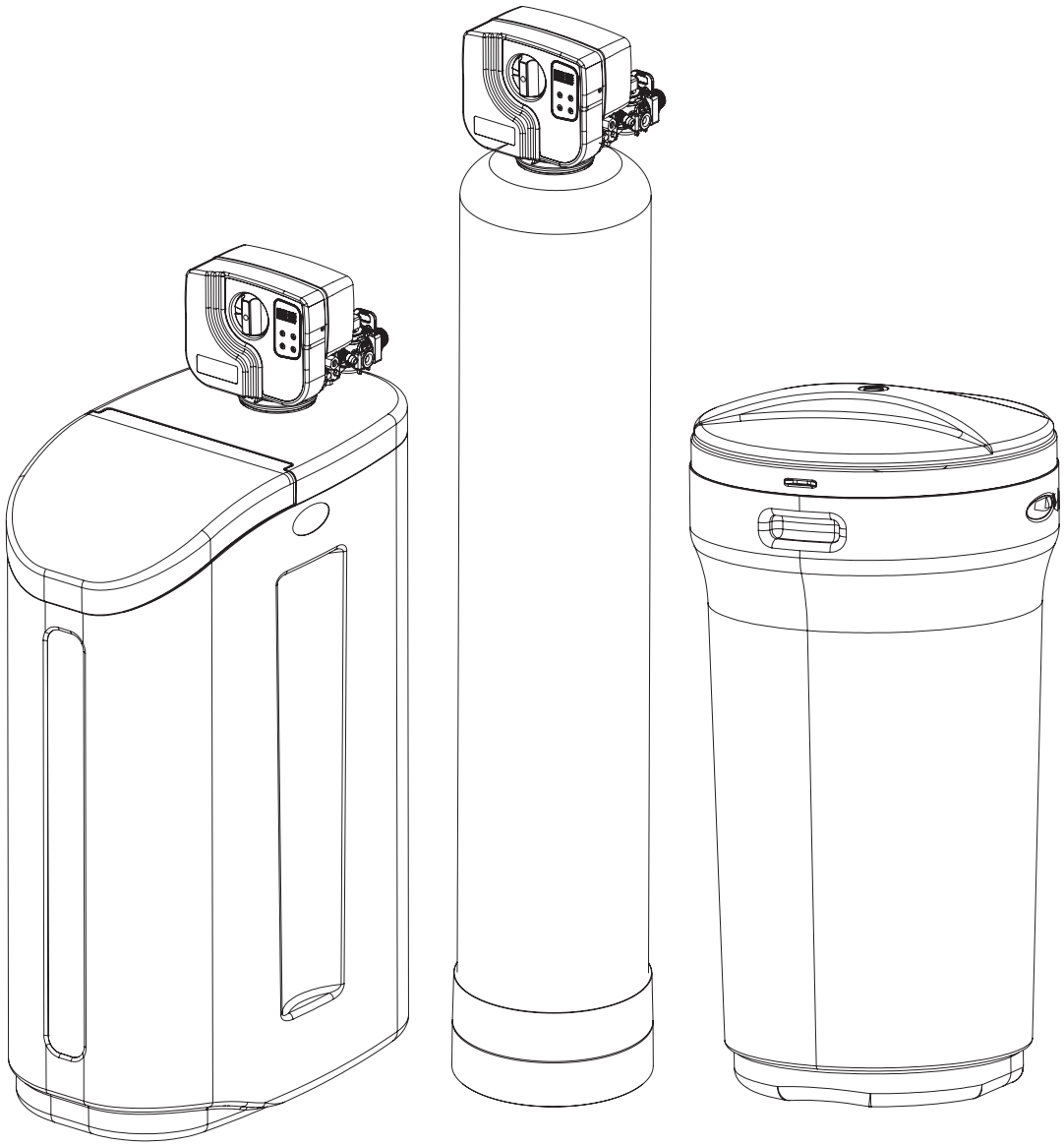
Owners Manual



765
Water Softener

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

1. **Page 20 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.

Canada West
855 Park St., Unit 1
Regina, SK S4N 6M1

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

U.S.A.
56 Lightcap Rd.
Pottstown, PA 19464

9760 Mayflower Park Drive,
Suite 110
Carmel, IN 46032

4655 McDowell Rd. W
Phoenix, AZ 85035

Table of Contents

READ THIS PAGE FIRST

BEFORE STARTING INSTALLATION

- Read this manual thoroughly to become familiar with the appliance and its capabilities before installing or operating. Failure to follow instructions could result in personal injury or property damage. This manual will assist you in getting 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 that the codes conflict with any content in this manual the local codes should be followed. Professional installation by a licensed plumber or certified water treatment professional is recommended.
- **WARNING!:** Do not use water that is microbiologically unsafe without adequate disinfection before or after this system.
- 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.
- Do not install this appliance 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 IAPMO certified lubricant (provided with install kit) to all seals.
- 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 ahead of this appliance.
- 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 the raw water quality. 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.

HOW YOUR WATER CONDITIONER WORKS

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.

Precision Brining: Precision brining means that your conditioner calculates the exact amount of brine required to regenerate saving up to 30% more salt.
When your conditioner regenerates it will display two numbers for capacity: one will be total capacity and the other will be 70 % of capacity. The unit counts down to the end of the 70% then calculates how much of the 30% you used (your reserve) it then adjusts the brine amount accordingly and regenerates that evening. This feature means that your capacity will always be different after every regeneration therefore reducing your salt use.

Soft Water Recharge for High Usage: Should you reach the 70% capacity and then go beyond the 30% before it is time to regenerate, the conditioner will do a quick regeneration to restore limited capacity to get it through the remainder of the day.

System Refresh: If you are away for an extended period of time, stagnant water can cause bacteria growth. To prevent this, the system refresh feature will perform a 10 minute backwash after 7 days of inactivity.

Adjustable Backwash: On clean municipal water supply there is no need to backwash and clean the bed with every regeneration. The 85HE saves a significant amount of water by skipping up to 10 backwash cycles.

Scrolling Diagnostics: By pressing any button to light the LCD display the unit will automatically begin scrolling important information for diagnostic purposes.

Soft Water Brine Tank Refill: Conserves capacity and keeps brine tank cleaner by adding only treated soft water to brine tank rather than raw untreated hard water.

Total Gallons: The total amount of soft water the system can produce between regenerations.

Remaining Gallons: The amount of soft water capacity until the next regeneration is required.

Number of People: In the household as programmed at install.

Reserve Capacity: Calculated as 75 gallons per person.

Estimated Days to Next: Estimation of days to the next regeneration based on current consumption, hardness and capacity.

Last Regeneration: The date of the last regeneration cycle by the conditioner.

Total Regenerations: This is the total number of times the conditioner has regenerated.

Total Gallons: Total gallons treated by the conditioner.

Over Run Total: How many times soft water recharge was required due to high usage.

Current Flow Rate: Will only display if treated water is running otherwise it will read 0.

Peak Flow: Maximum flow that has gone through the conditioner.

Delayed Regen OFF: Generally only used after servicing.

Regen Time: Time of day that the conditioner is scheduled to regenerate.

Refill Time: The current calculated refill time for makeup brine (displays up to 70% of total brine required).

Valve Mode: Current valve setting EG. Softener UF (up flow). You can unlock the board as directed and press the down arrow to stop the scrolling. You can then use the down arrow to go to each of the diagnostics as required.

System Bypass: All systems come with a manual bypass valve allowing you to bypass the system, allowing raw untreated water to be used in your home for any reason such as system servicing.

⚠ 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

Part #	Model	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						
15100600	HT765-75	19,875	**16,500**	10,500	8.0	1.5	56.7	8 x 44	0.75	BTS 15.0²x34.7/BTR 18.1x34.7	BTS 230 /BTR 270	93
15100618	HT765-100	26,500	**22,000**	14,000	10.0	2.0	67.2	9 x 48	1.00	BTS 15.0²x34.7/BTR 18.1x34.7	BTS 230 /BTR 270	110
15100636	HT765-150	39,750	**33,000**	21,000	12.0	2.4	76.2	10 x 54	1.50	BTS 15.0²x34.7/BTR 18.1x34.7	BTS 230 /BTR 270	141
15100654	HT765-200	53,000	**44,000**	28,000	15.0	3.0	124.4	12 x 52	2.00	20.3 x 37.4	385	158
15100657	HT765-250	66,250	**55,000**	35,000	15.0	4.0	135.4	13 x 54	2.50	20.3 x 37.4	385	198
15100660	HT765-300	79,500	**66,000**	42,000	15.0	5.0	173.2	14 x 65	3.00	23.0 x 40.5	550	244
15100661	HT765-75C	19,875	**16,500**	10,500	8.0	2.0	66.7	9 x 35	0.75	13.8 x 23.6 x 43.3	225	93
15100662	HT765-100C	26,500	**22,000**	14,000	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.

SYSTEM DIMENSIONS

Models	A (Inches)	B (Inches)
HT765-75	35″	9"
HT765-100	35″	10"
HT765-150	35″	9"
HT765-200	35″	10"
HT765-250	47″	10"
HT765-300	52″	12″

Working Temperature: This unit must be operated at temperatures between 40°F and 110°F (4°C - 43°C).

Working Pressure: This water softener must be operated on pressures between 30 psi to 125 psi. If the water pressure is higher than 125 PSI, use a pressure reducing valve in the water supply line to the softener.

Voltage = 120V / 60 Hz

Pipe Size = 3/4″ and 1″

- At the stated service flow rates, the pressure drop through these devices will not exceed 15 psig.
- The manufacturer reserves the right to make product improvements which may deviate from the specifications and descriptions stated herein, without obligation to change previously manufactured products or to note the change.

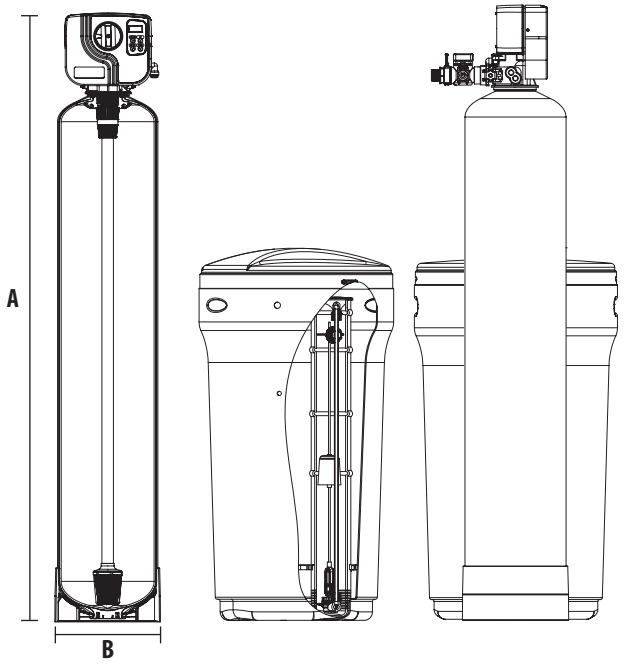
Peak flow rates intended for intermittent use only (10 minutes or less) and are for residential applications only. Do not use peak flow rate for commercial applications or for a continuous rate when treated water supplies are geothermal heat pump, swimming pool, etc.

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

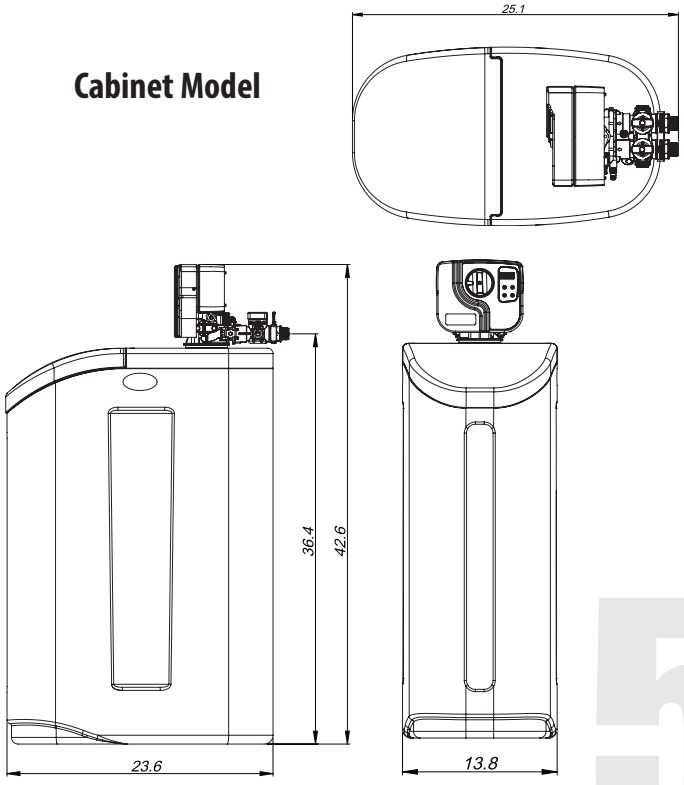
All units come with plastic bypass

****Maximum Iron** = 2.0 ppm ferrous (clear water iron)
Maximum Hydrogen Sulfide = 0.0 ppm
Maximum Manganese = .75 ppm
pH = 6.5 to 8.5 with no iron present with iron present 6.5 - 7.5

Twin Tank Model



Cabinet Model

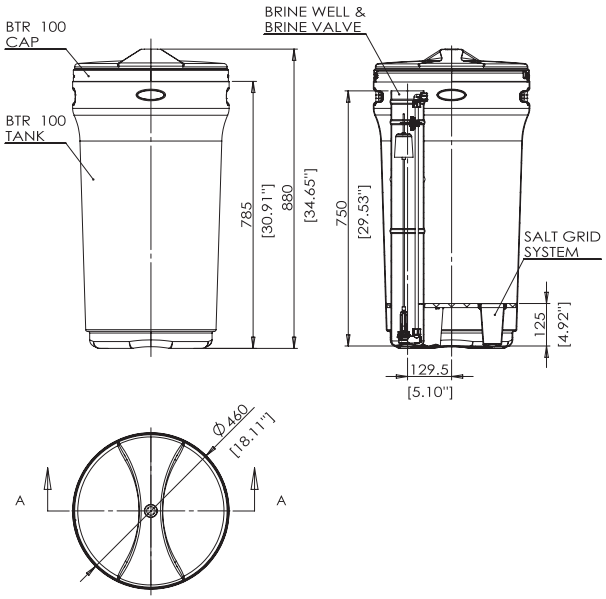


BRINE TANK DIMENSIONS

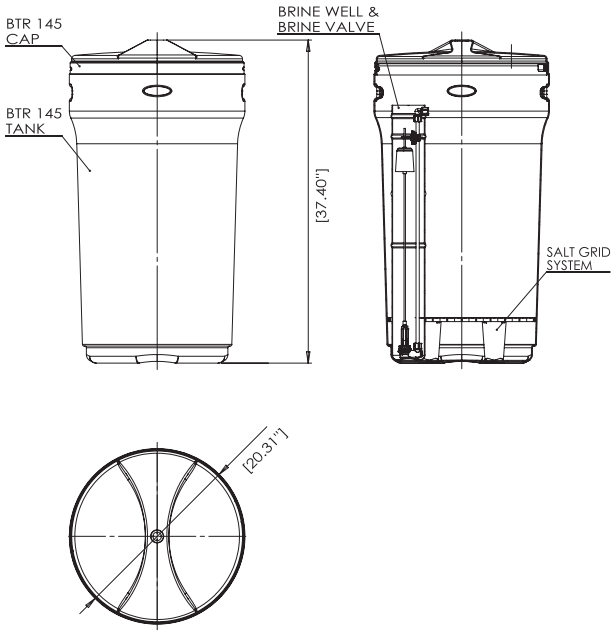
Model	Color	Liquid Volume		Tank Dimensions (inches)	5 Pack Carton Dimensions (inches)	Salt Capacity	
		US Gal	Liters	L x W x H	L x W x H	Lbs	Kg
Brine Tanks							
BTR-100	Vanilla	29.5	111.5	18.1 x 34.7	18.9 x 18.9 x 65.6	270.0	122.2
BTR-145	Vanilla	42.3	159.7	20.3 x 37.4	21.9 x 21.9 x 72.2	385.0	174.2
BTR-200	Grey	53.0	200.3	23.0 x 40.5	24.6 x 24.6 x 84	700.0	316.7

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

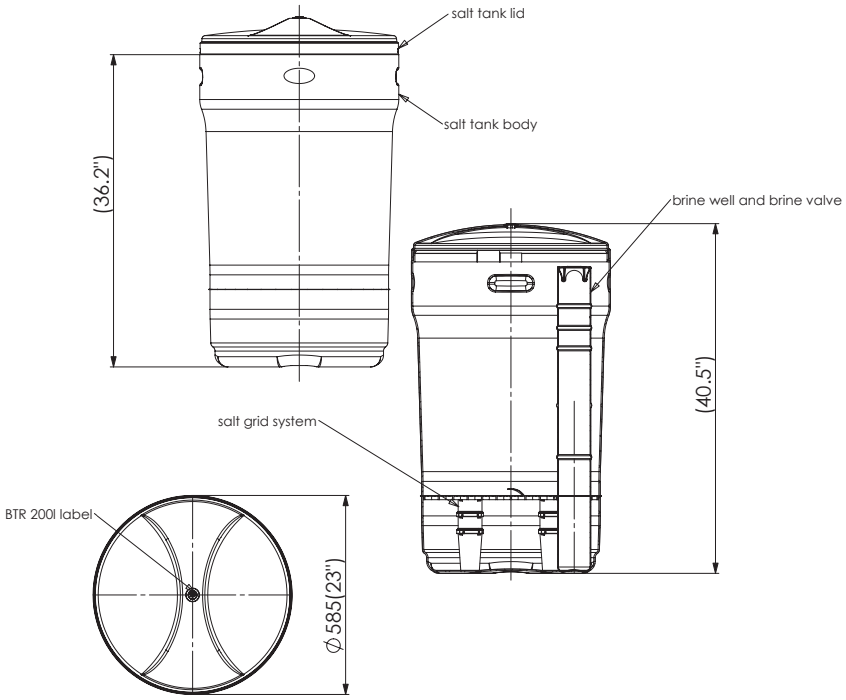
BTR100



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.

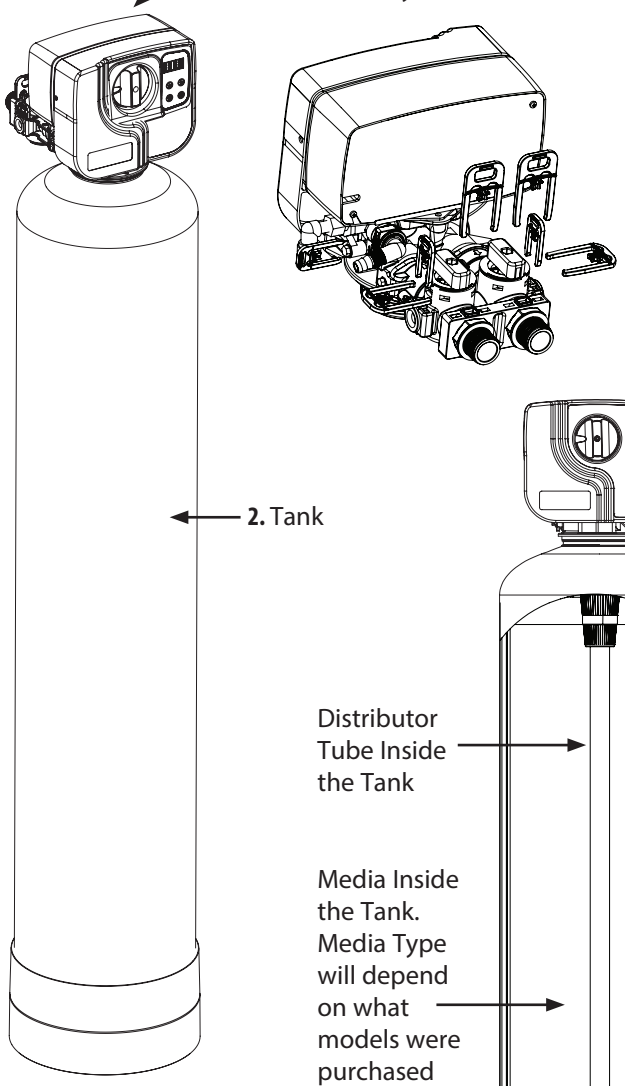
What is included in the box?

For Models HT765-75, HT765-100, HT765-150, you will expect the following:

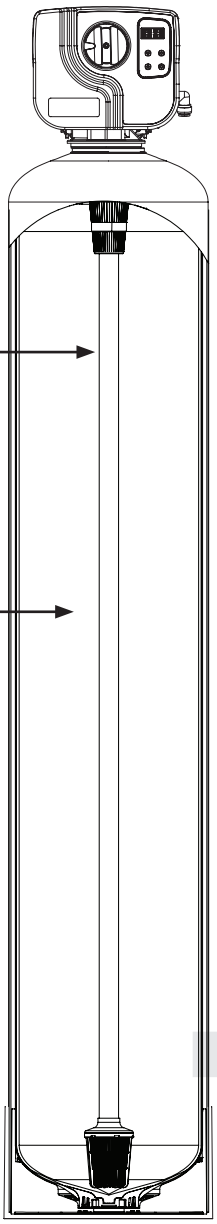
1. Control Valve
2. Tank
3. Parts Box
4. Owners Manual
5. Drain Hose & Clamp (Not included in some brands)
6. Brine Tank Assembly

1. Control Valve

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



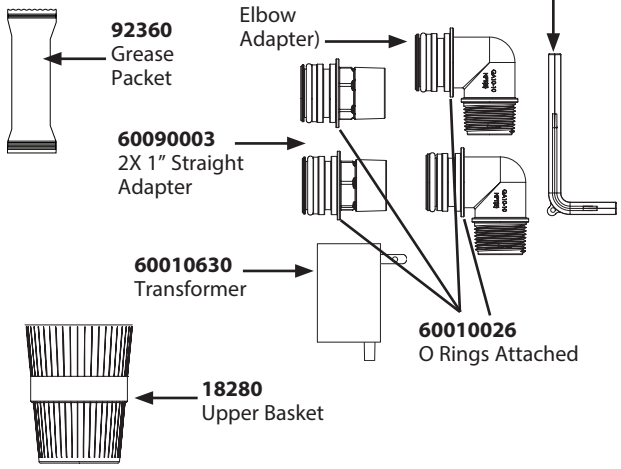
2. Tank



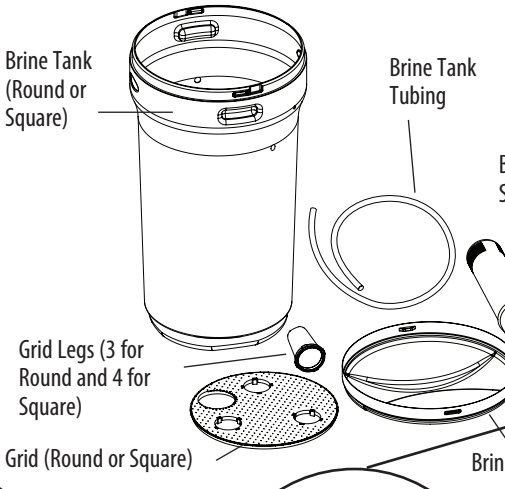
Distributor Tube Inside the Tank

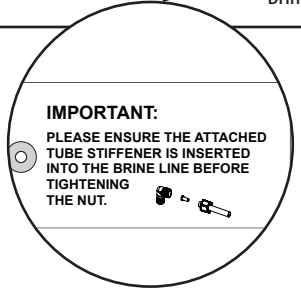
Media Inside the Tank. Media Type will depend on what models were purchased

3. Parts Box



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





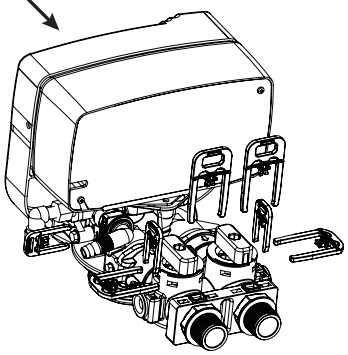
For Models EFT60 and EFT90 the media and Control Valve is packaged separately in carton and bags

What is included with HT765-200, HT765-250, HT765-300 models?

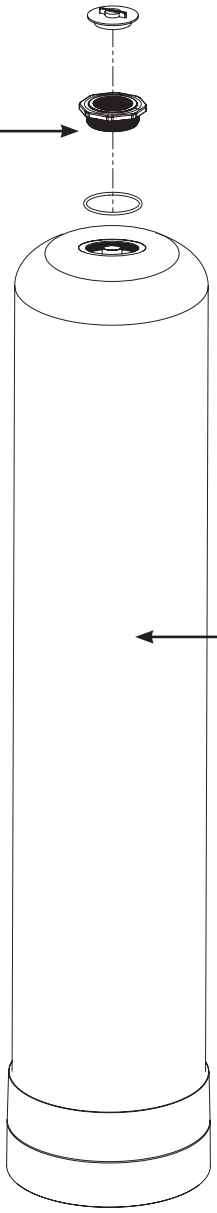
1. Tank (Models 30 and 40 will get an Adapter and Oring attached to the tank)
2. Control Valve with Parts Box
3. Media Boxes (Qty 3 for 30 and Qty 4 for 40)
4. Drain Line and Hose Clamp (Not Included with some models))
5. Brine Tank Assembly

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

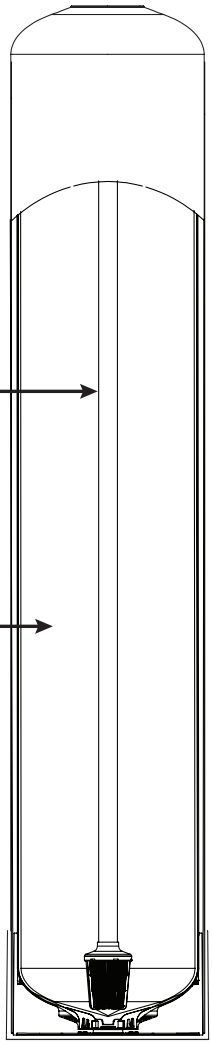
2. Control Valve



Models HT765-200, HT765-250, HT765-300 will get Adaptor and Oring Shown



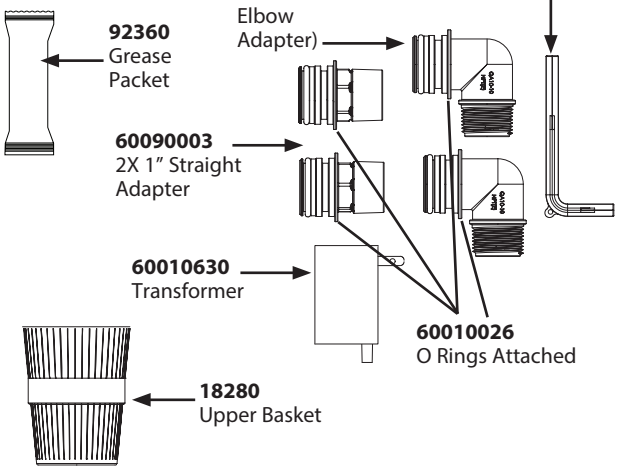
1. Tank



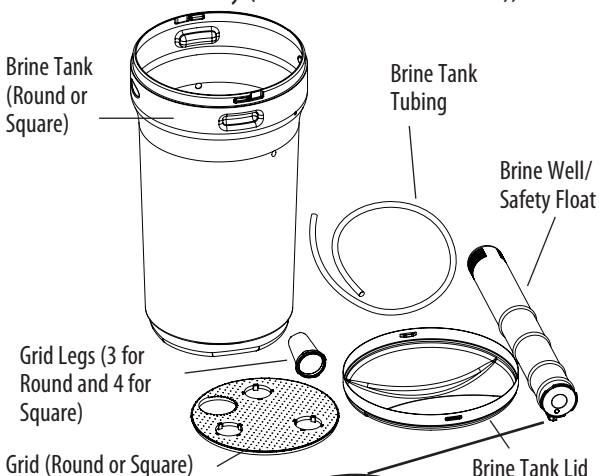
Distributor Tube Inside the Tank

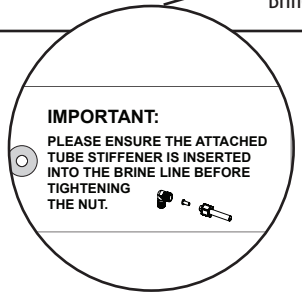
Media Inside the Tank. Media Type will depend on what models were purchased

2. Parts Box

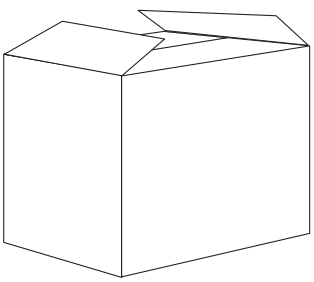


5. Brine Tank Assembly (Round Brine Tank Shown))



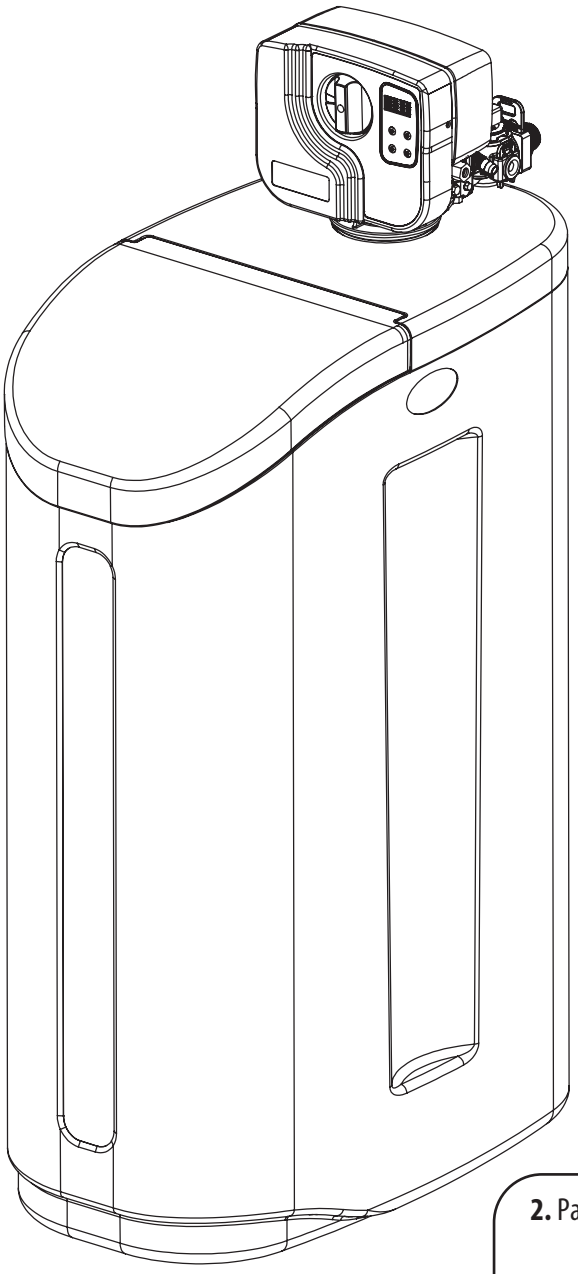


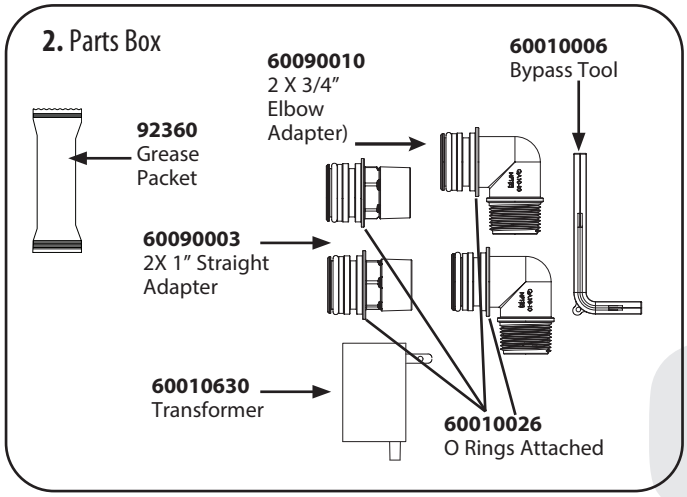
3. Media Box (Qty depends on Models)



UNPACKING / INSPECTION OF CABINET MODEL

1. Cabinet with Valve attached - **HT765-75C, HT765-100C**
2. Parts Box
3. Owners Manual and Warranty Card

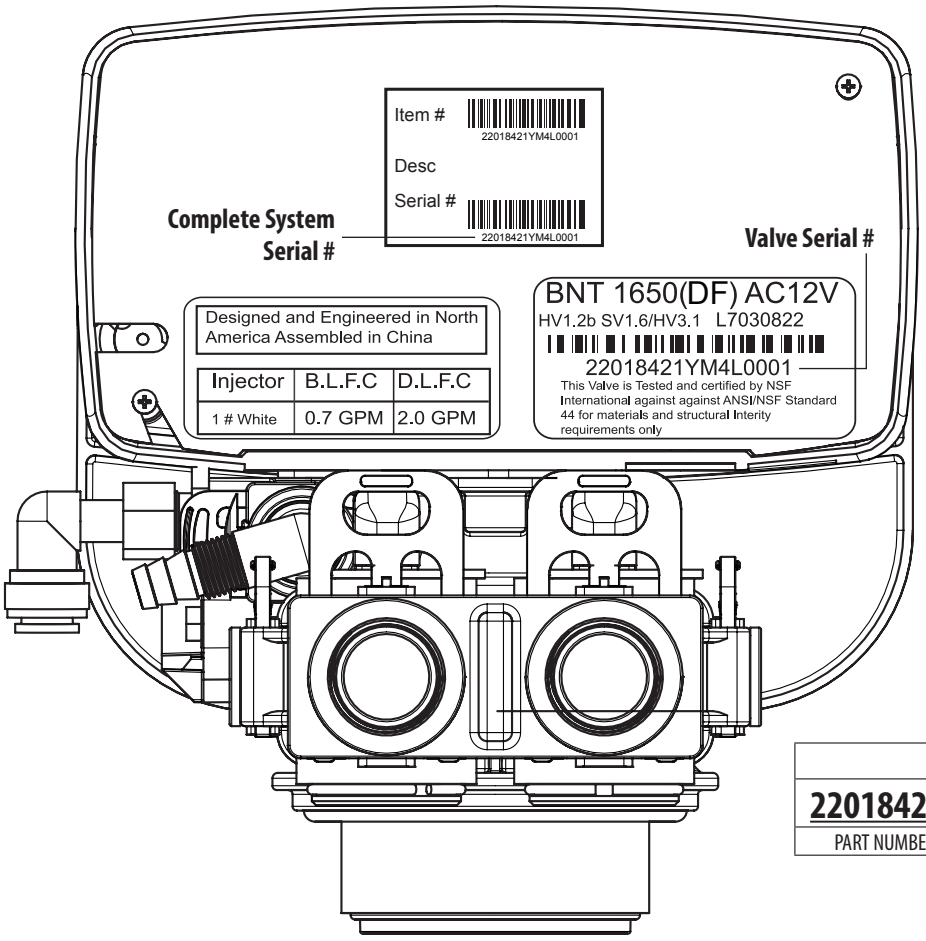




Check Valve Type and Valve Serial

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 21 in the maintenance section.



Valve Serial #:

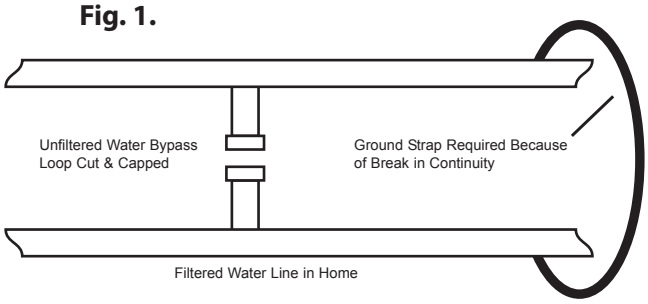
Date Code Canature Valve				
22018421Y	**M**	**4**	**L**	**0001**
PART NUMBER	YEAR (2016)	MONTH (APR)	DAY of MONTH (21)	BATCH NUMBER
	H = 2011	1 = JAN	1	
	I = 2012	2 = FEB	2	
	J = 2013	3 = MAR	3	
	K = 2014	4 = APR	4	
	L = 2015	5 = MAY	5	
	M = 2016	6 = JUN	6	
	N = 2017	7 = JUL	7	
	O = 2018	8 = AUG	8	
	P = 2019	9 = SEP	9	
	Q = 2020	A = OCT	A = 10	
		B = NOV	B = 11	
		C = DEC	C = 12	
			D = 13	
			E = 14	
			F = 15	
			G = 16	
			H = 17	
			I = 18	
			J = 19	
			K = 20	
			L = 21	
			M = 22	
			N = 23	
			O = 24	
			P = 25	
			Q = 26	
			R = 27	
			S = 28	
			T = 29	
			U = 30	
			V = 31	

BEFORE INSTALLATION

Make sure you have a copy of 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 New System*

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

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

Do not turn the conditioner 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 conditioner. To maintain full valve flow, 3/4" or 1" pipes to and from the conditioner fittings are recommended. You should maintain the same, or larger, pipe size as the water supply pipe, up to the conditioner 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 conditioner 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 conditioner unit is initially placed in service, the conditioner tank may have been laid on its side during transit. If this occurs, backwash the conditioner to "reclassify" the media.

***NOTE**

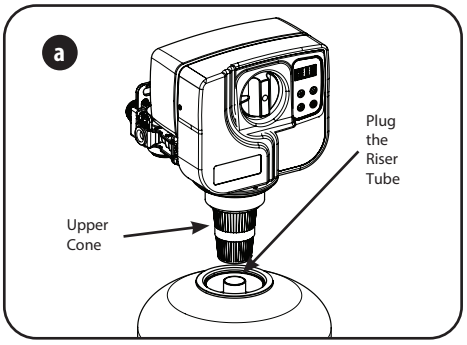
Due to transportation and climatic conditions all connections including the valve to the tank need to be checked at time of installation and tightened if necessary.

PREPARATIONS

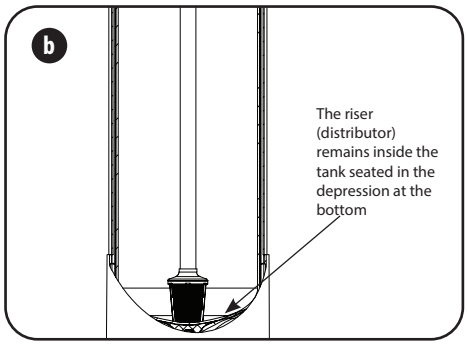
CAUTION!

The unit should be depressurized before installing or replacing media

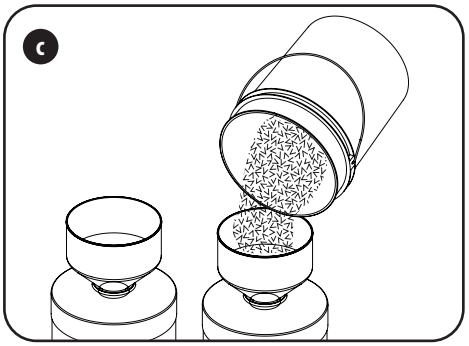
1. Media Installation (When Necessary). Models including and higher than 2 CF (Models 60, 90) of media are shipped with separate media in pails or boxes. Models lower than 2 CF of media come loaded with media and this step can be skipped for new installation.



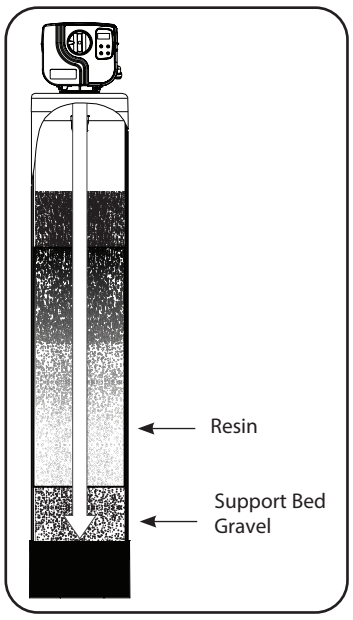
a) Lube the bottom oring (picture **d**) and attach the upper cone to the valve.



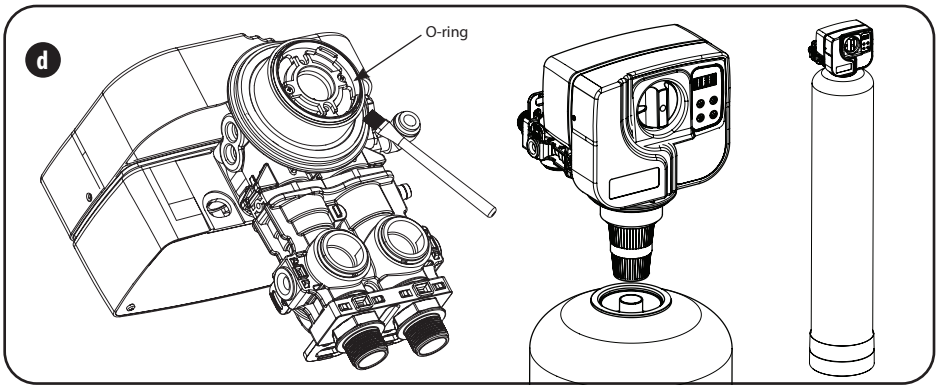
b) Temporarily plug the open end of the riser tube to ensure that no resin or gravel falls down into the distribution. The riser (distributor) remains inside the tank seated in the depression at the bottom. Plug tube with a tape. Remove after media is loaded.



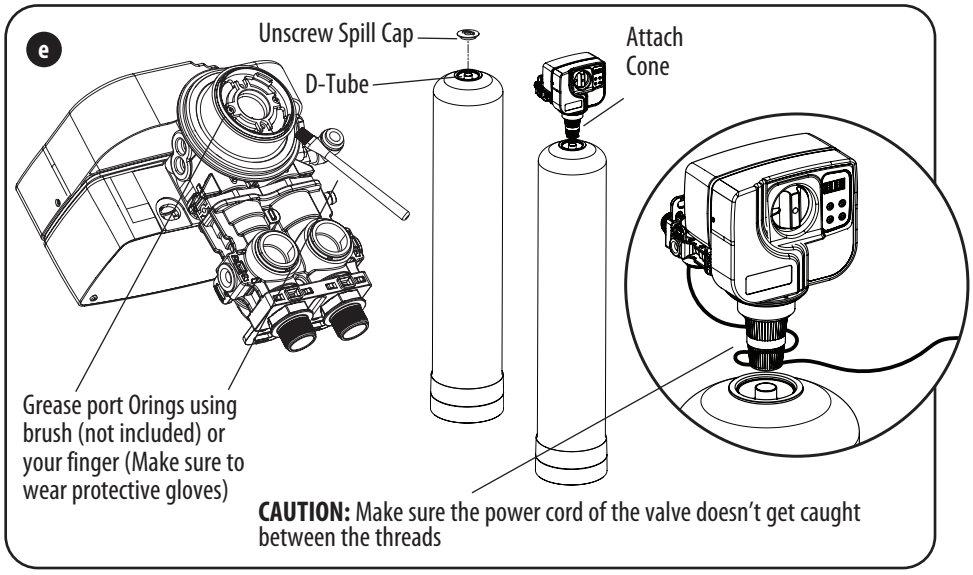
c) Fill support bed first. The media will not always spill down inside the tank and may need to be swept inside.The large funnel (sold separately makes filling the tank easier and neater. (Or an empty 1 gallon or 4 liter container with the bottom cut out makes a good funnel.)



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.



d) Lube the bottom Valve Orings with the grease supplied, Attach the Cone. 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.

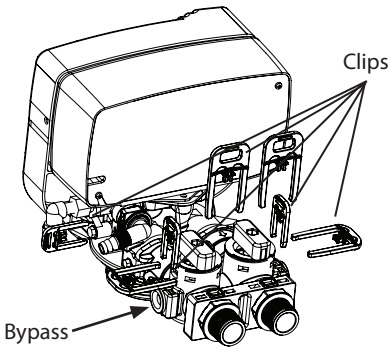
CAUTION!

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

CAUTION!

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

PREPARATIONS



3. Attaching Bypass to Valve (If required in case of replacing the control valve. The new control valve comes with bypass attached)

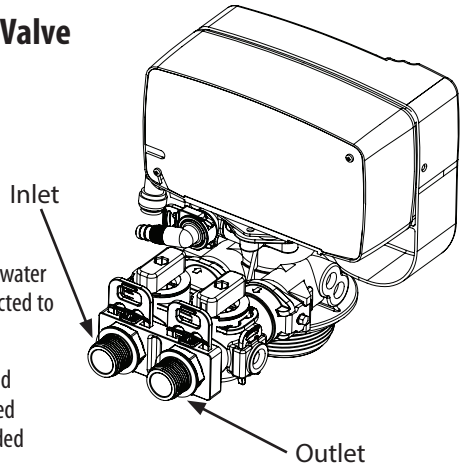
Make sure the bypass is attached well to the control valve. Connect the straight or elbow connectors to the bypass with red clips. Connect the inlet and outlet of the water Softener to the plumbing of the house. The control valve must not be submitted to temperatures above 43°C (110°F). When sweat fittings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

INSTALLATION STEPS

Determine the best location for your water Softener, bearing in mind the location of your water supply lines, drain line and 120 volt AC electrical outlet. Subjecting the Softener to freezing or temperatures above 43°C (110°F) will void the warranty.

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

Downflow Valve



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:** Attach 5/8" OD 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. Make sure there are no leaks in the plumbing system before proceeding.

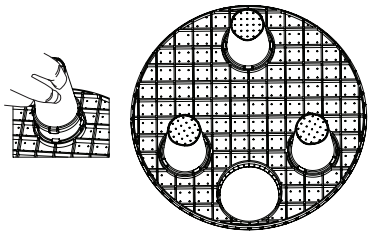
2. Water Lines

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.

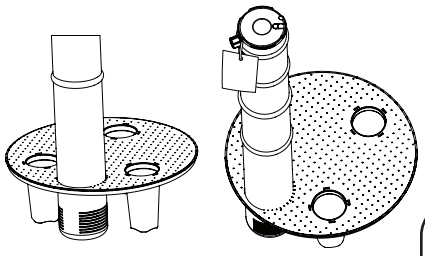
INSTALLING BRINE TANK

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.)

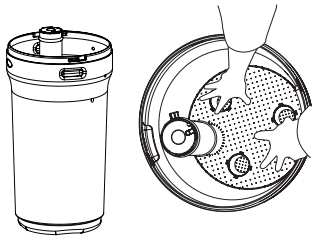


b) Insert the brine well assembly inside the grid plate as well below.

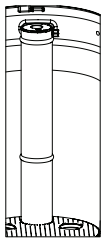


c) Drop the brine grid with brine well inside the brine tank such that the nut fitting faces the hole on the brine tank. Then press the grid evenly inside the brine tank until the brine grid legs touches the bottom of the brine tank.

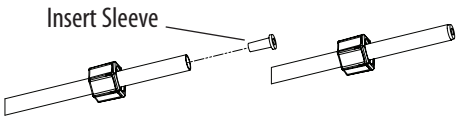
IMPORTANT:
IT IS IMPORTANT TO ALIGN THE HANDLE TO THE BRINE WELL AS SHOWN



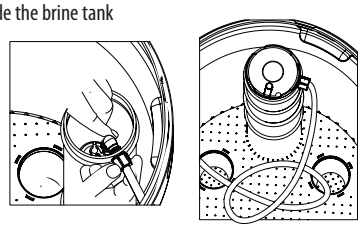
The hole in the brine tank should line up with the brine line as shown



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

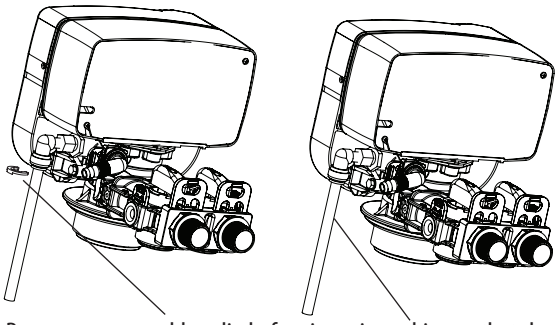


e) Insert the tube in the float assembly elbow and hand tighten the nut. In many cases the brine line already come installed from the factory. Leave the other end of the brine line tube inside the brine tank



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.

Attaching Brine Tubing to the Brine Line of the Valve



Be sure to remove blue clip before inserting tubing so that the tubing does not get damaged by the grip ring. Once tubing is fully inserted replace the blue secure clip

***NOTE**

Resin Cleaner

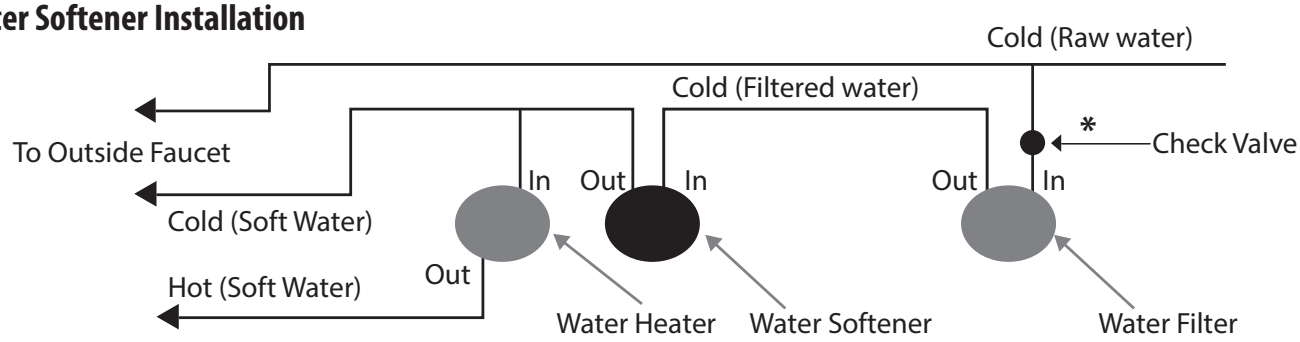
An approved resin cleaner MUST be used on a regular basis if your water supply contains iron.

See page 22 - Res-Up® Feeder Installation Instructions

INSTALLATION

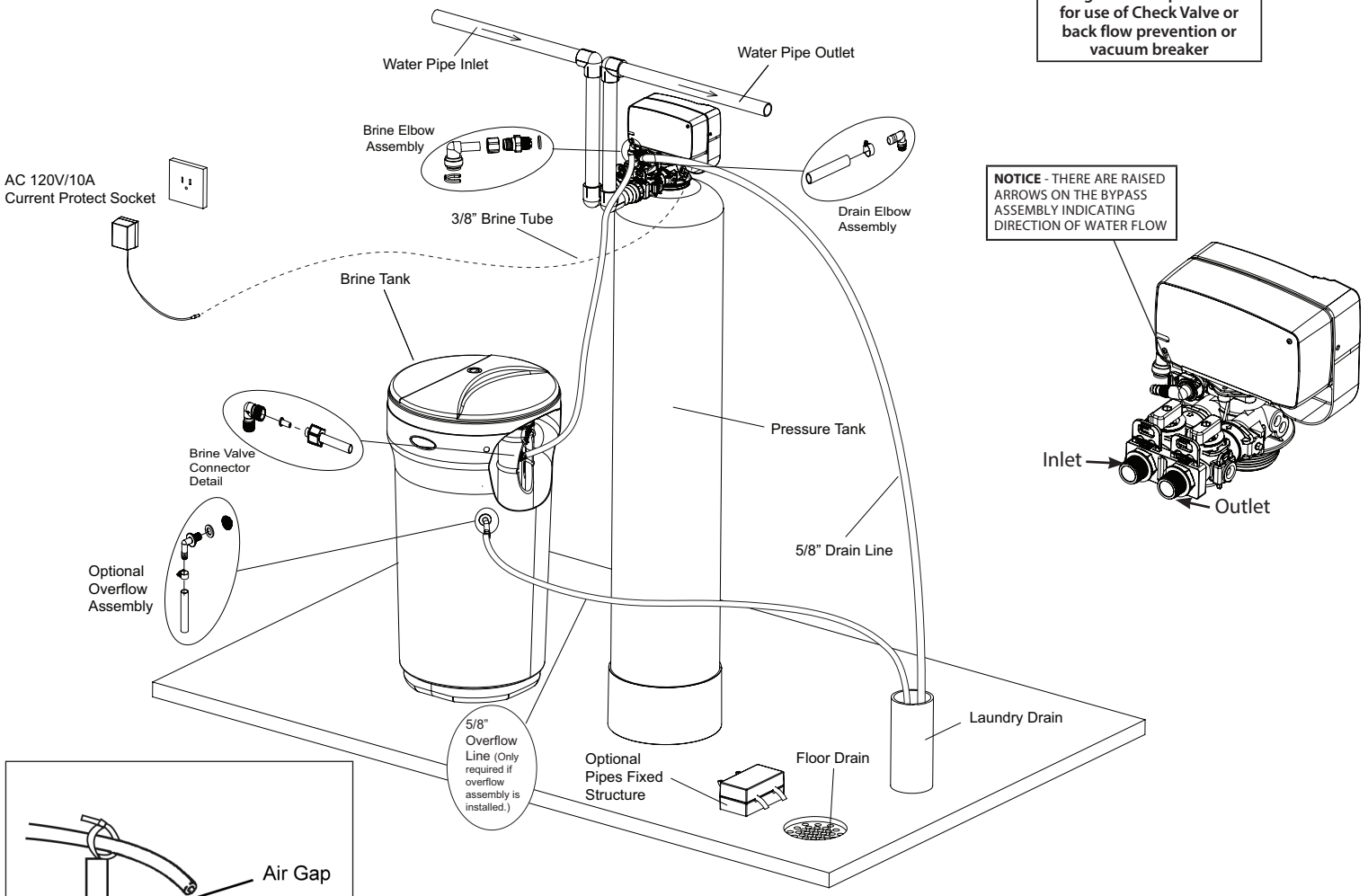
Connect Softener to the HousePlumbing Any solder joints near the valve must be done before connecting any piping to the valve. Always leave at least 6" (152 mm) between the valve and joints when soldering pipes that are connected to the valve. Failure to do this could cause damage to the valve.

Water Softener Installation

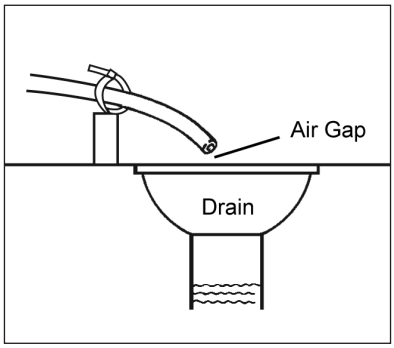


***NOTE**

Check local plumbing codes in regards to requirements for use of Check Valve or back flow prevention or vacuum breaker



NOTICE - THERE ARE RAISED ARROWS ON THE BYPASS ASSEMBLY INDICATING DIRECTION OF WATER FLOW



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.

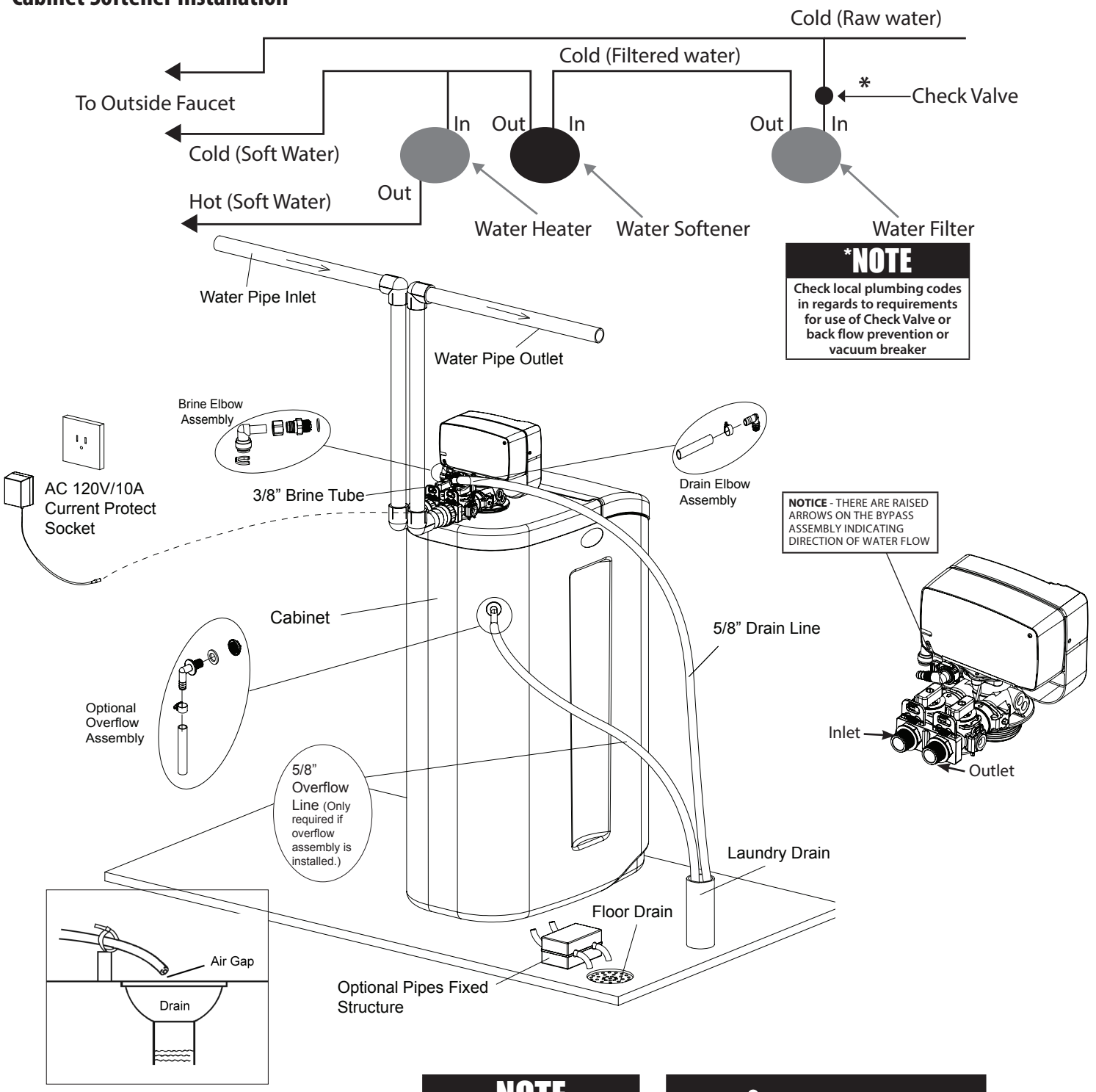
CAUTION!

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.

INSTALLATION

Connect Softener to the HousePlumbing 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.

Cabinet Softener Installation



***NOTE**

Check local plumbing codes in regards to requirements for use of Check Valve or back flow prevention or vacuum breaker

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.

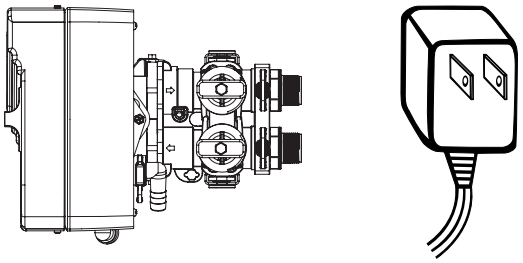
⚠ CAUTION!

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

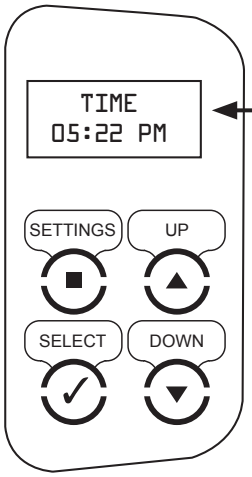
1. Connect the Transformer to the Valve

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



2. Screen Display

Familiarize with Button Configuration:



The controller will show the following on the screen - Time, Date and Remaining Gallons or Days.

3. Add Water to Brine Tank

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

BTR-100 -2.5 US Gallons

Key Pad Configuration:

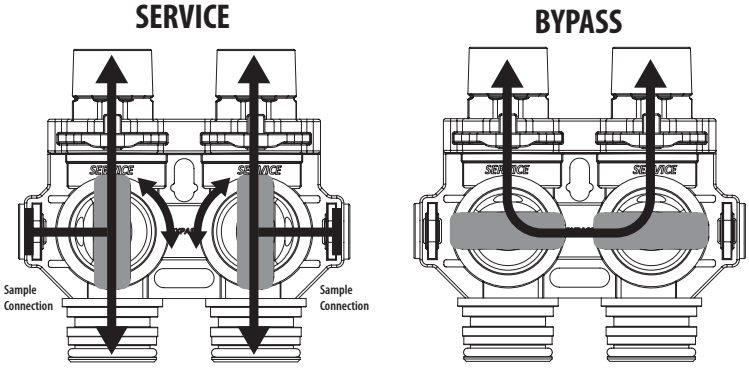
SETTINGS - This function is to enter the basic set up information required at the time of installation.

SELECT - This function is to accept the values if changed and advance to the next page in the menu.

UP/DOWN - These buttons are used to increase or decrease the value of the settings while in the programming mode.

4. Manually Regenerate the Valve

Manually index the valve with the control knob to BA.WA. or press **SELECT** and hold display will come up showing delay flashing press Up or Down Arrows to immediate and press **SETTINGS** to initiate a manual regeneration. Once the valve is in the Backwash (BA.WA.) position please unplug.



MANUAL REGEN
Delay **Immediate**

BACKWASH
BRINE DRAW
RINSE (SKIP)
REFILL (SKIP)

Regen Sequence - Once in Regeneration, the cycle can be skipped by pressing any button.

BACKWASH
IIIIIIIIIIIIIIIIIIIIIIII 15 Minutes*

BRINE DRAW
IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII 50 Minutes*

***NOTE**
Times indicated here are example only.

STARTUP INSTRUCTIONS (CONTINUED)

4. Manually Regenerate the Valve (Continued)

4a. 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 until the drain water appears to be clear of any fines or color.

4b. Plug in the valve. Allow the valve to continue its cycles until complete and back in service. Allow the valve to stay in each position for 2 - 3 minutes to purge air from the system and the valve. Failure to properly purge the system may result in unsatisfactory performance. This process can be performed more than once if necessary to purge air and color or fines from the system before finishing start up. Once the system is purged properly you can open the outlet of the bypass valve. Because your plumbing system has been disturbed it is advisable to remove screens from faucets and flush all lines until clear. **See Plumbing System Clean-Up on page 19**.

4c. The Valve is already programmed from factory. Please set up date and time of day and feedwater hardness and people as shown below: **(See page 17 for Key Pad Configuration)**

Calculating Compensated Hardness for Water where Iron or Manganese is Present

From your water analysis.

Iron x 4 = grains of hardness and or Manganese x 8 = grains of hardness. These numbers can be found on your water analysis report, and the equivalent grains of hardness should be added to your total hardness number. The new sum of these numbers is the hardness to be entered during programming below.

EG
Iron = 0.5 ppm x 4 = 2.0 gpg
Mang = 0.3 x 8 = 2.4 gpg (always round up) = 3.0 gpg

Hardness = 15 gpg + 2.0 (compensated iron) + 3.0 (compensated manganese) =20 gpg
enter 20 as the hardness when programming below.

Iron _____ x 4 + Manganese x 8 _____ + Hardness = Total Hardness _____

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: 1-877-288-9888**

Press **SETTINGS** key to advance to **TIME OF DAY. TIME OF DAY** will flash.

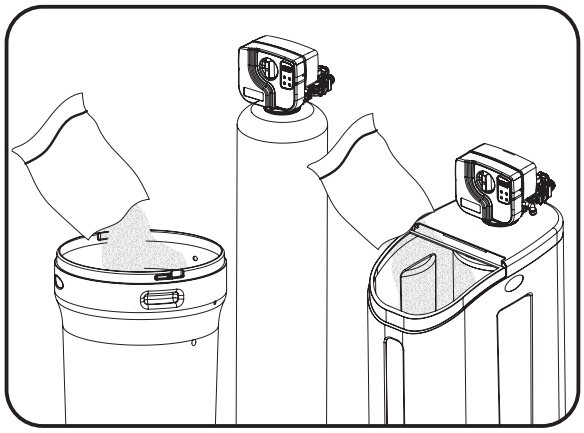
Press the Up or Down keys to adjust the **TIME OF DAY** . Press & hold the Up or Down key to quickly advance the hour & minutes. When desired time is displayed press **SELECT** to advance to the **HARDNESS** setting. **HARDNESS** will flash.

Press the Up or Down keys to adjust the **HARDNESS** (Min 1/Max 199). When desired hardness is displayed press **SELECT** to advance to the **PEOPLE** setting (Min 1/Max 9). **PEOPLE** will flash.

When desired number of people is displayed press **SELECT** to complete programming.

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.



Start up and programming complete. Unit is now operational.

***NOTE**

Resin Cleaner
An approved resin cleaner MUST be used on a regular basis if your water supply contains iron.
See page 22 - Res-Up® Feeder Installation Instructions

DURING REGENERATION

Automatic Water Bypass

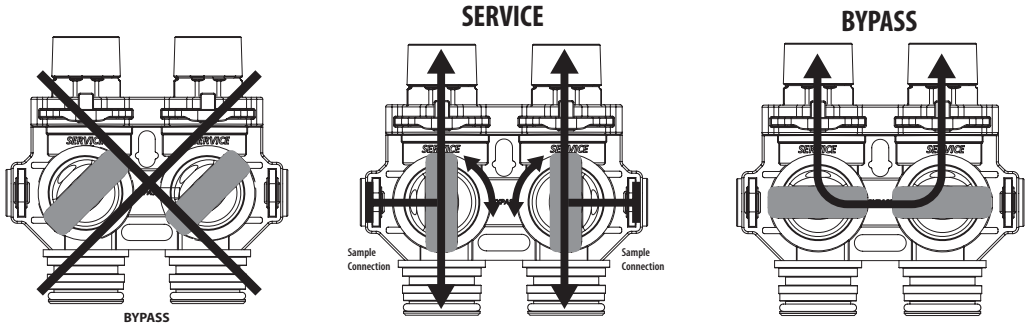
The regeneration cycle lasts approximately 1.5 hours to 3.0 hours depending on the specific model, after which treated water service will be restored. During regeneration, untreated water is automatically bypassed for use in the household. Hot water should be used as little as possible during this time 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 or when performing filter 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 filter, simply rotate the knobs as indicated below in figure 1, until they stop. 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 will bypass your conditioner.**

Fig. 1



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 may need replacement.

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

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 on clean municipal supplies every 2 - 3 years should be sufficient but the first check should be done after 1 year. See inspection and replacement of Piston assembly and seal and spacer kit, page 24.
- The injectors should be cleaned/inspected or replaced every year depending on the water quality and use. See Clean Injector Assembly, page 24.
- **Maintenance Kit (60010565)** should be used for servicing control on an annual basis. The maintenance kit consists of piston assembly, seals and spacers, injectors.

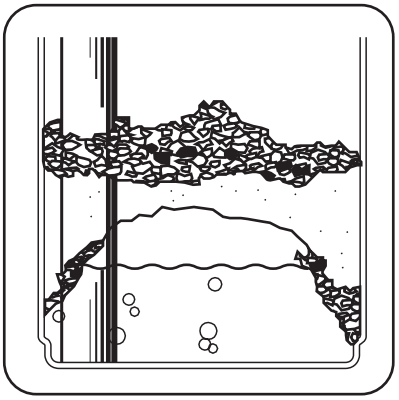
Maintenance of your new water conditioner requires very little time or effort but it is essential. Regular maintenance will ensure many years of efficient and trouble free operation.

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.

CAUTION!

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

MAINTENANCE INSTRUCTIONS AND SCHEDULE

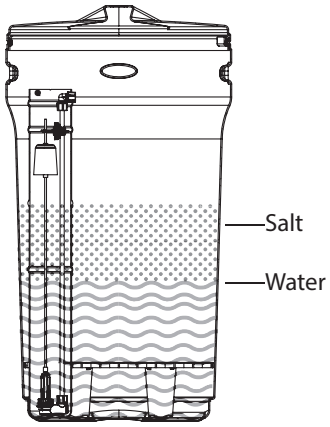
Checking the Salt Level

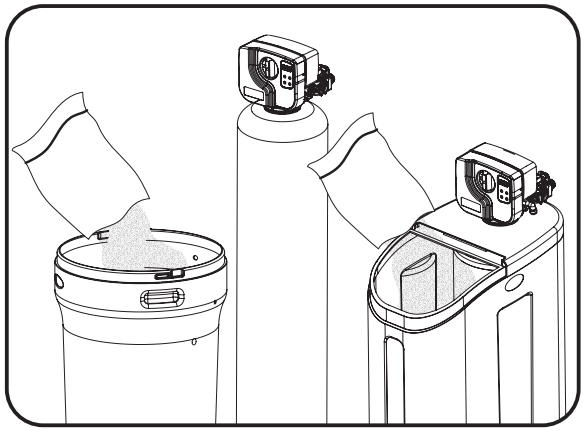
Check the salt level monthly. Remove the lid from the cabinet or brine tank, make sure salt level is always above the brine level.

Add Salt to the Brine Tank

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.

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:

_____

_____

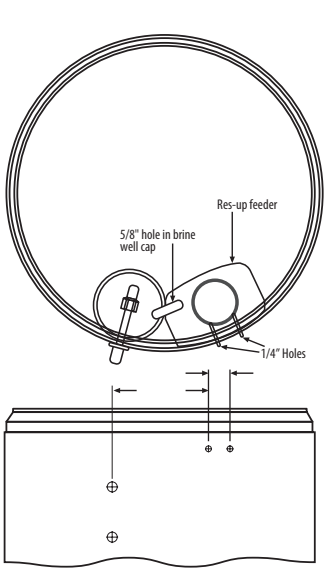
_____

_____

_____

_____

RES-UP® FEEDER INSTALLATION INSTRUCTIONS (OPTIONAL)

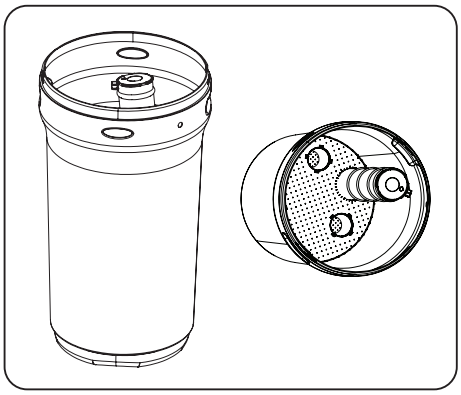


Res Up Feeders or Res Care Feeders attach to your brine tank and automatically dispense the Resin cleaner into the brine solution where it cleans the resin during the regeneration cycle.

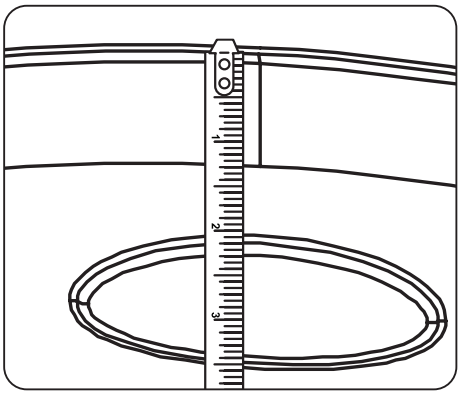
The feeder hooks onto the tube inside your brine tank and you just pour some chemical in. A res-up feeder or res-care Feeder is essential if your raw water contains measurable amounts of iron.

Res-up Feeder Bottle (Chemical sold Separately)
The 12 cc feeder (Part # 33010) is for softeners up to 64,000 grains (2 ft3 of resin).
The 30 cc feeder (Part # 33018) is for larger softeners over 64,000 grains.
55030007 1/2 oz rescare starter kit
55030008 1 oz rescare starter kit
80030022 Pro Rescare 64 oz
Pro-Res Care Chemicals
Item #45147 Pro-ResCare - Gallon
Item #45148 Pro-ResCare - Quart

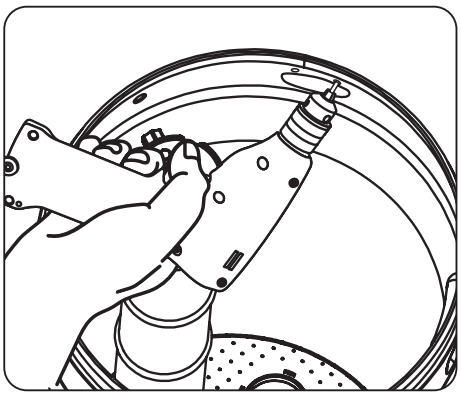
Installation of Res Up Feeder in Round Brine Tank (Optional)



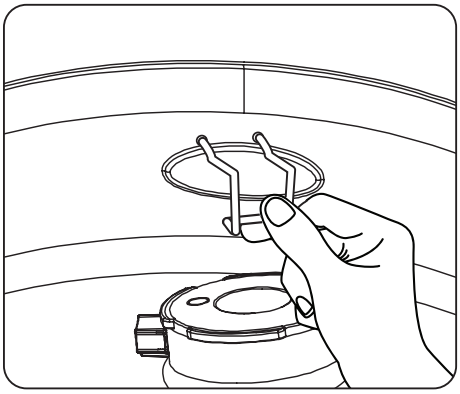
1. Install the grid and brine well inside the round tank.



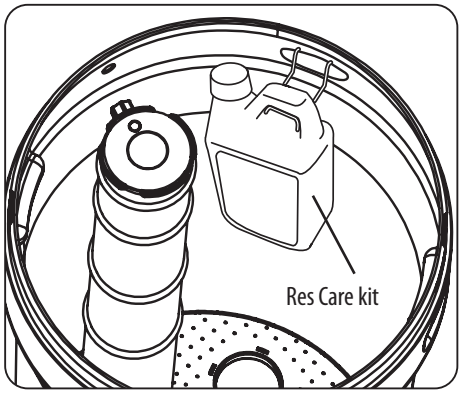
2. Measure 2 inches from the top of the tank beside the oblong molding.

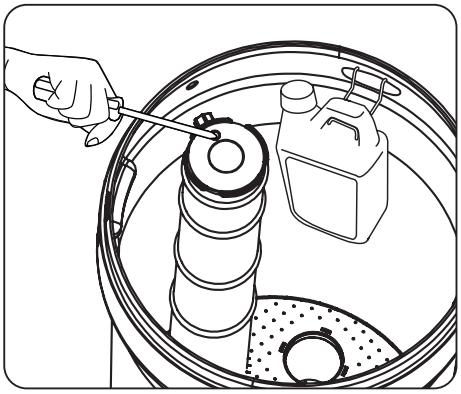


3. Mark the location of the holder and drill.

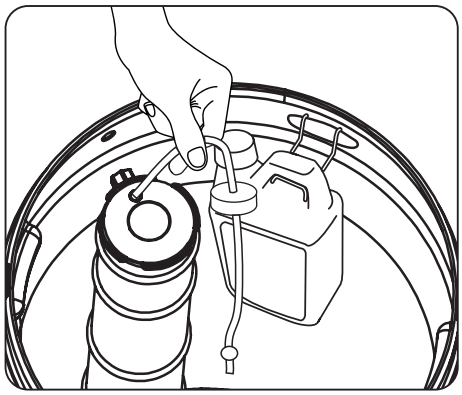


4. IInstall the holder and the Res Care Solution





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 765 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.

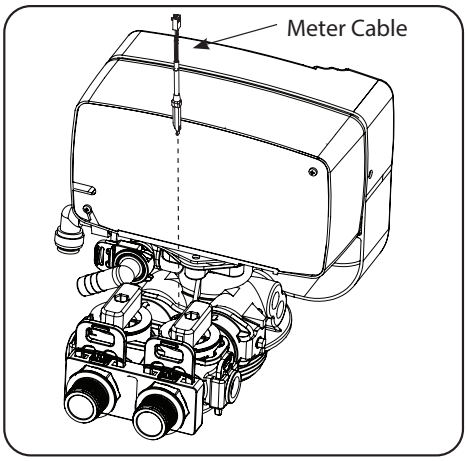
WARNING!

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

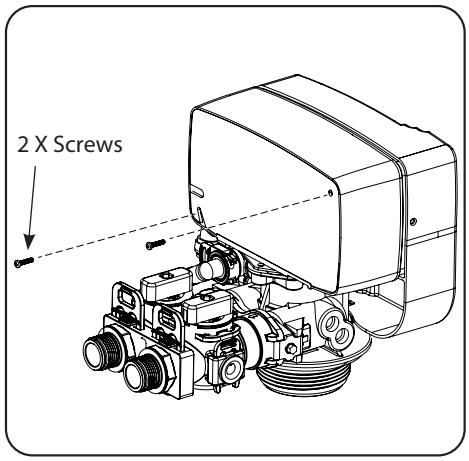
CAUTION!

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

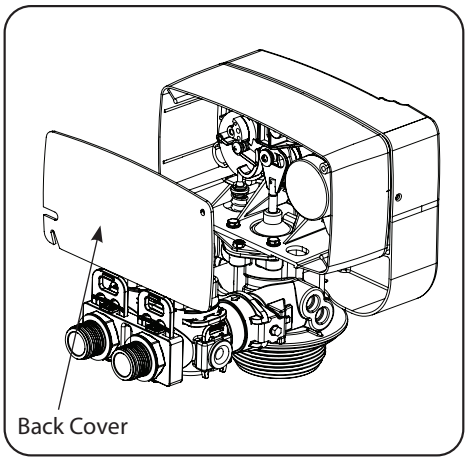
TIMER REPLACEMENT

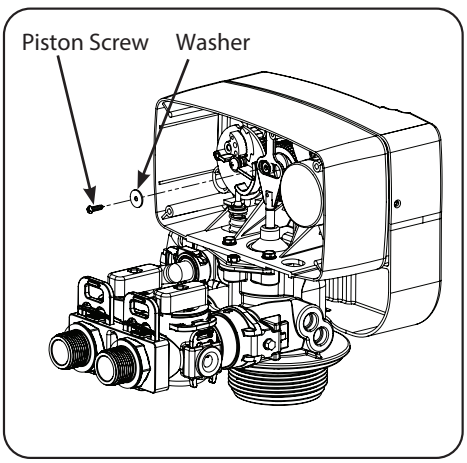


1. Disconnect the meter cable from the meter. (If flow meter is attached)

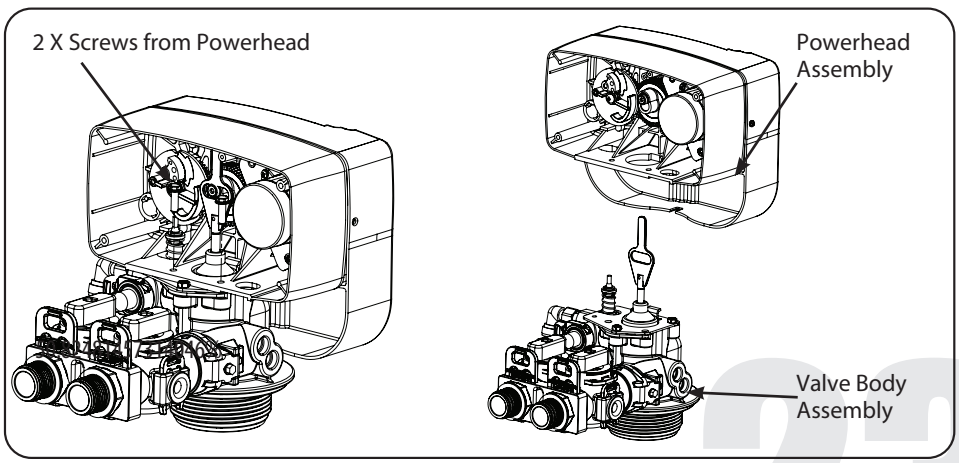


2. Remove two screws from the back of the valve cover



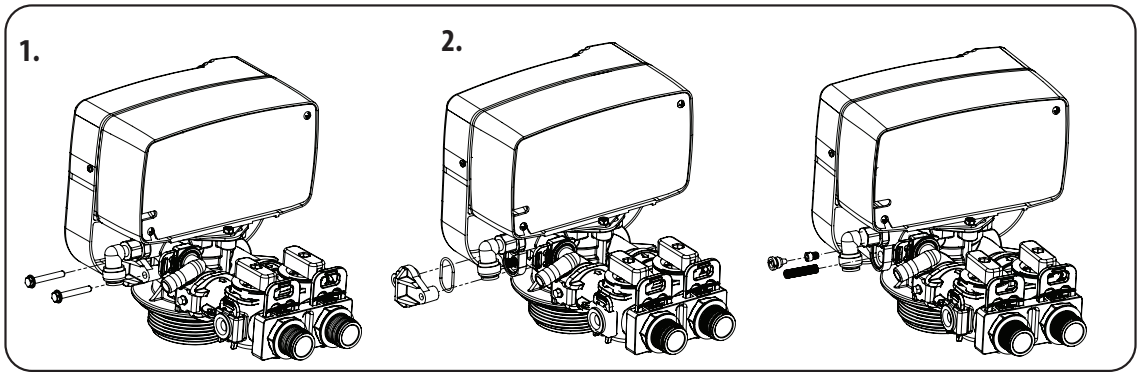


3. Remove the piston screw and washer from the piston rod.



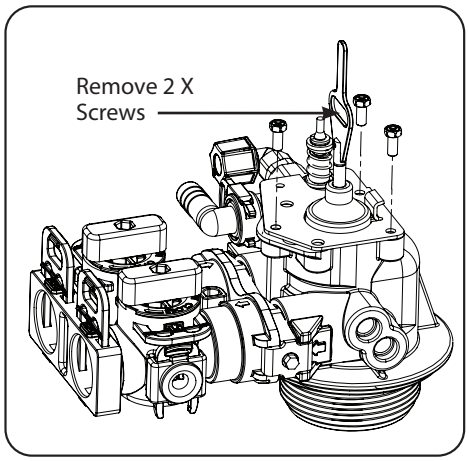
4. Remove the two screws from the powerhead as shown
5. Life the powerhead from the valve body assembly
6. Replace the powerhead by reverse following the steps in this section

CLEAN INJECTOR ASSEMBLY

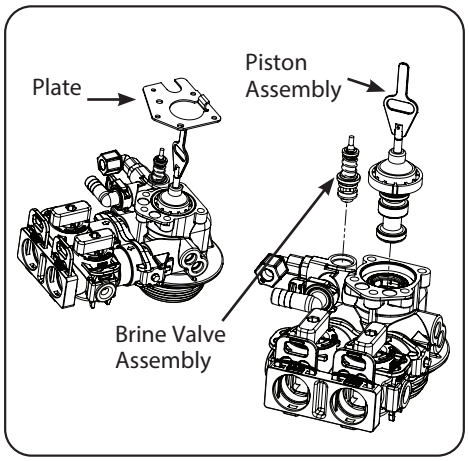


1. Remove two screws of the injector cap.
2. Pull the Injector Cap off, Remove the injector assembly, oring and screen, clean the injectors with Res Care solution, vinegar, or similar solution such as CLR. Replace the injectors , snug only do not overtighten.

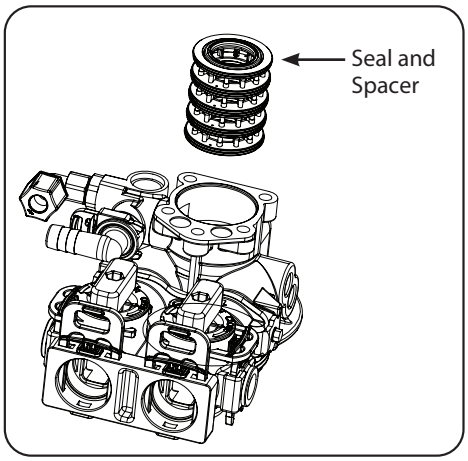
PISTON AND/OR BRINE VALVE ASSEMBLY REPLACEMENT



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

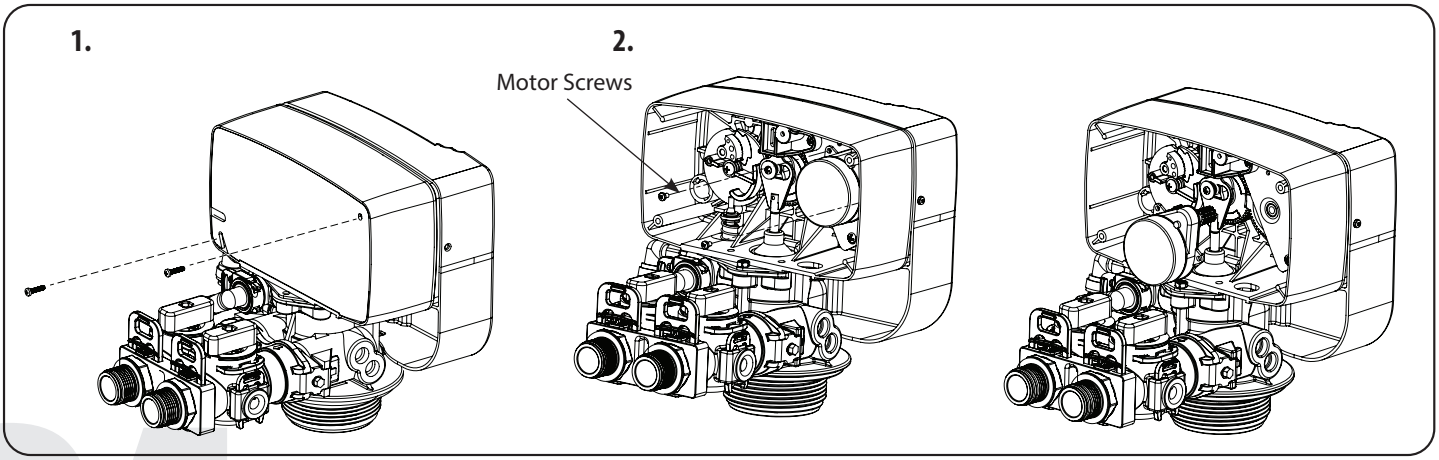


3. Remove the plate from the valve body and pull the Piston Assembly from the valve. The brine valve assembly can also be removed in this stage.
4. Remove the seal spacer assembly, grease it with silicone lubricant and put back in.



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

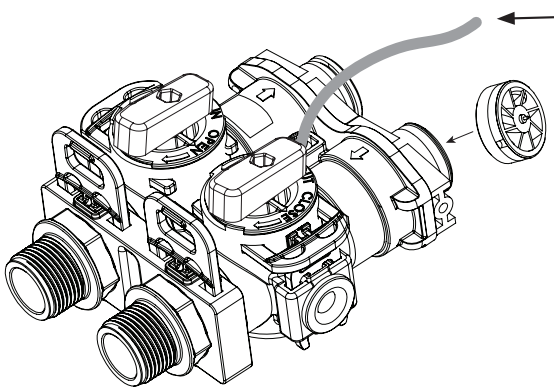
REPLACE MOTOR



1. Remove back cover by removing two screws
2. Remove motor screws as shown and pull the motor

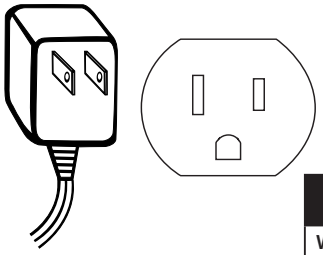
REPLACING THE BYPASS AND METER CABLE

60095101	Bypass comes with Meter and Grey Meter Cable



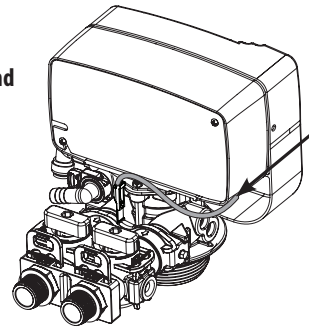
Step 1

Unplug the power from the wall socket.



Step 2*

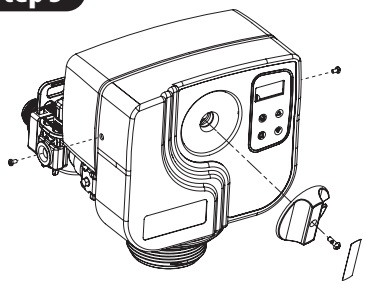
Remove 2 screws and clips from bypass.



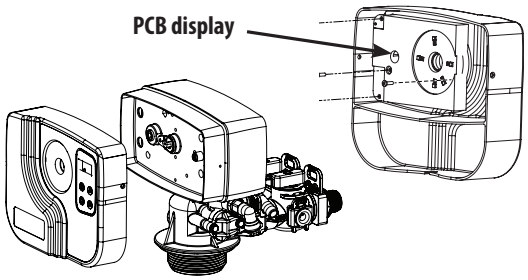
***NOTE**

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

Step 3 **Remove Cover.**

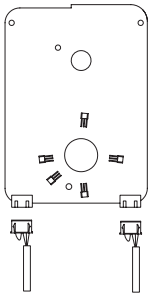


PCB display



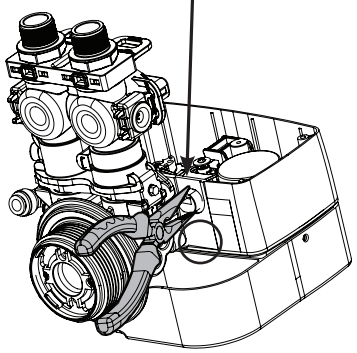
Step 4

Disconnect the cables from the front PCB display.



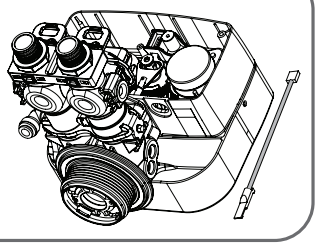
Step 5

Remove strain relief with pliers.



Step 6

Replace the old cable with the new Cable.



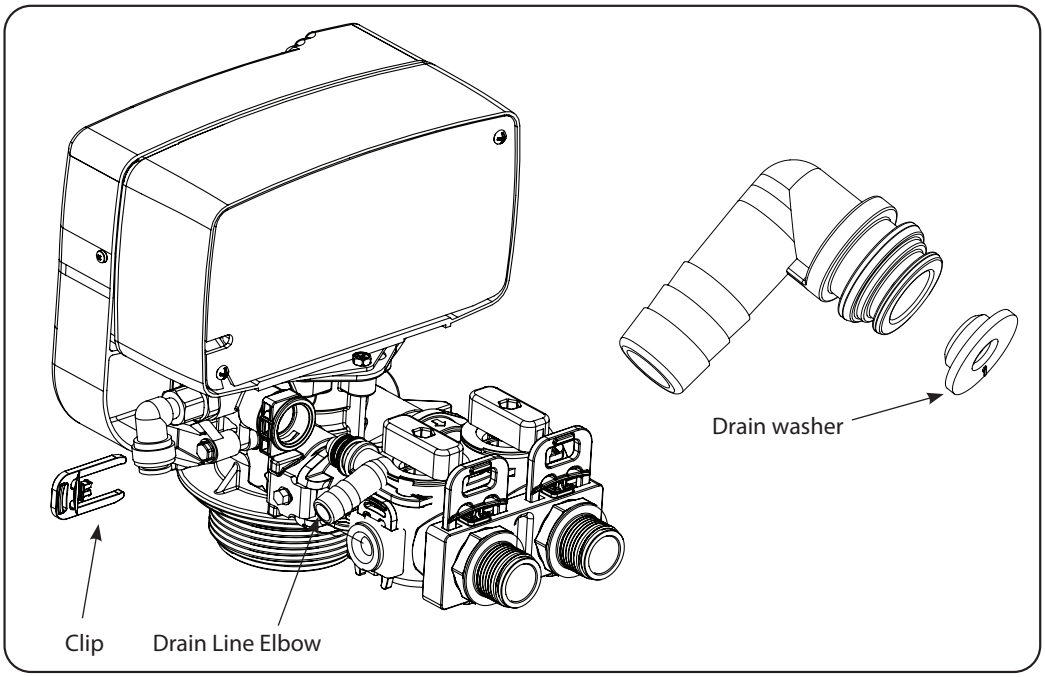
Step 7

Assemble the valve. Plug the power supply back into the wall socket and follow the programming shown on right:

If there are "TB-L" and "TB-H" meter type options in PCB programming, select "TB-H".
If the valve programming has no "TB-L" and "TB-H" options, change the meter ratio to the new value as per chart below:*
For 65 Series Valves press SELECT+UP+DOWN for 3 seconds to get to Factory Settings
For 465/565 Valves press SET/REGEN.+UP+DOWN for 3 seconds to get to Factory Settings.
Press the **SET** to step through to PROGRAMING COMPLETE and past this until TIME OF DAY screen appears.

Valve	Region	Meter Ratio
EconoFlo	U.S Gallon	0.498

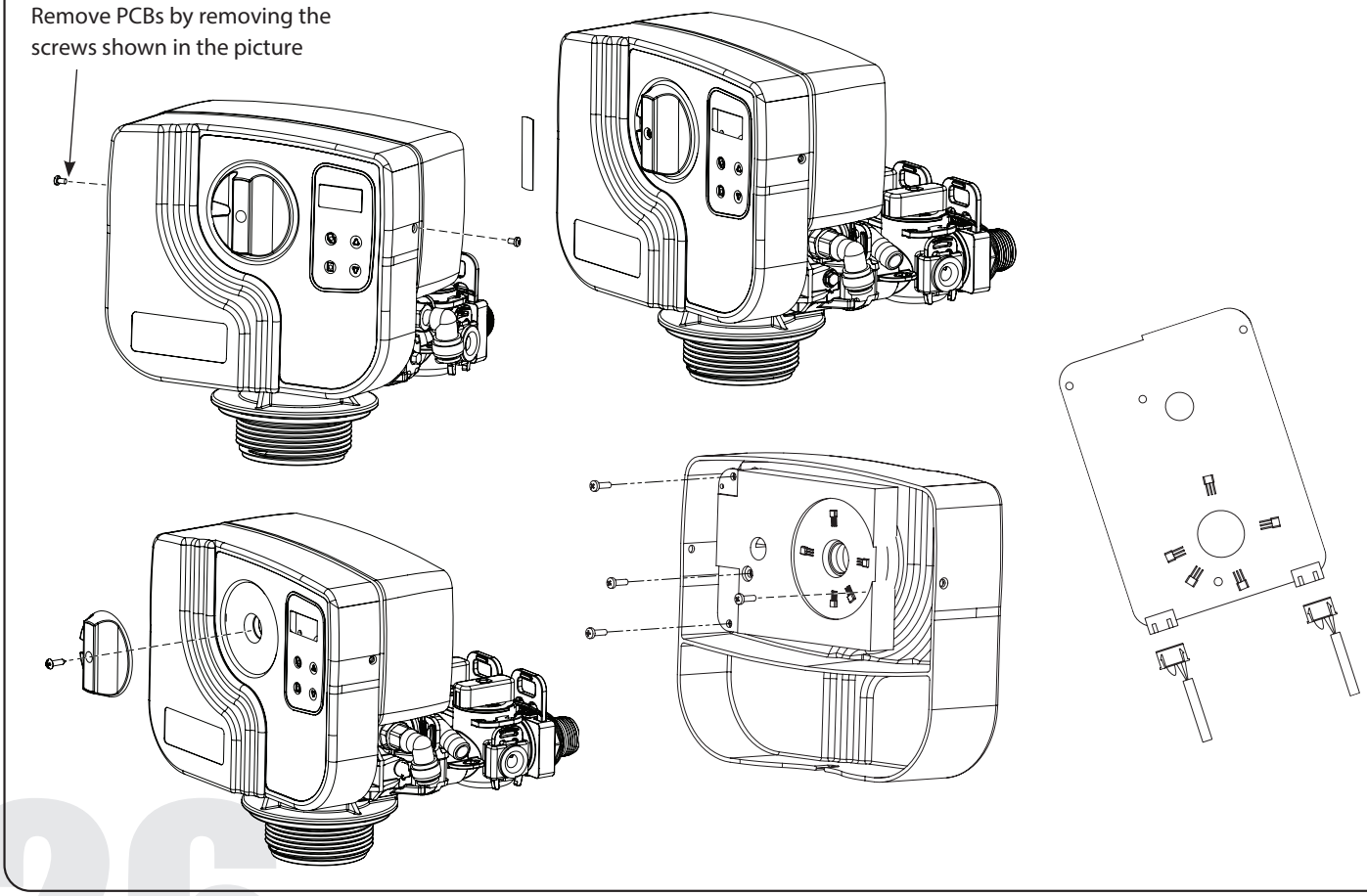
REPLACE DRAIN LINE FLOW CONTROL



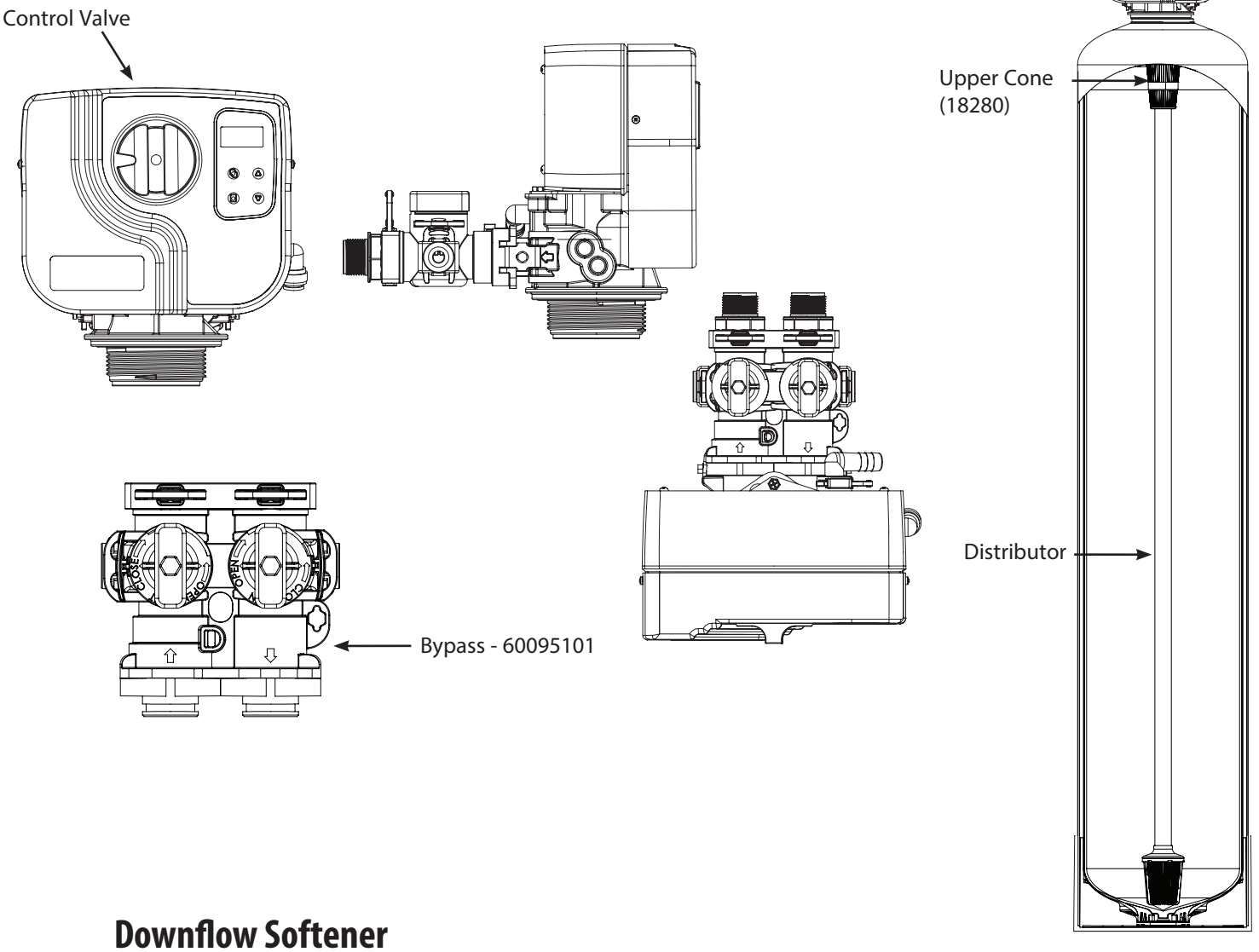
1. Pull the drain line clip and remove the drain line elbow and washer
2. Clean/replace drain line washer

REPLACING PCBS

Remove PCBs by removing the screws shown in the picture



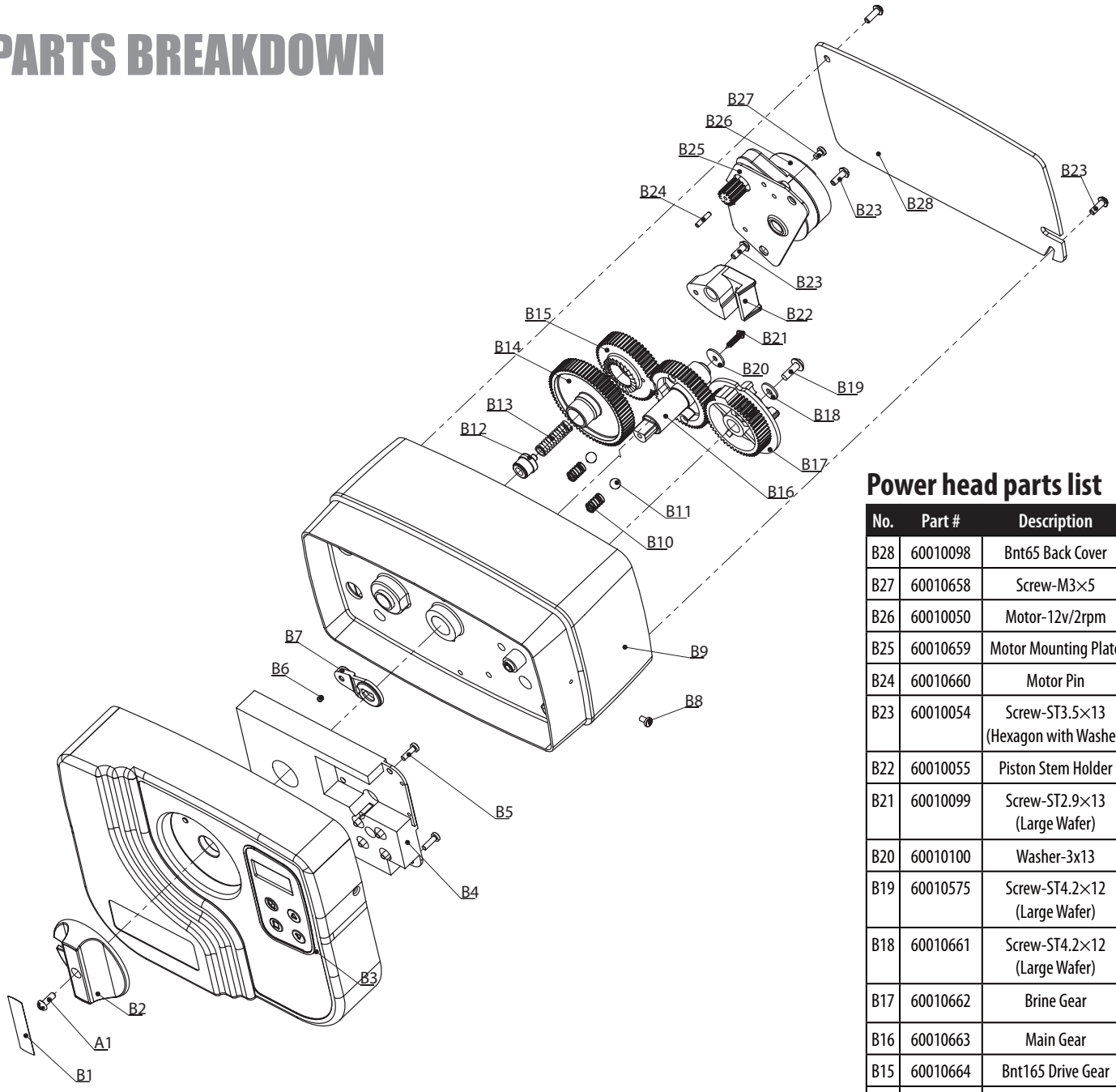
PARTS BREAKDOWN



Downflow Softener

Model	Mineral Tank Size	Tank # (Natural Color)	Distrubutor#	Valve #	Media Bed #
Softener Downflow (Single Tank)					
HT765-75	9 x 35	25010028	50010005	10010032	95600
HT765-100	10 x 35	25010043	50010005		95601
HT765-150	10 x 47	25010070	50010005		95606
HT765-200	12 x 52	25010058	50010005		95609
HT765-250	14 x 65	25030001 and 50040039	50010010		95604

PARTS BREAKDOWN

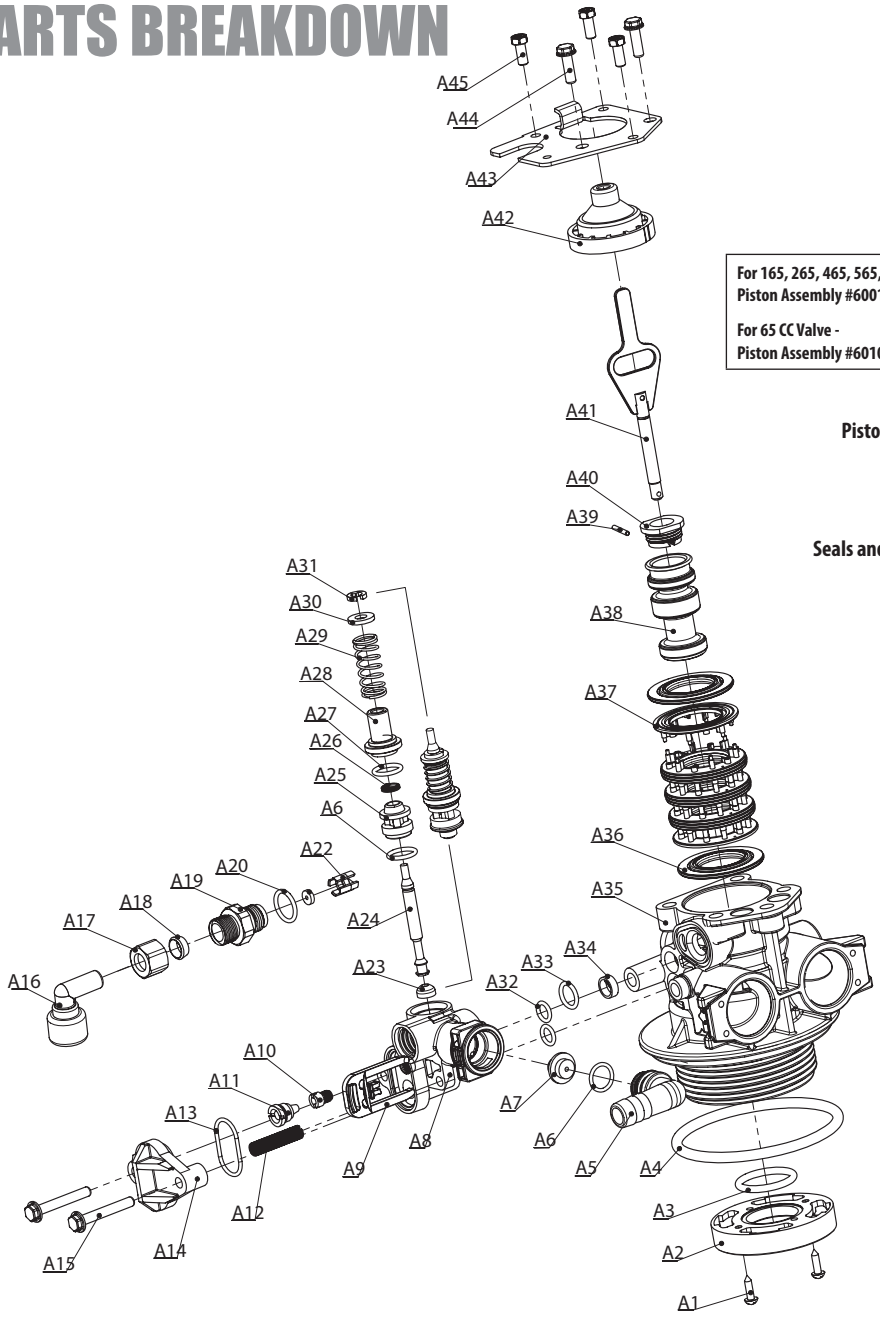


Power head parts list

No.	Part #	Description	Qty
B28	60010098	Bnt65 Back Cover	1
B27	60010658	Screw-M3×5	2
B26	60010050	Motor-12v/2rpm	1
B25	60010659	Motor Mounting Plate	1
B24	60010660	Motor Pin	1
B23	60010054	Screw-ST3.5×13 (Hexagon with Washer)	4
B22	60010055	Piston Stem Holder	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	60010662	Brine Gear	1
B16	60010663	Main Gear	1
B15	60010664	Bnt165 Drive Gear	1
B14	60010677	Idler Gear	1
B13	60010103	Spring Idler	1
B12	60010666	Spring Retainer	1
B11	60010667	Ball-1/4inch	2
B10	60010668	Spring Detent	2
B9	60010669	Bnt65 Housing	1
B8	60010295	Screw-ST2.9×10 (CSK)	2
B7	60010671	Magnet Holder	1
B6	60010672	Magnet-φ3×2.7	1
B5	60010673	Screw-ST2.9×10	5
B4	60010107	Bnt165 PCB Board	1
B3	60010345	Bnt165 Front Cover	1
B2	60010675	Bnt65 Knob	1
A1	60010574	Screw-ST3.5×13	1
B1	80080003	Bnt65 Knob Label	1

Part #	Description	Qty
60010052	Transformer	1
60010105	Transformer Ext. Cable	1
60010115	Meter Cable 165 / 465 / 565 / EconoFlo	1
60010123	Power Cable	1

PARTS BREAKDOWN



For 165, 265, 465, 565, 665, 765 - Piston Assembly #60010027

For 65 CC Valve - Piston Assembly #60102-00

Piston Assembly 60010027

Seals and Spacer Kit 60125

Brine Valve 60032

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	60010508	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	
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

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

Injector Assemblies A10 and A11

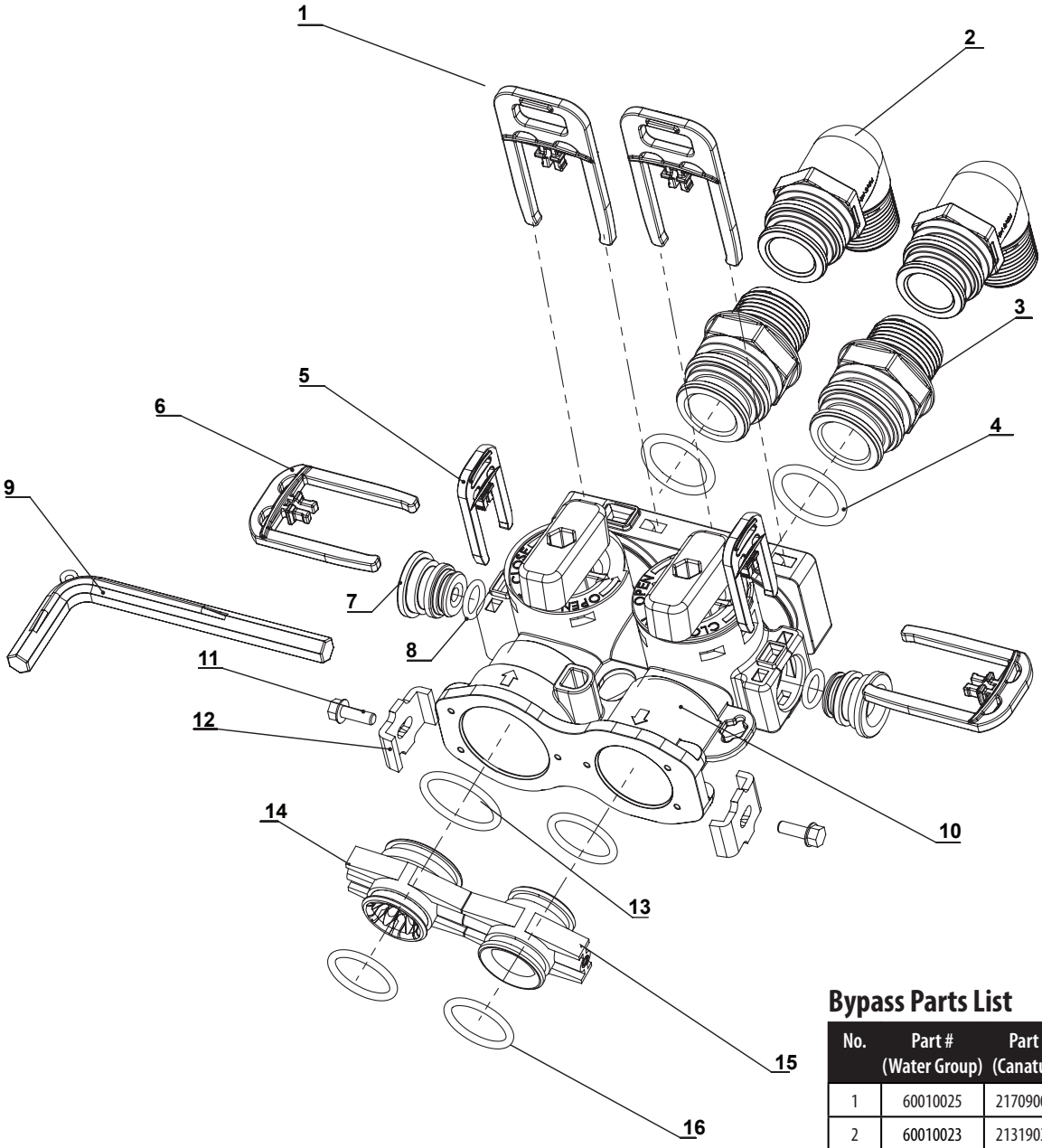
	Part #	Part Description
A21	60010110	BLFC BUTTON #2 0.3GPM A32
A21	60010082*	BLFC BUTTON #2 0.7GPM A32
A21	60010128	BLFC BUTTON 0.2GPM
60010127	60010601	INJECTOR SET #0000 BLACK THROAT
60010127	60010602	NOZZLE #0000 BLACK THROAT
60010126	60010603	INJECTOR SET #000 GREY THROAT
60010126	60010604	NOZZLE #000 GREY THROAT
60010035	60010605	INJECTOR SET #00 VIOLET THROAT
60010035	60010606	NOZZLE #00 VIOLET THROAT
60010034	60010607	INJECTOR SET #0 RED THROAT
60010034	60010608	NOZZLE #0 RED THROAT
60010033	60010609*	INJECTOR SET #1 WHITE THROAT
60010033	60010610*	NOZZLE #1 WHITE THROAT
60010032	60010611	INJECTOR SET #2 BLUE THROAT
60010032	60010612	NOZZLE #2 BLUE THROAT

*** Default**

Injector Assemblies A10 and A11 / A7

	Part #	Part Description
60010031	60010613	INJECTOR SET #3 YELLOW THROAT
60010031	60010614	NOZZLE #3 YELLOW THROAT
60010686	60010685	INJECTOR SET #4 GREEN THROAT
60010686	60010686	NOZZLE #4 GREEN THROAT
A7	60010131	DLFC #1 1.5GPM
A7	60010132	DLFC #2 2.0GPM
A7	60010133	DLFC #3 2.4GPM
A7	60010135	DLFC #5 3.5GPM
A7	60010041	DLFC #6 4GPM
A7	60010169	DLFC #7 5GPM
A7	60010136	DLFC #A 5.0GPM
A7	60010137	DLFC #B 7.0GPM
A7	60010138	DLFC #C 11.0GPM

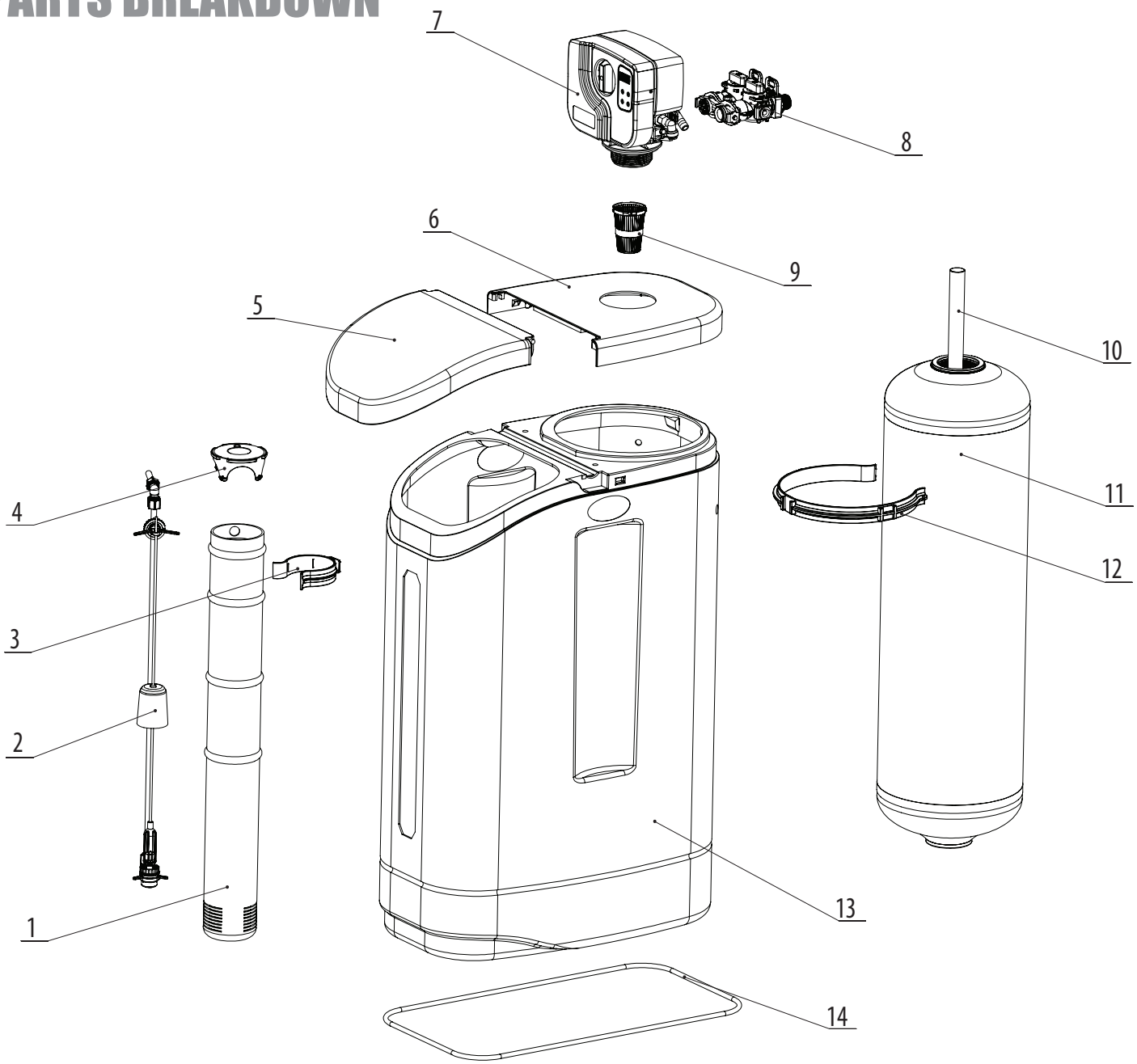
PARTS BREAKDOWN



Bypass Parts List

	No.	Part # (Water Group)	Part # (Canature)	Description	Qty
	1	60010025	21709003N	Secure Clip Inlet and Oulet	2
	2	60010023	21319036N	Elbow 3/4" NPT Inlet and Oulet	2
	3	60010019	21319011N	Straight 1" NPT Inlet and Oulet	2
	4	60010026	26010143	O-ring on Inlet and Outlet	2
60095101	5	92846	05056155N	Plug Clip	2
	6	60095090	21709004B	Shaft Clip	2
	7	60010209	05056146	Bypass Plug	2
	8	60010044	05056134	O-ring on Plug	2
	9	60010006	70020007	Bypass Tool	1
	10		05056212	063 Bypass Body	1
	11	60010701	13000327	Screw on SS Clip	2
	12	60010046	05056044B	SS Clip	2
	13	60010561	26010046	Big O-ring on Connector(Outlet)	1
	14	60010101	05010083N	Valve-Bypass Connector(Outlet)	1
	15	60010079	05056025M	Valve-Bypass Connector(Inlet)	1
	16	60010562	05056129	Small O-ring on Connector(Outlet)	3

PARTS BREAKDOWN



Cabinet Parts List

No.	Part #	Description	Qty
14		Trim Strip	1
13		Softener Cabinet(Grey)	1
12	60010361	Pressure Tank Clamp	1
11	25020019	TANK ASSY 935 NAT	1
	25020020	TANK ASSY 1035 NAT	1
10	50010020	Distribution Assy-1035	1
9	18280	Top Cone	1
8	60095097-1	Bypass Valve Assy	1
7		765 Control Valve(Grey)	1
6	55010031	Softener Low Cover	1
5	85010132	Softener Salt Lid	1
4	55020002	Brine Well Cap	1
3	60010362	Brine Well Clamp	1
2	55010023	0435 Brine Valve	1
1	55010010	0435 Brine Well	1

TROUBLE SHOOTING

Issue	Possible Cause	Possible Solution
A. Unit fails to initiate a regeneration cycle.	1. No power supply.	Check electrical service, fuse, etc.
	2. Defective circuit board.	Replace faulty parts.
	3. Power failure.	Reset time of day.
	4. Defective meter.	Replace turbine meter.
B. Water is hard.	1. By-pass valve open.	Close by-pass valve.
	2. Out of salt or salt level below water level.	Add salt to tank.
	3. Plugged injector / screen.	Clean parts.
	4. Flow of water blocked to brine tank.	Check brine tank refill rate.
	5. Hard water in hot water tank.	Repeat flushing of hot water tank required.
	6. Leak between valve and central tube.	Check if central tube is cracked or o-ring is damaged. Replace faulty parts.
	7. Internal valve leak.	Replace valve seals, spacer, and piston assembly.
	8. Reserve capacity setting too low.	Increase reserve capacity.
	9. Not enough capacity.	Increase salt dosage.
C. Salt use is high.	1. Refill time is too high.	Check refill time setting.
	2. Defective flow control.	Replace.
D. Low water pressure.	1. Iron or scale build up in line feeding unit.	Clean pipes.
	2. Iron build up inside valve or tank.	Clean control and add resin cleaner to clean bed. Increase regeneration frequency.
	3. Inlet of control plugged due to foreign material.	Remove piston and clean control valve.
	4. Deteriorated resin. (Maybe caused from high chlorine or chloramines.)	Re-bed unit. Consider adding carbon pre-treatment.
E. Resin in drain line.	1. Air in water system.	Check well system for proper air eliminator control.
	2. Incorrect drain line flow control (DLFC) button.	Check for proper flow rate.
F. Too much water in brine tank.	1. Plugged injector or screen.	Clean parts.
	2. Valve not regenerating.	Replace circuit board, motor, or control.
	3. Foreign material in brine valve.	Clean parts.
	4. Unit not drawing brine.	Check for vacuum leak in brine line connections.
G. Unit fails to draw brine.	1. Drain line flow control is plugged.	Clean parts.
	2. Injector or screen is plugged.	Clean parts.
	3. Inlet pressure too low.	Increase pressure to 25 PSI.
	4. Internal valve leak.	Replace seals, spacers, and piston assembly.
	5. Safety valve closed.	Check for leak in brine line connections. Replace safety float assembly.
	6. Vacuum leak in brine line.	Check for leak in brine line connections. Tighten all connections.
	7. Drain line has kink in it or is blocked.	Check drain line.
H. Valve continuously cycles.	1. Defective position sensor PCB.	Replace faulty parts.
I. Flow to drain continuously.	1. Valve settings incorrect.	Check valve settings.
	2. Foreign material in control valve.	Clean control.
	3. Internal leak.	Replace seals, spacers, and piston assembly.
	4. Piston is stuck in position. Motor may have failed or gears have jammed or disengaged.	Check for power to motor. Check for loose wire. Check for jammed gears or gears disengaged. Replace faulty parts.
J. Valve makes beeping sound.	1. The piston has not advanced to the next cycle position properly.	Check for power to motor. Check for loose wire. Check for jammed gears or gears disengaged.

MASTER PROGRAMMING

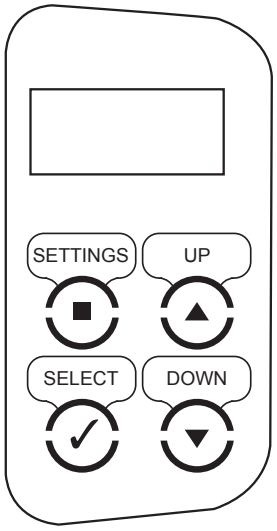
Key Pad Configuration:

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

SELECT - This function is to accept the values if changed and advance to the next page in the menu.

UP/DOWN - These buttons are used to increase or decrease the value of the settings while in the programming mode.

Familiarize with Button Configuration:



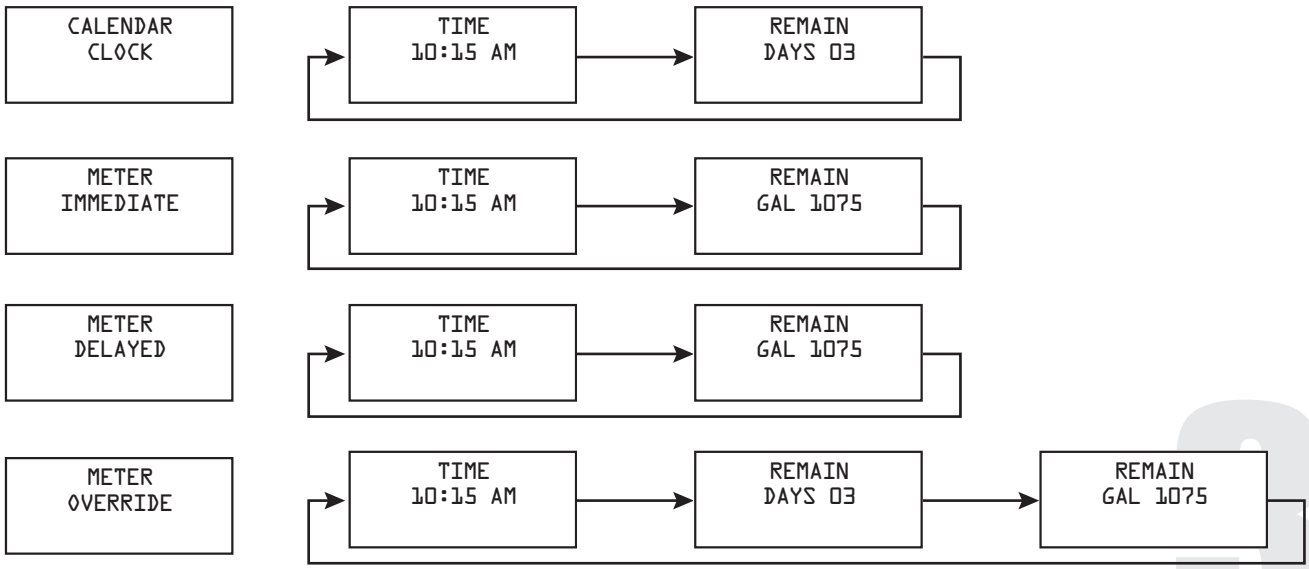
PROGRAMMING LEVELS

There are 3 levels to the valve program. Master options and Factory options are typically adjusted at the factory. These options link the PCB function with the type of control valve and **should not be tampered with**. Advanced options are used to configure the unit when the valve is assembled to the tank so that it can function as the proper size and intended system operation. Settings are the final options chosen when the unit is installed to a specific location.

PROGRAM LEVEL	USER ACCESS
MASTER (III)	These settings are programmed by the factory. The settings are important for the operation of the valve that should only be changed by a qualified person.
FACTORY (II)	These settings are programmed by the factory and should be adjusted when the valve is assembled into a unit or system. It contains important settings so the valve will operate properly for the type of system it is intended for. The settings should only be changed by qualified person.
USER SETTINGS(I)	These settings are programmed when the unit is installed. The settings should only be adjusted by a qualified person.

MAIN DISPLAY OPTIONS

The main display page according to the regeneration mode setting. The display will alternate between the time of day, remaining gallons, or remaining days.



MASTER PROGRAMMING

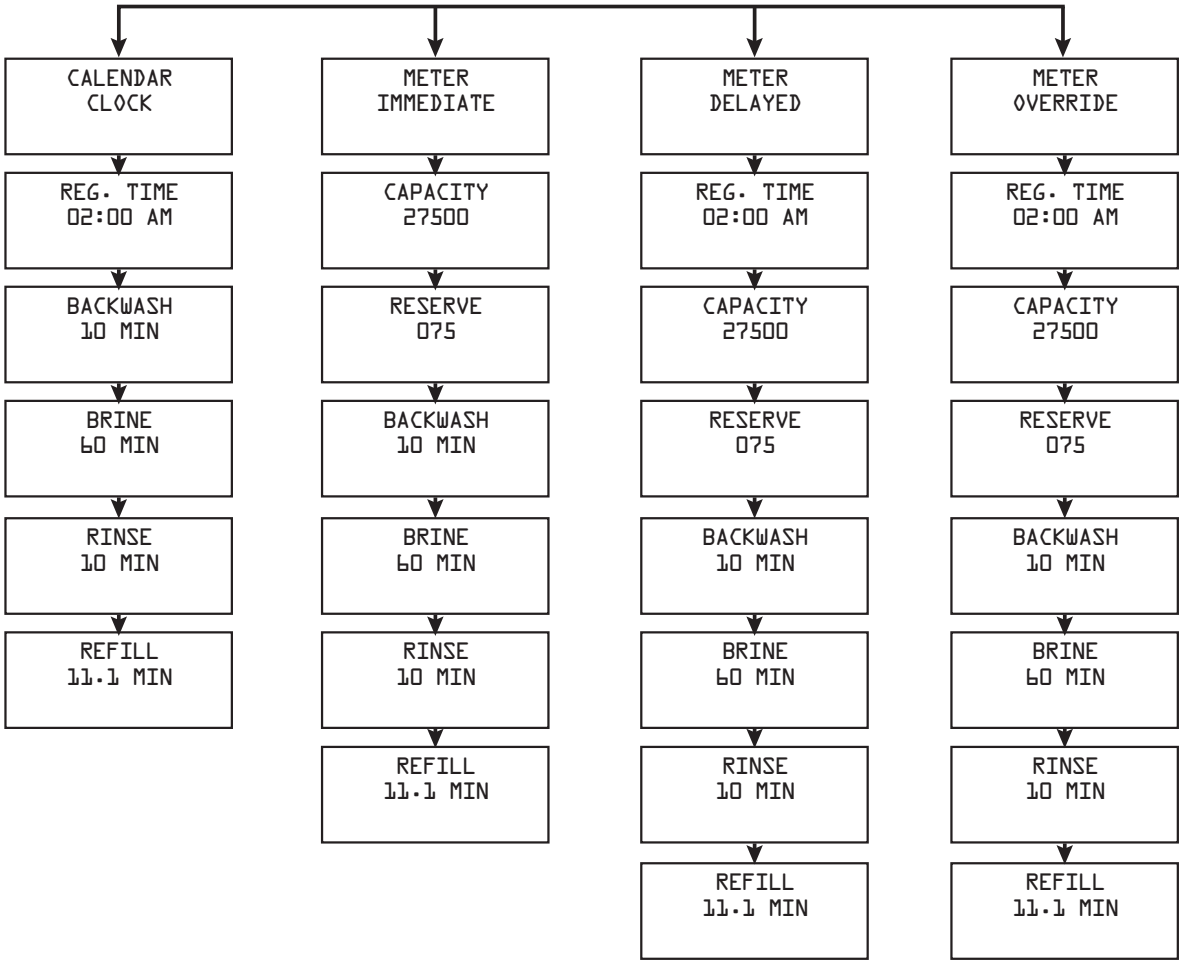
FACTORY OPTIONS (LEVEL II)

Press **UP** and **DOWN** key Hold until you hear a beep (3 seconds).

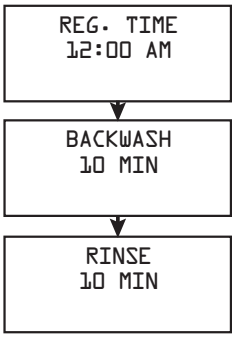
Press **UP** or **DOWN** key to change value.

Press **SELECT** key accept change and advance to next page.

SOFTENER MODE



FILTER MODE



CAUTION:

The values in this page are for illustration purpose and can be changed by the factory without notice. Please contact Customer Service to confirm proper settings.

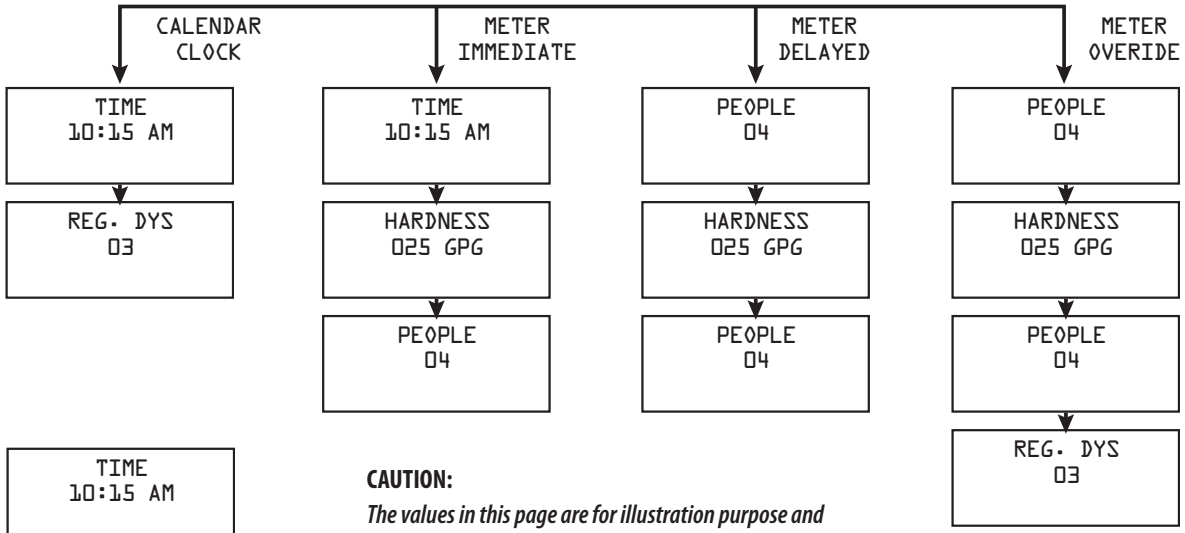
MASTER PROGRAMMING

USER SETTINGS (LEVEL I)

Press **SETTINGS** key

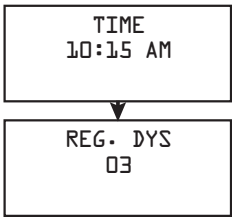
Press **UP** or **DOWN** key to change value.

Press SELECT to accept change and advance to next page.



SOFTENER MODE

FILTER MODE



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665 ECONO FLO Programming						11/9/2018
	MODELS	**EFC20/EFT20**	**EFC30/EFT30**	**EFT40**	**EFT60**	**EFT90**
PRESS 'SELECT' & 'UP' & 'DOWN' FOR 8 SECONDS. PRESS SELECT TO HIGHLIGHT. PRESS UP OR DOWN TO CHANGE. PRESS SELECT TO ACCEPT	SOFTENER VALVE	SOFTENER VALVE	SOFTENER VALVE	SOFTENER VALVE	SOFTENER VALVE	SOFTENER VALVE
	METER	TB-H	TB-H	TB-H	TB-H	TB-H
	METER RATIO A	1.90	1.90	1.90	1.90	1.90
	METER RATIO K	0.443	0.443	0.443	0.443	0.443
	SERVICE	2.0s	2.0s	2.0s	2.0s	2.0s
	BACKWASH	2.0s	2.0s	2.0s	2.0s	2.0s
	BRINE	2.0s	2.0s	2.0s	2.0s	2.0s
	RINSE	0.0s	0.0s	0.0s	0.0s	0.0s
	REFILL	2.0s	2.0s	2.0s	2.0s	2.0s
	SALT SET	10	12 LBS	12 LBS	12 LBS	12 LBS
PRESS "UP" & "DOWN" FOR 8 SECONDS. PRESS UP OR DOWN TO CHANGE. PRESS SELECT TO ACCEPT	METER DELAYED	METER DELAYED	METER DELAYED	METER DELAYED	METER DELAYED	METER DELAYED
	REGEN TIME	2:00 AM	3:00 AM	4:00 AM	5:00 AM	7:00 AM
	CAPACITY	16,500	22000	27,500	44,000	66,000
	RESERVE	075	075	075	075	075
	BACKWASH	10 MIN	10 MIN	10 MIN	10 MIN	10 MIN
	BRINE	60 MIN	60 MIN	60 MIN	60 MIN	60 MIN
	RINSE	10 MIN	10 MIN	10 MIN	10 MIN	10 MIN
	REFILL	02.2 MIN	02.9 MIN	04.4 MIN	05.8 MIN	08.7 MIN
PRESS SETTINGS. PRESS UP OR DOWN TO CHANGE. PRESS SELECT TO ACCEPT	TIME	DEFAULT	DEFAULT	DEFAULT	DEFAULT	DEFAULT
	Water Hardness	25	25	25	25	25
	PEOPLE	DEFAULT	DEFAULT	DEFAULT	DEFAULT	DEFAULT
VALVE SETTINGS	Injector	#1	#1	#1	#2	#3
	Injector Color	White	White	White	Blue	Yellow
	BLFC Washer	0.7	0.7	0.7	0.7	0.7
	DLFC Washer	1.5	2.4	2.4	3.5	5
	DLFC Code	#1	#3	#3	#5	#A
	BT Grid EXTs	0	0	0	0	0
	Upper Cone	YES	YES	YES	YES	YES

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