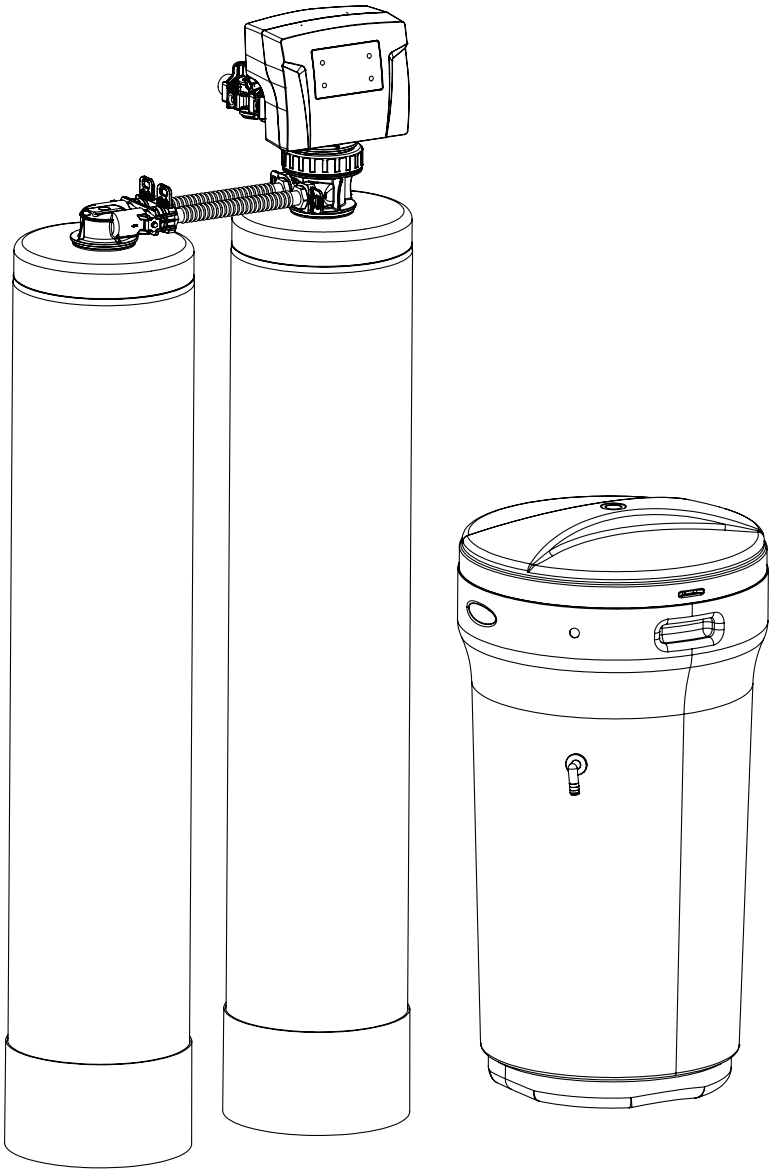
Owners Manual



89 HTO

Hardness Taste and Odor Filter

IAPMO R & T Certified against CSA B483.1

1. Page 18 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.

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Regina, SK S4N 6M1

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490 Pinebush Rd., Unit 1
Cambridge, ON N1T 0A5

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9760 Mayflower Park Drive,
Suite 110
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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.
- Do not install this appliance where it may be exposed to wet weather, direct sunlight, or temperatures outside of the range specified above.
- 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. This is considered a harsh environment and the seals and piston would not be covered by warranty stated or otherwise.
- 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 how harsh the conditions are. An Annual Maintenance kit is available for this purpose
- 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.

EFFICIENCY STATEMENT

PERFORMANCE DATA SHEET				
Model Number	89HT0-100	89HT0-150	89HT0-200	89HT0-300
Qty High Capacity Resin	1.0 ft3	1.5 ft3	2.0 ft3	3.0 ft3
Rated Service Flow (gpm)	11.0	11.2	12.4	12.9
Pressure Drop at Rated Service Flow (psi)	15.0	15.0	15.0	15.0
Rated Softening Capacity (grains)	13,269 @ 3lbs	20,443 @4.5lbs	27,258 @6lbs	40,887 @9lbs
Efficiency (grains/lb salt)	4,543	4,543	4,543	4,543
Max. Flow Rate to Drain (gpm)	2.0	2.4	3.5	5.0
Working Pressure	Min. 20 - Max. 125 psi			
Operating Temperature	40°F and 110°F (4°C - 43°C)			

These softeners conform to NSF/ANSI 44 for the specific performance claims as verified and substantiated by test data. These models are efficiency rated. The efficiency rating is valid only at the stated salt dose and maximum service flow rate. They have a demand initiated regeneration (D.I.R.) feature that complies with specific performance specifications intended to minimize the amount of regenerant brine and water used in their operation. These softeners have a rated softener efficiency of not less than 3350 grains of total hardness exchange per pound of salt (based on sodium chloride) and shall not deliver more salt than their listed ratings. The rated salt efficiency is measured bylaboratory tests described in NSF/ANSI Standard 44. These tests represent the maximum possible efficiency that the systems can achieve. Operational efficiency is the actual efficiency after the system has been installed. It is typically less than the efficiency due to individual application factors including water hardness, water usage, and other contaminants that reduce the softener's capacity. These systems are not intended for use with water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system. For best results, use plain, white block salt. Refer to Installation/ operation manual and warranty for further details on installation, parts and service, maintenance and further restrictions or limitations to the use of the product.

SPECIFICATION

All units are factory programmed to the below specifications. Alteration should only be done by a factory trained technician or after consultation with one of our technical representatives if you have any questions please call **877-288-9888**.

Specifications	89HT0-100	89HT0-150	89HT0-200	89HT0-250	89HT0-300
Salt Used - Per Regeneration	6.0 lbs	9.0 lbs	12.0 lbs	15.0 lbs	18.0 lbs
Water Used - Regeneration	86.4 gal	148 gal	162.4 gal	216.0 gal	224.8 gal
Hardness Removal - Grains	25,000	37,500	50,000	67,500	75,000
Tank #1 Carbon Quantity (ft3)	1.0 ft	1.50 ft	2.0 ft	2.5 ft	3.0 ft
Tank #2 Resin Quantity (ft3)	1.0 ft	1.50 ft	2.0 ft	2.5 ft	3.0 ft
Tank Size	9x48	10x54	12x52	13x54	14x65
Tank Jacket / Media Loaded	Yes	Yes	No	No	No
Brine Tank (Inches)	BTR 18.1 x 34.5 BTS 15.0^2x34.7	BTR 18.1 x 34.5 BTS 15.0^2x34.7	20.3 x 37.4	20.3 x 37.4	23.0 x 40.5
Salt Storage Capacity	BTS 240 lbs BTR 270 lbs	BTS 240 lbs BTR 270 lbs	350 lbs	350 lbs	420 lbs
Flow Rate @ 15 psi Pressure Drop	7.2 gpm	7.4 gpm	9.0 gpm	9.2 gpm	9.2 gpm
Flow Rate @ 25 psi Pressure Drop	10.0 gpm	10.1 gpm	11.9 gpm	12.1 gpm	12.1 gpm
Back Wash Flow Rate	4.0 gpm	5.0 gpm	7.0 gpm	8.0 gpm	10.0 gpm
Shipping Weight	154 lbs	171 lbs	214 lbs	225 lbs	232 lbs
Regeneration Type	Up Flow				
Plumbing Connections	89 Model 1" Straight NPT. 785 Model 3/4" 90^0 Elbows & 1" Straight NPT				
Resin Type	Aquafine 8% cation exchange resin				
Carbon Type	Catalytic Carbon				
Electrical Requirements	Input 120V 60 Hz - Output 12V 650mA				
Water Temperature	40°F and 110°F (4°C - 43°C)				
Water Pressure	Min. 30 - Max. 125 psi				

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.

* 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.

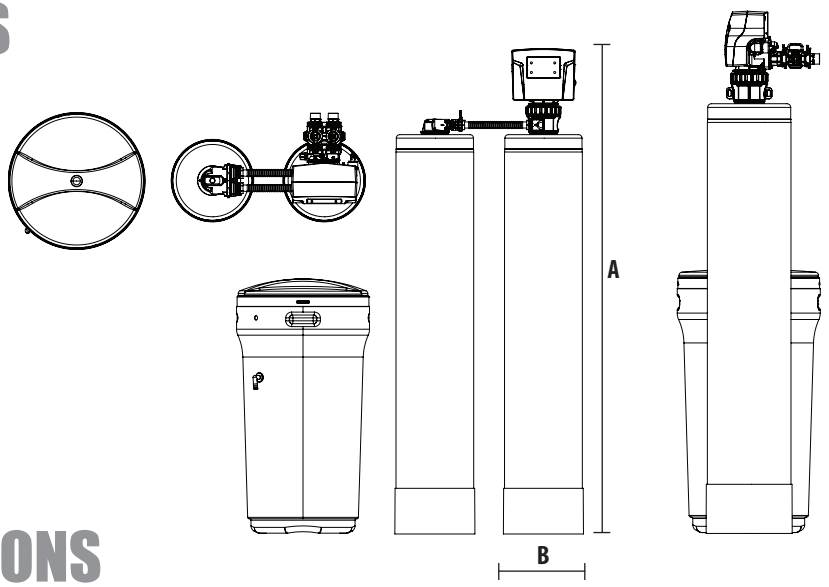
For satisfactory operation, the pumping rate of the well system must equal or exceed indicated backwash flow rate.

All units come with plastic bypass

Maximum Iron = 1.5 ppm
Maximum Hydrogen Sulfide = 0.0 ppm
Maximum Manganese = .75 ppm
pH = 6.5 to 8.5

SYSTEM DIMENSIONS

Models	A (Inches)	B (Inches)
89HTO-100	58	9
89HTO-150	64	10
89HTO-200	62	12
89HTO-250	64	13
89HTO-300	75	14

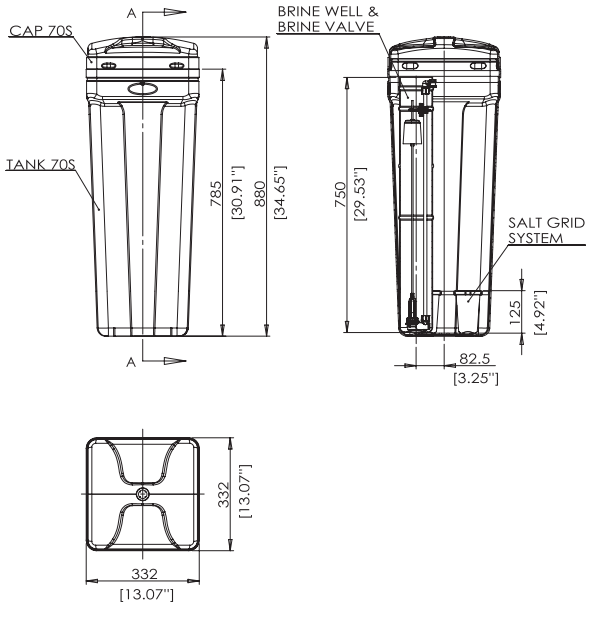


BRINE TANK DIMENSIONS

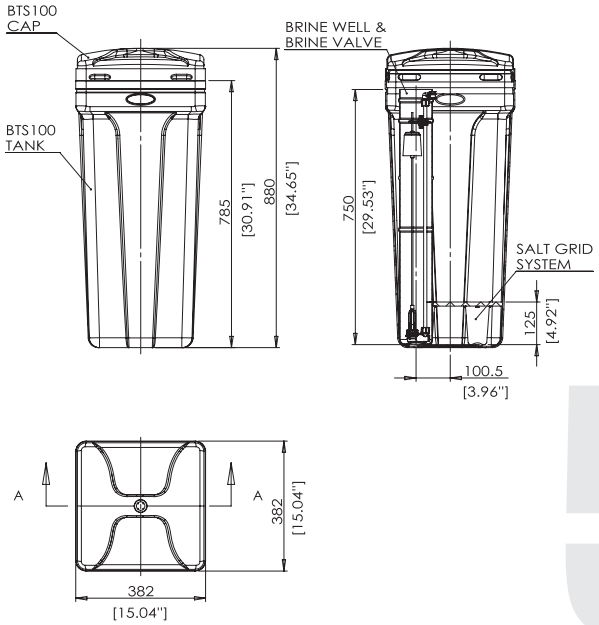
Model	Color	Liquid Volume		Tank Dimensions (inches)	5 Pack Carton Dimensions (inches)	Salt Capacity		5 Pack Carton Shipping Weight	
		US Gal	Liters	L x W x H	L x W x H	Lbs	Kg	Lbs	Kg
Brine Tanks									
BTR-70	Black	20.3	76.5	15.8 x 32.1	16.7 x 16.7 x 61.0	185.0	92.8	41.6	18.9
BTR-70	Blue	20.3	76.7	15.8 x 32.1	16.7 x 16.7 x 61.0	185.0	92.8	41.6	18.9
BTR-100	Vanilla	29.5	111.5	18.1 x 34.7	18.9 x 18.9 x 65.6	270.0	122.2	52.8	23.9
BTR-100	Black	29.5	111.5	18.1 x 34.7	18.9 x 18.9 x 65.6	270.0	122.2	52.8	23.9
BTR-100	Blue	29.5	111.5	18.1 x 34.7	18.9 x 18.9 x 65.6	270.0	122.2	52.8	23.9
BTR-145	Black	42.3	159.7	20.3 x 37.4	21.9 x 21.9 x 72.2	385.0	174.2	65.6	29.8
BTR-200	Grey	53.0	200.3	23.0 x 40.5	24.6 x 24.6 x 84	700.0	316.7	125.0	56.6
BTS-70	Black	19.0	71.8	13.1 x 13.1 x 34.7	14.4 x 14.4 x 62	175.0	92.8	48.8	22.1
BTS-70	Blue	19.0	71.8	13.1 x 13.1 x 34.7	14.4 x 14.4 x 62	175.0	92.8	48.8	22.1
BTS-100	Vanilla	25.0	94.5	15.0 x 15.0 x 34.7	16.6 x 16.7 x 61	230.0	104.1	54.4	24.7
BTS-100	Black	25.0	94.5	15.0 x 15.0 x 34.7	16.6 x 16.7 x 61	230.0	104.1	54.4	24.7
BTS-100	Blue	25.0	94.5	15.0 x 15.0 x 34.7	16.6 x 16.7 x 61	230.0	104.1	54.4	24.7

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

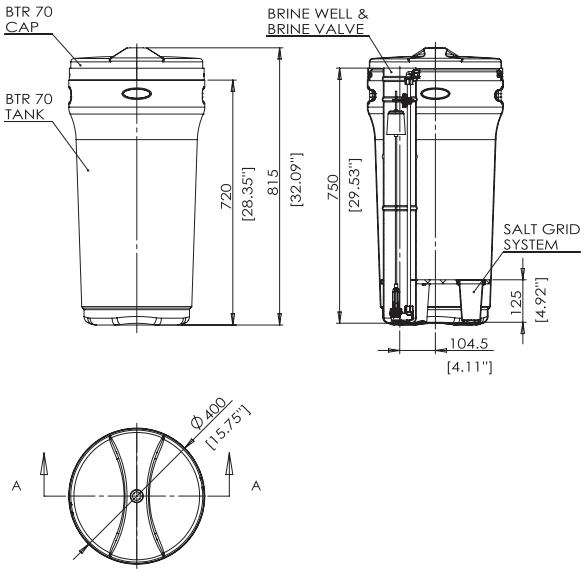
Dimensions
BTS70



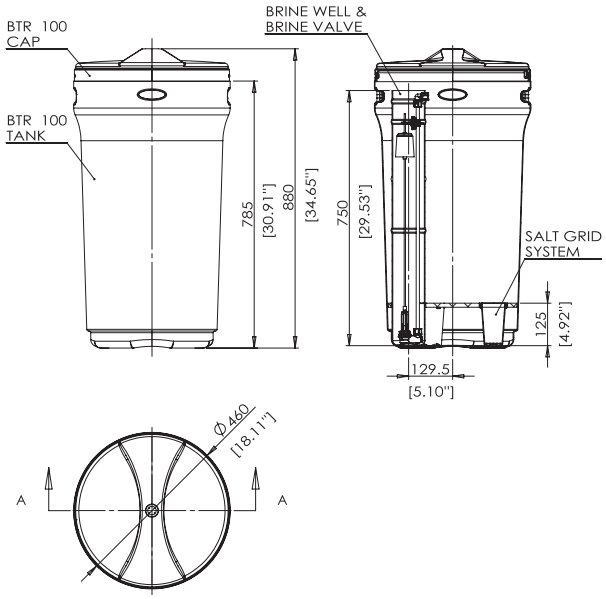
BTS100



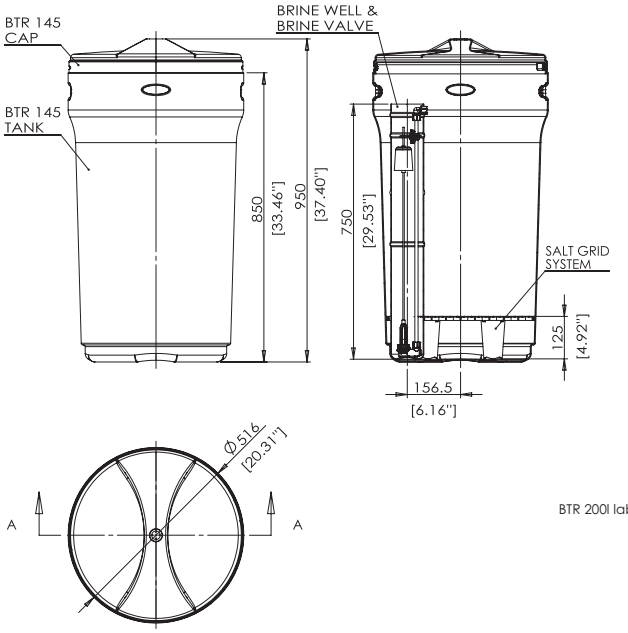
BTR70



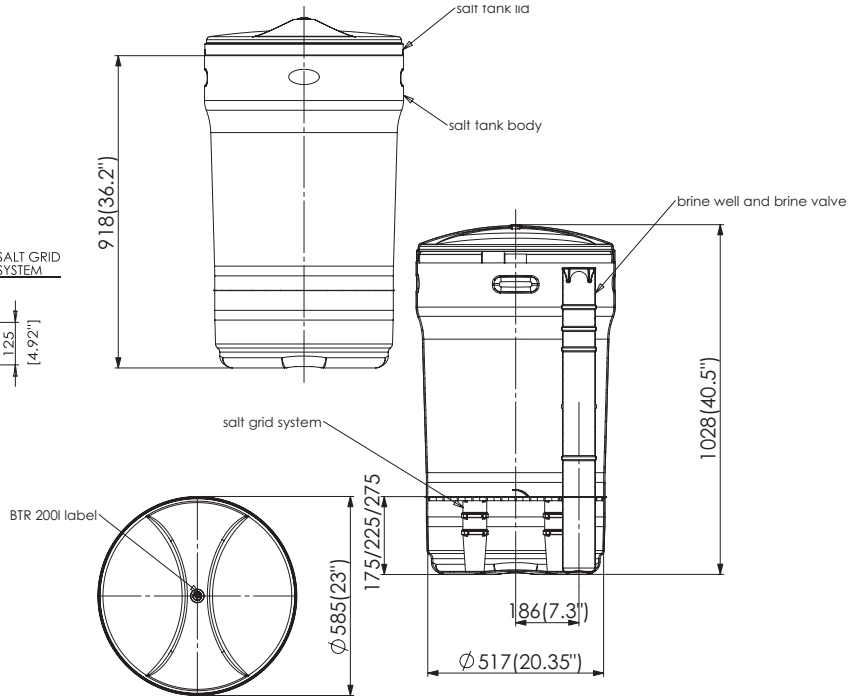
BTR100



BTR145



BTR200



UNPACKING / INSPECTION

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.

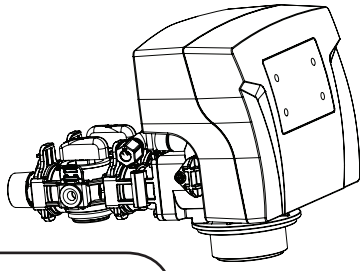
Small parts, needed to install the filter, are in a parts box. To avoid loss of the small parts, keep them in the parts bag until you are ready to use them.

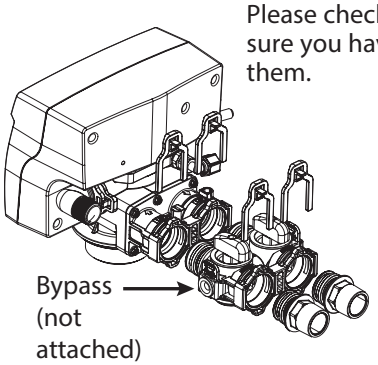
What is included in the box?

For Models HTO-100, HTO-150 and HTO-200, you will expect the following. Shipping Carton Quantity – 2

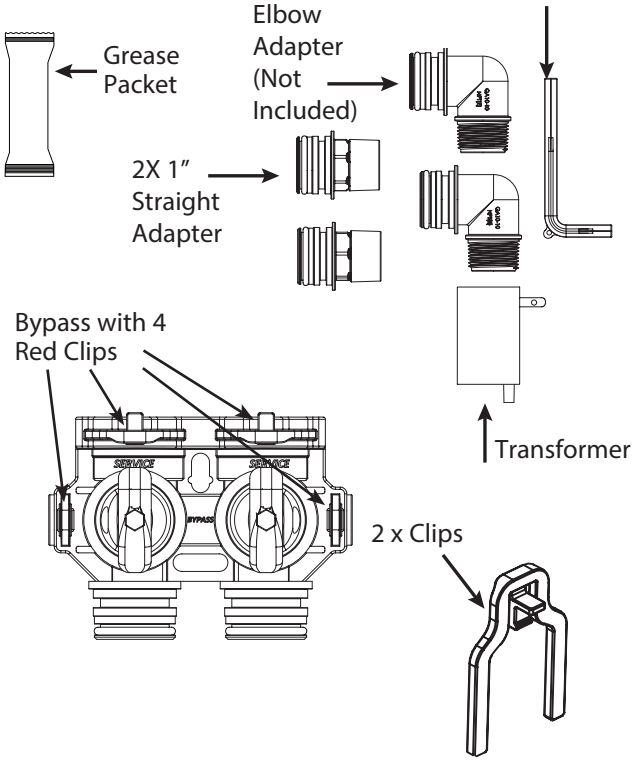
1. Control Valve
2. Tank 2 c/w Parallel Adaptor
3. Parts Box
4. Owners Manual
5. Drain Hose & Clamp (Not included in some brands)
6. Parts Bag
7. Tank 1 c/ Adaptor

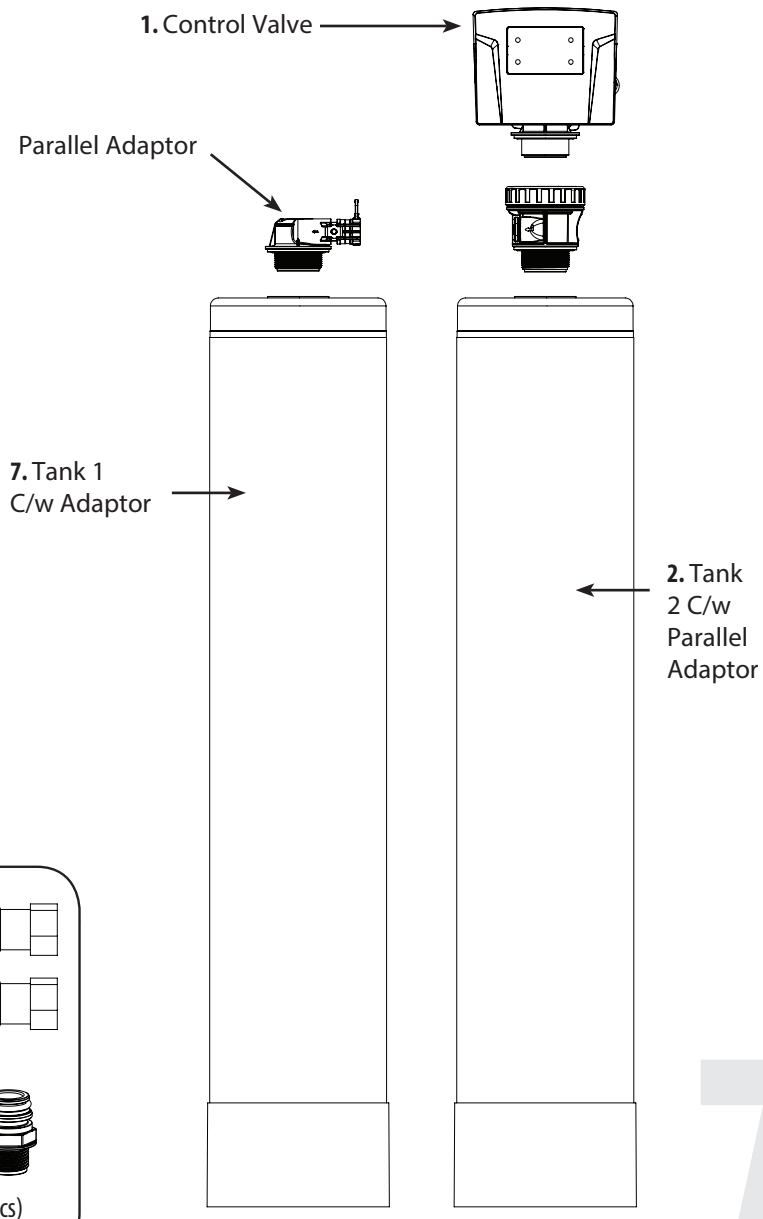
There are 9 Red clips. Please check to make sure you have all of them.





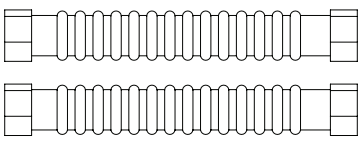
3. Parts Box

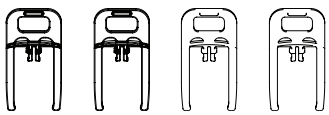




6. Parts Bag

Pipe connector - 14" - 18" / 8" - 12" Tanks





Red Clips (4pcs)

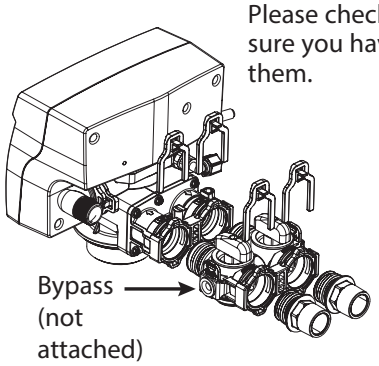
O Ring / 1" BSP Straight (4pcs)

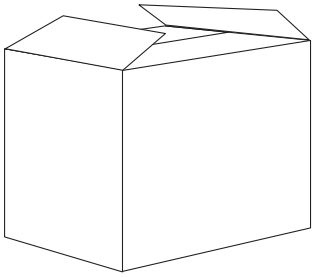
For Models HTO-250 and HTO-300 models , the media and Control Valve is packaged separately in carton and bags

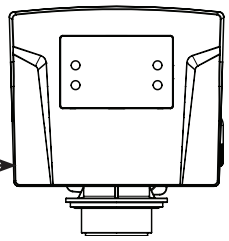
What is included with HTO-250 and HTO-300 models?

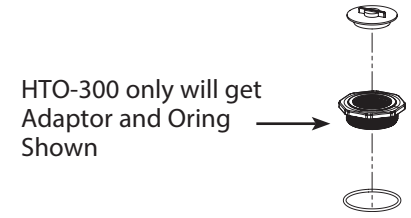
1. Tank # 2 c/w Adaptor
2. Qty 6 of Media Boxes
3. Drain Line and Hose Clamp (Not Included with some models)
4. Control Valve with Parts Box
5. Parts Bag

There are 9 Red clips. Please check to make sure you have all of them.

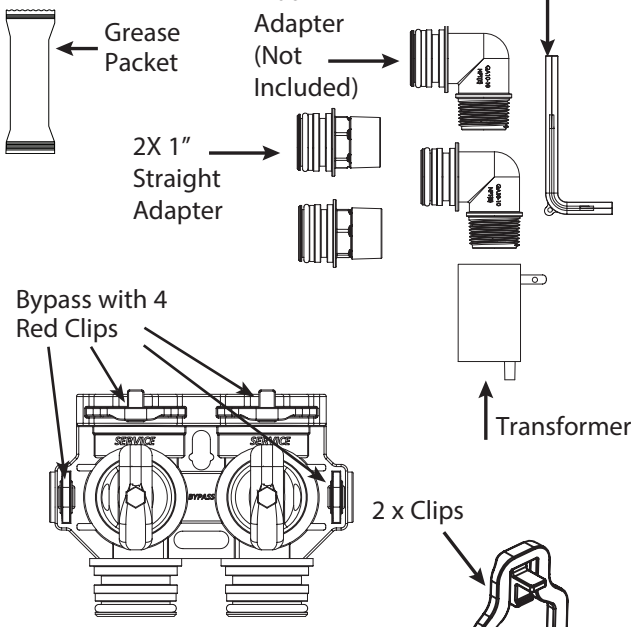


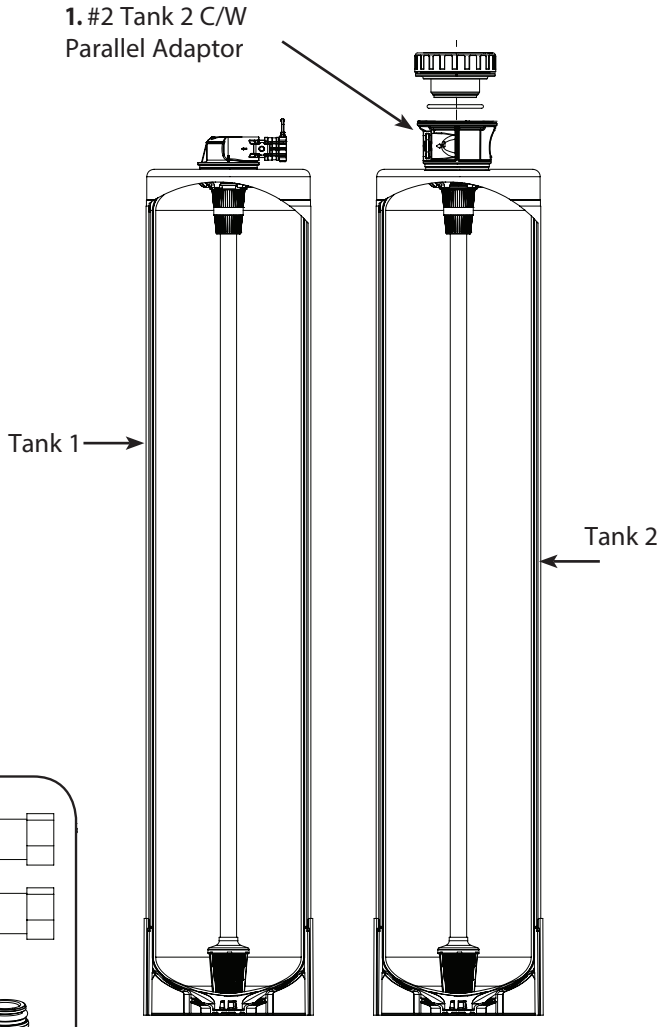




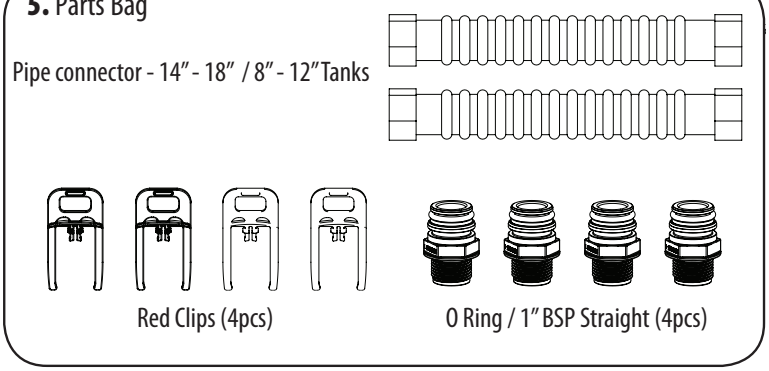


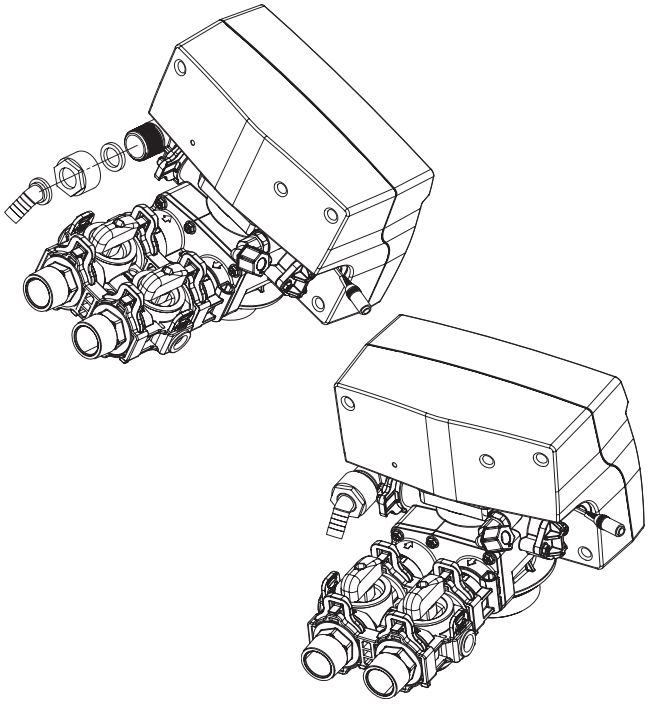
4. Parts Box

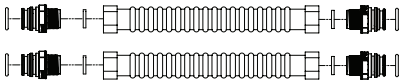


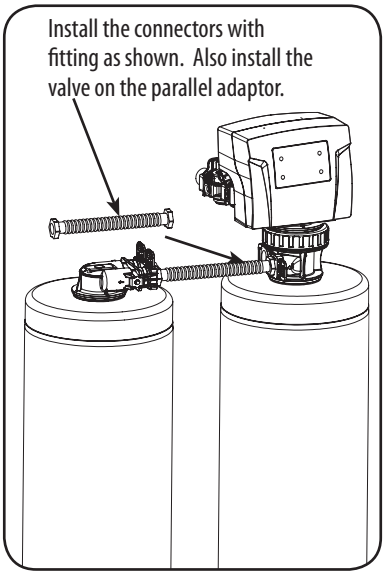


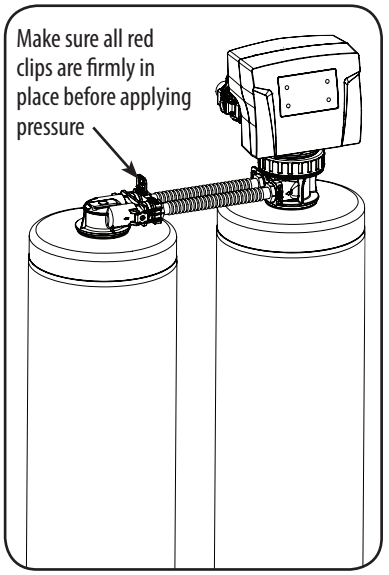
5. Parts Bag





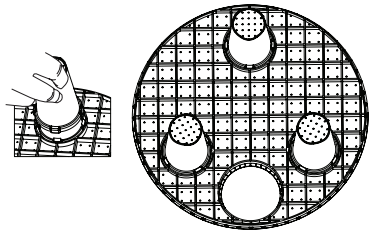




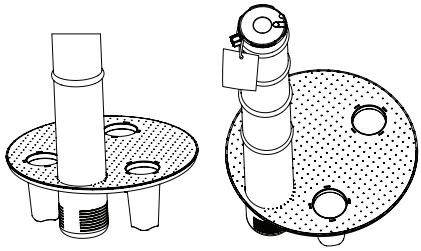


ASSEMBLING BRINE TANK

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. For square brine tank there are four legs.)

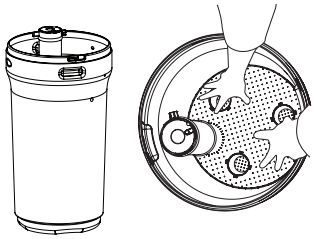


b) Insert the brine well assembly inside the grid plate as well below.

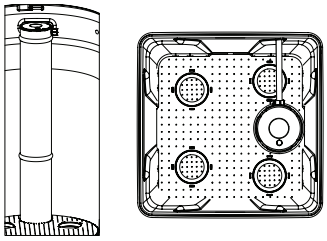


c) Drop the brine grid with brine well inside the brine tank such that the nut fitting faces the hole on the brine tank. Then press the grid evenly inside the brine tank until the brine grid legs touches the bottom of the brine tank.

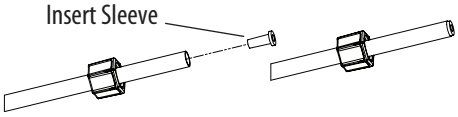
IMPORTANT: IN ROUND BRINE TANK, IT IS IMPORTANT TO ALIGN THE HANDLE TO THE BRINE WELL AS SHOWN



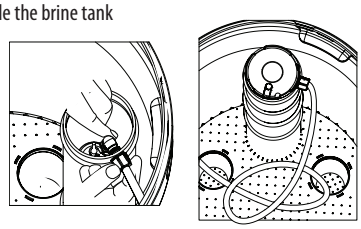
The hole in the brine tank should line up with the brine line as shown for round and square brine tank.



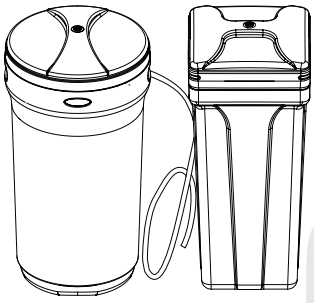
d) Take the brine tube and insert the nut and plastic sleeve as shown below.



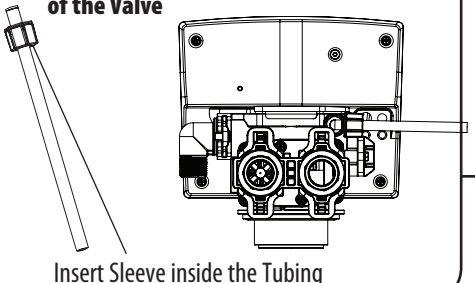
e) Insert the tube in the float assembly elbow and hand tighten the nut. In many cases the brine line already come installed from the factory. Leave the other end of the brine line tube inside the brine tank



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

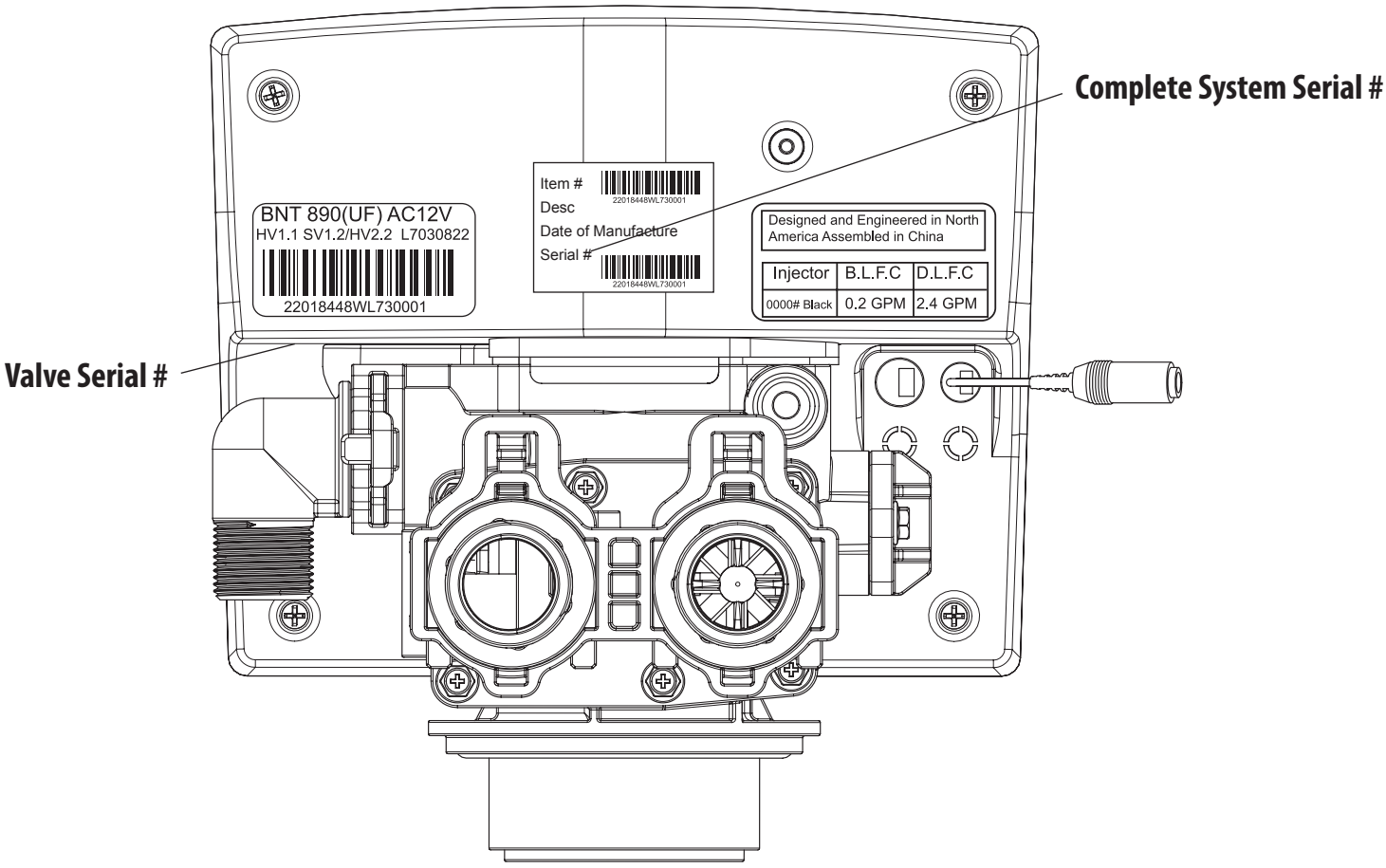


6. Attaching Brine Tubing to the Brine Line of the Valve

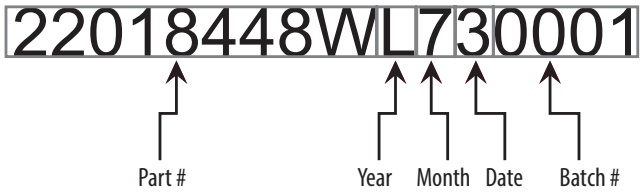


Check Valve Type and Valve Serial

Check to make sure Valve Type is Upflow (UF) (left Sticker shown below). The right Sticker shows the serial # of the control valve. The middle Sticker is dataplate which provides information of Serial # and Date of Manufacture of complete system. Both Serial # labels are important for troubleshooting. Please record these numbers for future use on page 19 in the maintenance section.



Valve Serial #:



(22018448W): Part #

(L)Year : " M'' stand for 2016 year,'' L'' stand for 2015, ''K'' stand for 2014, ''J'' stand for 2013

(7)Month: 1 (Jan) 2(Feb) 3(Mar) 4(April) 5(May) 6(June) 7(July) 8(Aug) 9(Sep) A(Oct) B(Nov) C(Dec)

(3)Date: 1 2 3 4 5 6 7 8 9 A(10) B(11) 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)

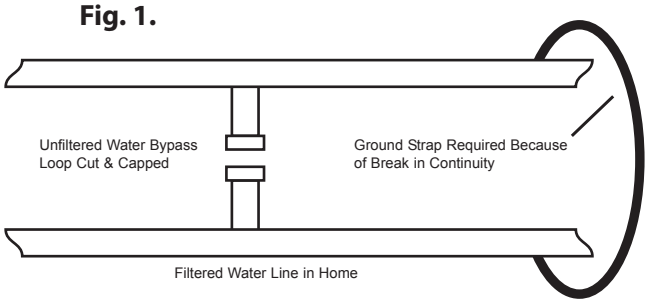
(0001): Batch code

BEFORE INSTALLATION

Make sure you have a copy of your most recent water test results. If your water has not been tested previously you can contact your supplier of this product to obtain a water sample bottle to be sent to one of our facilities for a free analysis. **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 HTO Filter*

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 filter unit with care. Damage can result if it is dropped or set on sharp, uneven projections on the floor.

Do not turn the filter unit upside down.

To Insure 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 (grease 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: We recommend installation only be completed by a competent installer or plumbing professional to insure this product is installed in accordance with local plumbing codes.

- Two adjustable wrenches
- Additional tools may be required if modification to home plumbing is required.
- Plastic inlet and outlet fittings are included with the filter. To maintain full valve flow, 3/4" or 1" pipes to and from the filter fittings are recommended. You should maintain the same, or larger, pipe size as the water supply pipe, up to the filter 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, or 3 shut-off valves. Bypass valves let you turn off water to the filter for repairs if needed, but still have water in the house pipes.
- 5/8" OD drain line is needed for the valve drain. A 10' length of hose is not included with some brands.

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 filter unit is initially placed in service, the filter tank may have been laid on its side during transit. If this occurs, backwash the filter to "reclassify" the media.

***NOTE**

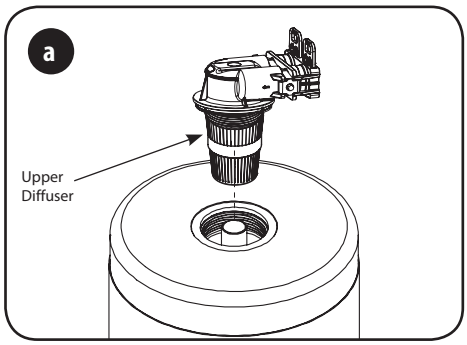
Due to transportation and climatic conditions all connections including the valve to the tank need to be checked at time of installation and tightened if necessary.

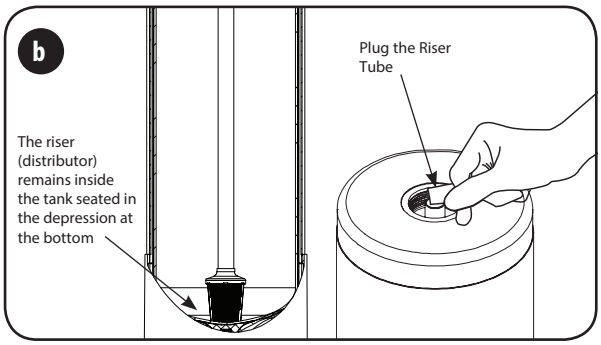
PREPARATIONS

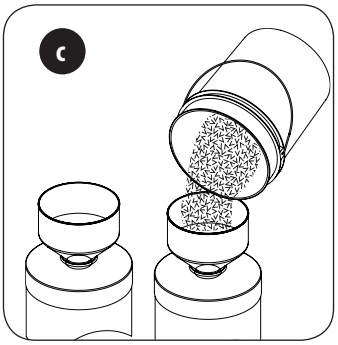
1. Media Installation (When Necessary). Models larger than 2.0 CF of media are shipped with separate media in pails or boxes. Models lower than 1.5 CF of media come loaded with media and this step can be skipped for new installation.

⚠ CAUTION!

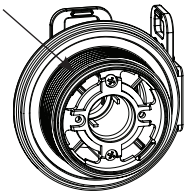
The unit should be depressurized before installing or replacing media







a) Remove the adaptor from the mineral tank. Grease the bottom oring of the adaptor with silicone grease provided



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.

c) Fill support bed first. The media will not always spill down inside the tank and may need to be swept inside.

The large funnel (sold separately 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.)

Locate Water Conditioning Equipment Correctly

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

1. Locate as close as possible to the water supply source.
2. Locate as close as possible to a floor or laundry tub drain.
3. Locate in correct relationship to other water conditioning equipment (see Fig. 1, 2, 3 or 4, Page 11 and 12). if closer than 10 feet please install check valve in accordance with local plumbing codes.
4. Conditioners should be located in the supply line before the water heater. Temperatures above 110°F (43°C) will cause damage to conditioners.
5. Do not install a filter or filter in a location where freezing temperatures occur. Freezing may cause permanent damage to this type of equipment and will void the factory warranty.
6. Allow sufficient space around the unit for easy servicing.
7. Keep the filter out of direct sunlight. The sun''s heat may soften and distort plastic parts.

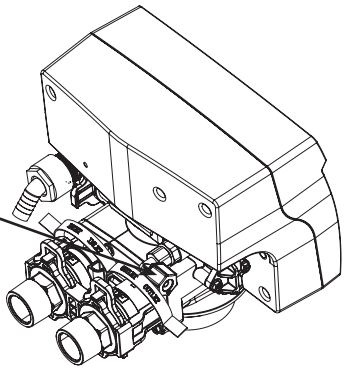
NOTE

Never make a direct connection into a waste drain. A physical air gap of at least 1.5" should be used to avoid bacteria and wastewater travelling back through the drain line into the softener.

NOTE

The unit is not ready for service until you complete the start-up instructions, page 15.

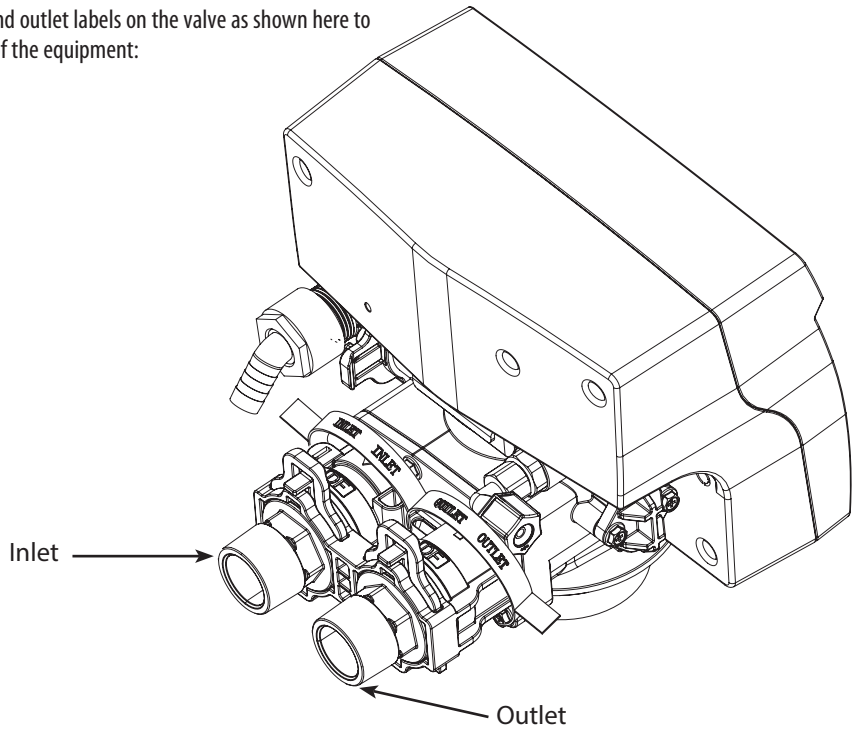
Make sure both brass and plastic nuts are tightened well



INSTALLATION STEPS

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 filter to freezing or temperatures above 43°C (110°F) will void the warranty.

Please notice the inlet and outlet labels on the valve as shown here to determine the position of the equipment:



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.

NOTE

Before starting installation, read page 17, Plumbing System Clean-Up, for instructions on some procedures that may need to be performed first.

Facts to Remember When Planning Your Installation

1. All installation procedures must conform to local and state or provincial plumbing codes.

2. Outside faucets used to water lawns and gardens should not supply untreated water, replace untreated water with feed water to the unit. If necessary to do this please install check valve, see page 14. A new water line is often required to be connected to supply untreated water to the inlet of the water filter and to the outside faucets.

3. Make sure the bypass is attached well to the control valve. Connect the straight or elbow connectors to the bypass with red clips. Connect the inlet and outlet of the water filter 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.

4. Apply Teflon Tape and Orings to the fittings

5. Connect Filter 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.

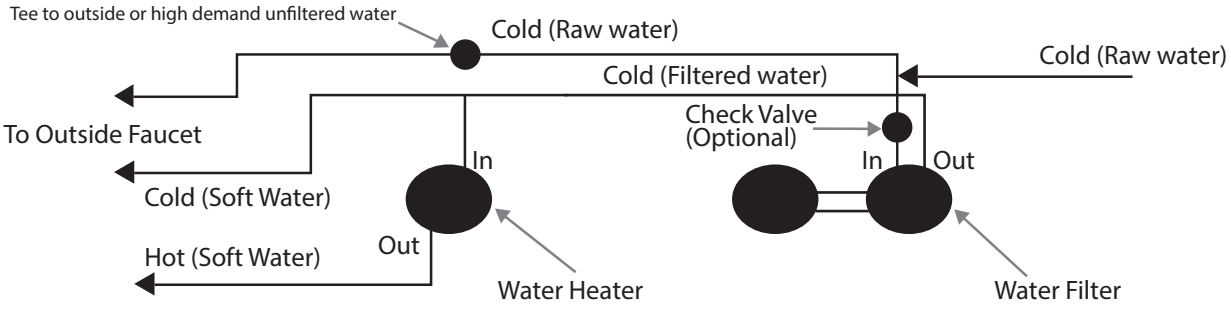
6. **Drain Line connection:** Using Teflon tape, screw the 1/2" hose barb and attach oring into the drain port in the valve. Attach 1/2" drain hose (Supplied with some models and brands) to the hose barb and tighten securely with a hose clamp (Supplied with some models and brands). Run the drain line to a floor drain or a laundry drain. Complete any necessary plumbing.

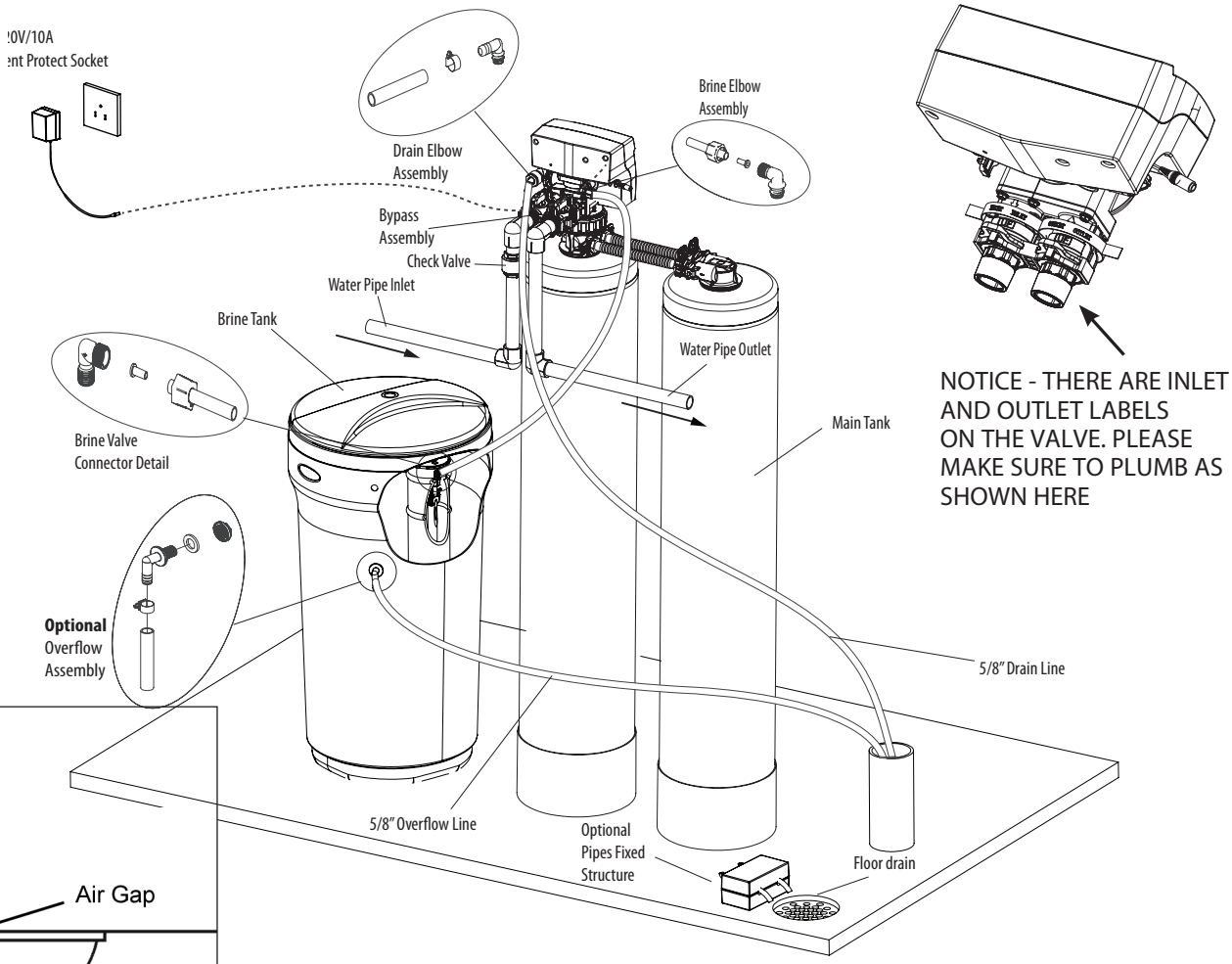
7. Using the Allen Key (included), place the unit in the bypass position. Slowly turn on the main water supply. At the nearest cold treated water tap nearby remove the faucet screen, open the faucet and let water run a few minutes or until the system is free of any air or foreign material resulting from the plumbing work.

8. Make sure there are no leaks in the plumbing system before proceeding. Close the water tap when water runs clean.

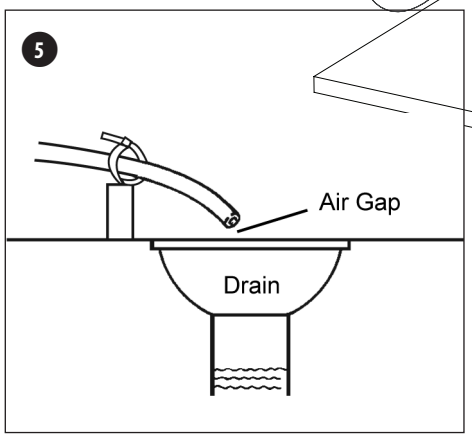
9. Open the brine tank / cabinet salt lid and add water until there is approximately 3" (75 mm) of water in the tank. Do not add salt to the brine tank at this time.

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.

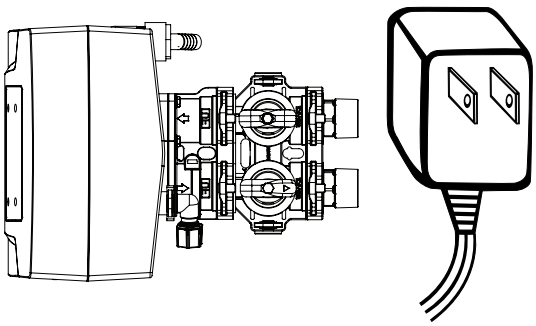
CAUTION!

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 conditioner.

STARTUP INSTRUCTIONS

1. Connect the Transformer to the Valve

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



2. Add Water to Brine Tank

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

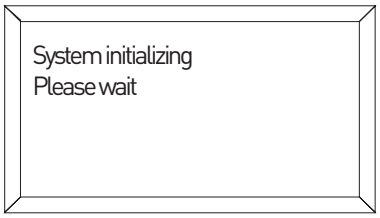
BTR-100 -2.5 US Gallons
BTR-145 - 3.25 US Gallons
BTR-200 - 5.5 US Gallons

⚠ CAUTION!

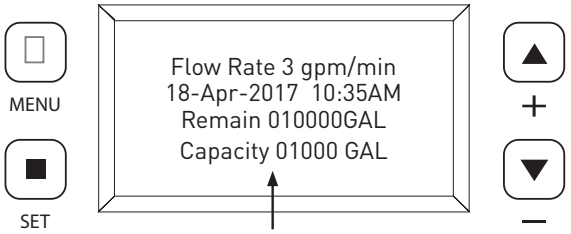
FAILURE TO FOLLOW STEP 2 WOULD DEPLETE THE RESERVE CAPACITY OF RESIN AND RESULT IN HARDNESS LEAKAGE. IN CASE STEP 2 IS MISSED, THEN SOFTENER SHOULD BE REGENERATED TWICE OR THRICE BACK TO BACK TO RESTORE THE RESERVE CAPACITY OF RESIN

3. Screen Display

When power is supplied to the control, the screen will 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

Key Pad Configuration:

MENU — This function enters the basic set up information required at the time of installation.

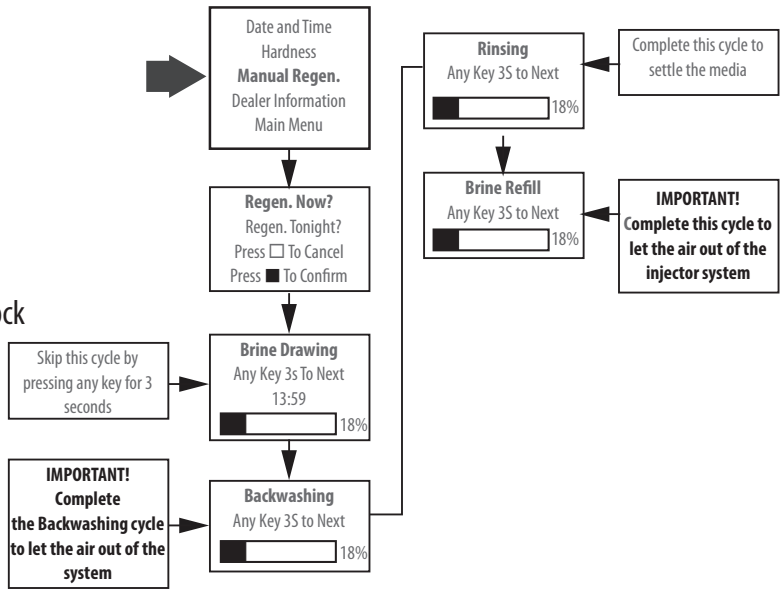
SET — This function accepts the values if changed and advance to the next page in the menu

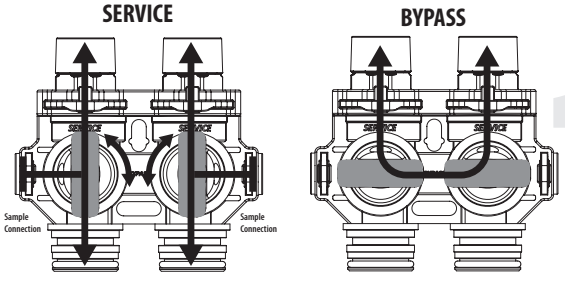
\+ / – — These buttons increase or decrease the value of the settings while in the programming mode.

4. Manually Regenerate the Valve

If screen is locked, press Menu Key for 5 seconds to unlock

Manually Regenerate the Valve and move it to backwash position. Press **"MENU"** Key and Scroll down using Up and Down Arrow buttons to "Manual Regen". Press **"SET"** Select "Regen Now"





STARTUP INSTRUCTIONS (CONTINUED)

4. Manually Regenerate the Valve (Continued)

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 if you have any questions please call: 877-288-9888**

4a. Open the inlet on the bypass valve slightly and very slowly allow water to enter the unit. (If the water enters too quickly it will push the media or carbon up into the control valve and get plugged).

Once the unit has filled sufficiently that water is at least equal to the height of the top of the media shut down the water for 15 – 20 minutes for the carbon to soak. Unplug the power cable. After the carbon has soaked for the recommended time continue.

4b. Open the inlet on the bypass valve slowly and allow water to enter the unit. (The outlet of the bypass should remain closed to prevent any fines or debris from entering the plumbing system. Allow all air to escape from the unit before turning the water on fully then allow water to run to drain for 3-4 minutes, or until the water at the drain appears to be clear of any fines.

5. Plug in the valve and the valve will automatically advance to the SERVICE position. Open the outlet valve on the bypass, then slowly open the nearest treated water faucet and allow the water to run until clear, close the tap and replace the faucet screen.

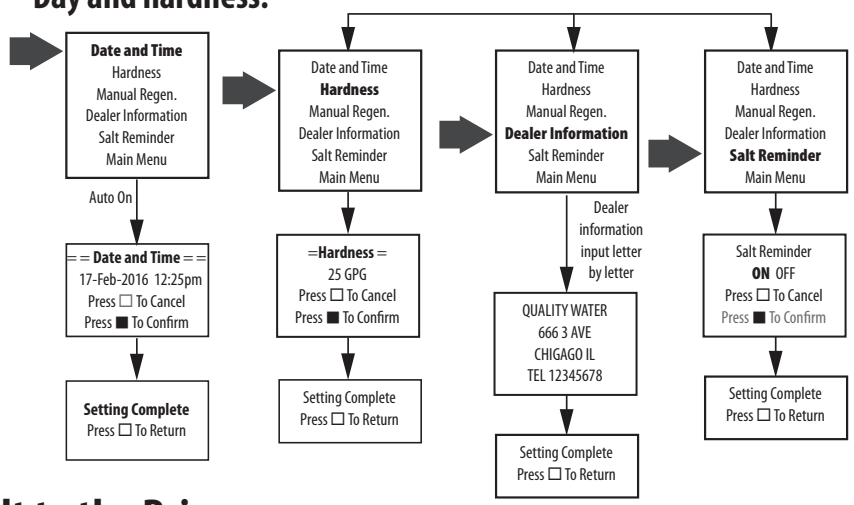
6. The Valve is already programmed by the factory. Please continue with set up of current time and hardness.

Programming the Conditioner

Press "**MENU**" Key ▯ and Select "Date and Time" using "**SET**" ■ Button and set for setting the regeneration time,

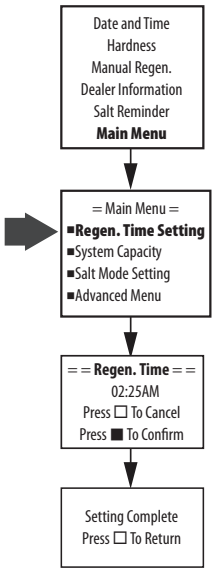
Press "**MENU**" Key ▯ and Select Main Menu till you hear a beep and select Regen time.

Set up Current Time of the Day and hardness:



Set up Regeneration Time:

Press Set Key till you hear "Beep"

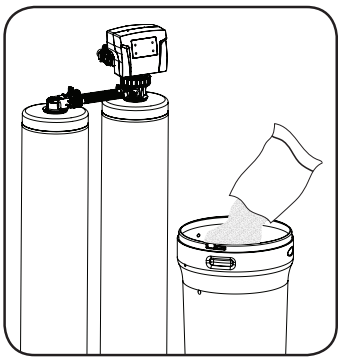


5. Add Salt to the Brine Tank/Cabinet

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

NOTE

Brine level will vary as a result of variable and precision brining functions.



Start up and programming complete. Unit is now operational.

DURING REGENERATION

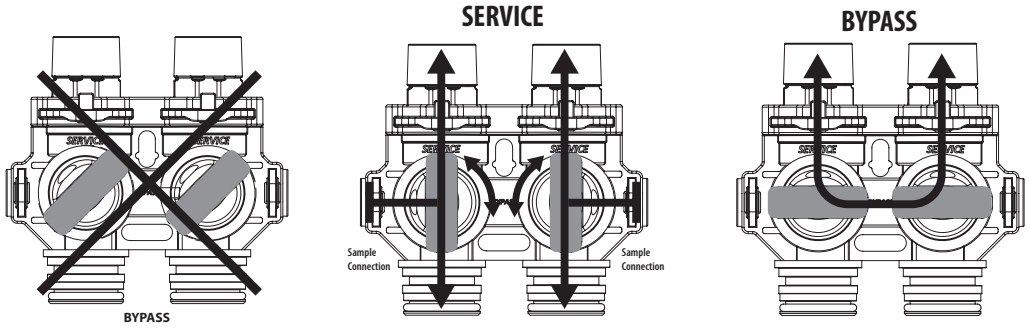
Automatic Water Bypass

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 such as filter maintenance, you can isolate your water filter 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 filter, 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 watersupply is bypassing the 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 unfiltered water could bypass through the valve.**



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 conditioner, 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 commencing installation of the filter 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 conditioned water. If stains or deposits return check that lines are connected to treated water. Repeat procedure until clear. again until water is clear at drain. Turn energy supply on.

MAINTENANCE INSTRUCTIONS AND SCHEDULE

System Check List

NOTE: Many situations affecting the operation of the product can be diagnosed in only a few minutes. Please review this section before contacting anyone to be sure that there is something wrong with the product and not with the general plumbing system. Please be sure you have reviewed these points before starting up the unit to ensure a successful installation.

1. Check for Proper Installation

a. Is the inlet line of adequate size and attached to the correct port on the valve?

b. Is the drain line of adequate diameter? Drain line must be sized to prevent back pressure from reducing backwash flow rate below minimum for the model installed. Typical examples of minimum drain line diameters are:

i) 5/8" OD when drain is up to 15 ft from unit and backwash water discharge point is slightly higher than the control valve

ii) 3/4" OD when drain is 25 ft away and/or drain is installed overhead

c. Has the drain line been "kinked"? A kinked drain line must be replaced.

d. Is the drain line installed in a way that it will freeze in cold weather?

2. Determine Other Uses of Water in Addition to Normal Domestic Purposes

(e.g. geothermal heating or cooling, swimming pool fill, lawn irrigation, farm animal watering, etc.) Have any high demand water uses been added subsequent to the installation of the filter system or overlooked when originally sizing the system? (If a high demand situation exists, resize the system using continuous service flow rate data.)

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, figure 2.
- The injectors should be cleaned/inspected or replaced every year depending on the water quality and use. See Clean Injector Assembly, page 21, figure 3
- SERVICING OF PARALLEL ADAPTOR should be done annually. All connections need to be inspected for leaks, the cross pipes should be removed and inspected for blockage. if there is no evidence of leaking on the adapter no further inspection is required. If addtional inspection is required see page 22.
- 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. See Fig 1. on right.

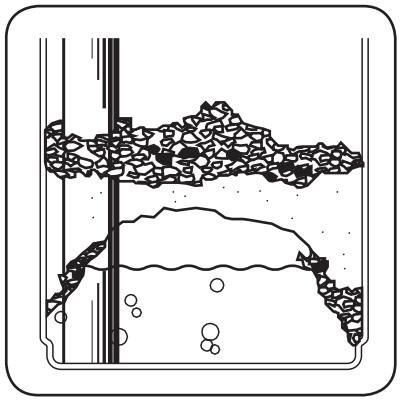
Maintenance of your new water conditioner requires very little time or effort but it is essential. Regular maintenance will ensure many years of efficient and trouble free operation.

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 conditioner.

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 conditioner to freezing, vacuum or to temperatures above 43°C (110°F).

MAINTENANCE INSTRUCTIONS AND SCHEDULE

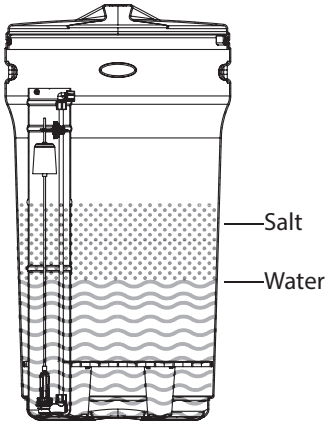
Checking the Salt Level

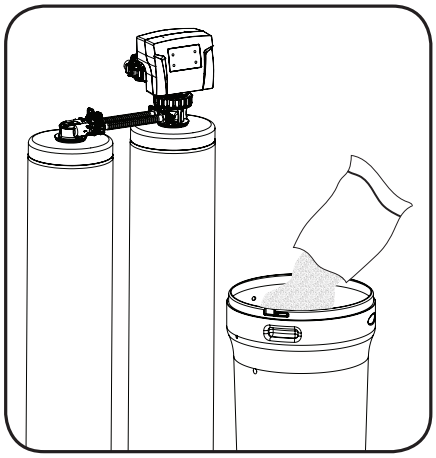
Check the salt level monthly. Remove the lid from the cabinet or brine tank, make sure salt level is always above the brine level.

Add Salt to the Brine Tank/Cabinet

Put 40 kgs of crystal water softener salt in the brine tank. The unit will automatically fill the water to the correct level when it regenerates. Use only clean salt labeled for water conditioner use, such as crystal, pellet, nugget, button or solar. The use of rock salt is discouraged because it contains insoluble silt and sand which build up in the brine tank and can cause problems with the system's operation. Add the salt directly to the tank, filling no higher than the top of the brine well.

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.

Replacing Media Bed

Frequency of replacing bed is determined by water quality and usage. If you start getting chlorine smell or grey / black coloration of the water from time to time contact your dealer or supplier with your model number to order replacement media.

IMPORTANT WARRANTY AND MAINTENANCE INFORMATION

Please have the information below filled out and available when calling in for parts or warranty:

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

Additional notes:

_____

_____

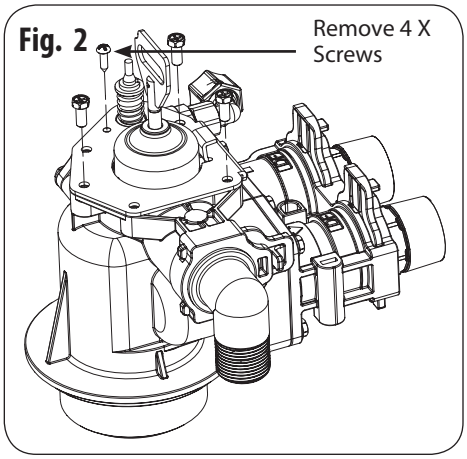
_____

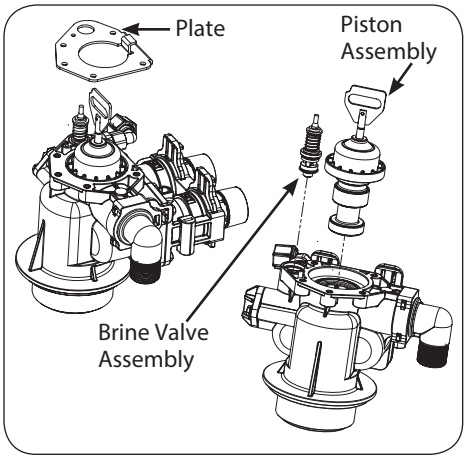
_____

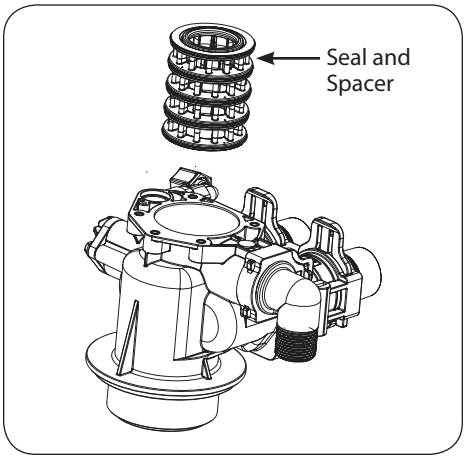
_____

_____

INSPECTION AND REPLACEMENT OF PISTON ASSEMBLY AND SEAL AND SPACER KIT

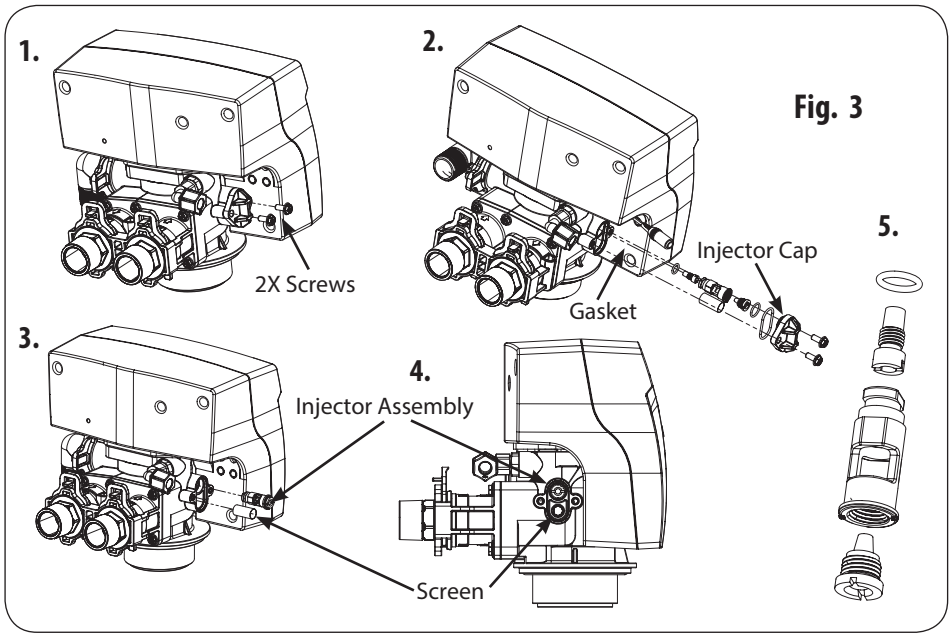






1. Follow steps 1 to 6 of timer /Powerhead replacement.
2. Remove four screws from the plate on the valve body.
3. Remove the plate from the valve body and pull the Piston Assembly from the valve. The brine valve assembly can also be removed in this stage.
4. Remove the seal spacer assembly, grease it with silicone lubricant (# 92360) and put back in.
5. Replace piston assembly followed by timer assembly.
6. Replace the piston assembly and reverse following steps in this section

CLEAN INJECTOR ASSEMBLY



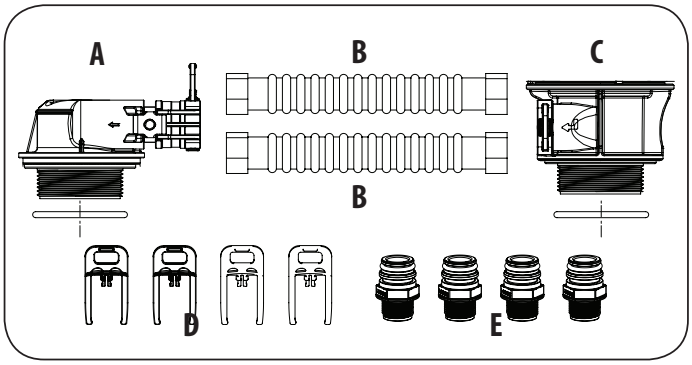
1. Remove the two screws from the injector cap
2. Pull the injector cap and gasket
3. Pull the injector assembly and Screen
4. Replace/Clean screen and injector assembly and put it back in the valve in appropriate location as shown
5. Put back the injector cap. Grease the injector assembly orings and injector cap gasket. Care should be taken to put all orings and gaskets in place and grease them (# 92360) so that they dont pinch
6. After cleaning the injectors it is important to cycle the valve completely with water and allow to refill for 1 - 2 minutes to purge all air from the brine system. Air in the brine system can cause the unit not to draw brine.

WARNING!

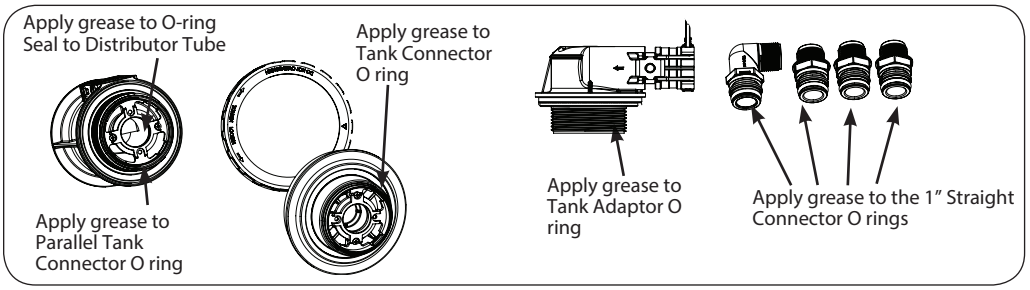
ELECTRICAL SHOCK HAZARD! UNPLUG THE UNIT BEFORE REMOVING THE COVER OR ACCESSING ANY INTERNAL CONTROL PARTS

SERVICING OF PARALLEL ADAPTOR

Tank and Valve Connection Parts



A. Tank adaptor w/ O ring
B. Pipe connector - 8" - 12"Tanks
Pipe connector - 14" - 18"Tanks
C. Parallel tank connector w/ O ring
D. Red Clips (4pcs)
E. 1 " x 4 Straight , w O ring



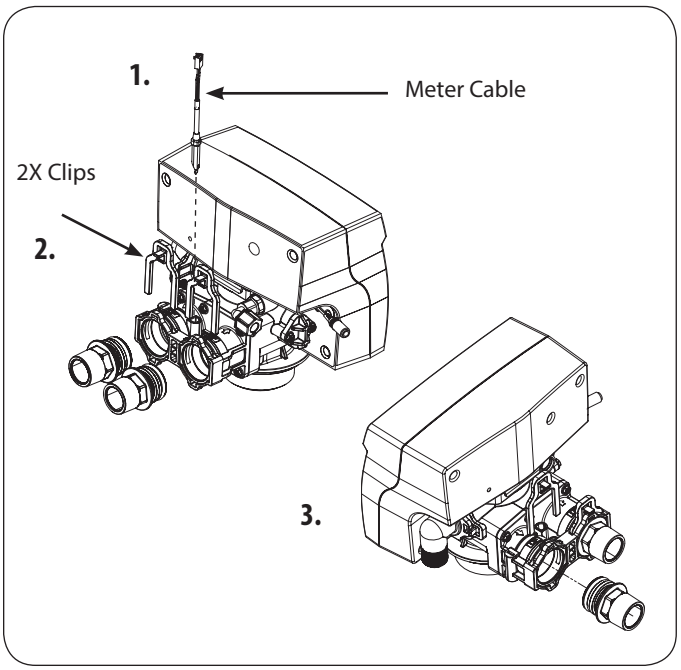
Ensure all Oring on both tank connectors are properly dissembled and apply a good amount of grease.

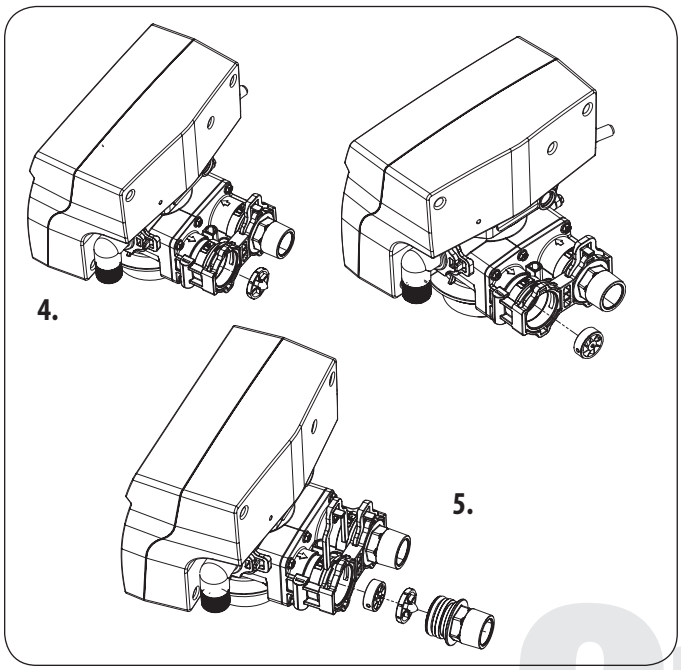
NOTE

Full disassembly requires specialty wrenches item's 60010116 and 60010117 and should only be attempted by a qualified service technician. If there is no indication of leaking or fouling of the inlets due to harsh water conditions then there should be no need to disassemble.

METER ASSEMBLY REPLACEMENT (For Models Manufactured *AFTER*

Valve Serial # Date of November 2015)

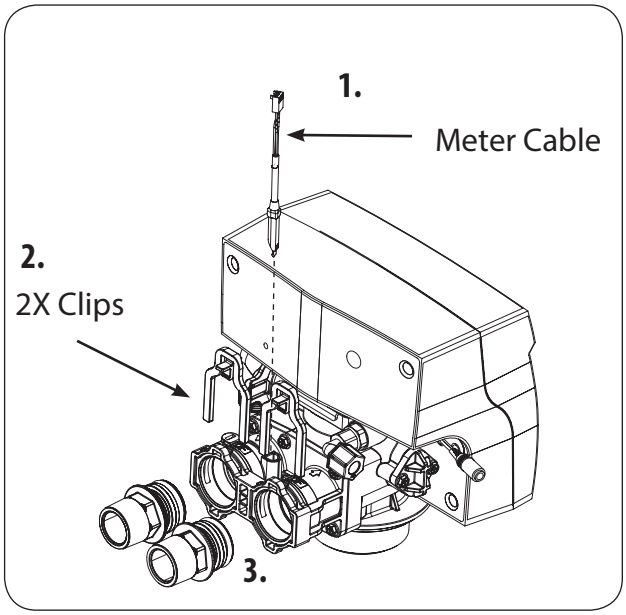


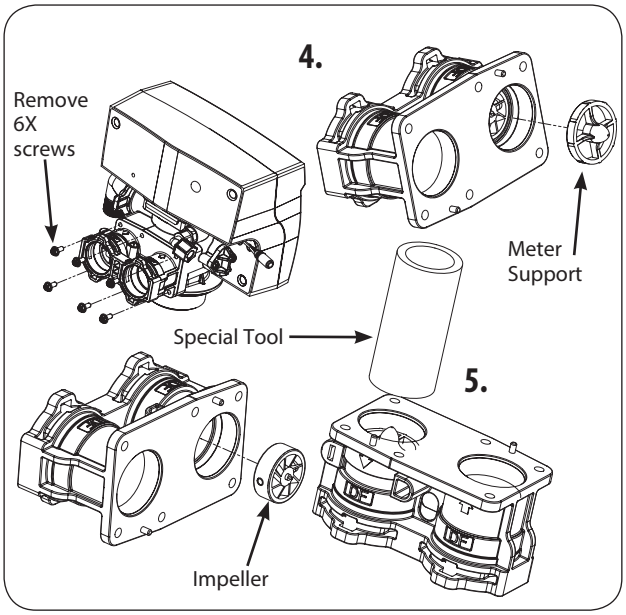


1. Disconnect the meter cable from the meter.
2. Disconnect the valve from bypass by removing clips
3. Remove the coupling adapter from the valve

4. Remove the meter support and then the impeller out from the coupling and clean it
5. Replace meter with the help of special tool and re-assemble the removed components back in the section

METER ASSEMBLY REPLACEMENT (For Models Manufactured *BEFORE* Valve Serial # Date of November 2015)





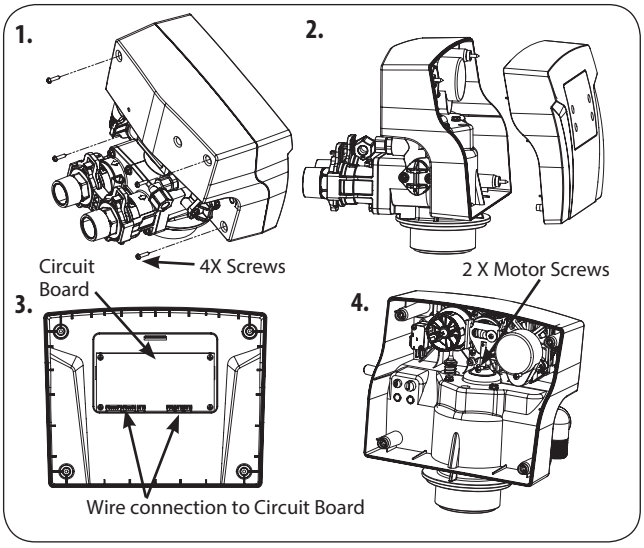
1. Disconnect the meter cable from the meter.
2. Disconnect the valve from bypass by removing clips
3. Remove the coupling adapter from the valve

4. Remove six screws and pull out the meter support and impeller.
5. Replace meter with the help of special tool and re-assemble the removed components back in the section

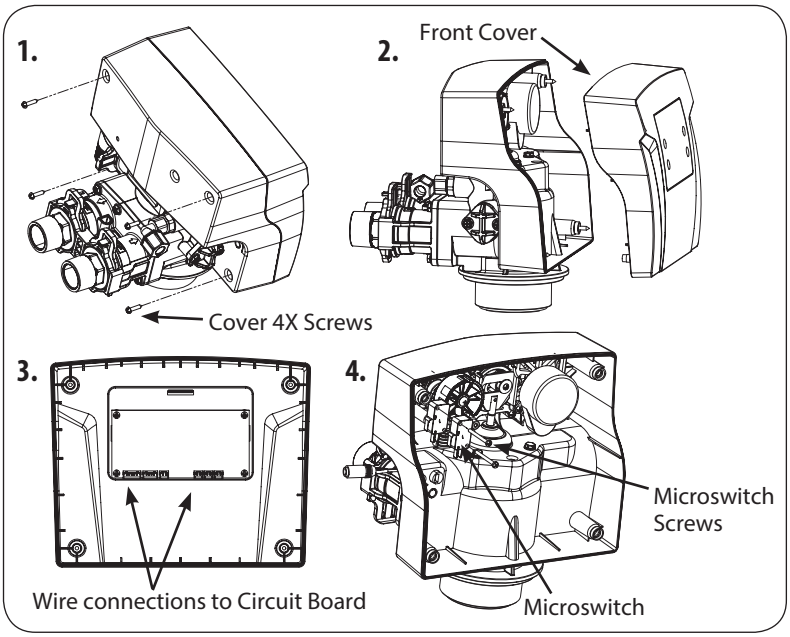
REPLACE MOTOR

WARNING!

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



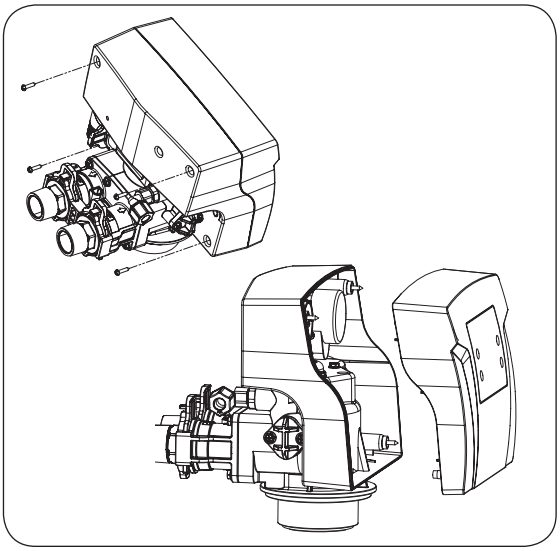
1. Remove Screws from the back of the valve and pull the cover
2. Remove all connections from the circuit board
3. Remove the two screws from the motor. Remove the motor and watch for the pin under the motor.
4. Replace the motor, connections and cover



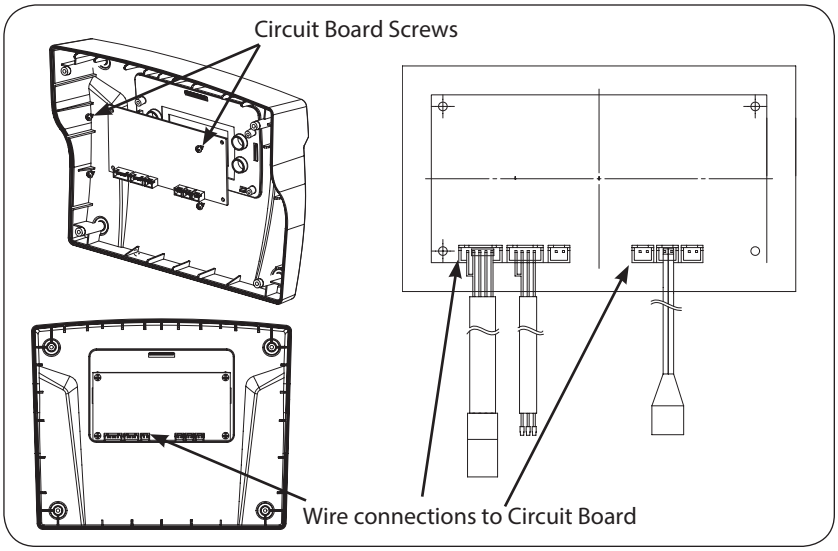
REPLACE MICROSWITCHES

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

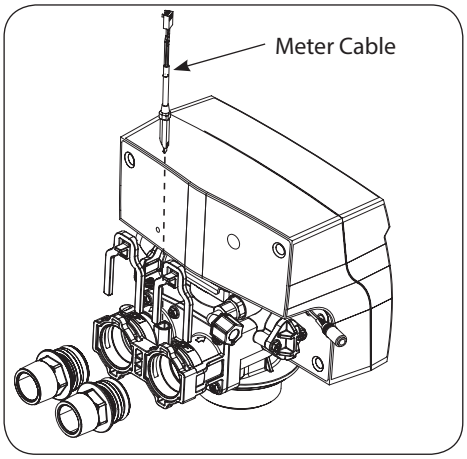


2. Remove all connections from the circuit board
3. Remove the fours screws from the circuit board and pull it out

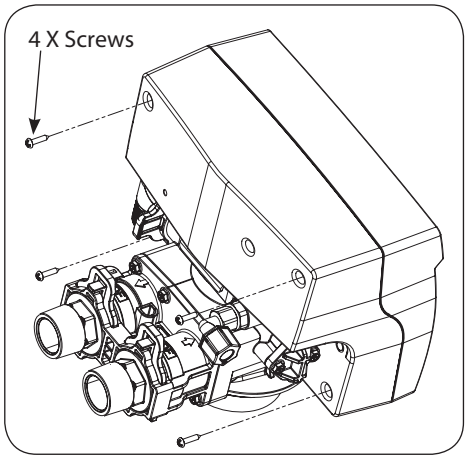
WARNING!

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

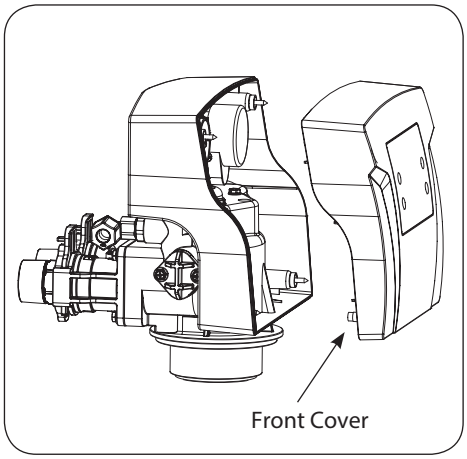
TIMER REPLACEMENT



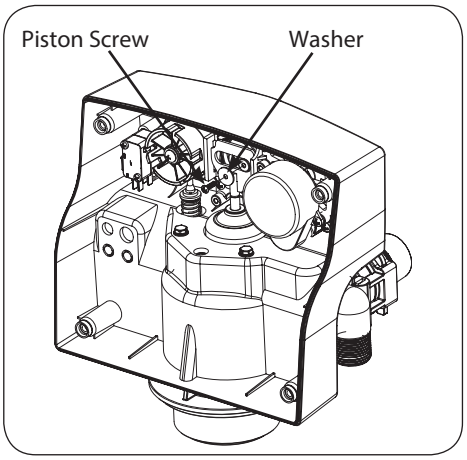
1. Disconnect the meter cable from the meter. (If flow meter is attached)



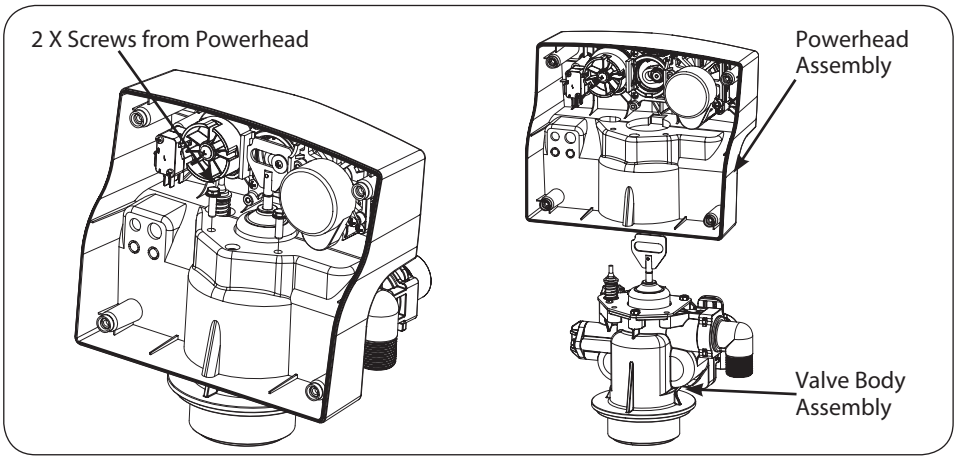
2. Remove four screws from the back of the valve cover



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. Life the powerhead from the valve body assembly
7. Replace the powerhead by reverse following the steps in this section

AFTER SERVICING

1. Reconnect drain line

2. Return bypass or inlet valve to normal in service position. Water Pressure will automatically build in the filter

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

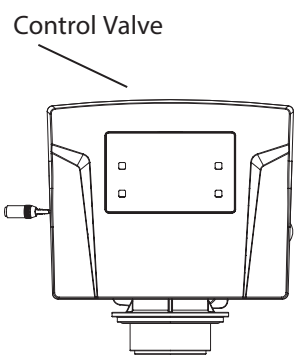
NOTE

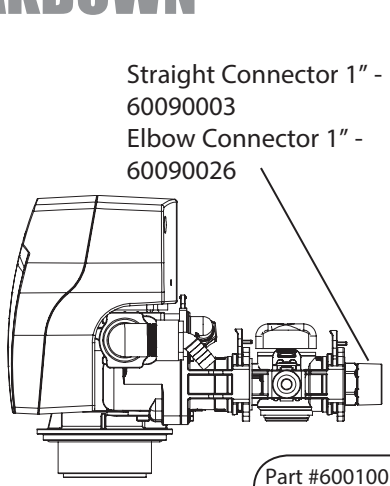
Be sure to shut off any bypass line.

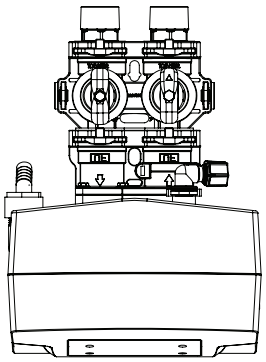
WARNING!

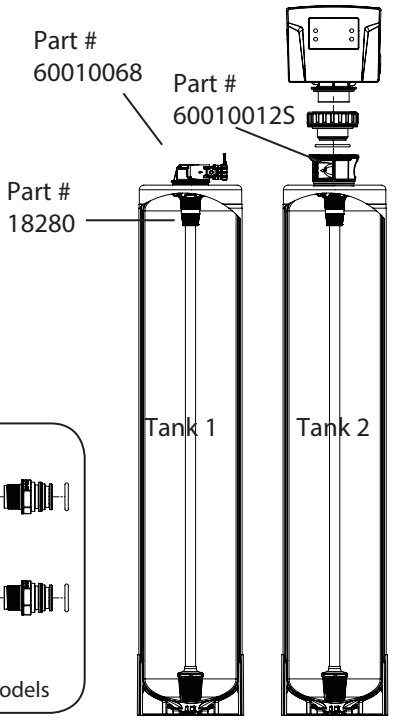
ELECTRICAL SHOCK HAZARD! UNPLUG THE UNIT BEFORE REMOVING THE COVER OR ACCESSING ANY INTERNAL CONTROL PARTS

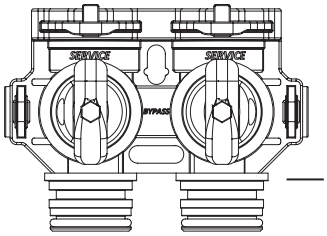
PARTS BREAKDOWN



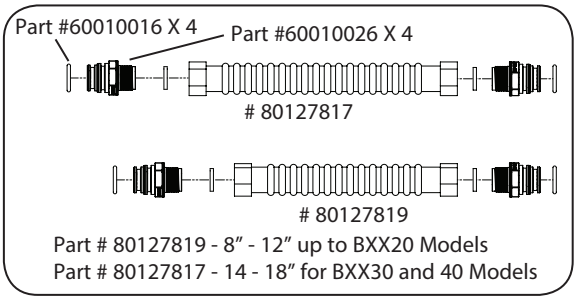




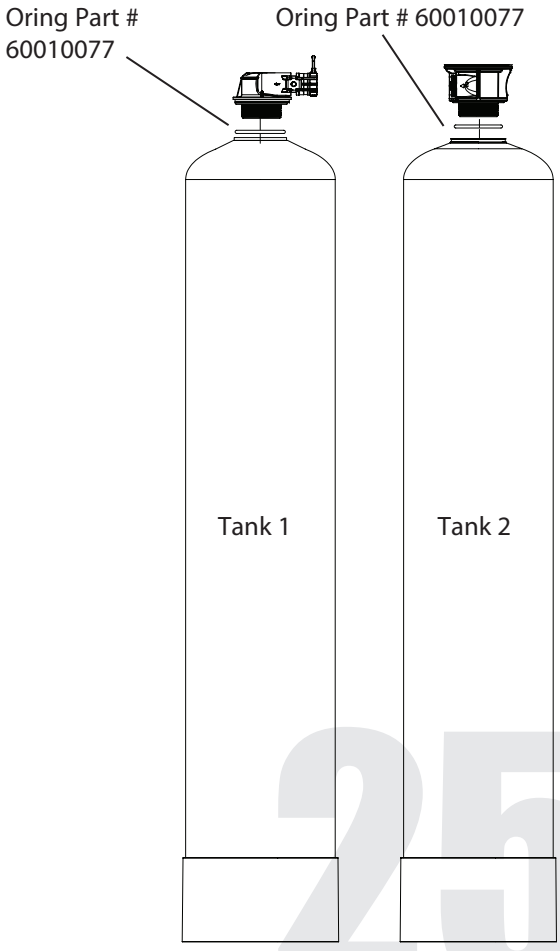




Bypass - Part # 60010004



Model	Mineral Tank 1 Size	Tank 1 Media	Tank 2 Media	Distributor#	Valve #
100	9x48	CARBON	RESIN	50010006	10010044
150	10x54	CARBON	RESIN	50010005	10010044
200	12x52	CARBON	RESIN	50010005	10010044
250	13x54	CARBON	RESIN	50010005	10010044
300	14x35	CARBON	RESIN	50010010	10010044



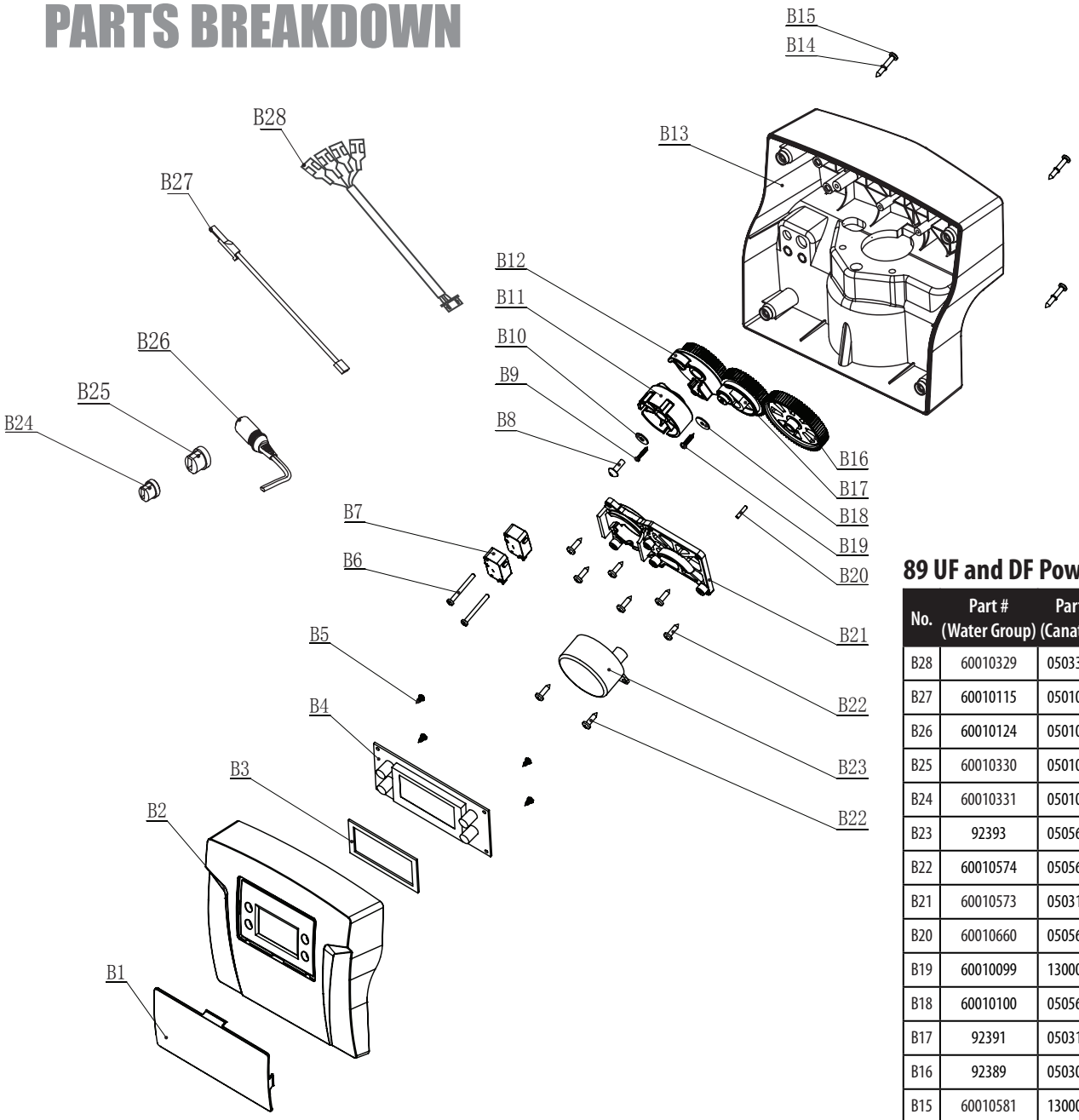
TANK ONE CARBON

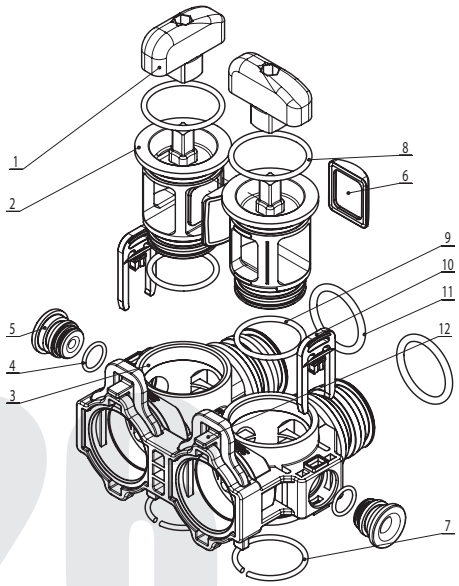
Model	Mineral Tank Size	Tank # (Natural Color)	Tank # (Black Color)	Tank # (Blue Color)	Distrubutor#	Valve #	Media Bed #
Softener Downflow (Single Tank)							
75	8 x 44	25010025	25010027	25010026	50010005	10010044	95401
100	9 x 48	25010034	25010036	25010035	50010005	10010044	95401
150	10 x 54	25010049	25010051	25010050	50010005	10010044	95402
200	12 x 52	25010058	25010060	25010059	50010005	10010044	95403
250	13 x 54	25010064	25010066	25010065	50010010	10010044	95403
300	14 x 65	25030001 and 50040039	Not Available	Not Available	50010010	10010044	95404

TANK TWO RESIN

Model	Mineral Tank Size	Tank # (Natural Color)	Tank # (Black Color)	Tank # (Blue Color)	Distrubutor#	Valve #	Media Bed #
Softener Downflow (Single Tank)							
75	8 x 44	25010025	25010027	25010026	50010005	10010044	95600
100	9 x 48	25010034	25010036	25010035	50010005	10010044	95601
150	10 x 54	25010049	25010051	25010050	50010005	10010044	95606
200	12 x 52	25010058	25010060	25010059	50010005	10010044	95609
250	13 x 54	25010064	25010066	25010065	50010010	10010044	95610
300	14 x 65	25030001 and 50040039	Not Available	Not Available	50010010	10010044	95604

PARTS BREAKDOWN





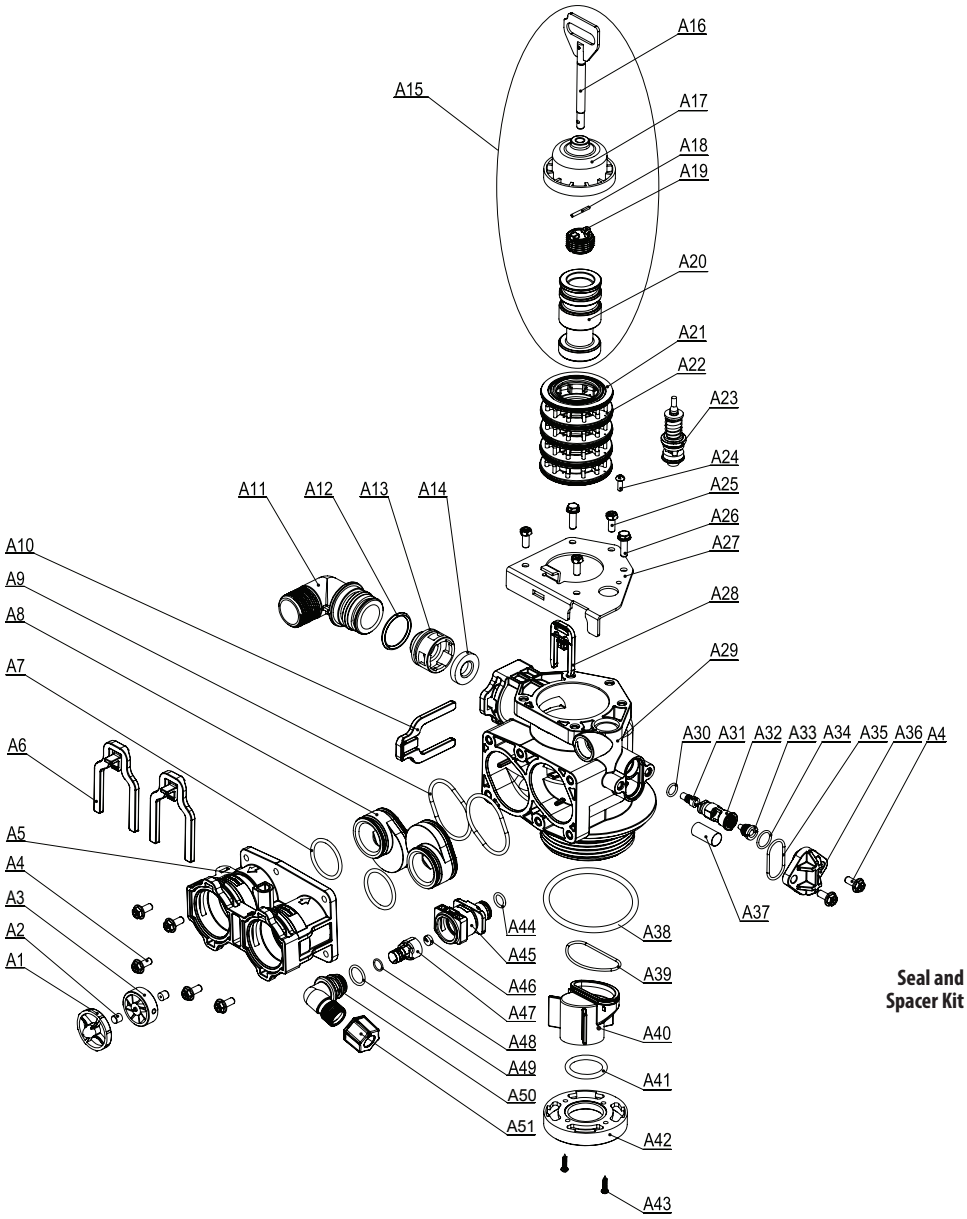
89 UF and DF Power Head Parts List

No.	Part # (Water Group)	Part # (Canature)	Description	Qty
B28	60010329	05033028	Micro Switch Cable	1
B27	60010115	05010031	Meter Cable	1
B26	60010124	05010029	Power Cable	1
B25	60010330	05010046	Meter Cable Clip	1
B24	60010331	05010035	Power Cable Clip	1
B23	92393	05056550	Motor 12VAC 3W	1
B22	60010574	05056084	Screw on Mounting Plate	8
B21	60010573	05031006	Mounting Plate	1
B20	60010660	05056098	Motor Pin	1
B19	60010099	13000426	Screw on Main Gear	1
B18	60010100	05056139	Washer on Main Gear	1
B17	92391	05031008	Main Gear	1
B16	92389	05030009	Drive Gear	1
B15	60010581	13000448	Screw on Back Cover	4
B14	60010332	13113051	Washers on Screw	4
B13	60010582	05033012	89 Back Cover(Black)	1
B12	92392	05031017	Brine Gear	1
B11	60010577 -UF 60010576 - DF	05033019	Locating wheel(UF)	1
B10	60010661	05056141B	Washer on Locating Wheel	1
B9	60010333	05033004	Screw 2.2×13	1
B8	60010575	05056166B	Screw on Locating Wheel	1
B7	60010580	05041011	Micro Switch	2
B6	60010579	13000332	Screws on Micro Switch	2
B5	60010572	13000401	Screws on PCB	4
B4	92388	05033008B	89 PCB	1
B3	60010571	05033027	PCB Absorb Shock Foam	1
B2	60010570	05033011	89 Front Cover(Black)	1
B1		05033007B	Controller Touch Panel	1

Bypass Parts List

No.	Part #	Part Description	Qty
1		89 Shaft Knob	2
2		BNT 89 Bypass Shaft	2
3		BNT 89 Bypass Body	1
4		Plug O-Ring 12.42×1.78	2
5	60010209	Bypass Plug	1
6		BNT 89 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	BNT89 Valve Clip	1

PARTS BREAKDOWN



Parts list of control valve body:

No.	Part # (Water Group)	Part # (Canature)	Description	Qty
A51	60010184	21389033	Brine Line Elbow Nut	1
A50	60010172	30020013M	Brine Line Elbow	1
A49	60010044	05056134	O-ring of Brine Line Elbow	1
A48	60010188	05031033	O-ring of BLFC Holder	1
A47	60010173	05031010M	BLFC Holder	2
A46	60010128	05056206M	BLFC(0.2GPM)(Optional)	1
A45	60010340	05033033	Brine Line Connector	1
A44	60010265	26010189	O-ring on Brine Line Connector	1
A43	60010099	13000426	Screw on Valve Bottom Connector	2
A42	60010599	07060007	Valve Bottom Connector	1
A41	60010080	26010103	Distributor O-ring	1
A40	60010598	05033021M	Central Pipe Adaptor	1
A39	60010597	26010038	O-ring of Central Pipe Adaptor	1
A38	60010077	05056063	Tank Mouth O-ring	1
A37	60010715	05033009	Screen 89 Valve	1
A36	60010595	05033020	Injector Cover	1
A35	60010341	26010101	O-ring of Injector Cover	1
A34	60010186	05031019	Big O-ring of Injector Holder	1
A33			Injector Nozzle(Optional)	1
A32	60010174	05031012M	Injector Holder	1
A31			Injector Throat(Optional)	1
A30	60010187	05031020	Small O-ring of Injector Holder	1
A29		05033010	89 Valve Body	1
A28	60010069	05056172N	Secure Clip Brine Line	1
A27	60010343	05033005B	End Plug Retainer	1
A26	60010076	05056088	Valve Body Connect Screws	2
A25	60010075	05056087	End Plug Retainer Screws	3
A24	60010574	05056084	Screw 3.5×13	1
Seal and Spacer Kit 92382 A23	60032	05056180M	Brine Valve Injector Stem Assembly	1
A22		05033015	Spacer-89 Valve	8
A21		05033006	Seal-89 Valve	5
A20	92383 - DF PISTON ASSY 92384 - UP PISTON ASSY 92385 - FILTER PISTON ASSY		Down Flow Piston-89 Valve	1
A19			92384 - UP PISTON ASSY	1
A18			92385 - FILTER PISTON ASSY	1
A17			End Plug-89 Valve	1
A16			Piston Rod-89 Valve	1
A15			Piston Assembly-89 Valve(DF)	1
A14			DLFC(2.4GPM)(Optional)	1
A13	60095694	05040030M	DLFC Holder	1
A12	60010211	05056121	O-ring on Drain Elbow	1
A11	60010253	05040130M	Drain Elbow 3/4" NPT	1
	60010254	05040131M	Drain Elbow 1" NPT	1
A10	60010227	05040018M	Secure Clip of Drain Line	1
A9	60010585	05005636M	Big O-ring of Adaptor Coupling	2
A8			Adaptor Coupling	2
A7			Small O-ring of Adaptor Coupling	2
A6	92387	05033022M	Adaptor Secure Clip	2
A5	60010589	05033013	89 Valve Connector	1
A4	60010596	05056508	Screws of Valve Connector	8
A3	60010238	02170055	Impeller Assembly	1
A2		05010019	Bush	2
A1	60010587	05010077	Impeller Holder	1

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

		Part #	Part Description
	A46	60010110	BLFC BUTTON #2 0.3GPM A32
		60010082*	BLFC BUTTON #2 0.7GPM A32
		60010128	BLFC BUTTON 0.2GPM
Injector Assemblies A31 and A33	60010127	60010601	INJECTOR SET #0000 BLACK THROAT
		60010602	NOZZLE #0000 BLACK THROAT
	60010126	60010603	INJECTOR SET #000 GREY THROAT
		60010604	NOZZLE #000 GREY THROAT
	60010035	60010605	INJECTOR SET #00 VIOLET THROAT
		60010606	NOZZLE #00 VIOLET THROAT
	60010034	60010607	INJECTOR SET #0 RED THROAT
		60010608	NOZZLE #0 RED THROAT
	60010033	60010609*	INJECTOR SET #1 WHITE THROAT
		60010610*	NOZZLE #1 WHITE THROAT
	60010032	60010611	INJECTOR SET #2 BLUE THROAT
		60010612	NOZZLE #2 BLUE THROAT

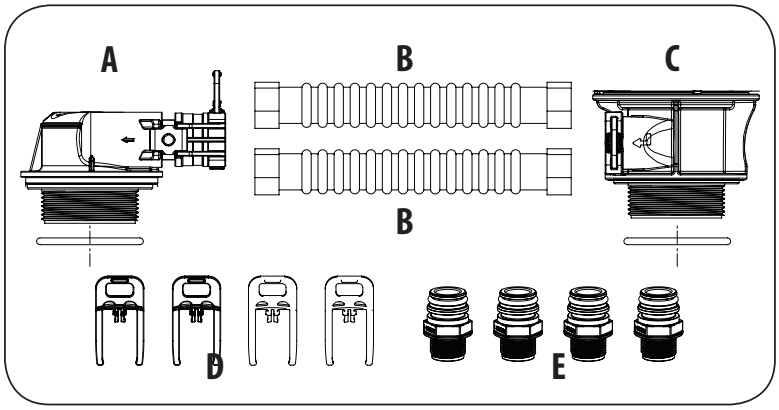
*** Default**

		Part #	Part Description
Injector Assemblies A31 and A33	60010031	60010613	INJECTOR SET #3 YELLOW THROAT
		60010614	NOZZLE #3 YELLOW THROAT
	60010686	60010685	INJECTOR SET #4 GREEN THROAT
		60010686	NOZZLE #4 GREEN THROAT
A14		12052	1.4 GPM DLFC WASHER
		12053	2.0 GPM DLFC WASHER
		60010140	#4S 5.0GPM
		60010142	#7S 7.0 GPM
		60010143	#1 8.0 GPM
		60010144	#2 11.0 GPM
		60010145	#3 14.0 GPM
		60010146	#4 17.0 GPM
		60010147	#5 21.0 GPM
		60010148	#6 24.0 GPM

PARTS BREAKDOWN

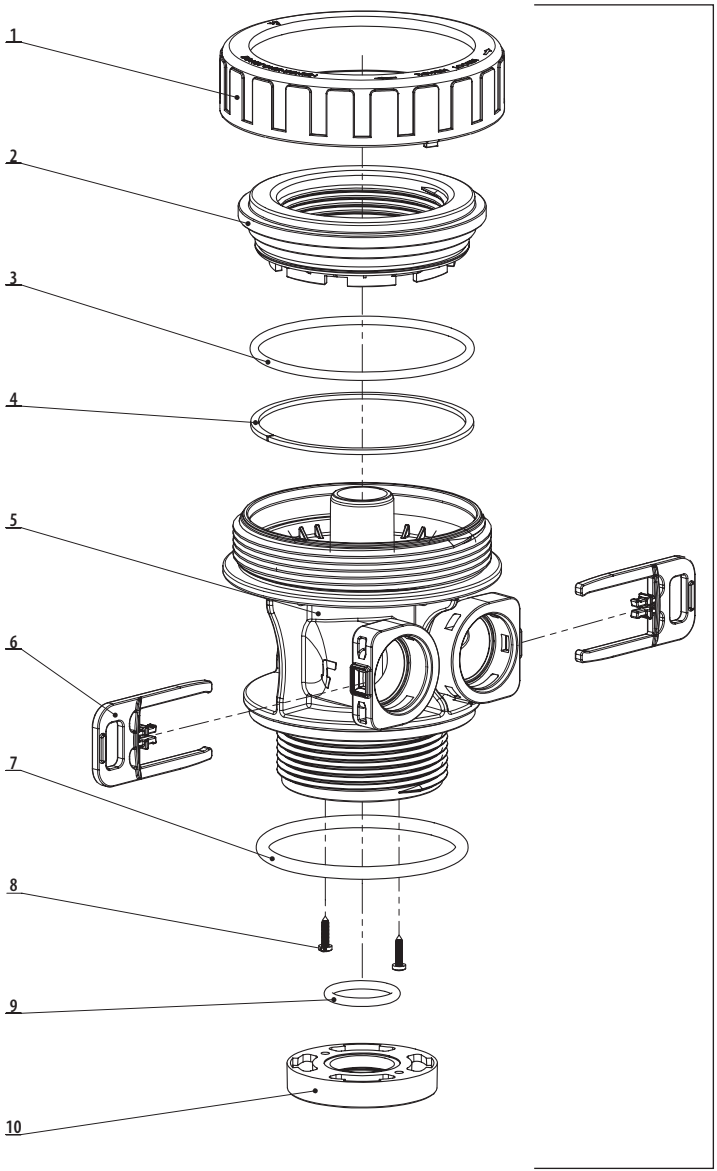
Tank and Valve Connection Part #s

No.	Part #	Part Description	Qty
A	60010068M	TANK ADAPTOR W/ O RING	1
B	80127819	PIPE CONNECTOR - 8" - 12" TANKS	1
	80127817	PIPE CONNECTOR - 14" - 18" TANKS	1
C	60010012S	PARALLEL TANK CONNECTOR W/ O RING	1
D	60010025	RED CLIPS (4PCS)	4
E	60010016	O RING	4
	60010026	1" BSP STRAIGHT	4



60010012S - Parallel Tank Connector Part #s

No.	Part #	Part Description	Qty
10	60010599	TOP CONE CONNECTOR	1
9	60010080	O-RING Φ25×3.55	1
8	60010099	SCREW 2.9×13	2
7	60010077	O-RING Φ78.74×5.33	1
6	60010025	RED CLIPS	2
5	DNR	CONNECTOR BODY	1
4	60010313	RETAINER RING	1
3	60010073	O-ring φ87.5×3.55	1
2	DNR	Valve Base	1
1	DNR	Clamp Ring	1



TROUBLE SHOOTING GUIDE (89HTO)

Problem	Possible Solutions
1. CONDITIONER 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. CONDITIONER 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 conditioner B. Iron build-up in water conditioner 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 conditioner 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 CONDITIONED 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. CONDITIONER 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 (89HTO) (CONTINUED)

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.

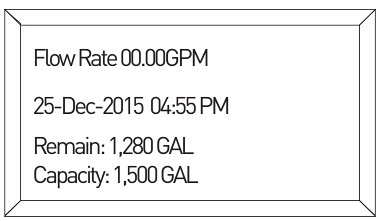
MASTER PROGRAMMING GUIDE

Below is how the settings are set at factory:

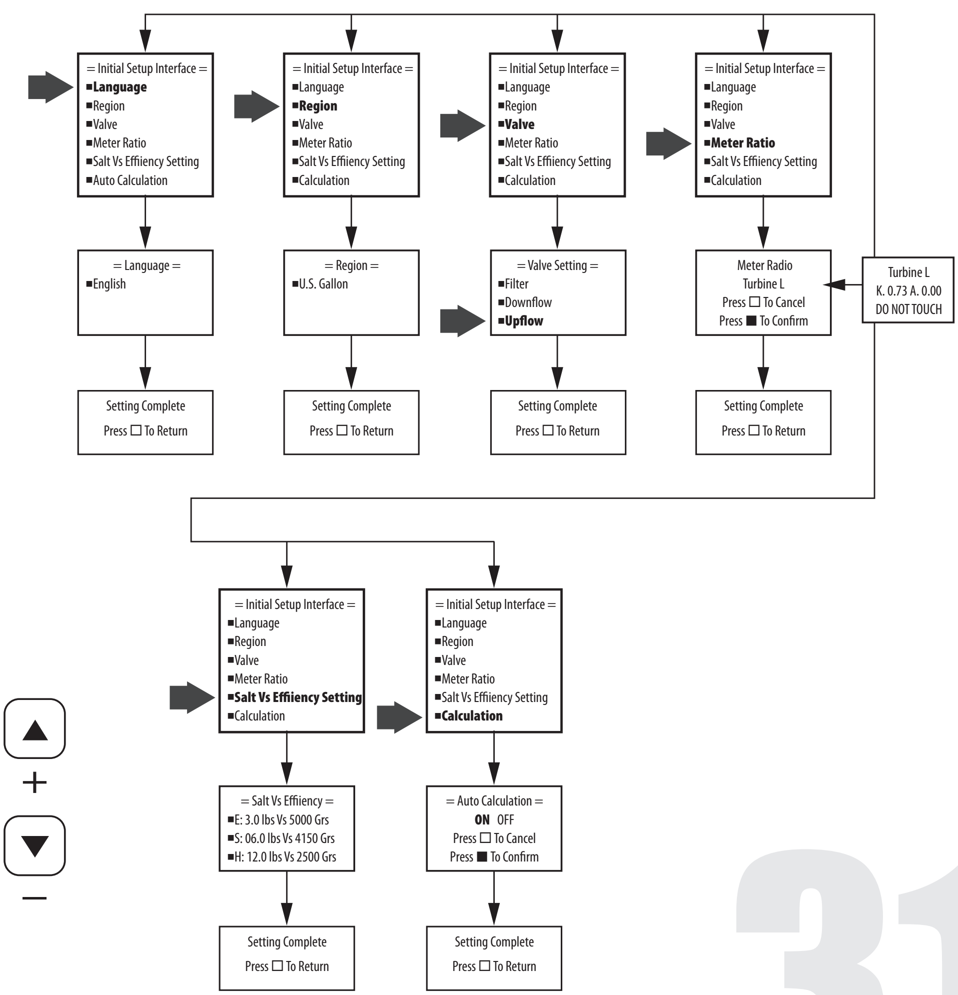
MASTER PROGRAMMING - 89 UPFLOW Master Programming (V1.5)												
PRESS '+' AND '-' FOR 8 SECONDS								PRESS MENU KEY AND SCROLL TO 'MAIN MENU'. THEN PRESS 'SET' TILL IT BEEPS. SCROLL TO ADVANCED MENU				
MODELS	LANGUAGE	REGION	VALVE	METER RATIO	SALT VS EFFICIENCY	AUTO CALCUL	Cycle Delay	RESIN VOLUME	REFILL RATE	REGEN MODE	BW/RINSE OVERRIDE	EMERGENCY REGEN.
75	ENGLISH	US GALLONS	UPFLOW	Turbine L	DEFAULT	ON	DEFAULT	0.75CF	0.2	METER DELAY	10	OFF
100	ENGLISH	US GALLONS	UPFLOW	Turbine L	DEFAULT	ON	DEFAULT	1.0CF	0.2	METER DELAY	10	OFF
150	ENGLISH	US GALLONS	UPFLOW	Turbine L	DEFAULT	ON	DEFAULT	1.5CF	0.2	METER DELAY	10	OFF
200	ENGLISH	US GALLONS	UPFLOW	Turbine L	DEFAULT	ON	DEFAULT	2.0CF	0.2	METER DELAY	10	OFF
250	ENGLISH	US GALLONS	UPFLOW	Turbine L	DEFAULT	ON	DEFAULT	2.5CF	0.2	METER DELAY	10	OFF
300	ENGLISH	US GALLONS	UPFLOW	Turbine L	DEFAULT	ON	DEFAULT	3CF	0.2	METER DELAY	10	OFF

MASTER PROGRAMMING GUIDE (CONTINUED)

MASTER PROGRAMMING - 89 UPFLOW Master Programming (V1.5)										
PRESS MENU KEY AND SCROLL TO 'MAIN MENU'. THEN PRESS 'SET' TILL IT BEEPS. SCROLL TO ADVANCED MENU										
BRINE RINSE	BACK WASH	RINSE	BRINE REFILL	AUXILIARY OUTPUT	SERVICE SETTINGS	BACKLIGHT SETTINGS	HISTORY VALUES	SALT REMINDER - SALT USAGE	ALARM ON TIME	SALT QUANTITY
DEFAULT	DEFAULT	DEFAULT	DEFAULT	DONT TOUCH	OFF	Energy Save	Reset history	DEFAULT	5:00PM-7:00PM	80 lbs
DEFAULT	DEFAULT	DEFAULT	DEFAULT	DONT TOUCH	OFF	Energy Save	Reset history	DEFAULT	5:00PM-7:00PM	80 lbs
DEFAULT	DEFAULT	DEFAULT	DEFAULT	DONT TOUCH	OFF	Energy Save	Reset history	DEFAULT	5:00PM-7:00PM	80 lbs
DEFAULT	DEFAULT	DEFAULT	DEFAULT	DONT TOUCH	OFF	Energy Save	Reset history	DEFAULT	5:00PM-7:00PM	80 lbs
DEFAULT	DEFAULT	DEFAULT	DEFAULT	DONT TOUCH	OFF	Energy Save	Reset history	DEFAULT	5:00PM-7:00PM	80 lbs
DEFAULT	DEFAULT	DEFAULT	DEFAULT	DONT TOUCH	OFF	Energy Save	Reset history	DEFAULT	5:00PM-7:00PM	80 lbs

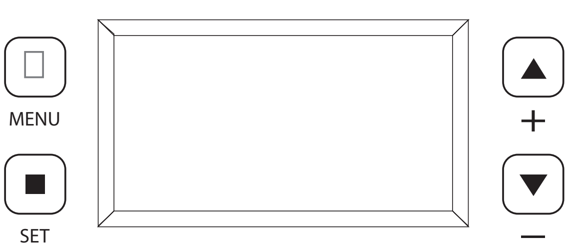


The controller will show the following on the screen - Time, Date and number of Days Remaining for Regeneration:



How to set Master Programming
(Authorized Dealer Only)

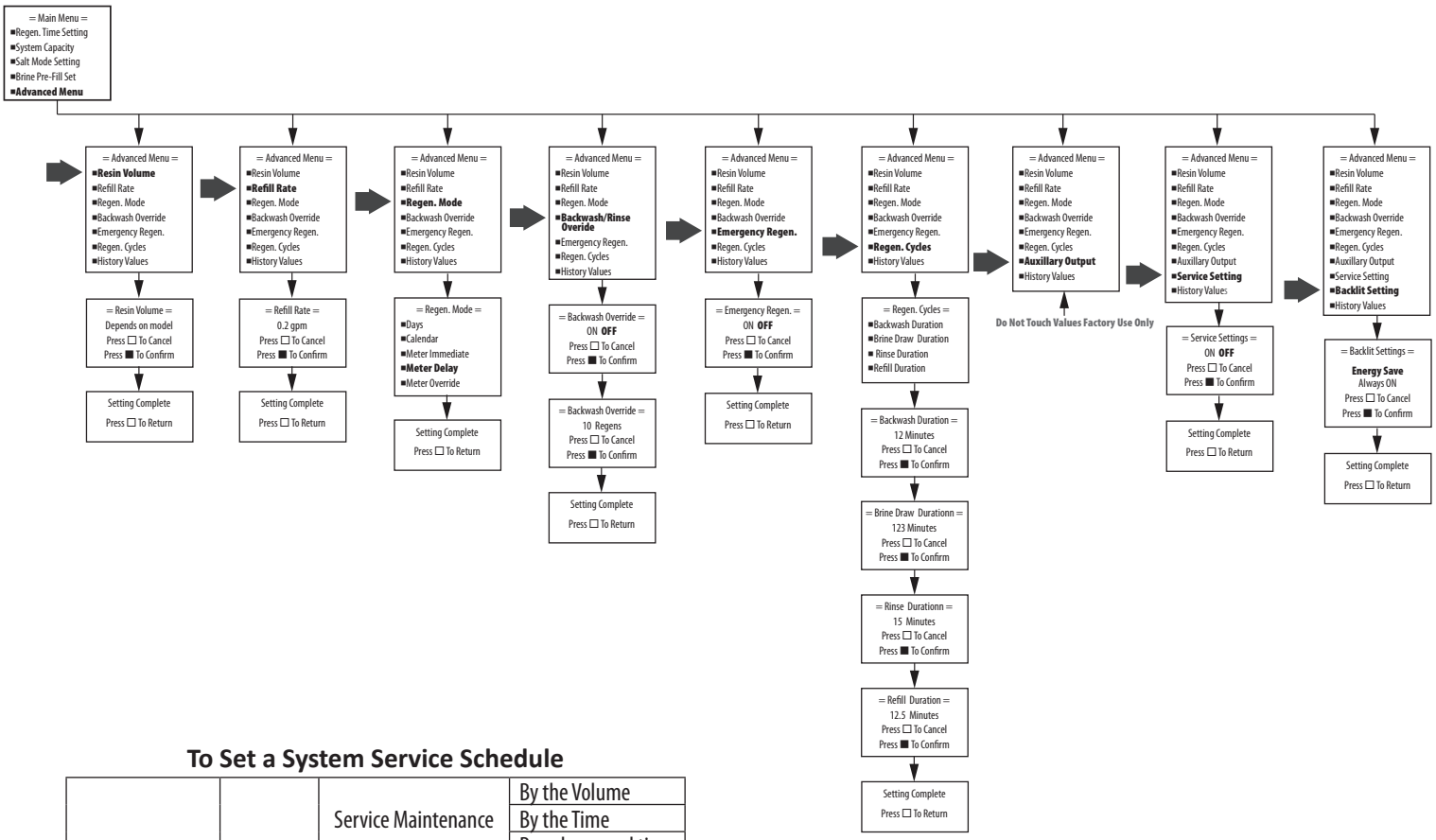
Press ▲ and ▼ for 8 seconds. Press "**SET**" ■ to select and "**MENU**" ☐ to go back



ADVANCED MENU UPFLOW

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.



To Set a System Service Schedule

Service Settings	ON	Service Maintenance	By the Volume
			By the Time
			By volume and time
		Delay Days	03 Days
		Service Reset	Reset confirm?
	OFF		

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.

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)

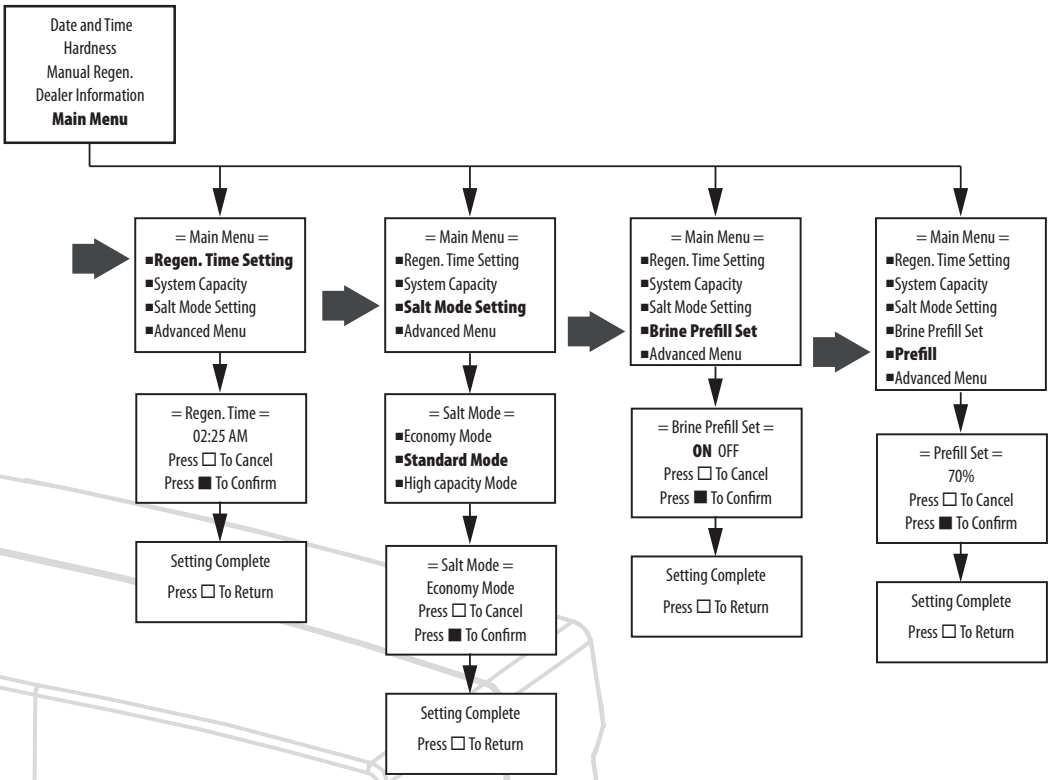
This mode is for the operation of an up flow regenerating softener. The regeneration sequence is 1.

BRINE MAKE

(REFILL), 2. BRINE, 3. BACKWASH, 4 RINSE, 5. REFILL.

MAIN MENU UPFLOW

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.



DIAGNOSTIC SCREEN

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

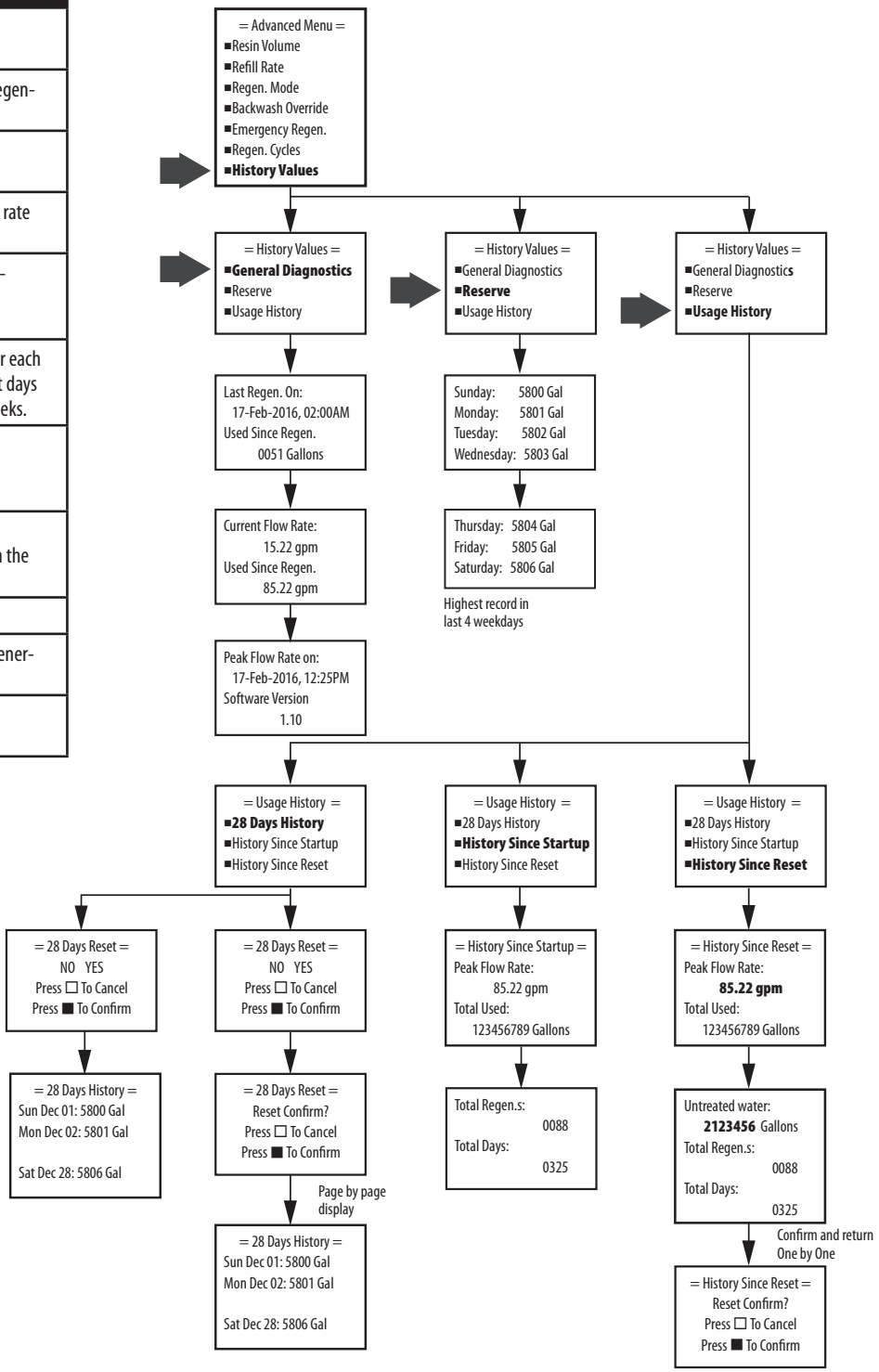
Press "**MENU**" key ▯ Press - to advance to Main Menu Press "SET" ■ or until you hear a beep.

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.

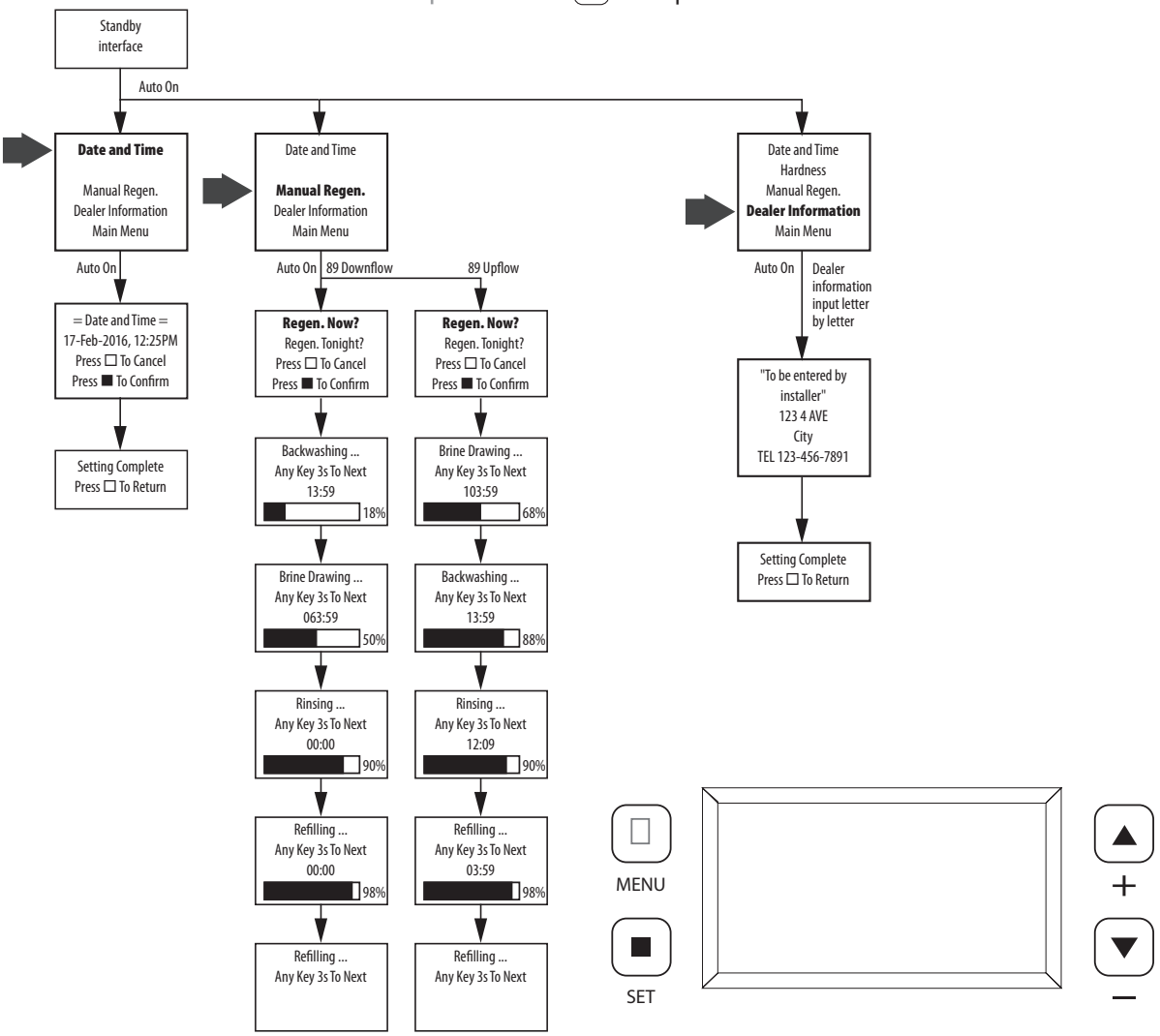


HOW TO SET DATE AND TIME, MANUAL REGENERATION AND DEALER INFORMATION

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

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

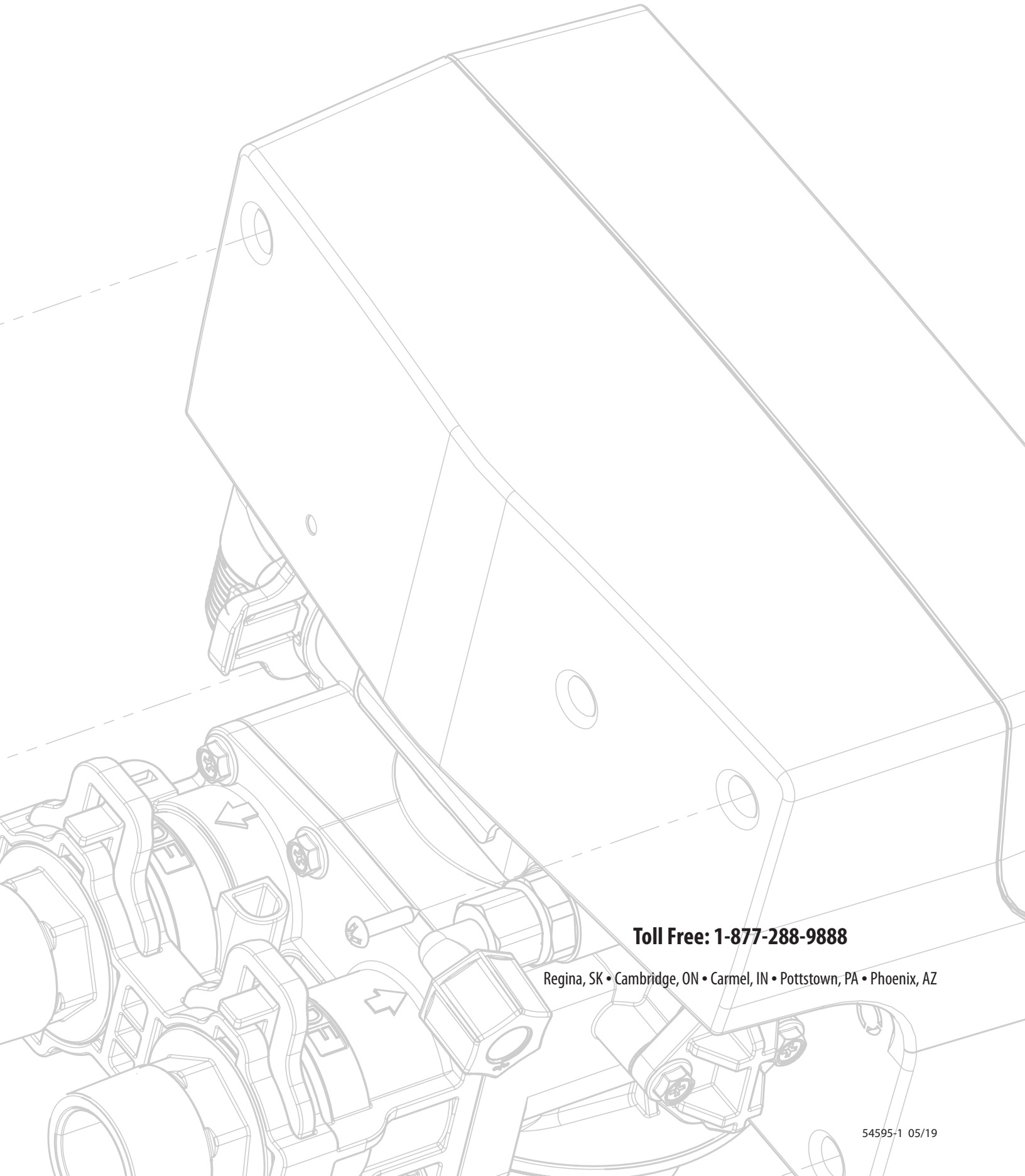
This value is the maximum compensated water hardness in grains per gallon of the raw water supply. It is used to calculate the system capacity. If Ferrous Iron is present add 4 gpg for every 1 ppm of Ferrous Iron.

MANUAL REGENERATION

To start an immediate regeneration select the Manual Regen option. This setting determines the time of day to perform a scheduled regeneration.

DEALER INFORMATION

This is optional. Dealer information can be added.



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