Owners Manual

LEAF HOME WATER SOLUTIONS™

IAPMO R & T Certified against NSF/ANSI 44 and CSA B483.1

LWS Water Softeners

1. **Page 17 of this manual contains important maintenance procedures for the continued proper operation of your unit. These must be performed regularly for your warranty to remain valid.**
2. Read all instructions carefully before operation.
3. Avoid pinched o-rings during installation by applying NSF certified lubricant to all seals (provided with install kit).
4. This system is not intended for treating water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.

Leaf Home Water Solutions
1595 Georgetown Road
Hudson, OH 44236

Phone Number
1-888-701-5497

Website
www.LeafHomeWaterSolutions.com

Table of Contents

READ THIS PAGE FIRST

BEFORE STARTING INSTALLATION

- Read this manual thoroughly to become familiar with the appliance and its capabilities before installing or operating the new appliance. 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 new appliance.
- Installation must comply with all state, provincial, or 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. Consult your licensed plumber for installation of this system.
- **WARNING!:** Do not use water that is microbiologically unsafe without adequate disinfection before or after this system.
- This appliance is designed to operate on pressures of 30 psi to 125 psi. If the water pressure is higher than the maximum use a pressure reducing valve in the water supply line to the device.
- This appliance is capable of operating at temperatures between 40°F and 110°F (4°C - 43°C). Do not use this appliance on hot water supplies.
- Avoid pinched o-rings during installation by applying (provided with install kit) NSF certified lubricant to all seals.
- It is not uncommon for sediment, precipitated iron or hardness to be present in water supplies. Precipitated minerals or sediments can cause damage to the seals and piston.
- It is recommended to regularly inspect and service the control valve on an annual basis. Cleaning and or replacement of piston, seals, and or spacers may be necessary depending on the feed water condition.
- 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. The manufacturer reserves the right to change the specifications referred to in this literature at any time, without prior notice.

INSTALL NOTES & SAFETY MESSAGES

Watch for the following messages in this manual:

NOTE

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

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

CAUTION!

Disassembly while under pressure can result in flooding.

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

WARNING!

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

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

HOW YOUR WATER SOFTENER WORKS

Water softeners remove the problem causing hardness minerals (calcium and magnesium) from your water by exchanging them with harmless sodium ions in a process called ion exchange. Unlike 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. Plastic resin beads charged with sodium ions release the sodium and exchange them with the hardness ions. Eventually the resin beads and the softener must then be regenerated. Regeneration is accomplished by rinsing the resin with a salt saturated brine solution that removes the calcium and magnesium from the resin bead while replenishing the sodium. This is why the softener requires a brine tank and salt. The water softener will provide soft water for several days before needing to be regenerated. Your system measures the amount of water used to determine when regeneration is required.

This unit is equipped with an internal automatic bypass which will allow for untreated water to bypass the unit during a regeneration. So, the home is not without water during this period. Regeneration time is factory set for 2:00 a.m. to minimize the chance of untreated water getting into your system during regeneration. Please try to avoid use of water during this time period or adjust the regeneration time to a suitable time period when water use is at its minimum.

When using a softener to remove both hardness and dissolved iron it is important that it regenerates more frequently. 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.

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 softened water supply. Use resin bed cleaning compounds by carefully following the directions on the container.

Features & Terminology:

Precision Brining: Precision brining means that your softener calculates the exact amount of brine required to regenerate saving up to 30% more salt.

When your softener regenerates it will display 2 numbers for capacity. One will be total capacity while the other will be 70 % of capacity. The unit counts down to the end of the 70%, then calculates how much of the 30% was you used (your reserve). It then adjusts the brine amount accordingly and regenerates that evening. This feature means that your capacity will always be different after every regeneration therefore maximizing your salt use.

BRINE PRE-FILL% : This is the percentage of the water that will be added to the brine tank after a regeneration. The default is 70%. The remaining amount of water will be added just prior to the regeneration and will be proportional to the amount of capacity left in the system.

Total Gallons and Remaining Gallons

Flow Rate: This will read 0 unless water is currently being used.

Date and Time

Remaining (Gallons): This is the volume remaining until next regeneration.

Capacity Gallons: This is the total capacity of the system from last regeneration.

Dealer contact information if available

After unlocking board you will have access to:

Date and Time

Hardness

Manual Regeneration

Dealer Information

Salt reminder

Main Menu**

**Main menu should only be accessed by a trained service provider.

Flow Rate Info:

At the stated service flow rates, the pressure drop through these devices will not exceed 15 psig.

Peak flow rates are 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.

For satisfactory operation, the pumping rate of the well system must equal or exceed indicated backwash flow rate.

Feed Water Parameters:

Maximum Iron** = 2.0 ppm ferrous (clear water iron)
Maximum Hydrogen Sulfide = 0.0 ppm
Maximum Manganese = .75 ppm
pH = 6.5 to 8.5 with no iron present or 6.5 to 7.3 with iron present
****See Maintenance Section.**

SPECIFICATION

Upflow Softener Models

Model	System Capacity Grains			Flow Rate		Regeneration Water Usage (Gallons)		Mineral Tank Size	Resin Cu. Ft.	Brine Tank Size Inches	Salt Capacity (Lbs)	Ship Weight (Lbs)
	@ 10 lbs/ cu ft	@ 6 lbs/cu ft (Factory Setting)	@ 3 lbs/ cu ft	Service USGPM	Backwash USGPM	Clean Water (Factory Setting)	Problem Water					
LWS1.0	30,000	25,000	15,000	10.0	2.0	43.4	64.3	9 x 48	1.00	18.1x34.7	270	110
LWS1.5	45,000	37,500	22,500	12.0	2.4	62.7	90.3	10 x 54	1.50	18.1x34.7	270	141
LWS2.0	60,000	50,000	30,000	15.0	3.5	87.1	124.6	12 x 52	2.00	20.3 x 37.4	385	158

*Choose **HIGH EFFICIENCY** to minimize salt usage. Your system will regenerate a little more often but your salt usage can be reduced by 20% compared to the **STANDARD** setting. Choose **STANDARD** when you need to maximize your capacity but still operate the system with good efficiency. Choose **HIGH CAPACITY** if you have problem water containing Iron, Manganese or hardness in excess of 50 gpg. The high salt setting will be needed since these minerals are more difficult to clean out of the resin bed. Note: A resin cleaner will also need to be periodically added to the brine tank to insure proper operation.

⚠ CAUTION!

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

Working Temperature: This unit must be operated at temperatures between 40°F and 110°F (4°C - 43°C).
Working Pressure: This water softener must be operated on pressures between 30 psi to 125 psi. If the water pressure is higher than 125 PSI, use a pressure reducing valve in the water supply line to the softener.
Voltage = 120V / 60 Hz
Pipe Size = 3/4" and 1"

- At the stated service flow rates, the pressure drop through these devices will not exceed 15 psig.
- 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.

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.

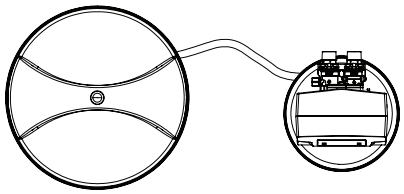
For satisfactory operation, the pumping rate of the well system must equal or exceed indicated backwash flow rate.

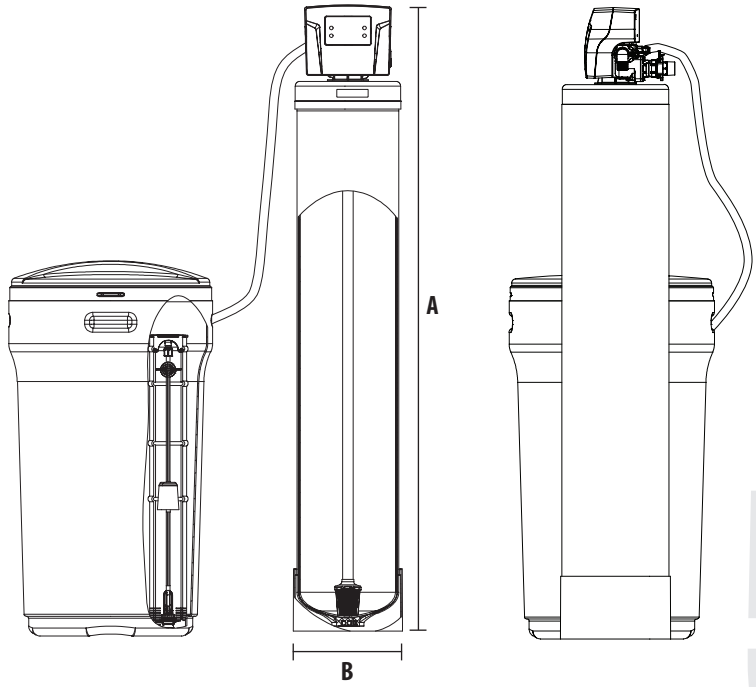
All units come with plastic bypass

Maximum Hydrogen Sulfide = 0.0 ppm
Maximum Manganese = .75 ppm
pH = 6.5 to 8.5 with no iron present with iron present 6.5 - 7.5

SYSTEM DIMENSIONS

Models	A (Inches)	B (Inches)
LWS1.0	57"	9"
LWS1.5	63"	10"
LWS2.0	61"	12"



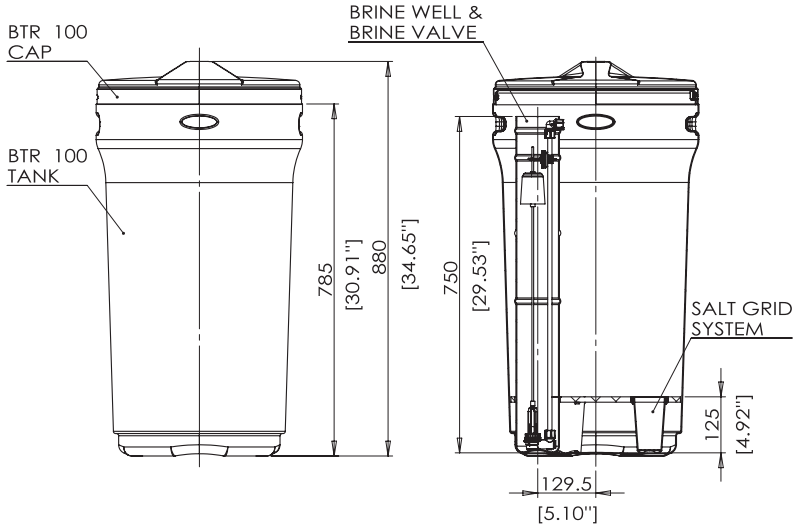


BRINE TANK DIMENSIONS

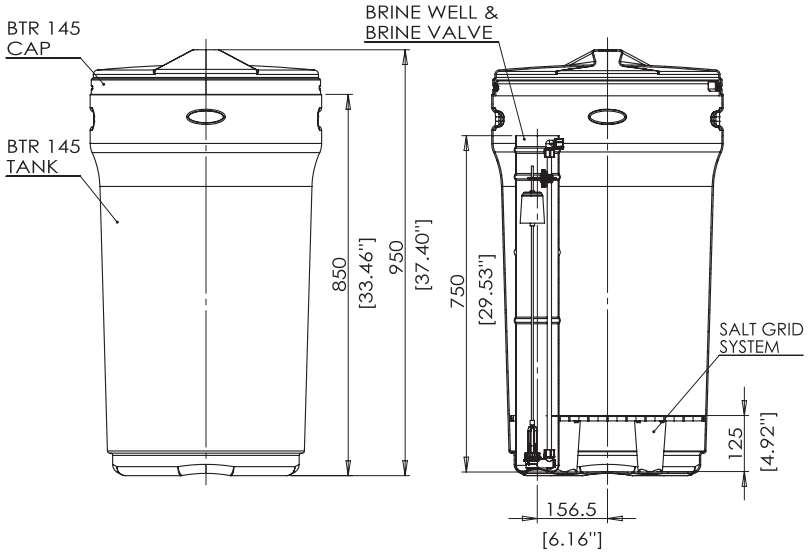
Model	Color	Liquid Volume		Tank Dimensions (inches)	Salt Capacity	
		US Gal	Liters	Dia x H	Lbs	Kg
Brine Tanks						
1.0 and 1.5	Grey	29.5	111.5	18.1 x 34.7	270.0	122.2
2.0	Grey	42.3	159.7	20.3 x 37.4	385.0	174.2

* All brine tanks come with salt grid, safety float and brine well

For LWS1.0 and LWS1.5



For LWS2.0



UNPACKING / INSPECTION OF TWIN TANK MODEL

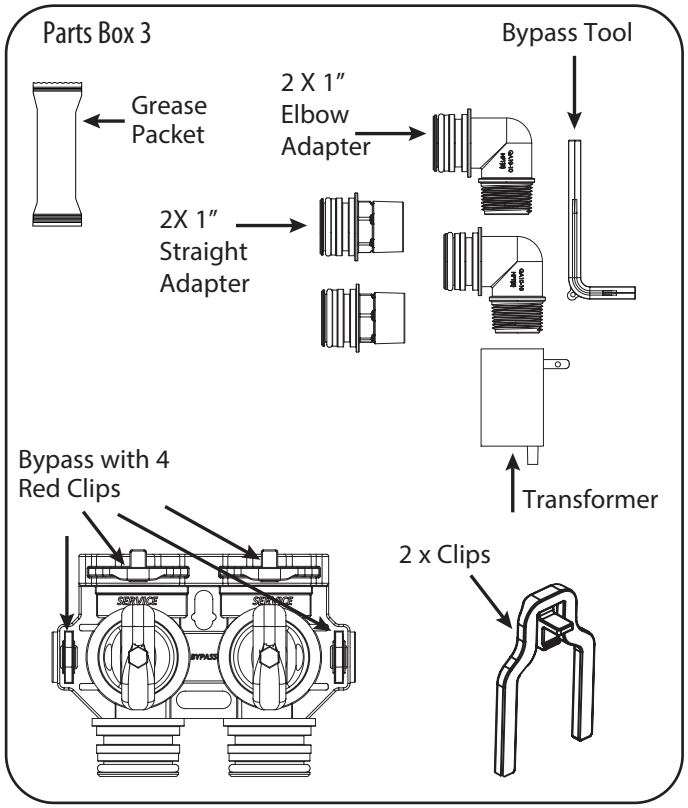
Be sure to check the entire unit for any shipping damage or parts loss. Also note damage to the shipping cartons. Contact the transportation company for all damage and loss claims. The manufacturer is not responsible for damages in transit.

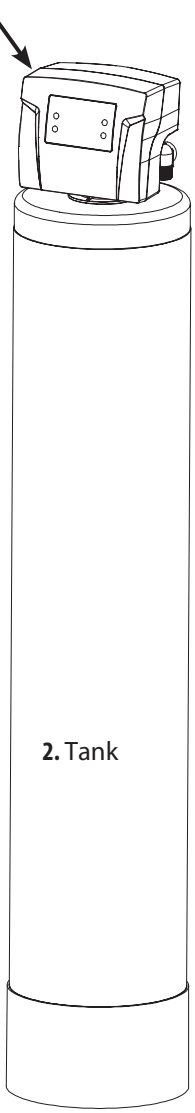
Small parts, needed to install the softener, are in a parts box. To avoid loss of the small parts, keep them in the parts bag until you are ready to use them.

What is included in the box?

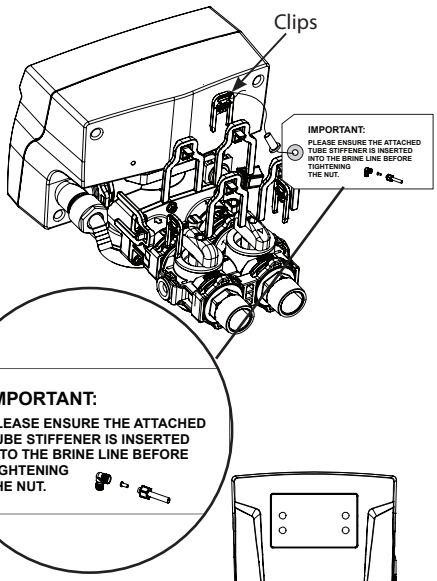
For Models LWS1.0, LWS1.5, and LWS2.0 you can expect the following:

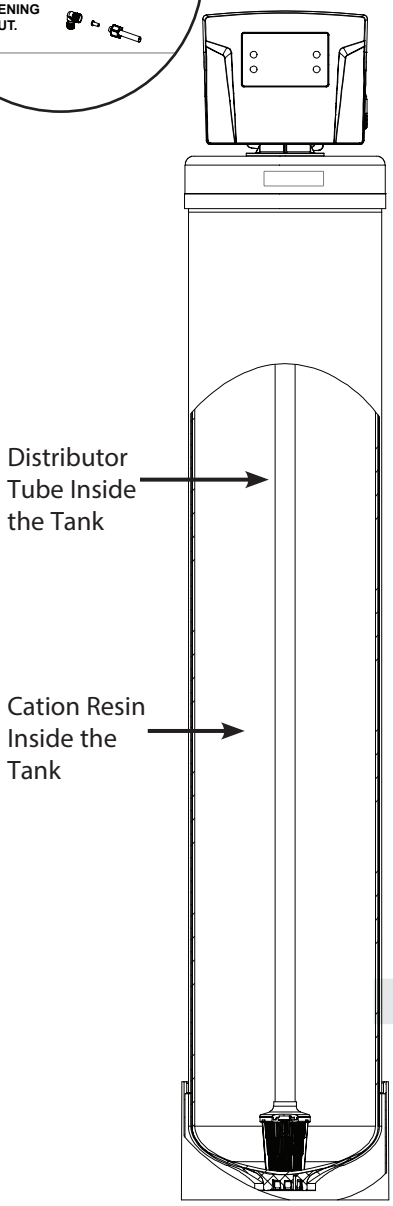
1. Control Valve
2. Tank
3. Parts Box
4. Owners Manual
5. Drain Hose & Clamp
6. Brine Tank Assembly

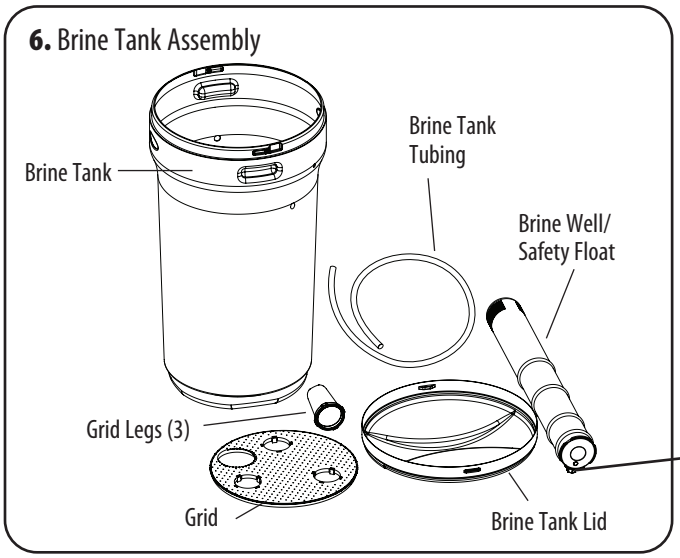




There are 7 Red clips. Please check to make sure you have all of them.

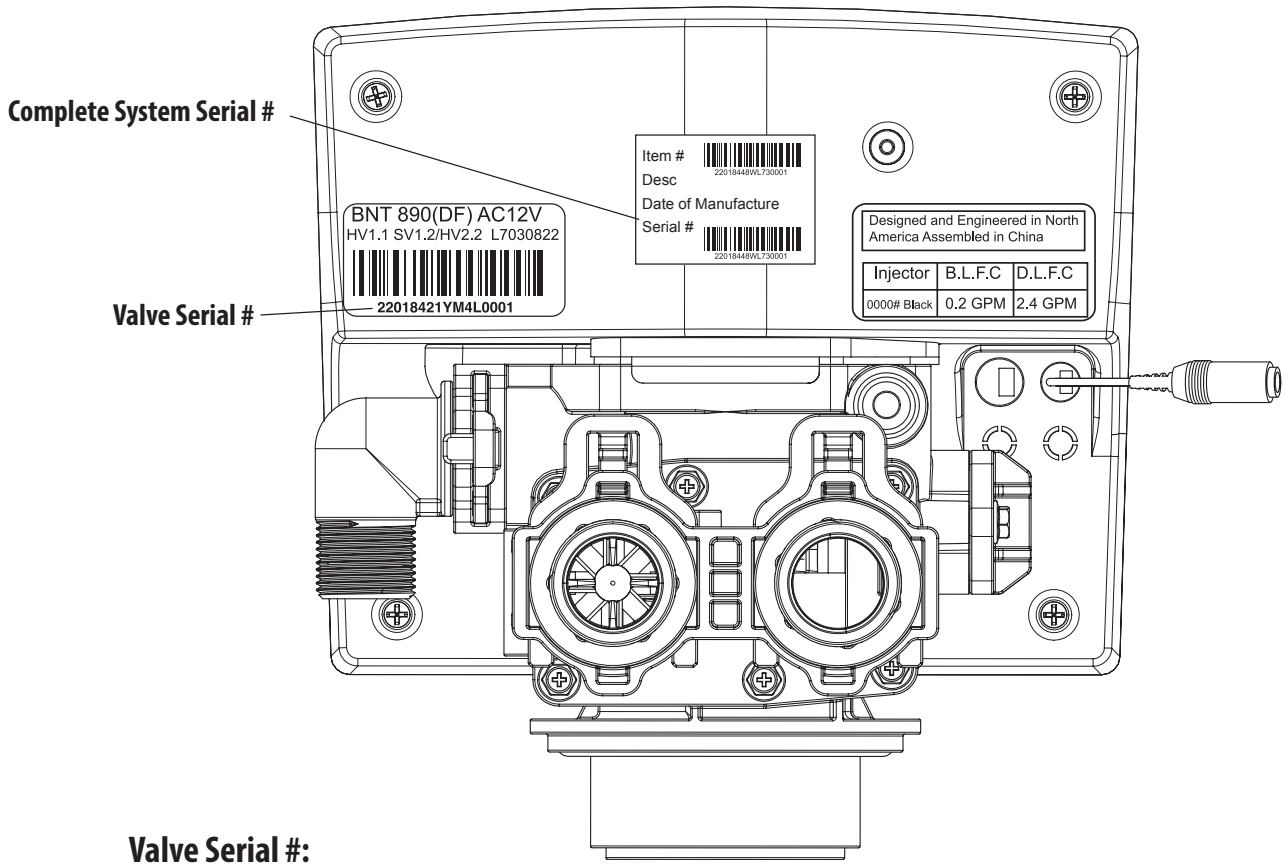






CHECK VALVE TYPE AND VALVE SERIAL

Check to make sure the valve type is what you ordered. The serial # label on the left will show (UF) for upflow valve The right sticker shows the serial # of the control valve. The middle sticker is the dataplate which provides the serial # and date of manufacture of the system. Both serial # labels are important for troubleshooting.



Valve Serial #:

Date Code

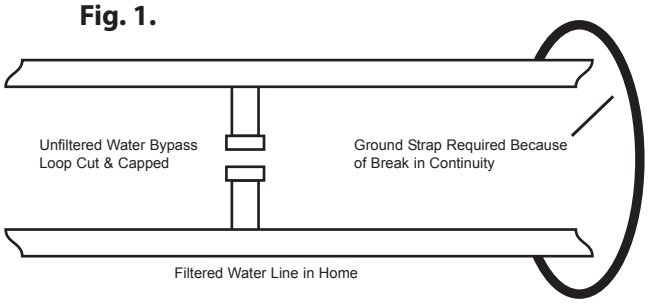
22018343	M	1	K	0001
PART NUMBER	YEAR (2016)	MONTH (JAN)	DAY of MONTH (20)	BATCH NUMBER
	H = 2011	1 = JAN	1	
	I = 2012	2 = FEB	2	
	J = 2013	3 = MAR	3	
	K = 2014	4 = APR	4	
	L = 2015	5 = MAY	5	
	M = 2016	6 = JUN	6	
	N = 2017	7 = JUL	7	
	O = 2018	8 = AUG	8	
	P = 2019	9 = SEP	9	
	Q = 2020	A = OCT	A = 10	
		B = NOV	B = 11	
		C = DEC	C = 12	
			D = 13	
			E = 14	
			F = 15	
			G = 16	
			H = 17	
			I = 18	
			J = 19	
			K = 20	
			L = 21	
			M = 22	
			N = 23	
			O = 24	
			P = 25	
			Q = 26	
			R = 27	
			S = 28	
			T = 29	
			U = 30	
			V = 31	

BEFORE INSTALLATION

Make sure you have a copy of the most recent water test results. **It is important that this product not be installed until you have this information**.

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

Fig. 1.



Inspecting and Handling Your New System*

Inspect the equipment for any shipping damage. If damaged, notify the transportation company and request a damage inspection. Damage to cartons should also be noted.

Handle the water softener with care. Damage can result if it is dropped or set on sharp, uneven projections on the floor.

Do not turn the water softener upside down.

To Ensure this Product Functions Properly:

Your feed water line size to the unit must be a minimum of 3/4 inch with an operating pressure of no less than 30 psi and no more than 125 psi.

MECHANICAL:

Do not use petroleum based lubricants such as petroleum jelly, oils, or hydrocarbon based lubricants.Use only 100% silicone lubricants (packet provided in parts kit). All plastic connections should be hand tightened only. Teflon tape may be used on connections that do not use an o-ring seal. Do not use pliers or pipe wrenches except where indicated by nut shape (eg. pipe adapters) All plumbing must be completed according to local codes. Soldering connections should be done before connecting any pieces to the pipe as excessive heat can damage them.

Tools Required for Installation:

NOTE: The installation should only be completed by an LHWS certified installer to ensure this product is installed in accordance with local plumbing codes.

- Additional tools may be required if modification to home plumbing is required.
- Plastic inlet and outlet fittings are included with the water softener. To maintain full valve flow, 3/4" or 1" pipes to and from the water softener fittings are recommended. You should maintain the same, or larger, pipe size as the water supply pipe, up to the water softener inlet and outlet.
- Use copper, brass, or PEX pipe and fittings.
- Some codes may also allow PVC plastic pipe.
- ALWAYS install the included bypass valve, and 3 valve plumbing bypass. Bypass valves let you turn off water to the water softener for repairs if needed, but still have water in the house pipes.

NOTE

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

⚠ CAUTION!

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 Fig. 1.

NOTE

Check your local electrical code for the correct clamp and cable size.

NOTE

If a severe loss in water pressure is observed when the water softener is initially placed in service, the tank may have been laid on its side during transit. If this occurs, backwash the water softener to "reclassify" the media.

***NOTE**

Due to transportation and climatic conditions all connections including the valve to the tank need to be checked at time of installation and tightened if necessary.

PREPARATIONS

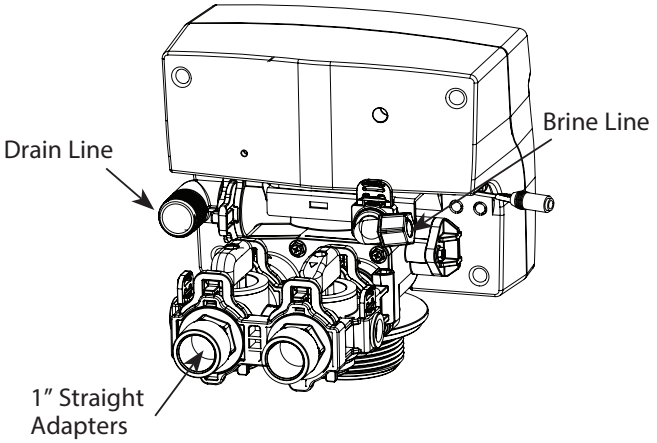
Planning Your Installation

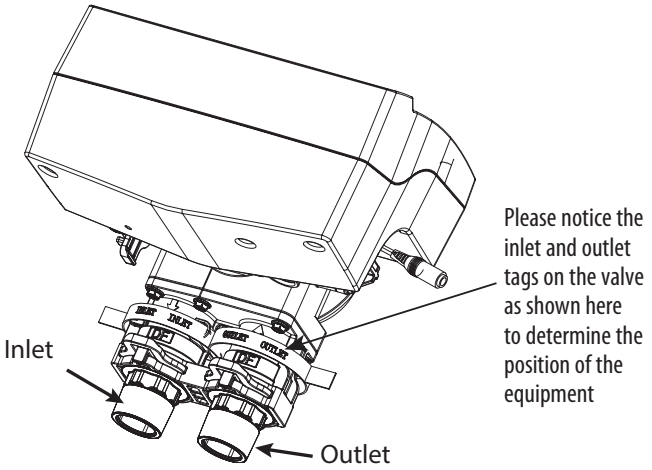
Select the location of your water softener with care. Various conditions which contribute to proper location are as follows:

1. All installation procedures must conform to local and state or provincial plumbing codes.
2. Locate as close as possible to the water supply source.
3. Locate as close as possible to a floor or laundry tub drain.
4. Locate in correct relationship to other water treatment equipment. If closer than 10 feet, please install check valve in accordance with local plumbing codes.
5. Water softener should be located in the supply line before the water heater. Temperatures above 110°F (43°C) will cause damage to the water softener.
6. Do not install a water softener in a location where freezing temperatures occur. Freezing may cause permanent damage to this type of equipment and will void the factory warranty.
7. Allow sufficient space around the unit for easy servicing.
8. Keep the water softener out of direct sunlight. The heat may soften and distort plastic parts.

INSTALLATION STEPS

1. 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.





2. Make sure the bypass is attached properly to the control valve. Connect the straight, elbow, or flex connectors to the bypass with red clips. Connect the inlet and outlet of the water softener to the plumbing of 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.
3. Apply Teflon tape and o-rings to the fittings.
4. Connect water softener to the house plumbing. Any solder joints near the valve must be done before connecting any piping to the valve. Always leave at least 6" (152 mm) between the valve and joints when soldering pipes that are connected to the valve. Failure to do this could cause damage to the valve.
5. **Drain Line connection:** Attach 1/2" ID, 5/8" OD 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.

INSTALLATION STEPS

6. *Using the Allen Key (included), place the unit in the bypass position.

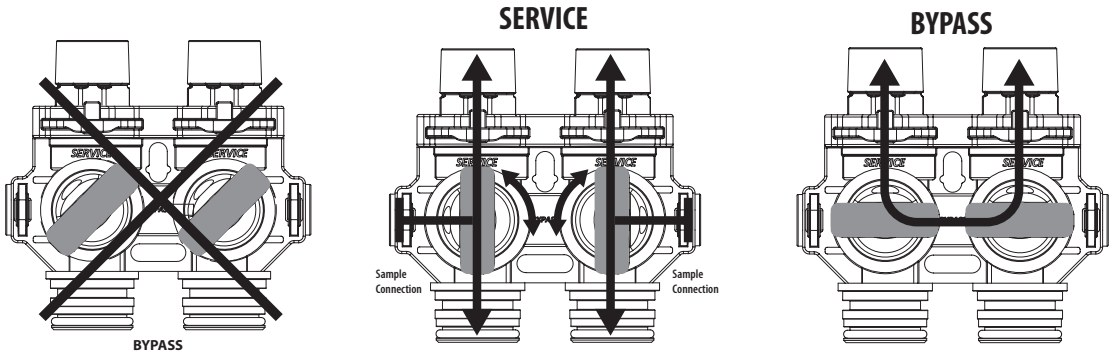
*Automatic Water Bypass

The regeneration cycle lasts approximately 1.5 hours to 3.0 hours depending on the specific model, after which treated water service will be restored. During regeneration, untreated 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.

*Manual Water Bypass

In case of an emergency, you can isolate your water softener from the water supply using the 3 valve plumbing bypass or 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 water 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 water softener . However, the water you use will be hard. To resume treated service, open the bypass valve by rotating the knobs counterclockwise. **Please make sure bypass knobs are completely open otherwise the untreated water could bypass through the valve.**



7. Make sure there are no leaks in the plumbing system before proceeding.

NOTE

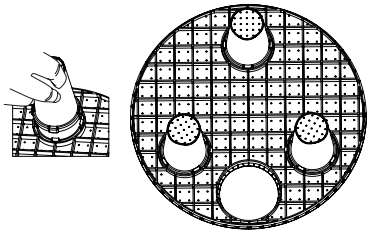
If the plumbing system is used as the ground leg of the electric supply, continuity should be maintained by installing ground straps around any nonconductive plastic piping used in installation. - **See page 9**

NOTE

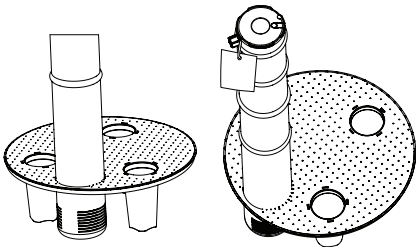
Before starting installation, **read page 16**, **Plumbing System Clean-Up**, for instructions on some procedures that may need to be performed first.

INSTALLING BRINE TANK*

a) Attach the three brine grid legs to grid plate. The legs will snap on to the tabs of the salt plate making a "click" sound.

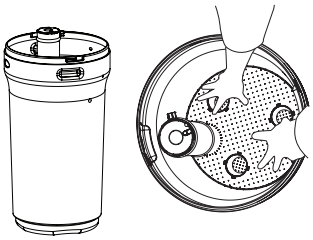


b) Insert the brine well assembly inside the grid plate as well below.



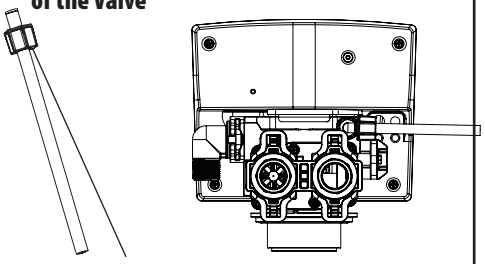
c) Drop the brine grid with brine well inside the brine tank such that the nut fitting faces the hole on the brine tank. Then press the grid evenly inside the brine tank until the brine grid legs touches the bottom of the brine tank.

IMPORTANT: IT IS IMPORTANT TO ALIGN THE HANDLE TO THE BRINE WELL AS SHOWN



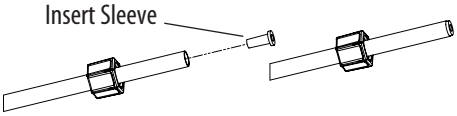
The hole in the brine tank should line up with the brine line as shown .

Attaching Brine Tubing to the Brine Line of the Valve

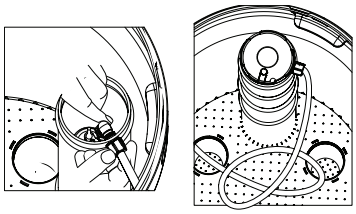


Insert Sleeve inside the Tubing

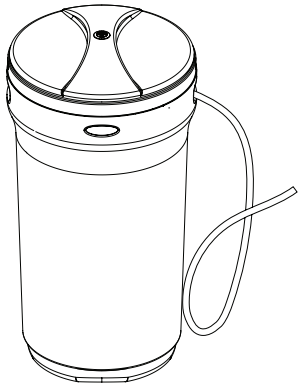
d) Take the brine tube and insert the nut and plastic sleeve as shown below.



e) Insert the tube in the float assembly elbow and hand tighten the nut.



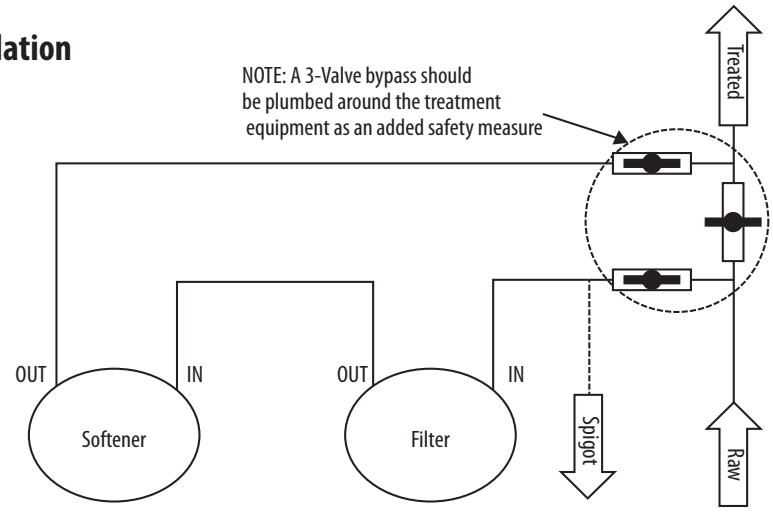
f) For installation of brine tank at the installation site, pull the other end of the brine tube through the hole on the brine tank. The completed assembly is shown below.

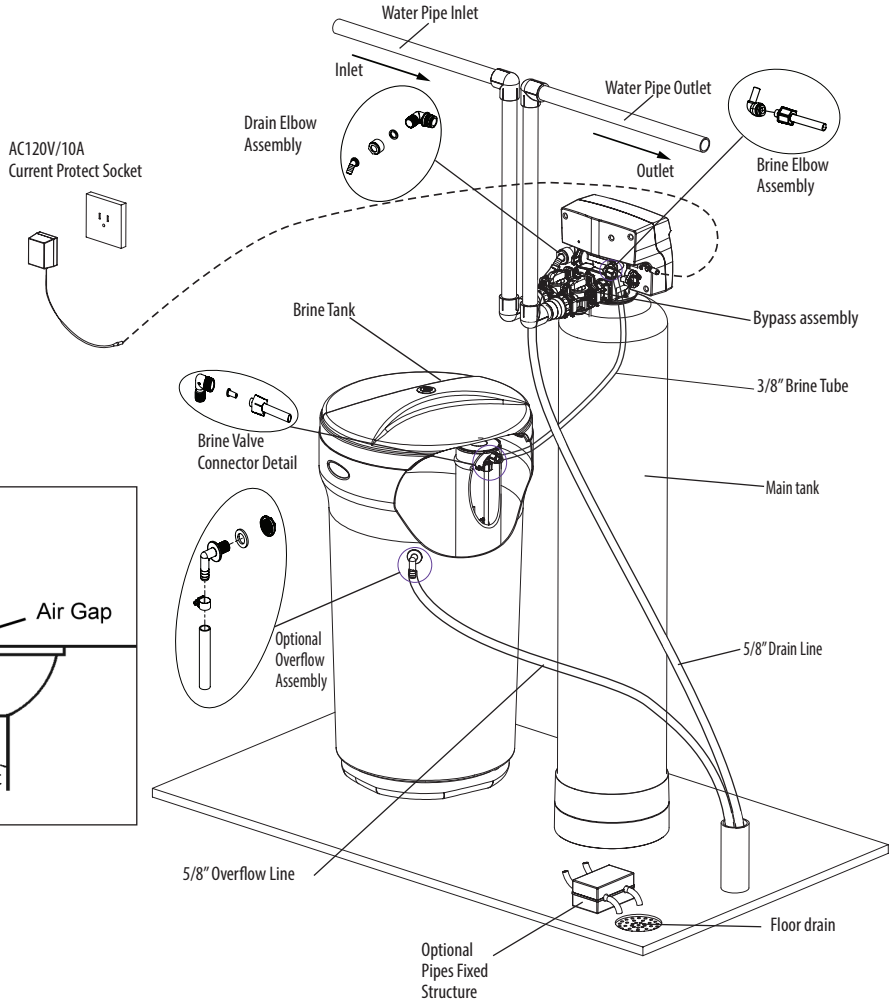


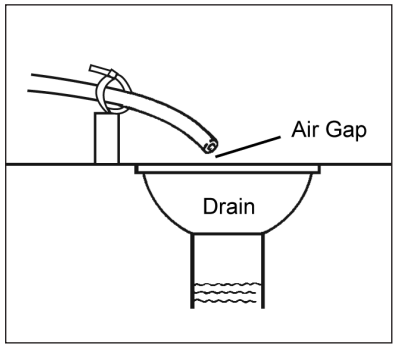
WATER SOFTENER INSTALLATION

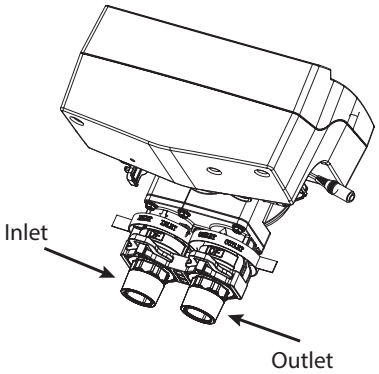
Connect Softener to the House Plumbing Any solder joints near the valve must be done before connecting any piping to the valve. Always leave at least 6" (152 mm) between the valve and joints when soldering pipes that are connected to the valve. Failure to do this could cause damage to the valve.

Water Softener Installation









NOTICE - THERE ARE INLET AND OUTLET LABELS ON THE VALVE. PLEASE MAKE SURE TO PLUMB AS SHOWN HERE

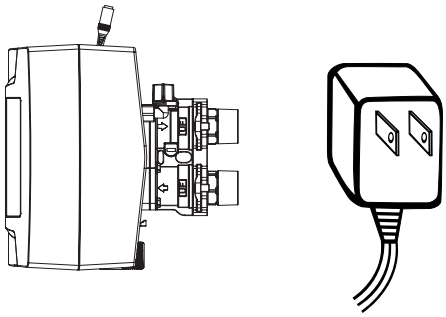
NOTE

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.

⚠ CAUTION!

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 softener.

STARTUP & PROGRAMMING



STEP 1. Connect the Transformer to the Valve

Plug the 12-volt transformer into a 120 VAC 60 Hz outlet.

STEP 2. Add Water to Brine Tank

Open the brine tank /cabinet salt lid and add water as per the info below. Do not add salt to the brine tank at this time.

BRINE TANK MODEL – Water to be Added at the Time of Installation:

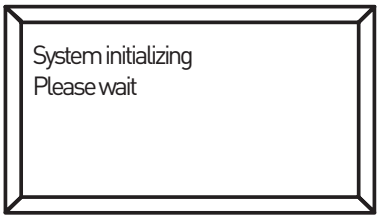
For LWS1.0 and LWS1.5 (18.1" x 34.7") - 2.5 US Gallons

For LWS2.0 (20.3 x 37.4) - 3.25 US Gallons

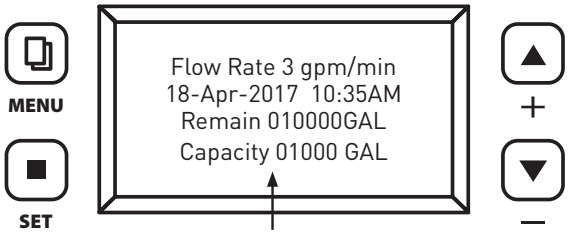
After filling, the water level should be approximately 1" above the grid plate.

Screen Display

When power is supplied to the control, the screen may display "INITIALIZING WAIT PLEASE" while it finds the service position.



Familiarize with Button Configuration:



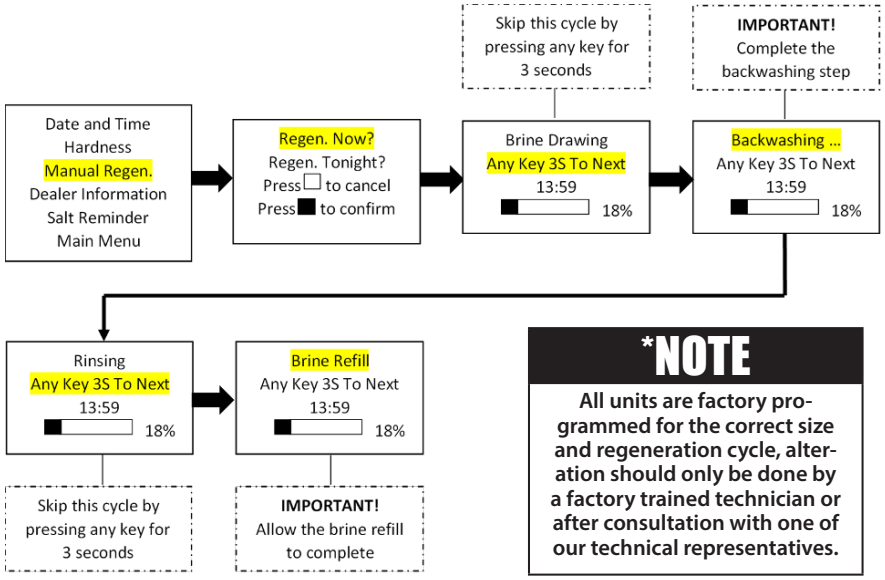
The controller will show the following on the screen: Time, Date and Gallons Remaining for Regeneration

STEP 3. Manually Regenerate the Valve

Please see the following instructions and diagram to properly prepare your system for use.

Important - The bypass valve should be in the bypass position before completing the next steps.

1. If screen is locked, press MENU for 5 seconds to unlock.
2. Press MENU and scroll down using the UP and DOWN arrows to "Manual Regen". Press SET.
3. Then select "Regen Now" and press SET.
4. The control valve will advance to "Brine Drawing". Skip this cycle by pressing any key for 3 seconds.
5. The control valve will advance to "Backwashing". At this step, unplug the power supply and slowly open the bypass inlet valve. Allow the tank to fill with water until all air has been purged and there is a steady flow at the drain. Then plug the power supply back into the outlet.
6. Skip the rest of the backwashing step by pressing any key for 3 seconds. The control valve will advance to "Rinsing".
7. Skip the "Rinsing" step by pressing any key for 3 seconds.
8. The control valve will advance to "Brine Refill". Allow this step to complete automatically. This step cannot be skipped.
9. Open the bypass valve outlet to the service position and move on to the programming, STEP 4.



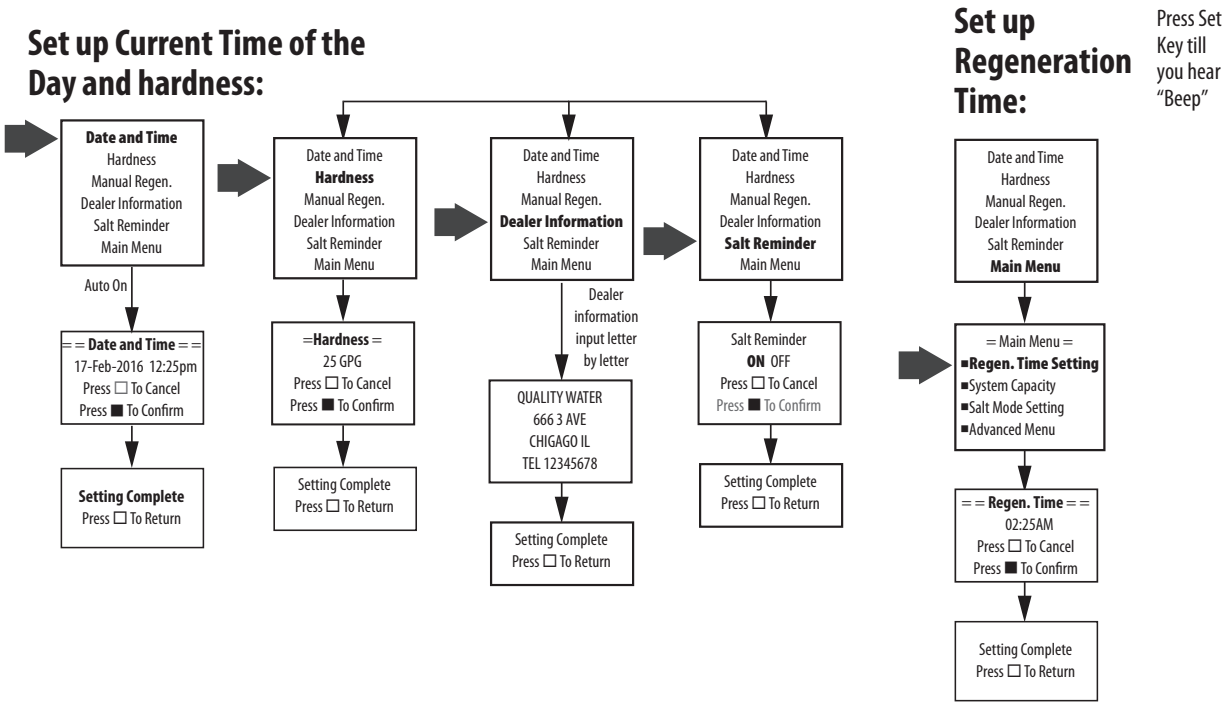
***NOTE**

All units are factory programmed for the correct size and regeneration cycle, alteration should only be done by a factory trained technician or after consultation with one of our technical representatives.

STARTUP & PROGRAMMING (CONTINUED)

STEP 4. Program Valve

It is necessary to complete a few final programming steps in order to personalize the system for your application. Please see the instructions and diagram below.

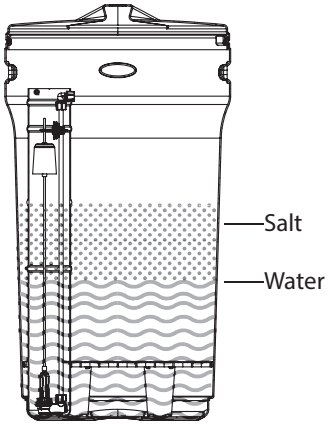


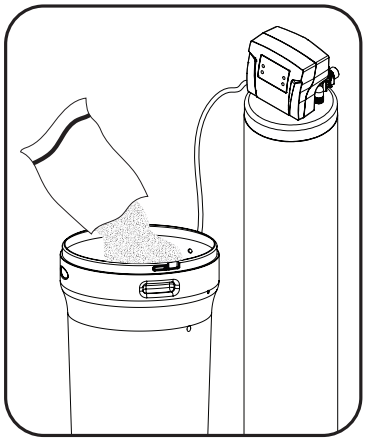
1. Press MENU and select "Date and Time" using SET. Use the UP and DOWN arrows to change the digits if necessary. Then press SET to confirm. Once complete, press MENU.
2. Scroll down to "Hardness" and press SET. Use the UP and DOWN arrows to change the digits to match the test result hardness. Then press SET to confirm. Once complete, press MENU.
3. Scroll down to "Main Menu" and press SET. Then choose "Regen Time Setting" by pressing SET. Enter the desired time the system will regenerate. It should take place when there is no or little use in the home. Be sure there are no conflicting regeneration times if there are other pieces of equipment. Once chosen, press SET. The continue to press MENU until you've reached the home screen.
4. "Dealer Information" selection is optional
5. The "Salt Reminder" selection is optional. If selected, it is based on a starting and replenishing quantity of 80 lbs of salt.

STARTUP & PROGRAMMING (CONTINUED)

STEP 5. Add Salt to the Brine Tank

Put 80 lbs of water softener salt in the brine tank. The unit will automatically fill the water to the correct level when it regenerates.





Start up and programming complete. Unit is now operational.

NOTE

NEW SOUNDS

You may notice new sounds as your water softener operates. The regeneration cycle lasts approximately 1.5 hours to 3.0 hours depending on the specific model. During this time, will be able to hear water running intermittently to the drain, depending on proximity of the unit to sleeping area and time of regeneration.

PLUMBING SYSTEM CLEAN-UP

The following procedures are guidelines only but have proven successful in most instances. Under no circumstances should any procedure outlined below be followed if contrary to the appliance manufacturer's instructions. Should there by any questions concerning the advisability of performing a procedure, it is strongly recommended the manufacturer's authorized service outlet be consulted prior to performing the procedure.

Water Heater

If the water heater has been exposed to both iron and hardness for a long period of time, replacement of the heater tank maybe the only practical solution to prevent continued staining originating from this source. After completing the installation of the softener, clean the water heater by following these instructions:

1. Shut off energy supply to water heater and close heater inlet water valve.
2. Drain hot water tank completely. Open inlet water valve allowing heater tank to be refilled with iron-free water. Continue flushing until water runs clear to drain.
3. If, after approximately 30 minutes flushing, water does NOT clear, terminate flushing operation. Refill hot water heater with water and pour approximately 1/2 gallon of household bleach into top of heater tank. Allow bleach solution to stand in tank for 20 to 30 minutes. Flush tank.

NOTE

If water does not clear in approximately 10 minutes, water heater should probably be replaced.

Dishwasher

Consult owners' handbook and follow manufacturer's instructions.

Toilet Flush Tanks

Prior to the installation of the system, pour 4 to 6 ounces of resin mineral cleaner Pro-Rust Out or or other suitable cleaner such as CLR that contains a mild acid into flush tanks and bowls and let stand. When installation is completed, flush toilets several times with softened water. If stains or deposits return, check that lines are connected to treated water. Repeat procedure until water is clear at drain.

MAINTENANCE INSTRUCTIONS AND SCHEDULE

Service Schedule

- The seals and spacers along with the piston assembly should be inspected/cleaned or replaced every year depending on the inlet water quality and water usage. See inspection and replacement of **Piston Assembly and Seal and Spacer Kit, page 21**.
- The injectors should be cleaned/inspected or replaced every year depending on the water quality and use. See **Clean Injector Assembly, page 24.**
- The media should be replenished or replaced depending of inlet water quality and water consumption. Check with your water treatment expert on the media bed change frequency.
- Maintenance Kit (60010307) should be used for servicing control on an annual basis. The maintenance kit consists of piston assembly, seals and spacers, injectors.

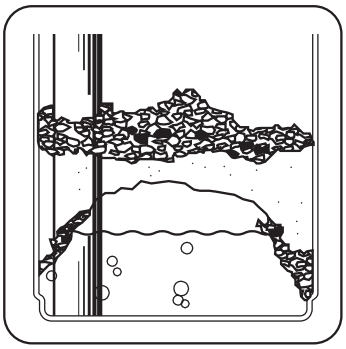
Maintenance of your new water softener requires very little time or effort but it is essential. Regular maintenance will ensure many years of efficient and trouble free operation.

FAILURE TO FOLLOW BASIC MAINTENANCE SCHEDULE WILL RESULT IN THE UNIT FAILING TO OPERATE PROPERLY AND VOID YOUR WARRANTY.

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 softener.

Cleaning of your Brine / Salt tank

Salt tanks will build up sludge (undissolved salt) in the bottom of them that will continue to increase as time goes by. Every 2 - 3 years the salt tank should be cleaned out completely and re started using the original start up instructions.

Never subject your system to freezing, vacuum or to temperatures above 43°C (110°F).

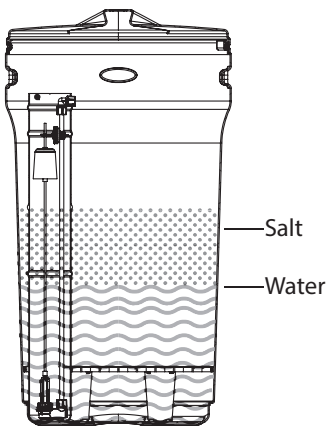
Checking the Salt Level

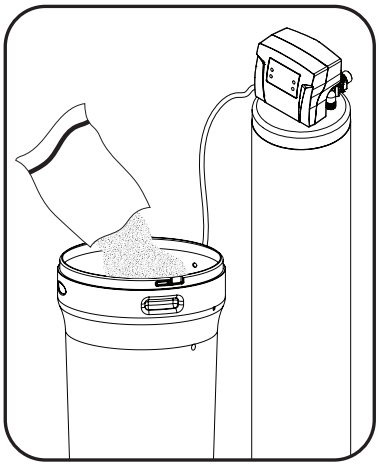
Check the salt level monthly. Remove the lid from the cabinet or brine tank, make sure salt level is always above the brine level.

Add Salt to the Brine Tank

Put 80 lbs of water softener salt in the brine tank. The unit will automatically fill the water to the correct level when it regenerates. Use only clean salt labeled for water softener use, such as pellet or nugget. 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.

NOTE :THE WATER LEVEL SHOULD BE BELOW THE SALT LEVEL ALL THE TIME





CAUTION!

Incorrect start up, water above the salt level, (not enough salt in tank) will both effect the units capacity and result in hardness slippage. Should either of these situations happen or the unit fails to regenerate for any other reason please first correct the problem. Then regenerate the unit manually 2 times in a row to restore the reserve capacity and bring the media bed back up to specification.

MAINTENANCE INSTRUCTIONS AND SCHEDULE

Care of Your Equipment

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).

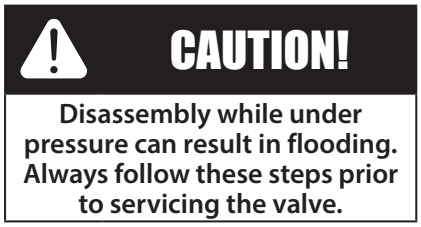
Resin Cleaner

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).

SERVICING CONTROL VALVE

Before Servicing

1. Turn off water supply to water softener:
   - **a.** If the water softener installation has a 3 valve bypass system first open the valve in the bypass line, then close the valves at the water softener inlet & outlet.
   - b. If the water softener has an integral bypass valve, put it in the bypass position.
   - c. If there is only a shut-off valve near the water softener inlet, close it.
2. Relieve water pressure in the softener by stepping the control into the backwash position momentarily. Return the control to the In Service position.
3. Unplug electrical cord from outlet.
4. Disconnect drain line connection.



TROUBLE SHOOTING GUIDE

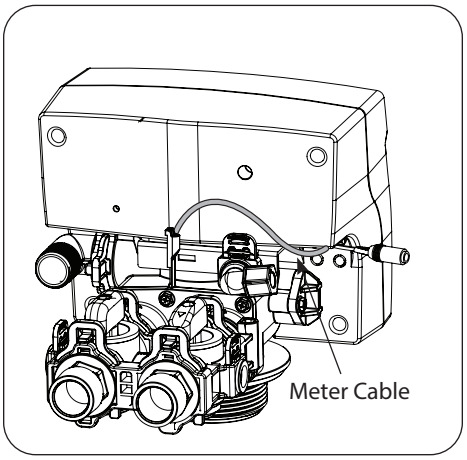
Problem	Possible Solutions
1. WATER SOFTENER DELIVERS HARD WATER A. Bypass valve is open B. No salt in brine tank C. Injector or screen plugged D. Insufficient water flowing into brine tank E. Hot water tank hardness F. Leak at distributor tube G. Internal valve leak H. Flow meter jammed I. Flow meter cable disconnected or not plugged into meter cap J. Improper programming	A. Close bypass valve B. Add salt to brine tank and maintain salt level above water level C. Replace injectors and screen D. Check brine tank fill time and clean brine line flow tank control if plugged E. Make sure distributor tube is not cracked. Check o-ring and tube pilot F. Make sure distributor tube is not cracked. Check o-ring and tube pilot G. Replace seals and spacers and/or piston H. Remove obstruction from flow meter I. Check meter cable connection to timer and meter cap J. Reprogram the control to the proper regeneration type, inlet water hardness, capacity or flow meter size.
2. WATER SOFTENER FAILS TO REGENERATE A. Electrical service to unit has been interrupted B. Timer is not operating properly C. Defective valve drive motor D. Improper programming	A. Assure permanent electrical service (check fuse, plug, chain or switch) B. Replace timer C. Replace drive motor D. Check programming and reset as needed
3. UNIT USES TOO MUCH SALT A. Improper salt setting B. Excessive water in brine tank C. Improper programming	A. Check salt usage and salt setting B. See #7 C. Check programming and reset as needed
4. LOSS OF WATER PRESSURE A. Iron build-up in line to water softener B. Iron build-up in water softener C. Inlet of control plugged due to foreign material broken loose from pipes by recent work done on plumbing system.	A. Clean line to water softener B. Clean control and add resin cleaner to resin bed. Increase frequency of regeneration C. Remove piston and clean control
5. LOSS OF RESIN THROUGH DRAIN LINE A. Air in water system B. Drain line flow control is too large	A. Assure that well system has proper air eliminator control. Check for dry well condition. B. Ensure drain line flow control is sized
6. IRON IN SOFTENED WATER A. Fouled resin bed B. Iron content exceeds recommended parameters	A. Check backwash, brine draw and brine tank fill. Increase frequency of regeneration. Increase backwash time. B. Add iron removal filter system
7. EXCESSIVE WATER IN BRINE TANK A. Plugged drain line flow control B. Brine valve failure C. Improper programming	A. Clean flow control B. Replace brine valve C. Check programming and reset as needed
8. SALT WATER IN SERVICE LINE A. Plugged injector system B. Timer not operating properly C. Foreign material in brine valve D. Foreign material in brine line flow control E. Low water pressure F. Improper programming	A. Clean injector and replace screen B. Replace timer C. Clean or replace brine valve D. Clean brine line flow control E. Raise water pressure F. Check programming and reset as needed
9. WATER SOFTENER FAILS TO DRAW BRINE A. Drain line flow control is plugged B. Injector is plugged C. Injector screen is plugged D. Line pressure is too low E. Internal control leak F. Improper programming G. Timer not operating properly	A. Clean drain line flow control B. Clean or replace injectors C. Replace screen D. Increase line pressure (line pressure must be at least 20 psi at all times) E. Change seals and spacers and/or piston assembly F. Check programming and reset as needed G. Replace timer
10. CONTROL CYCLES CONTINUOUSLY A. Timer not operating properly B. Faulty microswitches and/or harness C. Faulty cycle cam operation	A. Replace timer B. Replace faulty microswitch or harness C. Replace cycle cam or reinstall

TROUBLE SHOOTING GUIDE

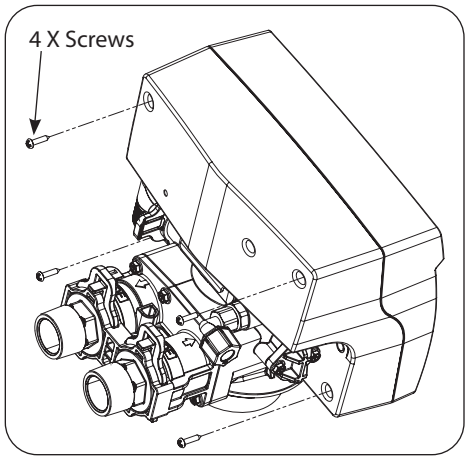
Problem	Possible Solutions
11. DRAIN FLOWS CONTINUOUSLY A. Foreign material in control B. Internal control leak C. Control valve jammed in brine or backwash position D. Timer motor stopped or jammed teeth E. Timer not operating properly	A. Remove piston assembly and inspect bore. Remove foreign material and check control in various regeneration positions B. Replace seals and/or piston assembly C. Replace piston and seals and spacers D. Replace timer motor and check all gears for missing teeth E. Replace timer
12. (Error Code) (Error E1) - Electrical Trouble Shooting: **Issue1:** When the controller is plugged, the buzzer beeps and the screen displays " System Error E1" **Cause:** The wire of micro switch is not plugged or loose.	Check the micro switch and connect the wire well.
13. (Error Code) (Error E1) - Electrical Trouble Shooting: **Issue 2:** The buzzer beeps and the screen displays "System Maintaining E1" **Cause:** The wire of micro switch is not plugged or loose..	Check the micro switch and connect the wire.
14. (Error Code) (Error E2) - Electrical Trouble Shooting: **Issue:** The buzzer beeps and the screen displays "System Error E2" **Cause:** The motor can not find its right position, micro switch or motor malfunction, automatic circuit protection action.	Check the current of micro switch and motor.
15. (Error Code) (Error E2) - Electrical Trouble Shooting: **Issue 2:** The buzzer beeps and the screen displayed " System Maintaining E2" **Cause:** The motor can not find its right position.	Replace Motor or PCB.

THE FOLLOWING 'REPLACEMENT SECTION' CONTAINS CONTENT THAT SHOULD ONLY BE PERFORMED BY A QUALIFIED SERVICE TECHNICIAN:

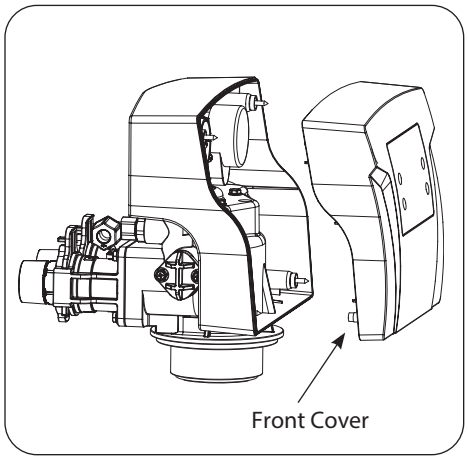
TIMER REPLACEMENT



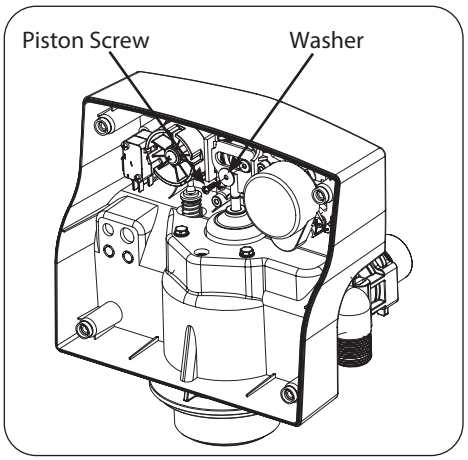
1. Disconnect the meter cable from the meter. (If flow meter is attached)



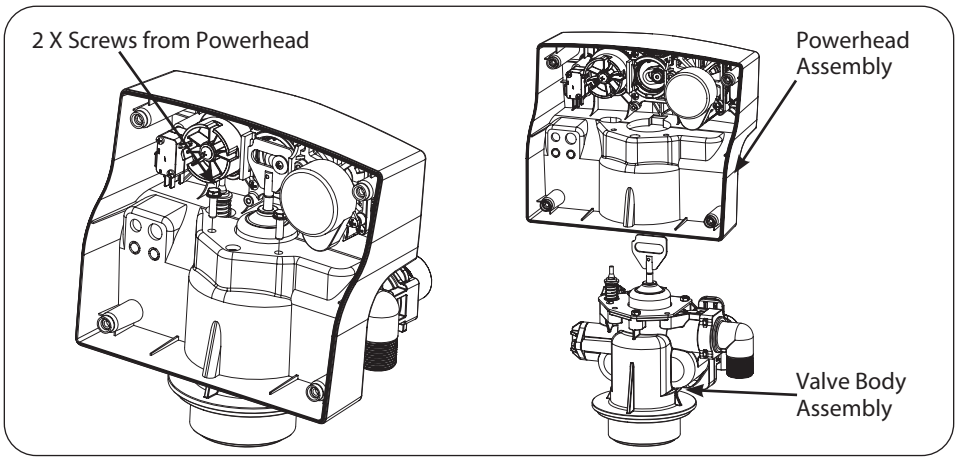
2. Remove four screws from the back of the valve cover.



3. Remove the front cover of the valve.

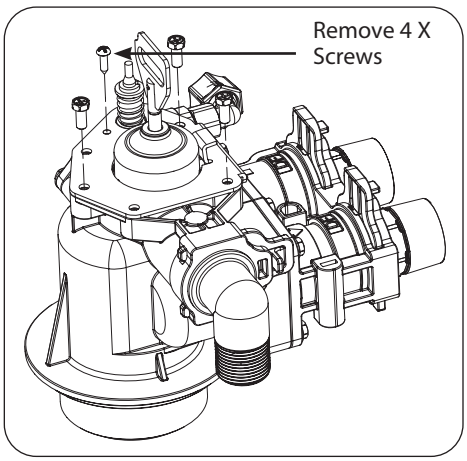


4. Remove the piston screw and washer from the piston rod.

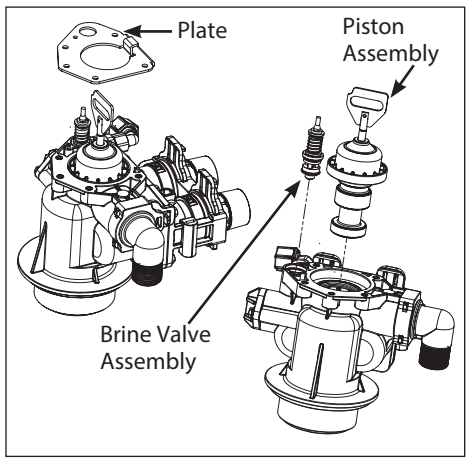


5. Remove the two screws from the powerhead as shown.
6. Lift the powerhead from the valve body assembly.
7. Replace the powerhead by following these steps in reverse.

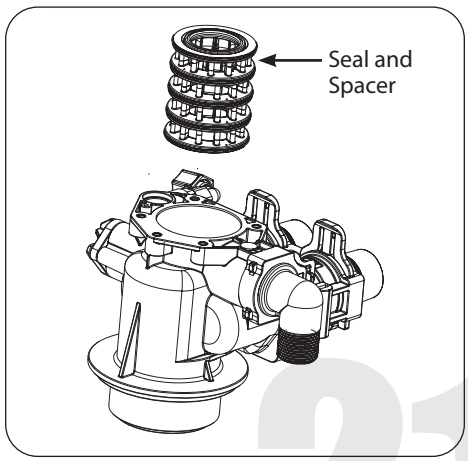
PISTON AND/OR BRINE VALVE ASSEMBLY REPLACEMENT



1. Follow steps 1 to 6 of timer /Powerhead replacement.
2. Remove four screws from the plate on the valve body.

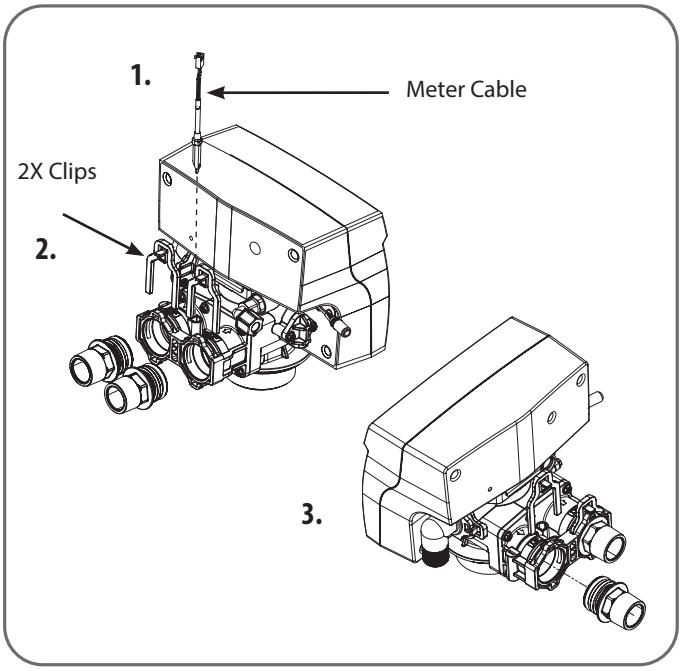


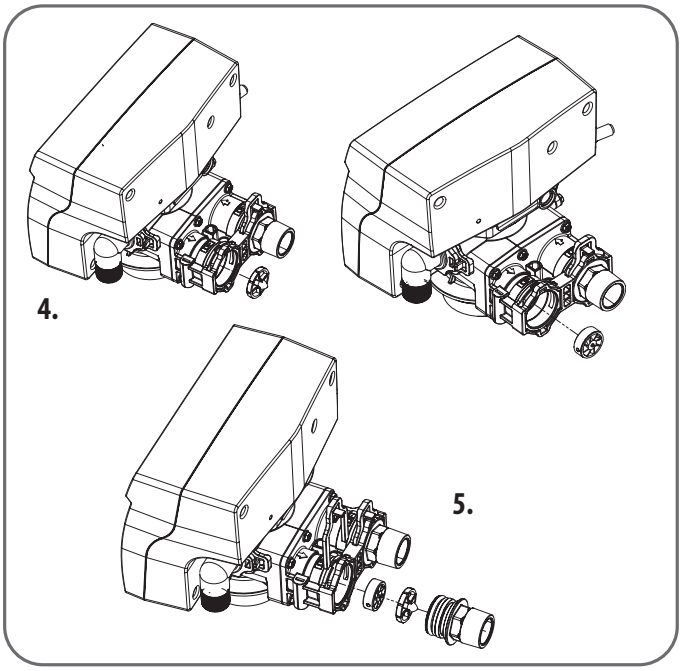
3. Remove the plate from the valve body and pull the Piston Assembly from the valve. The brine valve assembly can also be removed in this stage.
4. Remove the seal spacer assembly, apply silicone lubricant and put back in.



5. Replace piston assembly followed by timer assembly.
6. Replace the piston assembly by following the steps in reverse.

METER ASSEMBLY REPLACEMENT

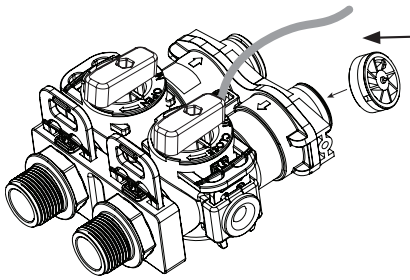




1. Disconnect the meter cable from the meter.
2. Disconnect the valve from bypass by removing clips.
3. Remove the coupling adapter from the valve.
4. Remove the meter support, then the impeller from the coupling and clean it.
5. Replace meter using special tool and re-assemble.

REPLACING THE BYPASS AND METER CABLE

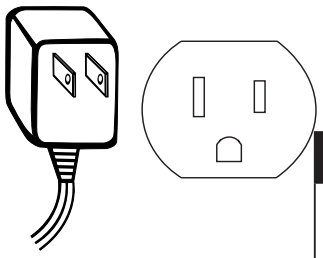
60010004	Bypass comes with Meter and Grey Meter Cable



Valve Type	Unit Measure	Turbine-H	
		A	K
LWS	US Gallon	**1.20**	**0.731**

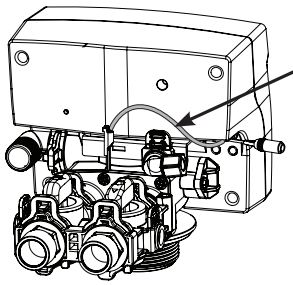
Step 1

Unplug the power from the wall socket.



Step 2*

Remove 2 screws and clips from bypass.

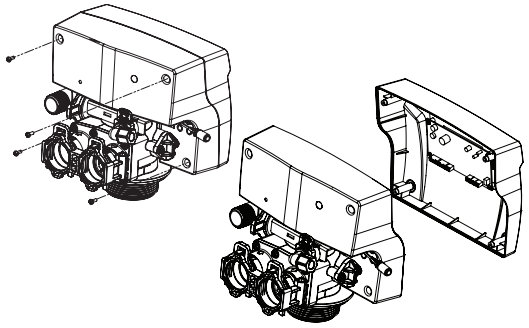


Disconnect the meter cable from the bypass.

***NOTE**

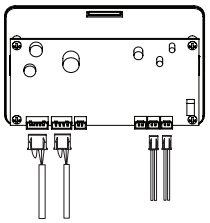
Water to the household needs to be turned off and pressure relieved before Step 2

Step 3 **Remove Cover.**



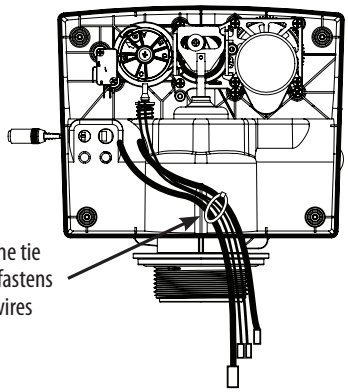
Step 4

Disconnect the cables from the front PCB display.



Step 5

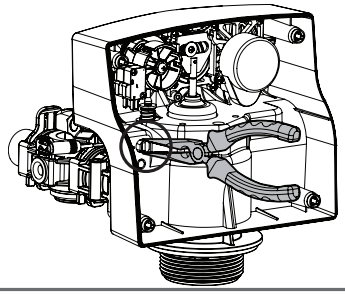
Disconnect the cables from the rear PCB display.



Cut the tie that fastens the wires

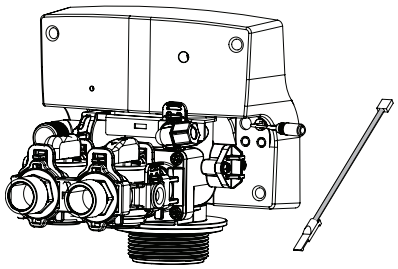
Step 6

Remove strain relief with pliers.

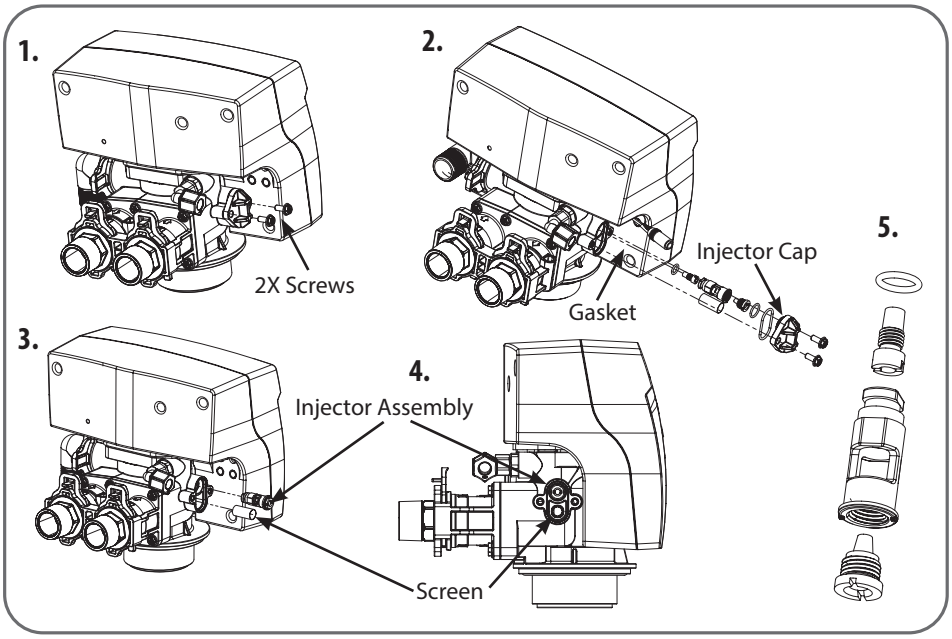


Step 7

Replace the old cable with the new Cable.



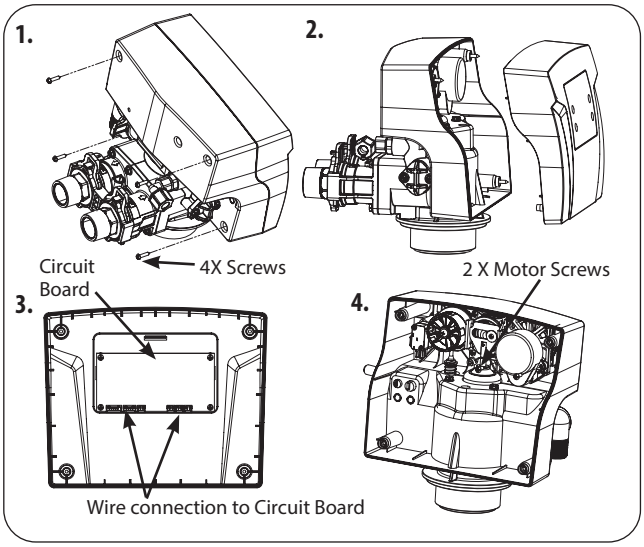
CLEAN INJECTOR ASSEMBLY

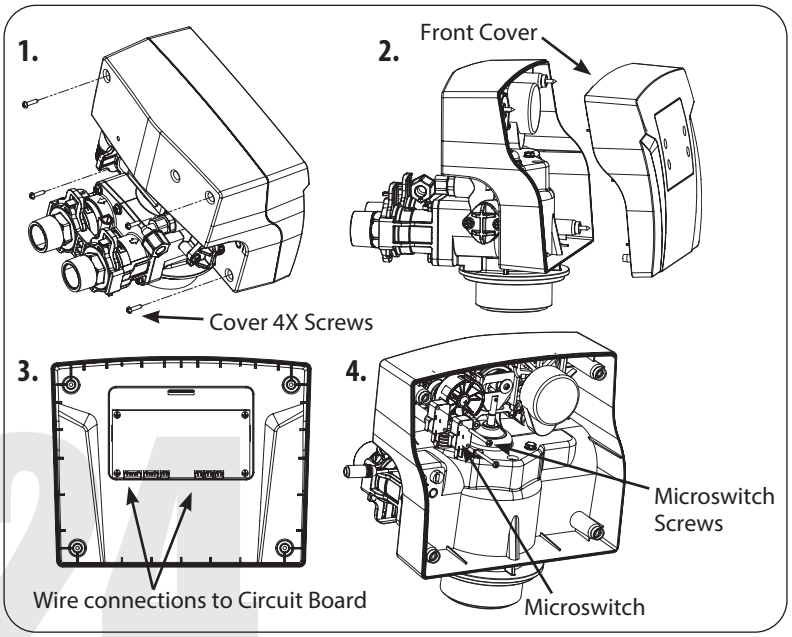


1. Remove the two screws from the injector cap.
2. Pull the injector cap and gasket.
3. Pull the injector assembly and screen.
4. Replace/Clean screen and injector assembly and put it back in the valve in appropriate location as shown.
5. Reinsert the injector cap. Lubricate the injector assembly o-rings and injector cap gasket. Care should be taken to put all o-rings and gaskets in place and lubricate them so that they are not damaged during assembly.

REPLACE MOTOR

1. Remove screws from the back of the valve and pull the cover.
2. Remove all connections from the circuit board.
3. Remove the two screws from the motor. Remove the motor and watch for the pin under the motor.
4. Replace the motor, connections, and cover.

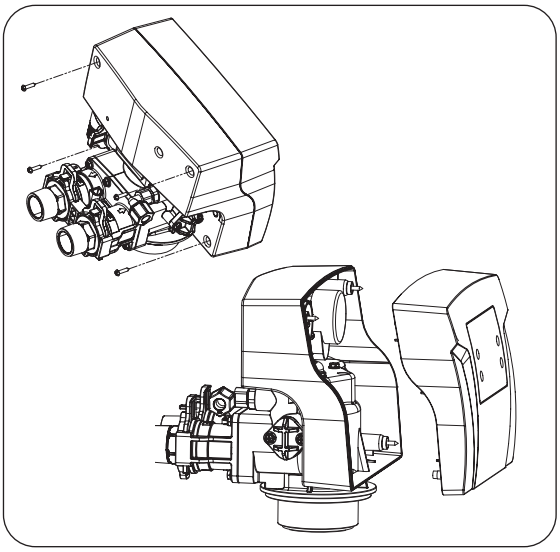


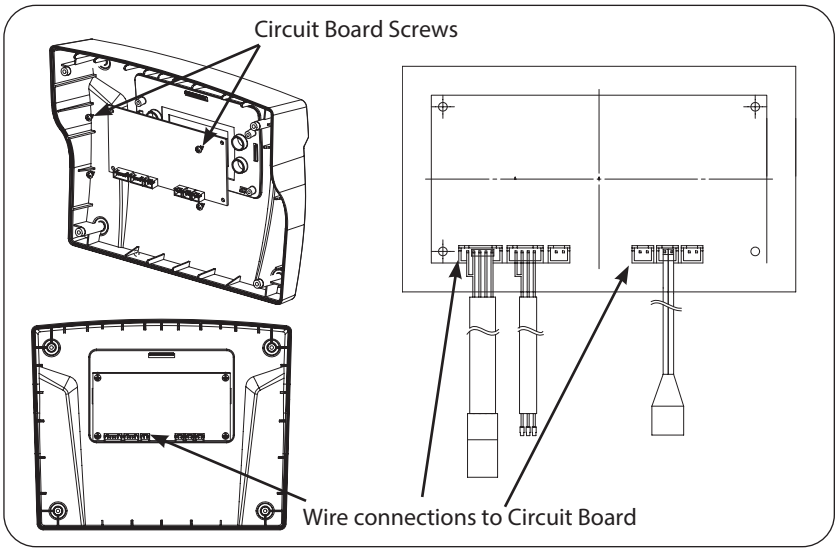


REPLACE MICROSWITCHES

1. Remove screws from the back of the valve and pull the cover.
2. Remove all connections from the circuit board.
3. Remove the two screws from the microswitch.
4. Replace the microswitch, connections, and cover.

CIRCUIT BOARD REPLACEMENT

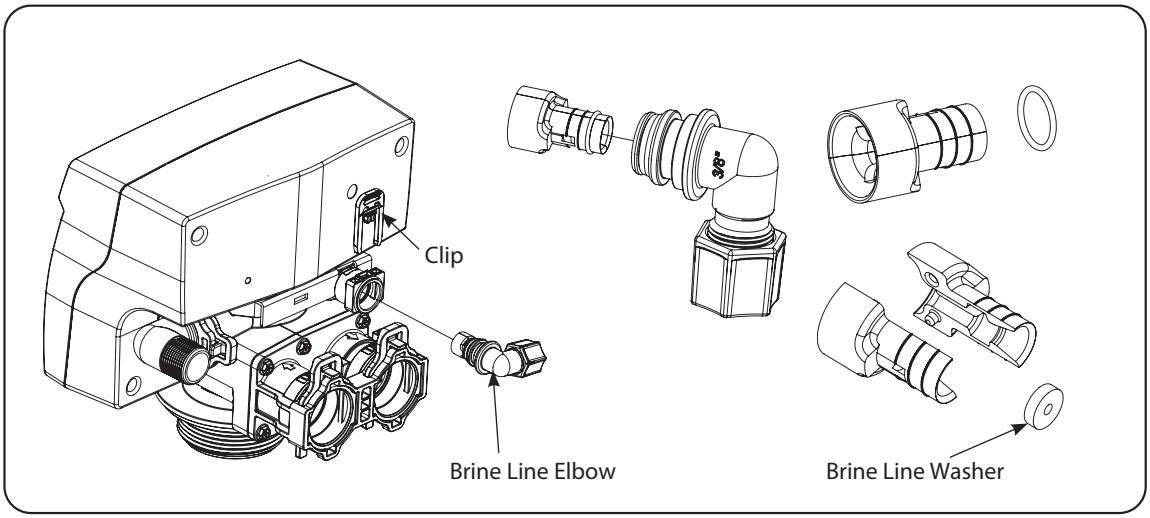




1. Remove the screws from the back of the valve and pull the front cover.

2. Remove all connections from the circuit board.
3. Remove the fours screws from the circuit board and pull it out.

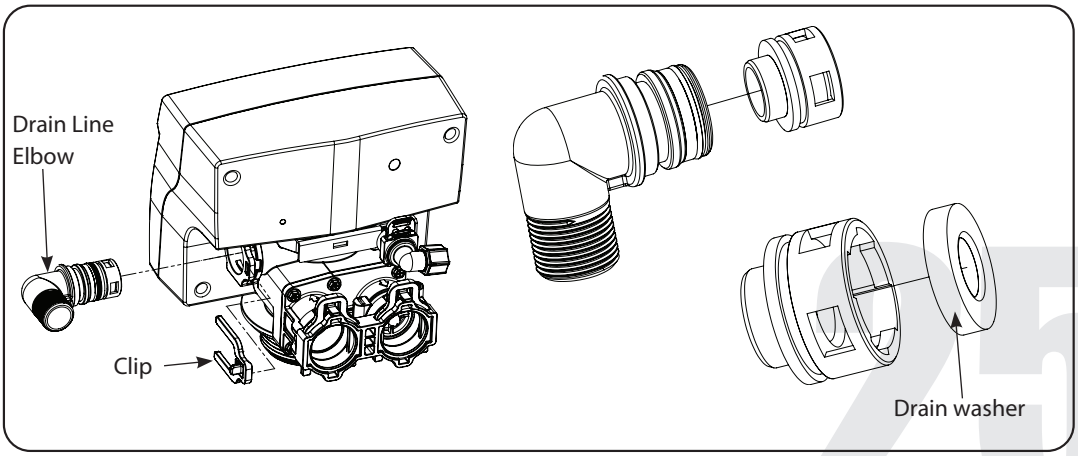
REPLACE BRINE LINE FLOW CONTROL



1. Pull the brine line clip and remove the brineline elbow and washer.
2. Clean/replace brine line washer.

REPLACE DRAIN LINE FLOW CONTROL

1. Pull the drain line clip and remove the drain line elbow and washer.
2. Clean/replace drain line washer.



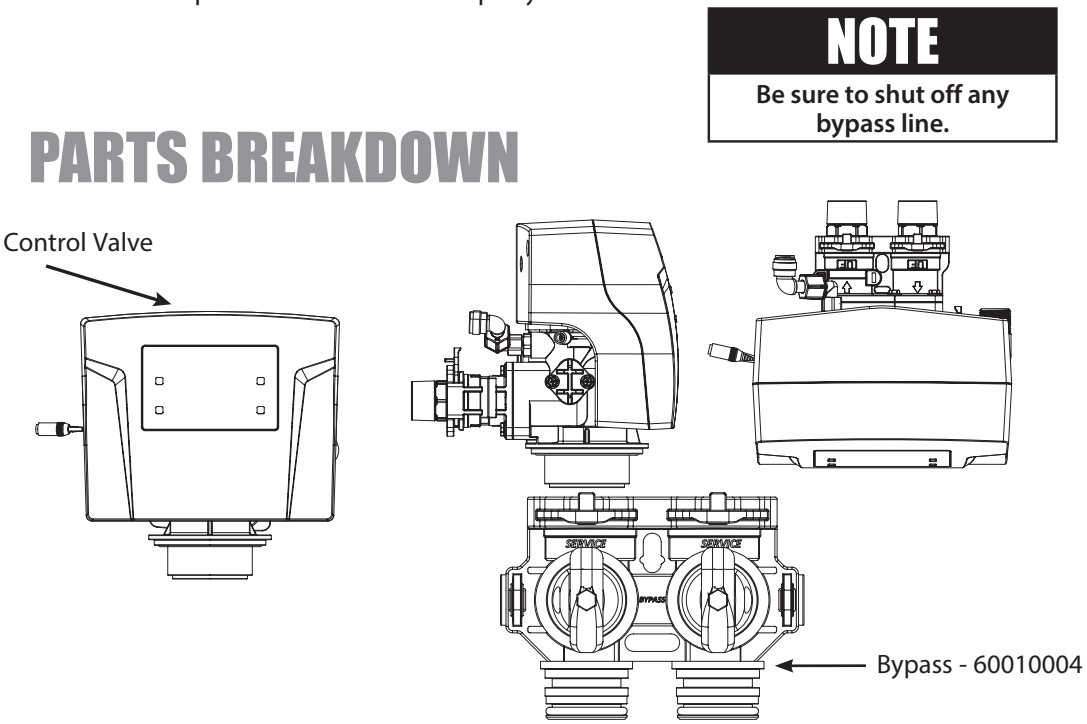
AFTER SERVICING

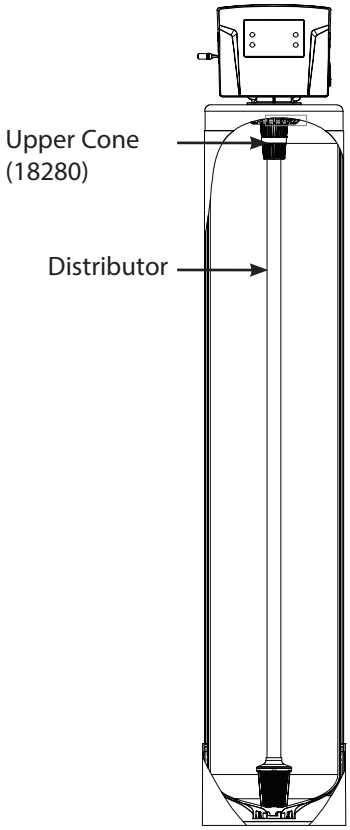
1. Reconnect drain line.
2. Return bypass or inlet valve to normal in service position. Water pressure will automatically build in the water softener
3. Check for leaks at all sealed areas. Check drain seal with the control in the backwash position.
4. Plug electrical cord into outlet.
5. Set time of day and cycle the control valve manually to assure proper function. Make sure control valve is returned to the In Service position. Unit should always be manually regenerated after servicing. If the unit was not working prior to service then 2 manual regenerations should be done 24 hours apart to restore the full bed capacity.

NOTE

Be sure to shut off any bypass line.

PARTS BREAKDOWN

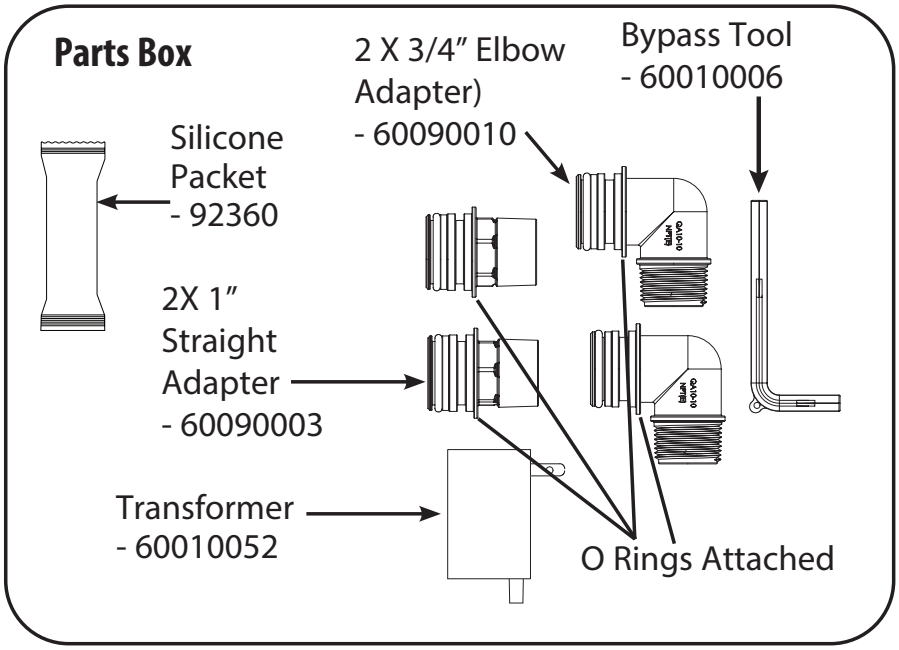


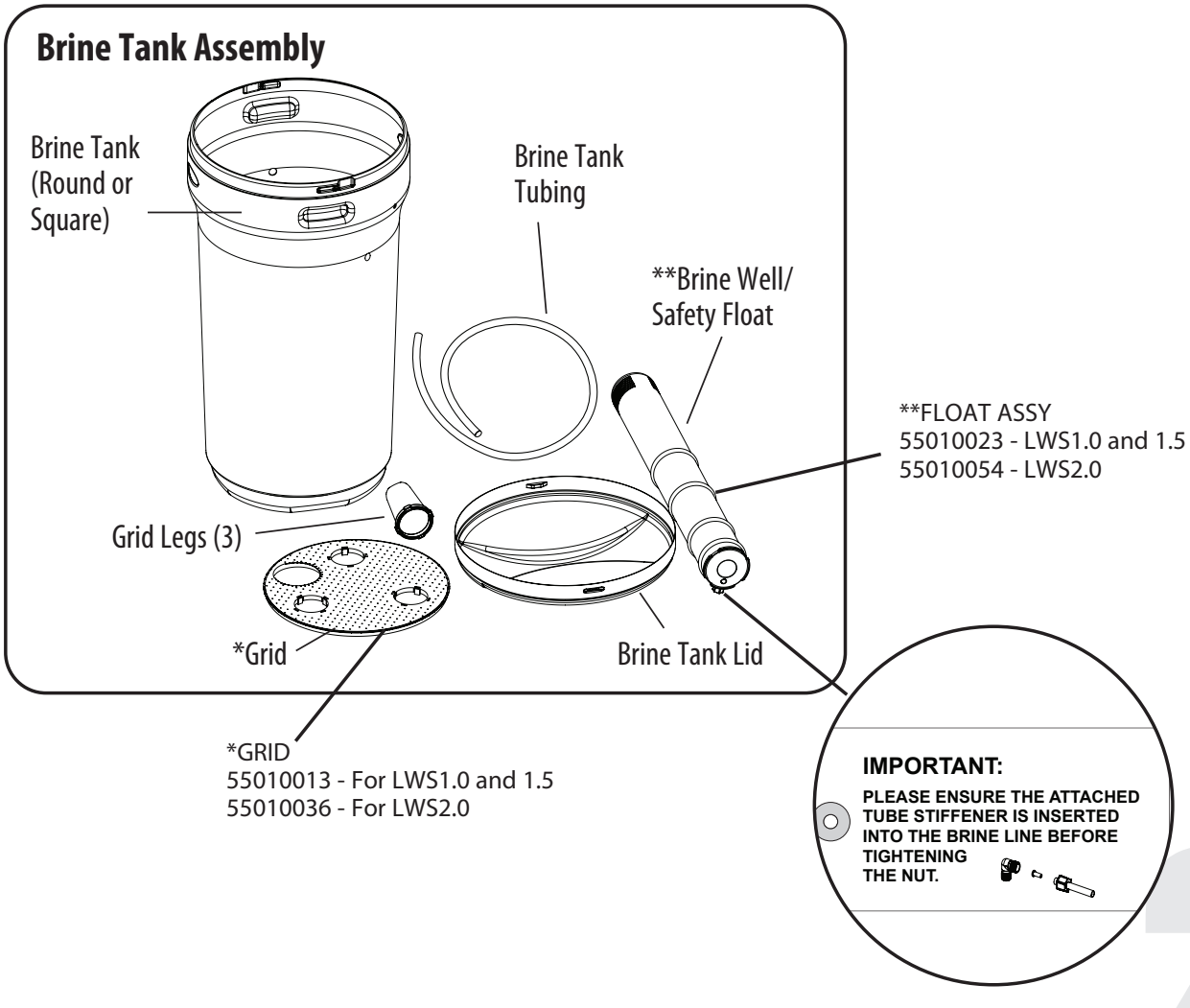


Softener

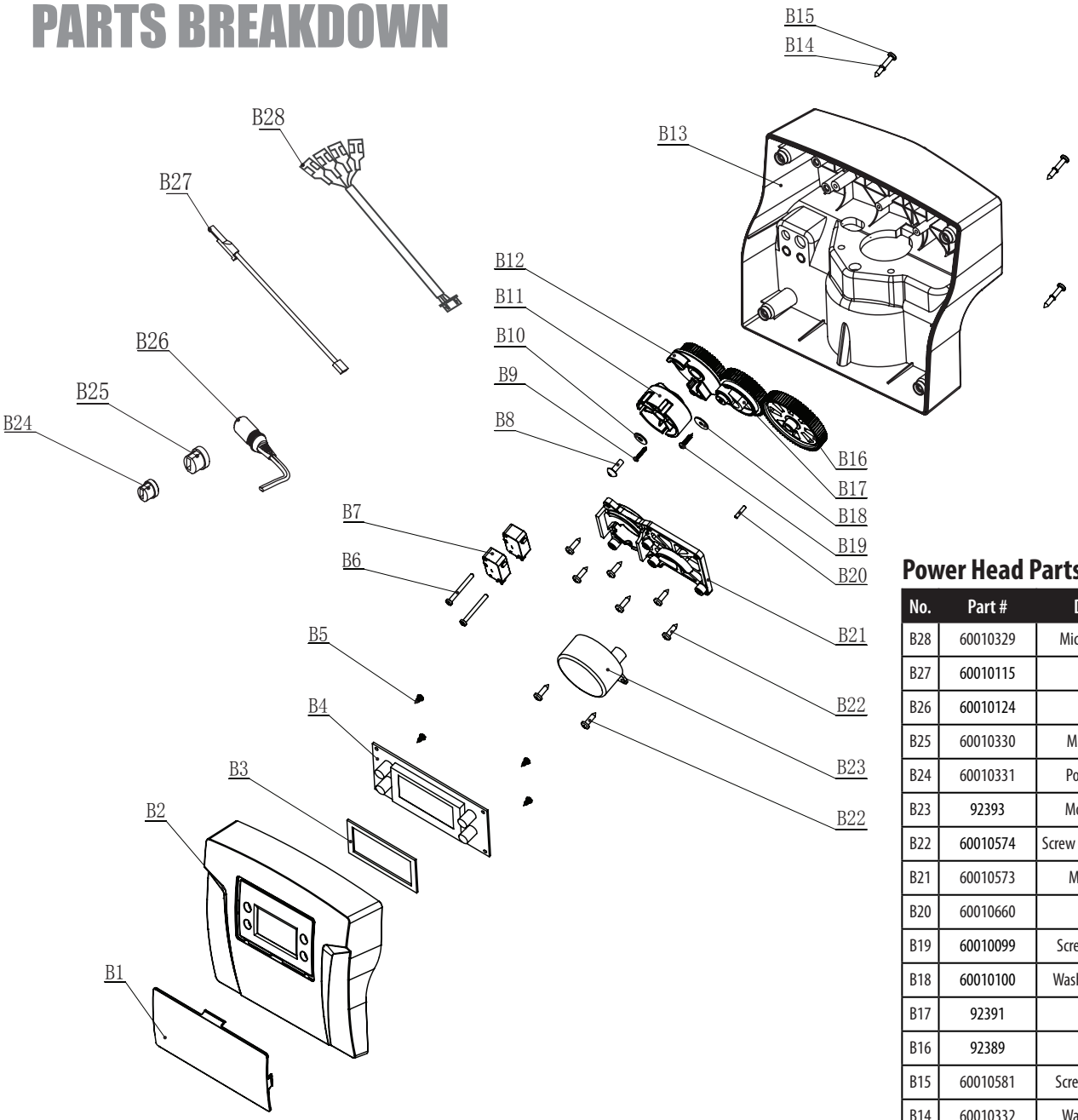
Model	Mineral Tank Size	Tank # (Black Color)	Distributor #	Valve #	Media Bed #
Softener Upflow (Single Tank)					
LWS1.0	9 x 48	25010036	50010005	10010044	95601
LWS1.5	10 x 54	25010051	50010005		95606
LWS2.0	12 x 52	25010060	50010005		95609

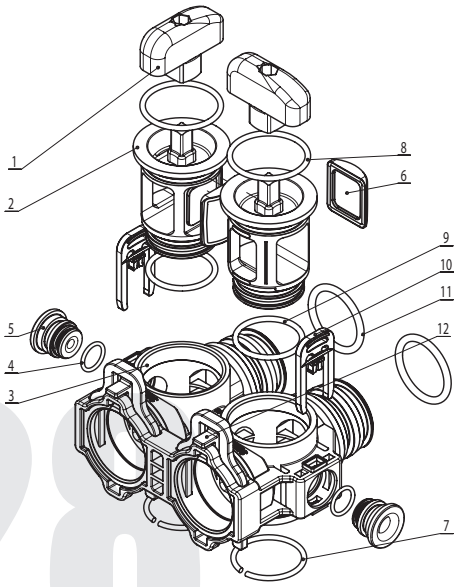
PARTS BREAKDOWN





PARTS BREAKDOWN





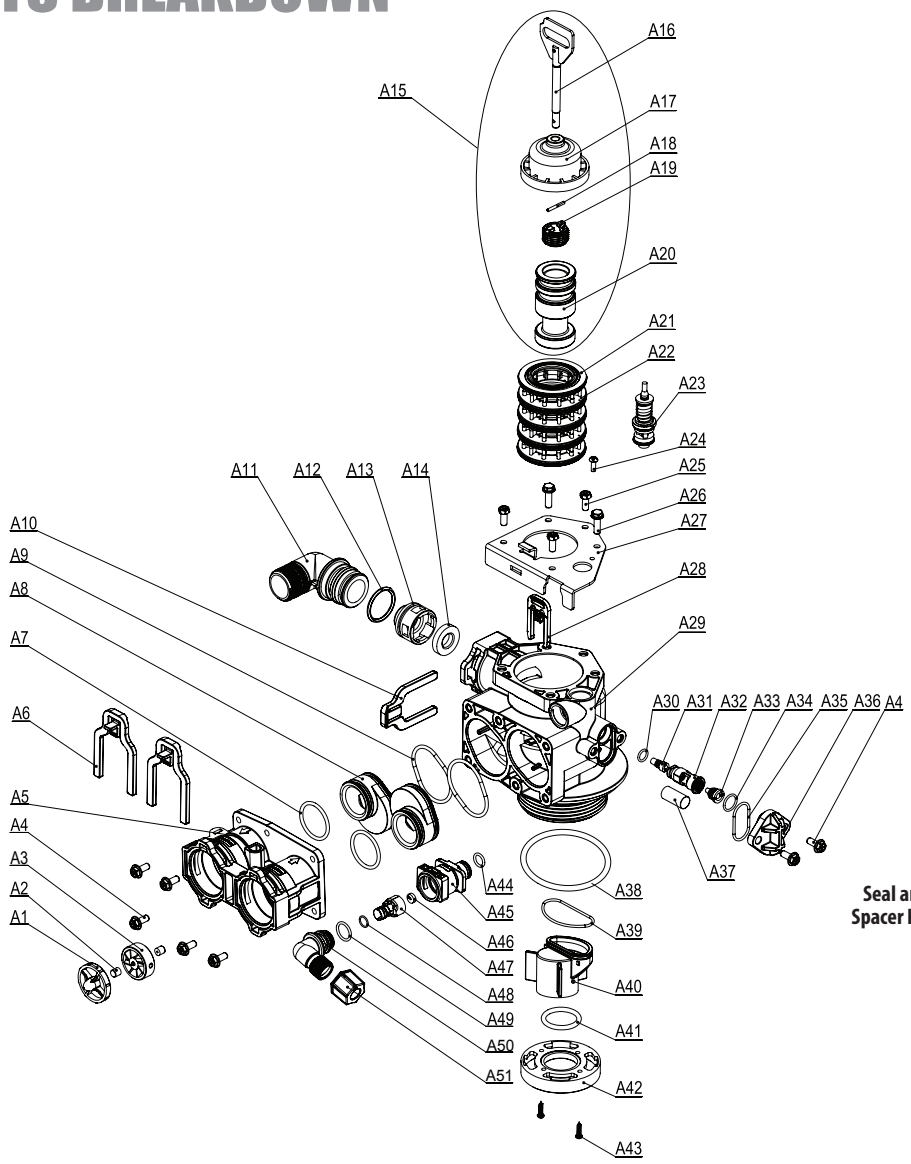
Power Head Parts List

No.	Part #	Description	Qty
B28	60010329	Micro Switch Cable	1
B27	60010115	Meter Cable	1
B26	60010124	Power Cable	1
B25	60010330	Meter Cable Clip	1
B24	60010331	Power Cable Clip	1
B23	92393	Motor 12VAC 3W	1
B22	60010574	Screw on Mounting Plate	8
B21	60010573	Mounting Plate	1
B20	60010660	Motor Pin	1
B19	60010099	Screw on Main Gear	1
B18	60010100	Washer on Main Gear	1
B17	92391	Main Gear	1
B16	92389	Drive Gear	1
B15	60010581	Screw on Back Cover	4
B14	60010332	Washers on Screw	4
B13	60010582	Back Cover(Black)	1
B12	92392	Brine Gear	1
B11	60010577 -UF 60010576 - DF	Locating wheel(UF)	1
B10	60010661	Washer on Locating Wheel	1
B9	60010333	Screw 2.2×13	1
B8	60010575	Screw on Locating Wheel	1
B7	60010580	Micro Switch	2
B6	60010579	Screws on Micro Switch	2
B5	60010572	Screws on PCB	4
B4	92388	PCB	1
B3	60010571	PCB Absorb Shock Foam	1
B2	60010570	Front Cover(Black)	1
B1		Controller Touch Panel	1

Bypass Parts List

No.	Part #	Part Description	Qty
1		Shaft Knob	2
2		Bypass Shaft	2
3		Bypass Body	1
4		Plug O-Ring 12.42×1.78	2
5	60010209	Bypass Plug	1
6		Bypass Knob Seal	8
7		Steel Retainer Ring	1
8		O-Ring 35.5×2.65	1
9		O-Ring 30×2.65	1
10	60010069	Plug Clip	1
11		O-Ring 30×3.55	1
12	92387	Valve Clip	1

PARTS BREAKDOWN



Parts list of control valve body:

No.	Part #	Description	Qty
A51	60010184	Brine Line Elbow Nut	1
A50	60010172	Brine Line Elbow	1
A49	60010044	O-ring of Brine Line Elbow	1
A48	60010188	O-ring of BLFC Holder	1
A47	60010173	BLFC Holder	2
A46	60010128	BLFC(0.2GPM)(Optional)	1
A45	60010340	Brine Line Connector	1
A44	60010265	O-ring on Brine Line Connector	1
A43	60010099	Screw on Valve Bottom Connector	2
A42	60010599	Valve Bottom Connector	1
A41	60010080	Distributor O-ring	1
A40	60010598	Central Pipe Adaptor	1
A39	60010597	O-ring of Central Pipe Adaptor	1
A38	60010077	Tank Mouth O-ring	1
A37	60010715	Screen Valve	1
A36	60010595	Injector Cover	1
A35	60010341	O-ring of Injector Cover	1
A34	60010186	Big O-ring of Injector Holder	1
A33		Injector Nozzle(Optional)	1
A32	60010174	Injector Holder	1
A31		Injector Throat(Optional)	1
A30	60010187	Small O-ring of Injector Holder	1
A29		Valve Body	1
A28	60010069	Secure Clip Brine Line	1
A27	60010343	End Plug Retainer	1
A26	60010076	Valve Body Connect Screws	2
A25	60010075	End Plug Retainer Screws	3
A24	60010574	Screw 3.5×13	1
A23	60032	Brine Valve Injector Stem Assembly	1
A22		Spacer Valve	8
A21		Seal Valve	5
A20	92383 - DF PISTON ASSY	Down Flow Piston Valve	1
A19	92384 - UP PISTON ASSY	92384 - UP PISTON ASSY	1
A18	92385 - FILTER PISTON ASSY	92385 - FILTER PISTON ASSY	1
A17		End Plug Valve	1
A16		Piston Rod Valve	1
A15		Piston Assembly Valve(DF)	1
A14		DLFC(2.4GPM)(Optional)	1
A13	60095694	DLFC Holder	1
A12	60010211	O-ring on Drain Elbow	1
A11	60010253	Drain Elbow 3/4" NPT	1
	60010254	Drain Elbow 1" NPT	1
A10	60010227	Secure Clip of Drain Line	1
A9	60010585	Big O-ring of Adaptor Coupling	2
A8		Adaptor Coupling	2
A7		Small O-ring of Adaptor Coupling	2
A6	92387	Adaptor Secure Clip	2
A5	60010589	Valve Connector	1
A4	60010596	Screws of Valve Connector	8
A3	60010238	Impeller Assembly	1
A2		Bush	2
A1	60010587	Impeller Holder	1

Seal and Spacer Kit 92382

Item #s For All Injector Assemblies and Brine Line and Drain Line Washers

Injector Assemblies (A31 and A33)

	Part #	Part Description
A46	60010110	BLFC BUTTON #2 0.3GPM A32
A46	60010082*	BLFC BUTTON #2 0.7GPM A32
A46	60010128	BLFC BUTTON 0.2GPM
60010127	60010601	INJECTOR SET #0000 BLACK THROAT
60010127	60010602	NOZZLE #0000 BLACK THROAT
60010126	60010603	INJECTOR SET #000 GREY THROAT
60010126	60010604	NOZZLE #000 GREY THROAT
60010035	60010605	INJECTOR SET #00 VIOLET THROAT
60010035	60010606	NOZZLE #00 VIOLET THROAT
60010034	60010607	INJECTOR SET #0 RED THROAT
60010034	60010608	NOZZLE #0 RED THROAT
60010033	60010609*	INJECTOR SET #1 WHITE THROAT
60010033	60010610*	NOZZLE #1 WHITE THROAT
60010032	60010611	INJECTOR SET #2 BLUE THROAT
60010032	60010612	NOZZLE #2 BLUE THROAT

*** Default**

Injector Assemblies (A31 and A33)

	Part #	Part Description
60010031	60010613	INJECTOR SET #3 YELLOW THROAT
60010031	60010614	NOZZLE #3 YELLOW THROAT
60010686	60010685	INJECTOR SET #4 GREEN THROAT
60010686	60010686	NOZZLE #4 GREEN THROAT
A14	12052	1.4 GPM DLFC WASHER
A14	12053	2.0 GPM DLFC WASHER
A14	60095721	2.4 GPM DLFC WASHER #1s
A14	60010140	#4S 5.0GPM
A14	60010142	#7S 7.0 GPM
A14	60010143	#1 8.0 GPM
A14	60010144	#2 11.0 GPM
A14	60010145	#3 14.0 GPM
A14	60010146	#4 17.0 GPM
A14	60010147	#5 21.0 GPM
A14	60010148	#6 24.0 GPM

PARTS BREAKDOWN

DLFC PART

No.	Part #	Part Description	Qty
1	60095720	BNT95DLFC-0(4.0 GPM)	1
2	60010143	BNT95DLFC-1(7.0GPM)	1
3	60010144	BNT95DLFC-2(11.0GPM)	1
4	60010145	BNT95DLFC-3(14.0GPM)	1
5	60010146	BNT95DLFC-4(17.0GPM)	1
6	60010147	BNT95DLFC-5(21.0GPM)	1
7	60095692	BNT95DLFC-6(24.0GPM)	1
8	60095721	BNT95DLFC-1S(2.4GPM)	1
9	60095722	BNT95DLFC-2S(3.5GPM)	1
10	60095723	BNT95DLFC-3S(4.5GPM)	1
11	60010140	BNT95DLFC-4S(5.0GPM)	1
12	60095724	BNT95DLFC-5S(6.0GPM)	1
13	60095725	BNT95DLFC-6S(6.0GPM)	1
14	60010142	BNT95DLFC-7S(7.0GPM)	1

BLFC PART

No.	Part #	Part Description	Qty
1	60010128	BNT95BLFC (0.2 GPM)	1
2	12053	BNT95BLFC-1(2.0 GPM)	1
3	60010162	BNT95 BLFC-7(1.35 GPM)	1

INJECTOR PART

No.	Part #	Part Description	Qty
1	60010601	INJECTOR THROAT(BLACK 0000#)	1
2	60010602	INJECTOR NOZZLE(BLACK 0000#)	1
3	60010603	INJECTOR THROAT(GREY 000#)	1
4	60010604	INJECTOR NOZZLE(GREY 000#)	1
5	60010605	INJECTOR THROAT(PURPLE 00#)	1
6	60010606	INJECTOR NOZZLE (PURPLE 00#)	1
7	60010607	INJECTOR THROAT(RED 0#)	1
8	60010608	INJECTOR NOZZLE(RED 0#)	1
9	60010609	INJECTOR THROAT (WHITE 1#)	1
10	60010610	INJECTOR NOZZLE (WHITE 1#)	1
11	60010611	INJECTOR THROAT(BLUE 2#)	1
12	60010612	INJECTOR NOZZLE(BLUE 2#)	1
13	60010613	INJECTOR THROAT(YELLOW 3#)	1
14	60010614	INJECTOR NOZZLE(YELLOW 3#)	1

MASTER PROGRAMMING GUIDE

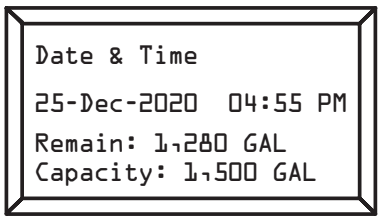
Below is how the settings are set at factory:

Upflow Valve Programming

PRESS '+' AND '-' FOR 8 SECONDS							PRESS MENU KEY AND SCROLL TO 'MAIN MENU'. THEN PRESS 'SET' TILL IT BEEPS. SCROLL TO ADVANCED MENU								PRESS MENU KEY AND SCROLL TO 'MAIN MENU'. THEN PRESS 'SET' TILL IT BEEPS				VALVE SETTINGS				
MODELS	LANGUAGE	REGION	VALVE	METER RATIO	SALT VS EFFICIENCY	AUTO CALCULATION	RESIN VOLUME	REFILL RATE	REGEN. MODE	BACKWASH OVERRIDE	EMERGENCY REGEN.	REGEN CYCLES	BRINE / RINSE	BACK WASH	RINSE	REGEN TIME SETTING	SALT MODE SETTING	BRINE PREFILL SET	PREFILL	Injector	Injector Color	BLFC Washer	DLFC Washer	DLFC Washer Code
LWS1.0	ENGLISH	US GALLONS	UPFLOW	1.234	DONT TOUCH	ON	1.0CF	0.2 GPM	METER DELAY	OFF	ON		90	15	15	2:00AM	STANDARD	ON	70%	#0000	Black	0.2 GPM	2.0	#2
LWS1.5	ENGLISH	US GALLONS	UPFLOW	1.234	DONT TOUCH	ON	1.5CF	0.2 GPM	METER DELAY	OFF	ON		90	15	15	2:00AM	STANDARD	ON	70%	#0000	Black	0.2 GPM	2.4	1S
LWS2.0	ENGLISH	US GALLONS	UPFLOW	1.234	DON'T TOUCH	ON	2.0CF	0.2 GPM	METER DELAY	OFF	ON		90	15	15	2:00AM	STANDARD	ON	70%	#00	Purple	0.2 GPM	3.5	2S

MASTER PROGRAMMING

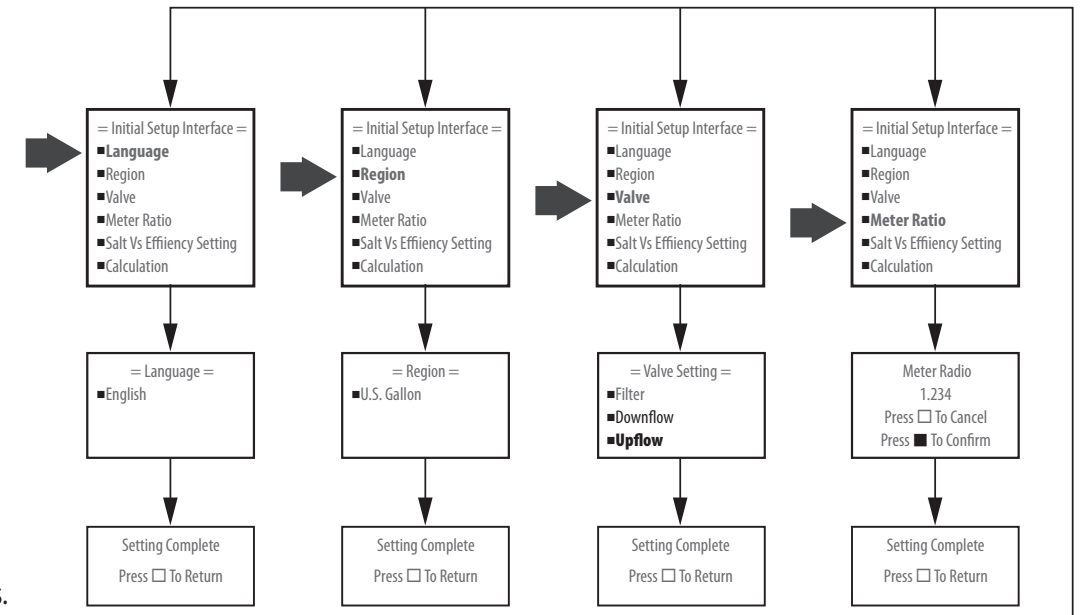
The controller will show the following on the screen - Time, Date and number of Days Remaining for Regeneration:

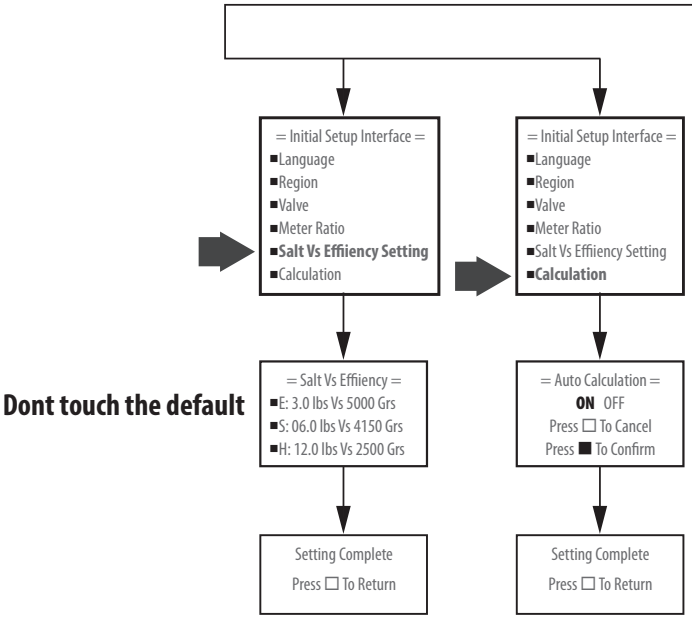


How to set Master Programming (Authorized Dealer Only)

Press "+" ▲ and "-" ▼ for 8 seconds.

Press "SET" ■ to select and "MENU" ⧉ to go back



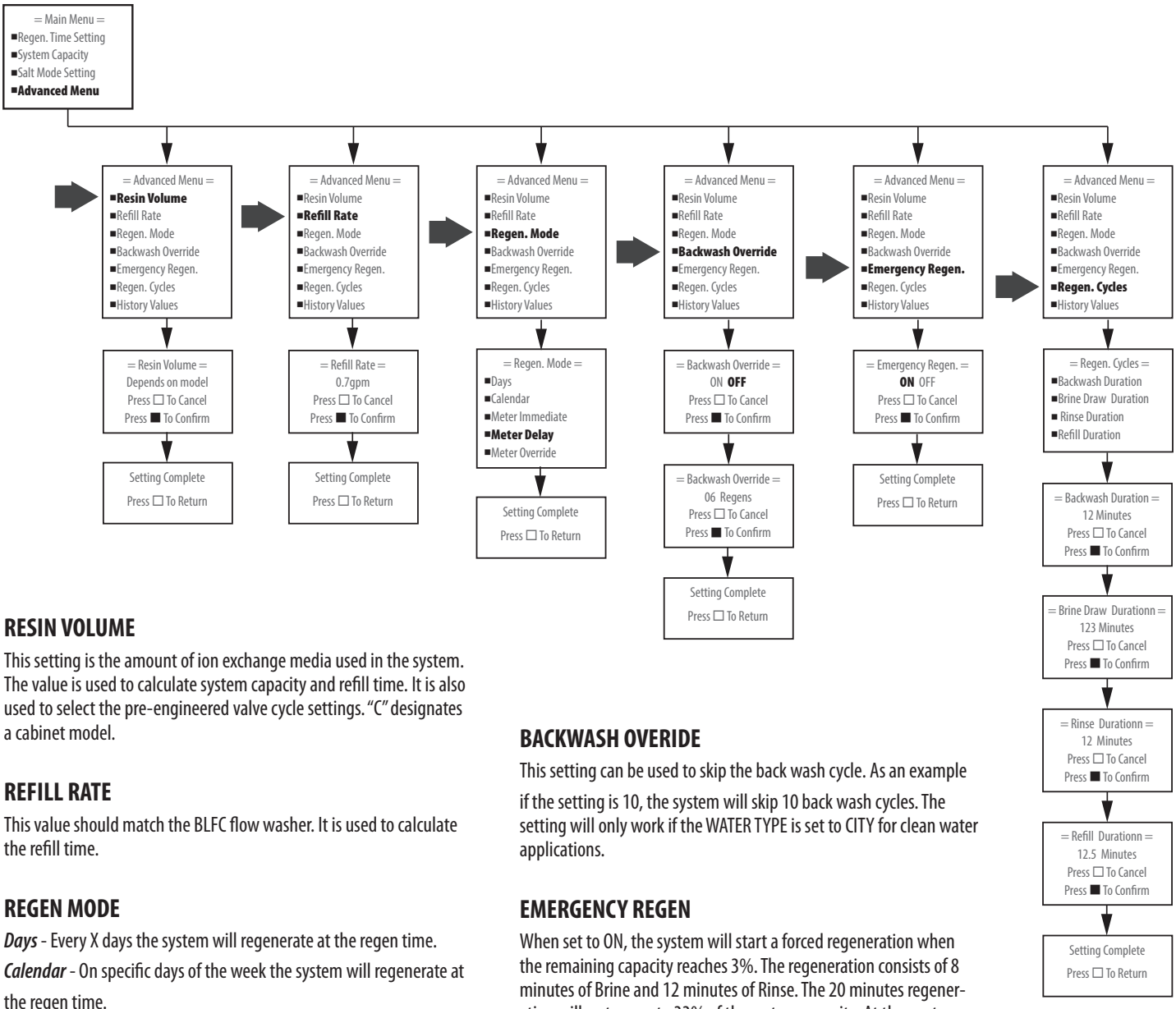


Dont touch the default

ADVANCED MENU

PRESS "MENU" KEY AND SCROLL TO "MAIN MENU". THEN PRESS "SET" TILL IT BEEPS. SCROLL TO ADVANCED MENU

Press "Menu" key . Press - to advance to Advanced Menu Press and hold "SET" 5 seconds or until you hear a beep. Press "+" or "-" to choose menu option. Press "SET" to enter. Press "+" or "-" to change option. Press "SET" to accept.



RESIN VOLUME

This setting is the amount of ion exchange media used in the system. The value is used to calculate system capacity and refill time. It is also used to select the pre-engineered valve cycle settings. "C" designates a cabinet model.

REFILL RATE

This value should match the BLFC flow washer. It is used to calculate the refill time.

REGEN MODE

Days - Every X days the system will regenerate at the regen time.

Calendar - On specific days of the week the system will regenerate at the regen time.

Meter Immediate - When the volume remaining reaches zero gallons the system will immediately regenerate.

Meter Delayed - When the volume remaining goes below the calculated reserve for that day the system will regenerate at the regen time.

Meter Overide - When the volume remaining goes below the calculated reserve for that day the system will regenerate at the regen time or when X days has passed. Which ever occurs first.

BACKWASH OVERIDE

This setting can be used to skip the back wash cycle. As an example if the setting is 10, the system will skip 10 back wash cycles. The setting will only work if the WATER TYPE is set to CITY for clean water applications.

EMERGENCY REGEN

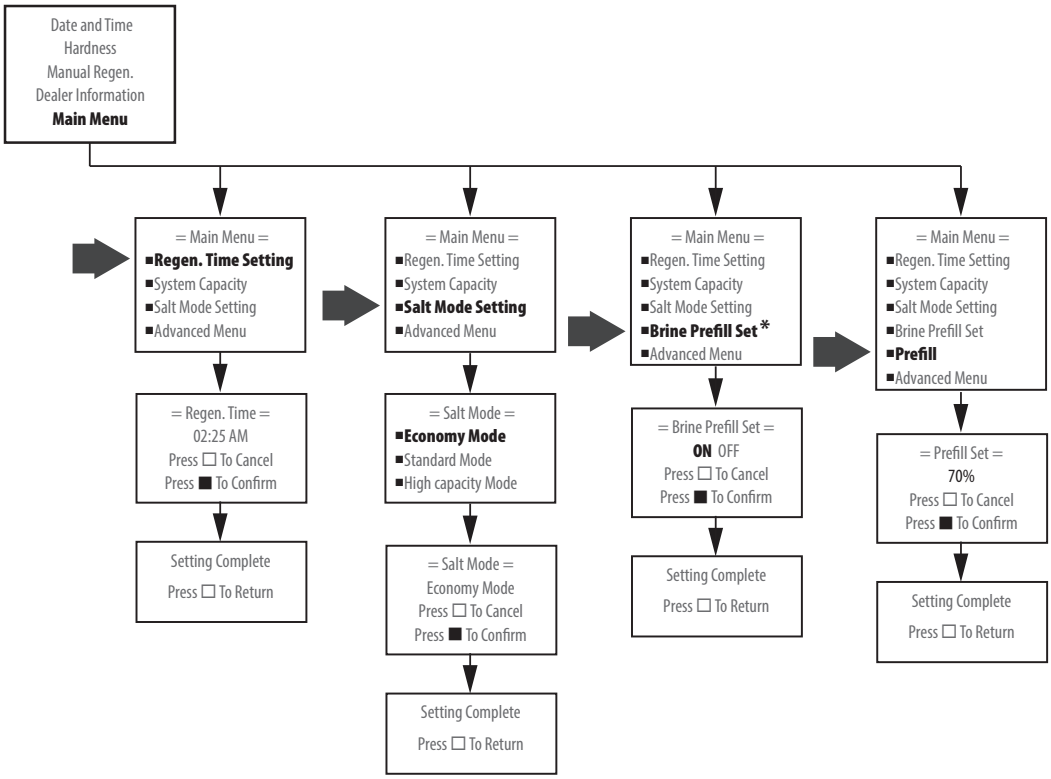
When set to ON, the system will start a forced regeneration when the remaining capacity reaches 3%. The regeneration consists of 8 minutes of Brine and 12 minutes of Rinse. The 20 minutes regeneration will restore up to 33% of the system capacity. At the next regeneration time (2:00 AM), the system will automatically perform a standard regeneration to restore capacity to 100%.

UF SOFTENER (UP FLOW)

This mode is for the operation of an up flow regenerating softener. The regeneration sequence is 1. BRINE MAKE (REFILL), 2. BRINE, 3. BACKWASH, 4 RINSE, 5. REFILL.

MAIN MENU

Press "Menu" key . Press - to advance to Advanced Menu Press and hold "SET" 5 seconds or until you hear a beep. Press "+" or "-" to choose menu option. Press "SET" to enter. Press "+" or "-" to change option. Press "SET" to accept.



***BRINE PRE-FILL% :** This is the percentage of the water that will be added to the brine tank after a regeneration. The default is 70%. The remaining amount of water will be added just prior to the regeneration and will be proportional to the amount of capacity left in the system.

DIAGNOSTIC SCREEN

PRESS "MENU" KEY AND SCROLL TO "MAIN MENU". THEN PRESS "SET" TILL IT BEEPS. SCROLL TO ADVANCED MENU

Press "Menu" key . Press - to advance to Main Menu

Press "SET" or until you hear a beep.

Press - to advance to Advanced Menu

Press and hold "SET" 5 seconds or until you hear a beep.

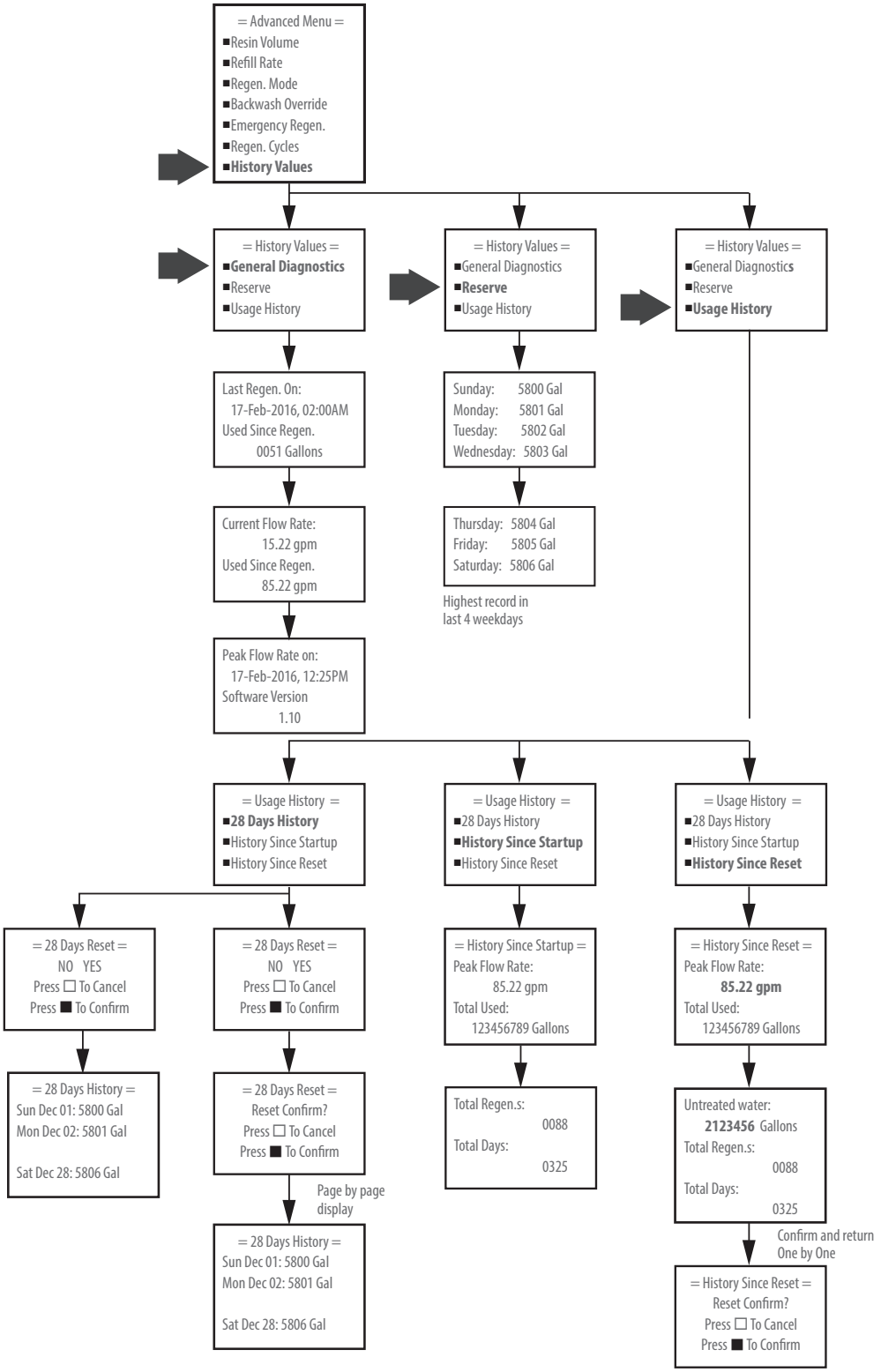
Press - to advance to History Values

Press"SET" or until you hear a beep.

Press "+" or "-" to choose menu option. Press "SET" to enter.

Press "+" or "-" to change option. Press "SET" to accept.

PARAMETER	DESCRIPTION
LAST REGEN ON	Date of last system regeneration.
USED SINCE REGEN	Volume used since last regeneration.
CURRENT FLOW RATE	The current system flow rate.
PEAK FLOW RATE	The peak or highest flow rate since last regeneration.
SOFTWARE VERSION	The software version programmed on the PCB.
RESERVE	The calculated reserve for each day based on the highest days usage over the past 4 weeks.
28 DAYS HISTORY	The volume used for each of the last 28 days.
USAGE HISTORY	The usage since system start up and from the last reset.
TOTAL USED	The total volume used.
TOTAL REGENS	The total quantity of regenerations.
TOTAL DAYS	The total days in operation.



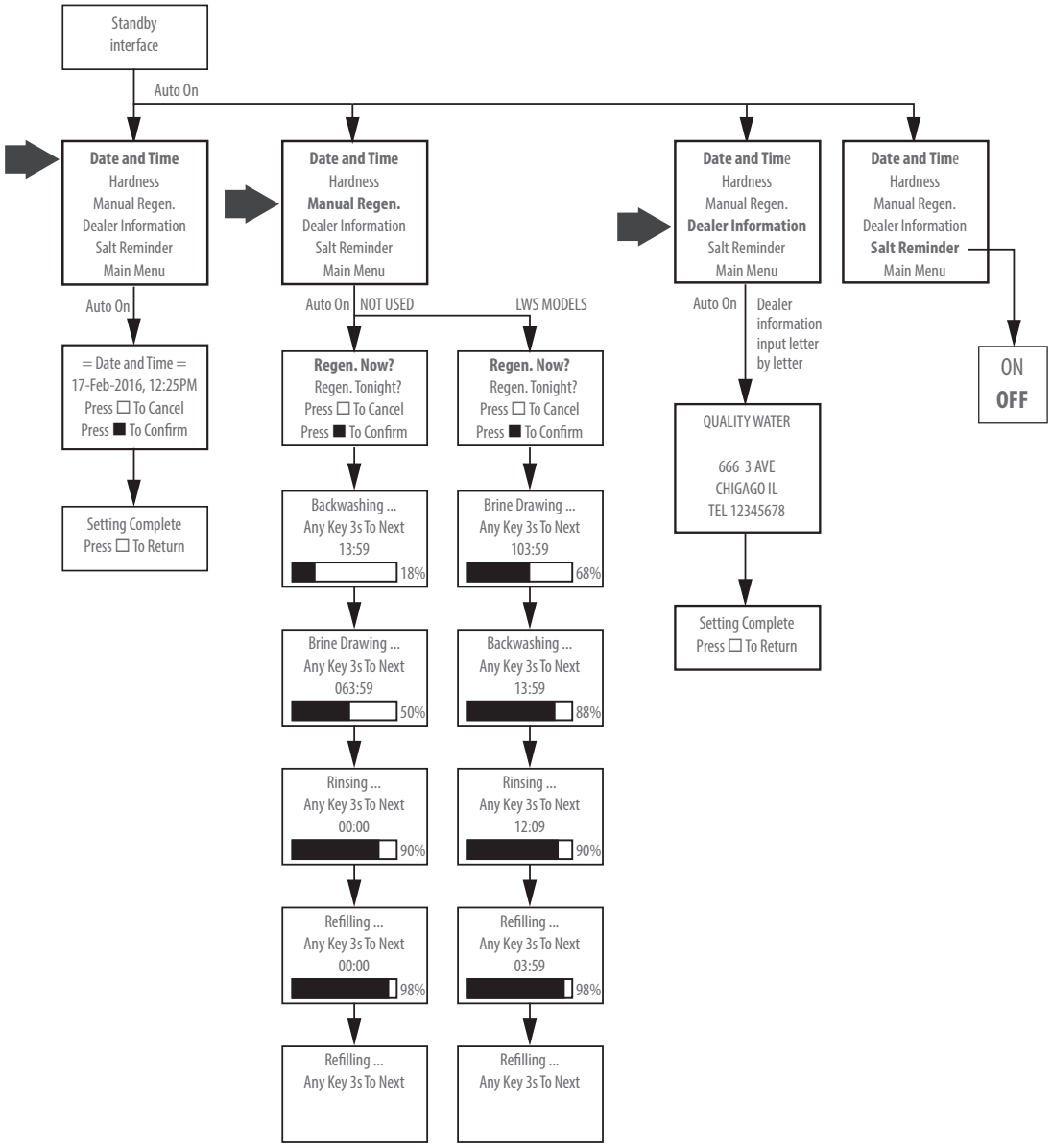
HOW TO SET DATE AND TIME AND MANUAL REGENERATION

PRESS "MENU" KEY AND SCROLL TO "MAIN MENU". THEN PRESS "SET" TILL IT BEEPS.

Press "Menu" key

Press "+" or "-" to change menu option. Press "SET" to enter.

Press "+" or "-" to change value. Press "SET" to accept.



DATE AND TIME

Time of day is for normal operation of system and the scheduling of the regeneration time. The date is used in a diagnostic function to track the last time the system regenerated.

HARDNESS

This value is the maximum compensated water hardness in grains per gallon of the raw water supply. It is used to calculate the system capacity.

MANUAL REGENERATION

To start an immediate regeneration select the Manual Regen option. This setting determines the time of day to perform a scheduled regeneration. When a manual regeneration is performed on a upflow system, the total capacity may not be re-stored depending on the amount of water in the brine tank. Example if the PREFILL % is 70%, then after a manual regeneration the total capacity in gallons will be restored to 70%.

SALT REMINDER

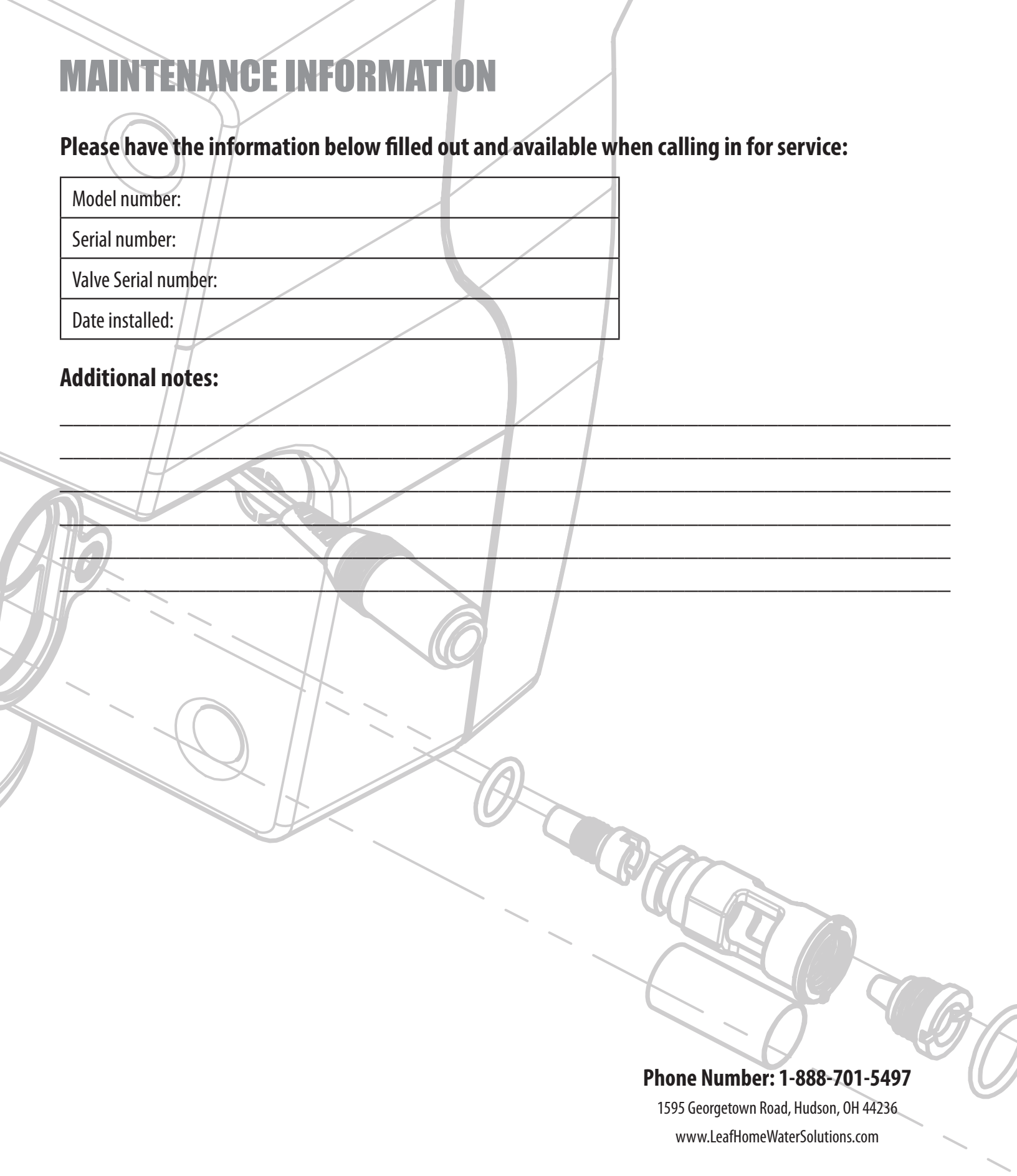
Salt reminder can be turned ON to sound an alarm when a preset amount of salt has been used. Factory setting is 80 lbs.

MAINTENANCE INFORMATION

Please have the information below filled out and available when calling in for service:

Model number:
Serial number:
Valve Serial number:
Date installed:

Additional notes:



Phone Number: 1-888-701-5497

1595 Georgetown Road, Hudson, OH 44236

www.LeafHomeWaterSolutions.com