



# OWNER'S MANUAL

 IAPMO R & T Certified  
against NSF/ANSI 44

 IAPMO R & T Certified  
against CSA B483.1



## 565 Downflow Softener Manual

1. Read all instructions carefully before operation.
2. Avoid pinched o-rings during installation by applying NSF certified lubricant to all seals (provided with install kit).
3. This system is not intended for treating water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.
4. Page 23 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.

1. Read all instructions carefully before operation.
2. Avoid pinched o-rings during installation by applying (provided with install kit) NSF certified lubricant to all seals.
3. 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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# READ THIS PAGE FIRST

## BEFORE STARTING INSTALLATION

- ▶ Read this manual thoroughly to become familiar with the device and its capabilities before installing or operating your Water Filter. Failure to follow instructions in this manual could result in personal injury or property damage. This manual will also help you to get the most out of your filter.
- ▶ This system is intended for use on municipal water only and its 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.
- ▶ This water filter 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 filter.
- ▶ This unit is capable of operating at temperatures between 40°F and 110°F (4°C - 43°C). Do not use this water filter on hot water supplies.
- ▶ Do not install this unit where it may be exposed to wet weather, direct sunlight, or temperatures outside of the range specified above.
- ▶ Avoid pinched o-rings during installation by applying (provided with install kit) NSF certified lubricant to all seals.
- ▶ Filters are commonly exposed to high levels of iron, manganese, sulfur, and sediments. Damage to pistons, seals, and or spacers within the control valve are not covered in this warranty due to the harsh environment.
- ▶ 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 (Part # 60010307) is available for this purpose
- ▶ Do not use water that is microbiologically unsafe without adequate disinfection before or after this system.
- ▶ This publication is based on information available when approved for printing. Continuing design refinement could cause changes that may not be included in this publication. TDC 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**

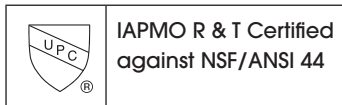
**WARNING:** used to indicate a hazard which could cause injury or death if ignored.

# EFFICIENCY STATEMENT

This product is efficiency rated according to NSF/ANSI 44. The stated efficiencies are valid only at the specified salt dosages and maximum service flow rate.

PERFORMANCE DATA SHEET							
Model Number	HT565-75C	HT565-100C	HT565-75	HT565-100	HT565-150	HT565-200	HT565-300
Qty High Capacity Resin	0.75 ft <sup>3</sup>	1.0 ft <sup>3</sup>	0.75 ft <sup>3</sup>	1.0 ft <sup>3</sup>	1.5 ft <sup>3</sup>	2.0 ft <sup>3</sup>	3.0 ft <sup>3</sup>
Rated Service Flow (gpm)	7.5	12.1	7.5	11.0	11.2	12.4	12.9
Pressure Drop at Rated Service Flow (psi)	7.0	15.0	9.0	15.0	15.0	15.0	15.0
Rated Softening Capacity (grains)	9,609 @ 2.25lbs	13,269 @ 3lbs	10,222 @ 3lbs	13,269 @ 3lbs	20,443 @ 4.5lbs	27,258 @ 6lbs	40,887 @ 9lbs
Efficiency (grains/lb salt)	4,271	4,543	4,543	4,543	4,543	4,543	4,543
Max. Flow Rate to Drain (gpm)	2.0	2.4	1.5	2.0	2.4	3.5	5.0
Working Pressure	Min. 20 - Max. 125 psi						
Operating Temperature	Min 39 - Max. 100 degrees Fahrenheit						

These softeners conform to IAPMO R&T Certified against 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 by laboratory tests described in IAPMO R&T Certified against NSF/ANSI 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.





# HOW YOUR WATER CONDITIONER WORKS

## Why Water Gets Hard And How It Is Softened

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

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

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

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

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

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

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

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



### CAUTION!

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

# SPECIFICATION

Model	System Capacity Grains			Flow Rate		Regeneration Water Usage Factory Setting (Gallons)	Mineral Tank Size	Resin Cu. Ft.	Brine Tank / Cabinet Size Inches	Salt Capacity (Lbs)	Shipping Weight Lbs
	@ 10 lbs/cu ft	@ 6 lbs/cu ft (Factory Setting)	@ 3 lbs/cu ft	Service USGPM	Backwash USGPM						
565-75	21,000	18,750	11,550	8.0	1.5	56.7	8 x 44	0.75	BTS 15.0"x34.7/BTR 18.1x34.7	BTS 230 /BTR 270	93
565-100	28,000	25,000	15,400	10.0	2.0	67.2	9 x 48	1.00	BTS 15.0"x34.7/BTR 18.1x34.7	BTS 230 /BTR 270	110
565-150	42,000	37,500	23,100	12.0	2.4	76.2	10 x 54	1.50	BTS 15.0"x34.7/BTR 18.1x34.7	BTS 230 /BTR 270	141
565-200	56,000	50,000	30,800	15.0	3.5	124.4	12 x 52	2.00	20.3 x 37.4	385	158
565-250	70,000	62,500	38,500	15.0	4.0	135.4	13 X 54	2.50	20.3 x 37.4	385	198
565-300	84,000	75,000	46,200	15.0	5.0	173.2	14 x 65	3.00	23.0 x 40.5	550	244
565-75C	21,000	18,750	11,550	8.0	2.0	66.7	9 x 35	0.75	13.8 x 23.6 x 43.3	225	93
565-100C	28,000	25,000	15,400	10.0	2.4	75.2	10 x 35	1.00	13.8 x 23.6 x 43.3	225	110

Note: Shipping weights do not include tank jackets. Add approx 10 lbs.

**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

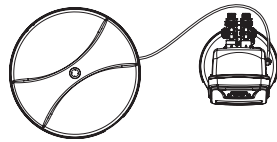
**Maximum Hydrogen Sulfide** = 0.0 ppm

**Maximum Manganese** = .75 ppm

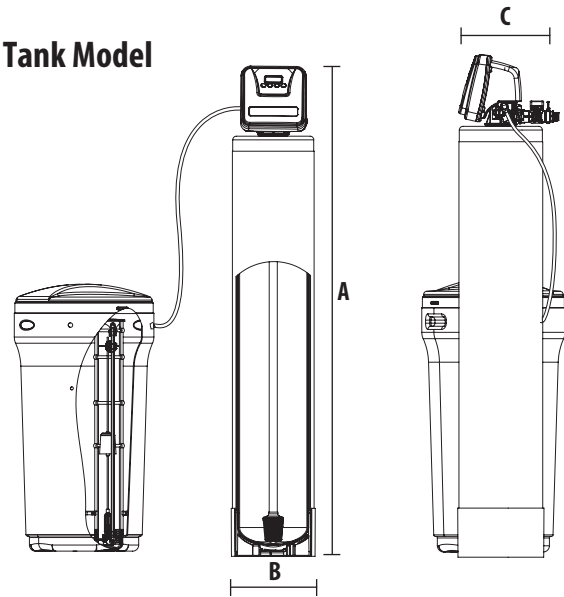
**pH** = 6.5 to 8.5

# SYSTEM DIMENSIONS

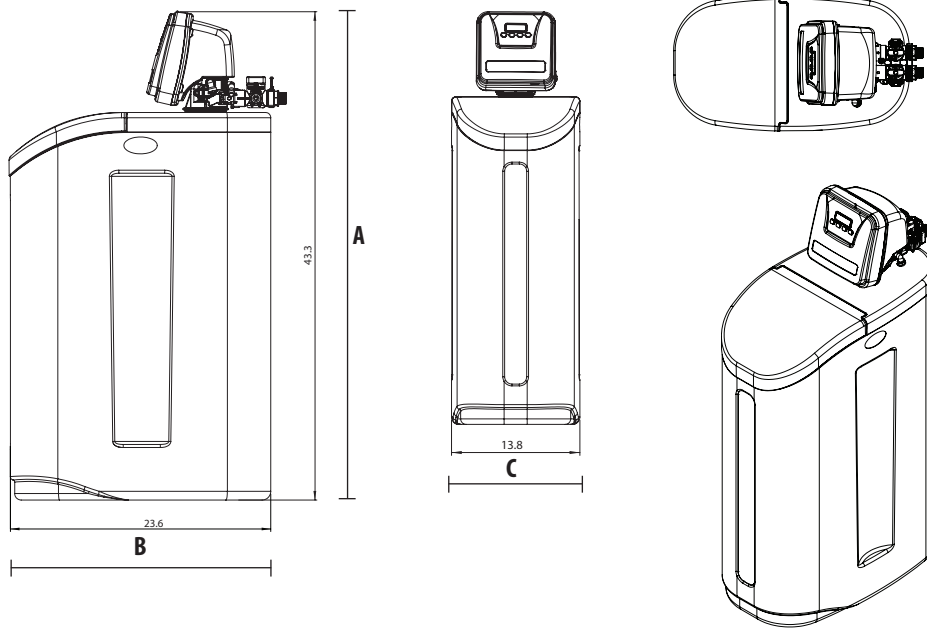
Models	A (Inches)	B (Inches)	C (Inches)
75	53"	9"	13"
100	57"	9"	13"
150	63"	10"	15"
200	61"	12"	16"
250	61"	12"	16"
300	63"	13"	17"
75C	43.3"	23.6"	13.8"
100C	43.3"	23.6"	13.8"



## Twin Tank Model



## Cabinet Model

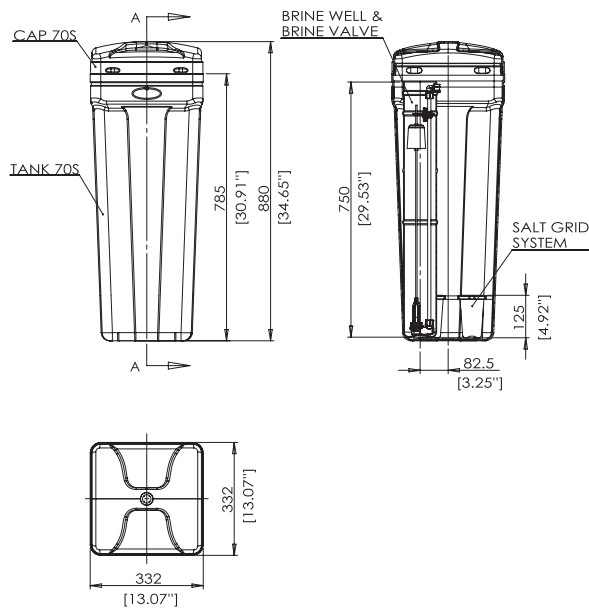


# BRINE TANK DIMENSIONS

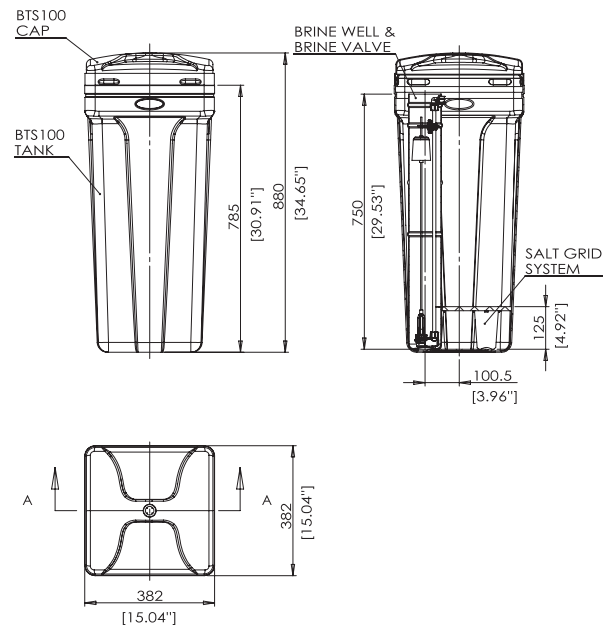
Model	Color	Liquid Volume		Tank Dimensions (inches)	5 Pack Carton Dimensions (inches)	Salt Capacity		5 Pack Carton Shipping Weight	
		US Gal	Liters	L x W x H	L x W x H	Lbs	Kg	Lbs	Kg
Brine Tanks									
BTR-70	Black	20.3	76.5	15.8 x 32.1	16.7 x 16.7 x 61.0	185.0	92.8	41.6	18.9
BTR-70	Blue	20.3	76.7	15.8 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

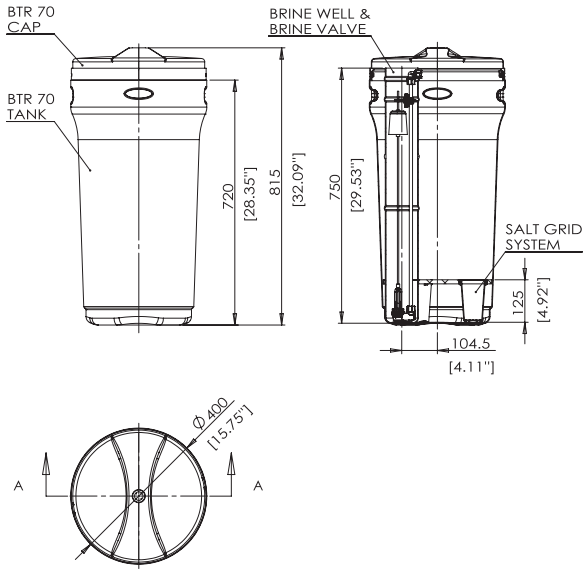
## Dimensions BTS70



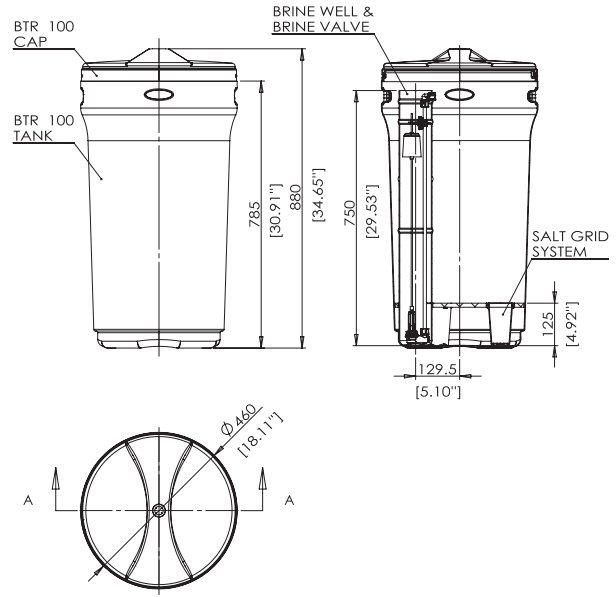
## BTS100



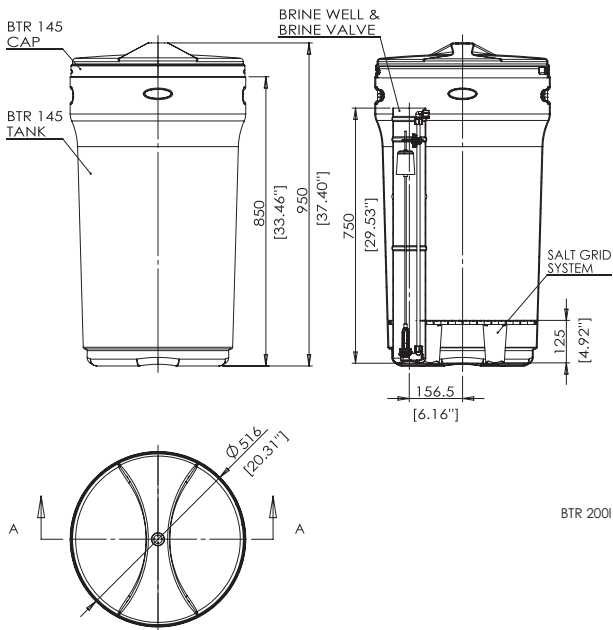
### BTR70



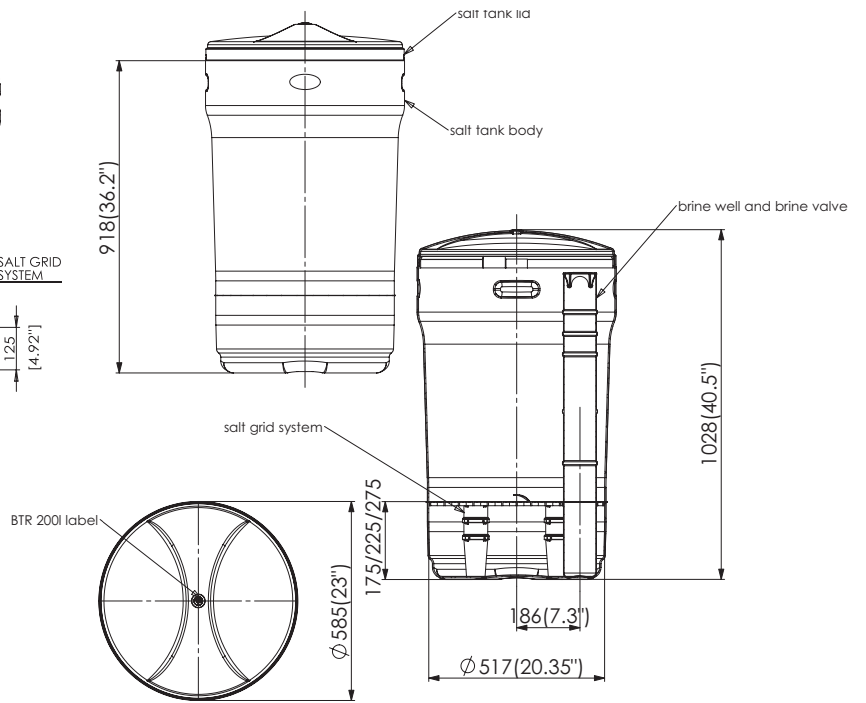
### BTR100



### BTR145



### BTR200



# UNPACKING / INSPECTION 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.

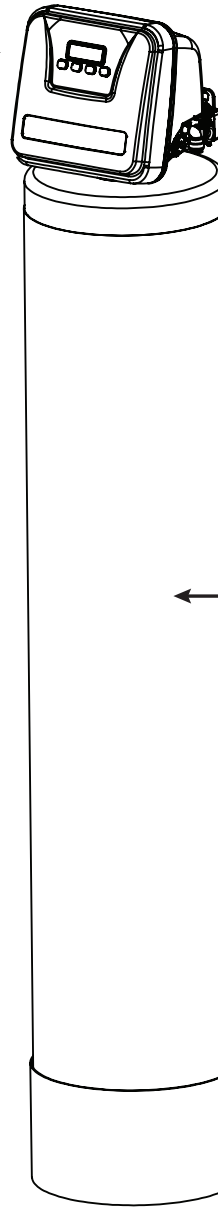
Small parts, needed to install the Softener, are in a parts box. To avoid loss of the small parts, keep them in the parts bag until you are ready to use them.

## What is included in the box?

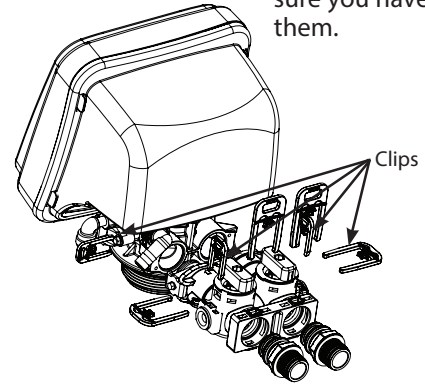
For Models 75,10,15,20, you will expect the following:

1. Control Valve
2. Tank
3. Parts Box
4. Owners Manual
5. Drain Hose & Clamp (Not included in some brands)
6. Brine Tank Assembly

1. Control Valve

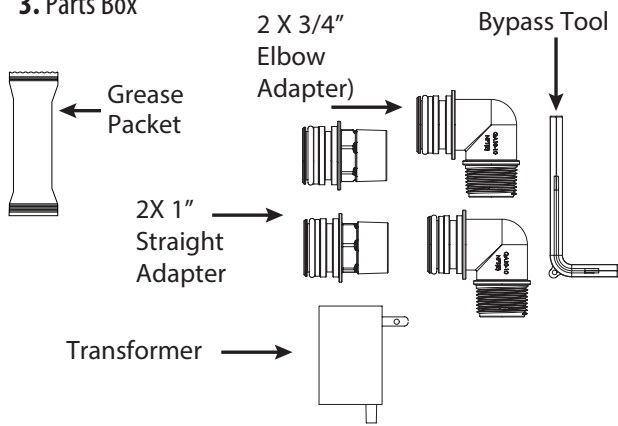


There are 7 Red clips. Please check to make sure you have all of them.

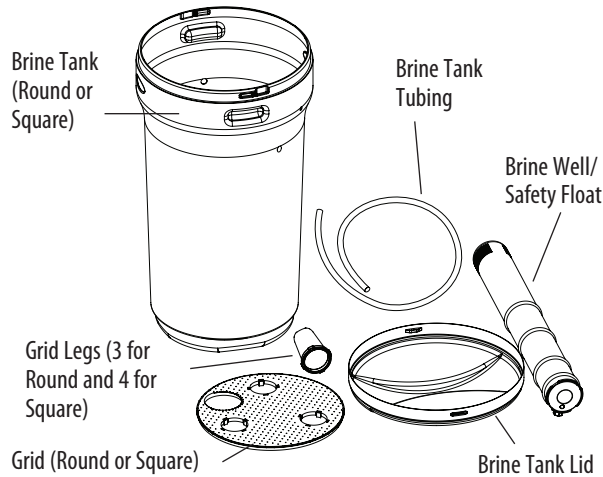


2. Tank

### 3. Parts Box

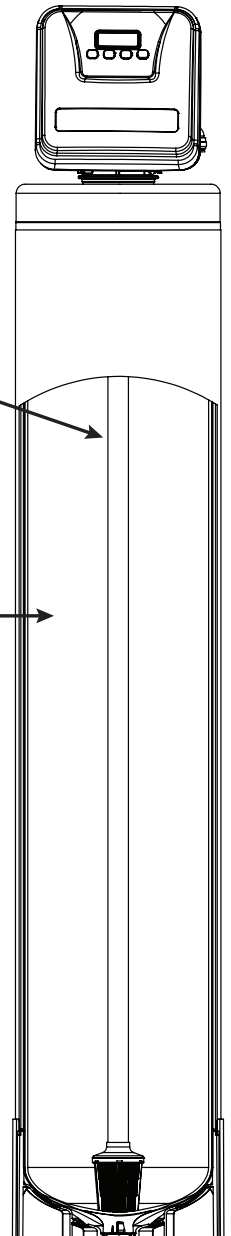


### 6. Brine Tank Assembly (Round Brine Tank Shown)



Distributor Tube Inside the Tank

Media Inside the Tank. Media Type will depend on what models were purchased



**For Model 250 and 300 the media and Control Valve is packaged separately in carton and bags**

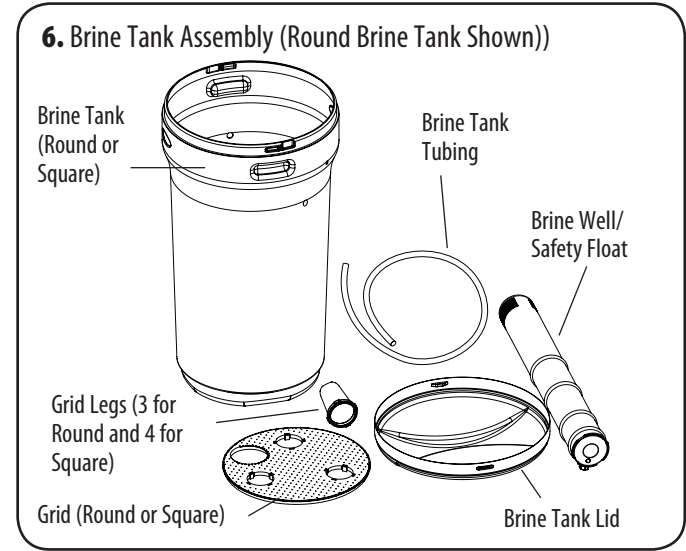
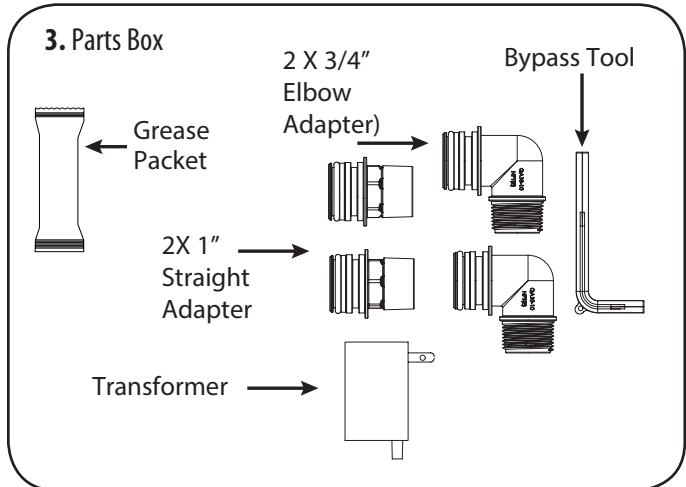
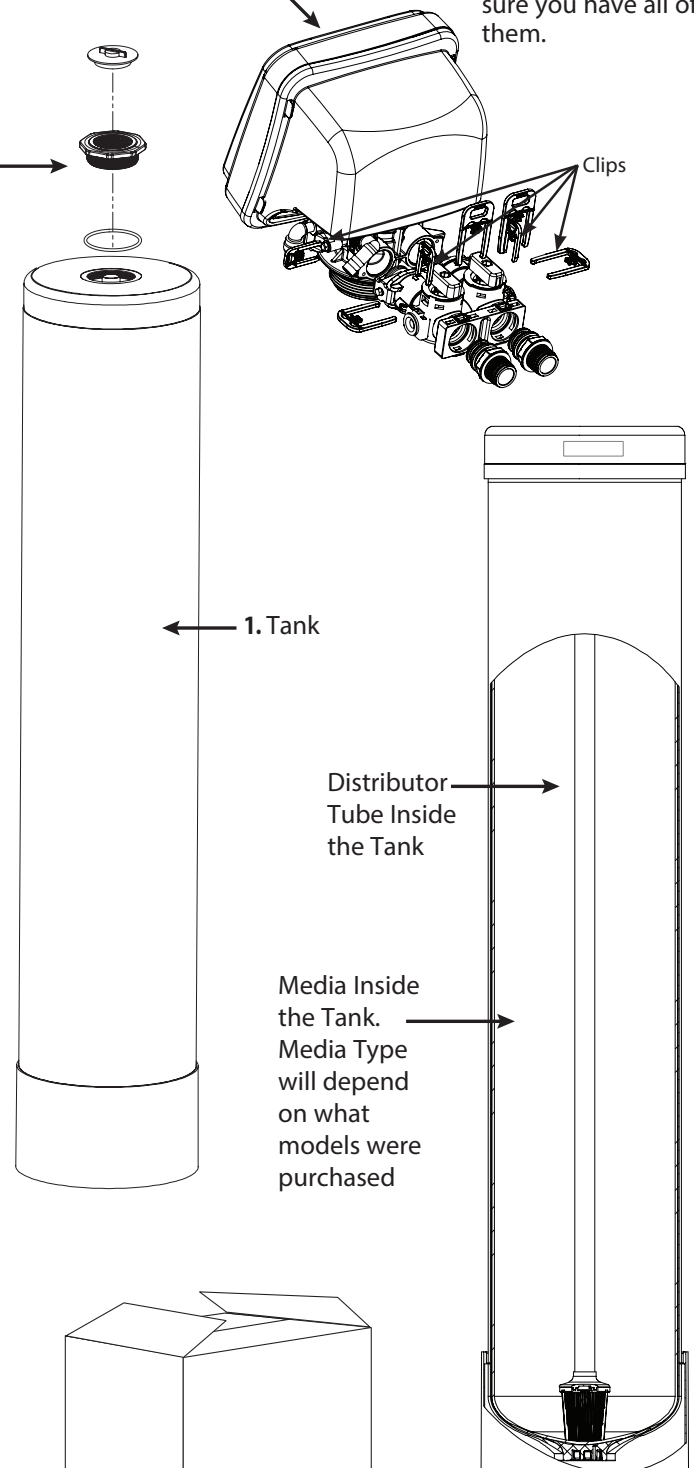
**What is included with 30 model?**

1. Tank (Model 30 will get an Adapter and Oring attached to the tank)
2. Control Valve with Parts Box
3. Media Boxes (Qty 3 for 250 and 300)
4. Drain Line and Hose Clamp (Not Included with some models)
5. Brine Tank Assembly

2. Control Valve

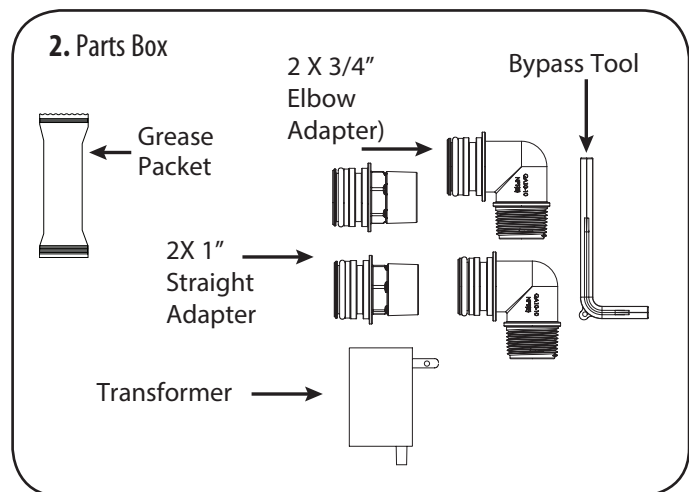
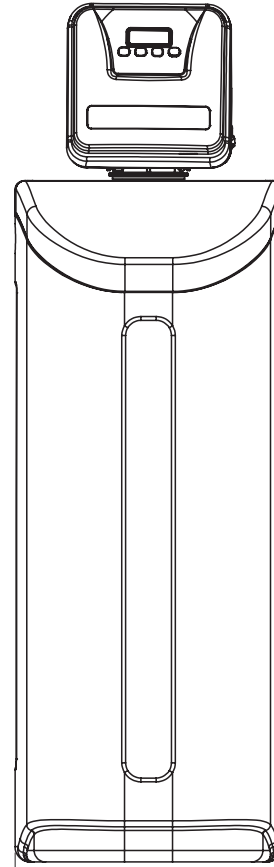
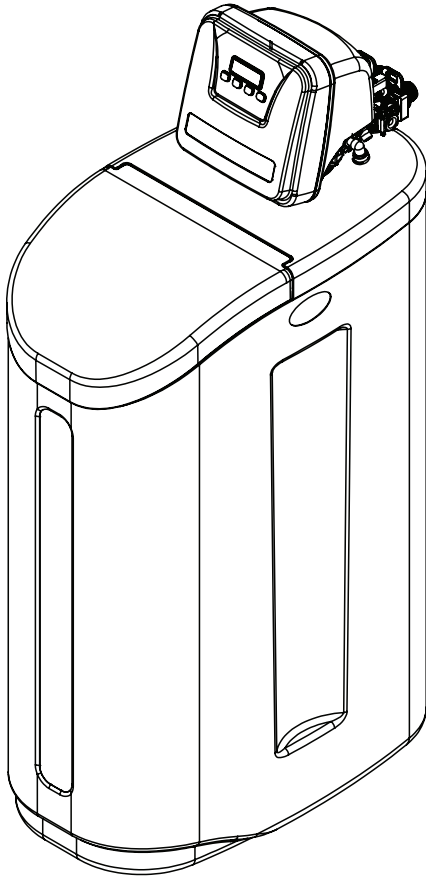
There are 7 Red clips. Please check to make sure you have all of them.

Models 30, 40 will get Adaptor and Oring Shown



# UNPACKING / INSPECTION OF CABINET MODEL

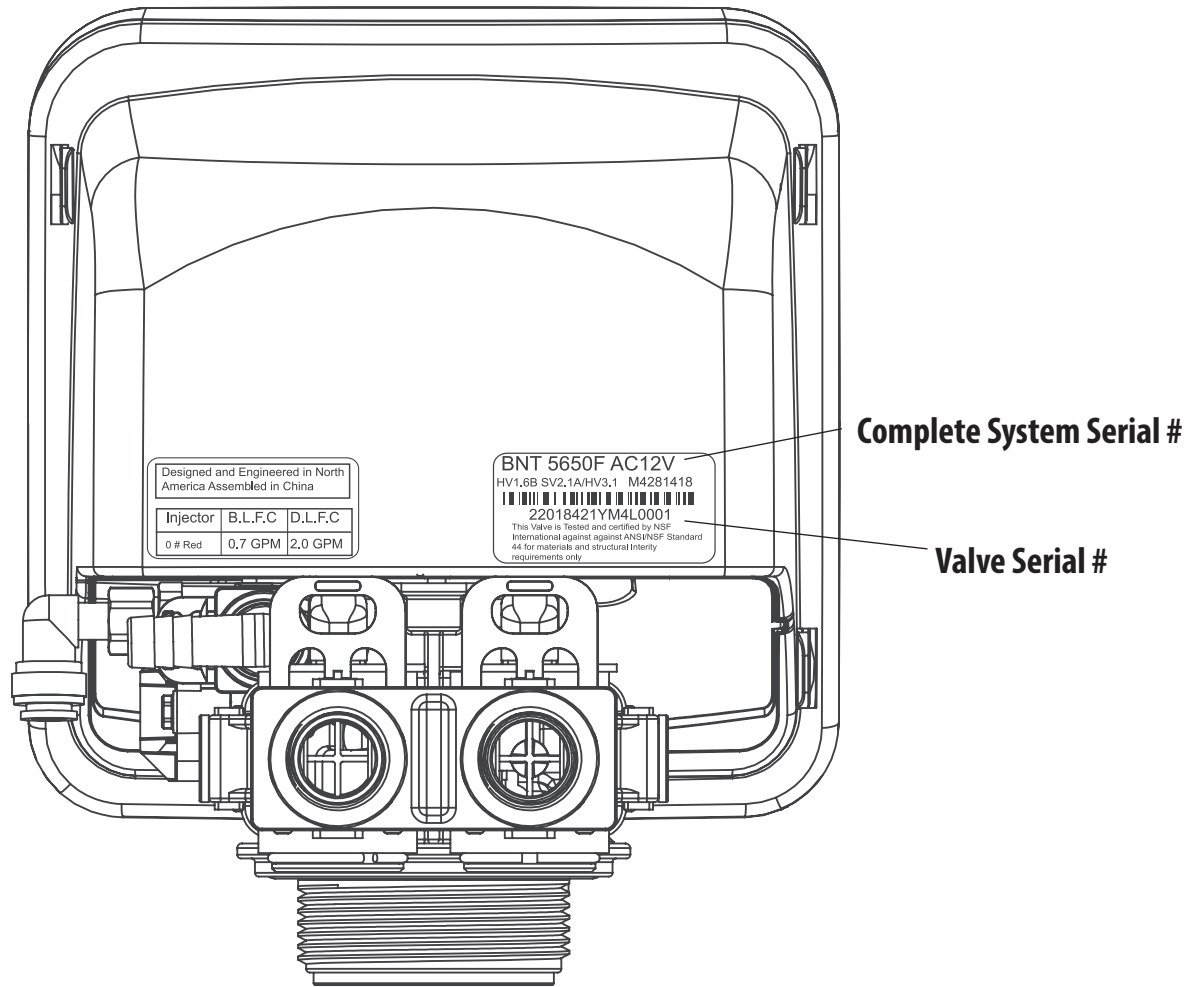
1. Cabinet with Valve attached
2. Parts Box
3. Drain Line and Hose Clamp (Not Included with some models))





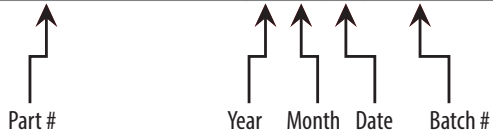
## Check Valve Type and Valve Serial #

Check to make sure the valve type is what you ordered. The serial # label on the left will show 5650 (DF) for downflow valve. 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.



## Valve Serial #:

22018448WL730001



(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)

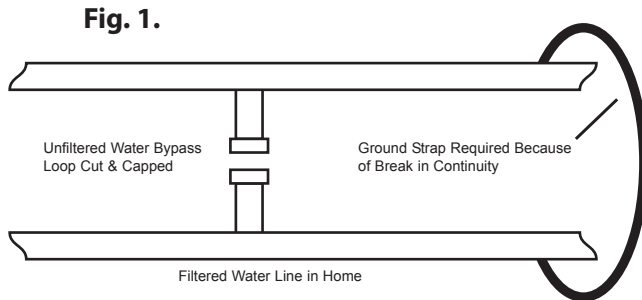
(3)Date: 1 2 3 4 5 6 7 8 9 A(10) B(11) C(12) D(13) E(14) F(15) G(16) H(17) I(18) J(19) K(20) L(21) M(22) N(23) O(24) P(25) Q(26) R(27) S(28) T(29) U(30) V(31)

(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.



## Inspecting and Handling Your 565 Softener\*

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.

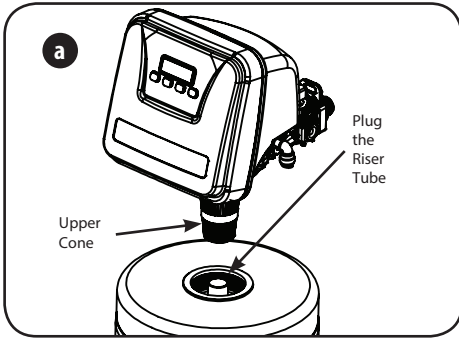
## \*NOTE

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.

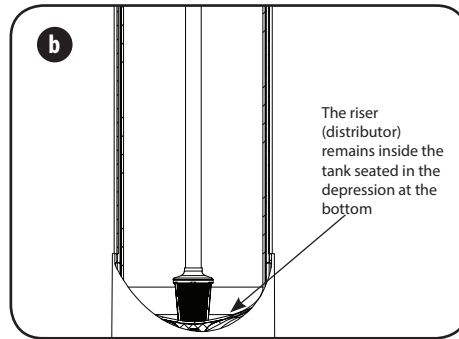
# PREPARATIONS

**1. Media Installation (When Necessary).** Models including and higher than 2 CF (Models 250,300) of media are shipped with separate media in pails or boxes. Models lower than 2 CF of media come loaded with media and this step can be skipped for new installation.

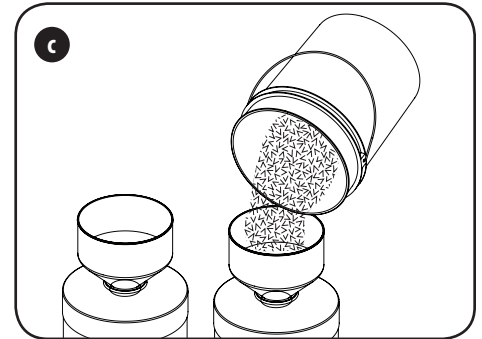
**! CAUTION!**  
The unit should be depressurized before installing or replacing media



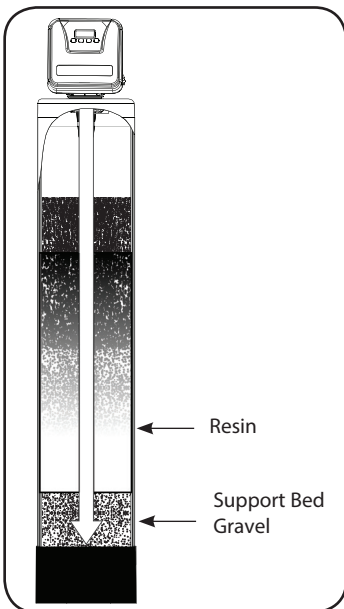
**a)** Lube the bottom oring (picture d) and attach the upper cone to the valve.



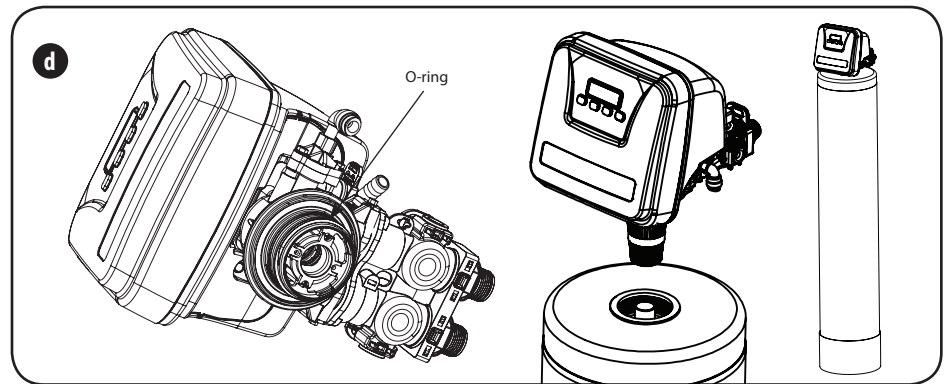
**b)** Temporarily plug the open end of the riser tube to ensure that no resin or gravel falls down into the distribution. The riser (distributor) remains inside the tank seated in the depression at the bottom. Plug tube with a tape. Remove after media is loaded.



**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.)



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

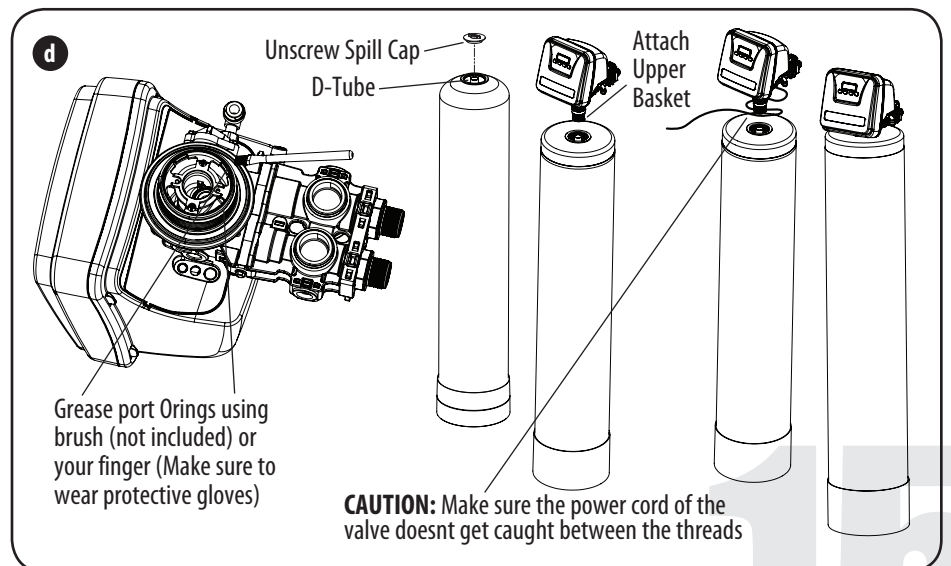


**d)** Unplug the riser tube, carefully position the valve over it and turn the valve into the threads in the fiberglass tank, tightening securely into tank. Note: Ensure that the internal O-ring in the valve fits securely over the riser tube. Silicone grease (part # 92360) or other food grade lubricant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

**! CAUTION!**  
Make sure that the unit is de-pressurized before conducting this task.

**! CAUTION**  
  
**WEAR DUST MASK**

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

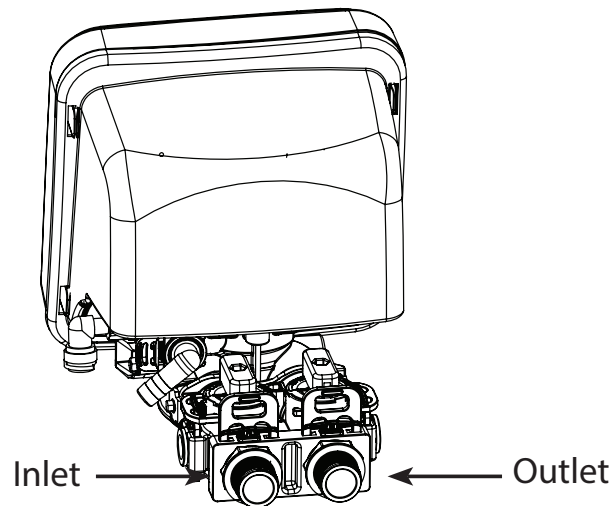


**d)** Lube the bottom Valve Orings with the grease supplied, Attach the Upper Basket. Unscrew the spill cap. Carefully Slide the D-Tube inside the Valve and Screw the Valve inside the Tank such that the power cord doesn't get caught between the valve and the tank.

# 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:



## 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.

### NOTE

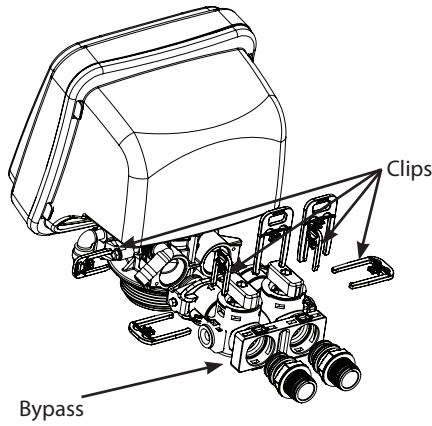
If the plumbing system is used as the ground leg of the electric supply, continuity should be maintained by installing ground straps around any nonconductive plastic piping used in installation.

### NOTE

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

## 2. Water Lines

Outside faucets used to water lawns and gardens should not supply softened water. A new water line is often required to be connected to supply hard water to the inlet of the water softener and to the outside faucets. Cut the water line between where it enters the house and before any lines that branch off to feed the hot water heater or other fixtures in the house and as near the desired location of the water softener as possible. Install a tee fitting on the feed end of the cut pipe, and an elbow fitting on the other end. Install piping from the tee to the inlet of the water softener and from the elbow to the outlet of the softener. To sever the water lines which branch off to feed any outside faucets, cut the branch lines approximately two inches from the fitting on the main water line. Install an elbow on the end of the pipe nearest the outside faucet and a cap on the end connected to the existing water line. Install piping from the tee installed on the inlet line to the water softener to the elbow installed on the pipe to the outside faucet. Following this procedure will result in all lines in the house, with the exception of the outside faucets, but including the water heater and therefore the hot water lines, being supplied with soft water.



### 3. Attaching Bypass to Valve (Bypass is already attached to the valve)

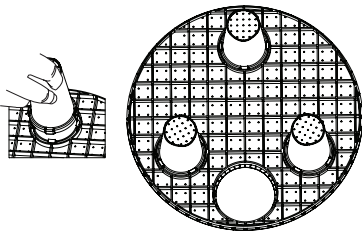
Make sure the bypass is attached well to the control valve. Connect the straight or elbow connectors to the bypass with red clips. Connect the inlet and outlet of the water Softener to the plumbing of the house. The control valve must not be submitted to temperatures above 43°C (110°F). When sweat fittings 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.

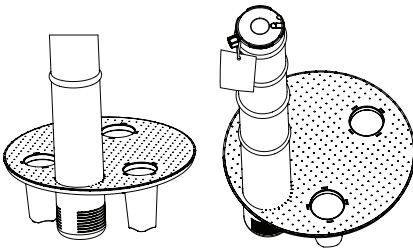
## INSTALLING BRINE TANK

### 4. 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.)

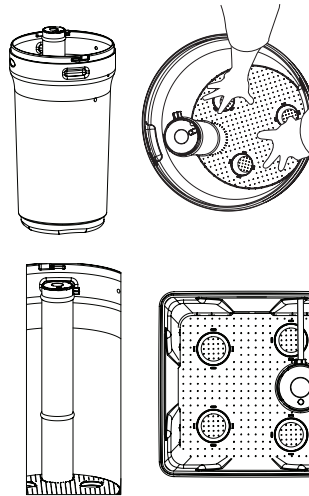


- b) Insert the brine well assembly inside the grid plate as well below.



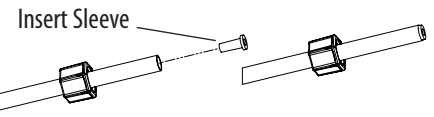
- c) Drop the brine grid with brine well inside the brine tank such that the nut fitting faces the hole on the brine tank. Then press the grid evenly inside the brine tank until the brine grid legs touches the bottom of the brine tank.

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

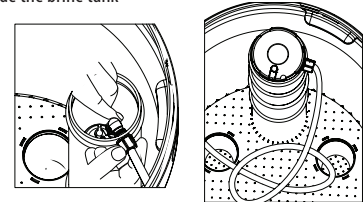


The hole in the brine tank should line up with the brine line as shown for round and square brine tank.

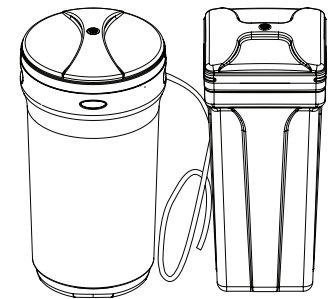
- d) Take the brine tube and insert the nut and plastic sleeve as shown below.



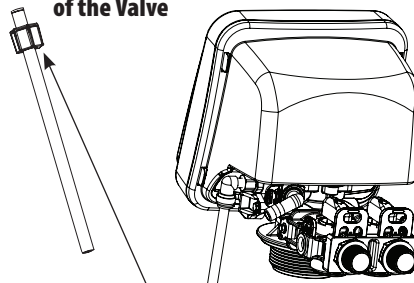
- e) Insert the tube in the float assembly elbow and hand tighten the nut. In many cases the brine line already come installed from the factory. Leave the other end of the brine line tube inside the brine tank



- 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



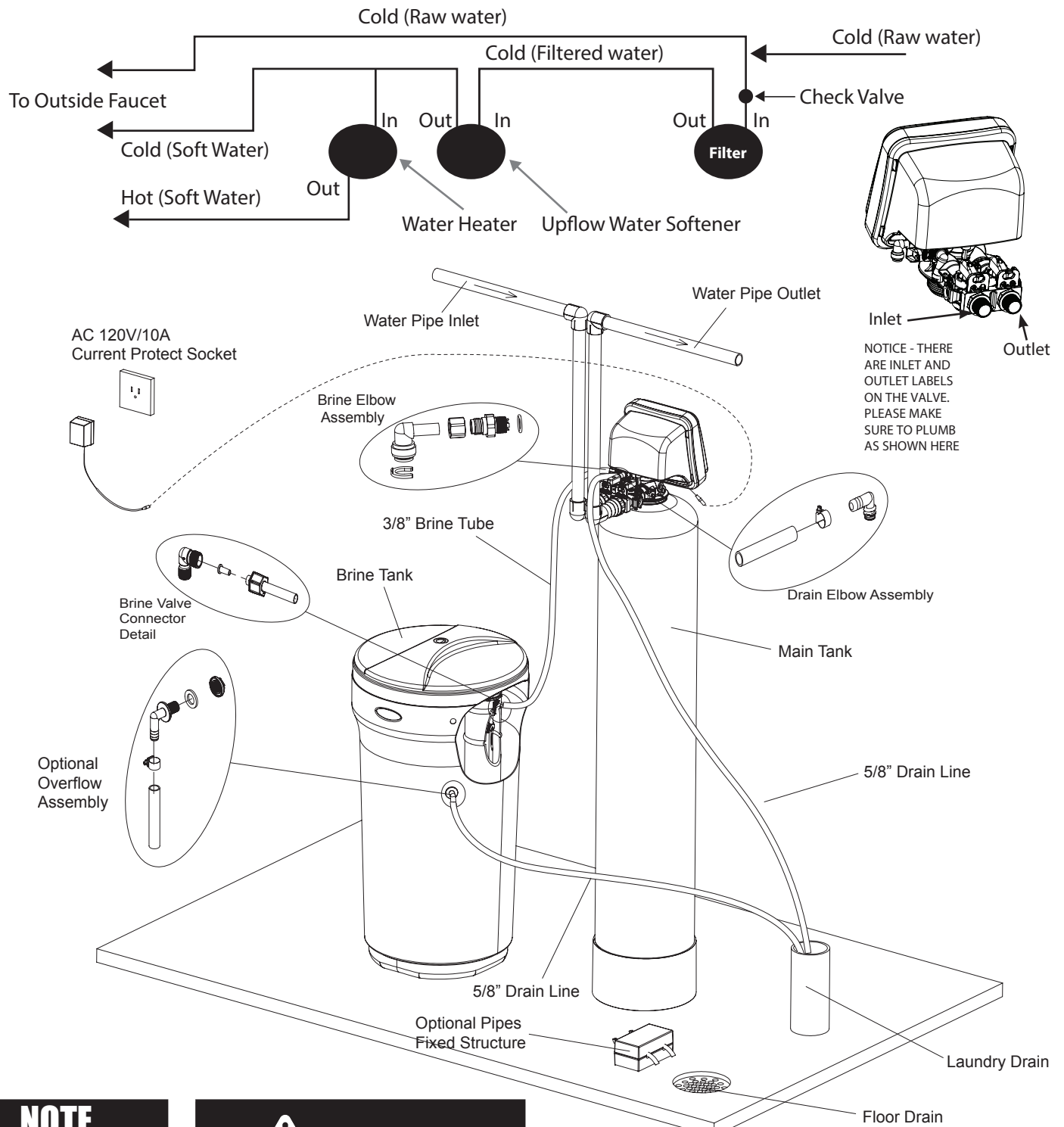
Insert Sleeve inside the Tubing



# WATER SOFTENER INSTALLATION

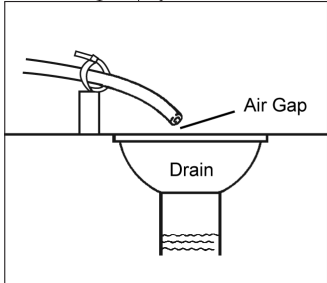
**Connect Softener to the House Plumbing** Any solder joints near the valve must be done before connecting any piping to the valve. Always leave at least 6" (152 mm) between the valve and joints when soldering pipes that are connected to the valve. Failure to do this could cause damage to the valve.

## Water Softener Installation

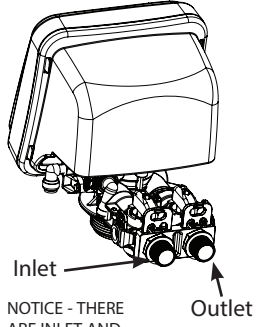
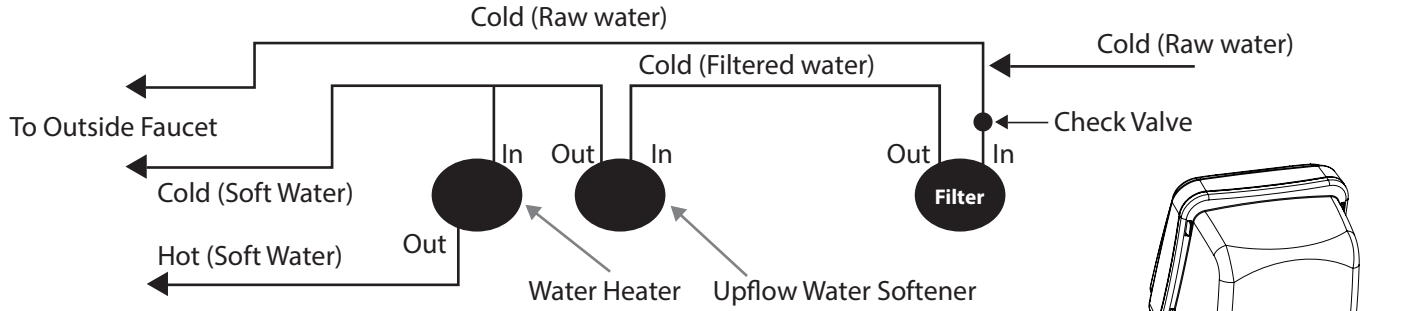


**NOTE**  
Waste connections or drain outlet shall be designed and constructed to provide for connection to the sanitary waste system through an air-gap of 2 pipe diameters or 1 inch (22 mm) whichever is larger.

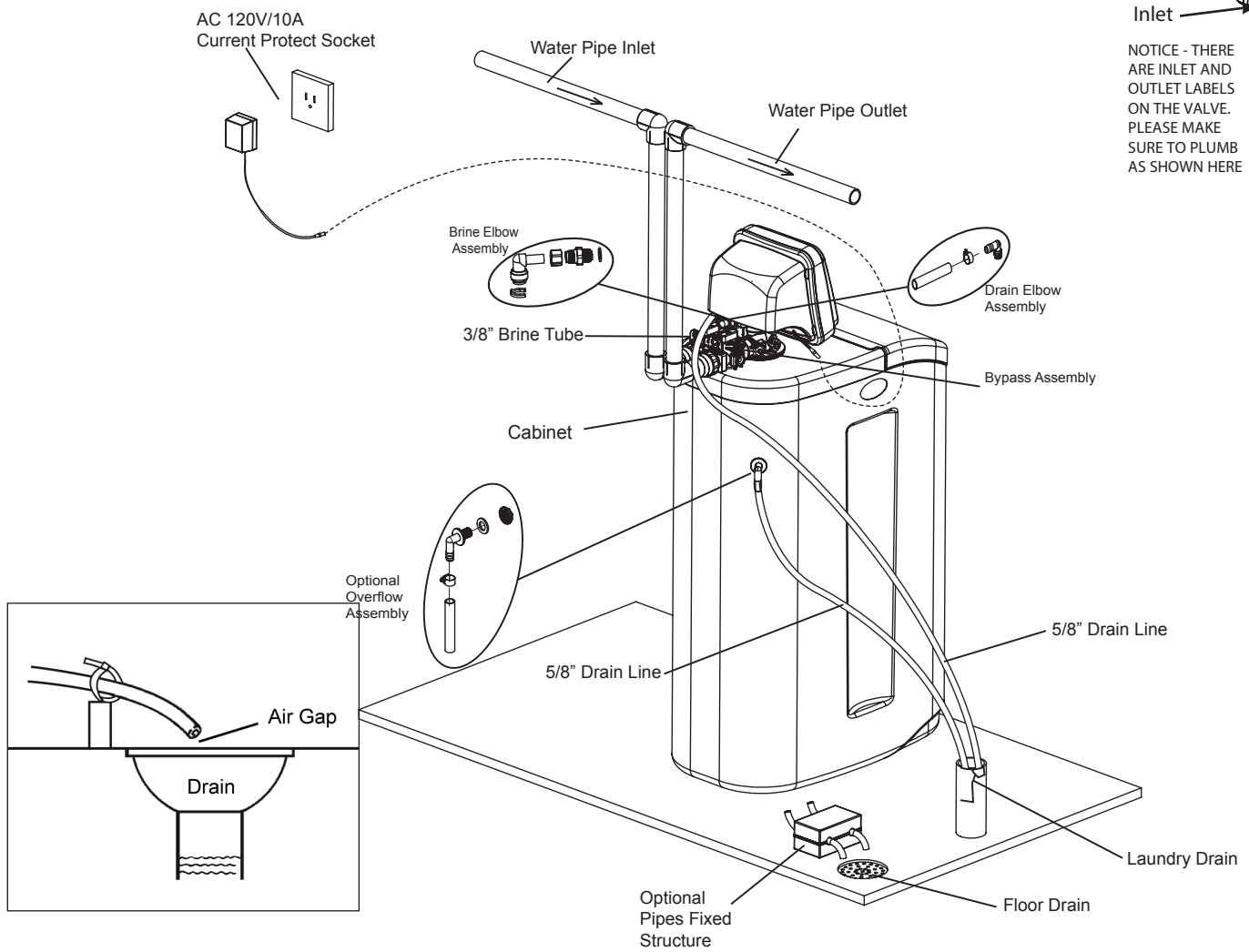
**CAUTION!**  
Never insert drain line directly into a drain, sewer line, or trap. Always allow an air gap between the drain line and the wastewater to prevent the possibility of sewage being back-siphoned into the conditioner.



# CABINET WATER SOFTENER INSTALLATION

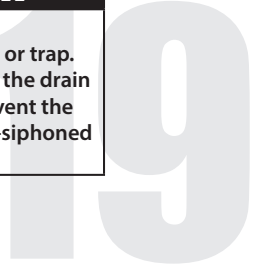


NOTICE - THERE ARE INLET AND OUTLET LABELS ON THE VALVE. PLEASE MAKE SURE TO PLUMB AS SHOWN HERE

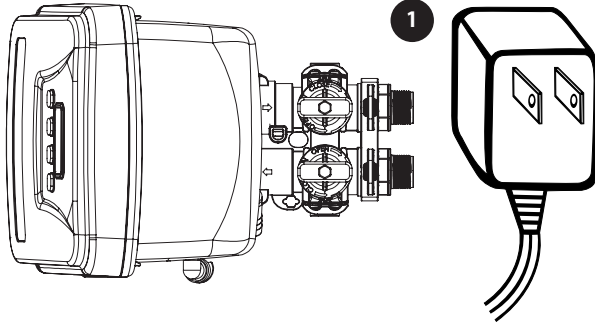


**NOTE**  
Waste connections or drain outlet shall be designed and constructed to provide for connection to the sanitary waste system through an air-gap of 2 pipe diameters or 1 inch (22 mm) whichever is larger.

**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 conditioner.



# STARTUP INSTRUCTIONS



1. Connect the transformer to the valve. Plug the 12-volt transformer into a 120 VAC 60 Hz outlet.
2. Open the brine tank / cabinet salt lid and add water according to the chart on right. Do not add salt to the brine tank at this time.

**“WARNING – It is Recommended to add water to the brine tank as per the below chart at the time of installation”**

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

**BTS- 70 (15.8” x 32.1”) - 2.25 US Gallons**

**BTS- 90 (14” x 32.1”) - 3 US Gallons**

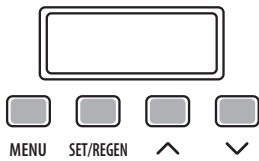
**BTS-100 (15.0” x 15.0” x 34.7”) - 2.25 US Gallons**

**BTR-100 (18.1” x 34.7”) - 2.5 US Gallons**

**BTR-145 (20.3” x 37.4”) - 3.25 US Gallons**

**BTR-200 (23.0” x 40.5”) - 5.5 US Gallons**

## Key Pad Configuration:



## Step 3 – Power and Program Valve

1. If screen is locked, press “MENU” for 3 seconds to unlock. Press “MENU” again to enter level one programming mode and adjust **CURRENT TIME**.
2. Press “SET/REGEN” to adjust hours. When you have entered the change value mode, the cursor will blink. Press “UP or DOWN” arrows to change the hour values. Press “SET/REGEN” again to accept the hour value and advance to change the minutes value. Press “UP or DOWN” arrows to change the minute values. Press “SET/REGEN” again to accept the minute values and advance to adjust the AM/PM values. Press “UP or DOWN” to change the AM/PM value. Press “SET/REGEN” again to accept the AM/PM value and exit. When you have exited the change value mode, the cursor will stop flashing.

### Setting Current Date

1. Press “DOWN” to advance to CURRENT DATE.
2. Press the “SET/REGEN” to change the value. Press “UP or DOWN” to change the values.

### Setting Number of People

1. Press “DOWN” to advance to NUMBER OF PEOPLE.
2. Press the “SET/REGEN” to change the value. Press “UP or DOWN” arrows to change the values.

### Setting Water Hardness

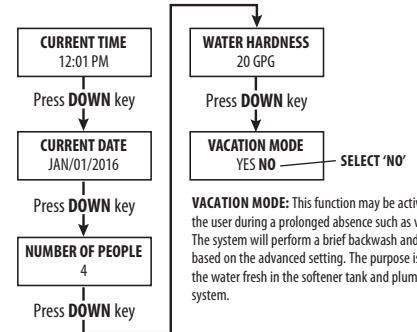
1. Press “DOWN” to advance to WATER HARDNESS.
2. Press the “SET/REGEN” to change the value. Press “UP or DOWN” arrows to change the values.

## Setting Vacation Mode

1. Press “DOWN” to advance to **VACATION MODE**.
2. Press the “SET/REGEN” to change the value. Press “UP or DOWN” arrows to change the values.

## Programming Flow Chart

Press MENU Key, For Value Adjustment, Press SET/REGEN Key and change the values using UP and DOWN Key

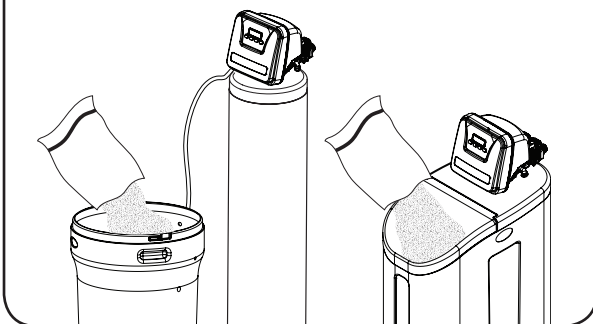


4. Initial Manual Regen by pressing “SET/REGEN” button. When in backwash cycle, do not skip the cycle and let all air from the tank escape.

After backwash cycle, the valve will advance to brine draw which need to be skipped by pressing regen button.

The valve will now advance to Rinse cycle which can be skipped. Then valve will advance to refill cycle which should not be skipped. This cycle will let the air out of ejector system of the valve.

## 4. Add Salt to the brine tank/cabinet



5. Put 40 kgs of crystal water softener salt in the brine tank.

## Automatic Raw Water Bypass During Regeneration

The regeneration cycle can last 80 minutes after which Softened water service will be restored. During regeneration, un-Softened water is automatically bypassed for use in the household. Hot water should be used as little as possible during this time to prevent un-Softened water from filling the water heater. This is why 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.



# SYSTEM CHECK LIST

More than 90% of problems affecting the efficiency of a chemical iron free softener system can be identified in 9 minutes or less by following this diagnostic schedule. Start with Step 1, then follow each step in sequence to ensure proper diagnostic procedures.

## 1. Check for Proper Installation

- a. Is the pipe from the pressure tank to the softener unit attached to the inlet port of the control valve? Is the pipe from the softener unit to the water heater attached to the outlet port of the control 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" ID when drain is up to 15 ft from unit and backwash water discharge point is slightly higher than the control valve
- ii) 3/4" ID 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?
- e. If the system incorporates a standard air-to-water pressure tank, does it have the required deep well air volume control (air release valve) and is it functioning? (Proper installation of this type of pressure tank should have inlet from pump higher than outlet to service.)

## 2. Check pH, Iron and Manganese Content of Treated Water

Is the treated water pH reading less than 6.7 (8.2 when manganese is present)? If yes, replenish the media with MpH adder and check the bed for "channelling".

## 3. Check Pumping Rate

Do not refer to a pumping rate curve for this data. Follow the instructions found on Page 7. Is the measured pumping rate less than the backwash rate of the softener? If yes, increase the pumping rate by first reducing the system operating pressure. If the pumping rate is still too low, replace the pump.

## 4. 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 softener system or overlooked when originally sizing the system? (If a high demand situation exists, resize the system using continuous service flow rate data.)

# DURING REGENERATION

## Automatic Bypass

The regeneration cycle lasts approximately 60 minutes, 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.**

## New Sounds

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

# PLUMBING SYSTEM CLEAN-UP

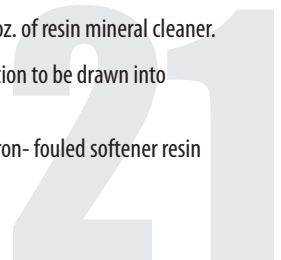
The following procedures are guidelines only but have proven successful in most instances. Under no circumstances should any procedure outlined below be followed if contrary to the appliance manufacturer's instructions. Should there be any questions concerning the advisability of performing a procedure,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

The plumbing system and water using appliances that have been exposed, even for a short time, to iron-fouled water need to be cleaned of the precipitated iron that has collected in them or iron bleed (staining) will continue to be a problem.

Depending on the amount of iron in the water and the length of time the water system has been exposed to iron fouling, select from the following procedures those that apply to the type of system and appliances that need to be cleaned to assure iron-free water at the point of use.

## Softener

1. Disconnect brine draw line from the brine cabinet and place the loose end into a five gallon plastic pail filled with a solution of warm water and 4 oz. of resin mineral cleaner.
2. Manually advance control timer to brine draw position (refer to instructions provided with your softener). Allow all the warm mineral cleaner solution to be drawn into mineral bed. Then immediately:
3. Close main water supply valve or turn power off to pump and proceed with Softener installation. During time required to install Softener system, iron- fouled softener resin will be chemically cleaned.

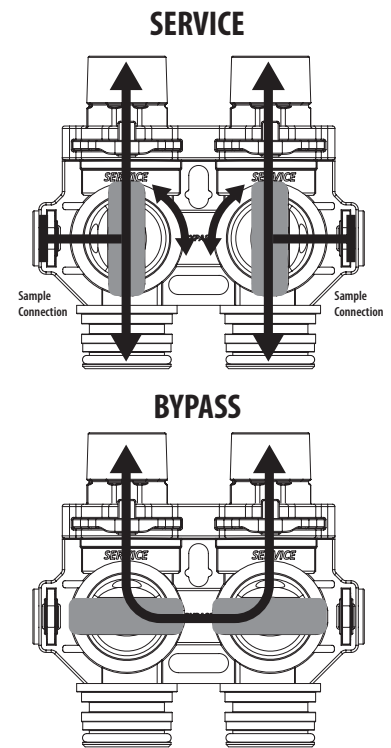


- After Softener installation is completed and final adjustments are made with the water turned on and brine draw tube reconnected, manually reposition timer on softener to backwash position. Allow timer to perform an automatic regeneration cycle. During backwash of softener, all iron cleaned from the resin will be washed down the drain. It is advisable, after chemically cleaning softener, to regenerate system twice to fully restore capacity lost due to iron fouling.

## WATER BYPASS

### Manual Bypass

In case of an emergency such as Softener maintenance, you can isolate your water Softener from the water supply using the bypass valve located at the back of the control. In normal operation the bypass is open with the ON/OFF knobs in line with the INLET and OUTLET pipes. To isolate the Softener, simply rotate the knobs clockwise (as indicated by the word BYPASS and arrow) until they lock. You can use your water related fixtures and appliances as the 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.



## OPERATING CONDITIONS

### 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 chemical free iron Softener system, clean the water heater by following these instructions:

- Shut off energy supply to water heater and close heater inlet water valve.
- 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.
- 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 again until water is clear at drain. Turn energy supply on.

### NOTE

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

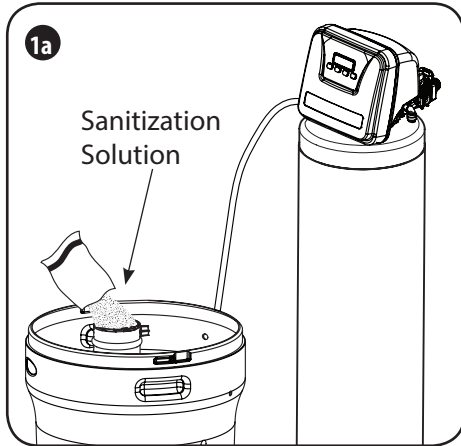
### Dishwasher

Consult owners' handbook and follow manufacturer's instructions.

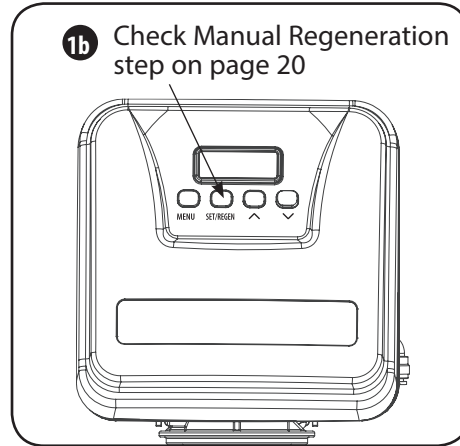
### Toilet Flush Tanks

Prior to commencing installation of the Softener system, pour 4 to 6 ounces of resin mineral cleaner Pro-Rust Out or inhibited muriatic acid into flush tanks and bowls and let stand. When installation is completed, flush toilets several times with iron-free water. If iron deposits or stains remain, repeat procedure until clear.

# WATER SOFTENER SANITIZATION



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



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

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

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

## MAINTENANCE INSTRUCTIONS

### Checking the Salt Level

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

### NOTE

You should not be able to see water

### Adding Salt

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

### Bridging

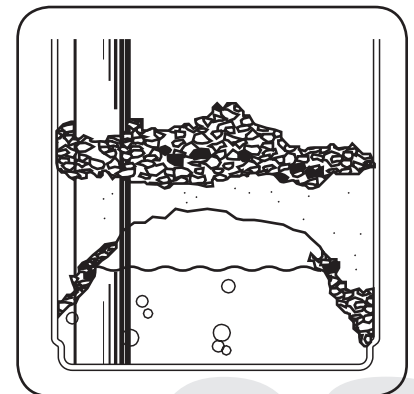
Humidity or the wrong type of salt may create a cavity between the water and the salt. This action, known as "bridging", prevents the brine solution from being made, leading to your water supply being hard.

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



### CAUTION!

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



## Care of Your Softener

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

## Servicing Components

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

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

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

## Resin Cleaner

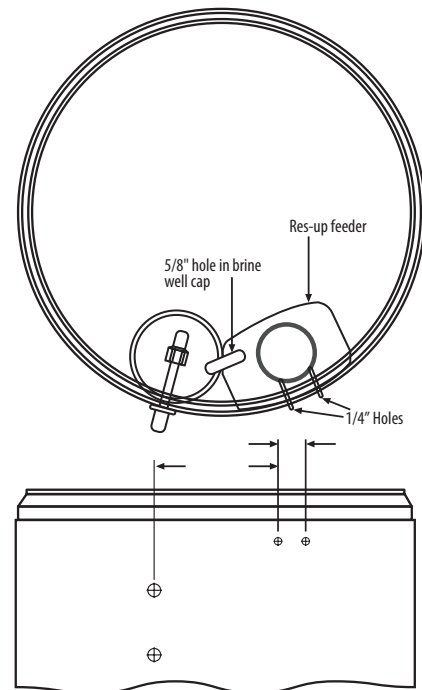
An approved resin cleaner **MUST** be used on a regular basis if your water supply contains iron. The amount of resin cleaner and frequency of use is determined by the quantity of iron in your water (consult your local representative or follow the directions on the resin cleaner package).

## Res-Up® Feeder Installation Instructions

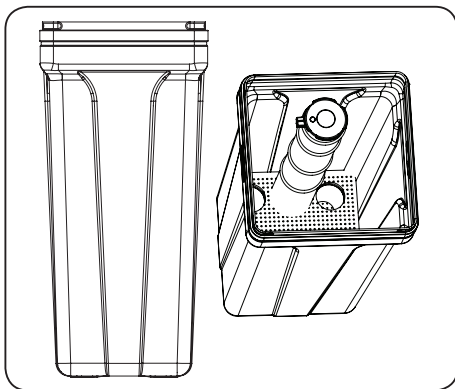
Res-Up Feeders attach to your brine tank and automatically dispense the Res-Up cleaner into the brine solution where it cleans the resin during the regeneration cycle.

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

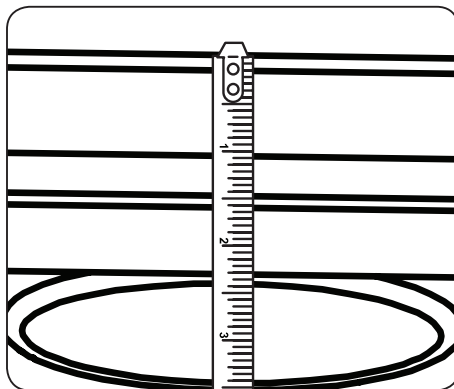
Res-up Feeder Bottle (Chemical sold Separately)
The 12 cc feeder (Part # 33010) is for conditioners up to 64,000 grains (2 ft <sup>3</sup> of resin).
The 30 cc feeder (Part # 33018) is for larger conditioners over 64,000 grains.
Pro-Res Care Chemicals
Item #45147 Pro-ResCare - Gallon
Item #45148 Pro-ResCare - Quart



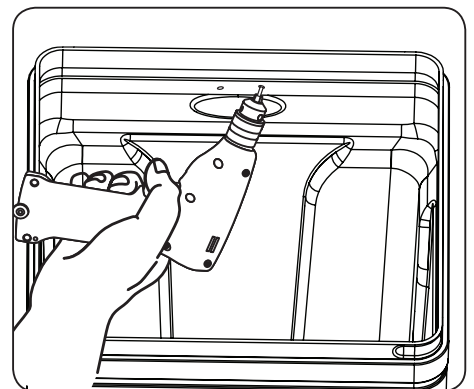
## Install Resup Feeder



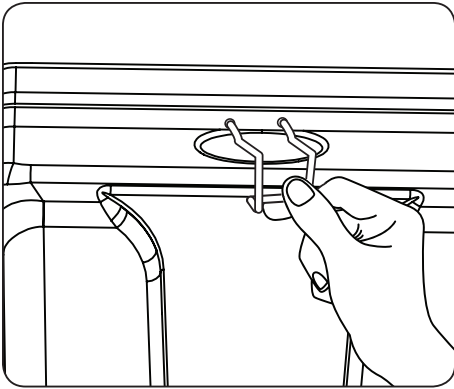
1. Install the grid and brine well inside the square tank.



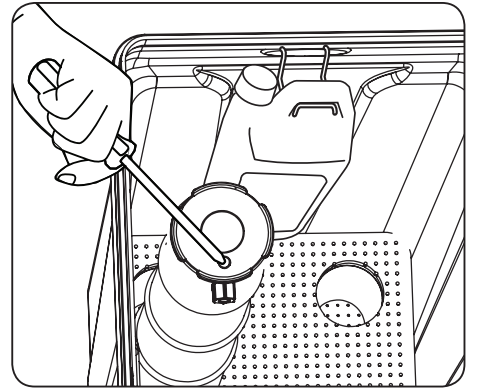
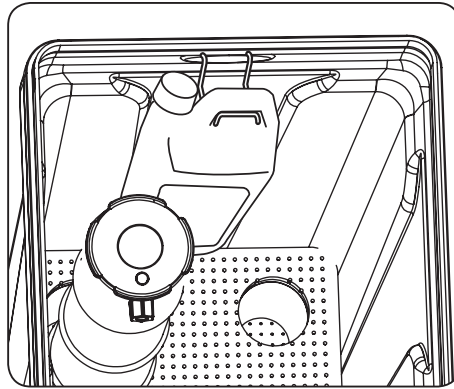
2. Measure 2 inches from the top of the tank beside the oblong molding.



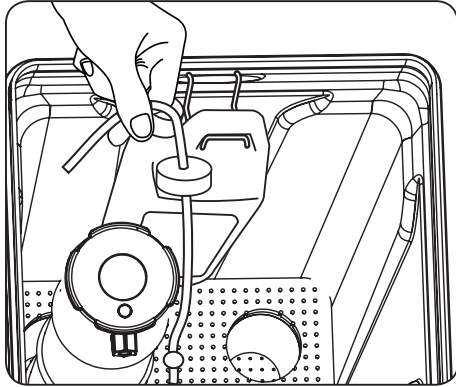
3. Mark the location of the holder and drill.



4. Install the holder and the Res Care Solution



5. Take off the small hole cover on the Brine Well lid.

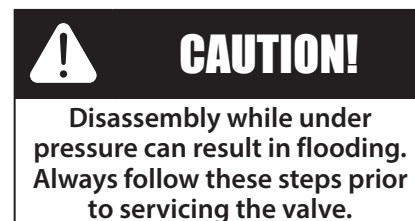


6. Take off the cover of the Res care bottle . Insert the wick, making sure it touches the bottom of the bottle. Insert the other end of the tube completely into the hole in the brine well cap. Automatic feeding will start in a few hours.

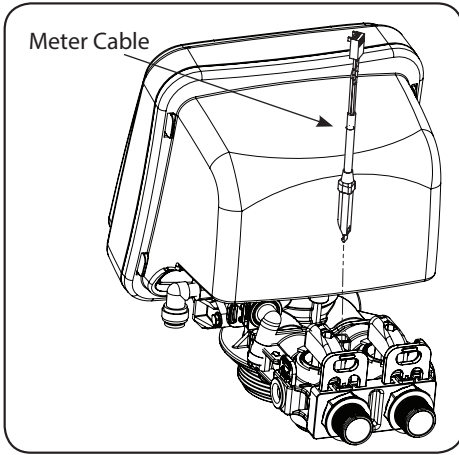
## SERVICING 565 VALVE

### Before Servicing

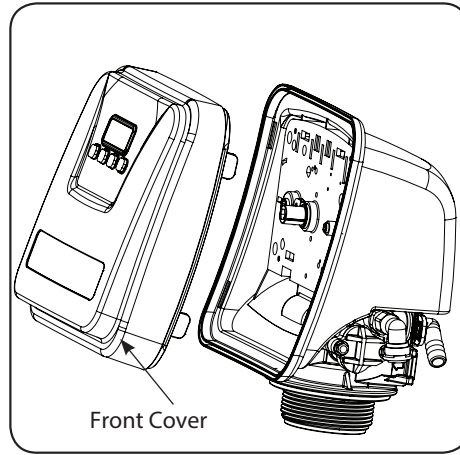
1. Turn off water supply to conditioner :
  - a. If the conditioner installation has a 3 valve bypass system first open the valve in the bypass line, then close the valves at the conditioner inlet & outlet.
  - b. If the conditioner has an integral bypass valve, put it in the bypass position.
  - c.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



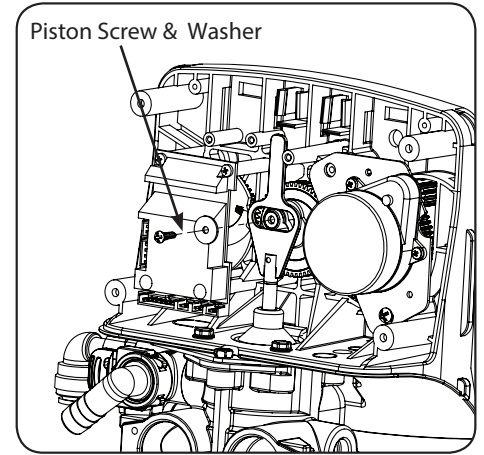
# TIMER REPLACEMENT



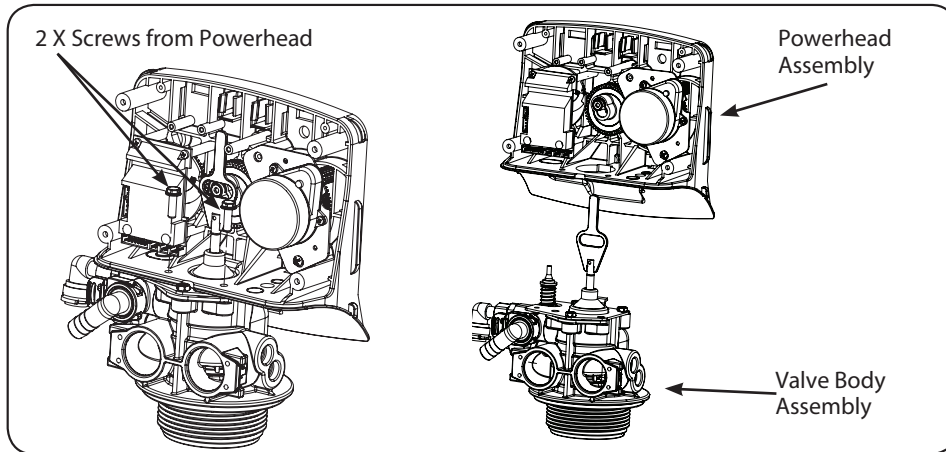
1. Disconnect the meter cable from the meter. (If flow meter is attached)



2. Remove the front cover of the valve.

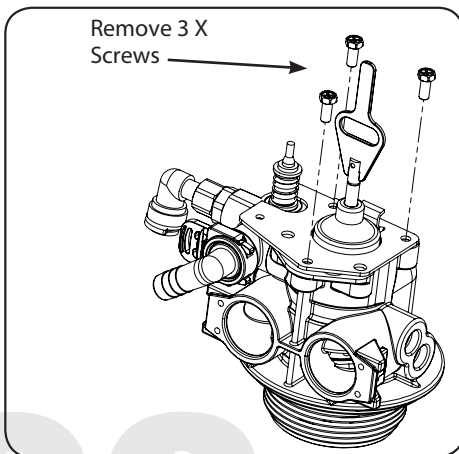


3. Remove the piston screw and washer from the piston rod.

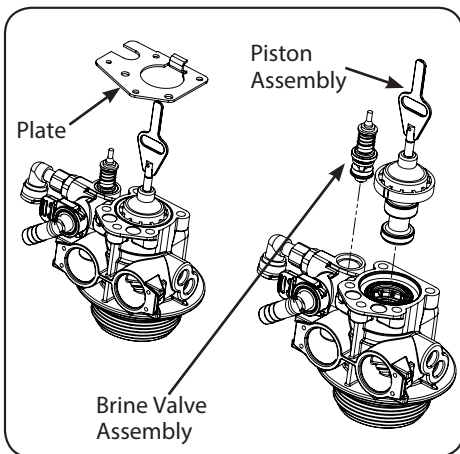


4. Remove the two screws from the powerhead as shown  
 5. Lift the powerhead from the valve body assembly  
 6. Replace the powerhead by reverse following the steps in this section

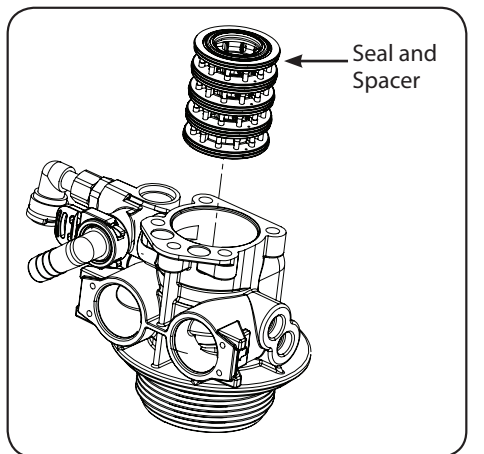
# PISTON AND/OR BRINE VALVE ASSEMBLY REPLACEMENT



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



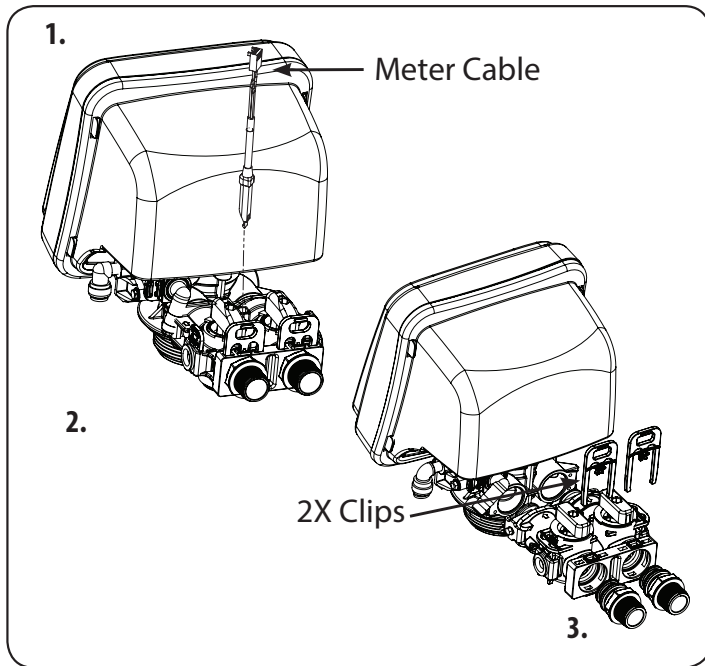
3. Remove the plate from the valve body and pull the Piston Assembly from the valve. The brine valve assembly can also be removed in this stage.  
 4. Remove the seal spacer assembly, grease it with silicone lubricant and put back in.



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



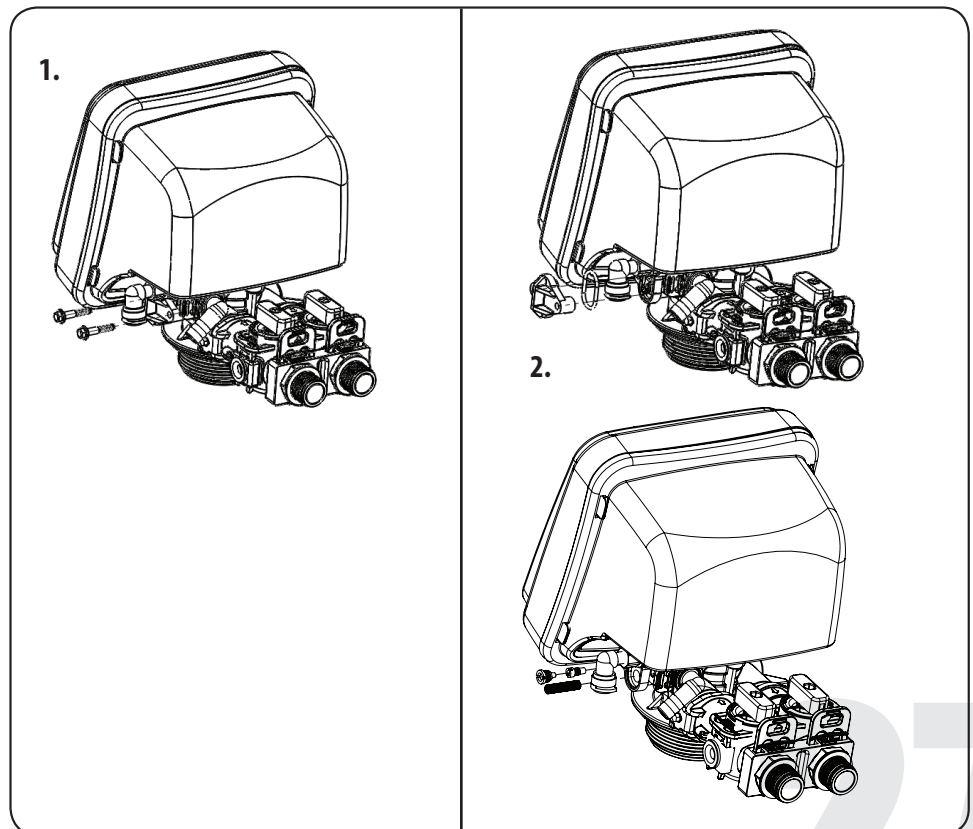
# METER ASSEMBLY REPLACEMENT



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

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

# CLEAN INJECTOR ASSEMBLY



1. Remove two screws of the injector cap.
2. Pull the Injector Cap Out, Remove the injector assembly, oring and screen, Clean the injectors and replace cap

# REPLACE METER ASSEMBLY

1. Meter Cable

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

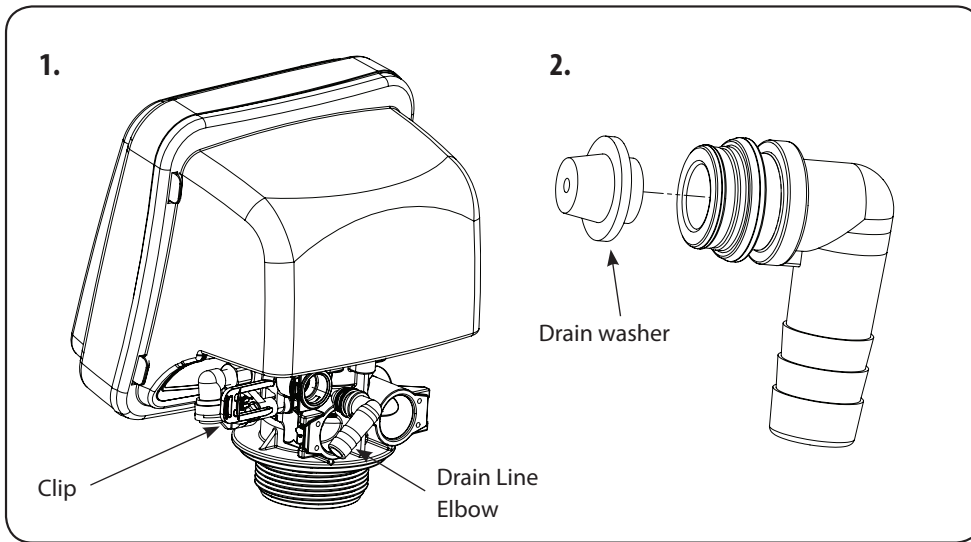
# REPLACE MOTOR

1. Remove the powerhead front cover  
2. Remove all connections from the circuit board  
3. Remove the cover from the powerhead  
4. Remove the motor screws and pull the motor out from powerhead

Motor Screws

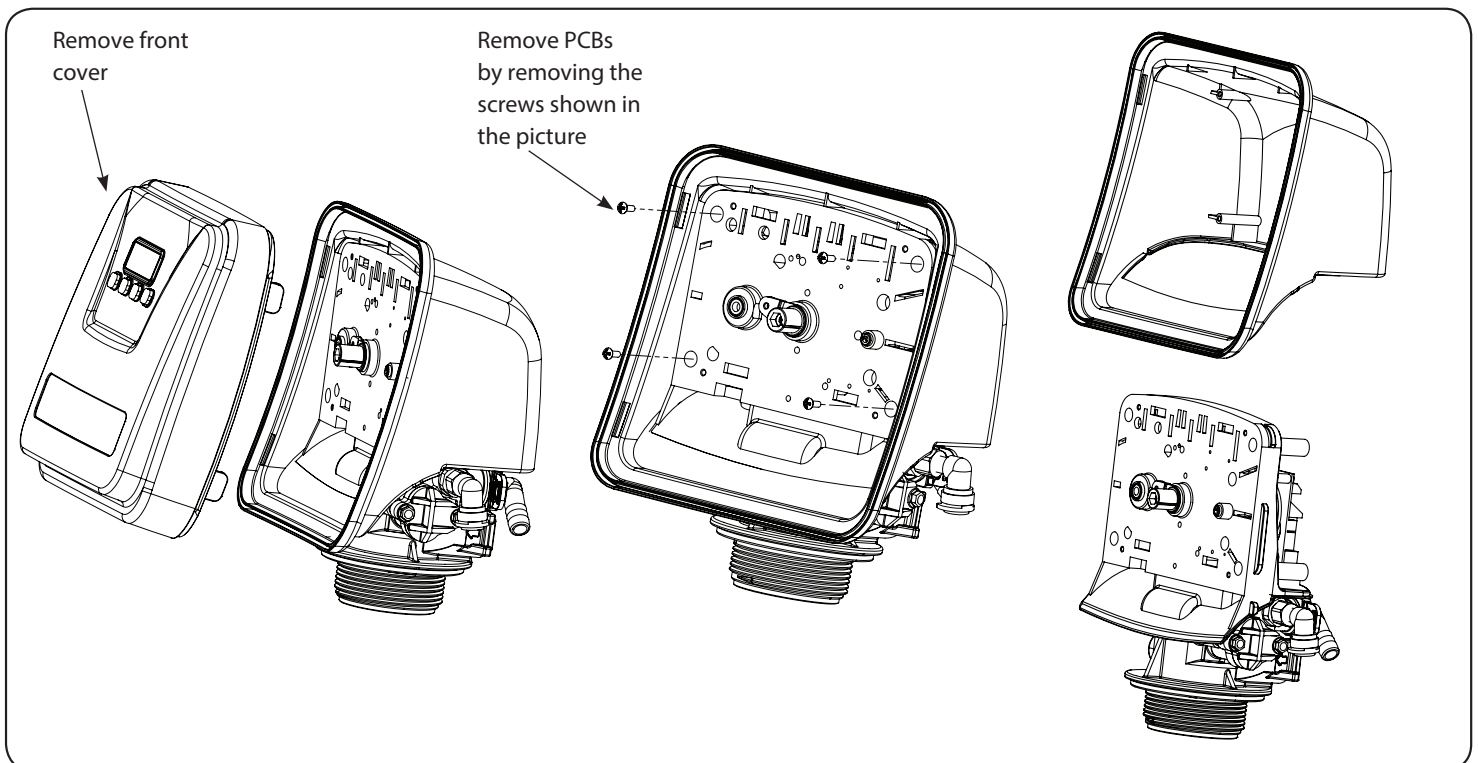


# REPLACE DRAIN LINE FLOW CONTROL



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

# REPLACING PCBS



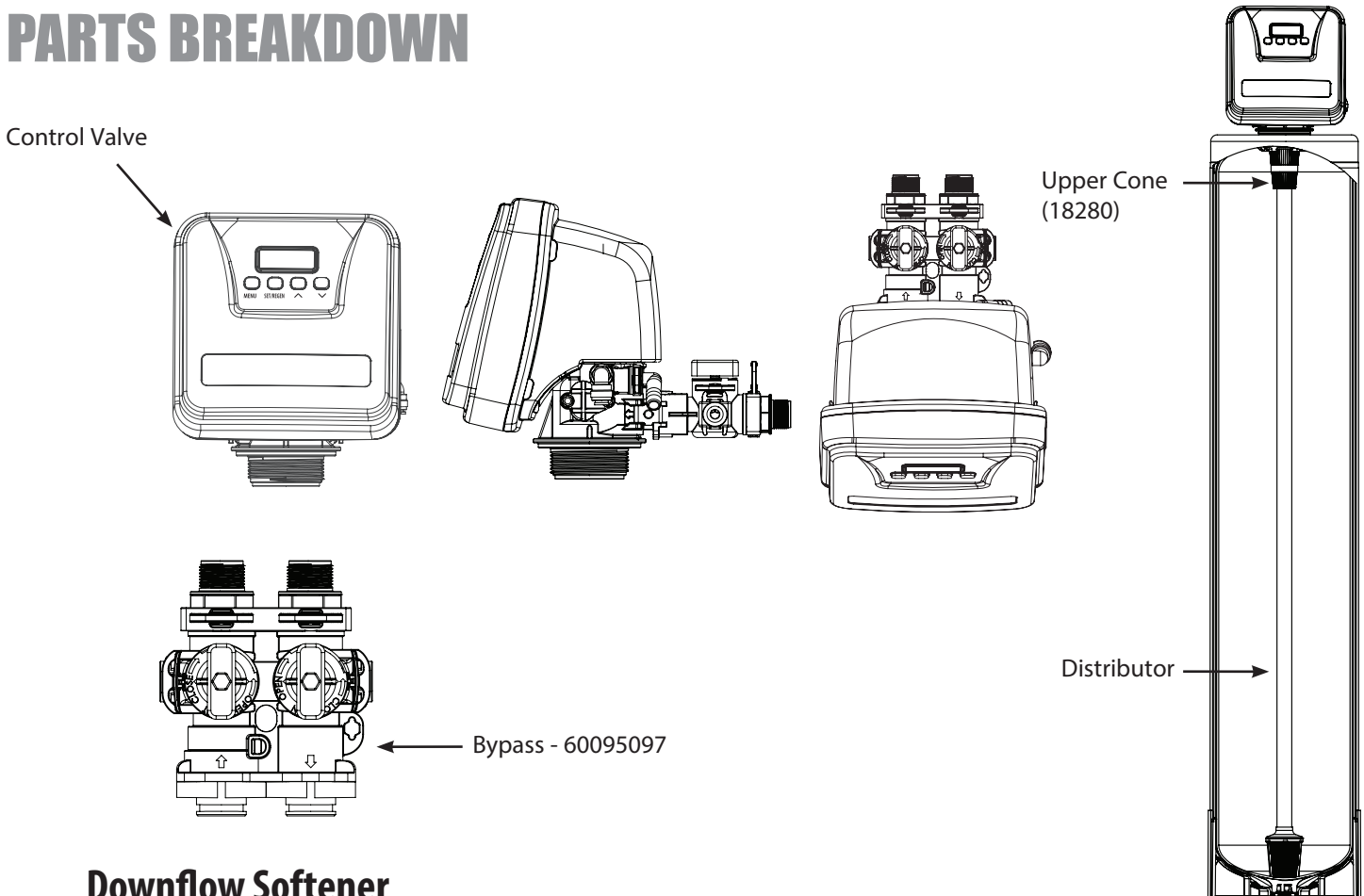
# AFTER SERVICING

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

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

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

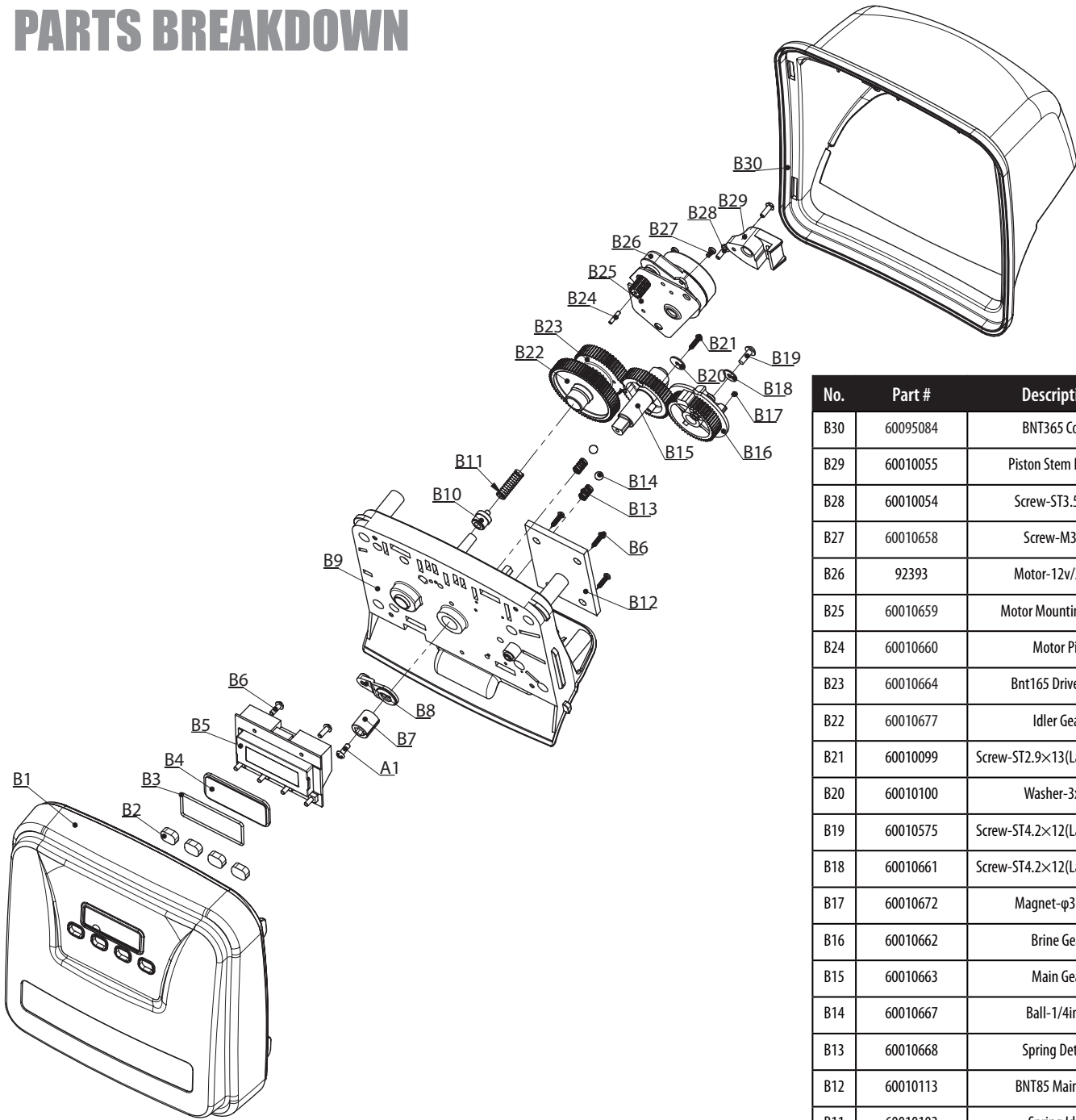
# PARTS BREAKDOWN



## Downflow Softener

Model	Mineral Tank Size	Tank # (Natural Color)	Tank # (Black Color)	Tank # (Blue Color)	Distributor#	Valve #	Media Bed #
<b>Softener Downflow (Single Tank)</b>							
75	8 x 44	25010025	25010027	25010026	50010005	10010109	95600
100	9 x 48	25010034	25010036	25010035	50010005		95601
150	10 x 54	25010049	25010051	25010050	50010005		95606
200	12 x 52	25010058	25010060	25010059	50010005		95609
250	13 x 54	25010064	25010066	25010065	50010010		95610
300	14 x 65	25030001 and 50040039	Not Available	Not Available	50010010		95604
75C	9 x 35	25030002 and 50040036	Not Available	Not Available	50010010		
100C	10 x 35						

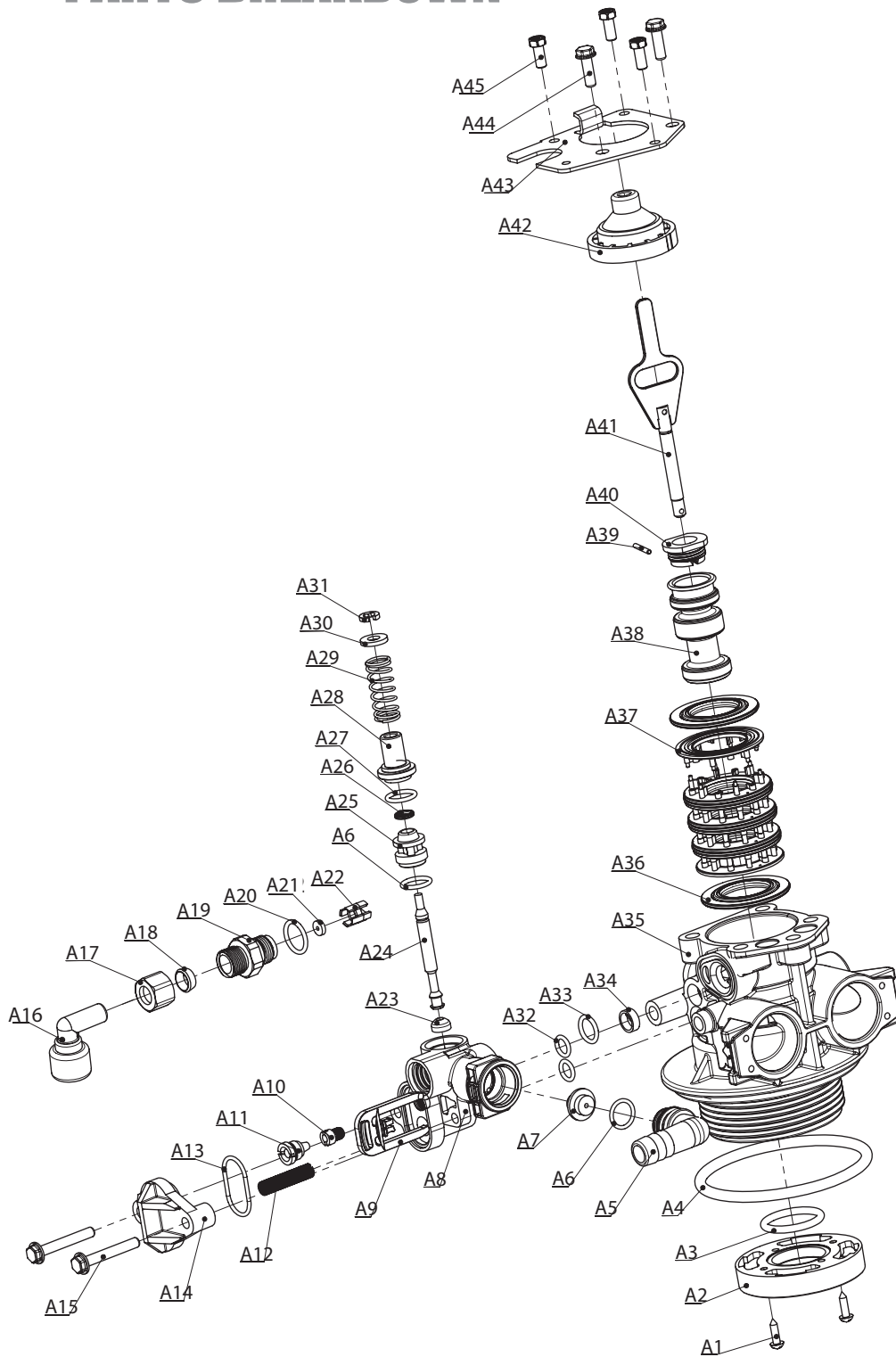
# PARTS BREAKDOWN



No.	Part #	Description	Qty
B30	60095084	BNT365 Cover	1
B29	60010055	Piston Stem Holder	1
B28	60010054	Screw-ST3.5×13	2
B27	60010658	Screw-M3×5	2
B26	92393	Motor-12v/2rpm	1
B25	60010659	Motor Mounting Plate	1
B24	60010660	Motor Pin	1
B23	60010664	Bnt165 Drive Gear	1
B22	60010677	Idler Gear	1
B21	60010099	Screw-ST2.9×13(Large Wafer)	1
B20	60010100	Washer-3x13	1
B19	60010575	Screw-ST4.2×12(Large Wafer)	1
B18	60010661	Screw-ST4.2×12(Large Wafer)	1
B17	60010672	Magnet-φ3×2.7	1
B16	60010662	Brine Gear	1
B15	60010663	Main Gear	1
B14	60010667	Ball-1/4inch	2
B13	60010668	Spring Detent	2
B12	60010113	BNT85 Main PCB	1
B11	60010103	Spring Idler	1
B10	60010666	Spring Retainer	1
B9	60095085	BNT365 Base	1
B8	60010671	Magnet Holder	1
B7	60010059	Locking Knob	1
B6	60010673	Screw-ST2.9×10	8
B5	60010051	BNT 85 Main PCB	1
B4	60095086	Display Protective Cover	1
B3	60095612	O-ring 40×1.8	1
B2	60010615	BNT465 Button	4
B1	60010056	BNT565 Front Cover	1

Part #	Description	Qty
60010052	Transformer	1
60010105	Transformer Ext. Cable	1
60010115	Meter Cable 165 / 565	1
60010123	Power Cable	1

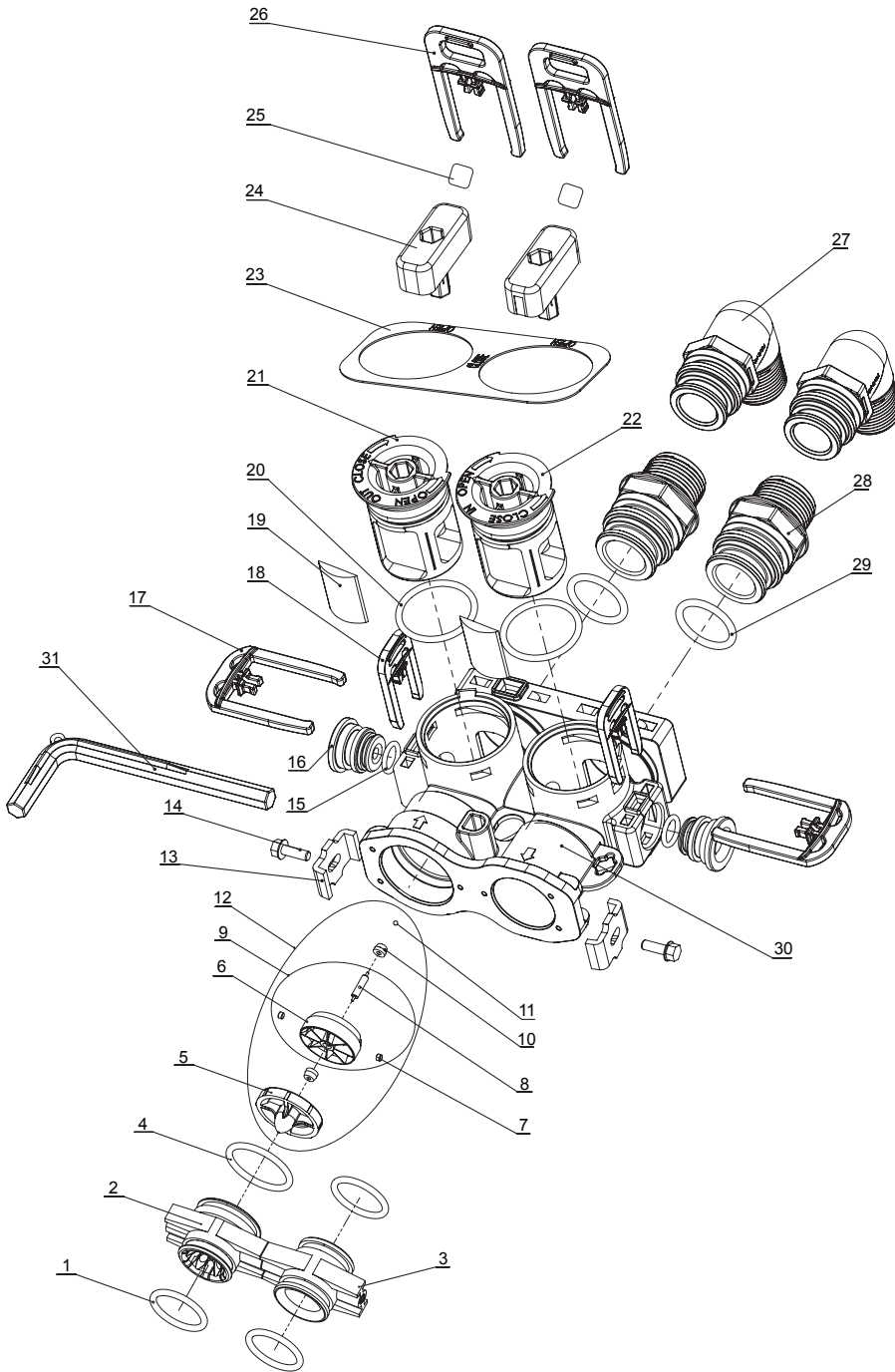
# PARTS BREAKDOWN



## Valve body parts list

No.	Part #	Part Description	Qty
A45	60010076	SCREW M5×16	2
A44	60010075	SCREW M5×12	3
A43	60010645	END PLUG RETAINER	1
A42	13446	END PLUG	1
A41	13001	65 PISTON ROD	1
A40	60010646	PISTON RETAINER	1
A39	60010647	PIN	1
A38	60010648	PISTON	1
A37	14241	SPACER	8
A36	13242-02	SEAL	5
A35	13755-1	BNT 65 VALVE BODY	1
A34	60010095	AIR DISPENSER	1
A33	12638	O-RING(11×2)	1
A32	60010094	O-RING(7.8×1.9)	2
A31	60010649	RETAINER RING	1
A30	60010650	INJECTOR WASHER	1
A29	60010651	INJECTOR SPRING	1
A28	60010652	INJECTOR CAP	1
A27	60010185	O-RING(12.5×1.8)	1
A26	60095735	QUAD RING	1
A25	60010653	INJECTOR SPACER	1
A24	60010654	INJECTOR STEM	1
A23	60010655	INJECTOR RUBBER SEAT	1
A22	60010081	BLFC BUTTON RETAINER	1
A21	60010110	BLFC(0.3GPM)	1
A20	60010083	O-RING(14×1.8)	1
A19	13244	COPPER FITTING	1
A18	60010087	BLFC FERRULE	1
A17	60010088	BLFC FITTING NUT	1
A16	60010656	QC BRINE ELBOW	1
A15	60010089	SCREWS M5×30	2
A14	60010090	INJECTOR PLUG	1
A13	60010091	O-RING(23.9×1.8)	1
A12	10227	INJECTOR SCREEN	
A11	60010033	INJECTOR NOZ- ZLE(WHITE)	1
A10		INJECTOR THROAT(WHITE)	1
A9	60010069	SECURE CLIP-S	1
A8	60010093	INJECTOR BODY	1
A7	60010657	DLFC 3.0GPM	1
A6	60010044	O-RING(12×2)	1
A5	60010229	QC DRAIN LINE ELBOW	1
A4	60010077	O-RING(78.74×5.33)	1
A3	60010080	O-RING(25×3.55)	1
A2	60010599	VALVE BOTTOM CONNECTOR	1
A1	60010574	SCREWS ST3.5×13	2

# PARTS BREAKDOWN



## Bypass Parts List

No.	Part # (Water Group)	Part # (Canature)	Description	Qty
32	60010267	05010108	Grey Meter Cable cc	1
31	60010006	70020007M	Bypass Tool	1
30		05056212	063 Bypass Body	1
29	60010026	26010143	O-ring on Inlet and Outlet	2
28	60010019	21319011N	Straight 1" NPT Inlet and Outlet	2
27	60010023	21319036N	Elbow 3/4" NPT Inlet and Outlet	2
26	60010025	21709003N	Secure Clip Inlet and Outlet	2
25	60010740	50040086	Direction Indication Label	2
24	60010740	05056220	Bypass Knob	2
23	60010740	61045012	Bypass Indication Plate	1
22	60010740	05056213	Bypass Shaft(Inlet)	1
21	60010740	05056214	Bypass Shaft(Outlet)	1
20	60095614	05030013	O-ring(30×2.65)	2
19	60010740	05056149B	Shaft Seal	2
18	60010069	05056172N	Plug Clip(Red)	2
17	60010740	21709004	Shaft Clip(Red)	2
16	60010209	05056146M	Bypass Plug	2
15	60010044	05056134	O-ring(12×2)	2
14	60010126	13000327	Screw M4×12	2
13	60010046	05056044B	SS Clip	2
12	60010238 *60010308	02170264	Meter Spare Parts	1
11		05040129	Bush Ball	1
10		05010019	Bush	2
9		02170263	Meter Assy	1
8		05010107	Impeller Pin	1
7		05010104	Magnet	2
6		05010105	Impeller	1
5	05010077	Impeller Support	1	
4	60010102	26010046	O-ring(27×3)	1
3	60010079	05056025M	Valve-Bypass Connector(Inlet)	1
2	60010101	05010083N	Valve-Bypass Connector(Outlet)	1
1	60010562	05056129	O-ring(23×3)	3

\*After 03/18 refer to '# 80150452 Manual Replacing Bypass & Grey Meter Cable'

# MASTER PROGRAMMING

Press **Up** and **Down** Button for 5 seconds

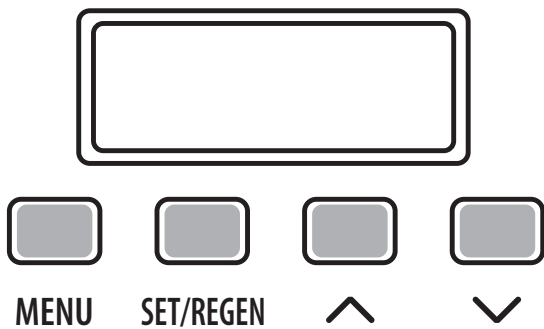
Press **Manual Regen** Button and change value using **Up** and **Down** Buttons

## Key Pad Setting

**MENU** This function is to enter the basic set up information required at the time of installation.

**SET/REGEN** This function is to initiate an immediate or delayed manual regeneration.

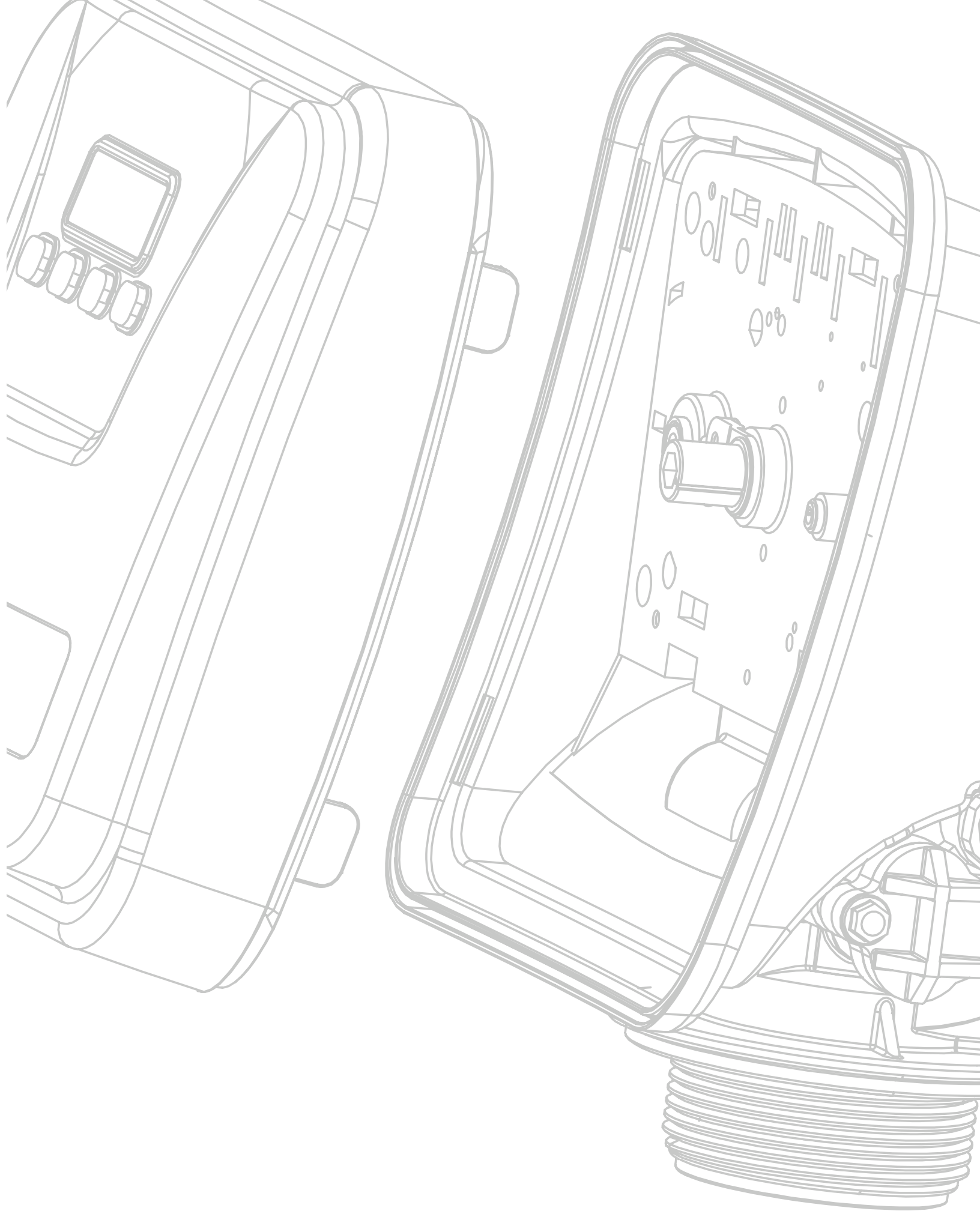
**DOWN / UP** Increase or decrease the value of the settings while in the programming mode.



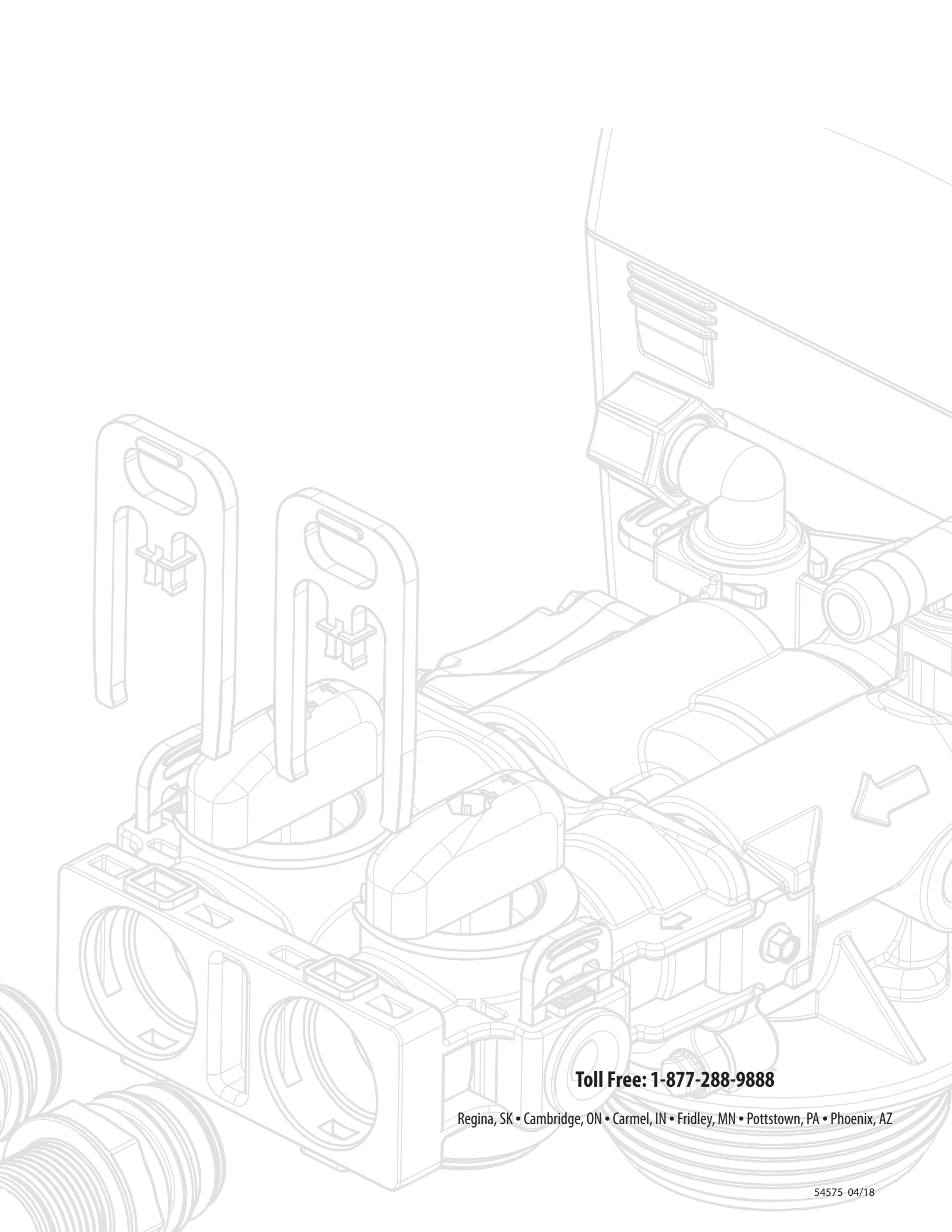
## Main Valve Settings

Meter Ratio	5.714
Service Delay	2.0
Backwash Delay	2.0
Brine Delay	2.0
Rinse Delay	2.0
Refill Delay	2.0

MODELS	VALVE TYPE	REGEN. MODE	REGEN TIME	UNIT CAPACITY	RESERVE CAPACITY	BACK WASH	BRINE / RINSE	RINSE	REFILL	CAPACITY CALC.	RESIN VOLUME	SALT SETTING	REFILL FLOW RATE	REGEN. DAYS	Injector	Injector Code	BLFC Washer	DLFC Washer	DLFC Code
75	SOFTENER	METER DELAYED	2:00AM	16,500	75 GAL	10	60	10	2	AUTO	0.75CF	6.0LB	0.7 GPM	10 DAYS	#1	White	0.7 GPM	1.5	#1
100	SOFTENER	METER DELAYED	2:00AM	22,000	75 GAL	10	60	10	3	AUTO	1.0CF	6.0LB	0.7 GPM	10 DAYS	#1	White	0.7 GPM	2.0	#2
150	SOFTENER	METER DELAYED	2:00AM	33,000	75 GAL	10	60	10	5	AUTO	1.5CF	6.0LB	0.7 GPM	10 DAYS	#1	White	0.7 GPM	2.4	#3
200	SOFTENER	METER DELAYED	2:00AM	44,000	75 GAL	10	60	10	6	AUTO	2.0CF	6.0LB	0.7 GPM	10 DAYS	#2	Blue	0.7 GPM	3.5	#5
250	SOFTENER	METER DELAYED	2:00AM	55,000	75 GAL	10	60	10	7	AUTO	2.5CF	6.0LB	0.7 GPM	10 DAYS	#2	Blue	0.7 GPM	4.0	#6
300	SOFTENER	METER DELAYED	2:00AM	66,000	75 GAL	10	60	10	9	AUTO	3CF	6.0LB	0.7 GPM	10 DAYS	#3	Yellow	0.7 GPM	5.0	#7
75C	SOFTENER	METER DELAYED	2:00AM	18,750	75 GAL	10	60	10	2	AUTO	0.75CF	6.0LB	0.7 GPM	10 DAYS	#1	White	0.7 GPM	1.5	#1
100C	SOFTENER	METER DELAYED	2:00AM	25,000	75 GAL	10	60	10	3	AUTO	1.0CF	6.0LB	0.7 GPM	10 DAYS	#1	White	0.7 GPM	2.0	#2







**Toll Free: 1-877-288-9888**

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