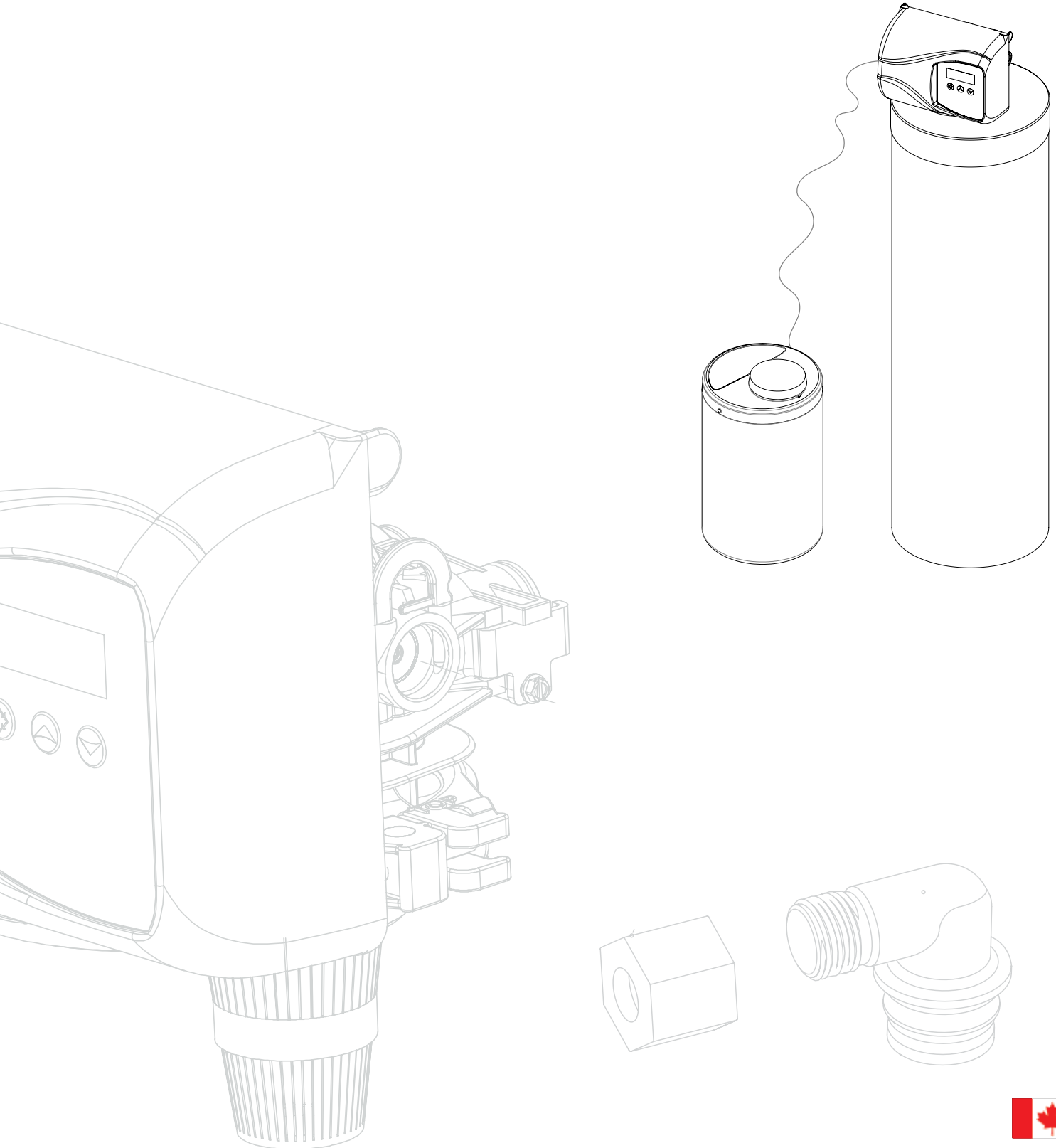


6200 SXT Automatic Manganese Greensand Filter (ISF)



Introduction

Read this Manual First

- Read this manual thoroughly to become familiar with the device and its capabilities before installing or operating your Water Filter. 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 filter.
- 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 filter.
- This unit is capable of operating at temperatures between 40°F and 110°F (4°C - 43°C). Do not use this water filter 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

Specification

Unit † Item #	Model #	Tank Size	Media Rate (CF)	Service Flow Rate (gpm)	Peak Service Flow Rate (gpm)	Backwash Flow Rate (gpm)	Shipping Weight (lbs)	Pot Perm per Regen	Iron Capacity (ppm)	
Novatek Twin Tank Softeners										
	4448	NMGF75SXT	8 X 47	0.75	4	5	3.5	120	2 oz	4500
	4449	NMGF10SXT	10 X 47	1	5	6	5	150	4 oz	6000
	4450	NMGF15SXT	12 X 52	1.5	8	9	7	180	6 oz	9000
	4451	NMGF20SXT	14 X 50	2	10	11	10	265	8 oz	12000

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"

** Potassium Permanganate Feeder come unloaded.
 Potassium Permanganate sold separately.

• 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.

Peak flow rates intended for intermittent use only (10 minutes or less) and are for residential applications only. Do not use peak flow rate for commercial applications or for a continuous rate when treated water supplies are geothermal heat pump, swimming pool, etc.

† USA customers will need to add "-4" to the item numbers for ordering.

How a Novatek Manganese Greensand Filter Works

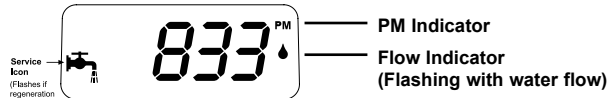
Your automatic iron filter is an ingeniously simple and reliable design. The unit consists of a bed of filter media contained in a fiberglass tank; a specially designed feeder containing potassium permanganate for the regeneration of the filter and a proven automatic control. Raw water enters your home through the main supply line, enters your iron filter and passes down through the filter media. Any iron, manganese or hydrogen sulfide present in your water supply is exposed to oxygen stored in the filter media. The oxygen causes precipitation of the minerals and they are trapped in the filter media. Only clean filtered water flows to your household water line. The filter media is periodically regenerated, automatically backwashing the trapped minerals to the drain and replacing the oxygen. This is done by introducing potassium permanganate to the media.

1. Your automatic iron filter can be programmed to operate according to your needs by making the appropriate settings on the timer. On the days your filter regenerates, the operating cycles will be automatically performed. In the service position, filtered water is supplied for household use.
2. The automatic control reverses the flow of the water through the filter, backwashing minerals trapped in the filter to the drain.
3. The control pulls a vacuum on the feeder. This causes an exact volume of saturated potassium permanganate solution to be drawn into the filter tank.
4. The control slowly rinses the chemical through the media tank. The potassium permanganate supplies oxygen to the filter media.
5. The control fast rinses the media bed to settle it and to ensure that all the chemical and mineral precipitate is removed.
6. The control adds water to entirely fill the previously evacuated feeder. The feeder is now ready for the next regeneration. The control puts the system into service, supplying iron-free water to the household. All this is performed automatically over a period of 2 ¾ hours. Water runs to the drain for approximately 80 minutes

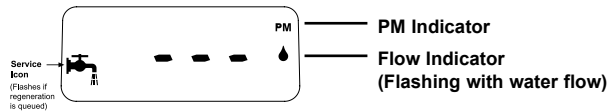
The water softener can run for days before running out of sodium, and when it does, the sodium is replenished in only a matter of a few hours.

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



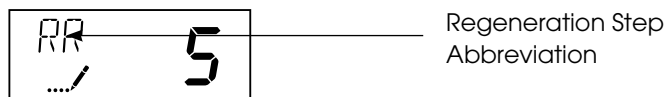
0 Gallons of Treated Water Remaining



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.

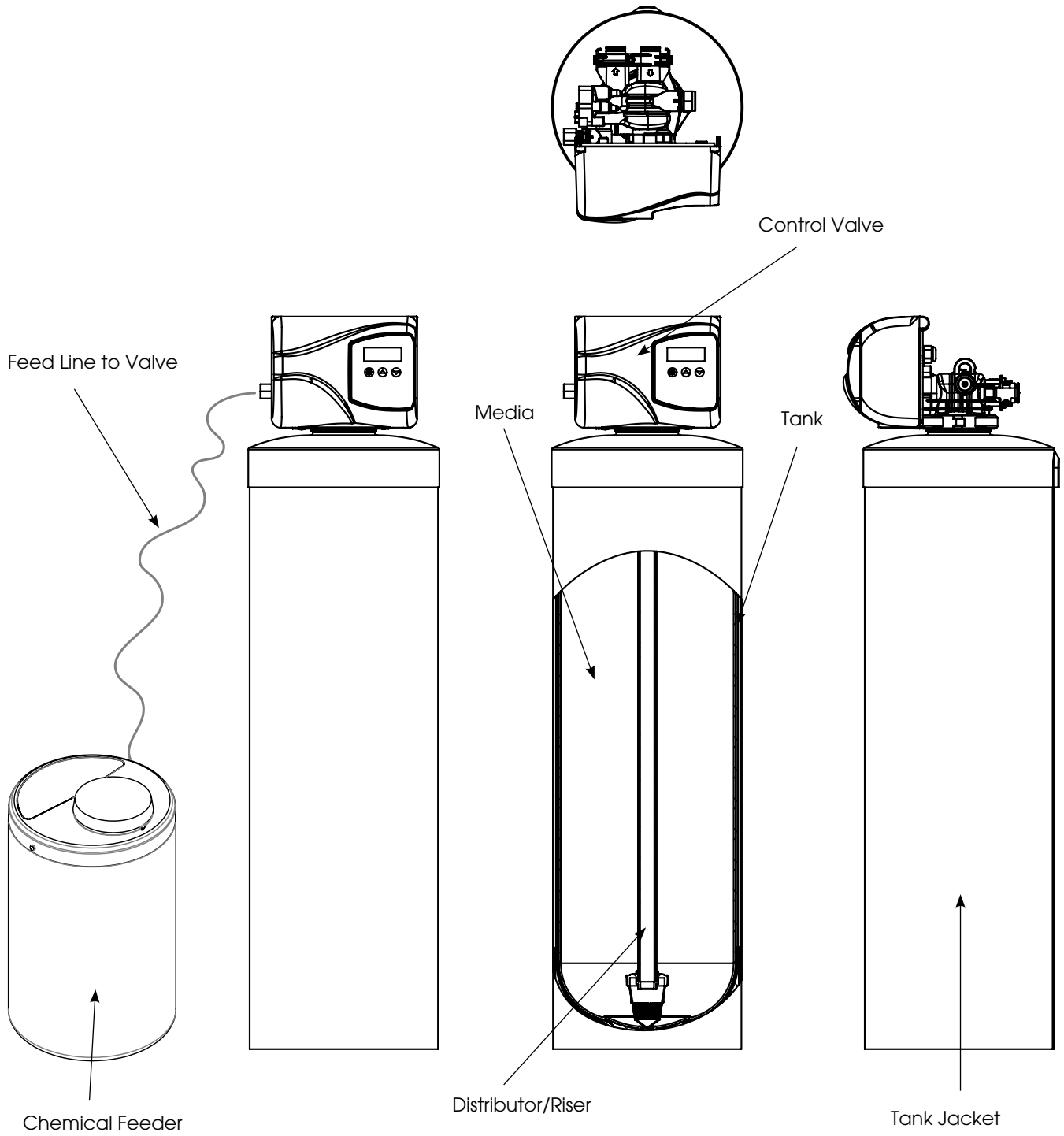
Example Less than 6 minutes remaining in Regeneration Step Rapid Rinse



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



Sizing and Operating Requirements

Water Pressure

The water system must have a pump big enough to deliver the recommended backwash rate with a minimum pressure at the inlet of the filter of 20 psi (137 kPa). If the existing system cannot do this, it must be upgraded to do so. Whenever possible, the water system should be adjusted to deliver at least 30 psi (206.8 kPa) for even more satisfactory results. Maximum pressure should not exceed 100 psi (689 kPa).

Backwash Flow Rates

The most important criteria in sizing an iron filter is the capacity of the pump. The water must pass through the filter media at a service flow rate that allows it to oxidize and collect the iron. The filter must also be backwashed at a flow rate sufficient to dislodge and remove the captured iron. Failure to provide sufficient water will cause a build-up of iron in the filter media, impairing its iron removing ability and resulting in iron bleeding out into the service water. In order for your filter to backwash and rinse properly, your pump must be capable of providing the backwash flow rates indicated in the above specification chart.

Capacity

An iron filter with one cubic foot of filter media regenerated with one Potassium Permanganate feeder will work well for most residential applications. For example, with iron in the range of 3-6 ppm, most filters will need to regenerate every two or three days providing an average family size of four or five people. The specification chart above shows the iron removal capacity in ppm that can be expected on automatic iron filters. The specifications are based on obtaining 6,000 ppm of capacity for each cubic foot of filter media. Two different Potassium Permanganate feeders are available – one feeding 2 oz. per regeneration, the other feeding 4 oz. In order to obtain the above capacities, the pH of the water being treated must be 7.0 or above. In the event the water is below 7.0, it must be treated with the appropriate equipment before going through the filter.


Removal of Iron, Manganese & Hydrogen Sulfide

For the purpose of sizing a filter, consider 1 ppm of manganese equal to 2 ppm of iron and 1 ppm of hydrogen sulfide equal to 3 ppm of iron. Manganese and hydrogen sulfide (sulfur) are more difficult to oxidize than iron. Therefore, we suggest that, when making your sizing calculations and regeneration frequency calculations, calculate iron x 1, manganese x 2 and hydrogen sulfide x 3. All three must equal less than 10 ppm. Manganese is often present in water when iron is present. Hydrogen sulfide can normally be identified by a strong rotten egg odor

Installation Instructions

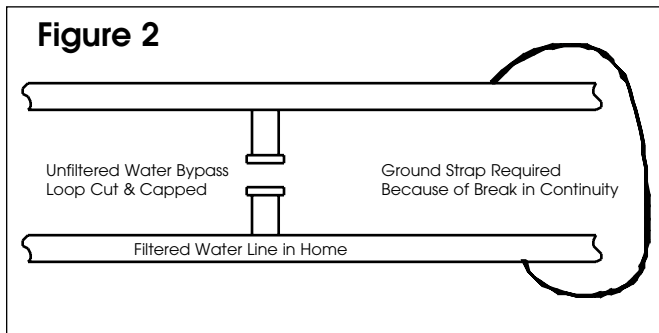
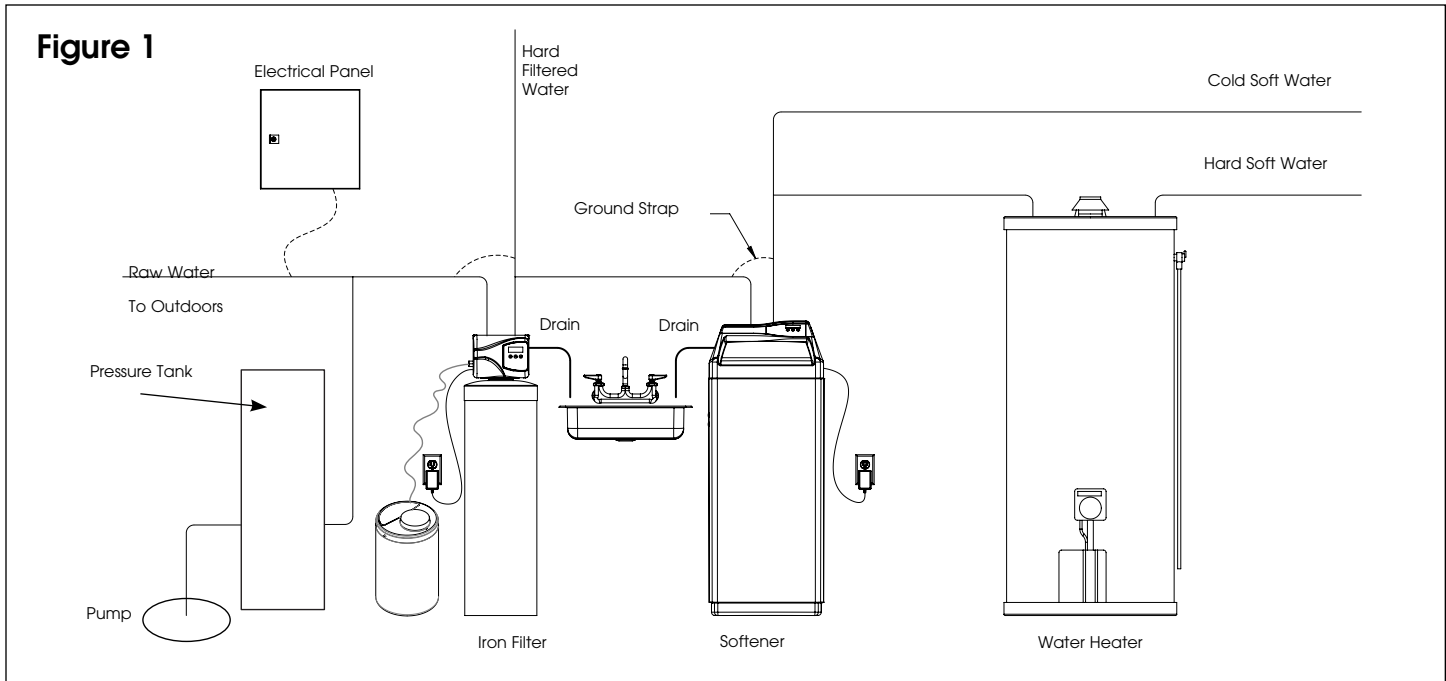
Contact your local distributor to use WaterGroup laboratory for complete water analysis free of cost and no obligation to you.

 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.

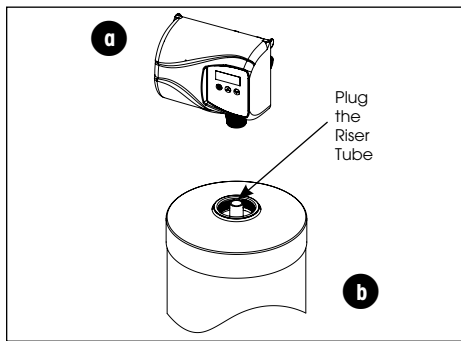
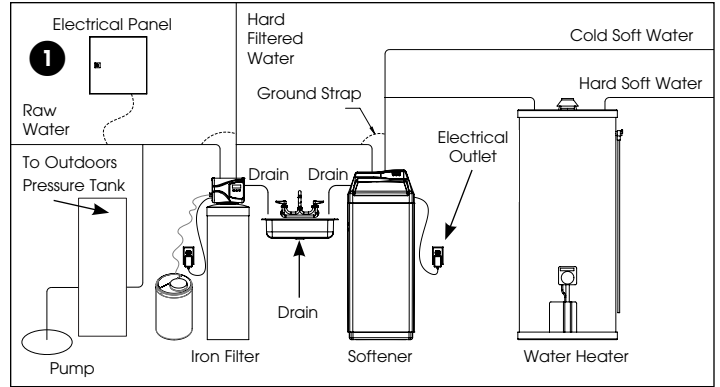
NOTE: Check your local electrical code for the correct clamp.



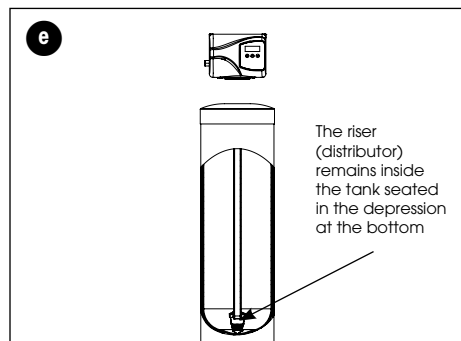
Preparations

1. **Determine the best location** for your water filter, 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.

2. **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.



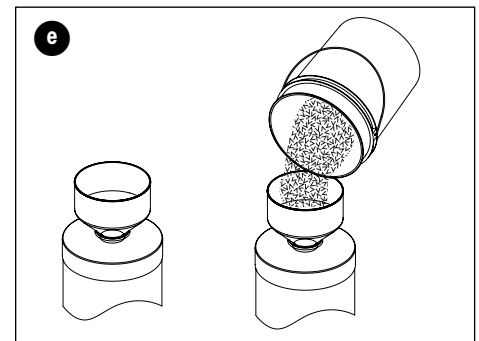
a) Remove the valve from the mineral tank.



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

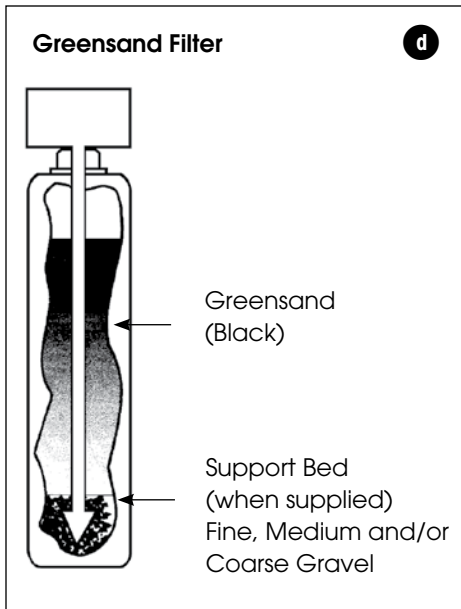
The riser (distributor) remains inside the tank seated in the depression at the bottom.

Plug tube with a tape.
Remove after media is loaded.



Fill support bed first (if supplied)

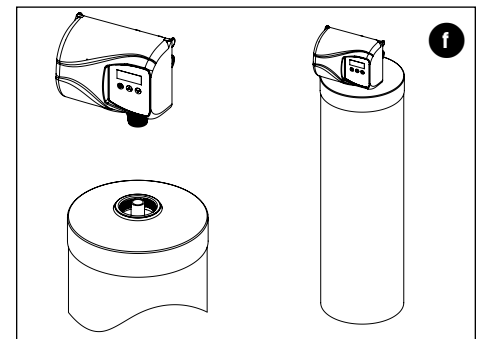
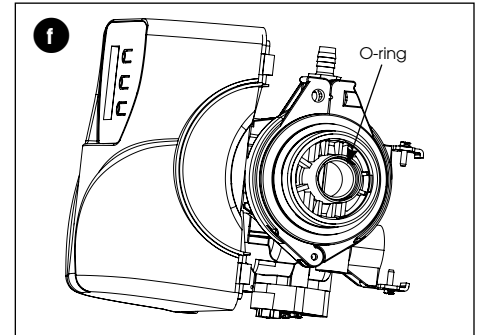
The media will not always spill down inside the tank and may need to be swept inside.



- 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.



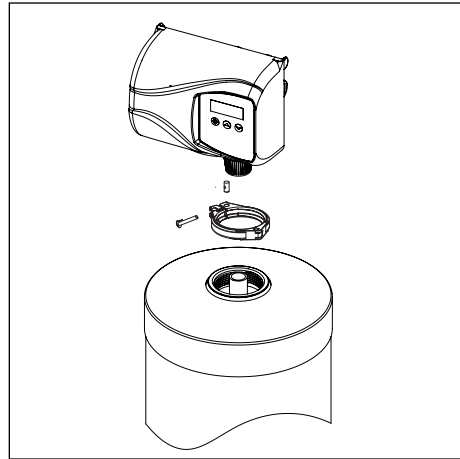
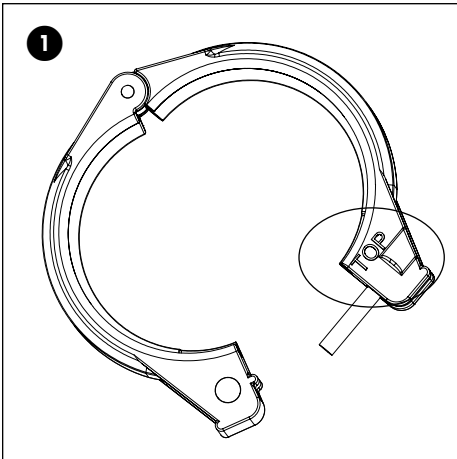
 **DO NOT use petroleum based lubricants as they will cause swelling of O-ring seals.**

The filter is now charged with 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.

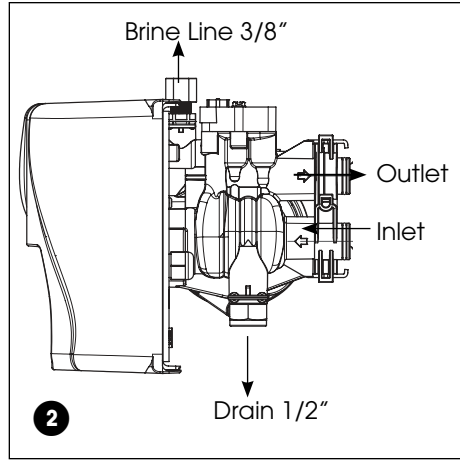
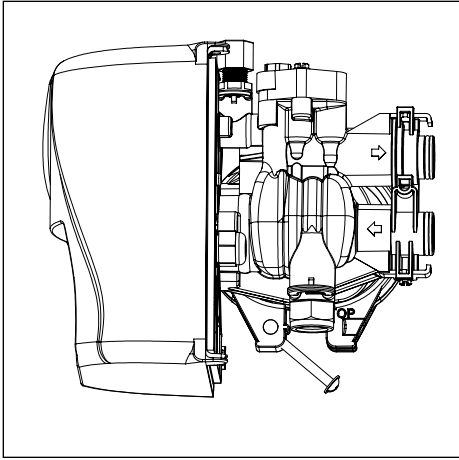
Installation Steps:



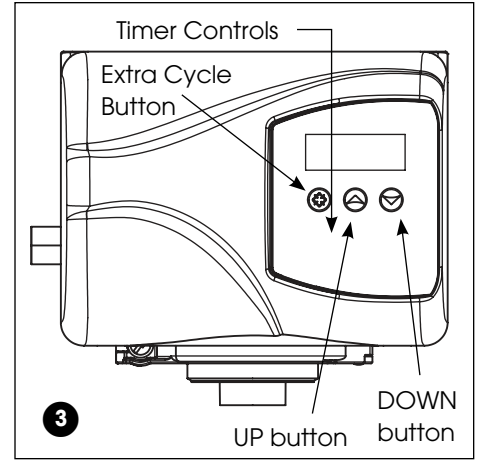
1. Clamp Ring – The clamp ring connects the control valve to the tank and provide an easy way to disconnect tank during control valve servicing. Make sure that the clamp ring screw is tightened.



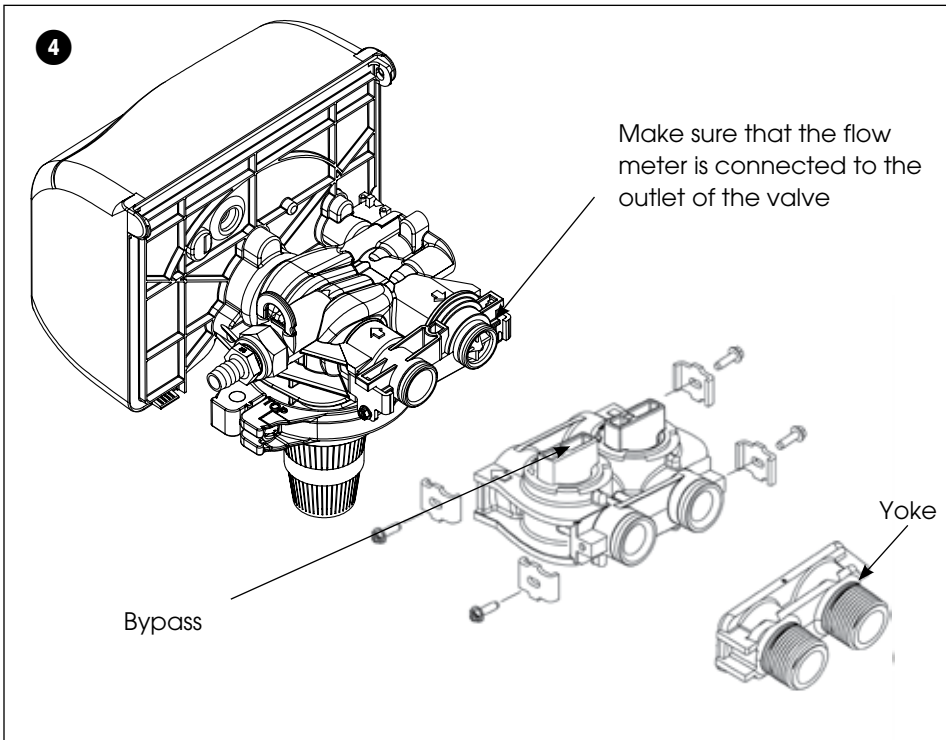
The "Clamp Ring" should secure the valve with the top of the flange facing up. Please note "top" on the clamp ring.



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.

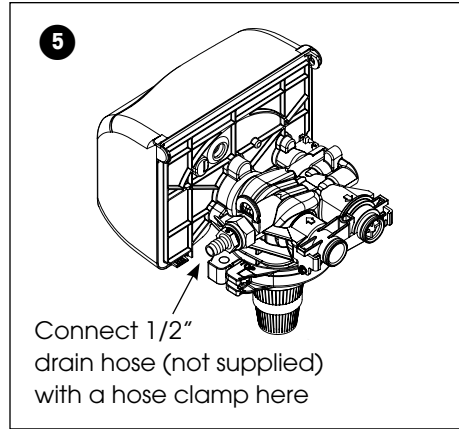
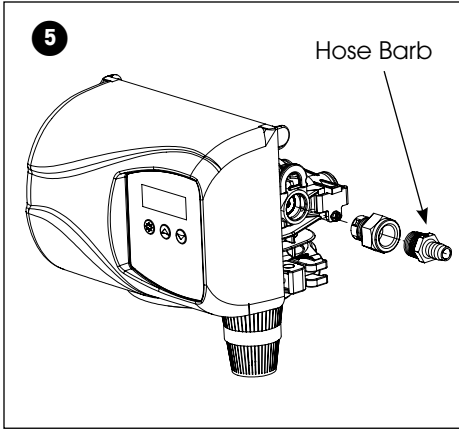


3. Familiarize yourself with the buttons on the timer control.



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.

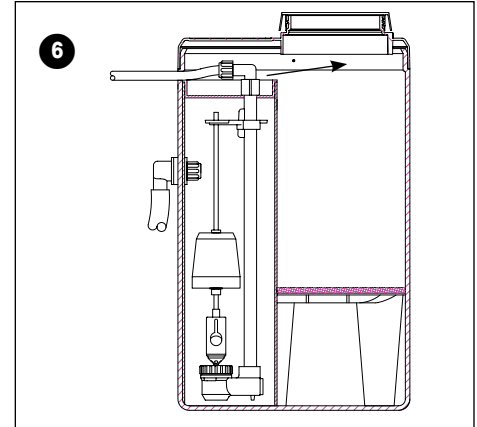
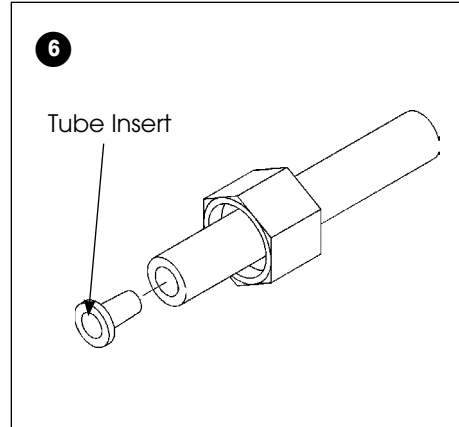
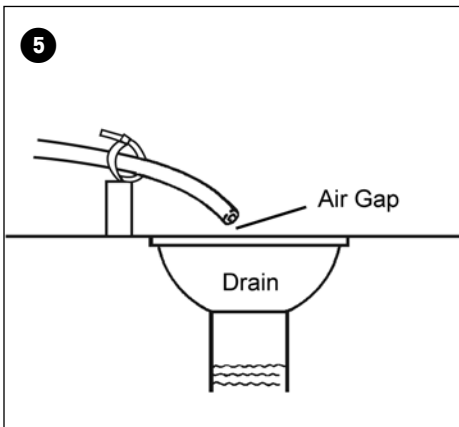
 Do not use pipe thread compound as it may attack the material in the valve body



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.



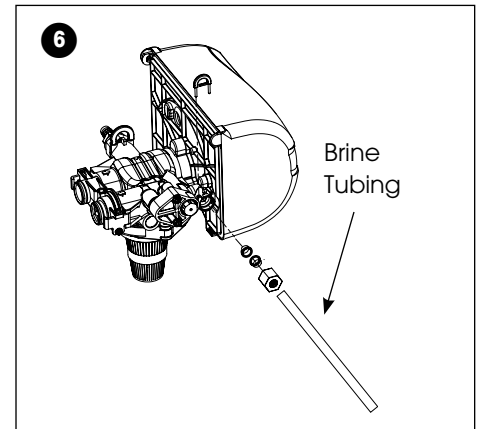
6. Connect the feeder container to the control valve with the flexible polyethylene tubing provided. The connection to the container is made with the fitting nut provided (do not overtighten).

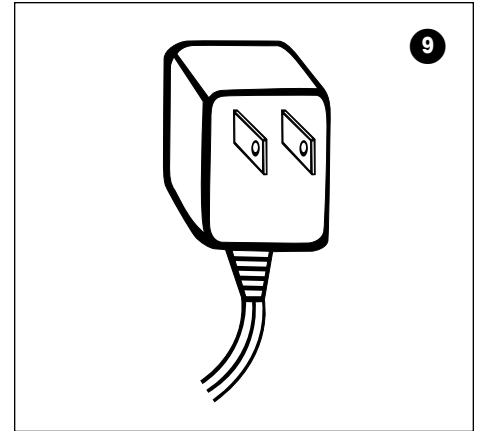
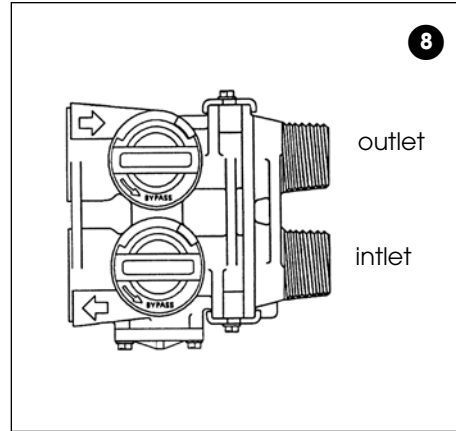
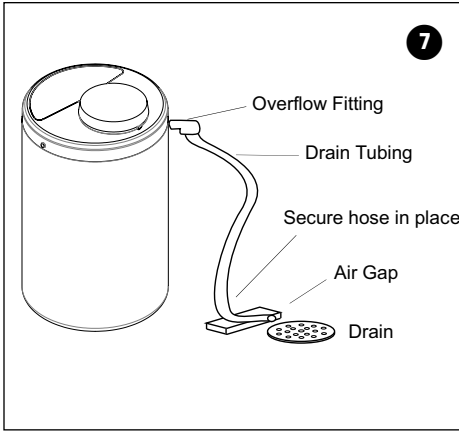
Connect the brine line to the fitting on the side of the valve using the nut and ferrule. Tighten snugly. Remove the nut from the brine line of the valve and push the other end of the brine tube inside it. Make sure that the brass insert is snugged inside the brine tubing. The brine tubing should pass 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.

Attach the 5/8" hose (supplied) to the over flow fitting on the feeder and run the hose to the floor drain

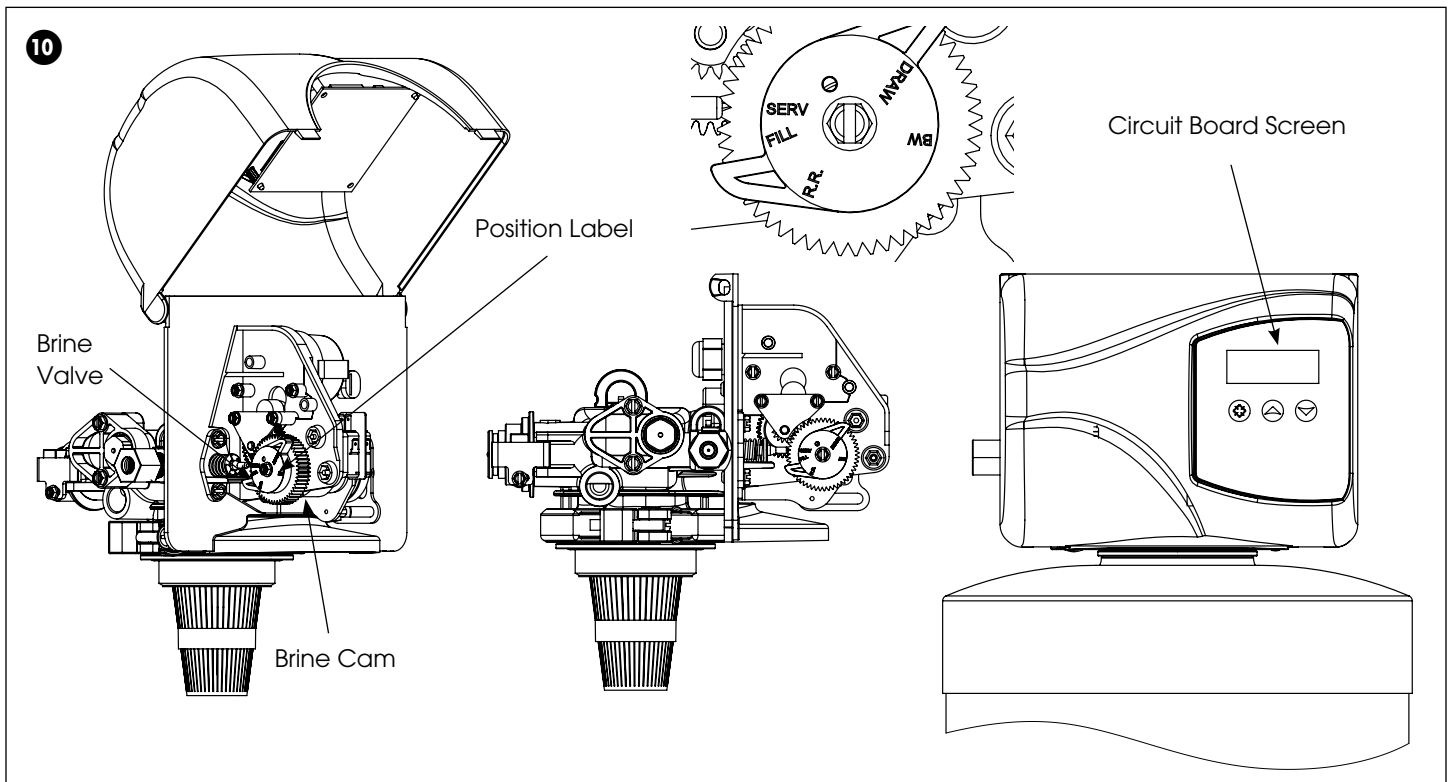
Do not tie into drain line of control unit. Overflow line must be a direct, separate line from overflow fitting to drain, sewer or tub. Allow an air gap as per drain line instructions.





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 Brine Refill position. Allow to fill for 5 minutes. Make sure there are no leaks in the top connection to the feeder container.

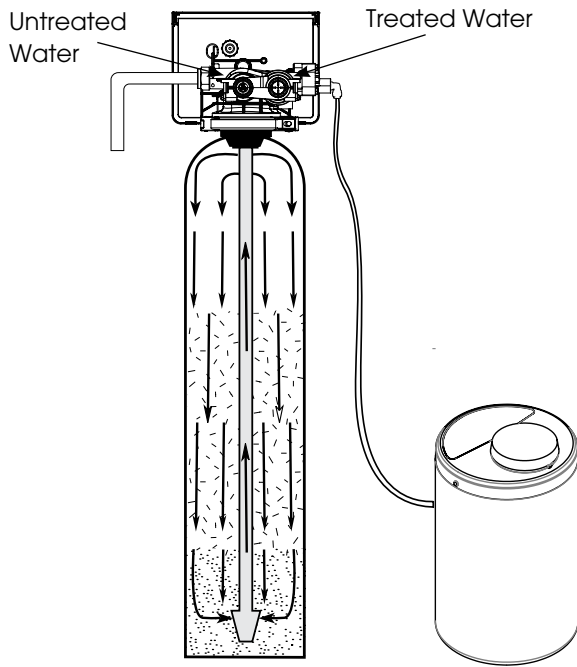
Advance to the Brine/Rinse position "2". Proper draw is indicated by upward motion of water droplets in the tube connected to the feeder container. Allow to draw for 5 minutes to pull the air out of the feeder container. Put control into the service position.

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

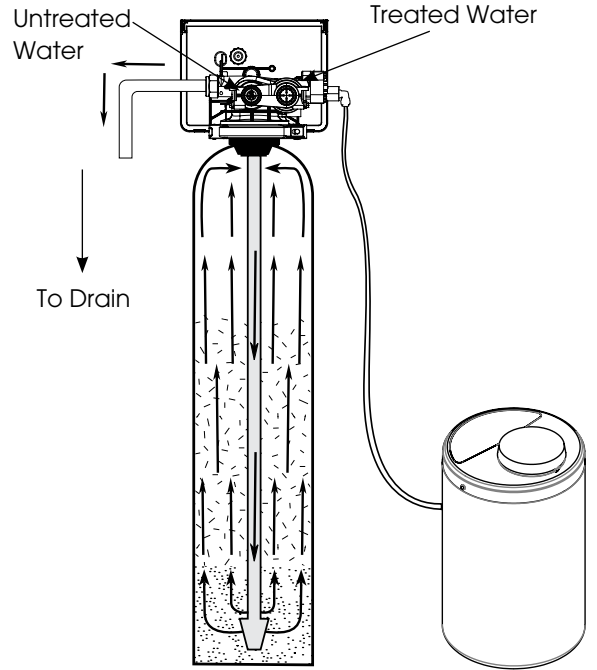
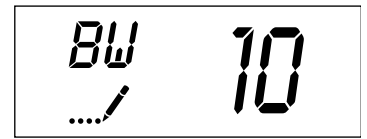
Cycle Step	Abbreviation
BD	Brine Draw
BW	Backwash
RR	Rapid Rinse
BF	Brine Refill
SV	Service

Water Conditioner Flow Diagrams

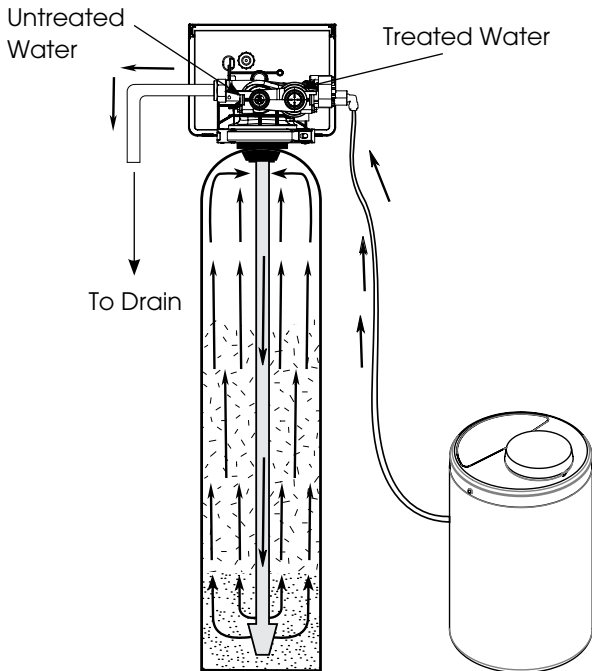
Service Position



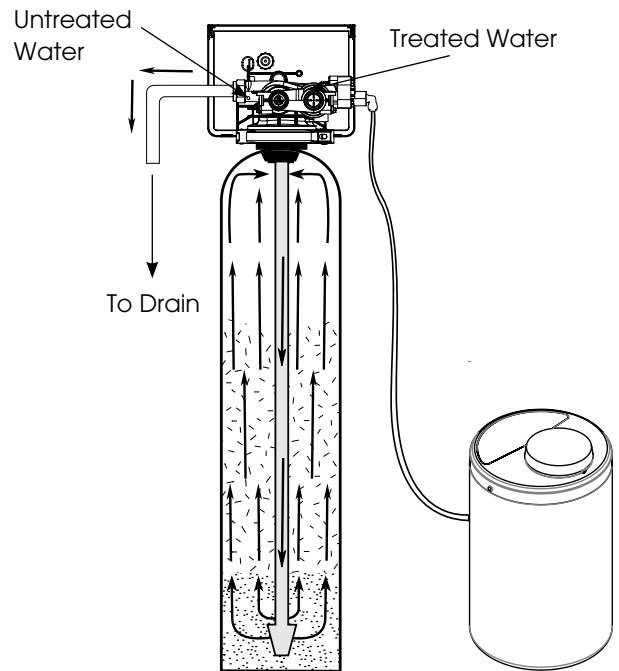
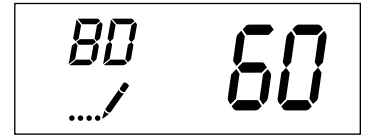
Backwash Position



Brine Rinse Position



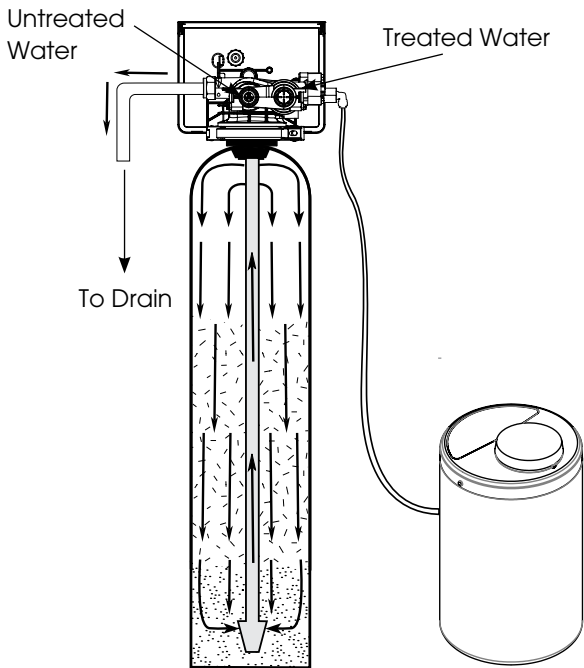
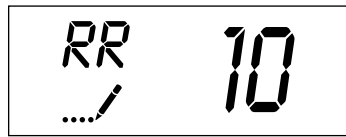
Slow Rinse Position



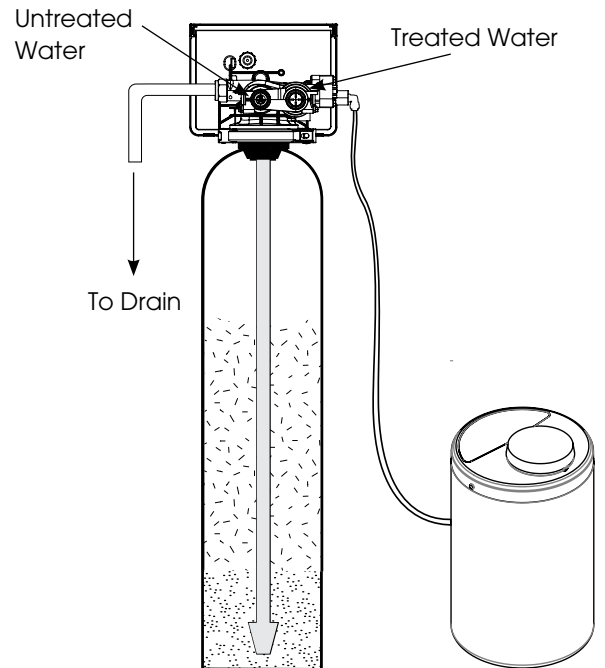
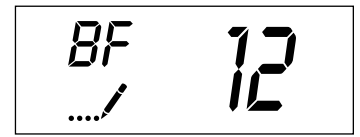
11. Press the extra cycle button to advance the valve to the "2" Backwash position. Slowly turn on the water supply and allow the unit to backwash until the air purges out of the tank and clears the system.

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.

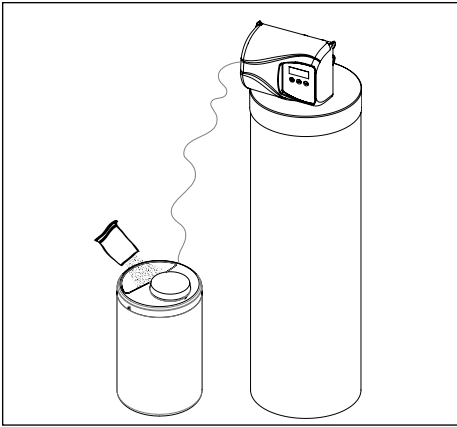
14. Press  to advance the valve from the Brine Fill position through service to the "1" position Brine/Rinse position. Verify that water is being drawn from the tank. If not, repeat step 9.

15. Press  button to advance the valve to the "2" Backwash position for 5 minutes.

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

17. Press  to advance the valve to the "4" Brine Fill position for 5 minutes.

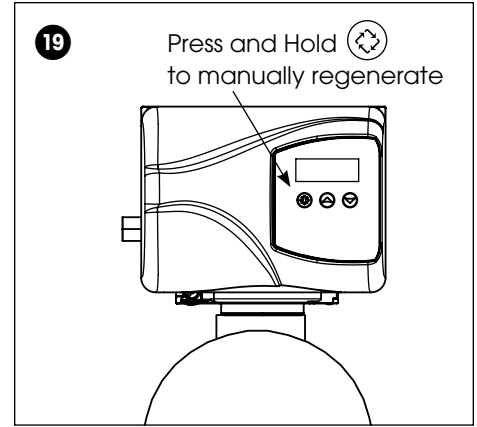
Press  to advance the valve back into the service position indicated by the  in upper left corner of the display.



18. Cautiously pour the Potassium Permanganate into the feeder and replace the cover and safety screws



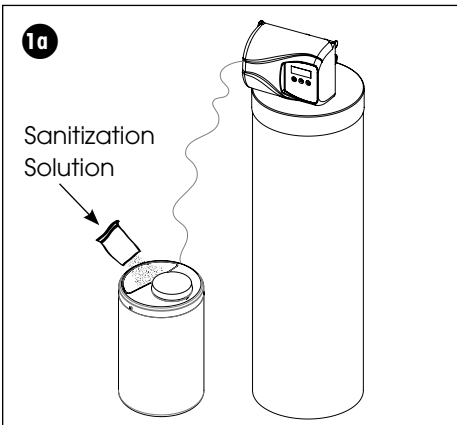
19. Set time of the day in the control valve and program the user section of the control valve programming section in this manual.



20. Manually initiate regeneration after about one hour for the potassium permanganate to activate the manganese greensand by pressing and holding extra cycle button.

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

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.

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 [Recycle Symbol] 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

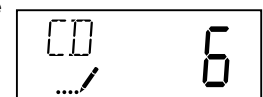
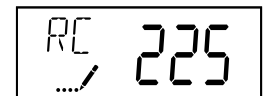
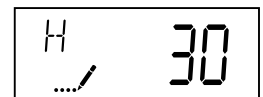
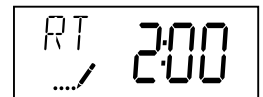
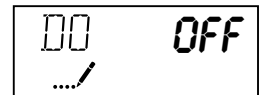
Press and hold the button for five seconds.

User Programming Mode Options		
Abbreviation	Parameter	Description
DO	Day Override	The timer's day override setting THIS IS AN OPTION ONLY. PLEASE DO NOT ADJUST BEFORE CONSULTING AN AUTHORIZED DEALER.
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	4 minutes	NMGF75SXT NMGF10SXT NMGF15SXT NMGF20SXT

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.

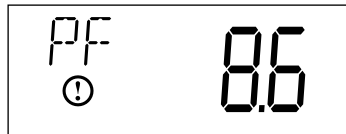
Diagnostic Programming Mode Steps

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

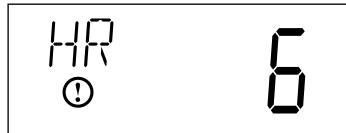
2. Use this display to view the current Flow Rate. This option setting is identified by "FR" in the upper left hand corner of the screen.



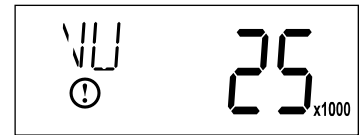
3. Press . Use this display to view the Peak Flow Rate since the last regeneration cycle. This option setting is identified by "PF" in the upper left hand corner of the screen.



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.



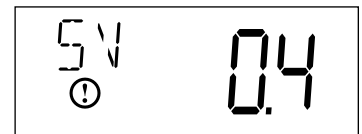
5. Press . Use this display to view the Volume Used since the last regeneration cycle. This option setting is identified by "VU" in the upper left hand corner of the screen.



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.

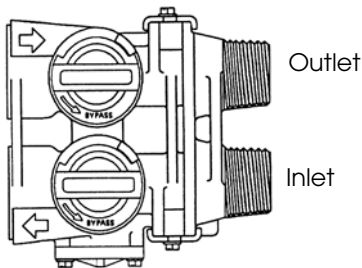
IMPORTANT: This is why the automatic regeneration is set for sometime during the night and manual regenerations should be performed when little or no water will be used in the household.

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

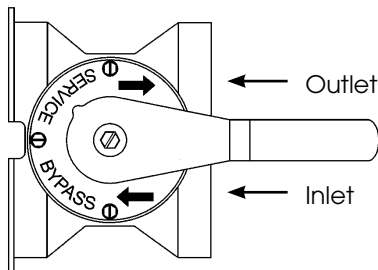
Figure 5A



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.

To determine the frequency of regeneration, use this procedure:

Setting the Frequency of Automatic Regeneration (SXT Models)

Please enter the ppm of compensated iron per gallon of water to be removed. See Step #4 of "User Programming." The SXT valve will automatically calculate the number of gallons of water to be treated by the iron filter between regenerations.

Iron Content in the Feed Water:

ppm of capacity between regenerations (see Specifications - Page 1)

- ÷ ppm of iron in the water sample*
- = number of gallons supplied between regenerations
- reserve capacity (number of people x 75 gallons)

Example - Using 5600 SXTM-948IF + 1 Feeder

	6000	ppm between regenerations
÷	8	ppm of compensated iron (To be entered by the user)
=	750	gallons between regenerations (See step #5 of "User Programming")
-	375	gallons reserve capacity (5 people x 75 gallons)
=	375	GALLONS - BETWEEN REGENERATIONS (Calculated by valve)

* 1 ppm of manganese = 2 ppm of iron; 1 ppm of hydrogen sulfide = 3 ppm of iron

Days:

Total amount of iron to be removed between regenerations -

- ÷ ppm of iron to be removed per day
- = NUMBER OF DAYS BETWEEN REGENERATIONS

Example:

	5	people in the household
x	75	gallons of filtered water per person
=	375	gallons of filtered per day
x	8	ppm of compensated iron
=	3,000	PPM OF IRON TO BE REMOVED PER DAY

Using 5600 SXTM-948IF + 1 Feeder

	6,000	ppm capacity
÷	3,000	ppm to be removed per day
=	2**	DAYS BETWEEN REGENERATIONS

**Maximum number of days between regenerations should be 12.

Manual Regeneration Cycle

If you run out of filtered water because of inadequate regeneration frequency, inadequate reserve capacity, power failure or unusually high water usage, you can initiate a manual regeneration simply by pressing the extra cycle button. The filter will now automatically complete a regeneration cycle and return to service. If possible, avoid water use during the regeneration cycle.

Once you have set your filter you may experience frequent loss of water pressure, you may have to increase the frequency of regeneration by decreasing the number of gallons between regeneration.

Potassium Permanganate Feeder

The potassium permanganate feeder assembly incorporates a non-pressurized storage tank and innovative new grid design along with a dependable float valve.

The attractive 10" x 16" black tank is made of tough blow-molded high density polyethylene. It has a potassium permanganate capacity of 30 lbs. and a liquid capacity of 5 gallons.

The black injection molded cover is securely fastened with three stainless steel safety screws to prevent access by children and pets. Also, the potassium chemical tank should be placed where it is free from possible upset or access by children or pets.

Chemical warning label and drain caution label are affixed to unit.

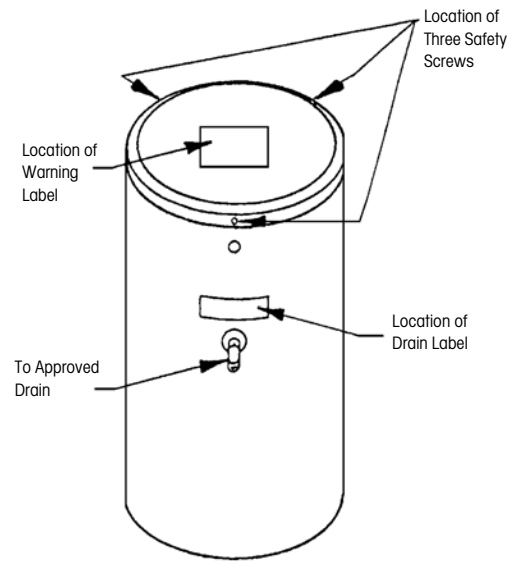
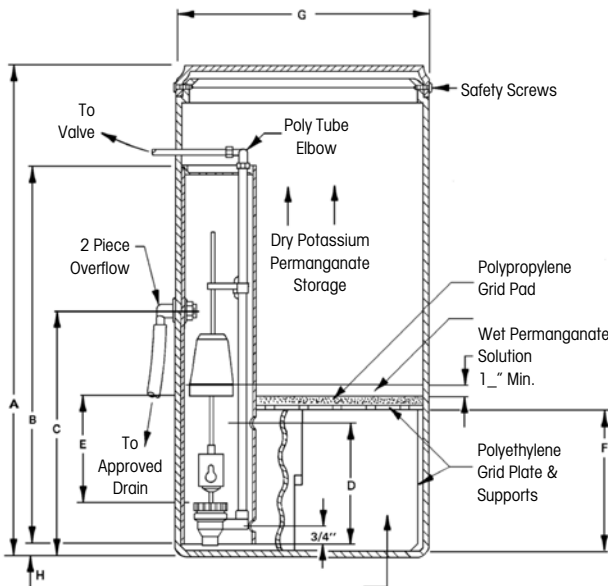
The unique polypropylene grid pad refuses to allow even the finest grade of undissolved potassium permanganate to pass through the grid. This permits efficient use of our assembly with all grades of potassium permanganate. Standard grid platform height is 6". Additional heights are available - consult factory.

The unit is shipped fully tested and assembled and weighs approximately 7 lbs. The feeder assembly includes:

- 10" x 16" black tank
- 3 Stainless steel safety screws
- 4" Well and cap
- 15 ft of 5/8" x 1/2" poly drain tubing*
- Drain caution label
- 1/4" PVC riser pipe
- 1/4" or 3/8" poly tube elbow

- Black injection molded cover
- Grid with polypropylene grid pad
- Float valve
- Chemical warning label
- 4 ft of 1/4" or 3/8" suction tubing
- 1/2" Overflow fitting

The potassium storage tank placement should be such to permit the installation of the overflow line to a permanent drain facility.



Dimensions - Inches

- A = 16-1/2"
- B = 14-1/2"
- C = 10-1/2"
- D = 5-1/4"
- E = See Table
- F = 5-3/4" (2 oz. to 4 oz.)
- 7-5/8" (6 oz.)
- G = 10-1/2"
- H = 1/8"

Oz. Of Potassium Permanganate	Gallons of Solution	Float Setting	Riser Pipe Length
2	3/4	2-1/2	11
4	1	4	12-1/2
6	1-1/2	5-5/8	12-1/2

Correct water temperature is important for obtaining properly dissolved potassium permanganate.

Tables based on permanganate solubility of 4 oz/gal at 50°F or 8 oz/gal at 72°F.

Float setting is based on distance between brine valve top body nut and the bottom of the float with the valve in the closed (float up) position.

All dimensions nearest 1/4 inch.

Iron and Manganese Removal

A recommended dose of 2 oz. to 6 oz. of potassium permanganate per cubic foot of manganese greensand is suggested for regeneration. Correct water temperature is important in obtaining proper dissolving of potassium permanganate. At 50°F (10°C), 4 oz. of potassium permanganate can dissolve in one gallon of water. At room temperature 72°F (22°C), 8 oz. will dissolve in one gallon of water.

Maintenance Instructions

Care of Your Filter

To retain the attractive appearance of your new water filter, 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.

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.

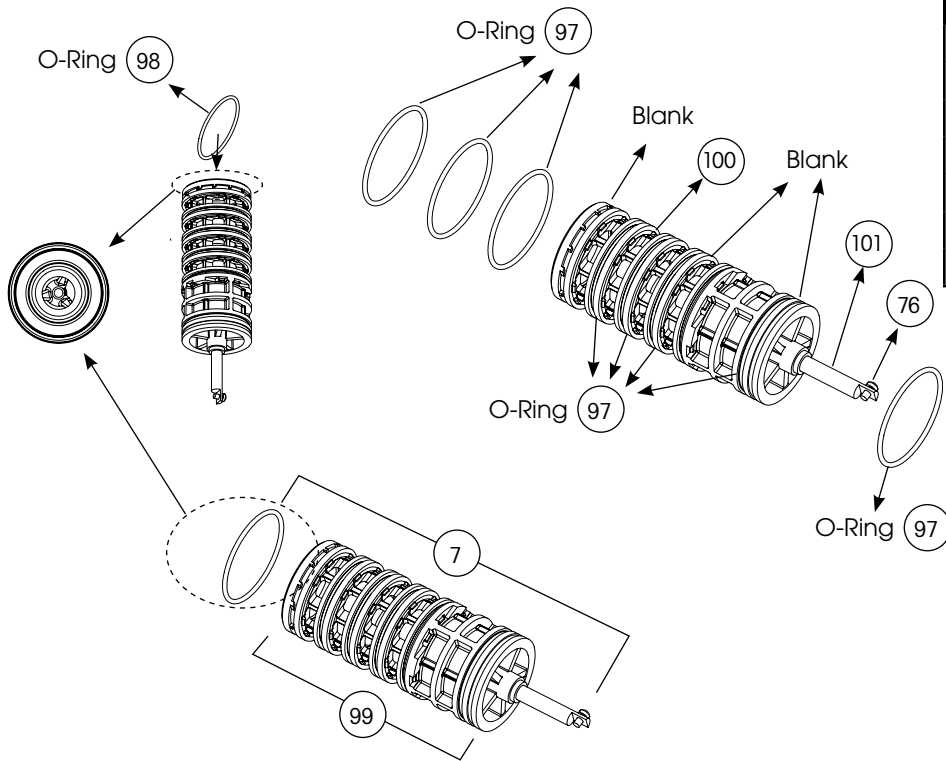


WARNING! ELECTRICAL SHOCK HAZARD! UNPLUG THE UNIT BEFORE REMOVING THE COVER OR ACCESSING ANY INTERNAL CONTROL PARTS.



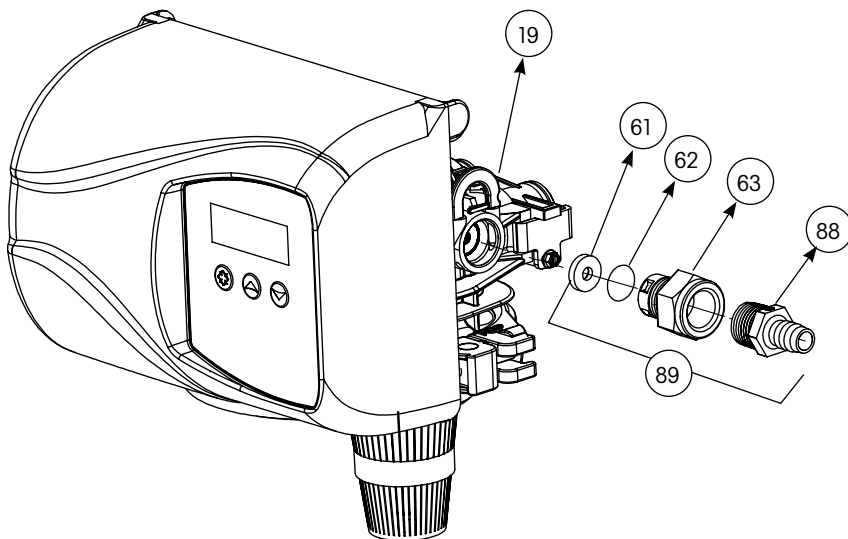
CAUTION! Disassembly while under pressure can result in flooding. Always follow these steps prior to servicing the valve.

6200 Service Kits – Piston and Cartridge Assembly



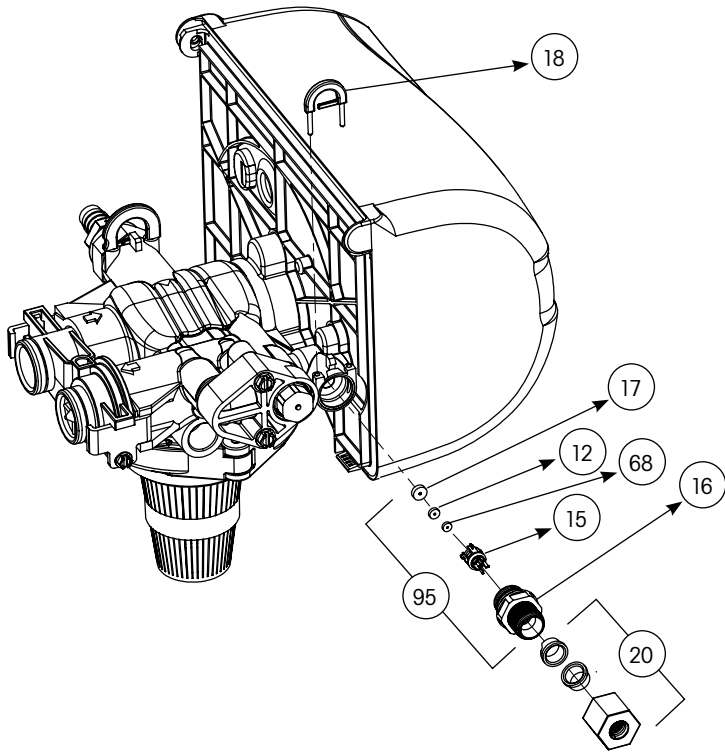
Dwg #	Part #	Part Description
7	61799-01	Cartridge Assembly with Piston
76	11335	Screw, 4-40X3/16
97	16394	O-Ring, 029
98	13287	O-Ring, 123
99	61799	Seal and Spacer Cartridge
100	42920	Piston
101	19984	Piston Rod

6200 Service Kits – Drain Line Flow Control Kits



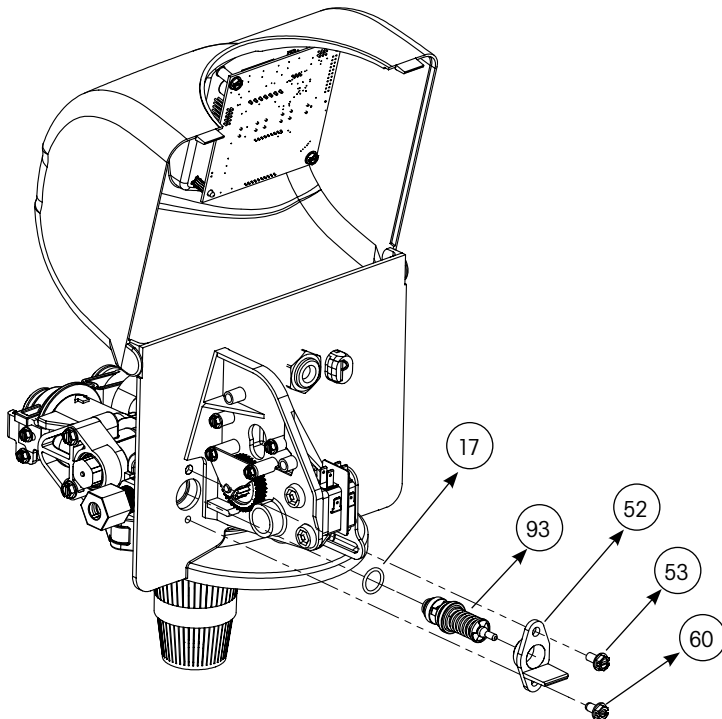
Dwg #	Part #	Part Description
61	12085	Washer, Flow, 1.2 GPM
	12086	Washer, Flow, 1.50 GPM
	12087	Washer, Flow, 2.0 GPM
	12088	Washer, Flow, 2.4 GPM
	12089	Washer, Flow, 3.0 GPM
	12090	Washer, Flow, 3.5 GPM
	12091	Washer, Flow, 4.0 GPM
	12092	Washer, Flow, 5.0 GPM
62	11183	O-Ring, 017
63	11385-01	Adapter, 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



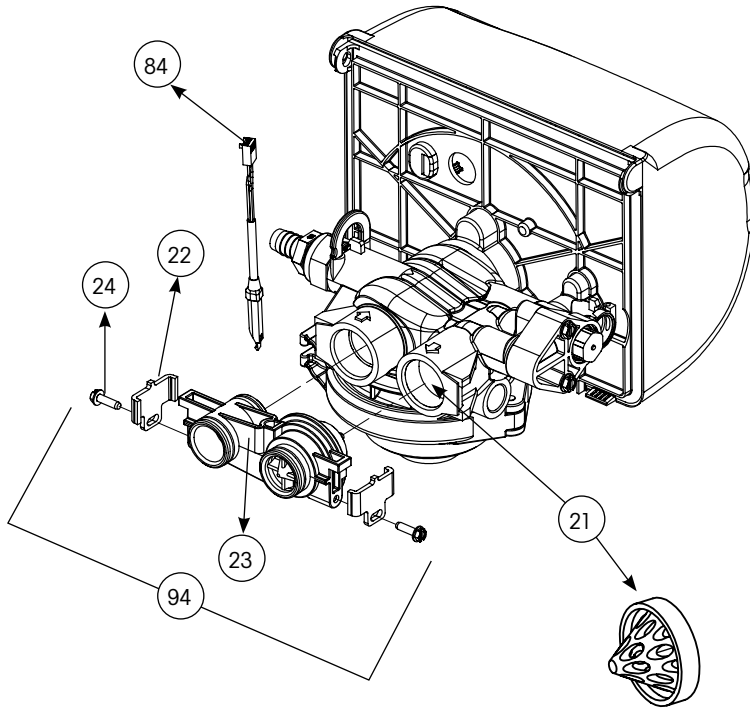
Dwg #	Part #	Part Description
17	13302	O-Ring, 014
12	10141	O-Ring, 010
68	17307	Washer, Flow, 0.125 GPM
	12094	Washer, Flow, 0.25 GPM
	12095	Washer, Flow, 0.5 GPM
	12097	Washer, Flow, 1.0 GPM
15	19334	Retainer, Flow Washer, BLFC
16	19335	Fitting, BLFC, 3/8"
20	19625	Nut, Assembly, 3/8" Plastic
95	60422-XX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

6200 Service Kits – Brine Valve

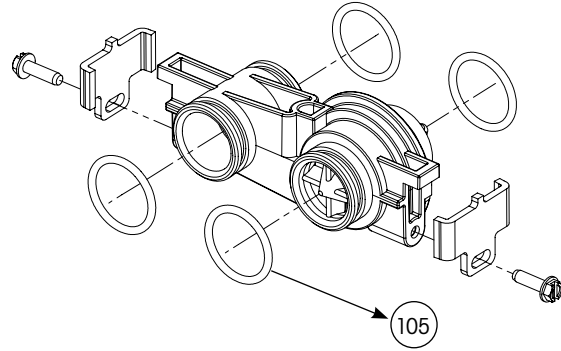


Dwg #	Part #	Part Description
17	13302	O-Ring, 014
93	60032	Brine Valve Assembly
52	40055-06	Bracket, Plastic
53	15137	Screw, Hex Washer Head
60	40134	Screw, Self Tap

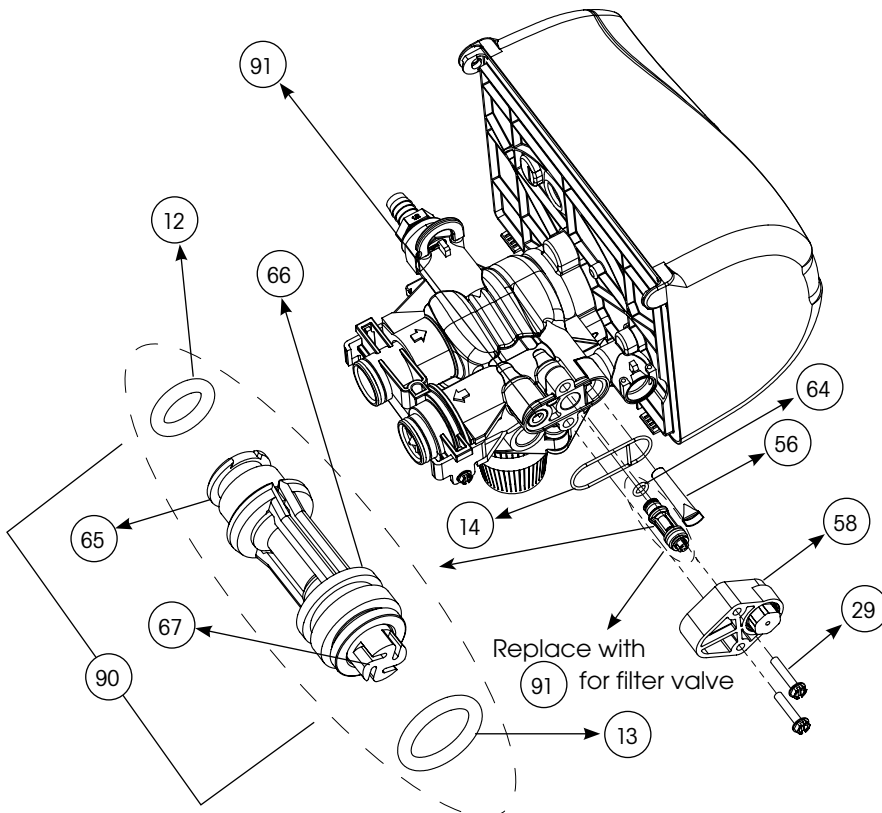
6200 Service Kits – Flow Meter



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

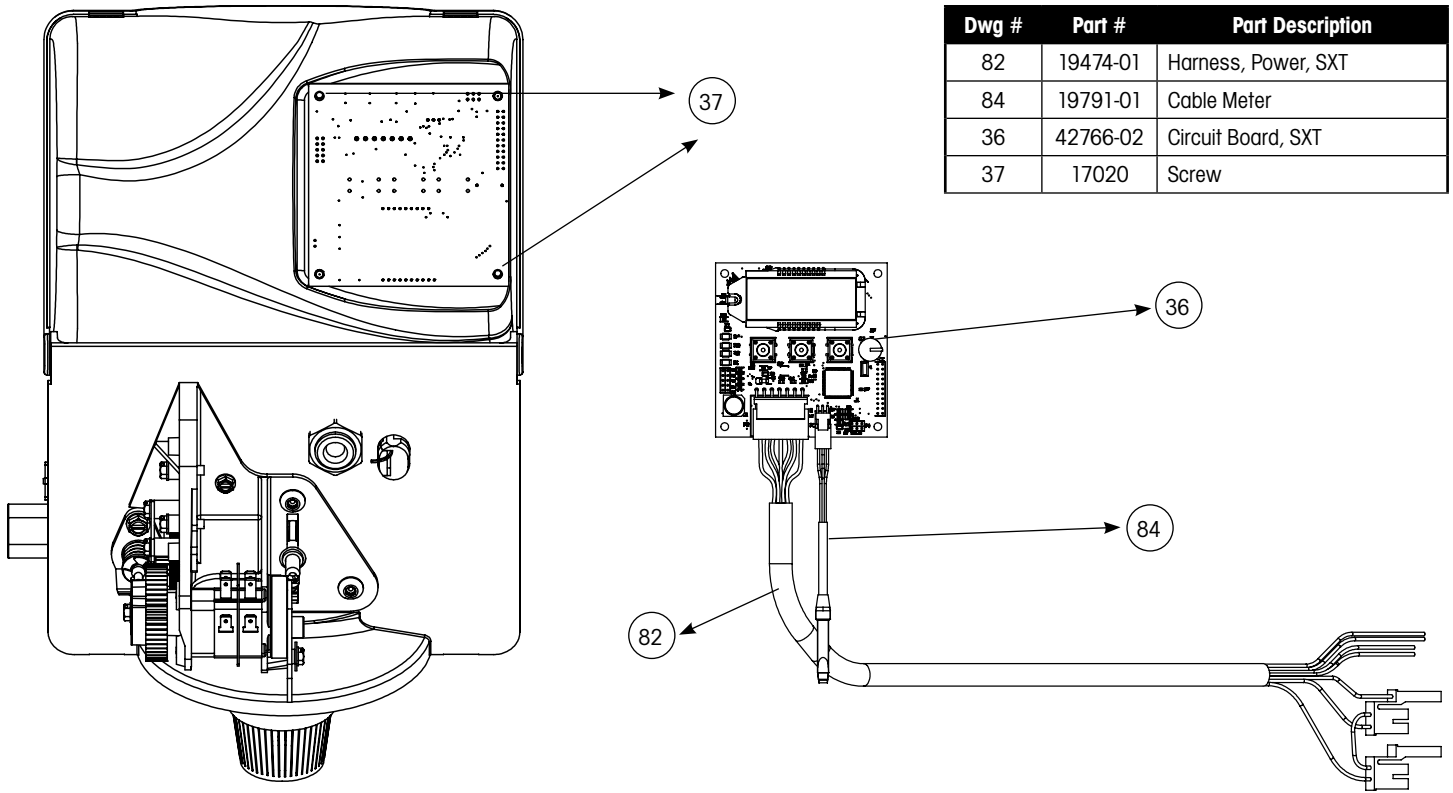


6200 Service Kits – Injector Assembly

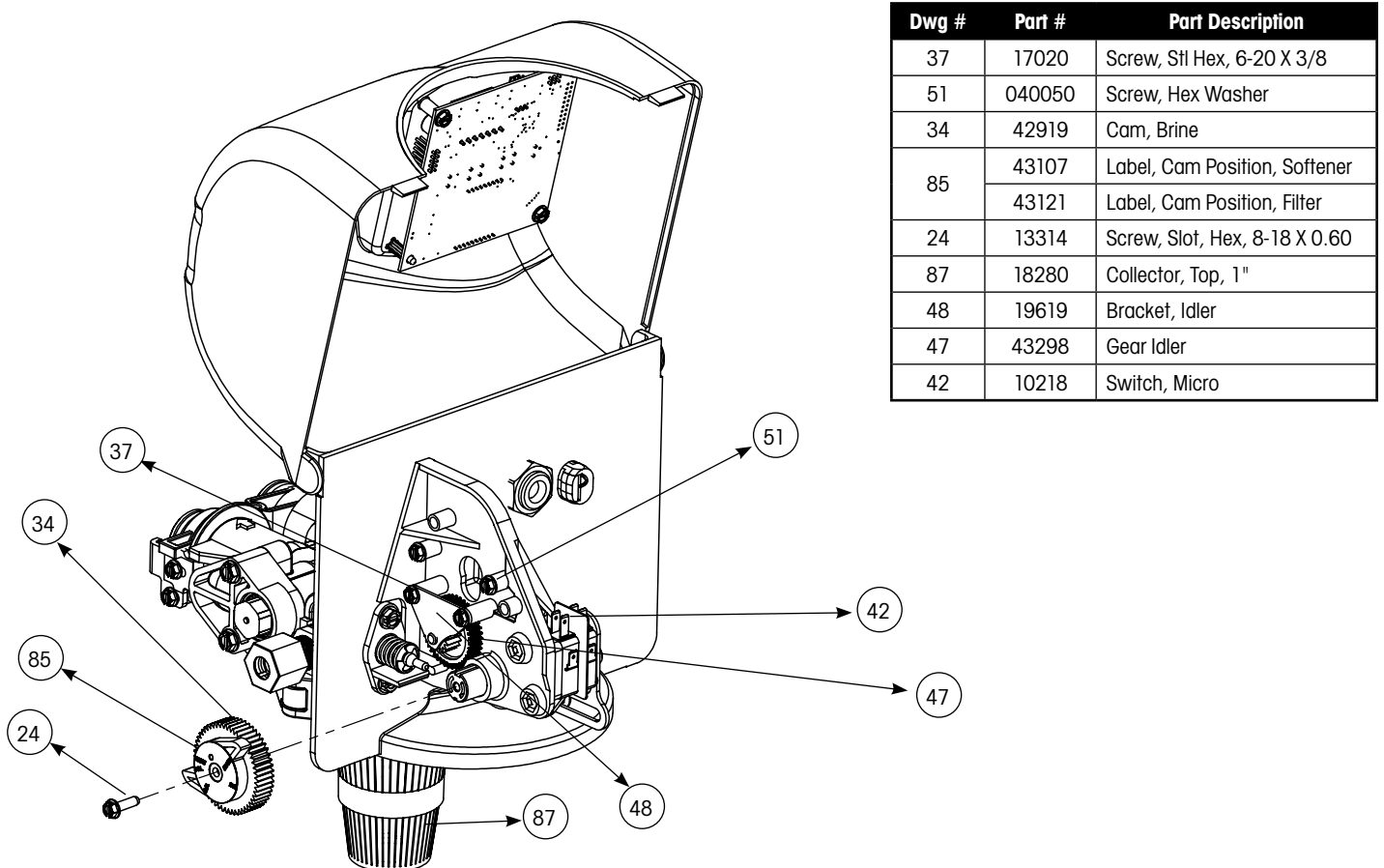


Dwg #	Part #	Part Description
91	18276-01	Plug, Injector, Assembly
64	040095	Flow Dispensor
56	40058	Screen, Injector
58	40079-20	Cap, Injector, Regulated, Softener
	18277	Cap, Injector Filter
29	18262	Screw, #10-24 X 1
14	040064	Seal, Injector, Softener
	18301	Seal, Injector, Filter
66	18275-X	Throat, 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

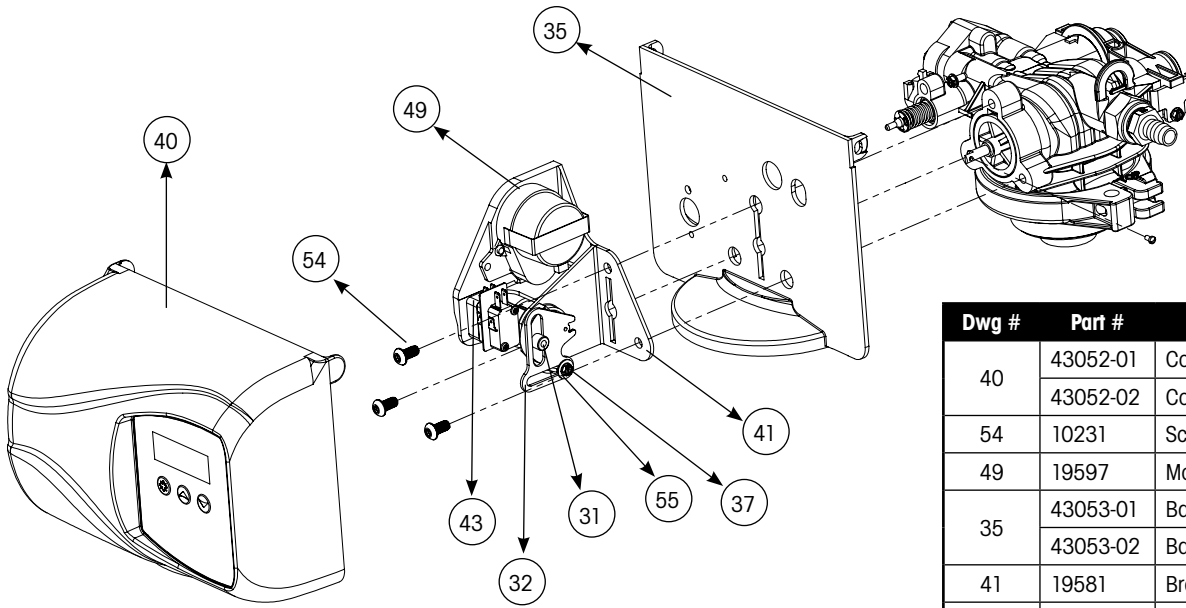
6200 Service Kits – Circuit Board



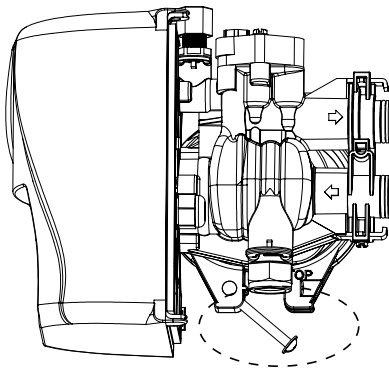
6200 Service Kits – Other Parts



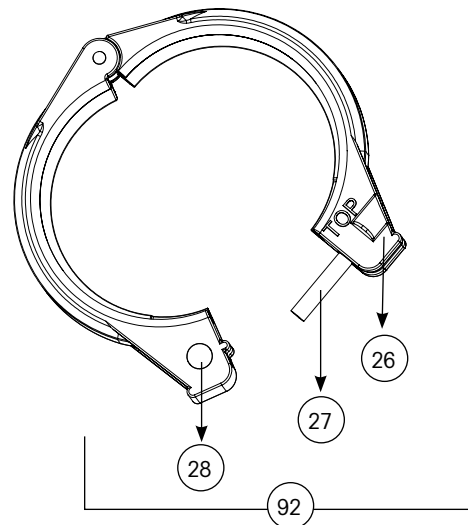
6200 Service Kits – Other Parts Continued



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

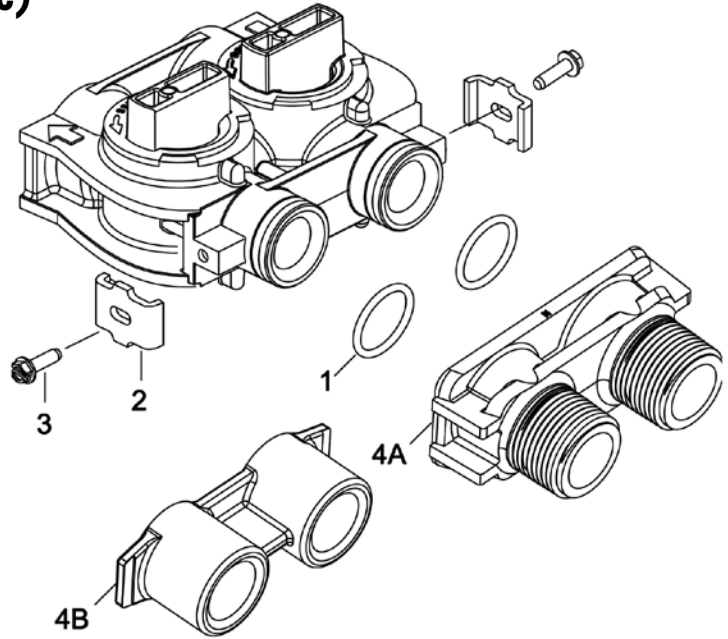


Dwg #	Part #	Part Description
28	19998	Shaft, Drive
27	40057	Screw, Hex Washer Head
26	40254	Clamp, Ring
92	60503	Clamp Ring Assembly



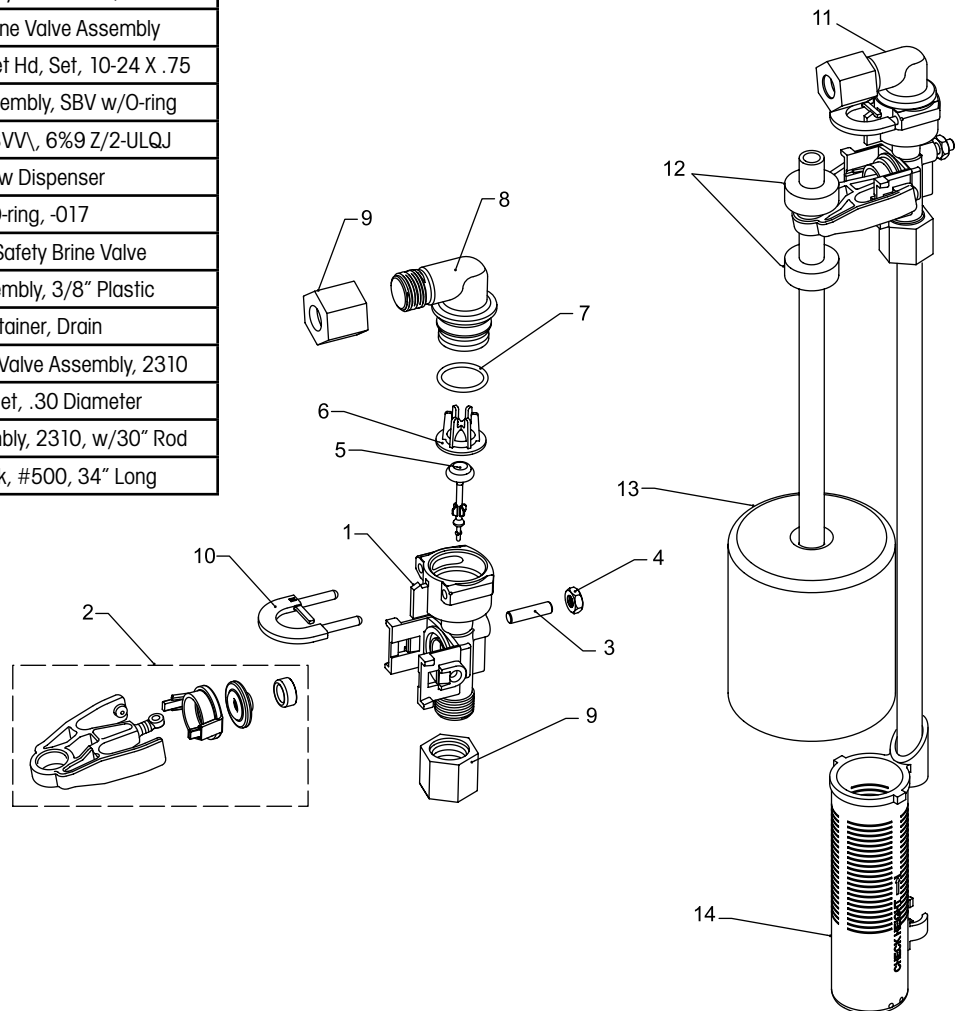
Bypass Valve Assembly & Yokes (Plastic)

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



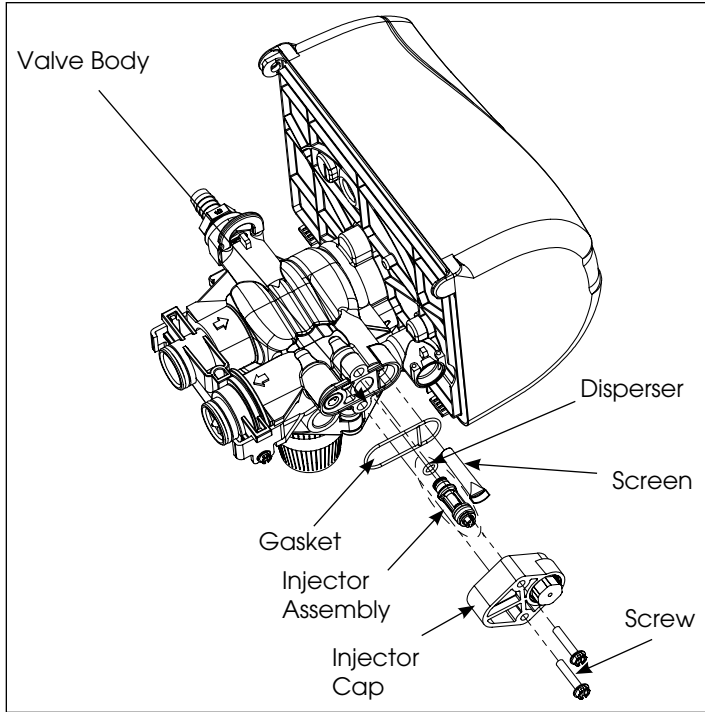
2310 Safety Brine Valve

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 \$VV\, 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

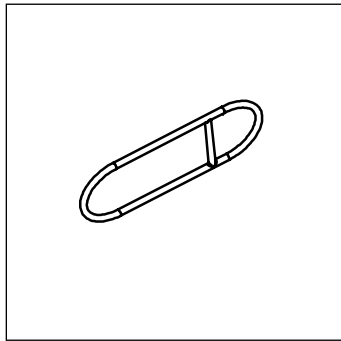


42112_REVA

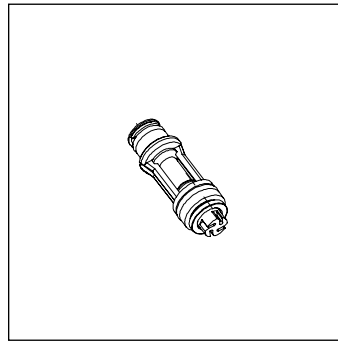
Servicing 6200 SXT Upflow Control Valve – Replacing Injectors and Screen



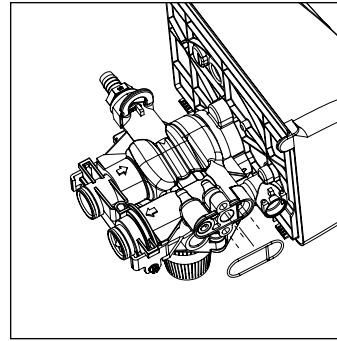
1. Unscrew the injector cap from the valve body



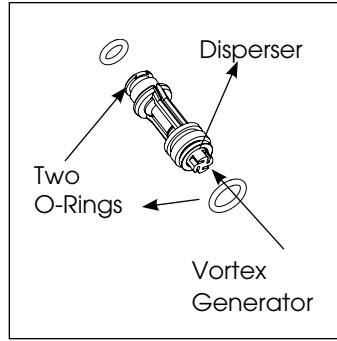
2. Discard gasket.



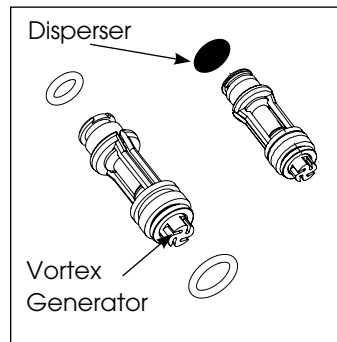
3. Remove injector assembly from the valve body and discard it.



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

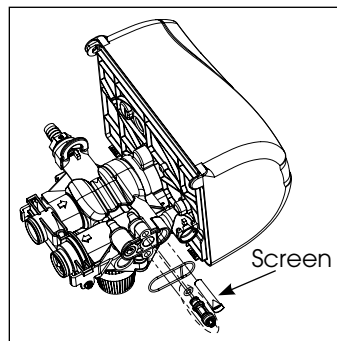


5. Apply silicone lubricant to two new o-rings and install over 2 bosses of the new injector assembly.



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

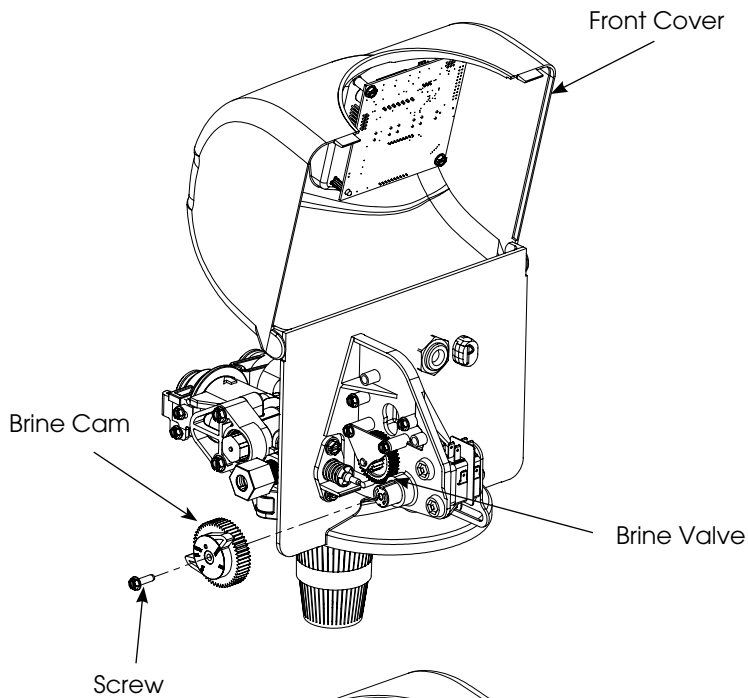
7. Screw in new injector throat and nozzle (make sure that vortex generator is installed in the injector body), be sure they are seated tightly.



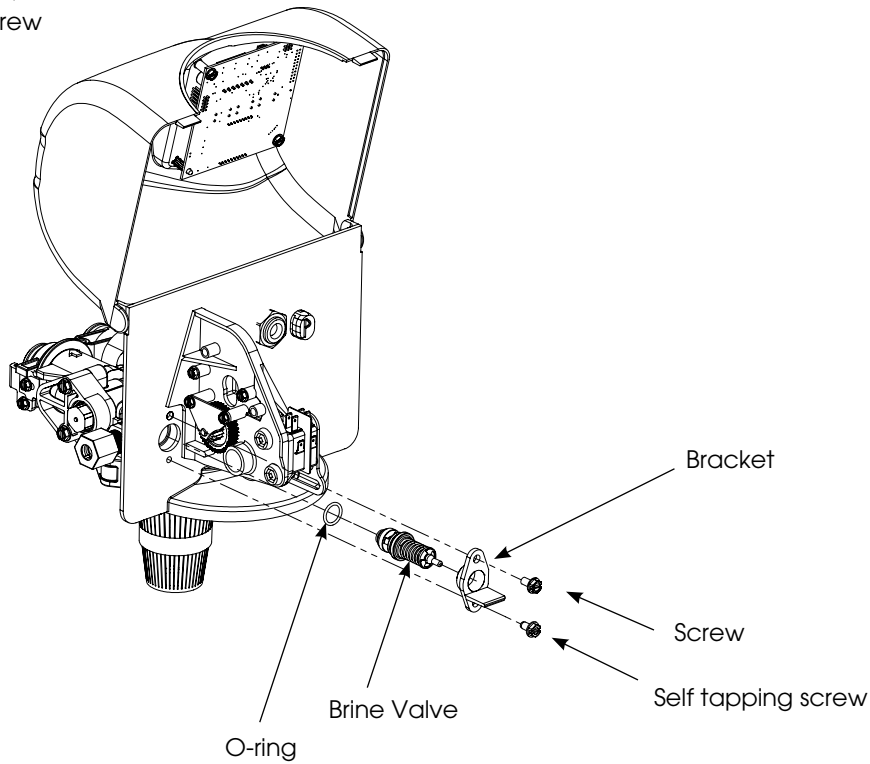
8. Install a new screen.

9. Tighten injector cap on to the valve body.

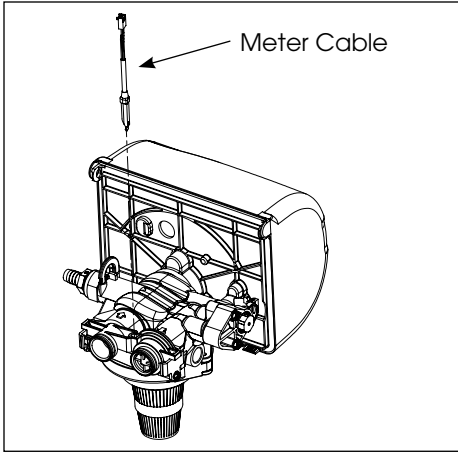
Replacing Brine Valve



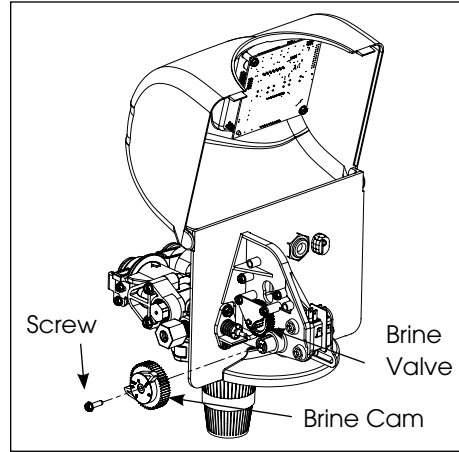
1. Open the front cover of the powerhead, unscrew the brine cam and push the brine valve in order to remove the cam.
2. Remove the two screws from the grey brine valve bracket and remove it from the valve back plate.
3. Pull brine valve from injector body. Also remove and discard o-ring at bottom of 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.



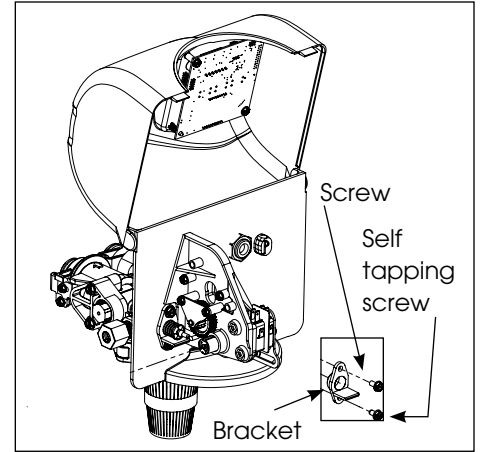
Timer Replacement



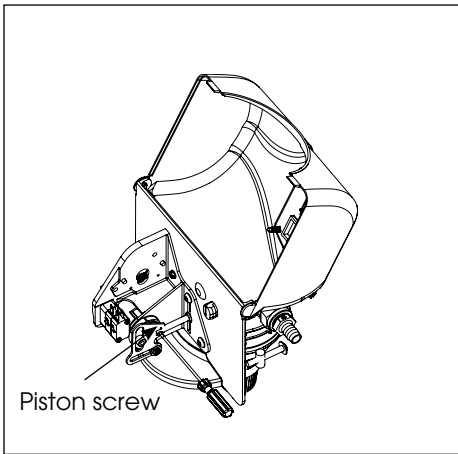
1. Disconnect the meter cable from the meter.



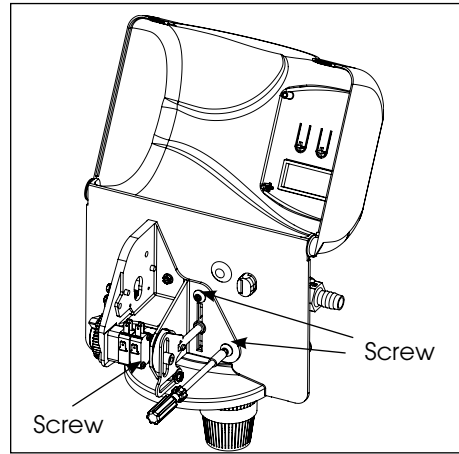
2. Open the front cover of the control valve, unscrew the brine cam and push the brine valve in order to remove the cam.



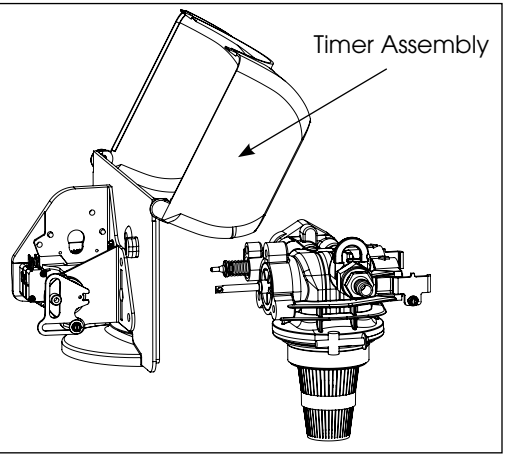
3. Remove the two screws from the grey brine valve bracket and remove it from the valve back plate.



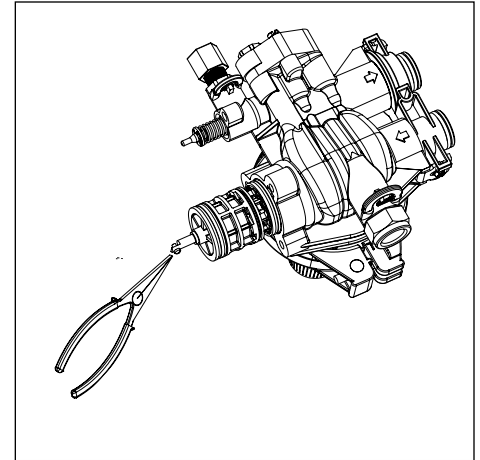
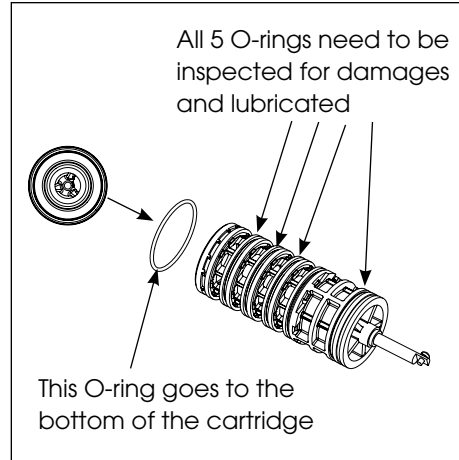
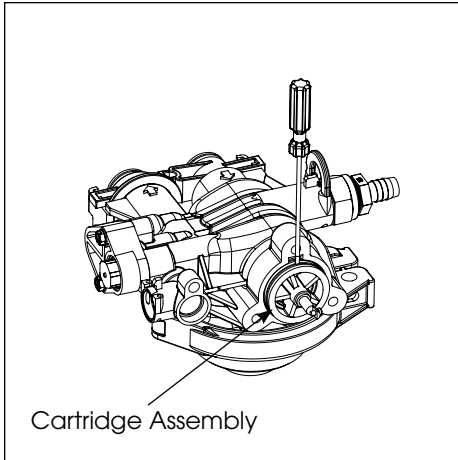
4. Remove the piston screw from the piston rod.



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.

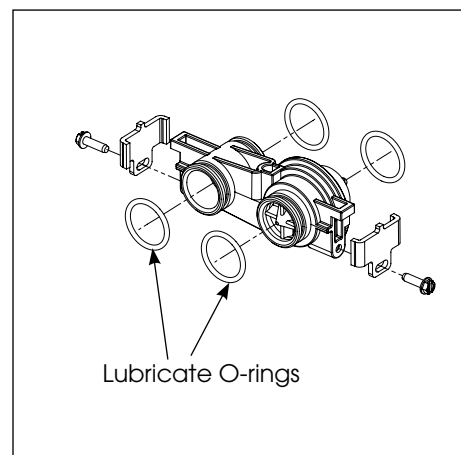
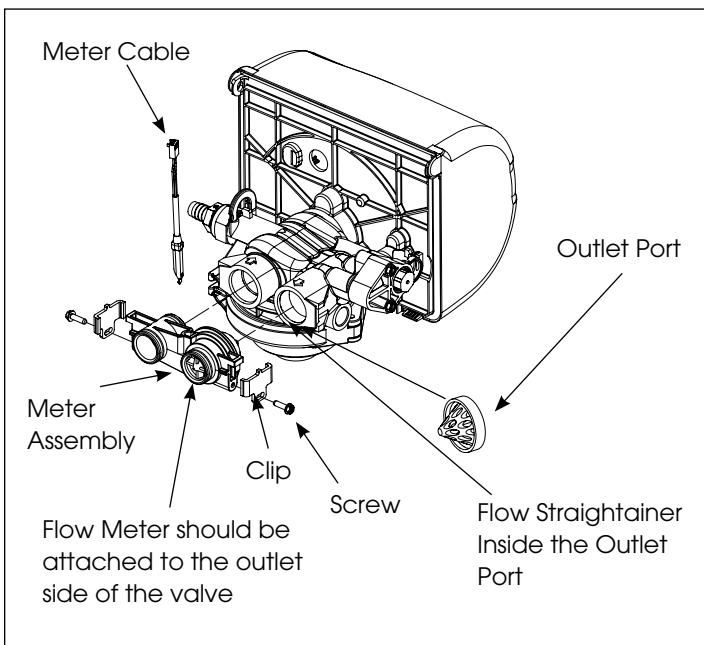


Piston Cartridge Assembly Replacement



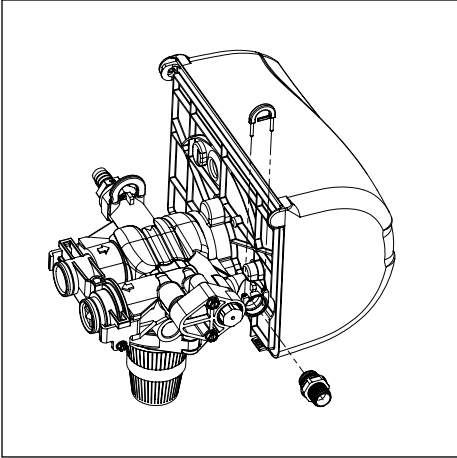
1. Follow steps 1 to 5 of timer replacement.
2. Use a flat head screw drive on the notch of the valve body as shown to loosen the piston cartridge, pull the cartridge out of the body using pliers.
3. Inspect the inside of the valve to make sure that there is no foreign matter that would interfere with 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

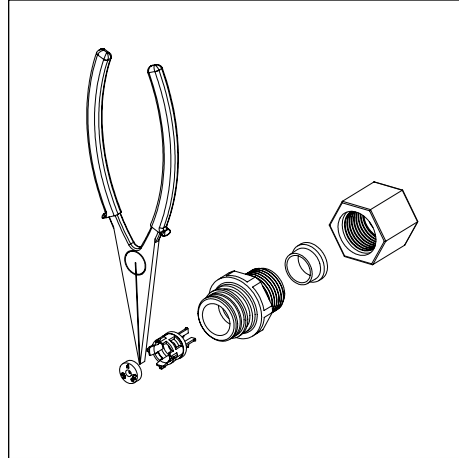


1. Disconnect the meter cable from the meter.
2. Remove two screws and clips at bypass valve or yoke. Pull resin tank away from plumbing connections.
3. Pull meter module out from control valve.
4. Apply silicone lubricant to four new o-rings and assemble to four ports on new meter module.
5. Assemble 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)



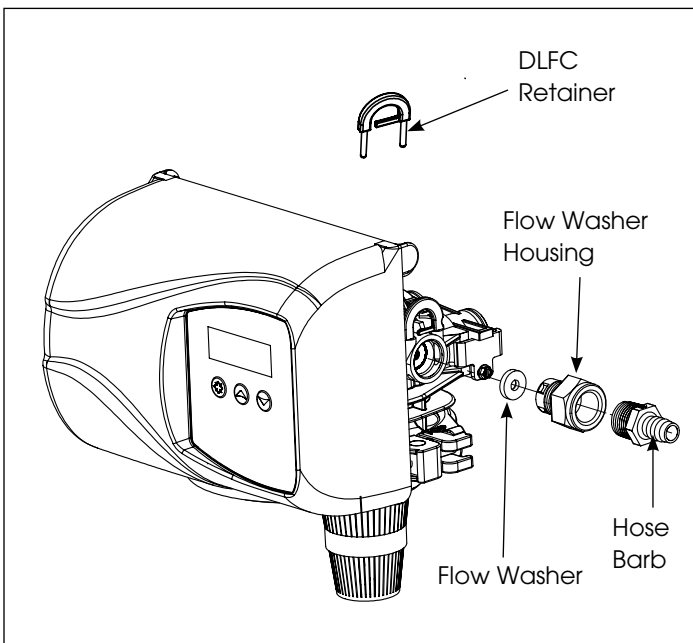
1. Disconnect the brine line retainer clip.



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

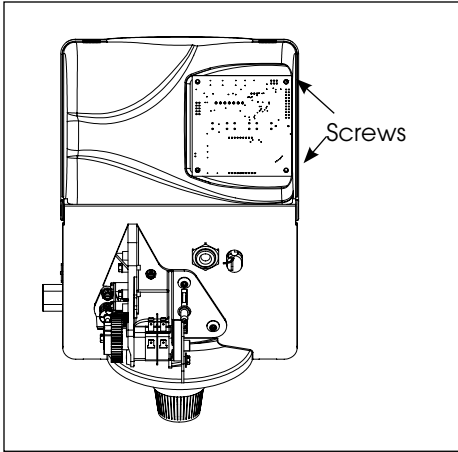
3. Remove the flow washer from the retainer and clean it with water to remove any debris. Replace it with a new washer if necessary.
4. Re-install the BLFC housing and retainer.

Servicing and Replacing Drain Line Flow Control (DLFC)

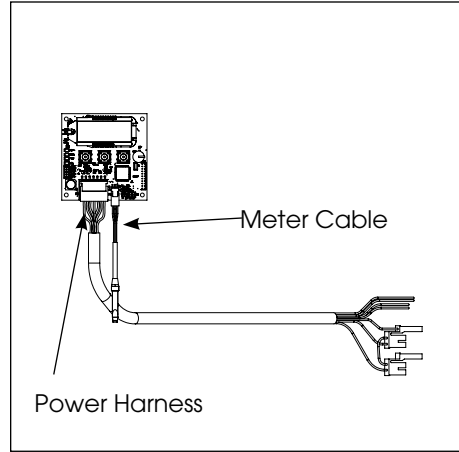


1. Disconnect the drain line retainer clip.
2. Remove the DLFC assembly and pull the flow washer out of the DLFC housing with the help of plier.
3. Remove the flow washer from the housing and clean it with water to remove any debris. Replace it with a new washer if necessary.
4. Re-install the DLFC housing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

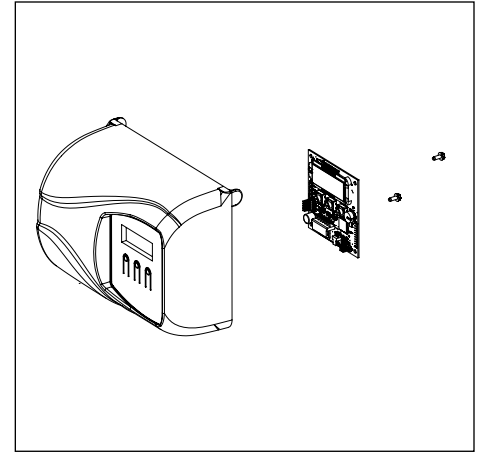
Circuit Board Replacement



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

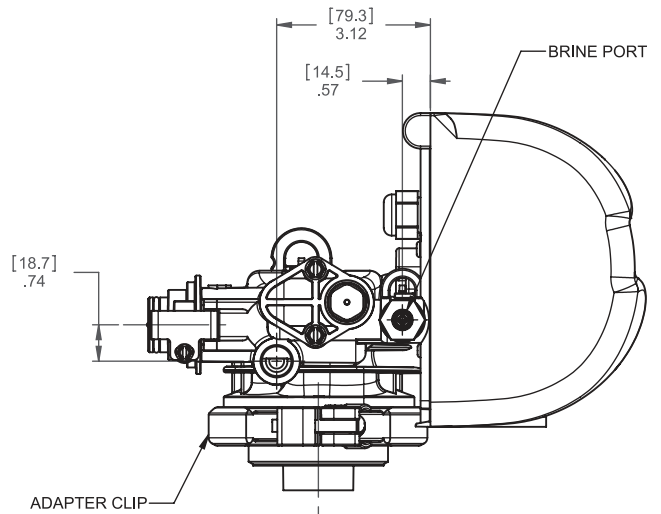
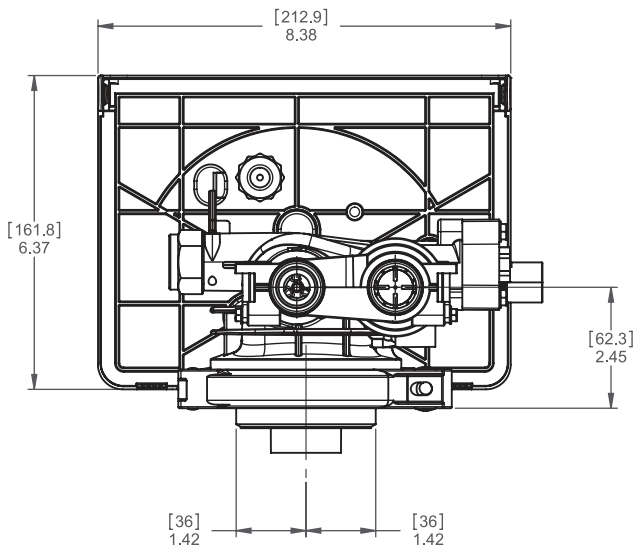
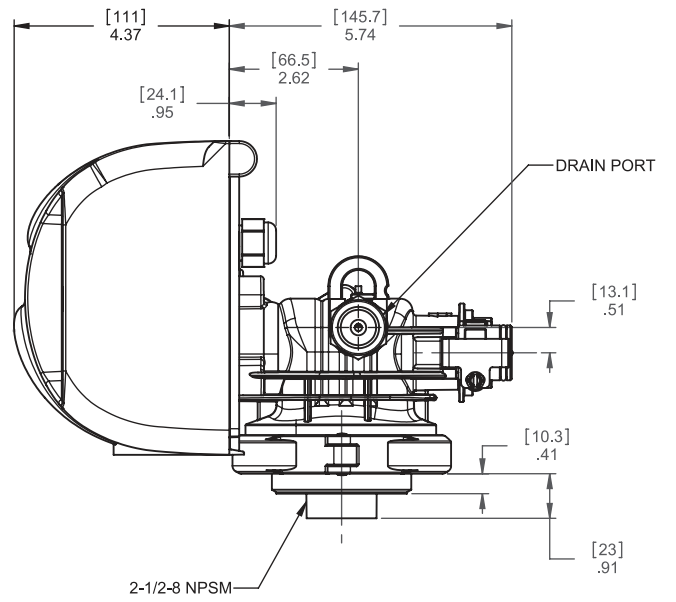
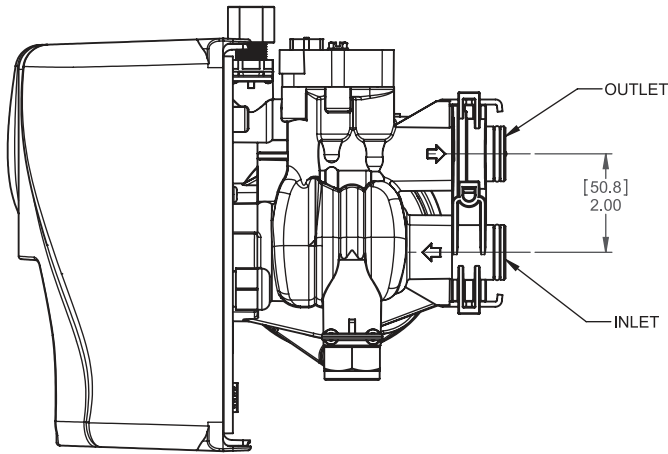
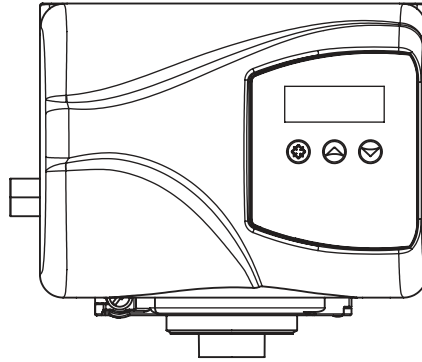
1. Reconnect brine tube and drain line.
2. Return bypass or inlet valve to normal in service position. Water Pressure will automatically build in the softener.

NOTE: Be sure to shut off any bypass line.

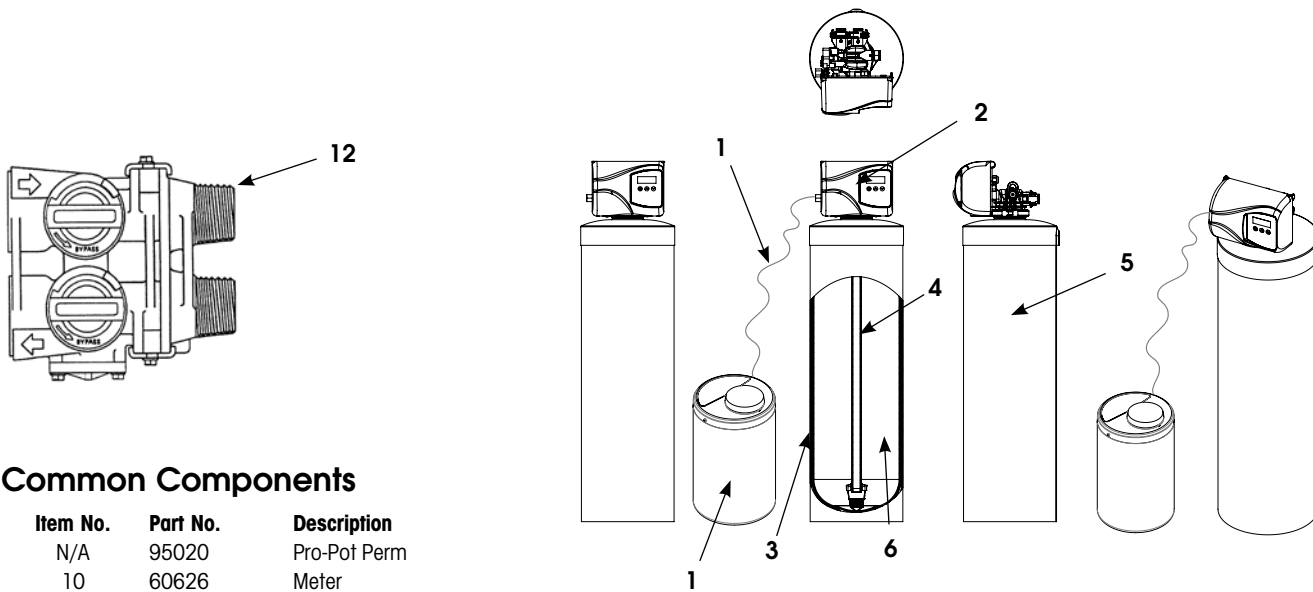
3. Check for leaks at all sealed areas. Check Drain seal with the control in the backwash position.
4. Plug electrical cord into outlet.
5. Set Time of Day and cycle the control valve manually to assure proper function. Make sure control valve is returned to the In Service position.
6. Verify the salt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



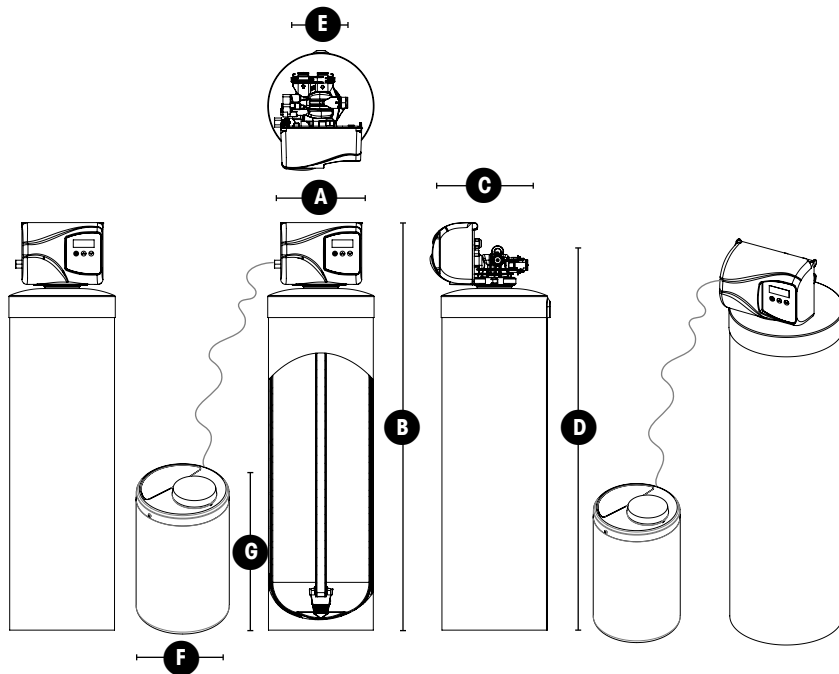
Parts Breakdown



Common Components

Item No.	Part No.	Description
N/A	95020	Pro-Pot Perm
10	60626	Meter
11	60049	Bypass

Item #	Model #	Feeder (1)	Valve (2)	Tank (3)	Distributor (4)	Jacket (5)	Media (6)	Tubing (7)
4448	NMGF75SXT	33030	6200119	18474	19478	100502	95411	115208
4449	NMGF10SXT	33017	6200120	110474	19478	100507	95412	115208
4450	NMGF15SXT	33031	6200121	112524	19477		95413	115208
4451	NMGF20SXT	33017 (2)	6200122	114501	19478		95414	115208



Dimensions (inches)				
Model	NMGF75SXT	NMGF10SXT	NMGF15SXT	NMGF20SXT
Item #	4448	4449	4450	4451
A	8	9	10	12
B	54	55	61	59
C	19	19	19	19
D	49	50	56	54
E	2	2	2	2
F	10	10	10	10
G	18	18	18	18

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. [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. [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	CAUSE	CORRECTION
1. Filter fails to regenerate or regenerates at wrong times	<ul style="list-style-type: none"> A. Electrical service to unit has been interrupted B. Timer is defective C. Power failure D. Timer motor does not run 	<ul style="list-style-type: none"> A. Assure permanent electrical service (check fuse, plug or switch) B. Repair or replace timer C. Reset time of day D. Replace defective motor
2. Filter bleeds iron or odor	<ul style="list-style-type: none"> A. Bypass valve is open B. Container is depleted C. Excessive water usage D. Insufficient water flowing into chemical container E. Hot water tank rusty F. Leak at distributor tube G. Defective or stripped media bed H. Not backwashing enough I. Internal valve leak J. Electrical Service to unit has K. Control will not draw chemical properly (see below) L. Quality of water has worsened M. Filter capacity is too small 	<ul style="list-style-type: none"> A. Close bypass valve B. Replace or refill container C. Increase frequency of regeneration and/or settings. Make sure there are no leaks in toilets and sinks D. Check refill setting. Check for plugged container tube and flow control E. Repeated flushings of the hot water tank are required. Do not use hot water during regeneration F. Make sure distributor tube is not cracked. Check O-ring and tube pilot G. Replace media H. Be sure flow control is not clogged or drain line restricted. Be sure water pressure has not dropped and that pump has sufficient capacity. I. Replace seals and spacers and/or piston J. Assure permanent electrical service (check been interrupted fuse, plug or switch) K. Maintain water pressure at 20 psi (139.9 kPa) minimum. Clean or replace injector assembly. Check for air leaks along brine line and tighten all connections. L. Have water sample analysed to determine any change M. Replace with larger unit
3. Filter regenerates every day	<ul style="list-style-type: none"> A. Faulty gear train 	<ul style="list-style-type: none"> A. Check the mechanical linkage on the timer control to eliminate possible binding in the gear train.
4. Iron filter uses too much chemical	<ul style="list-style-type: none"> A. Defective chemical container 	<ul style="list-style-type: none"> A. Replace container
5. loss of water pressure	<ul style="list-style-type: none"> A. Iron or turbidity build-up in filter B. Inlet to control blocked with iron build-up or foreign matter 	<ul style="list-style-type: none"> A. Increase frequency of regeneration so filter backwashes more often. NOTE: Make sure filter is sized large enough to handle water usage B. Clean inlet line. Remove piston and clean control.
6. Loss of media through line	<ul style="list-style-type: none"> A. Air in water system B. Backwash rate too fast 	<ul style="list-style-type: none"> A. Assure that well system has proper air eliminator control. Check for dry well condition. B. Check drain flow control for proper flow rate

Trouble Shooting Guide

PROBLEM	CAUSE	CORRECTION
7. Iron filter fails to draw chemical	<ul style="list-style-type: none"> A. Drain line flow control is plugged B. Injectors and/or screen plugged C. Line pressure is too low D. Internal control leak 	<ul style="list-style-type: none"> A. Clean drain line flow control B. Clean or replace injectors and/or screen C. Maintain line pressure at 20 psi (139.9 kPa) minimum D. Change seals and spacers and/or piston assembly
8. Drain flows continuously	<ul style="list-style-type: none"> A. Foreign material in control B. Internal control leak C. Control valve jammed in brine or backwash position D. Timer motor stopped or jammed 	<ul style="list-style-type: none"> A. Remove piston assembly and inspect bore, remove foreign material and check control in various regeneration positions B. Change seals and spacers and/or piston assembly C. Replace piston and seals and spacers (and drive motor if necessary) D. Replace timer motor
9. Pink color (potassium permanganate) present after regeneration; medicinal water taste	<ul style="list-style-type: none"> A. Poor water pressure or insufficient pump capacity B. Chemical in water supply 	<ul style="list-style-type: none"> A. Be sure pump is set at 20 psi (139.9 kPa) minimum and is capable of producing 5 - 12 USGPM according to filter size B. Decrease frequency of regeneration

Novatek 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.

Water Group

U.S. Headquarters

WaterGroup Companies, Inc.
193 Osborne Road
Fridley, MN 55432, USA

TOLL FREE PHONE: 1-877-581-1833

Canada Headquarters

WaterGroup Companies, Inc.
490 Pinebush Road, Unit 1
Cambridge, ON N1T 0A5, Canada

TOLL FREE PHONE: 1-877-288-9888

www.watergroup.com

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