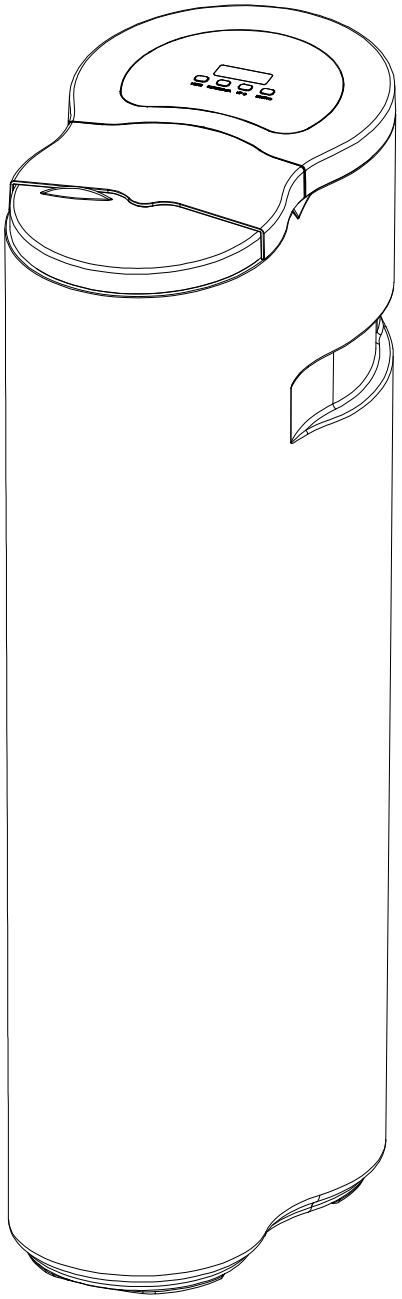
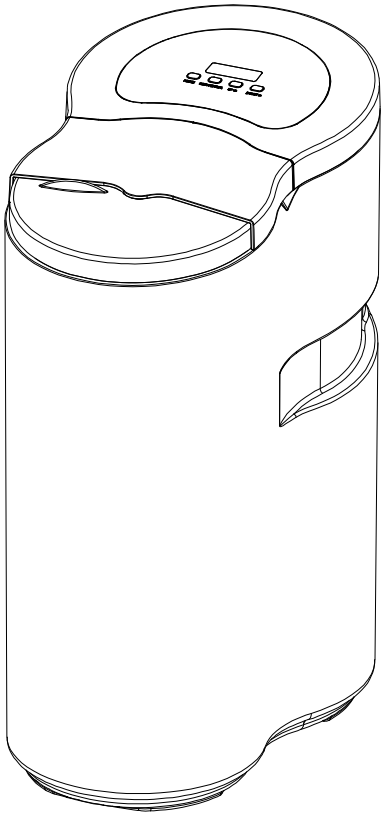
Owners Manual





CS13H Series

Water Softener

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.

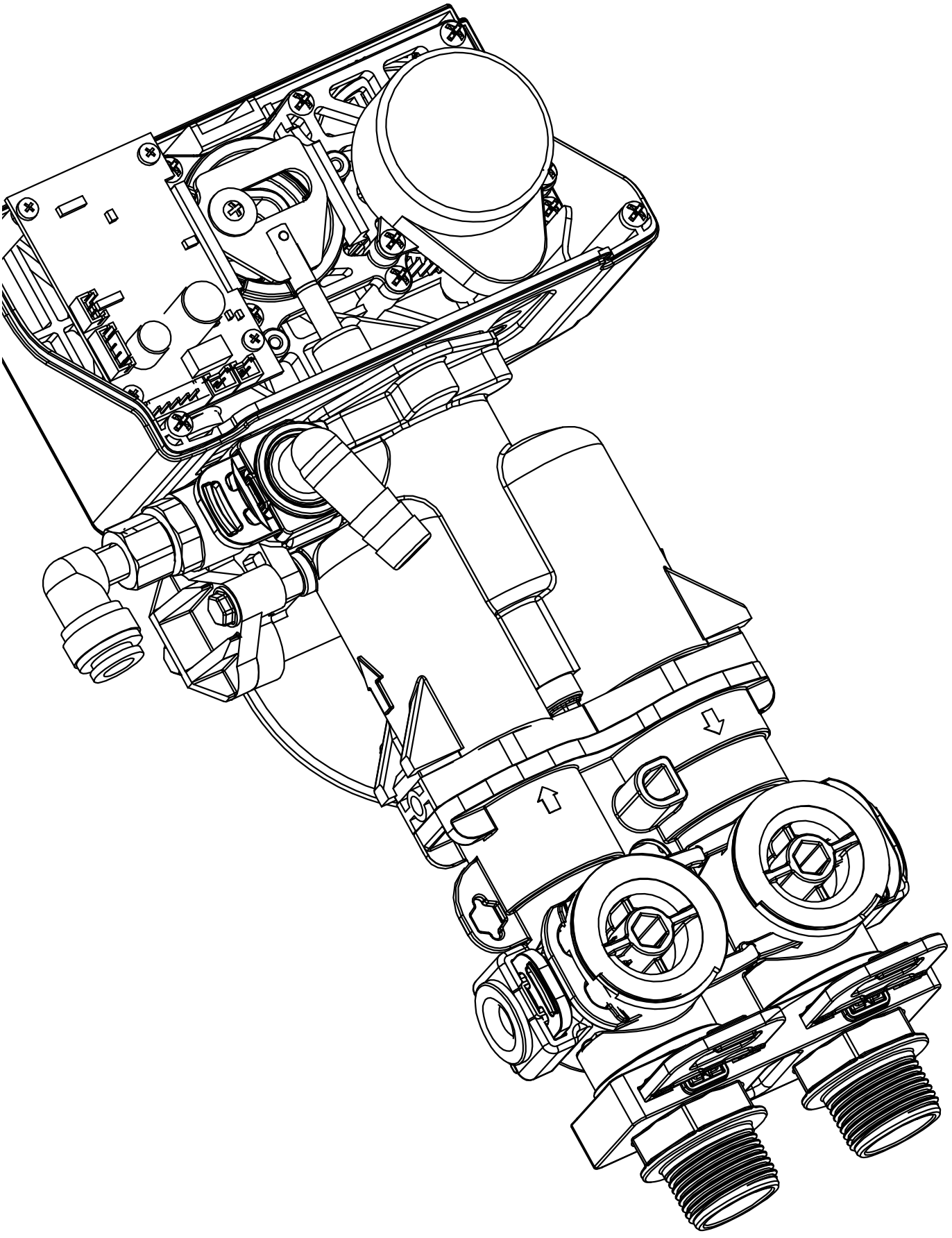


TABLE OF CONTENTS

READ THIS PAGE FIRST

BEFORE STARTING INSTALLATION

►You must read and understand the contents of this manual before installing or operating your water softener.

Personal injury or property damage could result if you fail to follow instructions in this manual.

►This system and its installation must comply with state and local regulations. Check with your local public works department for plumbing and sanitation codes. Local codes should be followed in the event the codes conflict with any content in this manual.

►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.

►This unit must be operated at temperatures between 4°C - 43°C （40°F and 110°F)

►Do not use this water softener 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.

► The appliance is only to be used with the power supply unit provided with the appliance.

► The appliance must only be supplied at safety extra low voltage corresponding to the marking on the appliance.

► Apply provided NSF certified lubricant to all o-rings during installation. Do not use pinched or damaged o-rings during installation.

► Softeners are 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 annually inspect and service the control valve. Frequent cleaning and/or replacement of piston, seals, and/or spacers may be necessary depending on how harsh the conditions are.

►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.

► This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.

► Children shall not play with the appliance.

► Cleaning and user maintenance shall not be made by children without supervision.

Canature Environmental Products Co., Ltd guarantees that your new water conditioner is built of quality material and workmanship. When properly installed and maintained, it will give years of trouble free service.

Canture 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:

EXAMPLE:

NOTE

Check and comply with your state and local codes. You must follow these guidelines.

EXAMPLE:

⚠ CAUTION

Disassembly while under pressure can result in flooding.

EXAMPLE:

⚠ WARNING

Electrical Shock Hazard! Unplug the unit before removing the cover or accessing any internal control parts.

WATER CONDITIONER BASICS

WHAT IS HARD WATER AND HOW IT IS SOFTENED

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

Water hardness is caused primarily by limestone dissolved from the earth by the 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. This softner has warranty disclaims of 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 calqled ferrous or "clear water" iron. 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. This type of iron can be removed from the water by the same ion exchange principle that removes the hardness elements, calcium and magnesium.

2. PARTICULATE IRON—Also called ferric or colloidal iron. This type of iron is an undissolved particle of iron. A filtering treatment will be required to remove this type of iron. A softener will remove larger particles, but the particles may not be washed out in regeneration effectively and will eventually foul the ion exchange resin.

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 bond down 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.

It's important that when a softener is removing both hardness and dissolved iron, it must regenerate more frequently than it normally would for just hardness. 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.

Regular resin bed cleaning is needed to keep the bed from coating with iron if you are operating a water softener on clear water 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 WATER FILTERED THROUGH THIS SOFTENER WHERE THE WATER IS MICROBIOLOGICALLY UNSAFE OR THE WATER IS OF UNKNOWN QUALITY. THE WATER MUST BE DISINFECTED BEFORE OR AFTER THE UNIT.**

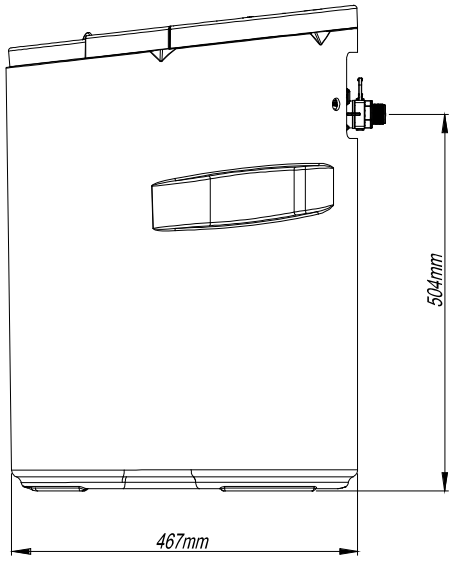
SOFTENER SYSTEM SPECIFICATIONS

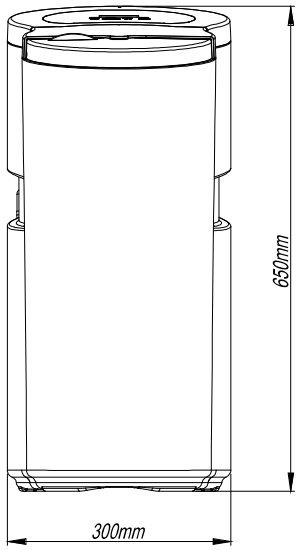
CANATURE BNT850 DF VALVE

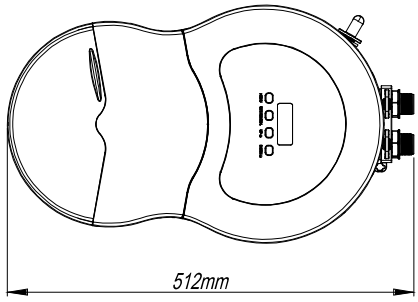
Performance Data Sheet and Specifications		
Model	CS13H-1017	CS13H-1035
Control System	BNT-850 Control Valve	
Regeneration Type	Down Flow	
Integrated Meter in Bypass	Yes	Yes
Hardness Removal(6 lb/cf Salt Dosage)	704 Gram	1408 Gram
Media Loaded	Yes	Yes
Resin Quantity	12.5 L	25 L
Resin Type	Extremely High Capacity Ion Exchange Resin - Exclusive	
Tank Size	10x17	10x35
Salt Storage Capacity	18 Kg	48 Kg
Recommended Service Flow Rate	6.7 L/M	13 L/M
Recommended Cycle Settings		
Backwash Duration Setting	3 Min	5 Min
Brine Duration Setting	20 Min	52 Min
Rinse Duration Setting	1 Min	3 Min
Refill Duration Setting	4.4 Min	8.8 Min
Salt Used - Per Regeneration(6 lb/cf Salt Dosage)	1.2 Kg	2.4 Kg
Water Used - Regeneration	60 L	130 L
Flow Rate(**Only valve**)		
Continuous Flow Rate @ 15 psi Pressure Drop	4500L/H	
Peak Flow Rate @ 25 psi Pressure Drop	5900L/H	
Back Wash Flow Rate@ 25 psi Pressure Drop	1600L/H	
Shipping Weight	21 Kg	50 Kg
Pipe Size	3/4" or 1"	
Plumbing Connections	Includes 3/4"Straight Fittings	
Electrical Requirements	Input 110V-120V / 220-240V AC 50/60Hz	
	Output 12V AC 650mA	
Water Temperature	3 ～ 38℃	
Water Pressure	0.14 ～ 0.86MPa	

- Capacities of conditioners may deviate from the chart above depending on flow rates and raw water conditions.
- Changing salt settings from factory setting may require changing injector sizes to achieve stated capacities.
- Hardness removal is based on standard salt setting(6lbs/cf).
- Iron content must not exceed 1 ppm. Beyond 1 ppm an iron softener must be used.
- Do not subject the unit to freezing temperatures.
- Do not use water that is microbiologically unsafe without adequate disinfection before or after the system.
- 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.

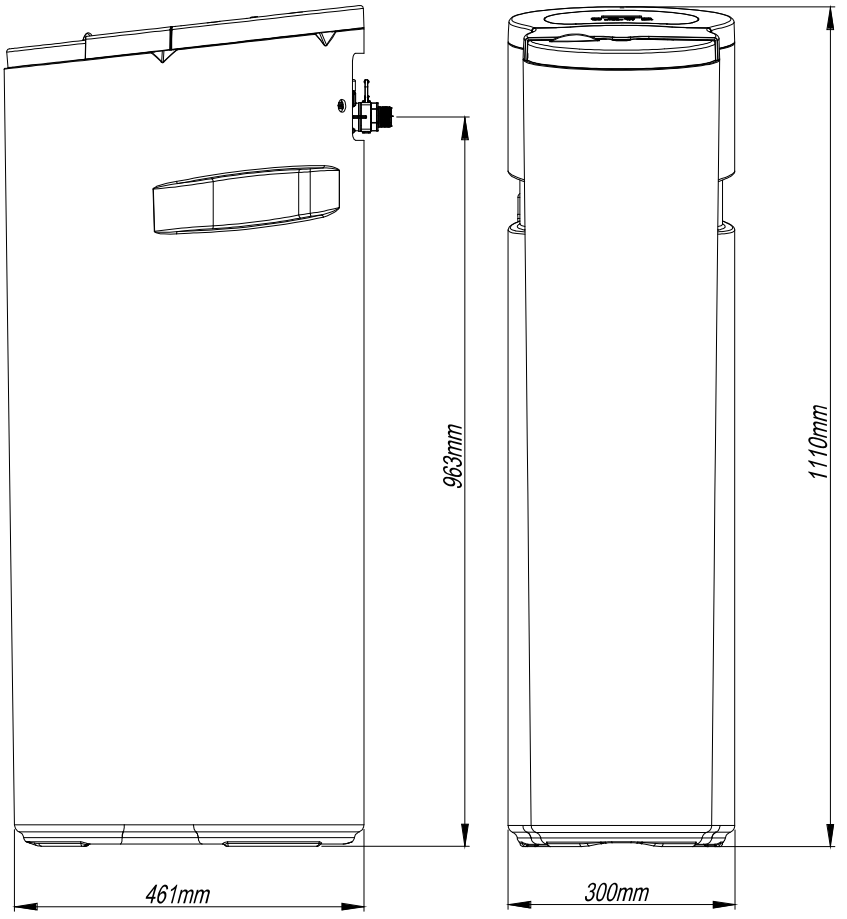
SOFTENER SYSTEM DIMENSIONS



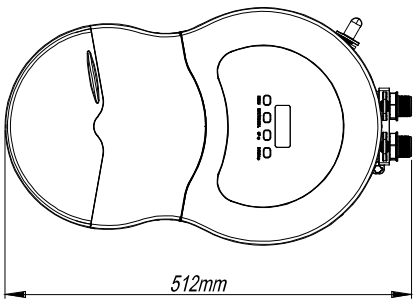




1017 TANK



1035 TANK



UNPACK & INSPECT YOUR WATER SOFTENER

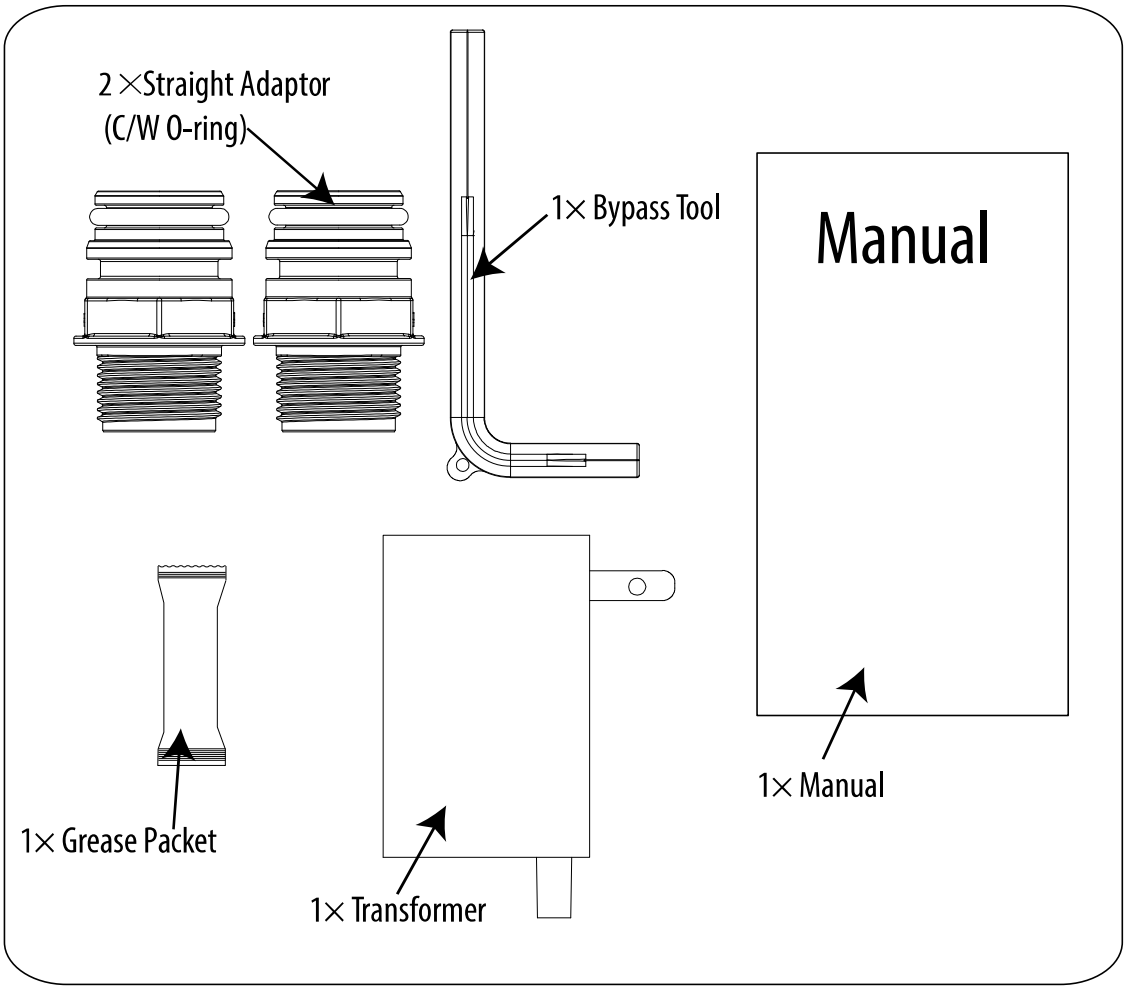
Inspect the water softner for any shipping damage. If damage is found, notify the transportation company and request a damage inspection. Damage to cartons should also be noted.

Handle the softener unit with care. Do not drop the unit or set on sharp, uneven projections on the floor. Do not turn the softener unit upside down.

NOTE	IF THERE IS A SEVERE LOSS IN WATER PRESSURE WHEN THE SOFTENER UNIT IS INITIALLY PLACED IN SERVICE, THE SOFTENER TANK MAY HAVE BEEN LAID ON ITS SIDE DURING TRANSIT. IF THIS OCCURS, BACKWASH THE SOFTENER TO "RECLASSIFY" THE MEDIA.

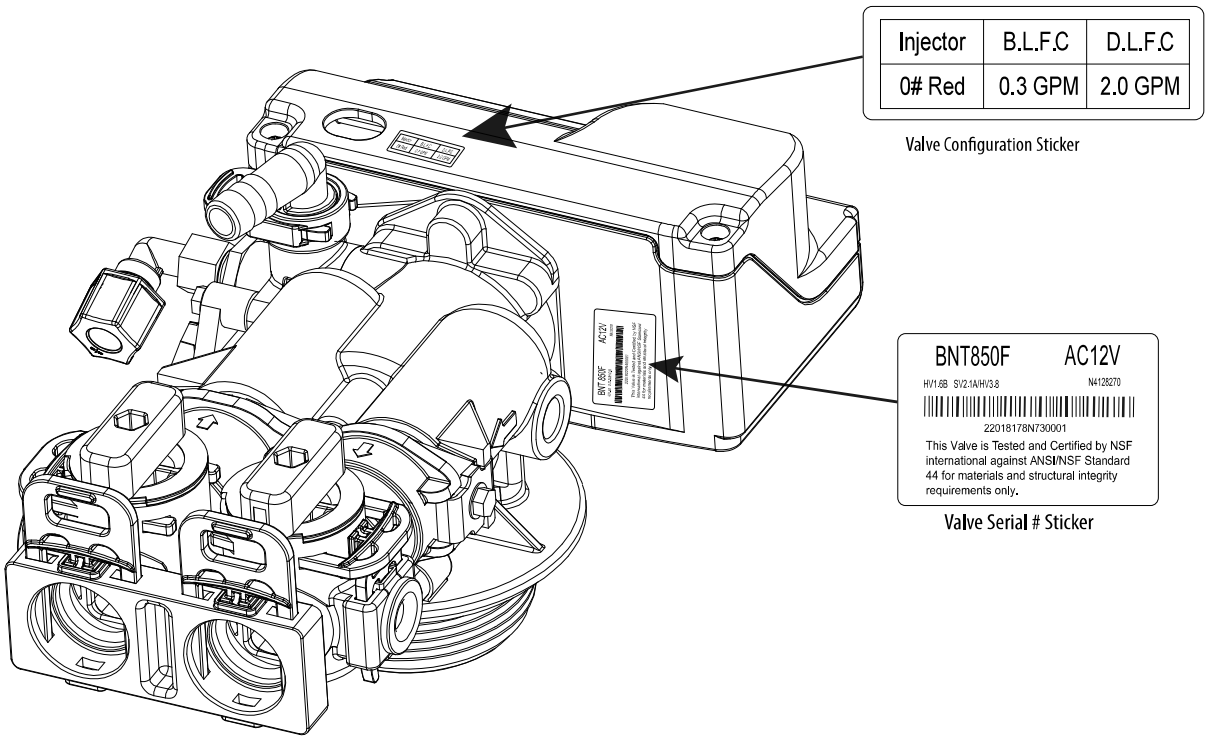
The manufacturer is not responsible for damages in transit. Small parts, needed to install the Softener, are in a parts box.To avoid loss of the small parts, keep them in the parts bag until you are ready to install.

ACCESSORIES CONTENTS :

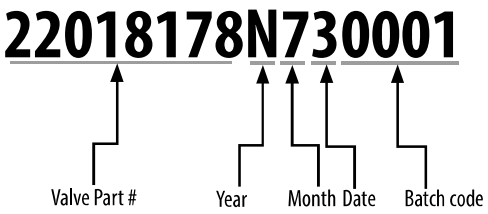


CHECK THE VALVE SERIAL NUMBER

Check to make sure the valve type matches what you ordered. The valve configuration sticker will show the injector, BLFC and DLFC size. The valve model sticker shows model, hardware/software version, serial # and batch code of the control valve. Serial numbers are important for troubleshooting.

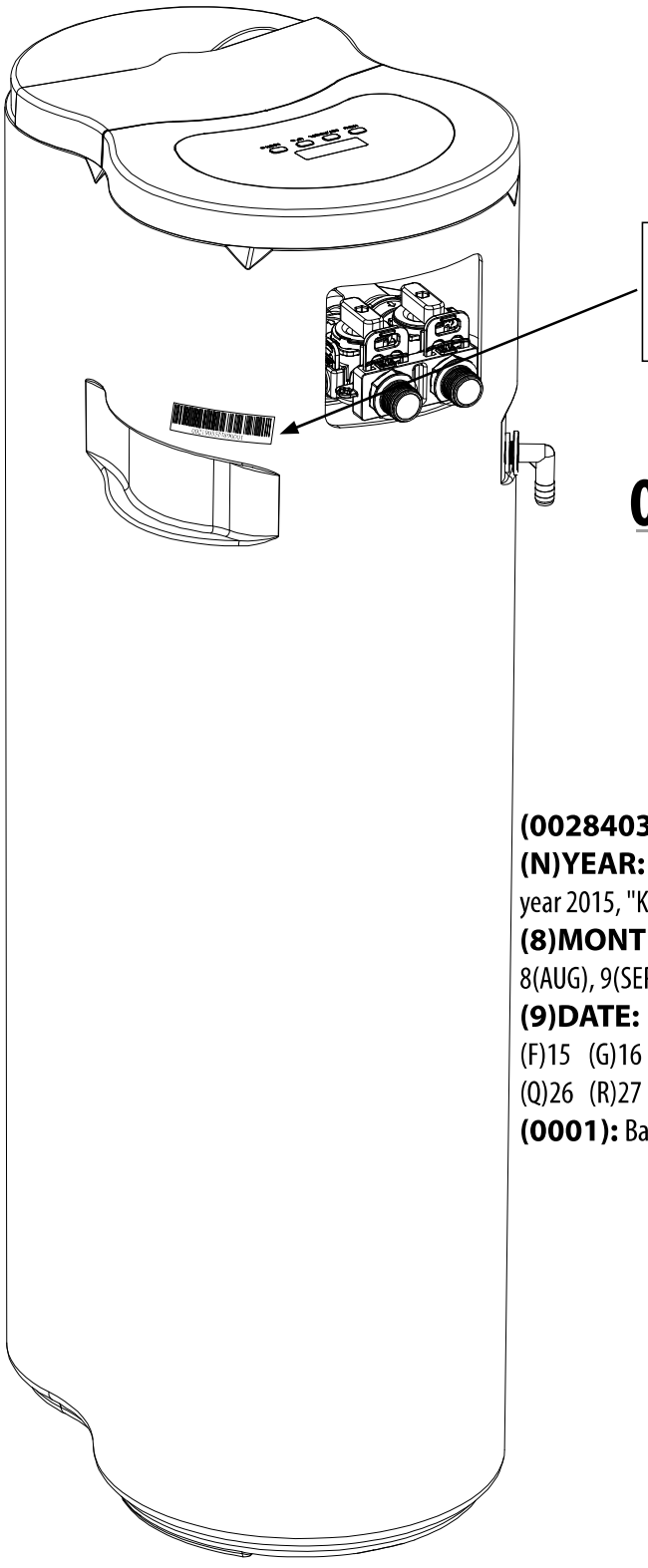


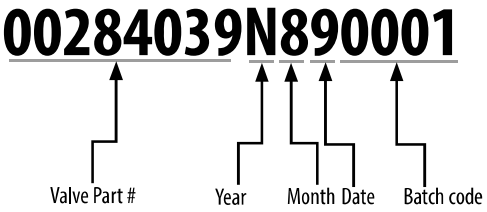
VALVE SERIAL NUMBER:



(22018178): Valve part #
(N)YEAR: "N" stand for year 2017, "M" stand for year 2016, "L" stand for year 2015, "K" stand for year 2014...
(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

CHECK THE SOFTENER SERIAL NUMBER





(00284039): Softener part #
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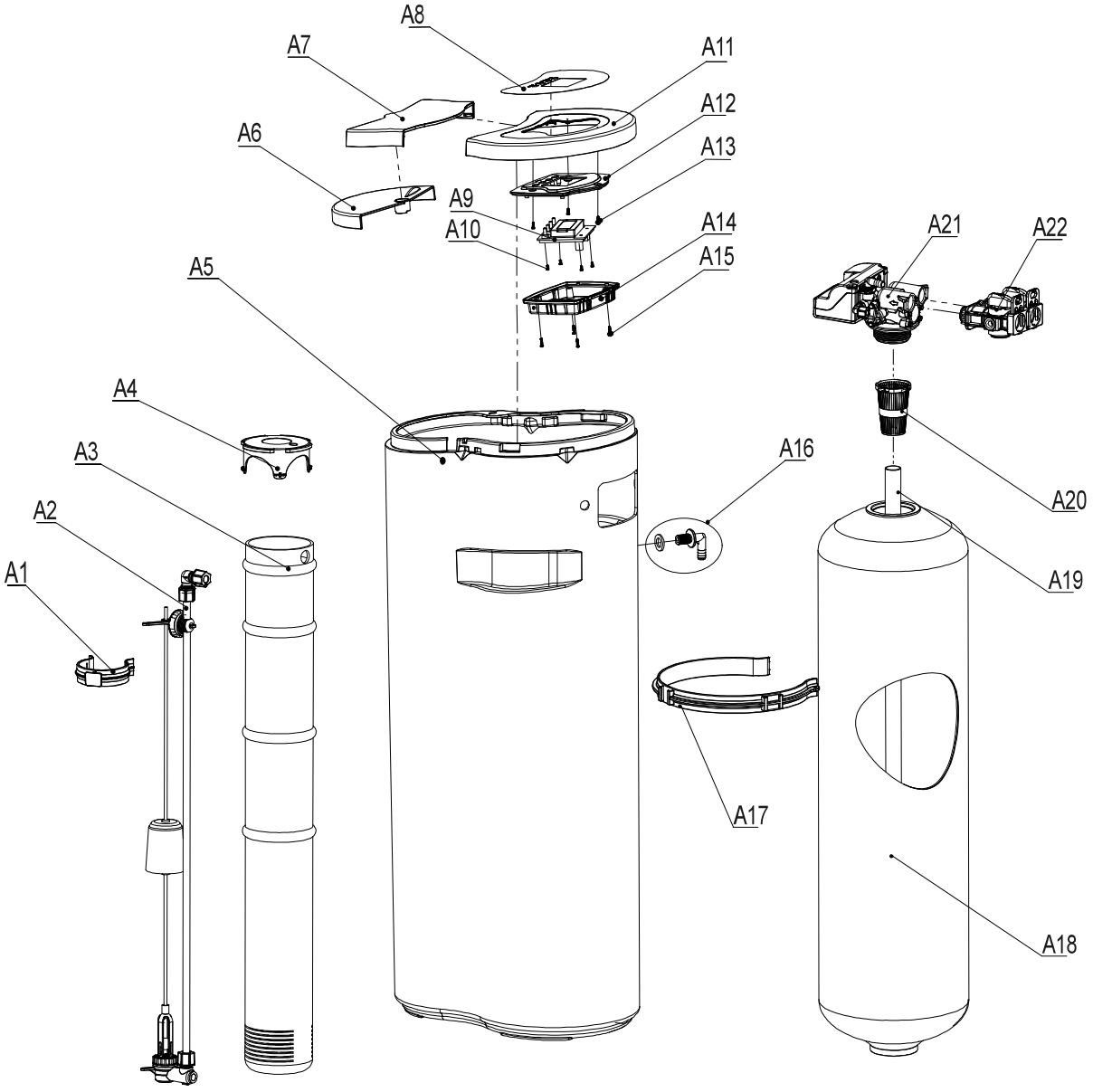
(8)MONTH: 1(JAN), 2(FEB), 3(MAR), 4(APRIL), 5(MAY), 6(JUNE), 7(JULY), 8(AUG), 9(SEP), A(OCT), B(NOV), C(DEC)
(9)DATE: 1 2 3 4 5 6 7 8 9 (A)10 (B)11 (C)12 (D)13 (E)14 (F)15 (G)16 (H)17 (I)18 (J)19 (K)20 (L)21 (M)22 (N)23 (O)24 (P)25 (Q)26 (R)27 (S)28 (T)29 (U)30 (V)31
(0001): Batch code

PARTS BREAKDOWN

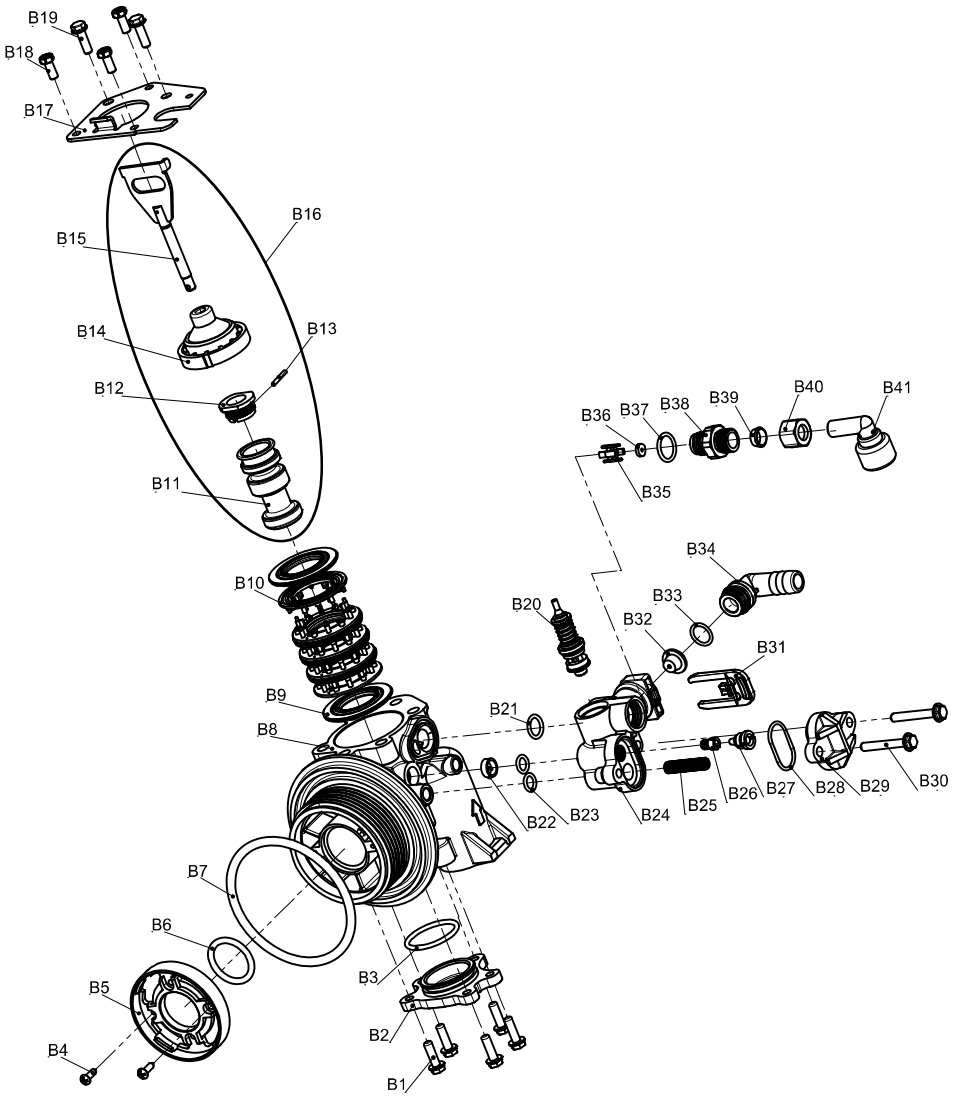
SOFTENER PARTS LIST



No.	Part #	Description	Qty
A1	21710104B	Brine Well Clamp	1
A2	07010013G	0417 Brine Valve Assy	1
	07010014G	0435 Brine Valve Assy	1
A3	07030054W	0417 Brine Well	1
	07030055W	0435 Brine Well	1
A4	07030098	Brine Well Cap	1
A5	07000207D	CS13-1017 Softener Cabinet(Grey)	1
	07000208D	CS13-1035 Softener Cabinet(Grey)	1
A6	07030463D	Rotary Cover(Orange)	1
A7	07030462E	Adding Salt Cover(Orange)	1
A8	50030150C	Controller label	1
A9	05030020	Controller Display PCB	1
A10	13000401	Screw 2.9×6.5	4
A11	07030461E	Softener Cover(Orange)	1

A12	07030464C	Controller Front Cover(Grey)	1
A13	05010037	Screw 2.9×10	3
A14	05030044	Controller Back Cover(Black)	1
A15	13000426	Screw 2.9×6.5	4
A16	02170173	Overflow assy	1
A17	21710110	Pressure Tank Clamp	1
A18	07501017	1017 Pressure Tank	1
	07501035	1035 Pressure Tank	1
A19	02030018	Distribution Tube Assy-1017	1
	02030016	Distribution Tube Assy-1035	1
A20	07060009	Top Cone	1
A21	22018178	Control Valve Assy	1
A22	22053014G	Bypass Valve Assy	1

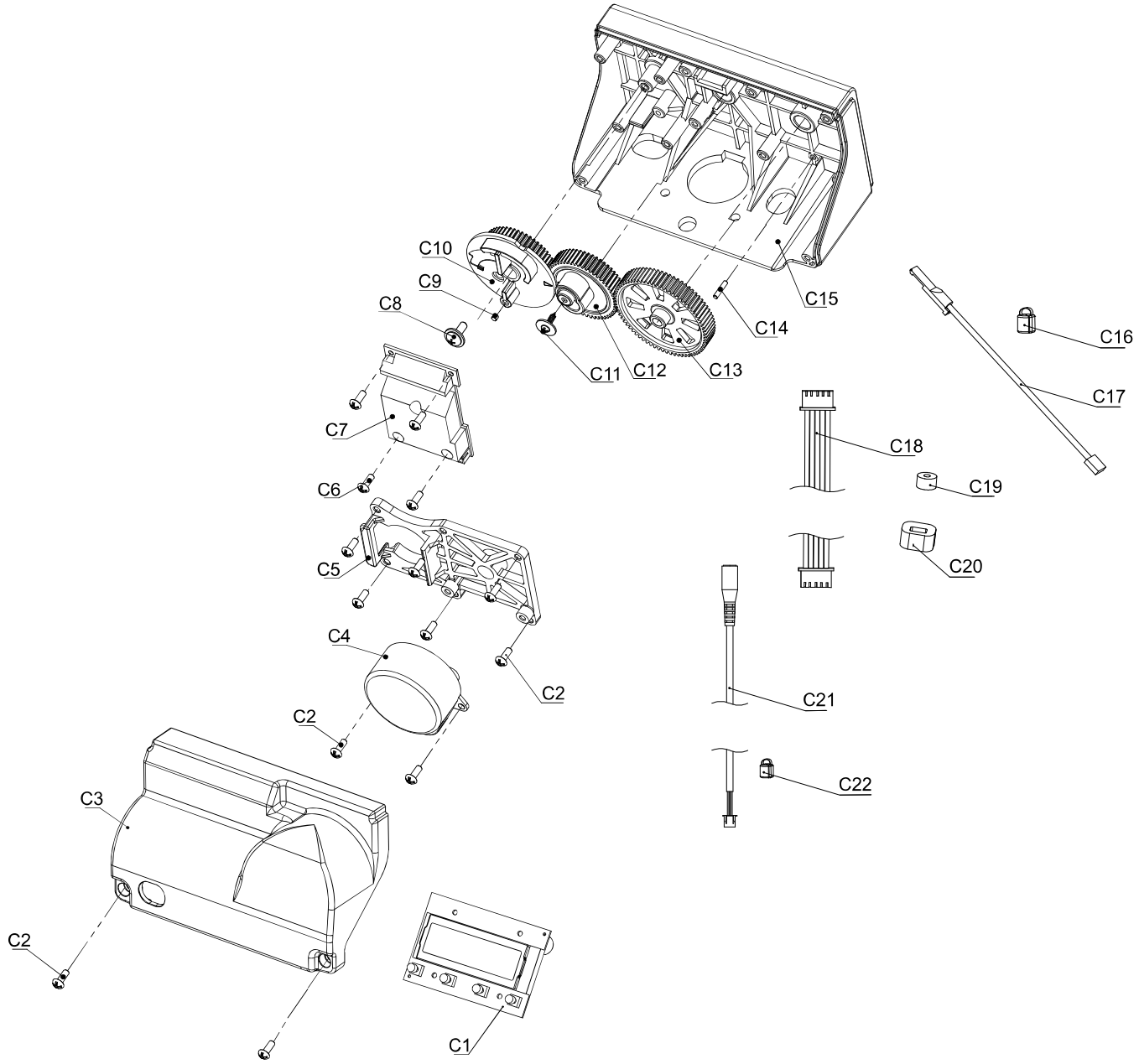
VALVE BODY PARTS LIST



No.	Part #	Description	Qty
B1	05056508	Screw-M5×12(with Washer)	5
B2	05030004	Bnt85 End Cover	1
B3	05030013	O-ring-φ30×2.65	1
B4	05056084	Screw-ST3.5×13	2
B5	07060007	Valve Bottom Connector	1
B6	26010103	D-tube O-ring	1
B7	05056063	Tank O-ring	1
B8	05030001	Bnt85 Valve Body	1
B9	05056073	Seal	5
B10	05056204	Spacer	8
B11	05056520	Piston	1
B12	05056022B	Piston Retainer	1
B13	05056097	Piston Pin	1
B14	05005605	End Plug	1
B15	05030002B	Bnt85 Piston Rod	1
B16	02170054	Piston Assy	1
B17	05056047	End Plug Retainer	1
B18	05056087	Screw-M5×12	3
B19	05056088	Screw-M5×16	2
B20	05056180M	Brine Valve Injector Stem Assy	1

B21	05056066	O-Ring-φ11×2	1
B22	05056037	Air Disperser	1
B23	05056067	O-Ring-φ7.8×1.9	2
B24	05056177	Injector Body	1
B25	05056103	Injector Screen	1
B26	30040083	Injector Throat(Red)	1
B27	30040084	Injector Nozzle(Red)	1
B28	05056205	O-RING(23.9×1.8)	1
B29	05056029	Injector Cover	1
B30	05056086	Screw-M5×30	2
B31	05056172	Secure Clip-S	1
B32	05056188	DLFC(2.0GPM)	1
B33	05056134	O-ring 12×2	1
B34	05010082	Drain Elbow	1
B35	05056035	BLFC Button Retainer	1
B36	05056076	BLFC(0.3GPM)	1
B37	05056138	O-Ring-φ14×1.8	1
B38	05056100B	BLFC Copper Fitting	1
B39	05056033	BLFC Ferrule	1
B40	05056108	BLFC Fitting Nut	1
B41	21499033	Brine Line QC Elbow	1

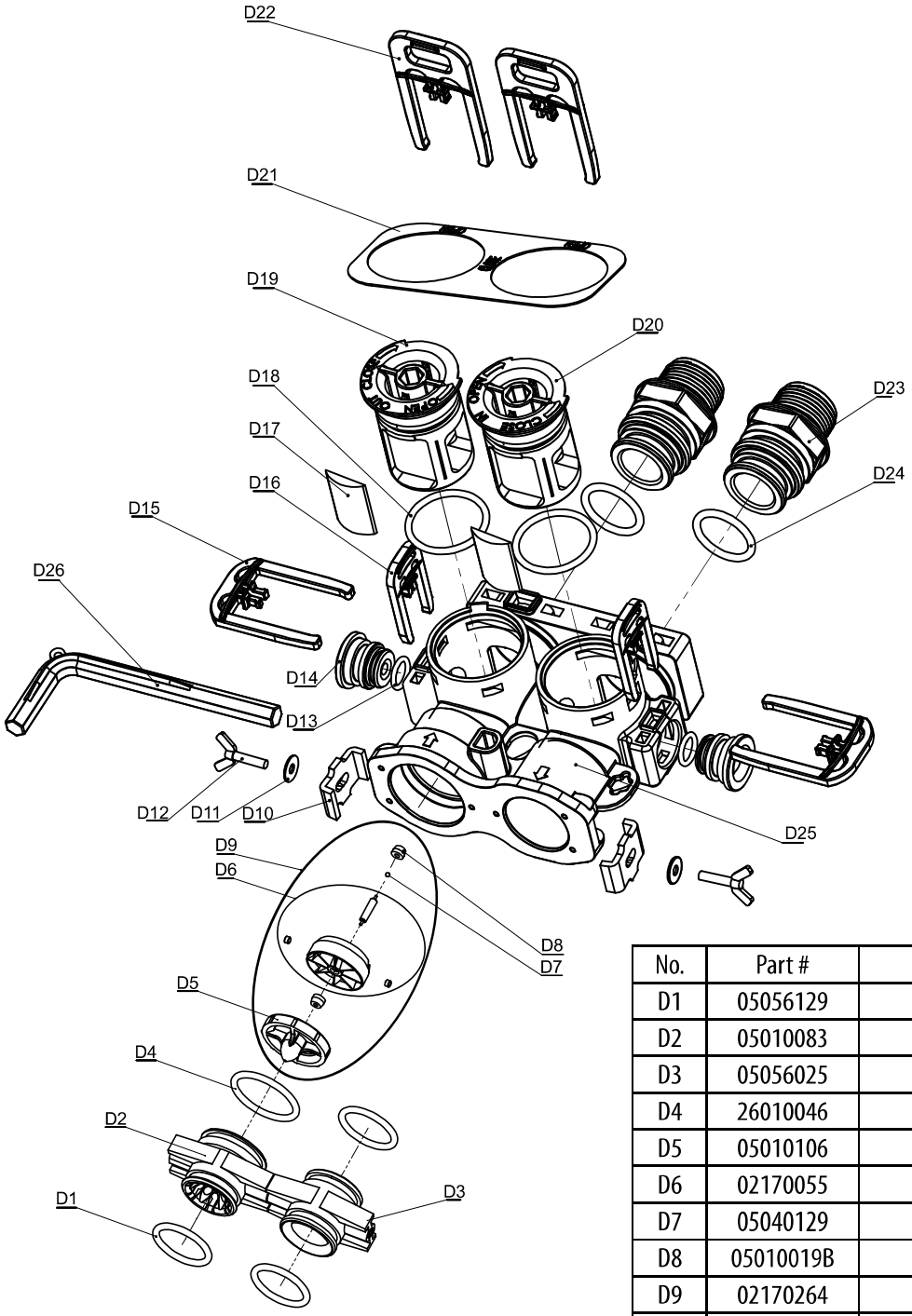
POWER HEAD PARTS LIST



No.	Part #	Description	Qty
C1	05030020	Display Board	1
C2	05056084	Screw-ST3.5×13	1
C3	05030024	Bnt 85 Cover	1
C4	05056550	Bnt85 Motor	1
C5	05030006	Bnt85 Mounting Plate	1
C6	05010037	Screw-ST2.9×10	1
C7	05030010	Bnt85 Main Pcb	1
C8	13000462	Screw-4.2×12(with washer)	1
C9	05010023	Magnet-φ3×2.7	1
C10	05030008	Bnt85 Brine Gear	1
C11	13000463	Screw-ST2.9×13(with washer)	1
C12	05030007	Bnt85 Main Gear	1
C13	05030009	Bnt85 Drive Gear	1
C14	05056098	Motor Pin	1

C15	05030005	Bnt85 Housing	1
C16	05010046	Meter Cable Clip	1
C17	05010108	Meter Cable	1
C18	12100024	Communication Cable	1
C19	30110005	Rubber Sleeve	1
C20	05056013	Communication Cable Clip	1
C21	05010029B	Power Cable	1
C22	05010035	Power Cable Clip	1

BYPASS PARTS LIST



No.	Part #	Description	Qty
D1	05056129	O-ring-φ23×3	3
D2	05010083	Adaptor Distributor	1
D3	05056025	Adaptor Coupling	1
D4	26010046	O-ring-φ27×3	1
D5	05010106	Impeller Holder	1
D6	02170055	Meter Assy	1
D7	05040129	Meter Ball	1
D8	05010019B	Bush	2
D9	02170264	Meter Spare Parts	1
D10	05056044B	SS Plate	2
D11	05056141B	Washer	2
D12	21389012	Thumb Screw	2
D13	05056134	O-ring-φ12×3	2
D14	05056146	Bypass Plug	2
D15	21709004	Shaft Clip	2
D16	05056172N	Plug Clip	2
D17	05056149B	Shaft Seal	2
D18	05030013	O-ring-φ30×2.65	1
D19	05056214	Bypass Shaft(Outlet)	1
D20	05056213	Bypass Shaft(Inlet)	1
D21	61045012	Bypass Indication Plate	1

D22	21709003	Secure Clip Inlet and Outlet	2
D23	21319016	Connector NPT 3/4" Straight	2
	21319011	Connector NPT 1" Straight	2
D24	26010143	O-ring on Inlet and Outlet	2
D25	05056212	063 Bypass Body	1
D26	70020007M	Bypass Tool	1

PRE-INSTALLATION INSTRUCTIONS

Contact your local distributor to have a complete water analysis and check your water hardness on your water supplier, this will keep your conditioner in proper working.

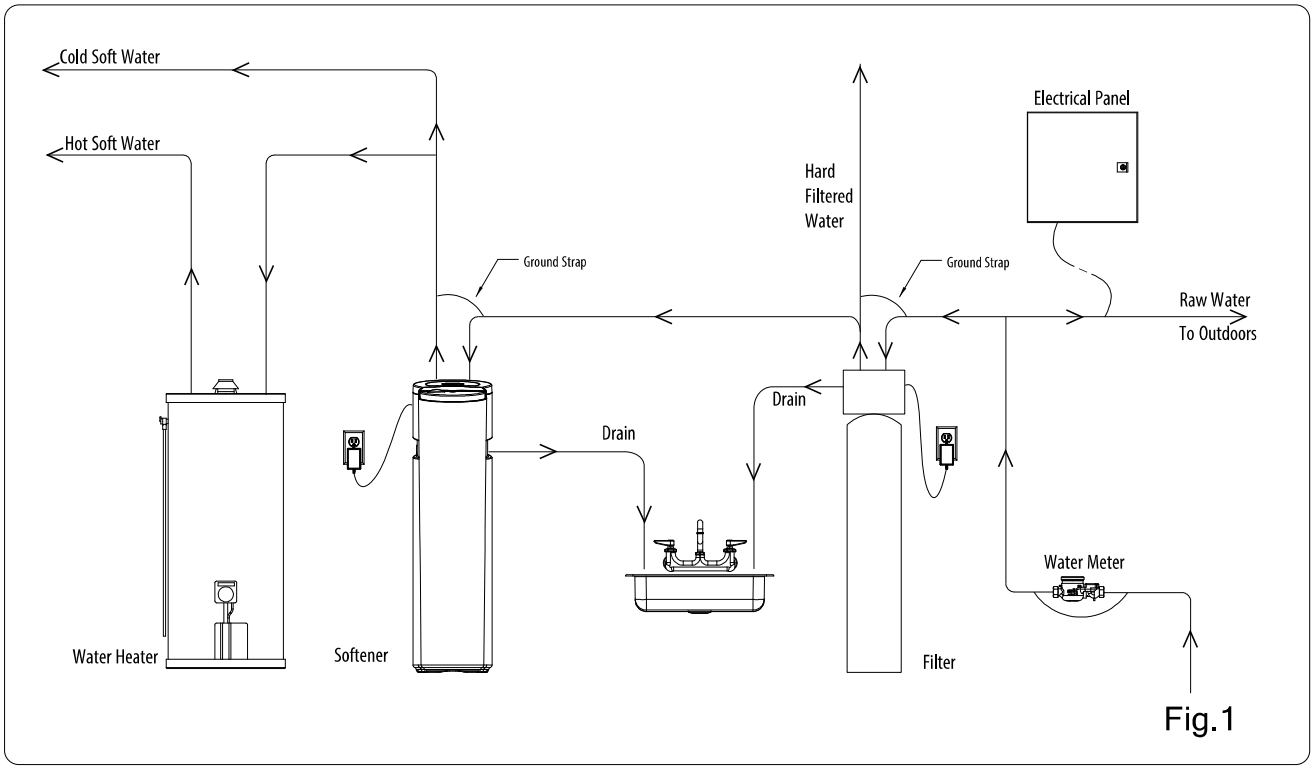


Fig.1

NOTE YOU MUST FOLLOW ALL GOVERNMENT CODES AND REGULATIONS GOVERNING THE INSTALLATION OF THESE DEVICES.

INSTALLATION INSTRUCTIONS

DETERMINE THE CORRECT LOCATION OF THE WATER CONDITIONING EQUIPMENT

Select the location of your softener with care. Review the various conditions below to determine a proper location:

1. Locate as close as possible to the water supply source.

2. Locate as close as possible to a floor or laundry tub drain.

3. Locate in correct relationship to other water conditioning equipment (See Fig. 1).

4. Softener should be located in the supply line before the water heater. Temperatures above 120°F damage softeners.

5. Do not install a softener in a location where freezing temperatures occur. Freezing may cause permanent damage to this type of equipment and will void the factory warranty.

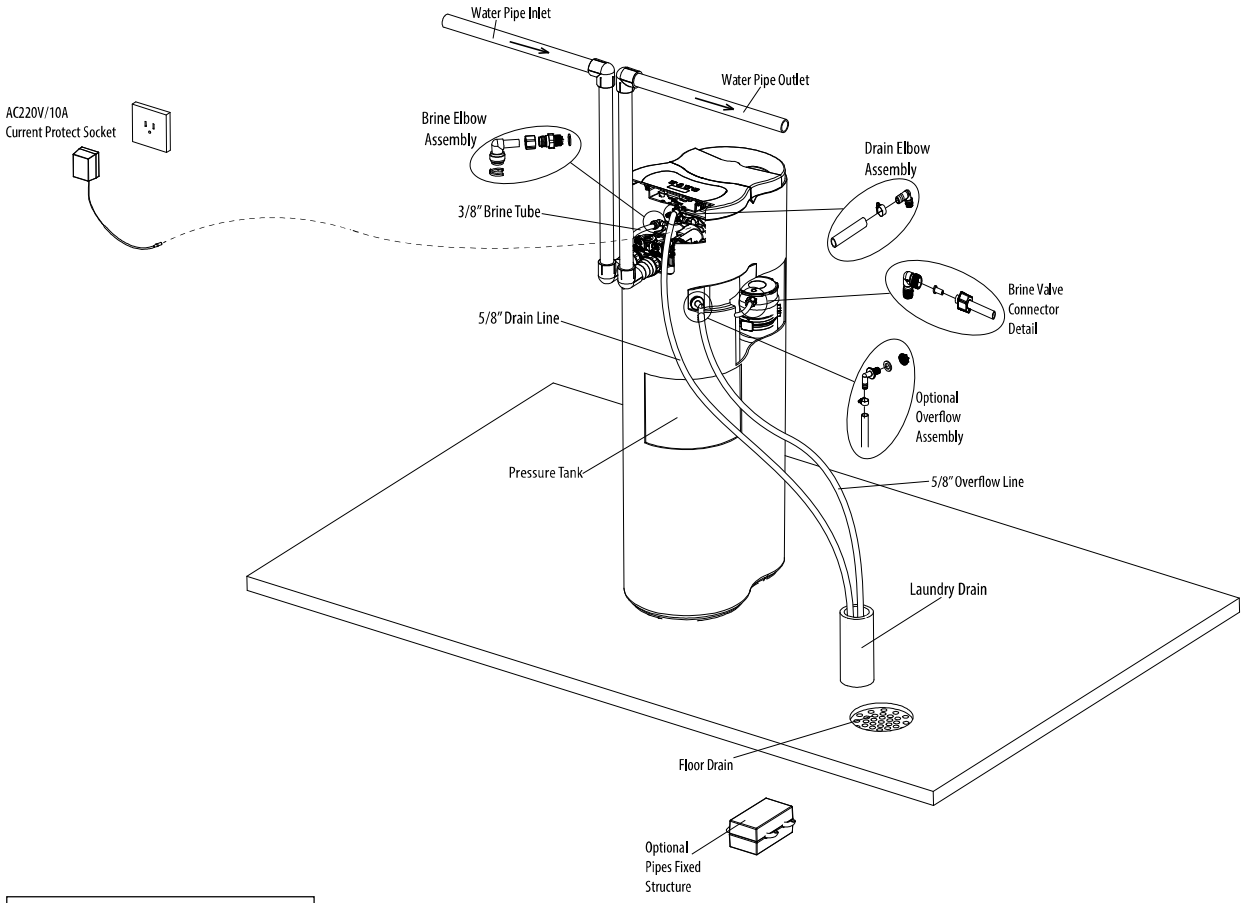
6. Allow sufficient space around the unit for easy servicing.

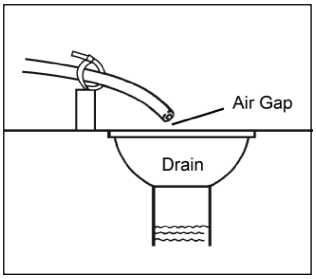
7. Determine if additional plumbing is required if your water source is a community water supply, a public water supply or you wish to bypass water used for a geothermal heat pump, lawn sprinkling, out-buildings or other high demand applications, refer to Fig. 1） .

8. Keep the softener out of direct sunlight. Heat build up from direct sunlight may soften and distort plastic parts.

TOOLS REQUIRED FOR INSTALLATION:

►Two adjustable wrenches.
►Additional tools may be required if modifications to home plumbing are required.
►Use copper, brass, or PEX pipe and fittings.
►Some codes may also allow PVC plastic pipe. Refer to local codes.
►Always install the included bypass valve, or 3 shut-off valves. Bypass valves let you turn off water to the softener for repairs, but still have water in the house pipes.
►5/8" OD drain line is needed for the drain.





⚠ CAUTION

THE WASTE CONNECTION OR DRAIN OUTLET SHALL BE DESIGHED AND CONSTRUCTED TO PROVIDE AN AIR-GAP TO THE SANITARY WASTE SYSTEM OF 2 PIPE DIAMETERS OR 1 INCH(25MM). (WHICHEVER IS LARGER)

⚠ CAUTION

NEVER INSERT THE DRAIN LINE DIRECTLY INTO A DRAIN, SEWER LINE, OR TRAP. ALWAYS ALLOW AN AIR GAP BETWEEN THE DRAIN LINE AND THE WASTE WATER. THIS WILL PREVENT THE POSSIBILITY OF SEWAGE BEING BACK-SIPHONED INTO THE CONDITIONER.

NOTE PERFORM ALL PLUMBING ACCORDING TO LOCAL PLUMBING CODES.

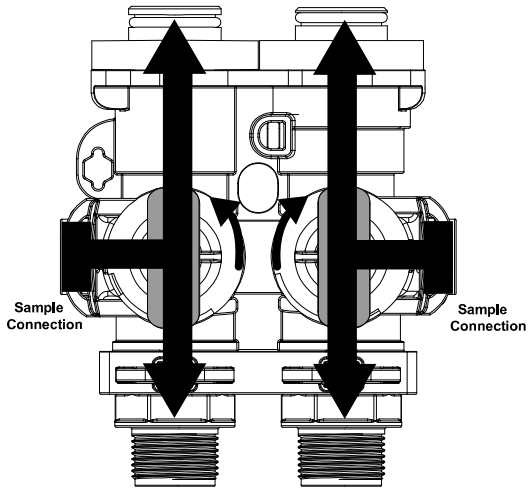
WATER BYPASS

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 to the BYPASS position.

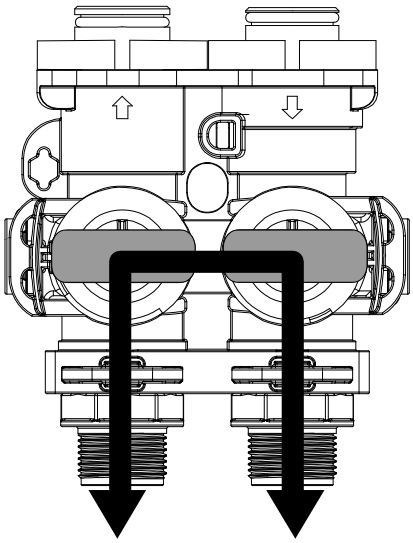
You can use your water related fixtures and appliances as the water supply is bypassing the softener. However, the water you use will be hard. To resume treated service, open the bypass valve by rotating the knobs to SERVICE position.

Please make sure bypass knobs are completely open otherwise the unSoftenered water could bypass through the valve.

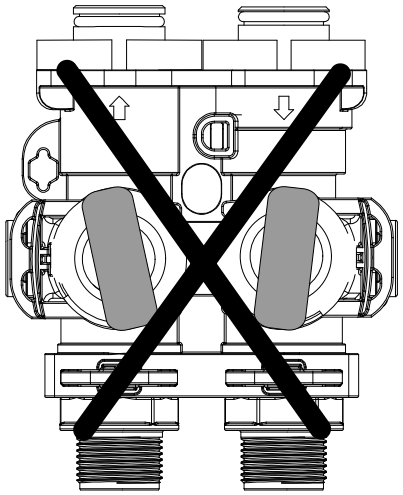
SERVICE



BYPASS



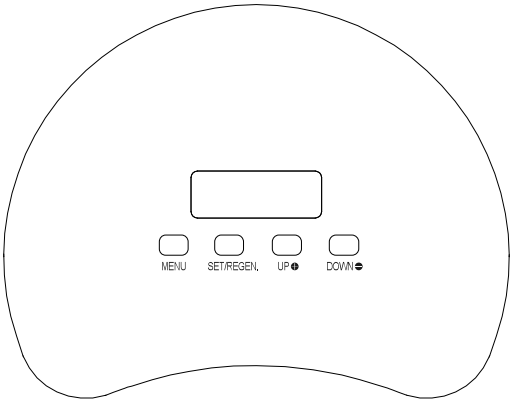
BYPASS NOT ALLOWED POSITION



NOTE Please make sure bypass knobs are completely open otherwise the unsoftenered water could bypass through the valve.

PROGRAMMING GUIDE

FAMILIARIZE WITH KEY PAD CONFIGURATION



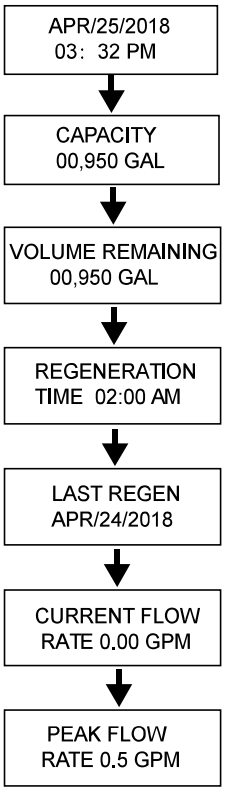
MENU: This function enters the basic set up information required at the time of installation.

SET/REGEN.: This function is to press and select one item to change and accepts the values if changed.

UP/DOWN: This function is to scroll up or down the programming items and increase or decrease the values of the settings while in the programming mode.

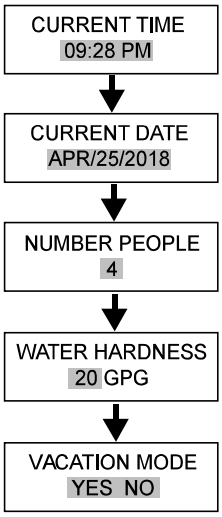
FAMILIARIZE WITH SETTINGS

Standby Display:



If screen displays“ PRESS MENU KEY 3 SEC TO UNLOCK ” Press “MENU” for 3s to unlock

Field Options Menu:



Press “MANUAL” key to enter the field options menu.

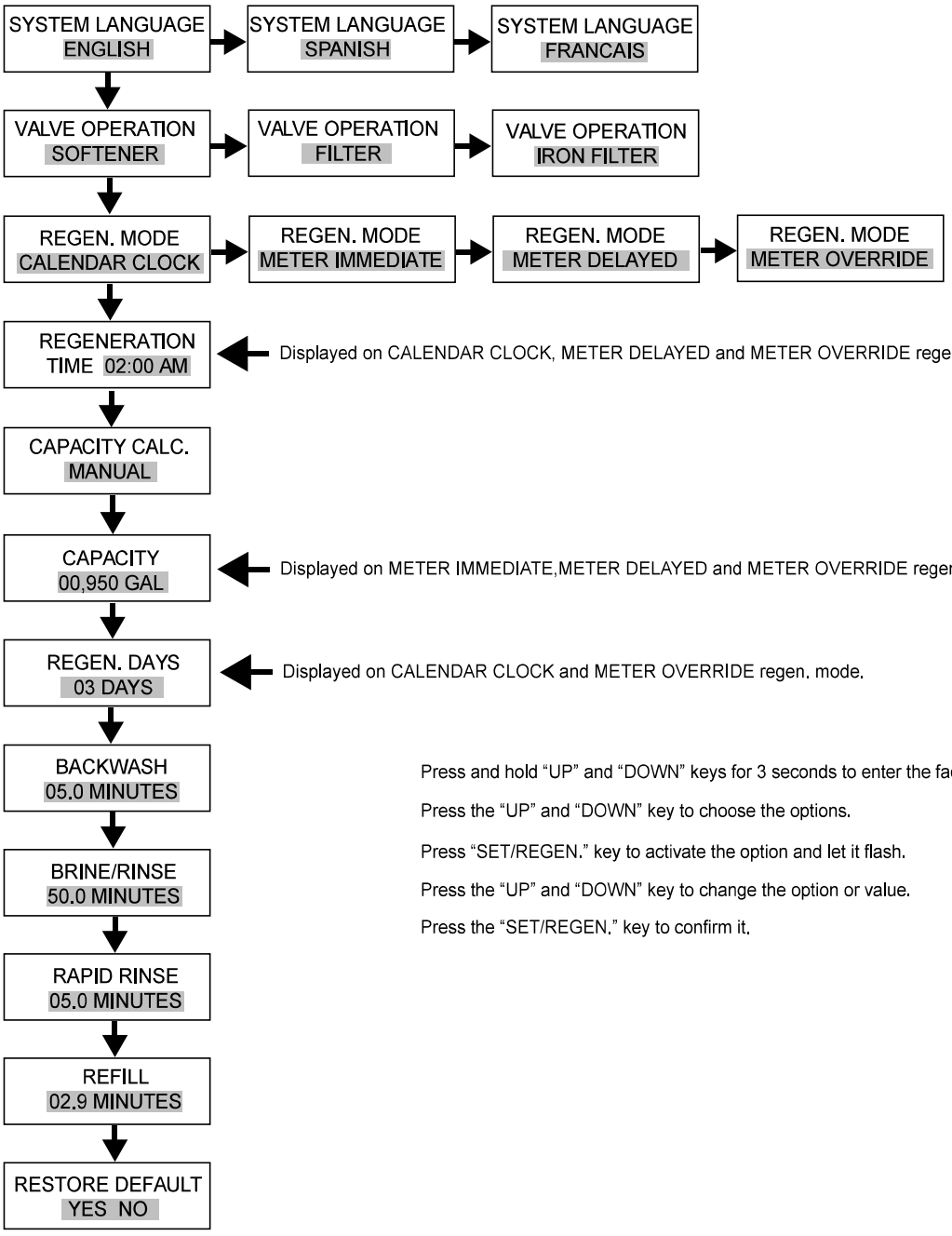
Press the “UP” and “DOWN” key to choose the options.

Press “SET/REGEN.” key to activate the option and let it flash.

Press the “UP” and “DOWN” key to change the option or value.

Press the “SET/REGEN.” key to confirm it.

Factory Options Menu(Manually Enter Capacity Mode)



Displayed on CALENDAR CLOCK, METER DELAYED and METER OVERRIDE regen. mode.

Displayed on METER IMMEDIATE,METER DELAYED and METER OVERRIDE regen. mode.

Displayed on CALENDAR CLOCK and METER OVERRIDE regen. mode.

Press and hold “UP” and “DOWN” keys for 3 seconds to enter the factory option.

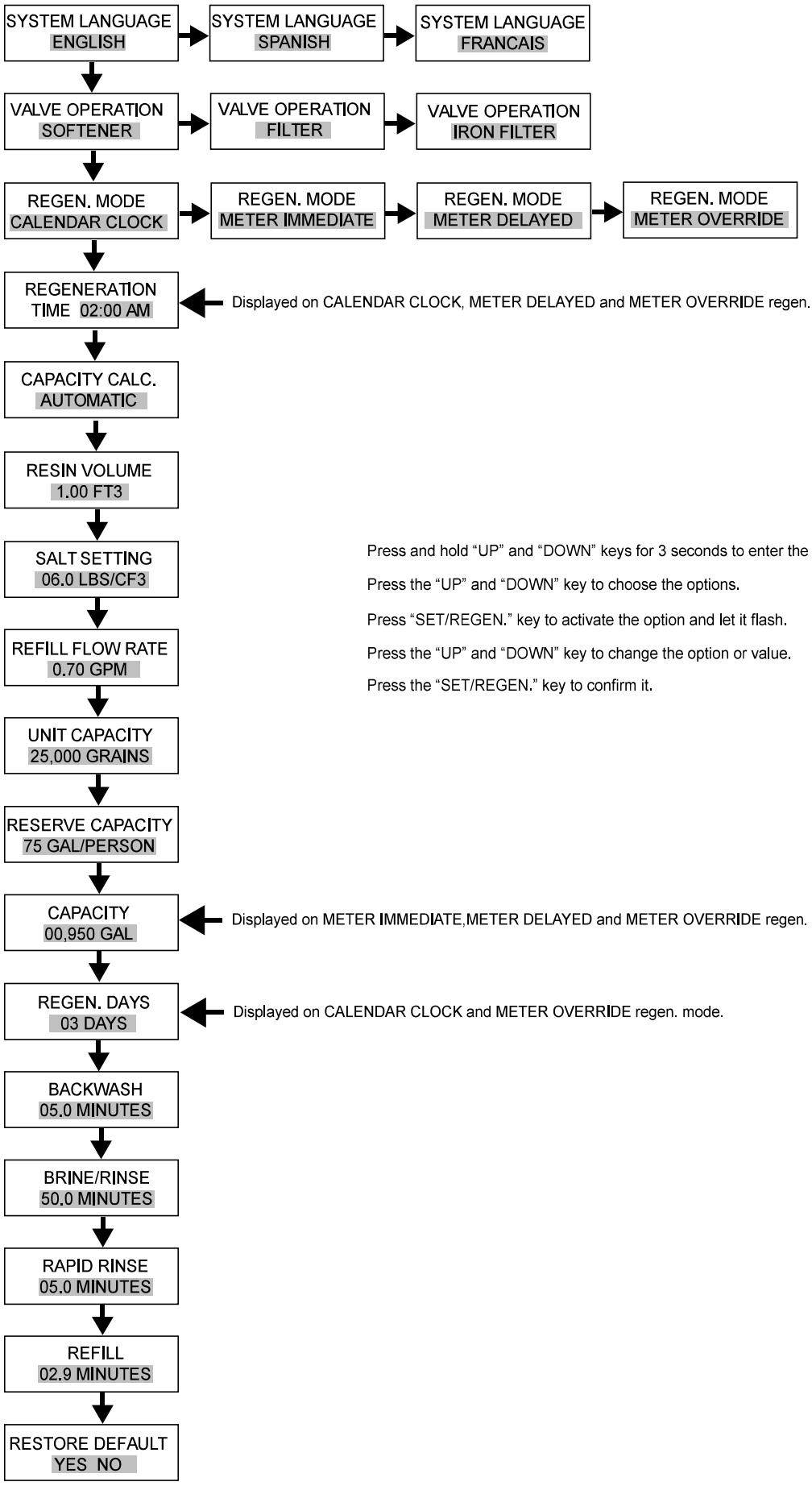
Press the “UP” and “DOWN” key to choose the options.

Press “SET/REGEN.” key to activate the option and let it flash.

Press the “UP” and “DOWN” key to change the option or value.

Press the “SET/REGEN.” key to confirm it.

Factory Options Menu(Automatically Calculate Capacity Mode)



Press and hold “UP” and “DOWN” keys for 3 seconds to enter the factory option.

Press the “UP” and “DOWN” key to choose the options.

Press “SET/REGEN.” key to activate the option and let it flash.

Press the “UP” and “DOWN” key to change the option or value.

Press the “SET/REGEN.” key to confirm it.

PARAMETER		DESCRIPTION
Current Time		Current time setting.
Durrent Date		Year, month and date setting.
Number People		Number of people in the household and the calculated reserve capacity. When remaining reaches reserve capacity a regeneration will be scheduled.
Water Hardness		This value is water hardness of the raw water supply. It is used to calculate the system capacity.
Vacation Mode		When set to YES, the system will perform a Backwash and a Rinse if there is no water flow detected after 7 days.The Backwash and Rinse duration can be set in the Regeneration Cycle.
System Language		System language used on the valve display, 3 different language options in total for your choice. English, Spanish, Francais.
Valve Operation		The current setting of the valve mode, 3 different modes for your choice. Softener, Filter and Iron Filter.
Regen. Mode	Calendar Clcok	The unit will initiate a regeneration at the next pre-set regeneration time based on the interval of days between regeneration days.
	Meter Immediate	The unit will initiate a regeneration immediately after the system capacity remaining reaches zero.
	Meter Delayed	When the system capacity remaining reaches zero, the system will initiate a regeneration at the next pre-set regeneration time.
	Meter Override	When the volume remaining goes below the system capacity, the system will regenerate at the regen time or when REGEN. DAYS preset has passed. Which ever occurs first.
Regeneration Time		This setting controls the time of day when a regeneration will start.
Capacity Calc.	Automatic	When the necessary factory options were entered. The system will automatically calculate system capacity and refill time.
	Manual	Manually enter the system capacity and refill time for system proper operation.
Resin Volume		This setting is the amount of ion exchange media used in the system.The value is used to calculate system capacity and refill time.
Salt Setting		This setting will determine the salt dosage used per regeneration.
Refill Flow Rate		This value should match the BLFC flow washer. It is used to calculate the refill time.
Unit Capacity		This setting is the total hardness the system can treat after one complete regeneration.
Reserve Capacity		This value is used to calculate the reserve capacity. Reserve Capacity = No. People x DAILY RESERVE.
Capacity		This setting is the total water volume the system can treat after one complete regeneration.
Regen. Cycle	Backwash	Control the backwash duration during regeneration cycle.
	Brine/Rinse	Control the brine duration during regeneration cycle.
	Rapid Rinse	Control the rinse duration during regeneration cycle.
	Refill	Control the refill duration during regeneration cycle.
Restore Defaults		Restore settings to the factory default.

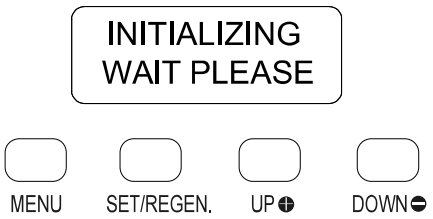
OPERATION DURING A POWER FAILURE

In the event of a power failure, the valve will keep track of the time and day. The programmed settings are stored in a non-volatile memory and will not be lost during a power failure. If power fails while the unit is in regeneration, the valve will finish regeneration from the point it is at once power is restored. If the valve misses a scheduled regeneration due to a power failure, it will queue a regeneration at the next regeneration time once power is restored.

START-UP INSTRUCTIONS

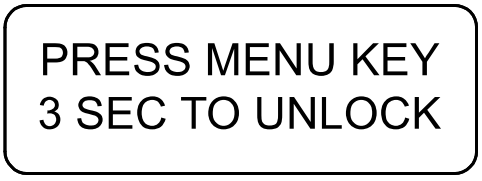
1. Add two liters of water into the cabinet at the time of installation. This is for the unit to achieve proper capacity in the first time of regeneration.

2. Plug the power transformer into an approved power source. Connect the power cord to the valve.
3. When power is supplied to the control, the screen will may display "INITIALIZING WAIT PLEASE" while it finds the service position.



4. Manually step the valve to the BACKWASH position. If screen is locked, the screen will display "PRESS MENU KEY 3 SEC TO UNLOCK" . Follow the instructions below to step the valve to BACKWASH position. As the valve arrives at BACKWASH position, unplug the power and let valve stay at BACKWASH position.

4.1 Press and hold "MENU" key for 3s to unlock.



4.2 Press and hold "CONFIRM" key for 3s to advance to MANUAL REGEN menu.

4.3 Press CONFIRM key again to let the option flash.

4.4 Press DOWN key to advance to IMMEDIATE option.

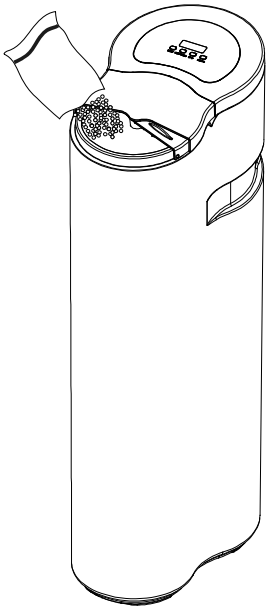
4.5 Press CONFIRM key to confirm and press MENU key to have an manual regeneration.

NOTE: *If you select "DELAY" option,the valve will start to regenerate at the closest day's REGEN. TIME (default is 02:00)*

5. Slowly open the inlet knob on the bypass valve with the bypass tool supplied and allow water to enter the unit. Allow all air to escape from the unit before turning the bypass fully open. Then allow water to run to drain for 3-4 minutes or until all media fines are washed out of the conditioner indicated by clear water in the drain hose. Open a cold soft water tap nearby and let water run a few minutes or until the system is free of foreign material resulting from the plumbing work. Close the water tap when water runs clean.

6. Press any button to advance to the BRINE position, when it arrives, press any key to skip the BRINE cycle. Press any button to advance to the RINSE position.Check the drain line flow. Allow the water to run for 3-4 minutes or until the water is clear.

7. Press any button to advance to the REFILL position. Check that the valve is filling water into the brine tank. Allow the valve to refill for the full amount of time as displayed on the screen to insure a proper brine solution for the next regeneration.



8. The valve will automatically advance to the SERVICE position. Open the outlet knob on the bypass with the bypass tool supplied. With the bypass open, open the nearest treated water faucet and allow the water to run until clear.

9. Add salt into the cabinet. Put 40 kgs of crystal water softener salt in the 1035 softener cabinet or 15kgs of crystal water softener salt in the 1017 softener cabinet. The unit will automatically fill the water to the correct level when it regenerates.

10. Program unit.

CAUTION LIQUID BRINE WILL IRRITATE EYES, SKIN AND OPEN WOUNDS - GENTLYWASH EXPOSED AREA WITH FRESH WATER. KEEP CHILDREN AWAY FROM YOUR WATER CONDITIONER.

AUTOMATIC RAW WATER BYPASS DURING REGENERATION

The regeneration cycle can last 60 minutes after which Softenered water service will be restored. During regeneration, un-Softenered water is automatically bypassed for use in the household. Hot water should be used as little as possible during this time to prevent un-Softenered 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.

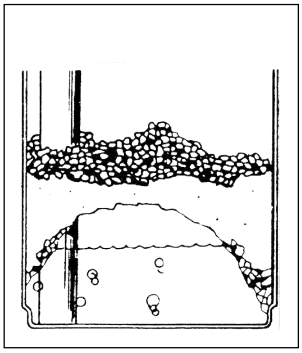
MAINTENANCE INSTRUCTIONS

CHECK 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 IN THE CABINET OR BRINE TANK.

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 cabinet 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 cabinet. Allow four hours to produce a brine solution, then manually regenerate the softener.

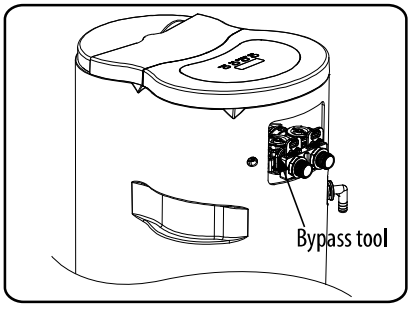
Resin Cleaner
An approved resin cleaner must be used on a regular basis if your water supply contains iron. The amount of resin cleaner and frequency of use is determined by the quantity of iron in your water(consult your local representative or follow the directions on the resin cleaner package).

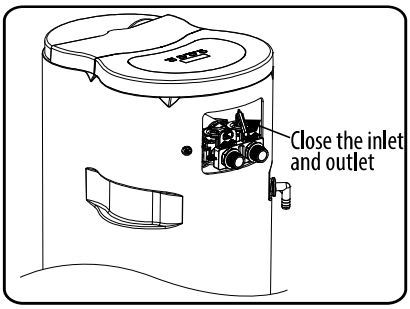
Care of Your Water Conditioner
To retain the attractive appearance of your new water conditioner, clean occasionally with a mild soap solution. Do not use abrasive cleaners, ammonia or solvents. Never subject your conditioner to freezing.

SERVICE THE BNT850SE CONTROL VALVE

Before Servicing

1. Turn off water supply to conditioner using the bypass tool attached on the bypass.

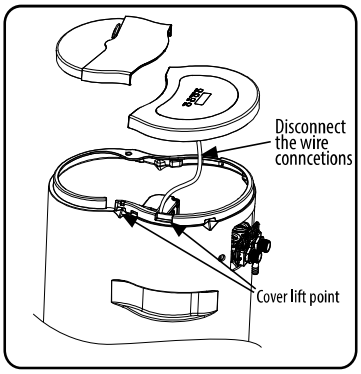




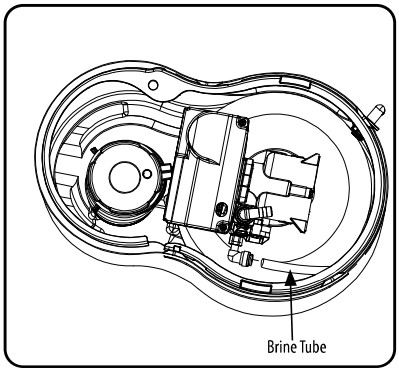
2. Relieve water pressure in the conditioner by stepping the control into the backwash position momentarily. Return the control to the In Service position.

3. Unplug electrical cord from outlet.

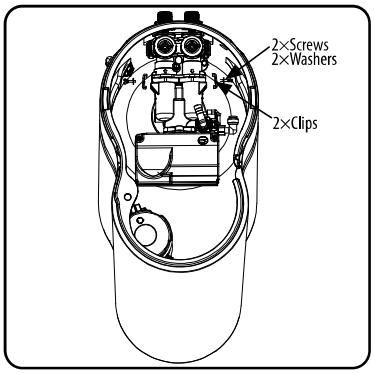
4. Disconnect drain line connection.



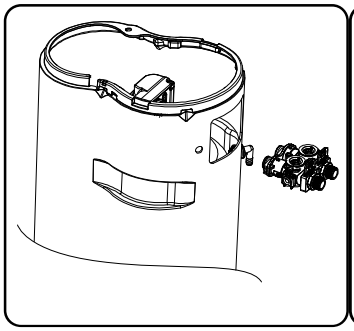
5. Remove the cover and disconnect the wire connection.



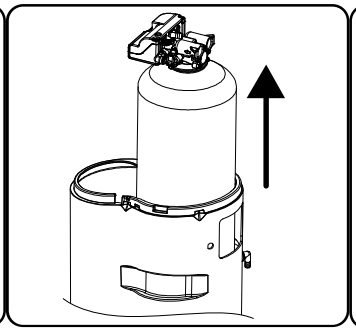
6. Disconnect the brine line.



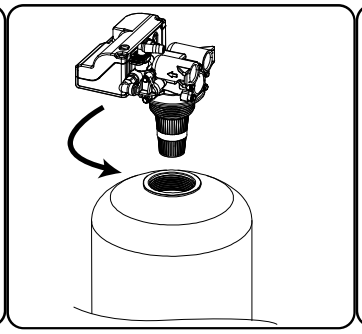
7. Remove the clips that connect control valve and bypass.



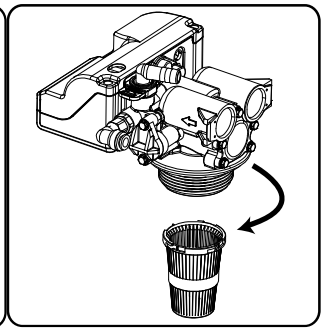
8. Disconnect the softener from the bypass.



9. Remove the tank with valve out the cabinet.



10. Screw the valve off from the tank.



11. Remove the top cone from the valve.

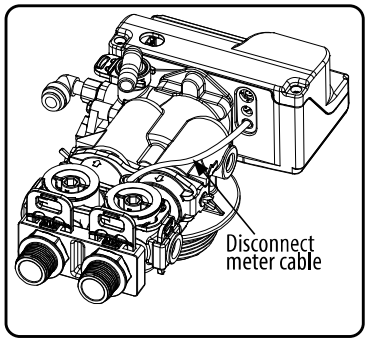
CAUTION

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

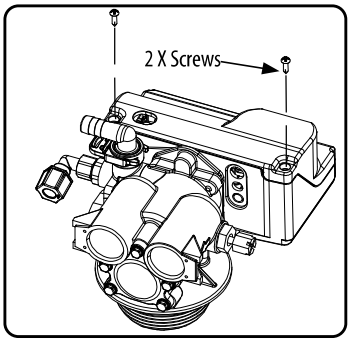
CAUTION

DISASSEMBLY WHILE UNDER PRESSURE CAN RESULT IN FLOODING. ALWAYS FOLLOW THESE STEPS PRIOR TO SERVICING THE VALVE.

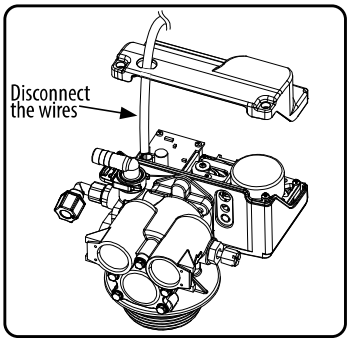
REPLACE TIMER



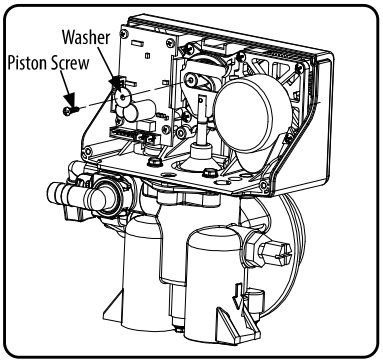
1. Disconnect the meter cable from the meter. (If meter cable is attached).



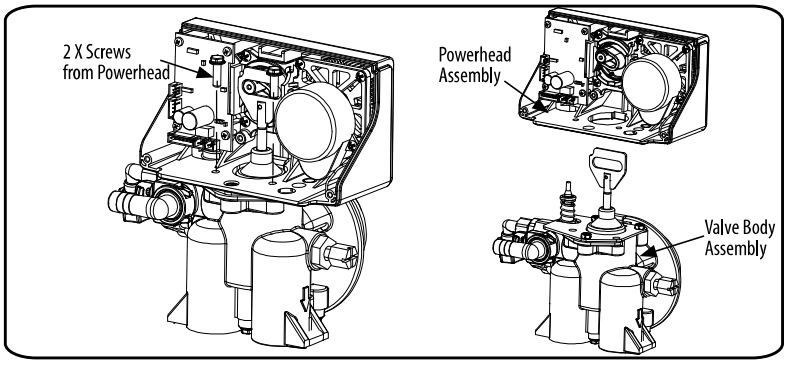
2. Remove the two screws from the valve cover.



3. Remove the cover of the valve and disconnect the wires attached on PCB.

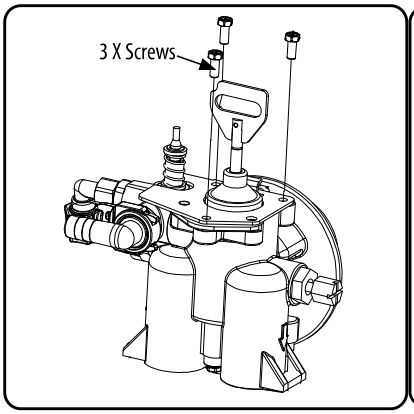


4. Remove the piston screw and washer from the piston rod.

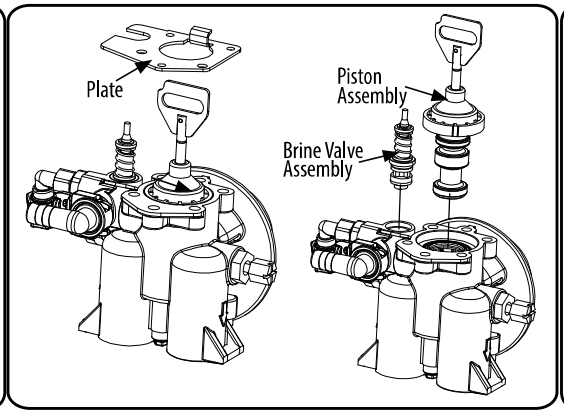


5. Remove the two screws from the powerhead as shown.
6. Life the powerhead from the valve body assembly.
7. Replace the powerhead by reverse following the steps in this section.

REPLACE PISTON AND/OR BRINE VALVE

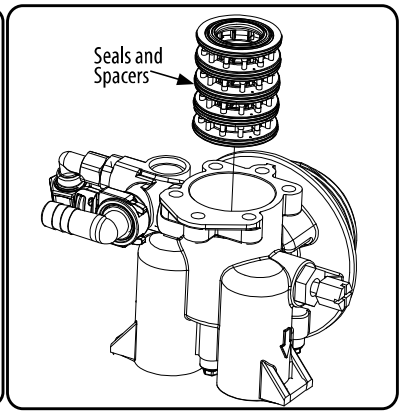


1. Follow steps 1 to 6 of timer /Powerhead replacement.
2. Remove three screws from the plate on the valve body.



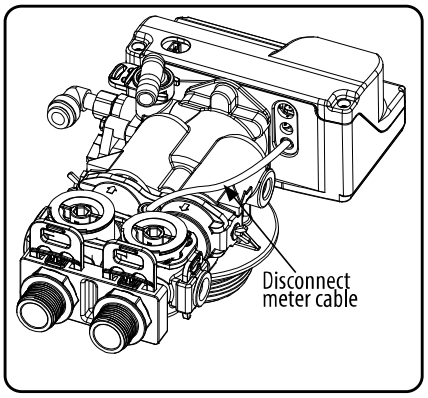
3. Remove the plate from the valve body and pull the Piston Assembly from the valve. The brine valve assembly can also be removed in this stage.

REPLACE SEAL AND/OR SPACER

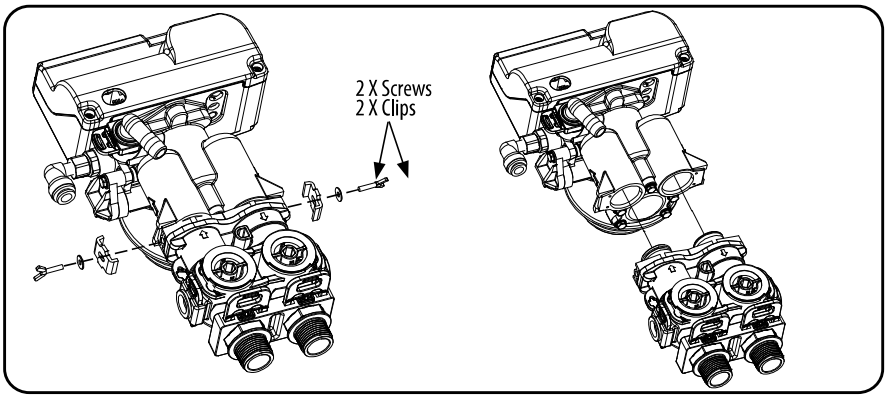


4. Remove the seals and spacers assembly, grease it with silicone lubricant and put back in.
5. After servcing, reverse following steps in this section.

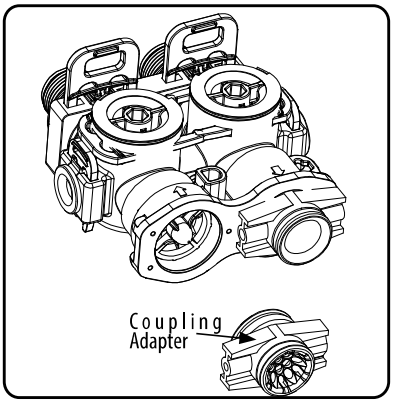
REPLACE METER



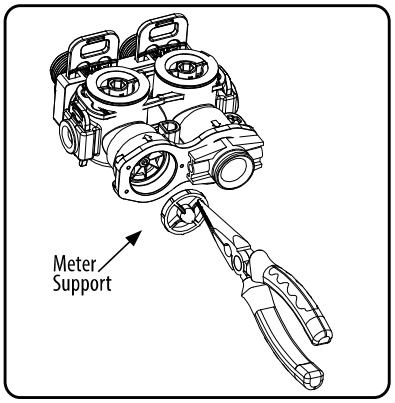
1. Disconnect the meter cable from the meter. (If flow meter cable is attached)



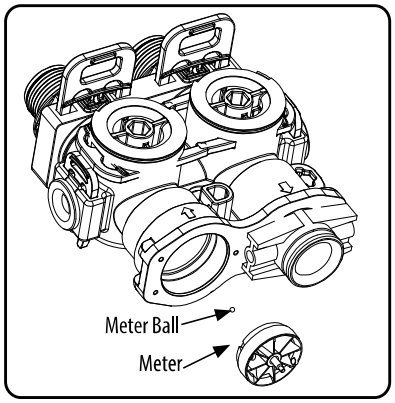
2. Disconnect the bypass from valve by removing clips.



3. Remove the coupling adapter from the bypass.

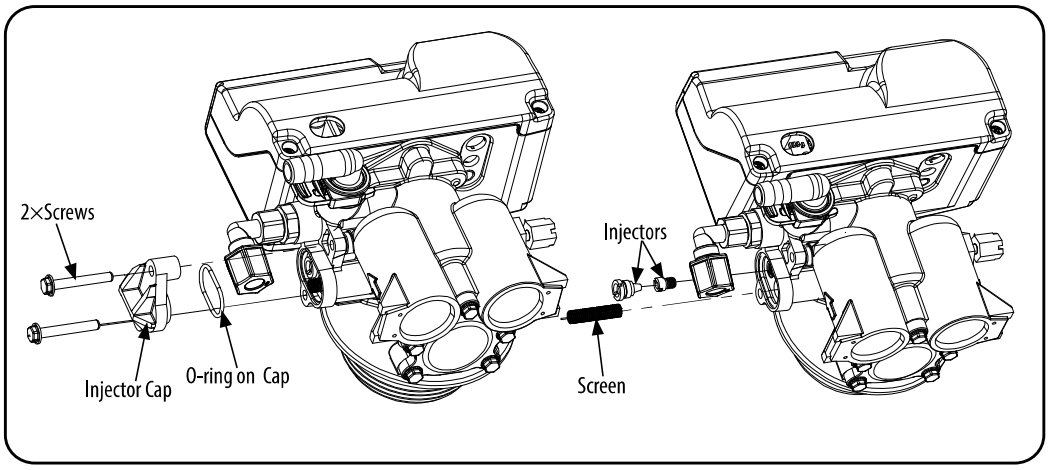


4. Remove the meter support from the bypass.



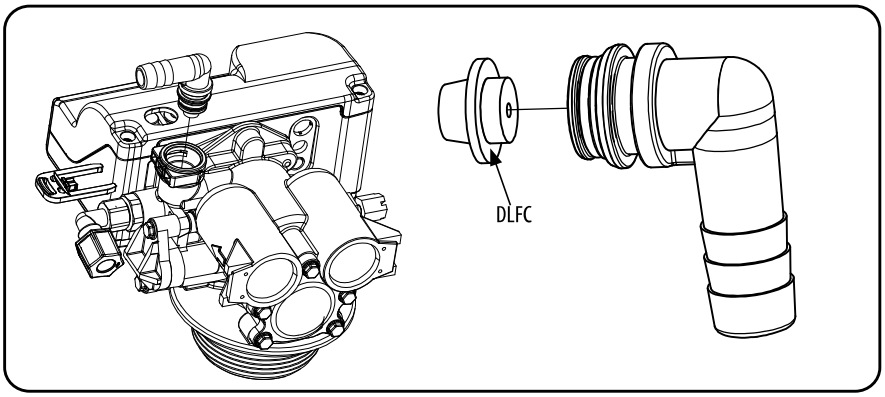
5. Remove the meter and replace it.

CLEAN INJECTOR ASSEMBLY



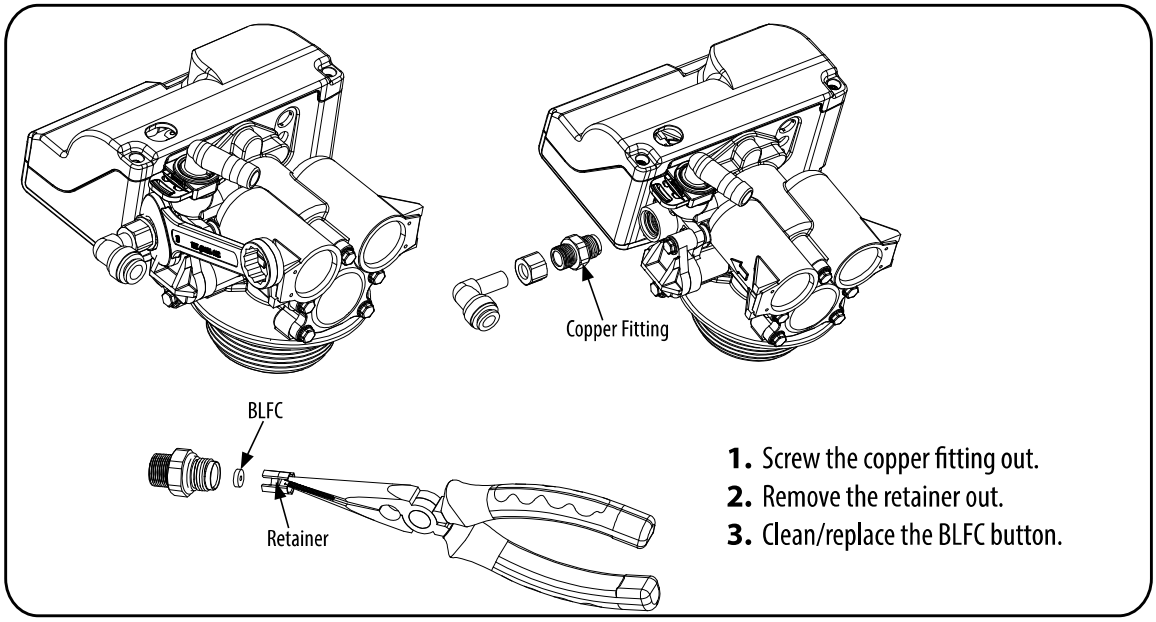
1. Remove the two screws of the injector cap.
2. Pull the injector cap out, watch for the o-ring on the cap.
3. Screw the injector assembly out, clean/replace it.
4. Pull the screen out, clean/replace it.
5. After servcing, reverse following steps in this section.

REPLACE DRAIN LINE FLOW CONTROL



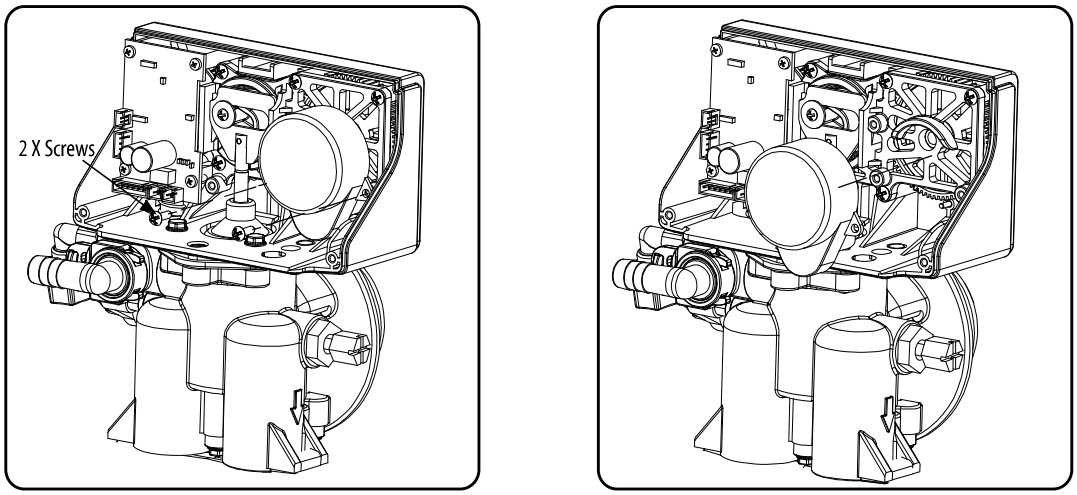
1. Pull the drain line clip and remove the drain line elbow and washer.
2. Clean/replace drain line flow control.

REPLACE BRINE LINE FLOW CONTROL



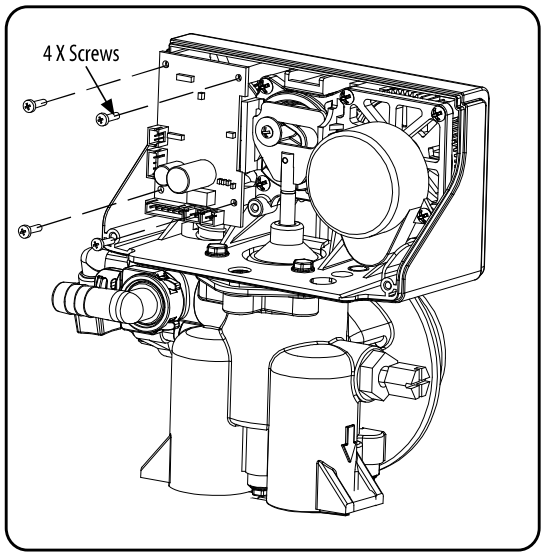
1. Screw the copper fitting out.
2. Remove the retainer out.
3. Clean/replace the BLFC button.

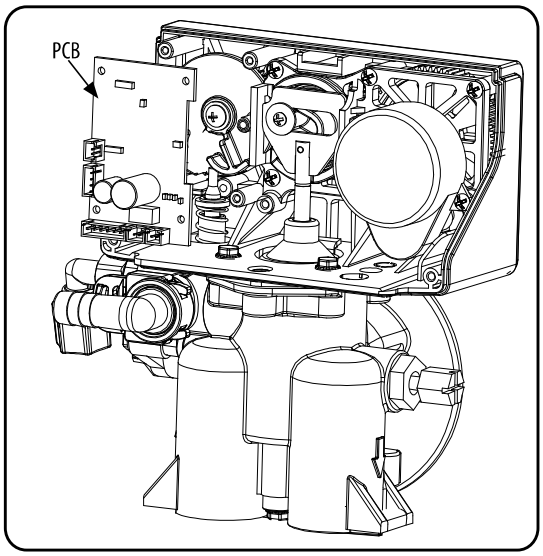
REPLACE MOTOR



1. Follow steps 1 to 3 of Timer /Powerhead replacement.
2. Remove the two screws from the motor. Remove motor(disconnect the wire attached on PCB if any), watch for the pin under the motor.
3. Replace the motor.

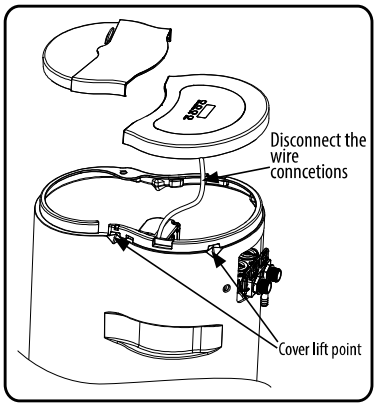
REPLACE CIRCUIT BOARD



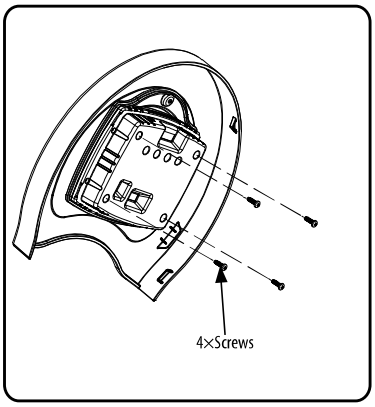


1. Follow steps 1 to 3 of timer /Powerhead replacement.
2. Remove all the connections on PCB.
3. Remove the four screws from the PCB.
4. Replace the PCB.

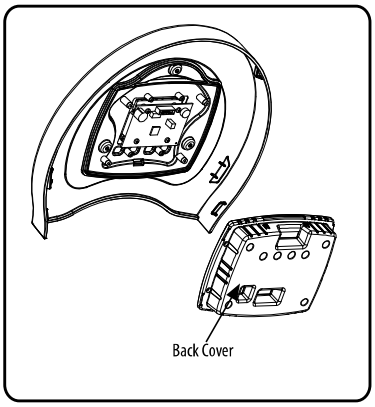
REPLACE DISPLAY



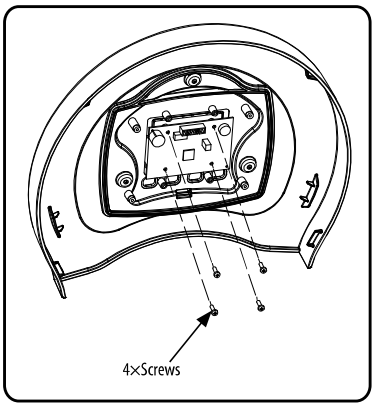
1. Remove the cover from the cabinet.
2. Disconnect the wire connection.



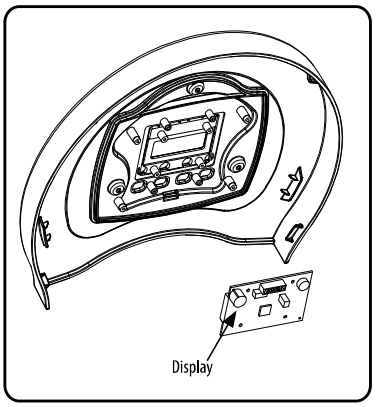
3. Remove the four screws attached on back cover.



4. Remove the back cover.



5. Remove the four screws attached on PCB.



6. Remove the display.

TROUBLE SHOOTING GUIDE

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