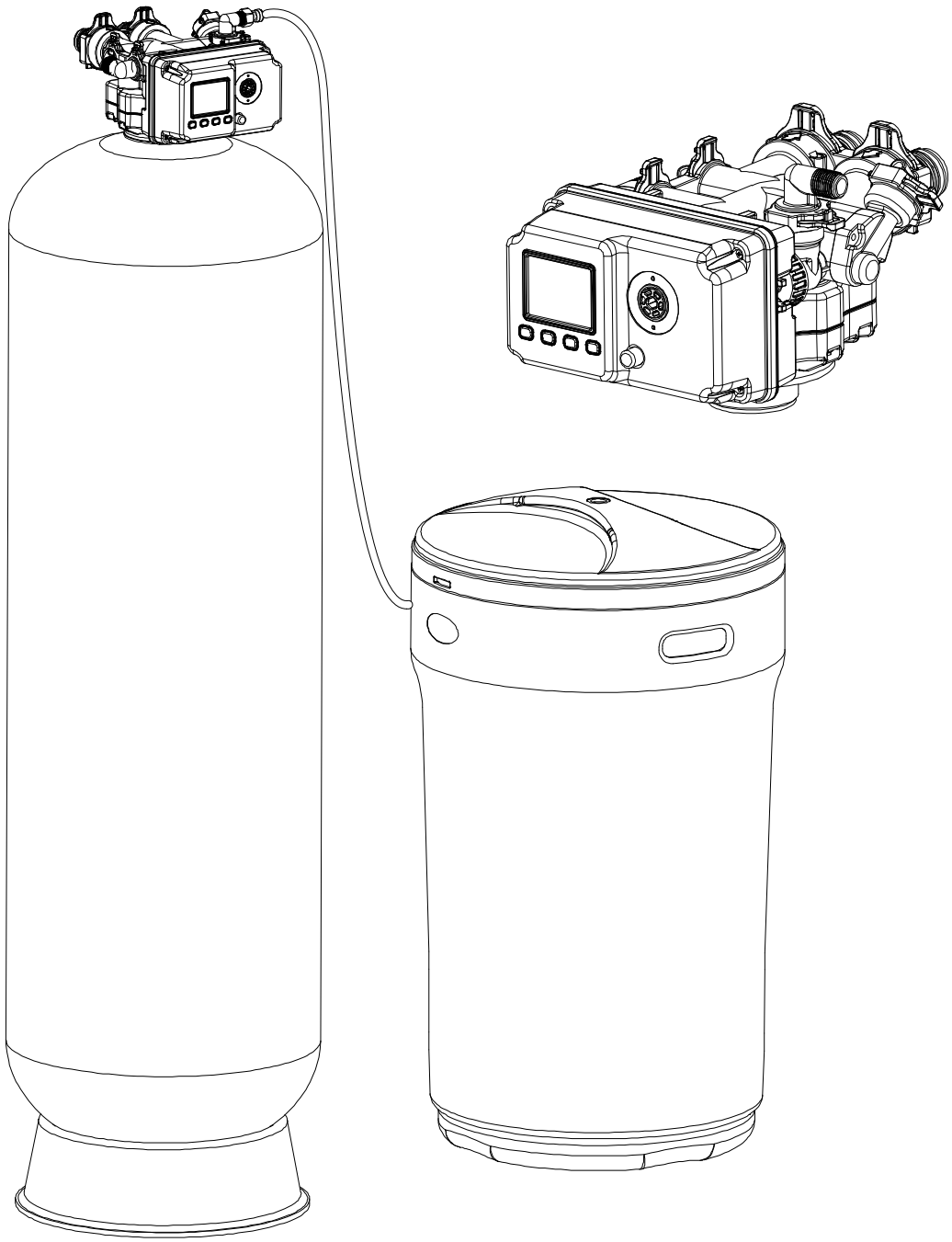
Owners Manual



BNT95 Control Valve

1. Read all instructions carefully before operation.

2. Avoid pinched o-rings during installation by applying (provided with install kit) NSF certified lubricant to all seals.

3. This system is not intended for treating water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.

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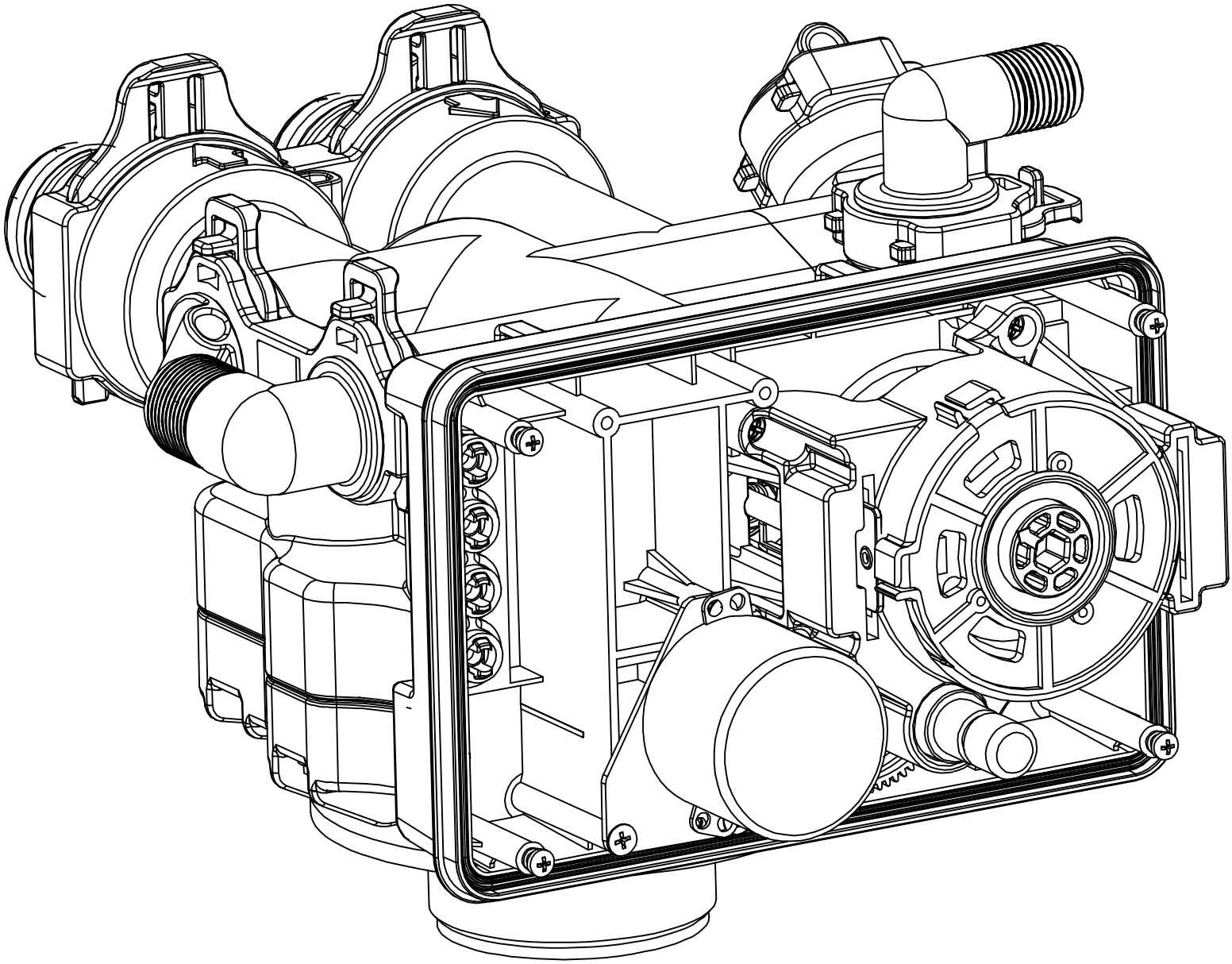


TABLE OF CONTENTS

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 0.2MPa(30 psi) to 0.86MPa(125 psi). If the water pressure is higher than 0.86MPa(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.

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

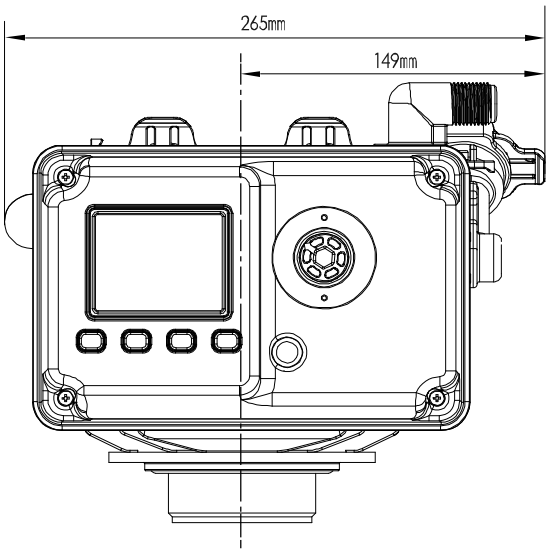
Electrical Shock Hazard! Unplug the unit before removing the cover or accessing any internal control parts.

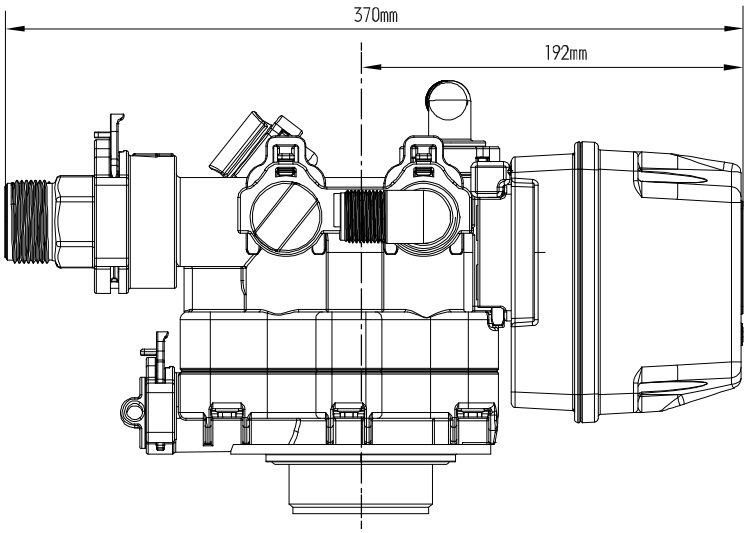
CONTROL VALVE SPECIFICATIONS

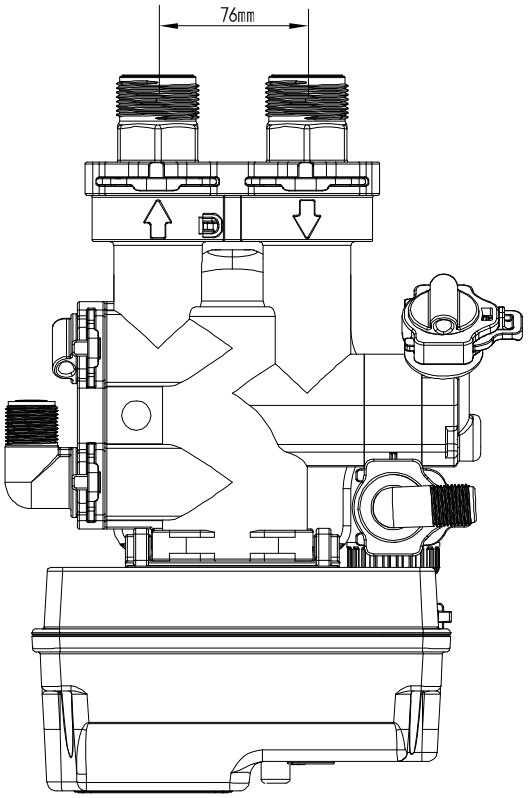
Configuration		
Product Model	BNT950	BNT951
Water Supply	Municipal	
Water Temperature	1~42 ℃	
Water Pressure	0.14 ～ 0.84 MPa	
Typical Application	Softener	Filtration
Tank Size	Up to 24"	Up to 21"
Regeneration Type	Down Flow	/
Inlet&Outlet Connection	BSP/NPT 1", 1.25" & 1.5" Thread	
Tank Connection	2.5"-8-NPSM, 4"-8-UN	
Rise Pipe	OD 1.05" & 2"	
Drain Line Connection	3/4", 1" BSP&NPT	
Brine Line Connection	3/8", 1/2" QC Elbow	
HWBP	Yes	
Flow Rate(Only valve)		
Continuous Flow (15 psi PD)	7000 L/H / 30.8 GPM	
Peak Flow (25 psi PD)	9100 LPH / 39.6 GPM	
Max. Backwash Flow (25 psi PD)	4100 LPH / 18.1 GPM	
Cv @Service	8.0	
Electrical Parameters		
Input	110V-120V / 220-240V AC 50/60 Hz	
Output	12V AC 650 mA	
Shipment Information		
Carton Dimension(L×D×H)	385×285×280 mm	
Gross Weight(KG)	3.2 Kg	

- Do not subject the unit to freezing temperatures.
- Do not use water that is microbiologically unsafe without adequate disinfection before or after the system.
- Iron content must not exceed 1 ppm. Beyond 1 ppm an iron filter must be used.
- 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.

CONTROL VALVE DIMENSIONS







4" VALVE BASE

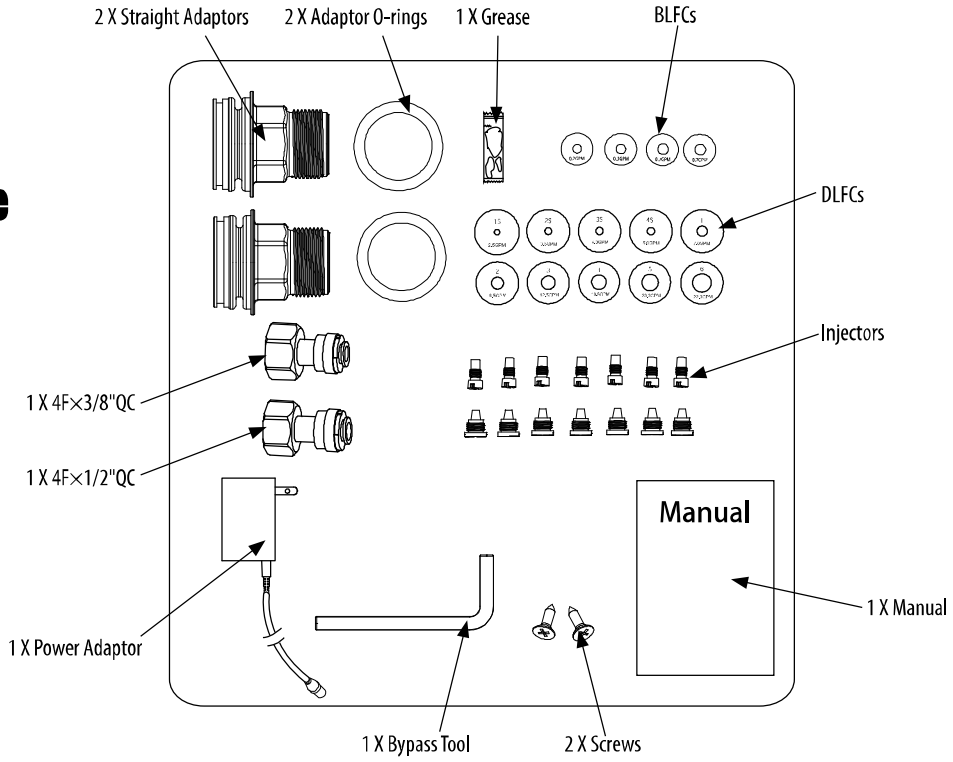
UNPACK & INSPECT YOUR CONTROL VALVE

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.

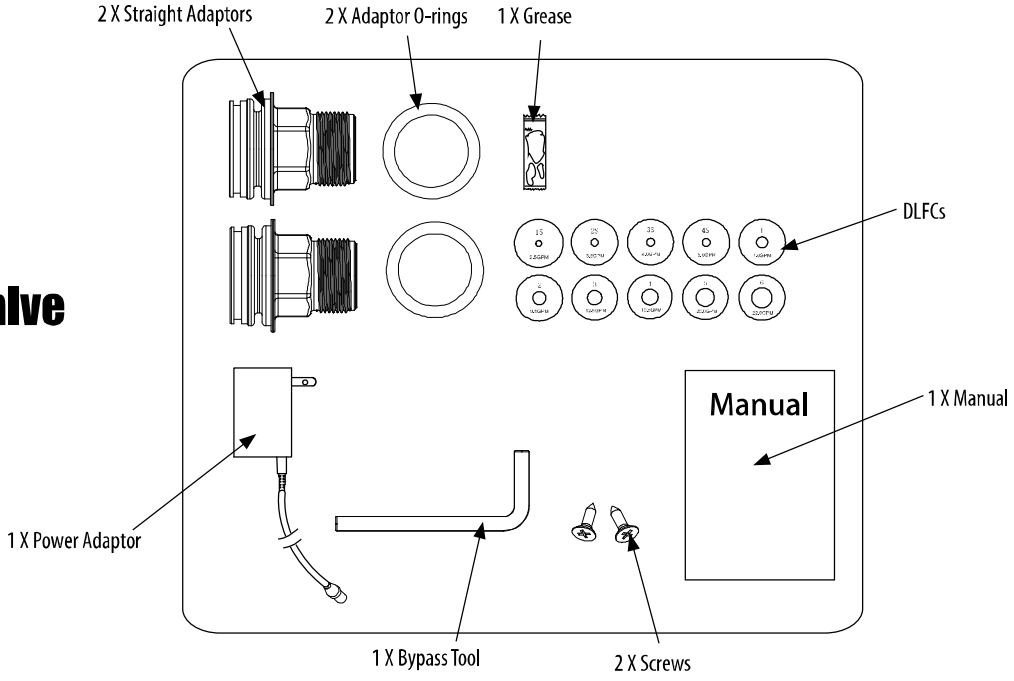
Small parts, needed to install the softener or filter, are in a parts box. To avoid loss of the small parts, keep them in the parts bag until you are ready to use them.

ACCESSORIES CONTENTS :

Softener Valve

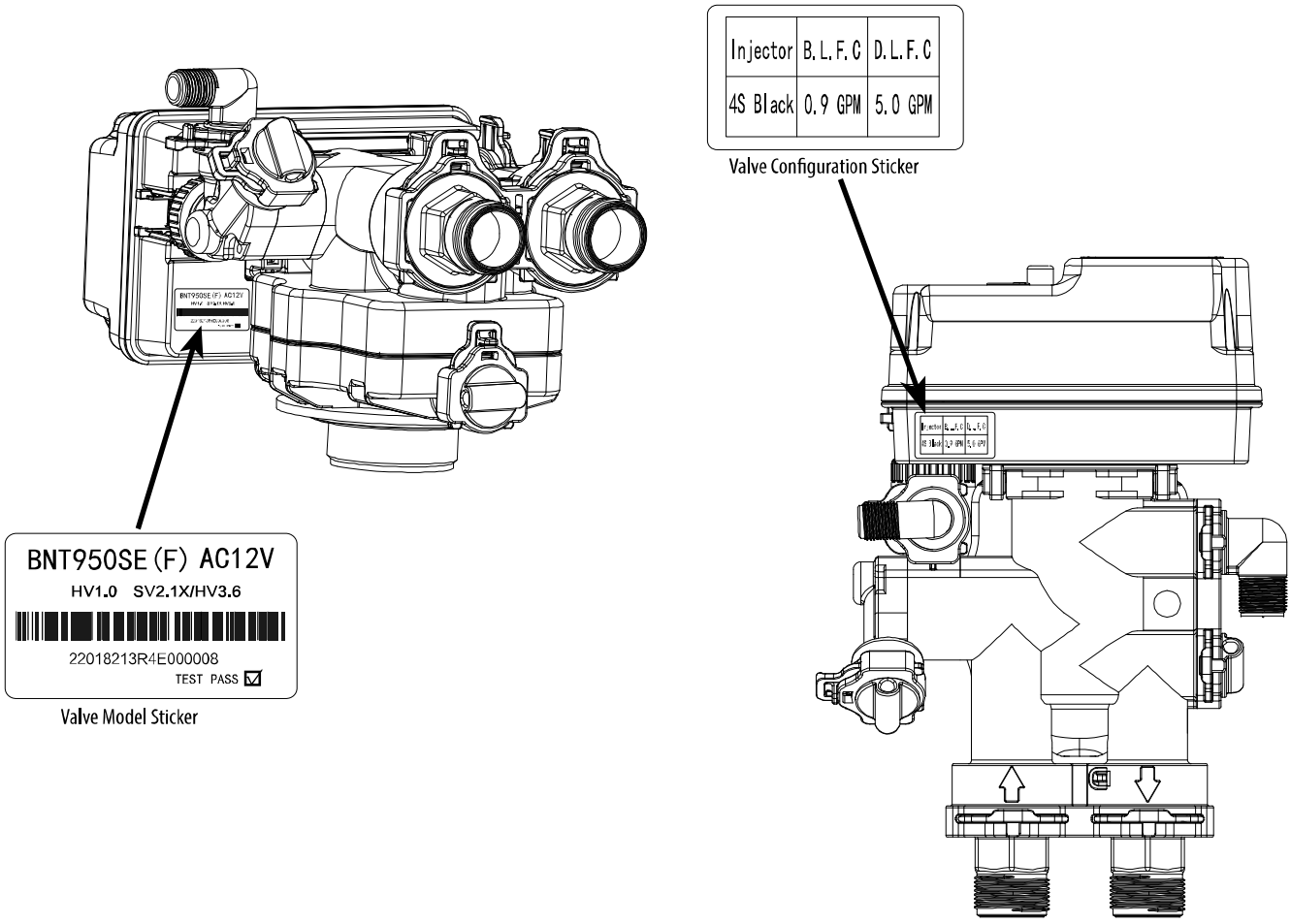


Filter Valve

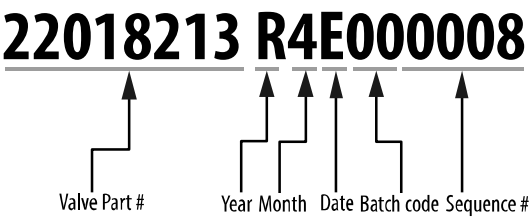


CHECK THE VALVE SERIAL NUMBER AND VALVE TYPE

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.

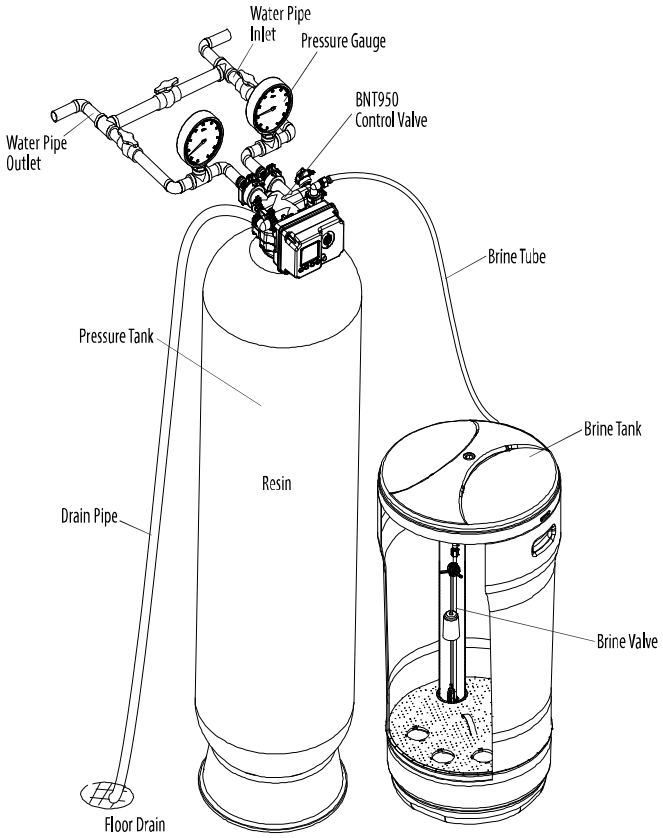


VALVE SERIAL NUMBER:

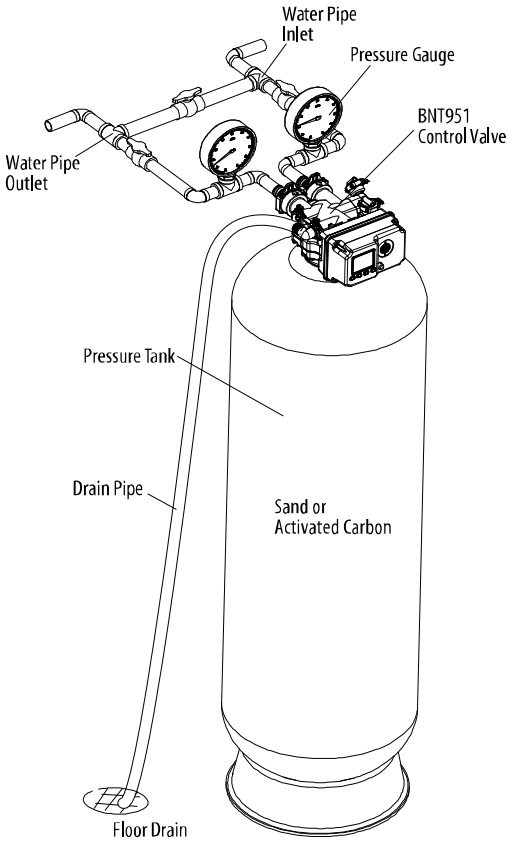


(22018213): Valve part #
(R)YEAR: "R" stand for year 2021,"Q" stand for year 2020, "P" stand for year 2019, "O" stand for year 2018, "N" stand for year 2017, "M" stand for year 2016, "L" stand for year 2015...
(4)MONTH: 1(JAN), 2(FEB), 3(MAR), 4(APRIL), 5(MAY), 6(JUNE), 7(JULY), 8(AUG), 9(SEP), A(OCT), B(NOV), C(DEC)
(E)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
(00): Batch code
(0008): Sequence #

TYPICAL APPLICATION

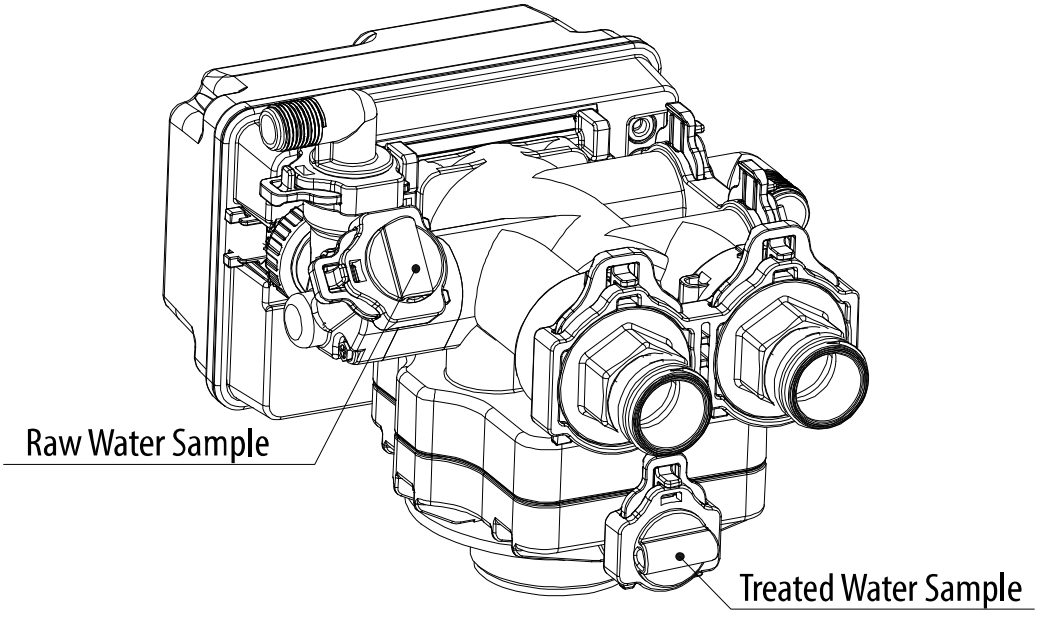


Softener



Filter

Take Water Sample



PLUMBING CONNECTION

Three Ball Valve Connection(example)

Service Position

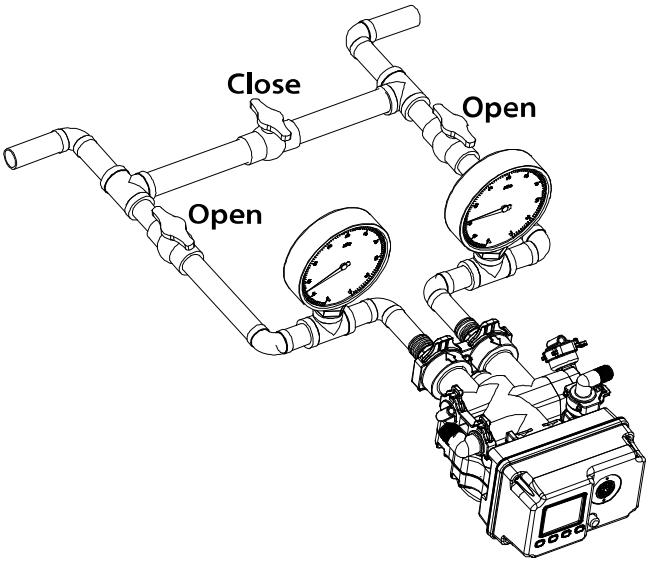


Figure 1

Bypass Position

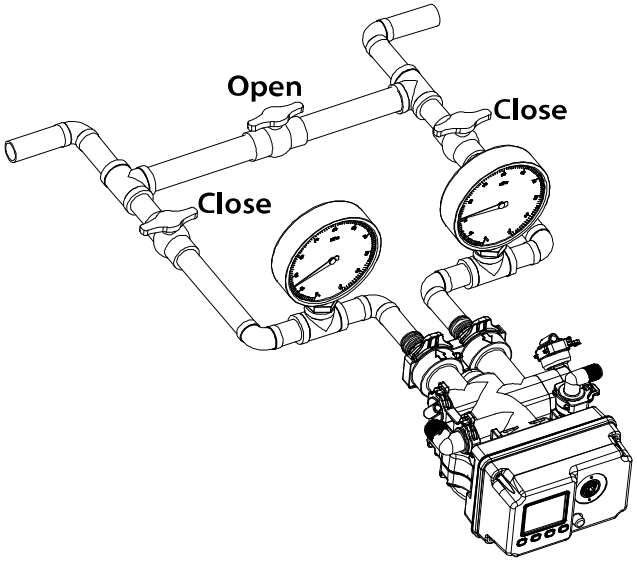


Figure 2

In case of an emergency such as softener/filter maintenance, you can isolate your water softener/filter from the water supply using the three ball valves located at the back of the control. In service position, two ball valves are opened and one ball valve is closed as Figure 1 indicated. In bypass position, two ball valves are closed and one ball valve is opened as Figure 2 indicated.

You can use your water related fixtures and appliances as the water supply is bypassing the softener/filter. However, the water you use will be untreated. To resume treated service, open or close the ball valves to the correct position as Figure 1 indicated.

NOTE	Please make sure ball valves are completely opened or closed.

INSTALLATION INSTRUCTION

1. Locate as close as possible to the water supply source.
2. Locate as close as possible to a floor drain.
3. Do not install a softener/filter in a location where freezing temperatures occur. Freezing may cause permanent damage to this type of equipment and will void the factory warranty.
4. Allow sufficient space around the unit for easy servicing.
5. Keep the softener/filter system out of direct sunlight.
6. The brine tank should be placed close to the resin tank and on the same surface level. Shorten the length of brine tube to less than 2.5 meters.
7. Use the 3/8" or 1/2" tubing to connect brine line from valve to brine valve, do not miss the insert sleeve inside the tubing.
8. The inside diameter of drain pipe should not be less than 0.5 inches.The total length of drain pipe should not exceed 6 meters.
9. The drain line connection 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)
10. Ensure to use the correct injector,BLFC,DLFC to keep the best working condition of system.

SYSTEM CONFIGURATION

Suggested Softener System Configuration				
Tank Size	Injector Set		BLFC	DLFC
	Injector Nozzle	Injector Throat		
1465	#4S Black	#4S Black	0.9 gpm	5.0 gpm
1665	#5S Black	#5S Orange	0.9 gpm	7.0 gpm
1865	#1 White	#1 White	0.9 gpm	9.5 gpm
2162	#2 Blue	#2 Blue	1.35 gpm	12.5 gpm
2472	#3 Yellow	#3 Yellow	1.35 gpm	16.5 gpm

Suggested Filter System Configuration(Carbon)	
Tank Size	DLFC
1465	9.5 gpm
1665	12.5 gpm
1865	16.5 gpm
2162	20.0 gpm

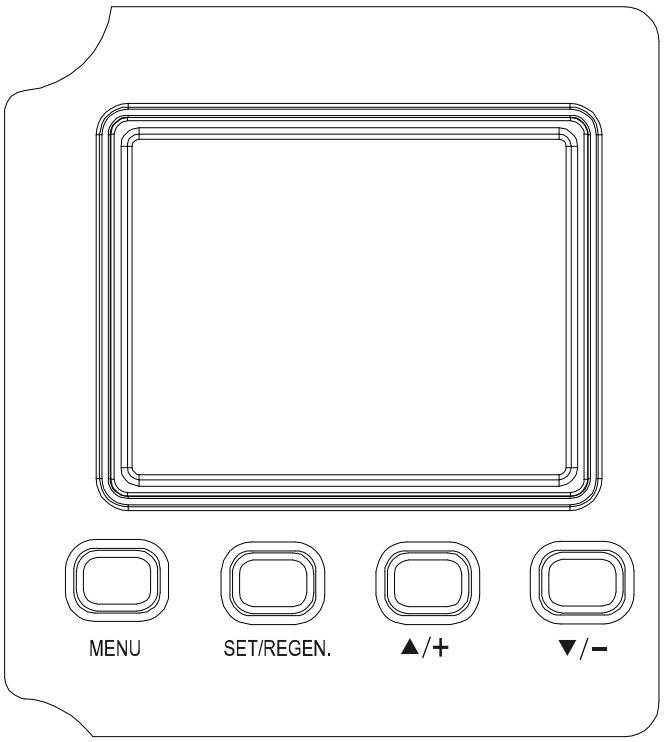
- The above configuration chart is only for reference, it may vary from different system application and media loaded.

START UP

1. Plug the power transformer into an approved power source. Connect the power cord to the valve.
2. Bypass the unit and then open the water supply to flush the inlet&outlet piping.
3. Manually step the valve to the BACKWASH position. As the valve arrives at BACKWASH position, unplug the power and let valve stay at BACKWASH position.
4. Slowly rotate the inlet knob on bypass to allow water to enter the unit. Allow all air to escape from the unit.
5. As water flowing out from drain line, all the air was evacuated from unit, fully open the inlet knob on bypass.
6. Let water run a few minutes or until the system is free of foreign material.
7. Open the brine tank lid and add 10 litres of water. Do not add salt to the brine tank at this time.
8. Connect the brine tube to the brine valve, press any key to step the valve to the brine position.
9. Let the valve draw the water inside brine tank, make sure there is negative pressure and check brine draw flow rate is good.
10. Until the brine valve is closed, check the sealing for brine valve is good.
11. Continue to press any key to step the valve to the rinse position. Check the drain line flow. Allow the water to run for a few minutes or until the water is clear.
12. Disconnect the brine tube to the brine valve.
13. Continue to press any key to step the valve to the refill position. Check that the valve is filling water and how much water the valve is refilling per minute.
14. Continue to press any key to step the valve to the service position.
15. Reconnect the brine tube to the brine valve.
16. Add the correct amout of water calculated for next regeneration into brine tank.
17. Add salt into the brine tank, keep the salt level is above the brine level.
18. Program the unit as required, this should be done by a qualified person.
19. Your system is ready to use.

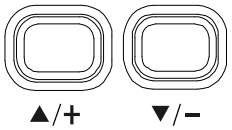
PROGRAMMING GUIDE

FAMILIARIZE WITH KEY PAD CONFIGURATION



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

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



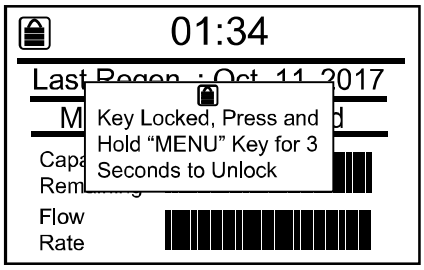
This function is to scroll up or down the programming items and increase or decrease the values of the settings while in the programming mode.

OPERATION DURING A POWER FAILURE

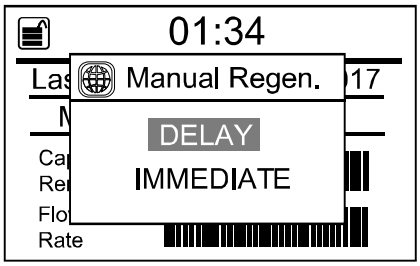
In the event of a power failure, the valve will keep track of the time and day. The programmed settings are stored in a non-volatile memory and will not be lost during a power failure. If power fails while the unit is in regeneration, the valve will finish regeneration from the point it is at once power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

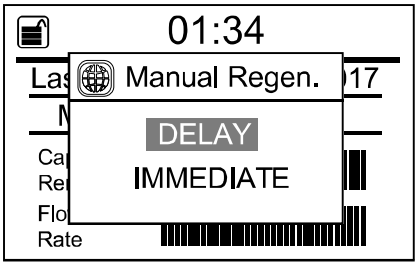
1. Press and hold MENU key for 3s to unlock.



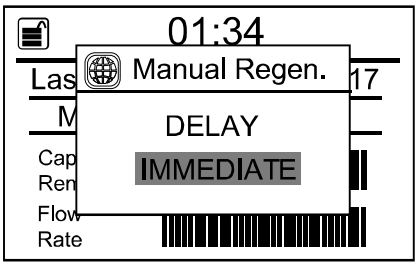
2. Press and hold SET/REGEN. key for 3s to advance to MANUAL REGEN menu.



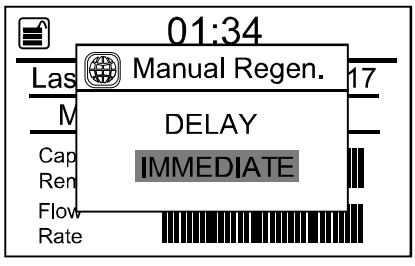
3. Press SET/REGEN. key again to let the option flash.



4. Press DOWN key to advance to IMMEDIATE option.

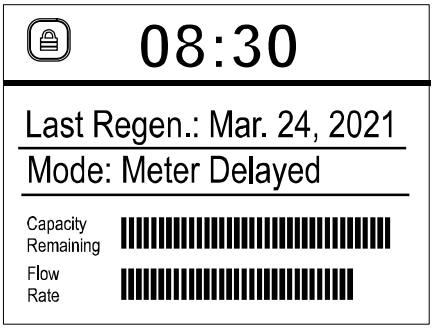


5. Press SET/REGEN. key to confirm and press MENU key to have an manual regeneration.



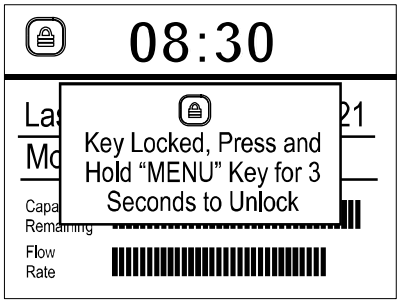
NOTE: *If you select "DELAY" option,the valve will start to regenerate at the closest day's REGEN. TIME (default is 02:00)*

STANDBY DISPLAY



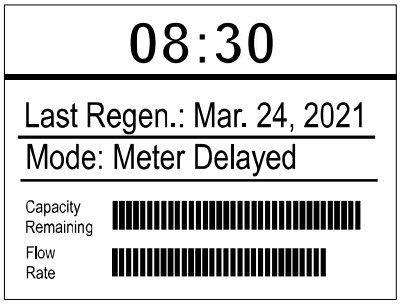
Current Time, Last Regen. Time, Regen. Mode, Capacity Remaining and Flow Rate will be displayed on the screen.

LOCKED&UNLOCK DISPLAY



Screen Locked

Screen will be locked if any button without being operated in 4 minutes at the standby display.



Screen Unlocked

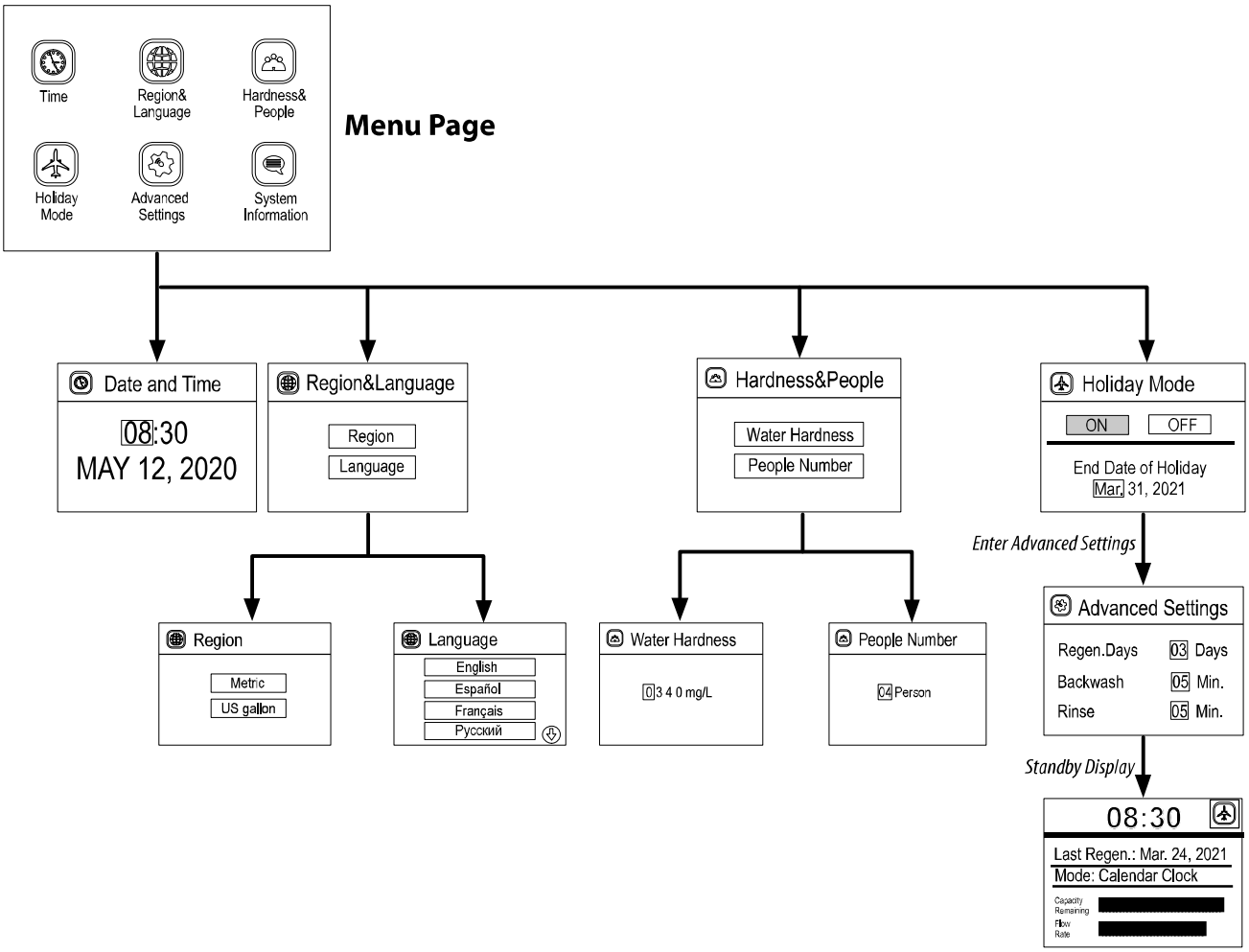
Press and Hold "MENU" key for 3 seconds to unlock.

MENU PAGE

Press "MENU" key from Standby Page to enter Menu Page.

Press "SET/Regen" to enter the option or accept the value.

Press "△/+" and "△/—" key to change the menu option or change the value.



Date and Time

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

Region

Unit of measure the system used, METRIC(litre)and US(gallon) options are available now.

Language

System language used on the valve display, 9 different language options in total for your choice.(English,Spanish,Franch,Russian,Turkey,German,Polish,Italian and Chinese).

Water Hardness

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

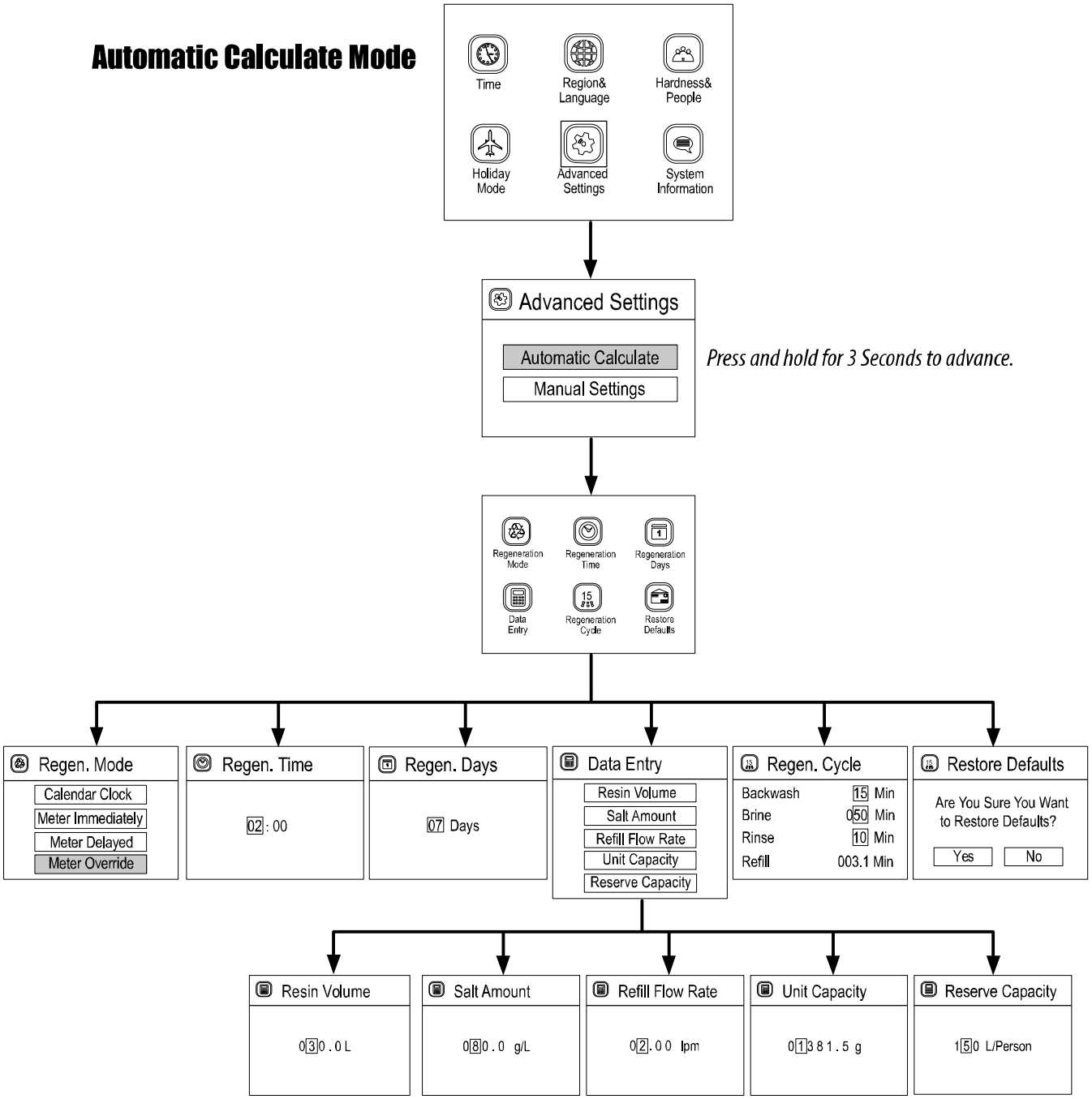
People Number

Number of people in the household and the calculated reserve capacity. When remaining reaches reserve capacity a regeneration will be scheduled.

Holiday Mode

When set to ON, the system will automatically perform a Backwash and a Rinse to clean the media tank after pre-set interval days during your holiday. Enter the Advanced Settings page to adjust the regen. days, backwash cycle duration and rinse cycle duration.

Automatic Calculate Mode



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 Amount

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.

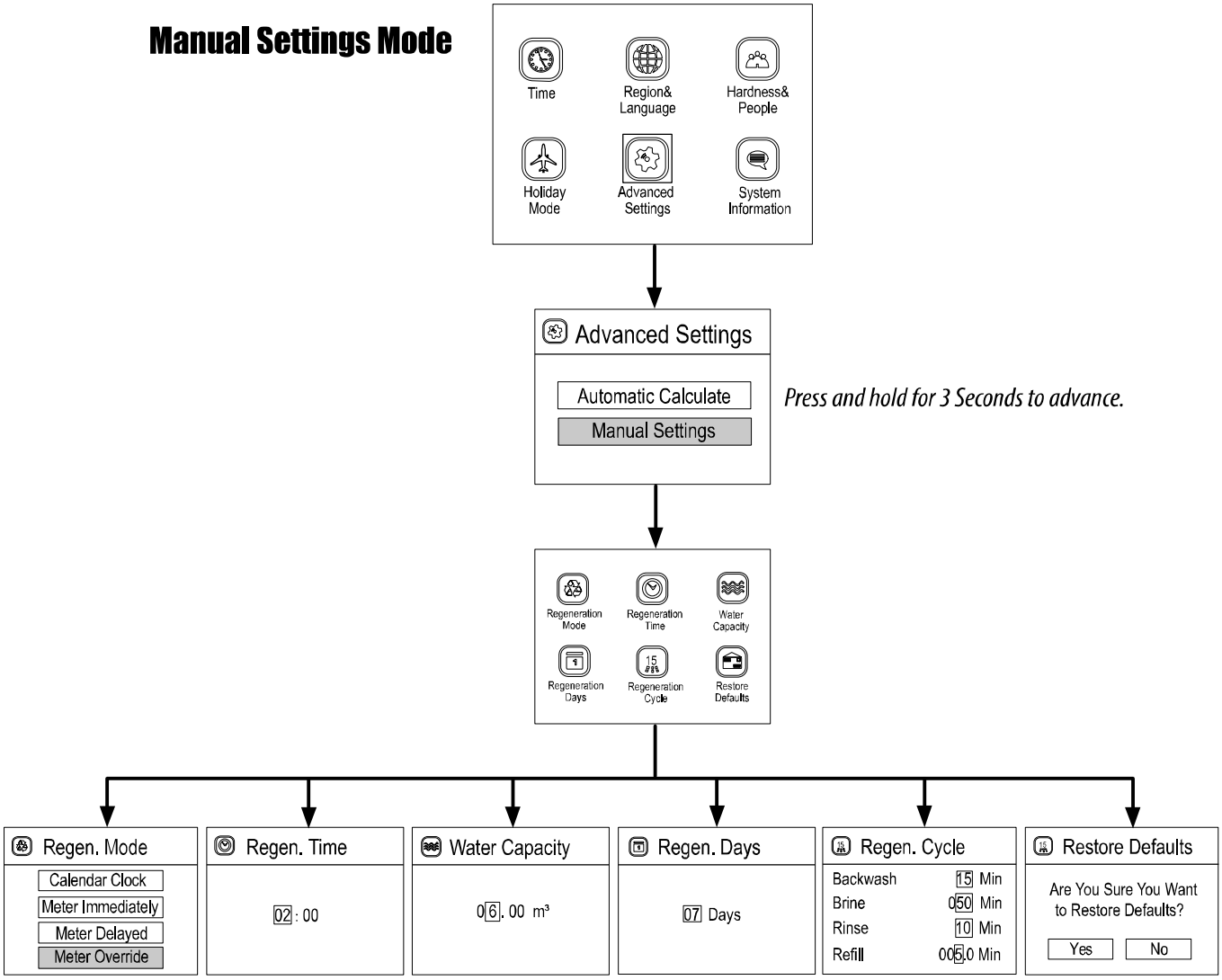
Unit Capacity

This setting is the total hardness the system can remove after one complete regeneration.

Reserve Capacity

This value is used to calculate the reserve capacity. Reserve Capacity = No. People x Daily Reserve.

Manual Settings Mode



Regen. Mode

Calendar Clock - The unit will initiate a regeneration at the next pre-set regeneration time based on the interval of days between regeneration days.
Meter Immediately - When the volume remaining reaches zero, the system will immediately regenerate.
Meter Dalayed- When the volume remaining goes below the calculated reserve for that day the system will regenerate at the Regen. time.
Meter Override - When the volume remaining goes below the calculated reserve for that day the system will regenerate at the Regen. time or when Regen. days arrived. Which ever occurs first.

Regen. Time

This setting determines the time of day to perform a scheduled regeneration.

Water Capacity

This setting is the total water volume the system can treat after one complete regeneration.

Regen. Days

This value is the interval of days for the system to perform regenerations.

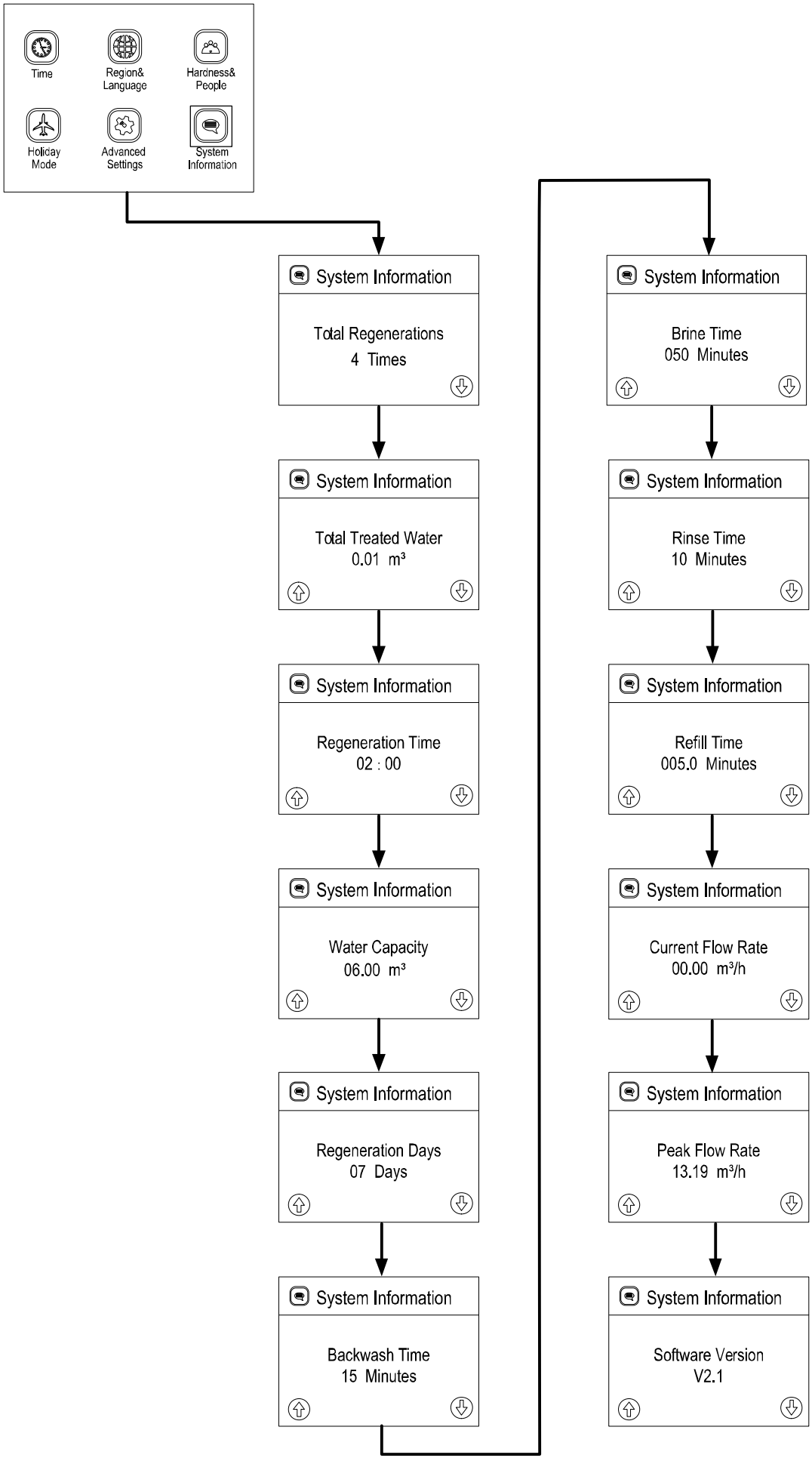
Regen. Cycles

Backwash Duration: Control the backwash duration during regeneration cycle.
Brine Draw Duration: Control the brine duration during regeneration cycle.
Rinse Duration: Control the rinse duration during regeneration cycle.
Refill Duration: Control the refill duration during regeneration cycle.

Restore Defaults

This setting allows the current settings to be erased and changed back to the default.

SYSTEM INFORMATION DISPLAY

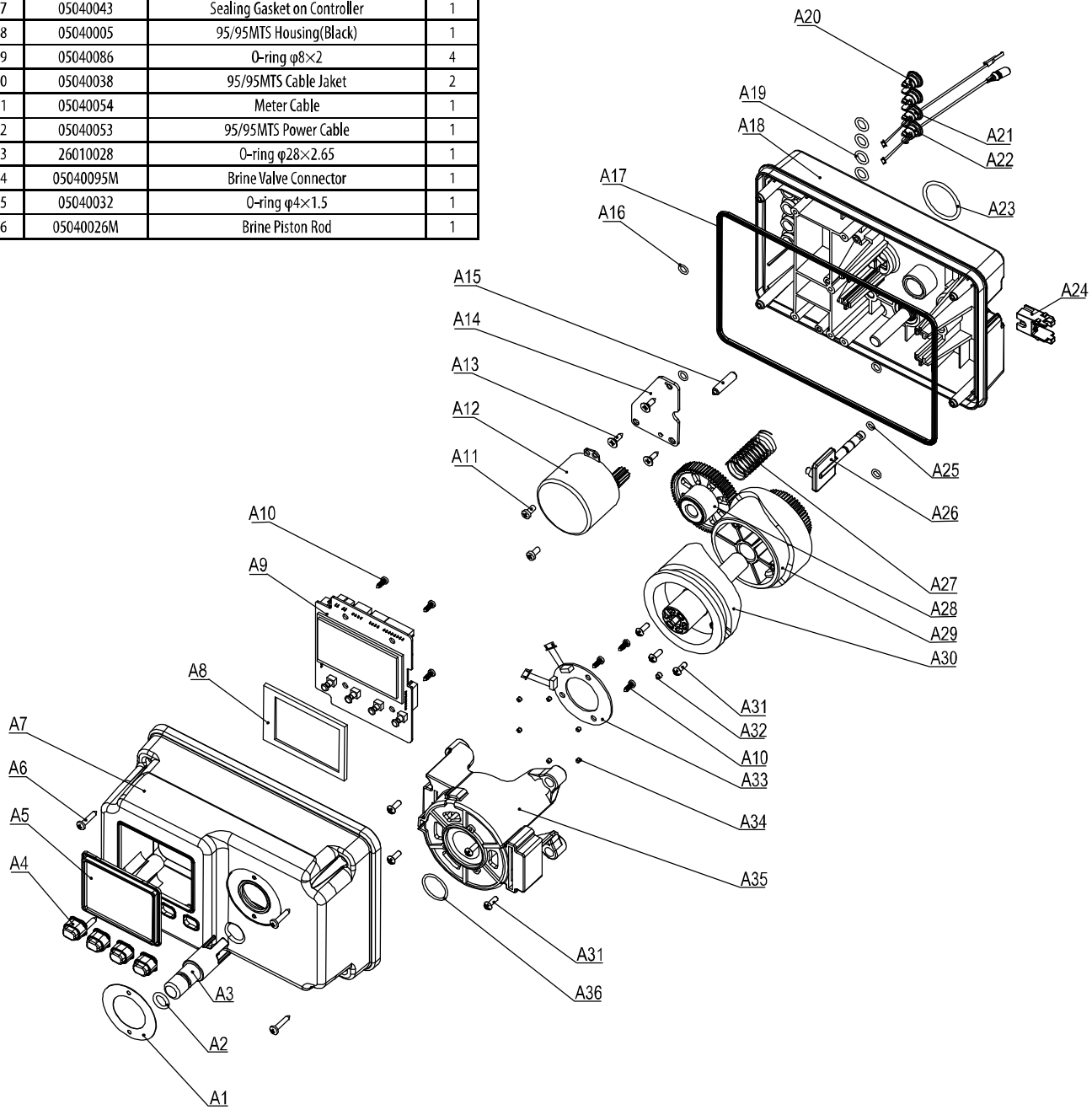


PARTS BREAKDOWN

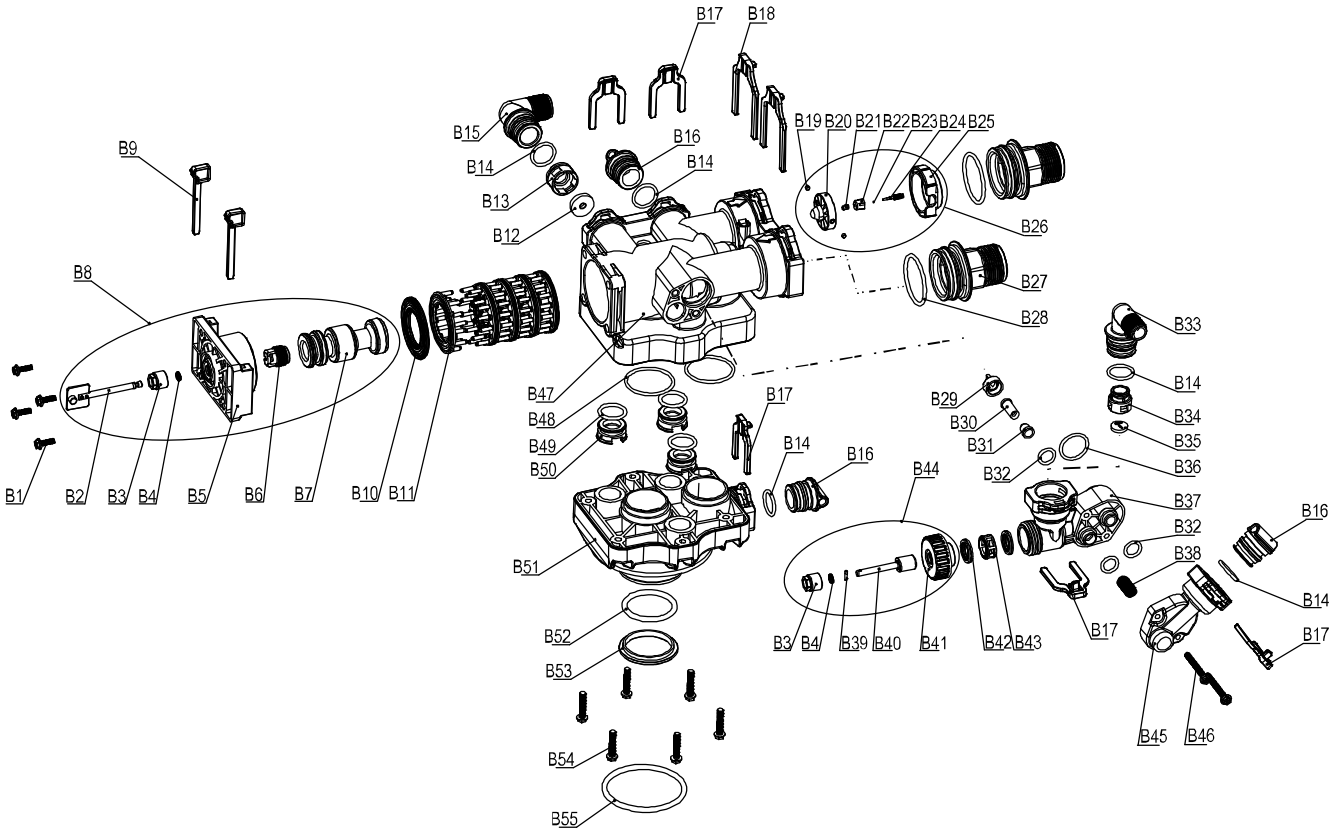
POWER HEAD(SOFTENER)

No.	Part #	Description	Qty
A1	05040093	Working Status Label(Softener)	1
A2	05040085	O-ring φ10×2.5	1
A3	05040041	BNT95 Manual Regen. Button	1
A4	05056529	Operating Button	4
A5	05040036	Clear Cover on Display	1
A6	05040136	Screw 3.5×20	4
A7	05040006	95/95MTS Cover(Black)	1
A8	05040120	PCB Rubber Protection	1
A9	05040051B	95 Display Board	1
A10	05056085	Screw 2.9×9.5	7
A11	05040137	Screw M4×8	2
A12	05011026	Motor 12V 7W	1
A13	05011017	Screw ST 3.5×13	3
A14	05040134	Motor Fixed Plate	1
A15	05040044	Motor Pin	1
A16	05040087	O-ring φ5.5×1.5	4
A17	05040043	Sealing Gasket on Controller	1
A18	05040005	95/95MTS Housing(Black)	1
A19	05040086	O-ring φ8×2	4
A20	05040038	95/95MTS Cable Jaket	2
A21	05040054	Meter Cable	1
A22	05040053	95/95MTS Power Cable	1
A23	26010028	O-ring φ28×2.65	1
A24	05040095M	Brine Valve Connector	1
A25	05040032	O-ring φ4×1.5	1
A26	05040026M	Brine Piston Rod	1

No.	Part #	Description	Qty
A27	05040046	Gear Spring	1
A28	05040040	Gear	1
A29	05040008	Actuating Cam	1
A30	05040009	Inverted Cam	1
A31	05056084B	Screw BT 3.5×13	7
A32	05010078	Magnet φ4×3	1
A33	05040052	Signal Sensor Board	1
A34	05010047	Friction Block	6
A35	05040007	Mounting Plate	1
A36	05056129	O-ring φ23×3	1



VALVE BODY(SOFTENER)



No.	Part #	Description	Qty
B1	05056088B	Screw M5×16	4
B2	05040124	95 Piston Rod	1
B3	05040029M	Quad Ring Holder	2
B4	05056070	Quad Ring (5.81×1.83)	2
B5	05040004	End Plug Retainer	1
B6	05040024M	Piston Rod Holder	1
B7	05040021C	95 Piston	1
B8	02170127	95 Piston Assy	1
B9	05040016	Housing Locking Bar	2
B10	05040133	95 Spacer Seal	5
B11	05040003M	95 Spacer	8
B12	05040069M	DLFC(7gpm)	1
B13	05040030M	DLFC Holder	1
B14	05056121	O-ring φ25×3	5
B15	05040012M	Drain Line Elbow BSP 3/4"	1
B16	05040015M	95 Plug	3
B17	05040018M	95 Small Clip	5
B18	05040017M	95 Large Clip	2
B19	05010078	Magnet φ4×3	2
B20	05040019	95 Meter	1
B21	05040125	Meter Pin Top Bush	1
B22	05040034	Meter Pin Bush	1
B23	05040129	Meter Ball	1
B24	05040045	Meter Pin	1
B25	05040020	Impeller Holder	1
B26	02170124	Meter Assembly	1
B27	05040014M	Inlet&Outlet Adaptor BSP 1.5"	2

No.	Part #	Description	Qty
B28	26010030	O-ring φ48.7×3.55	2
B29	05040035	Air Disperser	1
B30	05040056M	Injector Throat(Grey)	1
B31	05040055M	Injector Nozzle(Grey)	1
B32	05040084	O-ring φ14×3	3
B33	05040013M	Brine Line Elbow BSP 1/2"	1
B34	05040031M	BLFC Holder	1
B35	05040076M	BLFC(2.0 gpm)	1
B36	26010046	O-ring φ27×3	1
B37	05040010	95 Injector Body	1
B38	05040048	Brine Valve Screen	1
B39	05040050	Brine Valve Rod Pin	1
B40	05042009	Brine Valve Piston	1
B41	05040028M	Brine Valve Seal Cover	1
B42	05040042	Brine Valve Seal	2
B43	05040027M	Brine Valve Spacer	1
B44	02170149	Brine Valve Assy	1
B45	05040011	95 Injector Body Cover	1
B46	05040099	Screw M5×50	2
B47	05040002	95 Valve Body	1
B48	05040082	O-ring φ47×3	2
B49	26010158	O-ring φ23.39×3.53	3
B50	05040123	Auxiliary Hole Plug	3
B51	05040090C	95 Valve Body Base(4")	1
B52	26010030	O-ring φ48.7×3.55	1
B53	05040091	Sealing Collar	1
B54	05040088	Screw M6×30	6
B55	05040094	O-ring φ108×5.3	1

POWER HEAD(FILTER)

No.	Part #	Description	Qty
A1	05040092	Working Status Label(Filter)	1
A2	05040085	O-ring φ10×2.5	1
A3	05040041	BNT95 Manual Regen. Button	1
A4	05056529	Operating Button	4
A5	05040036	Clear Cover on Display	1
A6	05040136	Screw 3.5×20	4
A7	05040006	95/95MTS Cover(Black)	1
A8	05040120	PCB Rubber Protection	1
A9	05040051B	95 Display Board	1
A10	05056085	Screw 2.9×9.5	7
A11	05040137	Screw M4×8	2
A12	05011026	Motor 12V 7W	1
A13	05011017	Screw ST 3.5×13	3
A14	05040134	Motor Fixed Plate	1
A15	05040044	Motor Pin	1
A16	05040087	O-ring φ5.5×1.5	4
A17	05040043	Sealing Gasket on Controller	1
A18	05040005	95/95MTS Housing(Black)	1
A19	05040086	O-ring φ8×2	4
A20	05040038	95/95MTS Cable Jaket	2
A21	05040054	Meter Cable	1
A22	05040053	95/95MTS Power Cable	1
A23	26010028	O-ring φ28×2.65	1
A24	05040095M	Brine Valve Connector	1
A25	05040032	O-ring φ4×1.5	1
A26	05040026M	Brine Piston Rod	1

No.	Part #	Description	Qty
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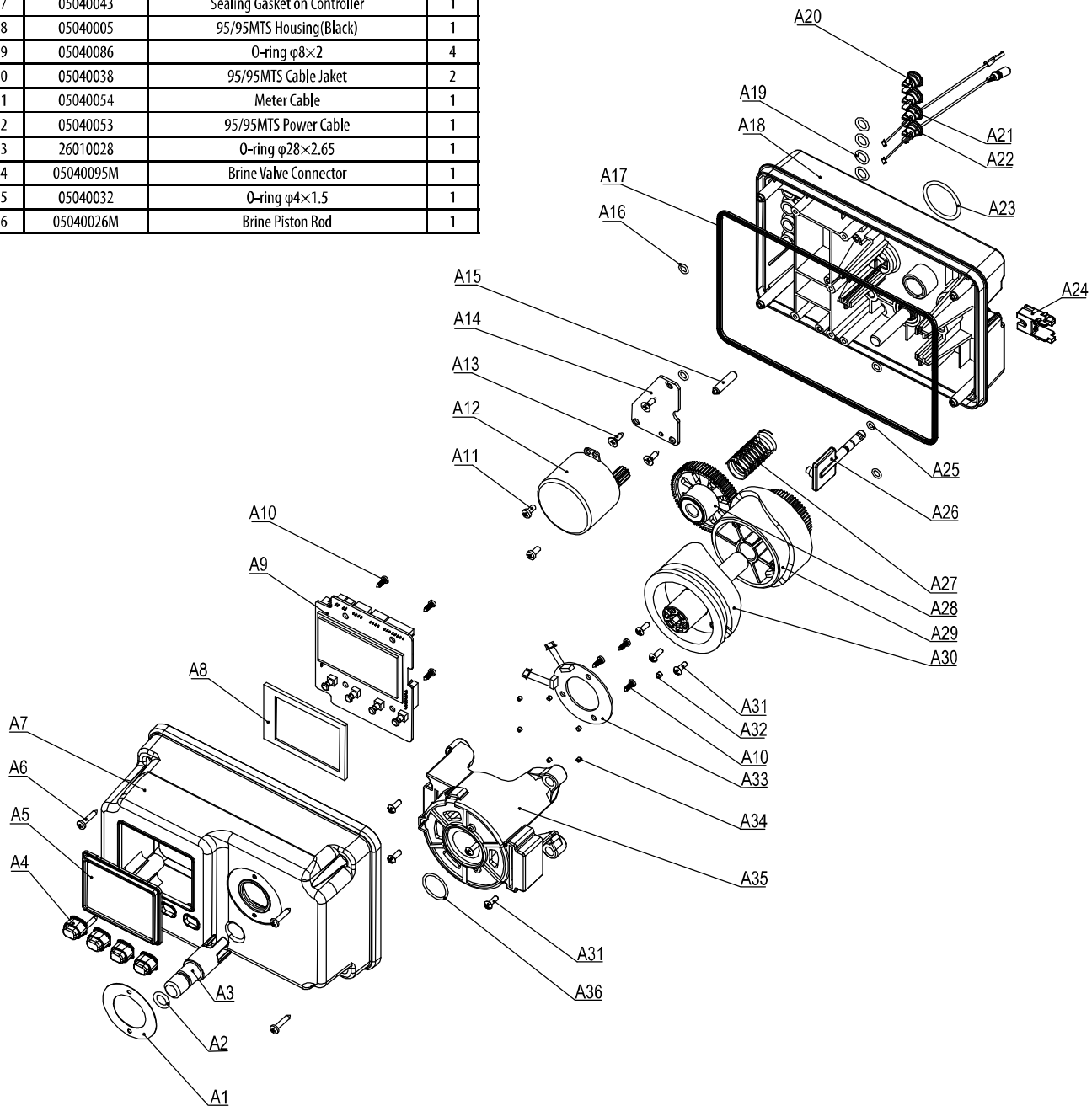
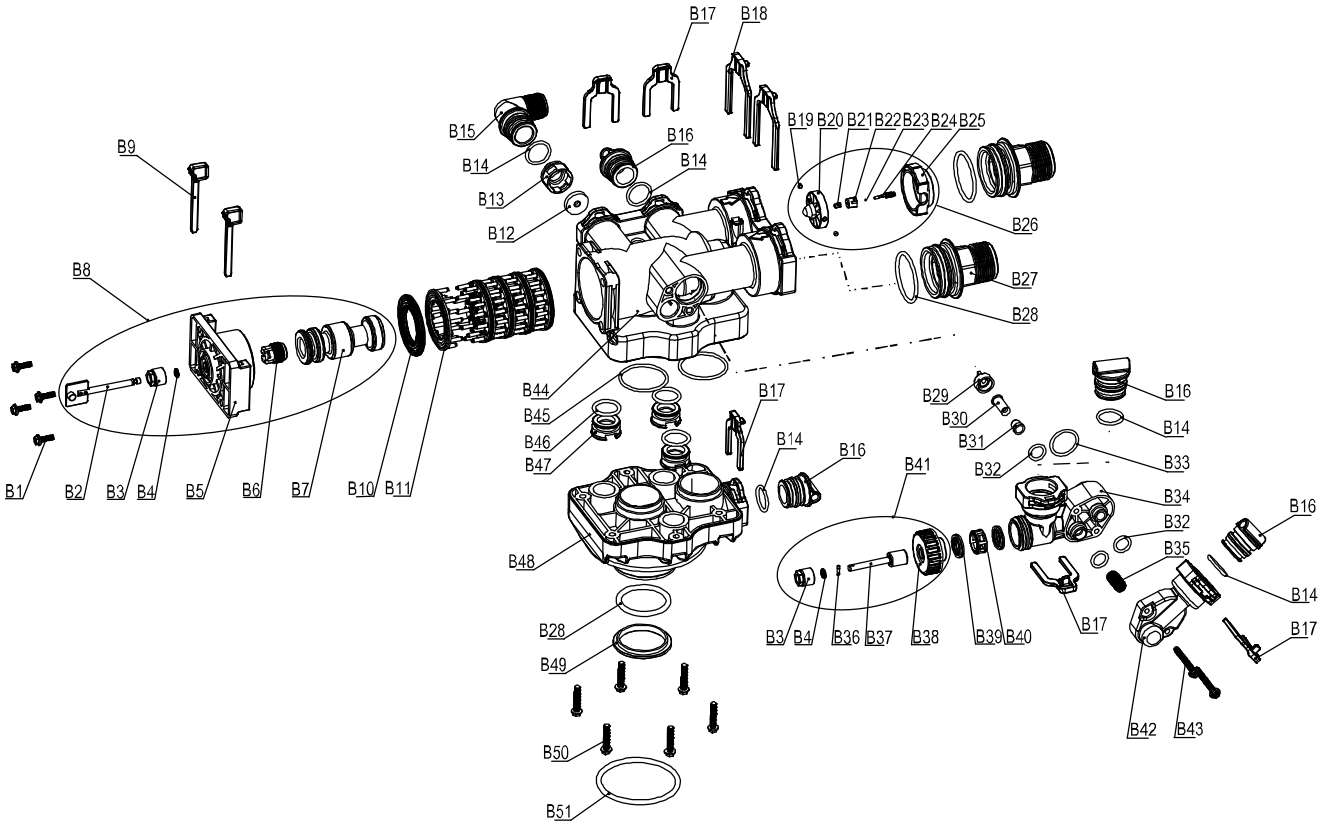
A28	05040040	Gear	1
A29	05040008	Actuating Cam	1
A30	05040009	Inverted Cam	1
A31	05056084B	Screw BT 3.5×13	7
A32	05010078	Magnet φ4×3	1
A33	05040052	Signal Sensor Board	1
A34	05010047	Friction Block	6
A35	05040007	Mounting Plate	1
A36	05056129	O-ring φ23×3	1



VALVE BODY(FILTER)



No.	Part #	Description	Qty
B1	05056088B	Screw M5×16	4
B2	05040124	95 Piston Rod	1
B3	05040029M	Quad Ring Holder	2
B4	05056070	Quad Ring (5.81×1.83)	2
B5	05040004	End Plug Retainer	1
B6	05040024M	Piston Rod Holder	1
B7	05040021C	95 Piston	1
B8	02170127	95 Piston Assy	1
B9	05040016	Housing Locking Bar	2
B10	05040133	95 Spacer Seal	5
B11	05040003M	95 Spacer	8
B12	05040069M	DLFC(7gpm)	1
B13	05040030M	DLFC Holder	1
B14	05056121	O-ring φ25×3	5
B15	05040012M	Drain Line Elbow BSP 3/4"	1
B16	05040015M	95 Plug	3
B17	05040018M	95 Small Clip	5
B18	05040017M	95 Large Clip	2
B19	05010078	Magnet φ4×3	2
B20	05040019	95 Meter	1
B21	05040125	Meter Pin Top Bush	1
B22	05040034	Meter Pin Bush	1
B23	05040129	Meter Ball	1
B24	05040045	Meter Pin	1
B25	05040020	Impeller Holder	1
B26	02170124	Meter Assembly	1
B27	05040014M	Inlet&Outlet Adaptor BSP 1.5"	2

No.	Part #	Description	Qty
B28	26010030	O-ring φ48.7×3.55	2
B29	05040035	Air Disperser	1
B30	05040056M	Injector Throat(Grey)	1
B31	05040055M	Injector Nozzle(Grey)	1
B32	05040084	O-ring φ14×3	3
B33	26010046	O-ring φ27×3	1
B34	05040010	95 Injector Body	1
B35	05040048	Brine Valve Screen	1
B36	05040050	Brine Valve Rod Pin	1
B37	05042009	Brine Valve Piston	1
B38	05040028M	Brine Valve Seal Cover	1
B39	05040042	Brine Valve Seal	2
B40	05040027M	Brine Valve Spacer	1
B41	02170149	Brine Valve Assy	1
B42	05040011	95 Injector Body Cover	1
B43	05040099	Screw M5×50	2
B44	05040002	95 Valve Body	1
B45	05040082	O-ring φ47×3	2
B46	26010158	O-ring φ23.39×3.53	3
B47	05040123	Auxiliary Hole Plug	3
B48	05040090C	95 Valve Body Base(4")	1
B49	05040091	Sealing Collar	1
B50	05040088	Screw M6×30	6
B51	05040094	O-ring φ108×5.3	1

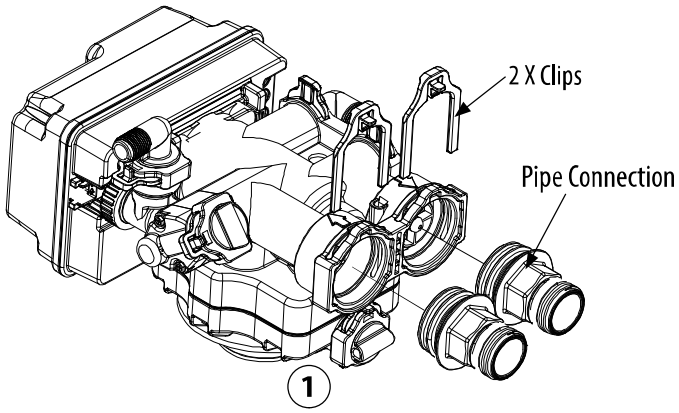
SERVICE AND REPLACEMENT

Before Servicing

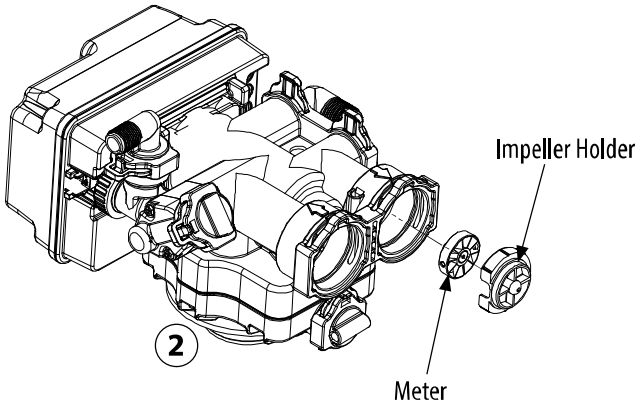
1. Turn off water supply to conditioner:
A. If the conditioner installation has a 3 valve bypass system, first open the valve in the bypass line, then close the valves at the conditioner inlet & outlet.
B. If the conditioner has an integral bypass valve, put it in the bypass position.
C. If there is 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 power supply cord.
4. Disconnect drain line connection and brine line connection.

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

Replace Meter



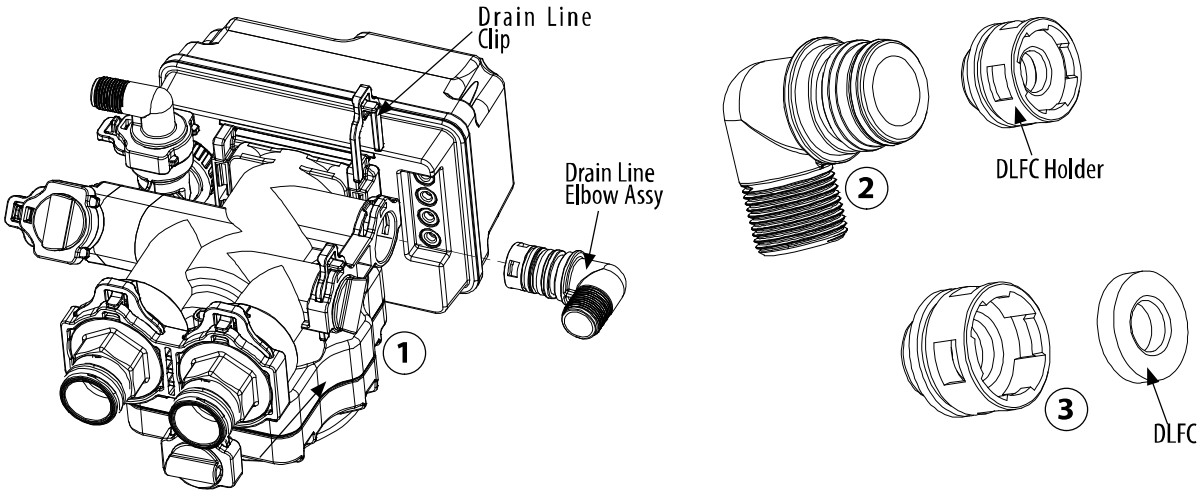
1. Remove the inlet&oulet clips, then remove the valve from the pipe connections.



2. Remove the Impeller Holder from the valve outlet port. Then remove the meter and replace it.

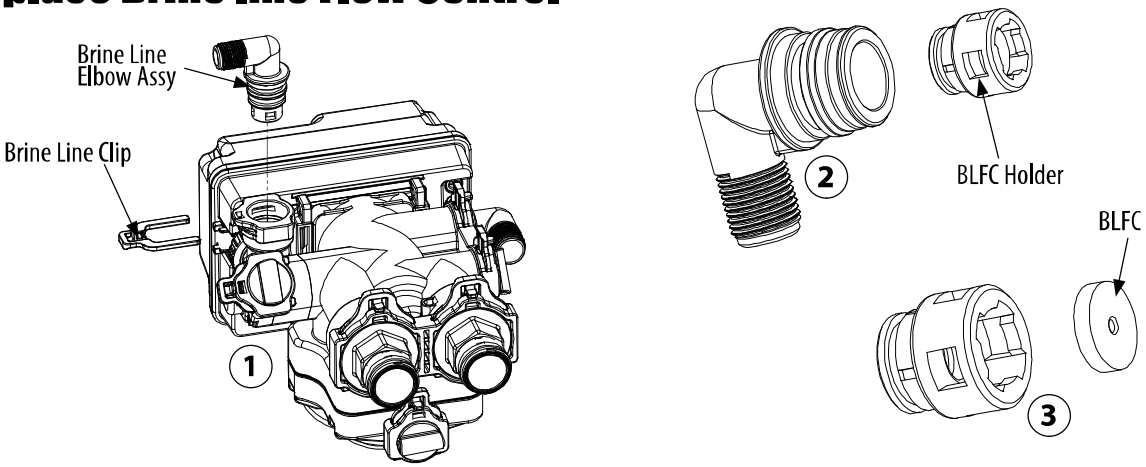
NOTE	**Be sure only to generously coat the O-rings or elements with silicone lubricant before reassembling the unit. Other lubricants are prohibited.**

Replace Drain line Flow Control



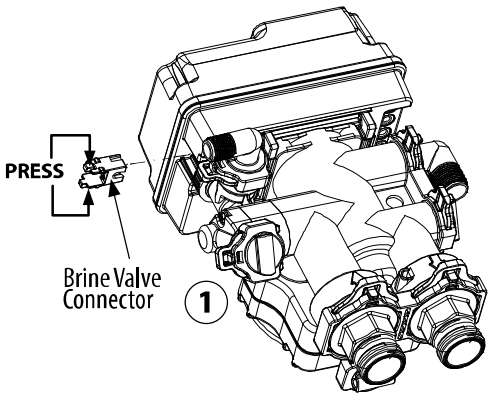
1. Remove the Drain Line Clip and pull out the Drain Line Elbow assembly.
2. Remove the DLFC Holder(c/w DLFC).
3. Take out the DLFC, clean or replace it.

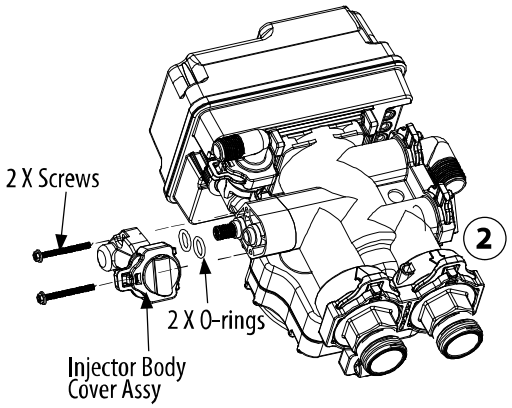
Replace Brine line Flow Control



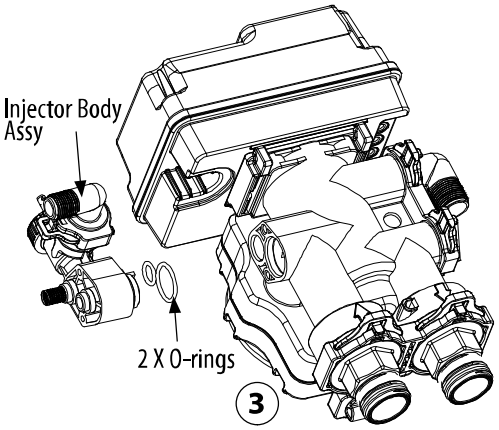
1. Remove the Brine Line Clip and pull out the Brine Line Elbow assembly.
2. Remove the BLFC holder.
3. Take out the BLFC, clean or replace it.

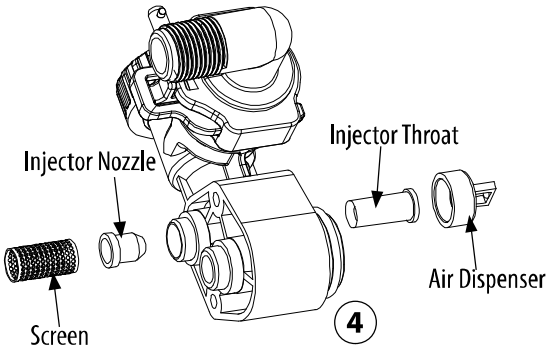
Clean Injector Assembly





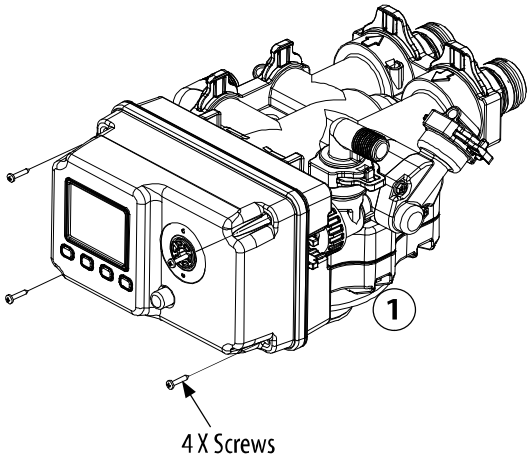
1. Press the two sides on the Brine Valve Connector meanwhile pull out the Brine Valve Connector.
2. Remove the 2 Screws, Injector Body Cover assembly, watch for the 2 O-rings under it.

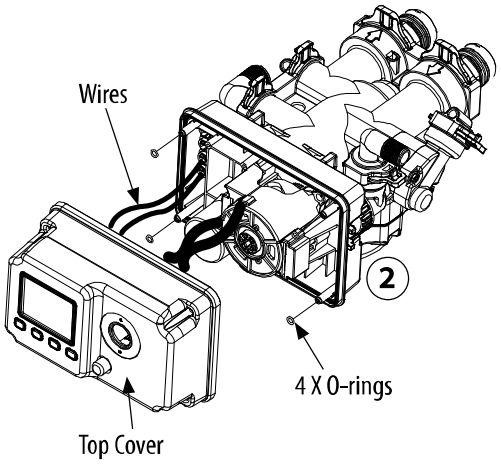




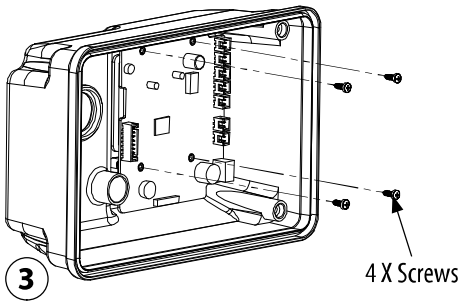
3. Remove the Injector Body assembly, watch for the two O-rings under it.
4. Remove the Screen and Air Dispenser first, then remove the Injector Nozzle and Injector Throat.

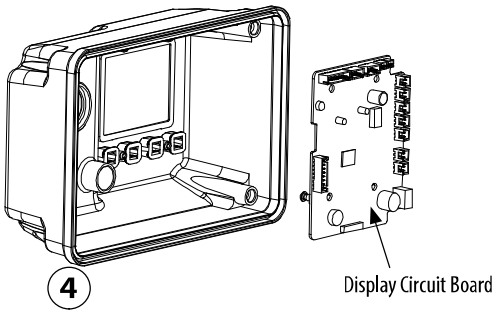
Replace Display Circuit Board





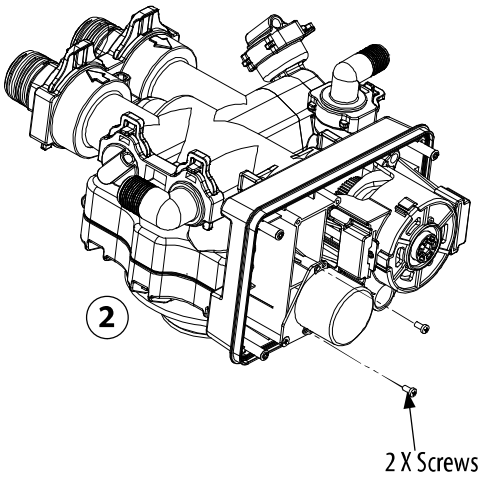
1. Remove the 4 Screws on top cover.
2. Remove the top cover, watch for the 4 O-rings under the top cover, disconnect the wire connections.

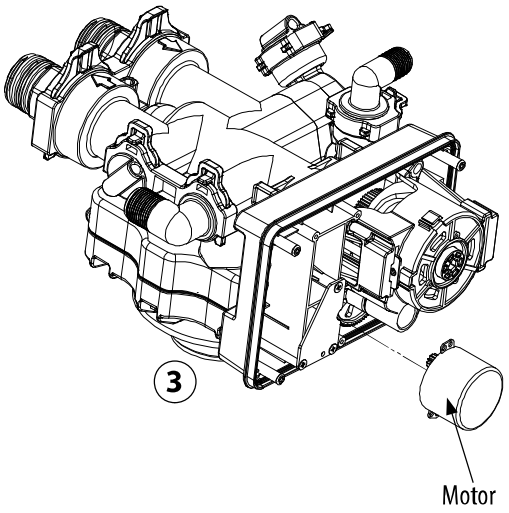




3. Remove the 4 screws on display circuit board.
4. Remove the Display Circuit Board and replace it.

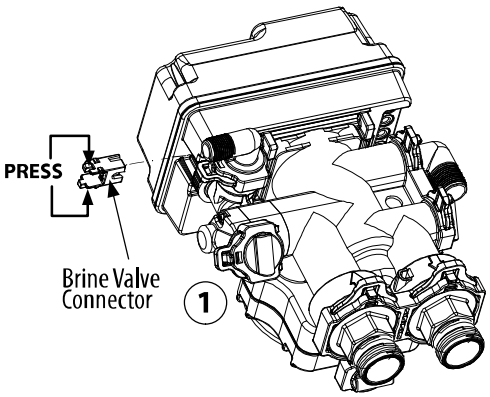
Replace Motor

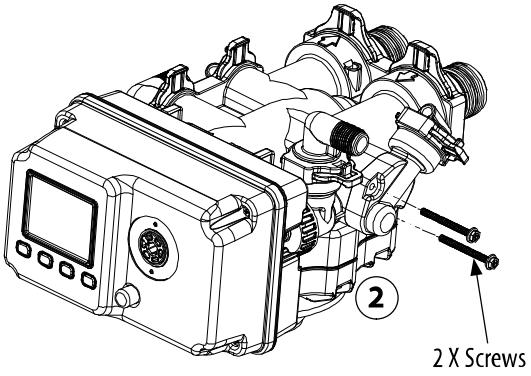




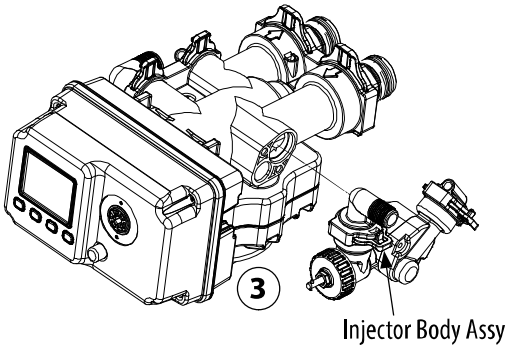
1. Follow step 2 of Display Circuit Board Replacement.
2. Remove the 2 Screws from the motor.
3. Remove motor, watch for the pin under the motor.
4. Replace it if needed.

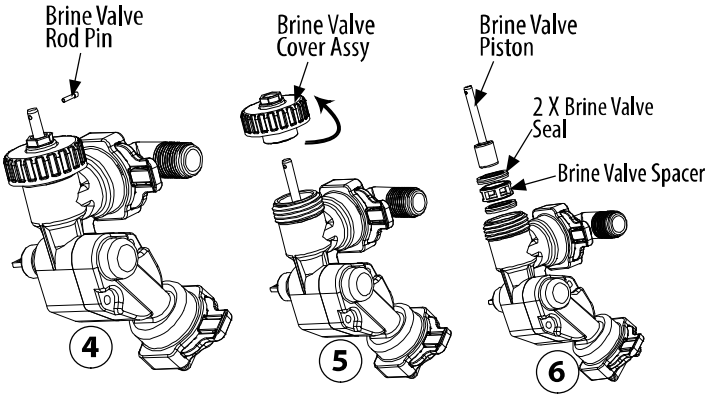
Replace Brine Valve Piston, Seal & Spacer





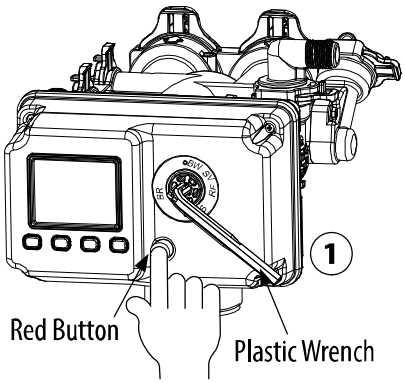
1. Press the two sides on the Brine Valve Connector meanwhile pull out the Brine Valve Connector.
2. Remove the two screws on injector body cover.

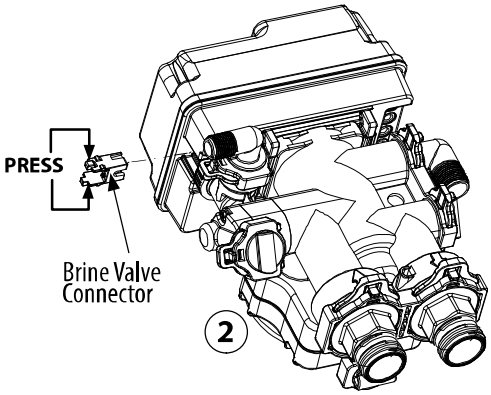




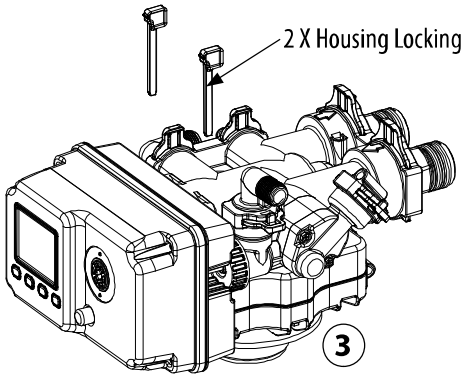
3. Remove the Injector Body assembly.
4. Remove the Brine Valve Rod Pin.
5. Use a wrench to screw off the Brine Valve Cover assembly.
6. Remove the Brine Valve Piston, Brine Valve Seal & Brine Valve Spacer.
7. Replace them if needed.

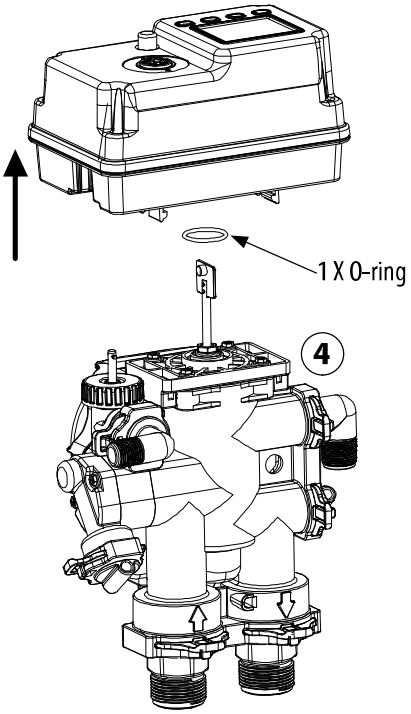
Replace Valve Piston, Seal & Spacer



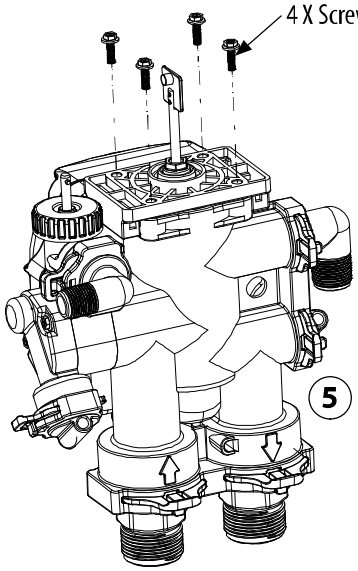


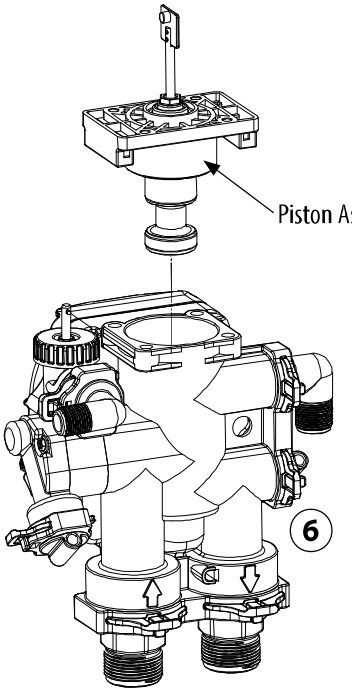
1. Press the Red Button down and use the Plastic Wrench to step the valve at backwash position momentarily.(or plug the power and program the valve to step to backwash position momentarily).
2. Press the two sides on the Brine Valve Connector meanwhile pull out the Brine Valve Connector.

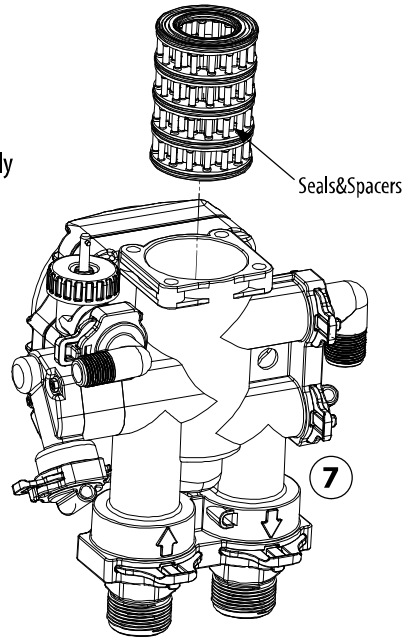




3. Remove the two Housing Locking Bar.
4. Lift the Power Head up, watch for the O-ring under it.



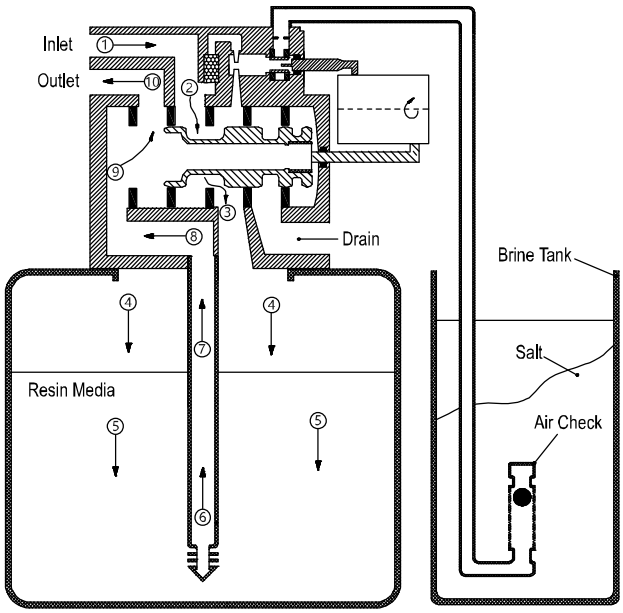




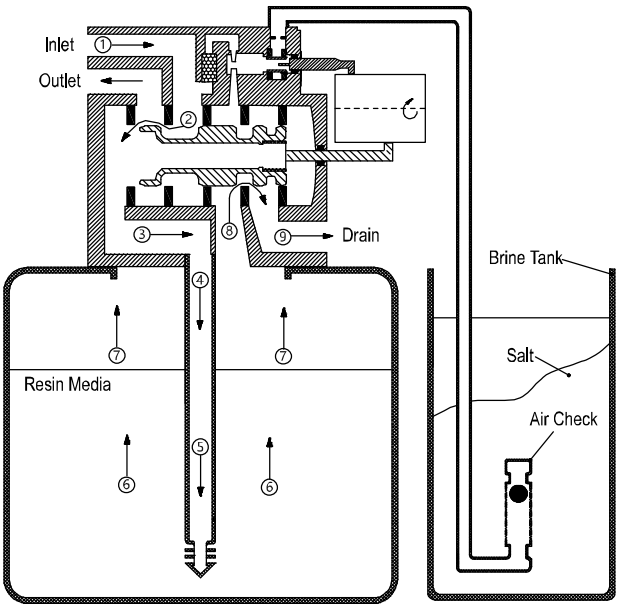
5. Remove the four screws attached on end plug retainer.
6. Pull the Piston Assembly from the valve.
7. Remove the Seals&Spacers.
8. Clean or replace these parts if needed.

VALVE CYCLE FLOW DIAGRAM

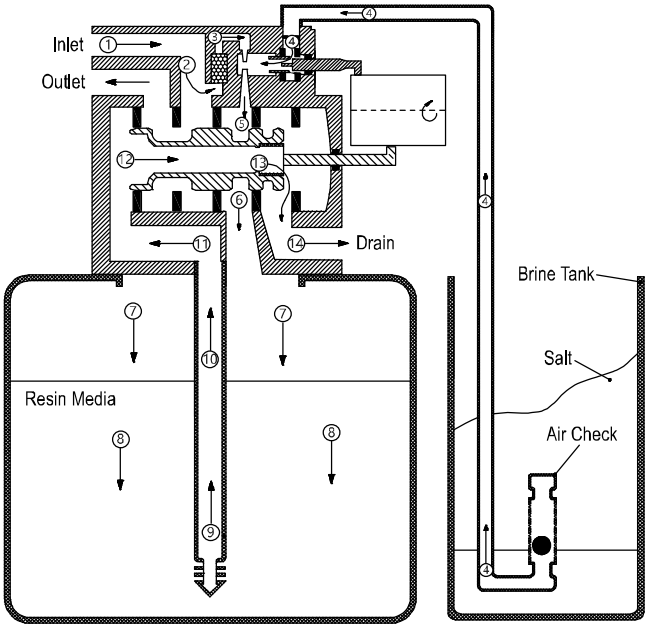
SOFTENER REGENERATION



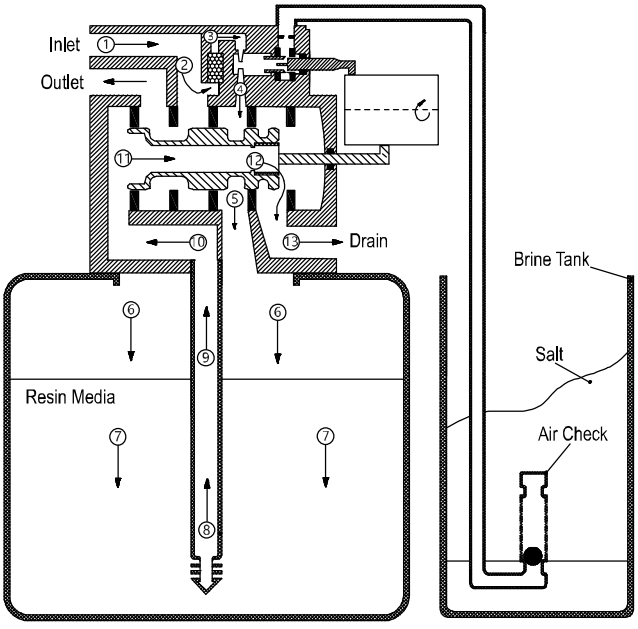
Service



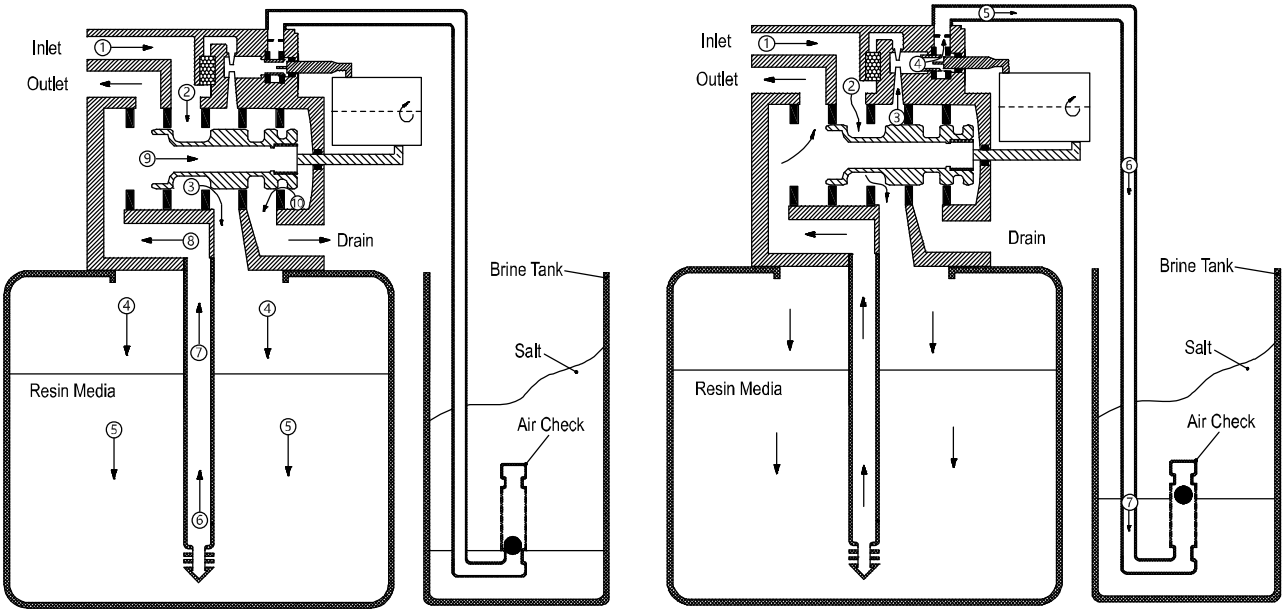
Back Wash



Brine

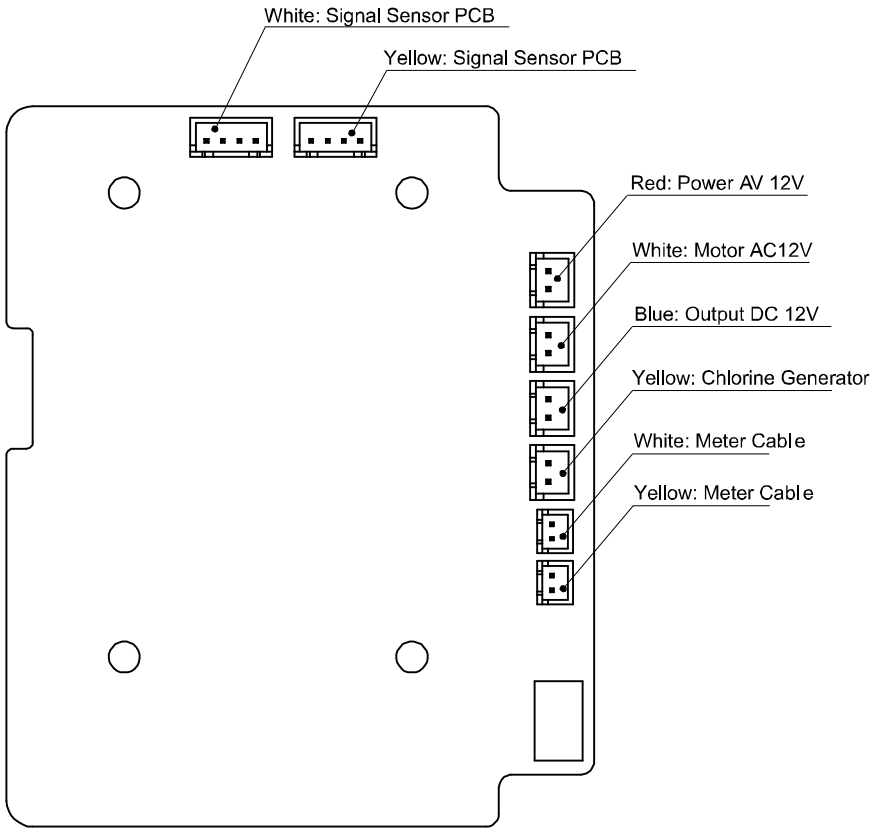


Slow Rinse



Rinse **Refill**

DISPLAY CIRCUIT BOARD WIRING



TROUBLE SHOOTING GUIDE

Problem	Possible Solutions
1. No DISPLAY ON CONTROLLER **A.** Power is off. **B.** Faulty display PCB or wires connection.	 **A.** Plug the power or charge the battery. **B.** Replace the display PCB or wires.
2. CONTROLLER DISPLAY ERROR & BEEPING **A.** Control valve is not able to find its correct position.	**A.** Check the signal sensor board and related wires.
3. CONDITIONER FAILS TO REGENERATE **A.** Electrical service to unit has been interrupted. **B.** Timer is not operating properly. **C.** Defective valve drive motor. **D.** Improper programming.	 **A.** Assure permanent electrical service (check fuse, plug, chain or switch). **B.** Replace timer. **C.** Replace drive motor. **D.** Check programming and reset as needed.
4. UNIT USES TOO MUCH SALT **A.** Improper salt setting. **B.** Excessive water in brine tank. **C.** Improper programming.	 **A.** Check salt usage and salt setting. **B.** See #9. **C.** Check programming and reset as needed.
5. LOSS OF WATER PRESSURE **A.** Iron build-up in line to water conditioner. **B.** Iron build-up in water conditioner. **C.** Inlet of control plugged due to foreign material broken loose from pipes by recent work done on plumbing system.	 **A.** Clean line to water conditioner. **B.** Clean control and add resin cleaner to resin bed. Increase frequency of regeneration. **C.** Remove piston and clean control.
6. LOSS OF RESIN THROUGH DRAIN LINE **A.** Air in water system. **B.** Drain line flow control is too large.	 **A.** Assure that well system has proper air eliminator control. Check for dry well condition. **B.** Ensure drain line flow control is sized.
7. IRON IN CONDITIONED WATER **A.** Fouled resin bed. **B.** Iron content exceeds recommended parameters.	 **A.**Check backwash, brine draw and brine tank fill. Increase frequency of regeneration. Increase backwash time. **B.** Add iron removal filter system
8. EXCESSIVE WATER IN BRINE TANK **A.** Plugged drain line flow control. **B.** Brine valve failure. **C.** Improper programming.	 **A.** Clean flow control. **B.** Replace brine valve. **C.** Check programming and reset as needed.
9. SALT WATER IN SERVICE LINE **A.** Plugged injector system. **B.** Timer not operating properly. **C.** Foreign material in brine valve. **D.** Foreign material in brine line flow control. **E.** Low water pressure. **F.** Improper programming.	 **A.** Clean injector and replace screen. **B.** Replace timer. **C.** Clean or replace brine valve. **D.** Clean brine line flow control. **E.** Raise water pressure. **F.** Check programming and reset as needed.
10. CONDITIONER FAILS TO DRAW BRINE **A.** Drain line flow control is plugged. **B.** Injector is plugged. **C.** Injector screen is plugged. **D.** Line pressure is too low. **E.** Internal control leak. **F.** Improper programming. **G.** Timer not operating properly.	 **A.** Clean drain line flow control. **B.** Clean or replace injectors. **C.** Replace screen. **D.** Increase line pressure (line pressure must be at least 20 psi at all times). **E.** Change seals and spacers and/or piston assembly. **F.** Check programming and reset as needed. **G.** Replace timer.
11. CONTROL CYCLES CONTINUOUSLY **A.** Timer not operating properly. **B.** Faulty microswitches and/or harness. **C.** Faulty cycle cam operation.	 **A.** Replace timer. **B.** Replace faulty microswitch or harness. **C.** Replace cycle cam or reinstall.
12. DRAIN FLOWS CONTINUOUSLY **A.** Foreign material in control. **B.** Internal control leak. **C.** Control valve jammed in backwash, brine or rinse position. **D.** Timer motor stopped or jammed teeth. **E.** Timer not operating properly.	 **A.** Remove piston assembly and inspect bore. Remove foreign material and check control in various regeneration positions. **B.** Replace seals and/or piston assembly. **C.** Replace piston and seals and spacers. **D.** Replace timer motor and check all gears for missing teeth. **E.** Replace timer.