLFC)



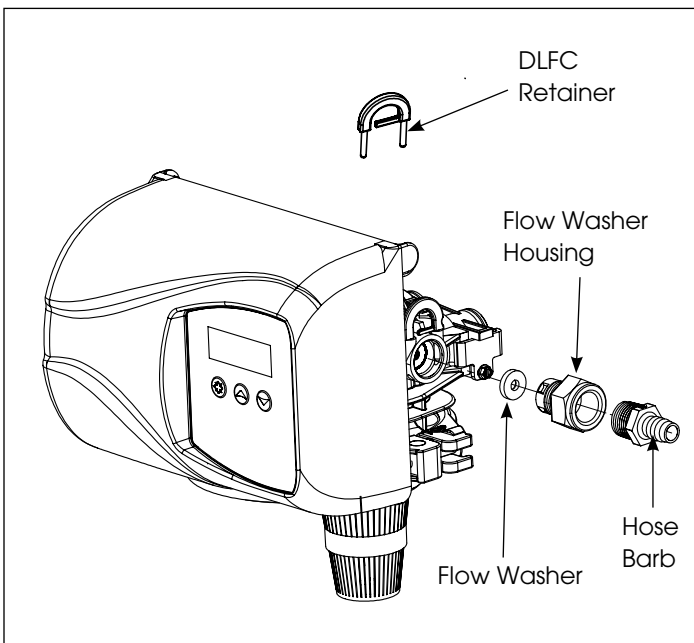
1. Disconnect the brine line retainer clip.



2. Remove the BLFC assembly and pull the flow washer retainer out of the BLFC housing with the help of plier.

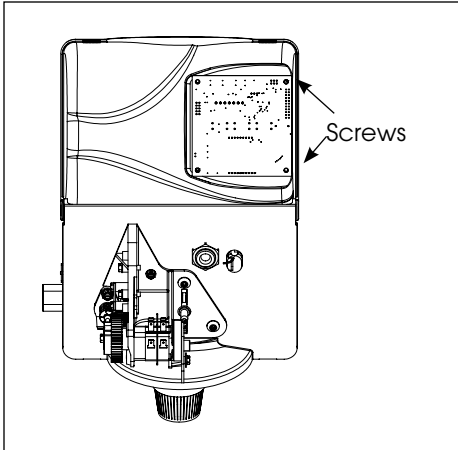
3. Remove the flow washer from the retainer and clean it with water to remove any debris. Replace it with a new washer if necessary.
4. Re-install the BLFC housing and retainer.

## Servicing and Replacing Drain Line Flow Control (DLFC)

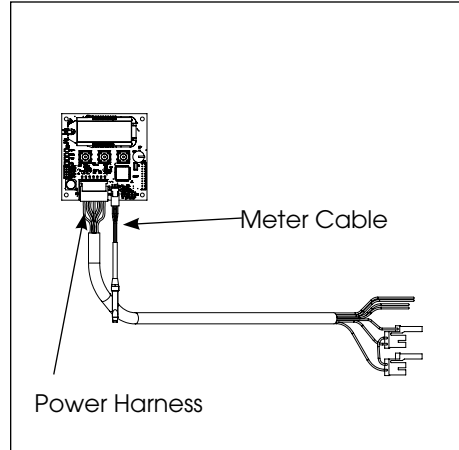


1. Disconnect the drain line retainer clip.
2. Remove the DLFC assembly and pull the flow washer out of the DLFC housing with the help of plier.
3. Remove the flow washer from the housing and clean it with water to remove any debris. Replace it with a new washer if necessary.
4. Re-install the DLFC housing and retainer.

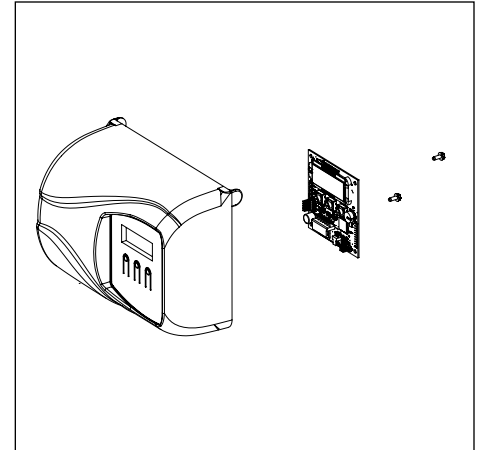
## Circuit Board Replacement



1. Detach the circuit board from valve front cover by removing two screws.



2. Disconnect the meter cable and power head harness from the circuit board.



3. Replace and connect the new circuit board on the front cover.

## After Servicing

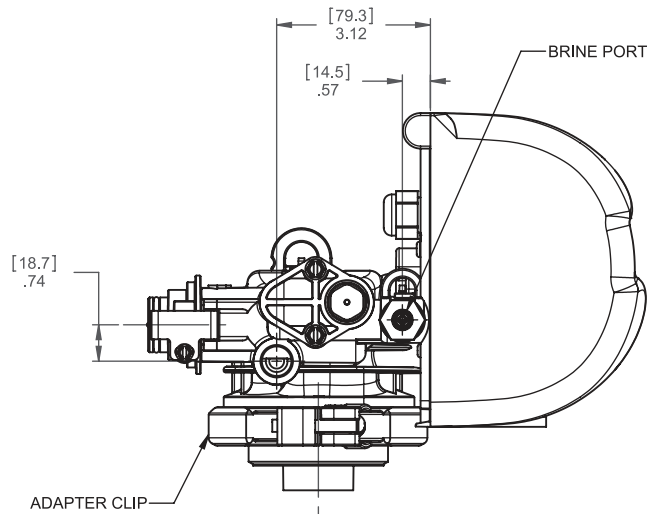
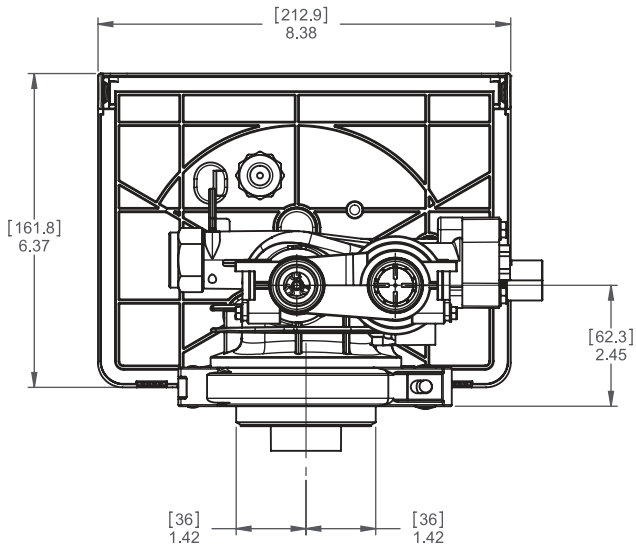
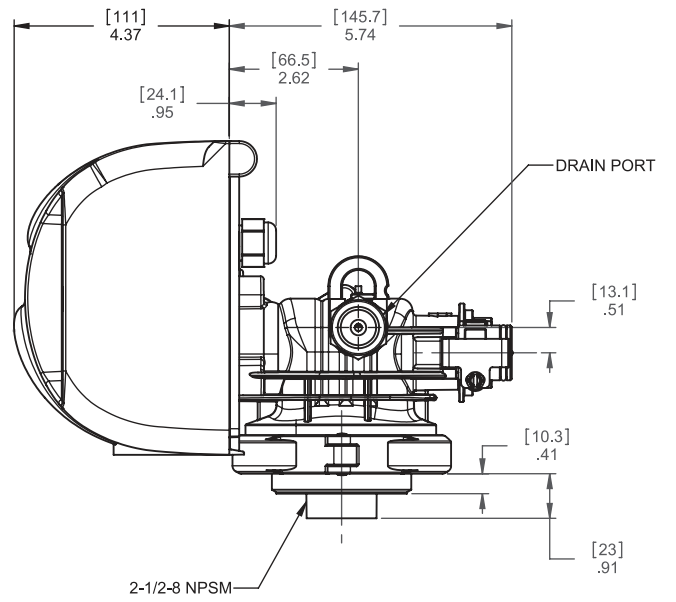
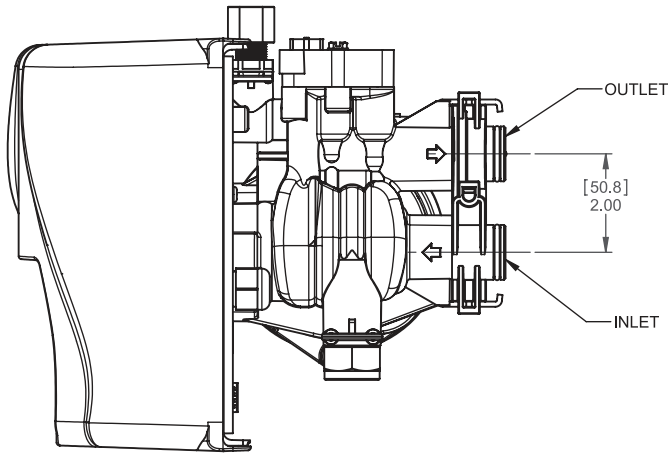
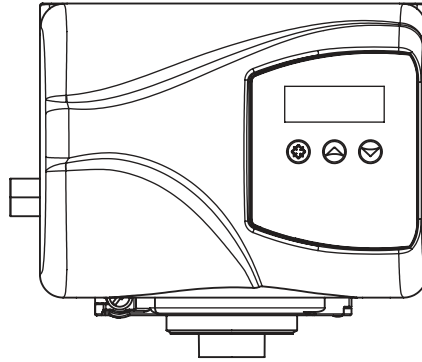
1. Reconnect brine tube and drain line.
2. Return bypass or inlet valve to normal in service position. Water Pressure will automatically build in the softener.

**NOTE:** Be sure to shut off any bypass line.

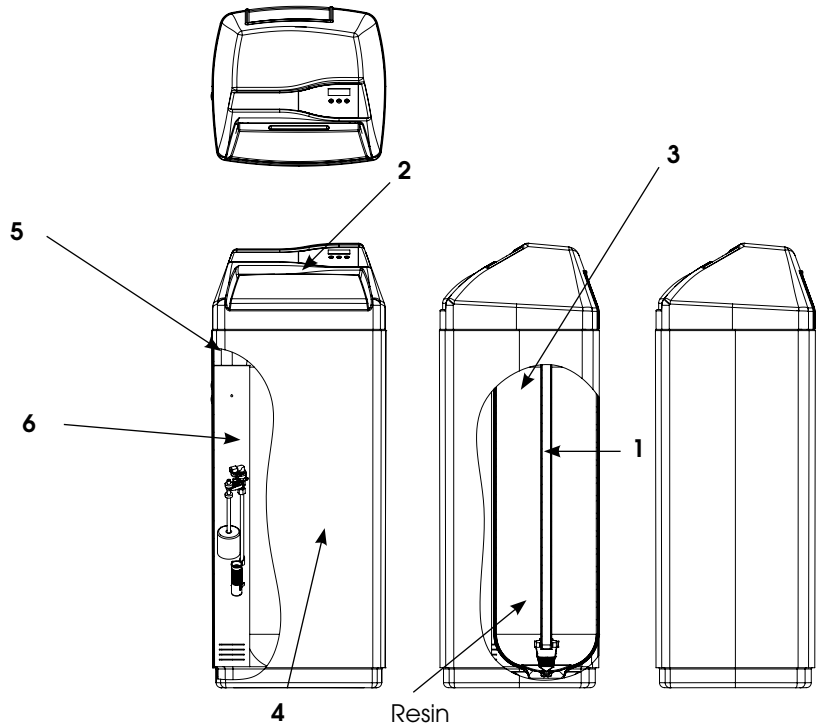
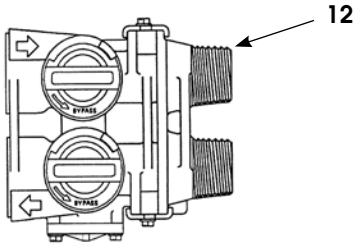
3. Check for leaks at all sealed areas. Check Drain seal with the control in the backwash position.
4. Plug electrical cord into outlet.
5. Set Time of Day and cycle the control valve manually to assure proper function. Make sure control valve is returned to the In Service position.
6. Verify the salt level in the brine tank is sufficient. Start regeneration cycle manually if water is hard.

# 6200 SXT Valve Dimensional Drawings

All dimensions are in Inches (mm).



# Parts Breakdown - Cabinet

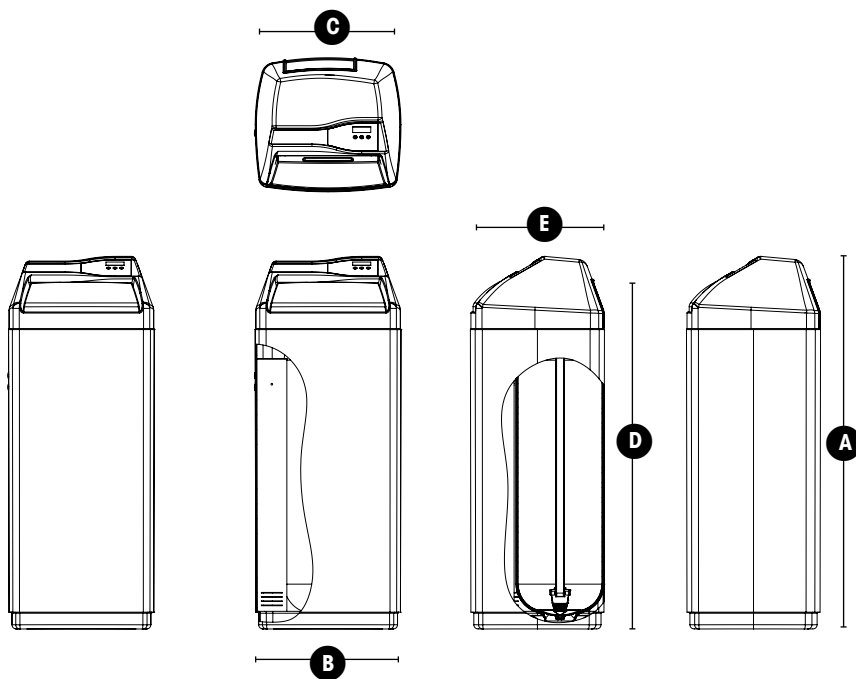


## Common Components

| Item No. | Part No. | Description    |
|----------|----------|----------------|
| 1        | 19495    | Distributor    |
| 4        | 6200C    | Cabinet        |
| 5        | 48004    | Brine Well Cap |
| 6        | 13624    | Safety Float   |
| 7        | 13308    | Hose Barb*     |
| 10       | 60626    | Meter*         |
| 11       | 18706-02 | Yoke*          |
| 12       | 60049    | Bypass         |

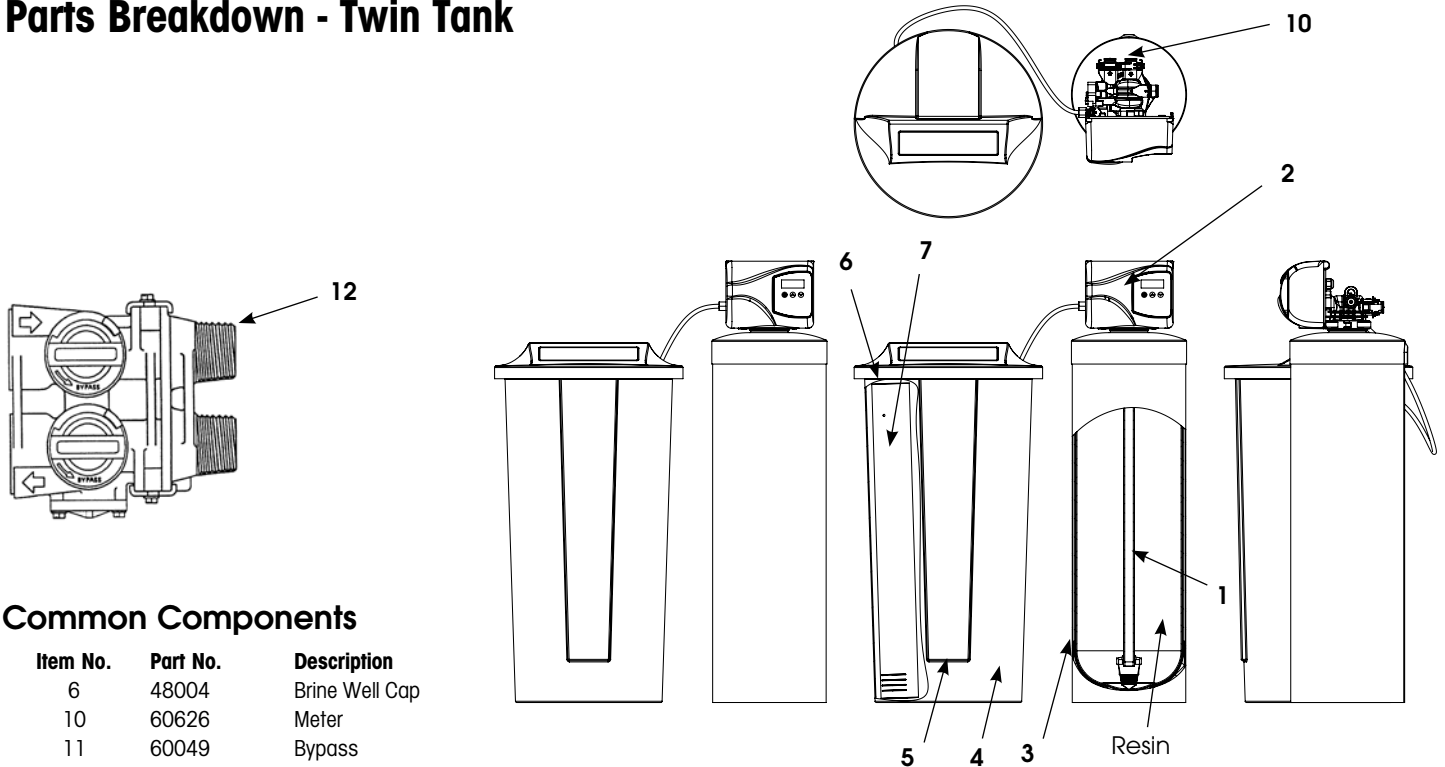
\*not shown

| Part Number | Model Description | Valve (2) | Tank (3) | Resin #21502 |
|-------------|-------------------|-----------|----------|--------------|
| 4621        | DC20SXT           | 6200201   | 19354    | 0.75 CF      |
| 4622        | DC30SXT           | 6200202   | 110354   | 1.00 CF      |



| Dimensions (inches) |                     |
|---------------------|---------------------|
|                     | DC20SXT/<br>DC30SXT |
| A                   | 44                  |
| B                   | 17                  |
| C                   | 17                  |
| D                   | 38                  |
| E                   | 17                  |

# Parts Breakdown - Twin Tank

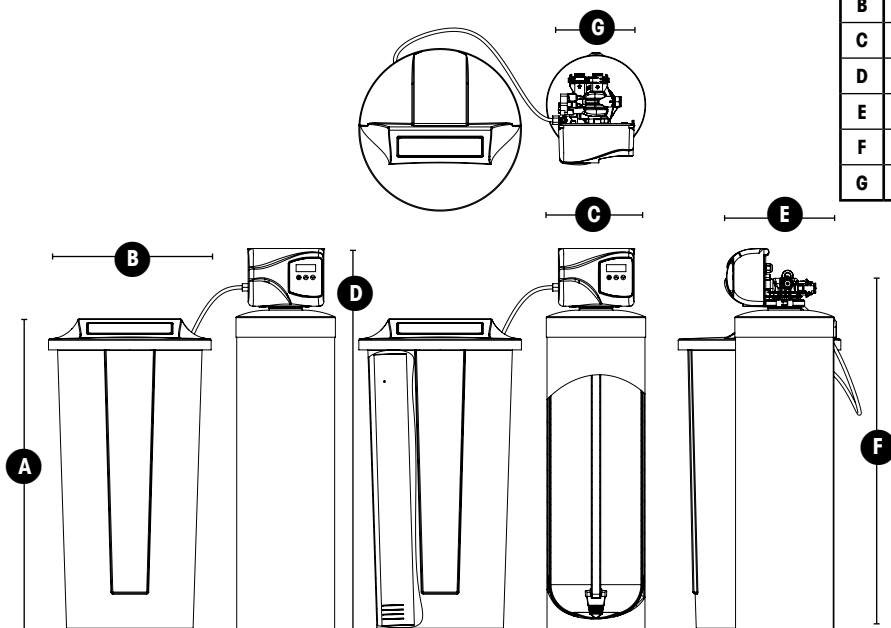


## Common Components

| Item No. | Part No. | Description    |
|----------|----------|----------------|
| 6        | 48004    | Brine Well Cap |
| 10       | 60626    | Meter          |
| 11       | 60049    | Bypass         |

| Part Number | Model Description | Distributor (1) | Valve (2) | Tank (3) | Brine Tank (4) | Grid (5) | Safety Float (7) | Resin #21502 |
|-------------|-------------------|-----------------|-----------|----------|----------------|----------|------------------|--------------|
| 4623        | DT20SXT           | 19495           | 6200203   | 19354    | 100283         | N/A      | 13624            | 0.75 CF      |
| 4624        | DT30SXT           | 19495           | 6200204   | 110354   | 100283         | N/A      | 13624            | 1.00 CF      |
| 4625        | DT40SXT           | 19478           | 6200205   | 110474   | 100283         | N/A      | 13624            | 1.25 CF      |
| 4626        | DT60SXT           | 19477           | 6200206   | 112524   | 100192         | 19710    | 13624            | 2.00 CF      |
| 4627        | DT90SXT           | 60098           | 6200207   | 114651   | 100192         | 95009-21 | 13624            | 3.00 CF      |

| Dimensions (inches) |         |         |         |         |         |
|---------------------|---------|---------|---------|---------|---------|
|                     | DT20SXT | DT30SXT | DT40SXT | DT60SXT | DT90SXT |
| A                   | 35      | 35      | 36      | 36      | 36      |
| B                   | 18      | 18      | 21      | 21      | 21      |
| C                   | 9       | 10      | 10      | 12      | 14      |
| D                   | 41      | 41      | 53      | 58      | 71      |
| E                   | 15      | 15      | 15      | 15      | 15      |
| F                   | 37      | 37      | 49      | 54      | 67      |
| G                   | 2       | 2       | 2       | 2       | 2       |



## Error Codes

Note: Error codes appear on the In Service display

| Error Code | Probable Cause   | Recover and Resetting  |
|------------|--|--|
| [Err 0]    | Drive motor is stalled   | Unplug the unit from the power source  |
| [Err 1]    | Drive motor is running continuously  | When power is restored to the unit, the Err _ display code clears. If the condition causing the error has not been resolved the Err _ code reappears in the four digit display. Do not attempt to troubleshoot this problem any further. |
| [Err 2]    | There have been more than 99 days since the last Regeneration. If the Day of the Week mode of regeneration is selected and days since last regeneration exceeds 7 days.<br><br>[ 7 - - 5 ]: There have been more than 7 days since the last regeneration. All individual settings (d1, d2, d3, d4, d5, d6, d7) are set to 0. | Regeneration must occur for the unit to recover, the display to clear and the valve to function normally.<br><br>[ 7 - - 5 ]: To recover from [Err2], the user must initiate a regeneration or set at least one individual day to 1.     |
| [Err 3]    | Control board memory failure.  | Perform a Master Reset. If the error returns, do not attempt to troubleshoot this problem any further.   |

### Error Display Example



NOTE: Unit will flash when an error exists.



# Trouble Shooting Guide

| Problem   | Possible Solutions   |
|---|--|
| <p><b>1. CONDITIONER DELIVERS HARD WATER</b></p> <p>A. Bypass valve is open<br/>           B. No salt in brine tank<br/>           C. Injector or screen plugged<br/>           D. Insufficient water flowing into brine tank<br/>           E. Hot water tank hardness</p> <p>F. Leak at distributor tube<br/>           G. Internal valve leak</p> <p>H. Flow meter jammed<br/>           I. Flow meter cable disconnected or not plugged into meter cap<br/>           J. Improper programming</p> | <p>A. Close bypass valve<br/>           B. Add salt to brine tank and maintain salt level above water level<br/>           C. Replace injectors and screen<br/>           D. Check brine tank fill time and clean brine line flow tank control if plugged<br/>           E. Make sure distributor tube is not cracked. Check O ring and tube pilot<br/>           F. Make sure distributor tube is not cracked. Check O ring and tube pilot<br/>           G. Replace seals and spacers and/or piston<br/>           H. Remove obstruction from flow meter<br/>           I. Check meter cable connection to timer and meter cap<br/>           J. Reprogram the control to the proper regeneration type, inlet water hardness, capacity or flow meter size.</p> |
| <p><b>2. CONDITIONER FAILS TO REGENERATE</b></p> <p>A. Electrical service to unit has been interrupted<br/>           B. Timer is not operating properly<br/>           C. Defective valve drive motor<br/>           D. Improper programming</p>   | <p>A. Assure permanent electrical service (check fuse, plug, chain or switch)<br/>           B. Replace timer<br/>           C. Replace drive motor<br/>           D. Check programming and reset as needed</p>  |
| <p><b>3. UNIT USES TOO MUCH SALT</b></p> <p>A. Improper salt setting<br/>           B. Excessive water in brine tank<br/>           C. Improper programming</p>   | <p>A. Check salt usage and salt setting<br/>           B. See #7<br/>           C. Check programming and reset as needed</p>   |
| <p><b>4. LOSS OF WATER PRESSURE</b></p> <p>A. Iron build-up in line to water conditioner<br/>           B. Iron build-up in water conditioner</p> <p>C. Inlet of control plugged due to foreign material broken loose from pipes by recent work done on plumbing system.</p>  | <p>A. Clean line to water conditioner<br/>           B. Clean control and add resin cleaner to resin bed. Increase frequency of regeneration<br/>           C. Remove piston and clean control</p>   |
| <p><b>5. LOSS OF RESIN THROUGH DRAIN LINE</b></p> <p>A. Air in water system<br/>           B. Drain line flow control is too large</p>  | <p>A. Assure that well system has proper air eliminator control. Check for dry well condition.<br/>           B. Ensure drain line flow control is sized</p>   |
| <p><b>6. IRON IN CONDITIONED WATER</b></p> <p>A. Fouled resin bed<br/>           B. Iron content exceeds recommended parameters</p>   | <p>A. Check backwash, brine draw and brine tank fill. Increase frequency of regeneration. Increase backwash time.<br/>           B. Add iron removal filter system</p>   |

# Trouble Shooting Guide

| Problem  | Possible Solutions  |
|--|---|
| <b>7. EXCESSIVE WATER IN BRINE TANK</b><br>A. Plugged drain line flow control<br>B. Brine valve failure<br>C. Improper programming   | A. Clean flow control<br>B. Replace brine valve<br>C. Check programming and reset as needed   |
| <b>8. SALT WATER IN SERVICE LINE</b><br>A. Plugged injector system<br>B. Timer not operating properly<br>C. Foreign material in brine valve<br>D. Foreign material in brine line flow control<br>E. Low water pressure<br>F. Improper programming                      | A. Clean injector and replace screen<br>B. Replace timer<br>C. Clean or replace brine valve<br>D. Clean brine line flow control<br>E. Raise water pressure<br>F. Check programming and reset as needed  |
| <b>9. CONDITIONER FAILS TO DRAW BRINE</b><br>A. Drain line flow control is plugged<br>B. Injector is plugged<br>C. Injector screen is plugged<br>D. Line pressure is too low<br>E. Internal control leak<br>F. Improper programming<br>G. Timer not operating properly | A. Clean drain line flow control<br>B. Clean or replace injectors<br>C. Replace screen<br>D. Increase line pressure (line pressure must be at least 20 psi at all times)<br>E. Change seals and spacers and/or piston assembly<br>F. Check programming and reset as needed<br>G. Replace timer    |
| <b>10. CONTROL CYCLES CONTINUOUSLY</b><br>A. Timer not operating properly<br>B. Faulty microswitches and/or harness<br>C. Faulty cycle cam operation   | A. Replace timer<br>B. Replace faulty microswitch or harness<br>C. Replace cycle cam or reinstall   |
| <b>11. DRAIN FLOWS CONTINUOUSLY</b><br>A. Foreign material in control<br>B. Internal control leak<br>C. Control valve jammed in brine or backwash position<br>D. Timer motor stopped or jammed teeth<br>E. Timer not operating properly                                | A. Remove piston assembly and inspect bore. Remove foreign material and check control in various regeneration positions<br>B. Replace seals and/or piston assembly<br>C. Replace piston and seals and spacers<br>D. Replace timer motor and check all gears for missing teeth<br>E. Replace timer |

# Duro Guarantee

WaterGroup Inc. guarantees that your new water conditioner is built of quality material and workmanship. When properly installed and maintained, it will give years of trouble free service.

## **Seven Year Complete Parts Guarantee:**

WaterGroup Inc. will replace any part which fails within 60 months from date of manufacture, as indicated by the serial number provided the failure is due to a defect in material or workmanship. The only exception shall be when proof of purchase or installation is provided and then the warranty period shall be from the date thereof.

## **Ten Year Guarantee on Mineral Tanks and Brine Tanks:**

WaterGroup Inc. will provide a replacement mineral tank or brine tank to any original equipment purchaser in possession of a tank that fails within 120 months, provided that the water conditioner is at all times operated in accordance with specifications and not subject to freezing.

## **General Provisions:**

WaterGroup Inc. assumes no responsibility for consequential damage, labor or expense incurred as a result of a defect or for failure to meet the terms of these guarantees because of circumstances beyond its control.



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