

## LW Filter

- Taste and Odor (TOC)
- Particulate (PF)
- Neutralizer (NF)

- 1. Page 15 of this manual contains important maintenance procedures for the continued proper operation of your unit. These must be performed regularly for your warranty to remain valid.**
2. Read all instructions carefully before operation.
3. Avoid pinched o-rings during installation by applying NSF certified lubricant to all seals (provided with install kit).
4. This system is not intended for treating water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.

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# READ THIS PAGE FIRST

## BEFORE STARTING INSTALLATION

- ▶ Read this manual thoroughly to become familiar with the appliance and its capabilities before installing or operating the new appliance. Failure to follow instructions in this manual could result in personal injury or property damage. This manual will also help you to get the most out of your new appliance.
- ▶ Installation must comply with all State, provincial or local regulations. Check with your local public works department for plumbing and sanitation codes. In the event the codes conflict with any content in this manual the local codes should be followed. Consult your licensed plumber for installation of this system.
- ▶ **WARNING!:** Do not use water that is microbiologically unsafe without adequate disinfection before or after this system.
- ▶ Do not install this appliance where it may be exposed to wet weather, direct sunlight, or temperatures outside of the range specified above.
- ▶ This appliance is designed to operate on pressures of 30 psi to 125 psi. If the water pressure is higher than the maximum use a pressure reducing valve in the water supply line to the device.
- ▶ This appliance is capable of operating at temperatures between 40°F and 110°F (4°C - 43°C). Do not use this appliance on hot water supplies.
- ▶ Avoid pinched o-rings during installation by applying (provided with install kit) NSF certified lubricant to all seals.
- ▶ It is not uncommon for sediment, precipitated iron or hardness to be present in water supplies. Precipitated minerals or sediments can cause damage to the seals and piston.
- ▶ It is recommended to regularly inspect and service the control valve on an annual basis. Cleaning and or replacement of piston, seals, and or spacers may be necessary depending on how harsh the conditions are.
- ▶ This publication is based on information available when approved for printing. Continuing design refinement could cause changes that may not be included in this publication. The manufacturer reserves the right to change the specifications referred to in this literature at any time, without prior notice.

## INSTALL NOTES & SAFETY MESSAGES

Watch for the following messages in this manual:

**NOTE**

Do not remove or destroy the serial number. It must be referenced on request for warranty repair or replacement

**NOTE:** used to emphasize installation, operation or maintenance information which is important but does not present a hazard.

**CAUTION!**

Disassembly while under pressure can result in flooding.

**CAUTION:** used when failure to follow directions could result in damage to equipment or property.

**WARNING!**

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

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

# SPECIFICATION

Model	Media Cu Ft	Flow Rate USGPM			Micron Rating	Mineral Tank Size	Pipe Size Inches	Ship Weight Lbs
		Service	Peak	Backwash				
<b>Taste &amp; Odor Filters</b>								
LWTOC1.5	1.50	7.0	10.0	5.0	-	10 x 54	3/4" - 1"	78
<b>Neutralizing Filters</b>								
LWNF1.5	1.50	5.0	8.0	5.0	-	10 x 54	3/4" - 1"	164
<b>Nexsand Turbidity Filters</b>								
LWPF1.5	1.50	8.0	10.0	10.0	30	10 x 54	3/4" - 1"	164

Working Temperature = 34-110°F (1-43°C)

(Do not subject the unit to freezing temperatures)

Working Pressure = 30-125 PSIG (137-861 kPa)

Voltage = 120V / 60 Hz

Pipe Size = 3/4" and 1"

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

\* Do not use water that is microbiologically unsafe without adequate disinfection before or after the system.

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

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

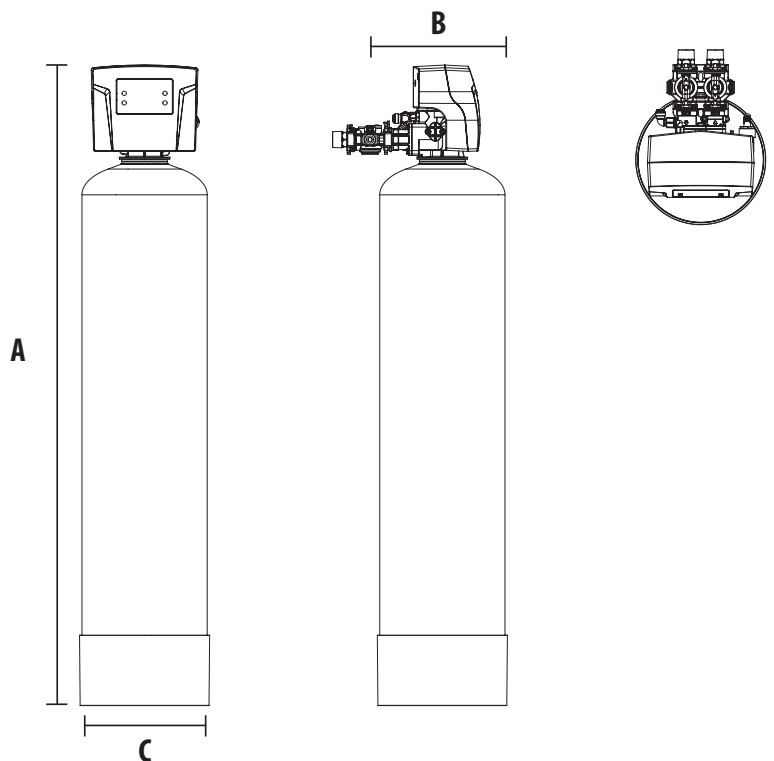
All units come with plastic bypass

## Water and Time Consumed During Regeneration

Model	Backwash Minutes	Rapid Rinse Minutes	Total Time of Regeneration	Total Water Consumed during Regeneration (GAL) (NF and TOC)	Total Water Consumed during Regeneration (GAL) (PF)
1.5	10	10	20	100	200

## SYSTEM DIMENSIONS

Model	A (Inches)	B (Inches)	C (Inches)
1.5	61.5	16"	10"



# BASIC PRINCIPLES

The success of the installation will depend, to a great extent, on advanced planning and preparation. Careful attention to the location of the unit, accessibility to electrical and drain facilities, and the availability of the proper tools will ensure a professional-looking installation.

Of utmost importance is the assurance that the filter has been properly applied and meets all specifications.

## Application:

Correct application is directly associated with the performance and life expectancy of any water filter. It is important, therefore, to understand how your Leaf Home Water Solution Filter functions and to know its capabilities and limitations so that a correct application can be made.

By following the guidelines and recommendations set forth in this manual, you can be certain your filter is applied correctly.

## Particulate Filter

The Automatic Water Filter is capable of removing particulate matter particle size as small as 30 microns. It will not remove color, organics, colloidal turbidity or dissolved solids. Some applications include:

- Removal of suspended matter in any water system
- Removal of particulate matter, such as clay, mud, etc.
- Prefiltration of oxidized iron prior to an automatic or manual softener
- Removal of light sand

## TOC Filter

Automatic Water Filter with Activated Media will control chlorine /chloramine taste and odor, and it will also remove most objectional organic colors. It is important to note that whenever the cause of an objectional taste or odor has not been established, Health Authorities should determine if the water is safe to drink. Do not use with water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.

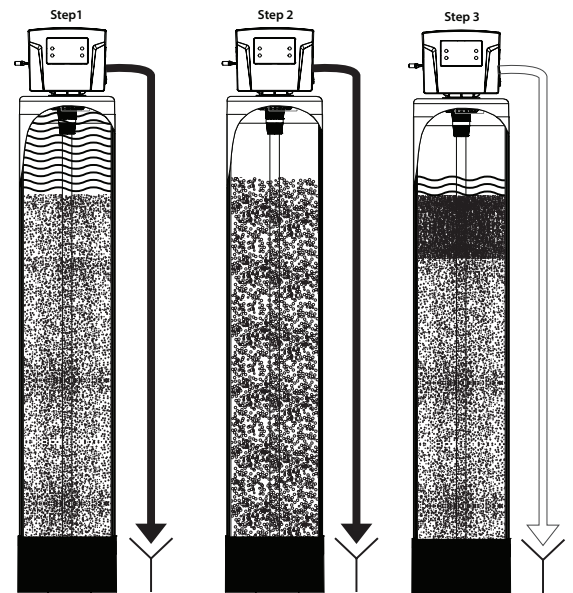
## NF Filter\*

Automatic Water Filter with Neutralizing Media will neutralize slightly acid water (pH 5.2 to >6.8) and thus help to prevent unsightly brown or green stains due to corrosion of household plumbing. If the pH is between 5 and 6, one part of Magnesium Oxide Media should be mixed with five parts of Calcite Media to provide additional neutralizing capability. If the water to be treated has a pH less than 5, a high hardness, or a high carbon dioxide level, NF might not be applicable; a solution feeder should be used. Because NF adds hardness, it should be used prior to a softener.

## Control Valve Regeneration Sequence

The regeneration cycle goes through 3 steps.

1. **Backwash (minimum 30 psi inlet pressure required):** During the backwash cycle, water flows upwards through the bed, expanding the media and carrying any contaminants trapped within it to the drain.
2. **Rapid Rinse:** During the rapid rinse cycle, water flows downwards through the bed, settling the media and carrying any precipitated contaminants trapped within it to the drain.
3. **In-Service Position:** The unit then returns to the In-Service position. While this happens water continues to enter the tank.



### CAUTION!

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

### NOTE

Under dynamic conditions it might be necessary to mix five parts Calcite with one part Magnesium Oxide to effectively raise the pH. In order to size and apply the equipment correctly, a complete analysis of the water supply should be obtained.

# UNPACKING / INSPECTION

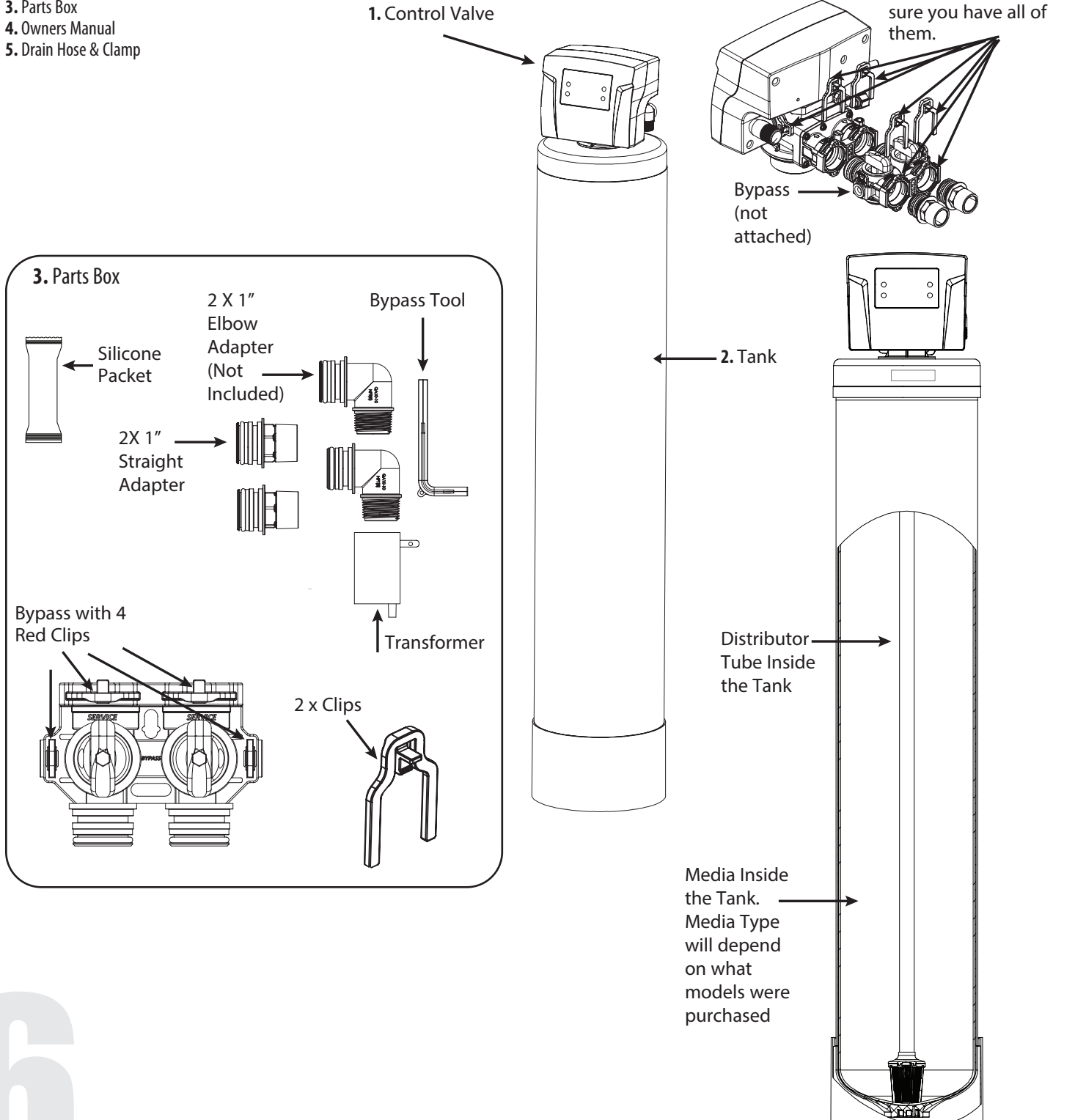
Be sure to check the entire unit for any shipping damage or parts loss. Also note damage to the shipping cartons. Contact the transportation company for all damage and loss claims. The manufacturer is not responsible for damages in transit.

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

## What is included in the box?

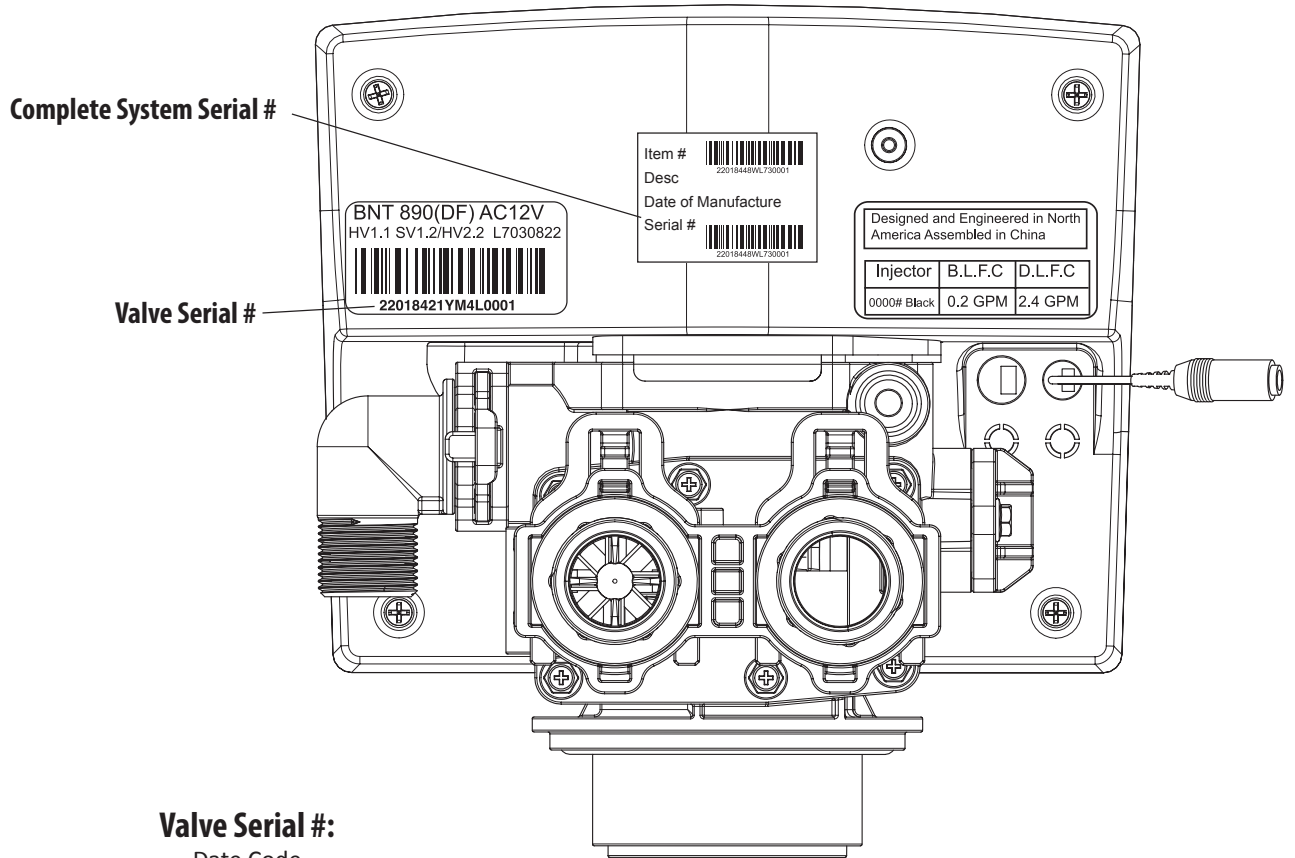
For Model 150, you will expect the following. Shipping Carton Quantity – 1

1. Control Valve
2. Tank
3. Parts Box
4. Owners Manual
5. Drain Hose & Clamp



# CHECK VALVE TYPE AND VALVE SERIAL #

Check to make sure the valve type is what you ordered. The serial # label on the left will show (DF) for the downflow valve and (UF) for the upflow valve. The right sticker shows the serial # of the control valve. The middle sticker is dataplate which provides information of serial # and date of manufacture of complete system. Both serial # labels are important for troubleshooting.



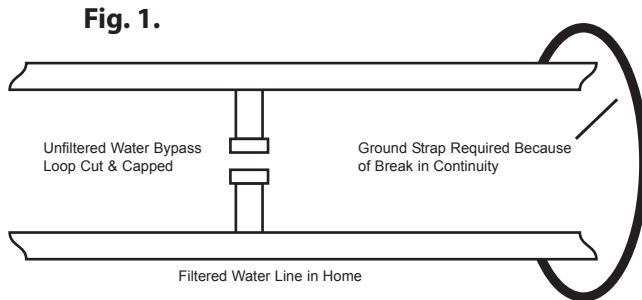
## Valve Serial #: Date Code

<u>22018343</u>	<u>M</u>	<u>1</u>	<u>K</u>	<u>0001</u>
PART NUMBER	YEAR (2016)	MONTH (JAN)	DAY of MONTH (20)	BATCH NUMBER
	H = 2011	1 = JAN	1	
	I = 2012	2 = FEB	2	
	J = 2013	3 = MAR	3	
	K = 2014	4 = APR	4	
	L = 2015	5 = MAY	5	
	M = 2016	6 = JUN	6	
	N = 2017	7 = JUL	7	
	O = 2018	8 = AUG	8	
	P = 2019	9 = SEP	9	
	Q = 2020	A = OCT	A = 10	
		B = NOV	B = 11	
		C = DEC	C = 12	
			D = 13	
			E = 14	
			F = 15	
			G = 16	
			H = 17	
			I = 18	
			J = 19	
			K = 20	
			L = 21	
			M = 22	
			N = 23	
			O = 24	
			P = 25	
			Q = 26	
			R = 27	
			S = 28	
			T = 29	
			U = 30	
			V = 31	

# BEFORE INSTALLATION

Make sure you have a copy of your most recent water test results. **It is important that this product not be installed until you have this information.**

In all cases where metal pipe was originally used and is later interrupted by poly pipe or the Noryl bypass valve or by physical separation, an approved ground clamp with no less than #6 copper conductor must be used for continuity, to maintain proper metallic pipe bonding.



## Inspecting and Handling Your Filter\*

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

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

Do not turn the filter unit upside down.

## To Insure this Product Functions Properly:

**Your feed water line size to the unit must be a minimum of 3/4 inch with an operating pressure of no less than 30 psi and no more than 125 psi.**

## MECHANICAL:

Do not use petroleum based lubricants such as petroleum jelly, oils or hydrocarbon based lubricants. Use only 100% silicone lubricants (packet provided in parts kit). All plastic connections should be hand tightened only. Teflon tape may be used on connections that do not use an o-ring seal. Do not use pliers or pipe wrenches except where indicated by nut shape (eg. pipe adapters) All plumbing must be completed according to local codes. Soldering connections should be done before connecting any pieces to the pipe as excessive heat can damage them.

## Tools Required for Installation:

**NOTE: We recommend installation only be completed by an LHWS certified installer to ensure this product is installed in accordance with local plumbing codes.**

- ▶ Two adjustable wrenches
- ▶ Additional tools may be required if modification to home plumbing is required.
- ▶ Plastic inlet and outlet fittings are included with the filter. To maintain full valve flow, 3/4" or 1" pipes to and from the filter fittings are recommended. You should maintain the same, or larger, pipe size as the water supply pipe, up to the filter inlet and outlet.
- ▶ Use copper, brass, or PEX pipe and fittings.
- ▶ Some codes may also allow PVC plastic pipe.
- ▶ ALWAYS install the included bypass valve and 3 valve bypass. Bypass valves let you turn off water to the filter for repairs if needed, but still have water in the house pipes.
- ▶ 5/8" OD drain line is needed for the valve drain. A 10' length of hose is included.

## NOTE

All government codes and regulations governing the installation of these devices must be observed.



## CAUTION!

If the ground from the electrical panel or breaker box to the water meter or underground copper pipe is tied to the copper water lines and these lines are cut during installation of the Noryl bypass valve and/or poly pipe, an approved grounding strap must be used between the two lines that have been cut in order to maintain continuity. The length of the grounding strap will depend upon the number of units being installed and/or the amount of copper pipe being replaced with plastic pipe. See Fig. 1.

## NOTE

Check your local electrical code for the correct clamp and cable size.

## NOTE

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


## \*NOTE

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



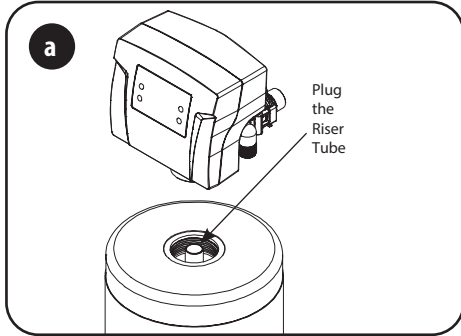
# PREPARATIONS

**Media Installation (When Necessary).** The PF, NF, and TOC models come loaded with media and this step can be skipped for new installation.

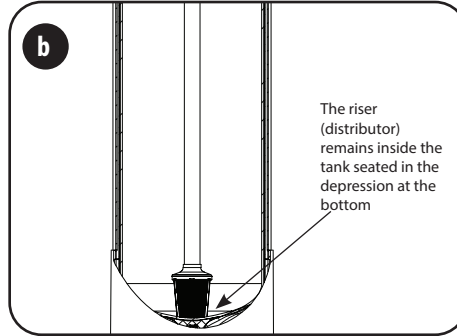


## CAUTION!

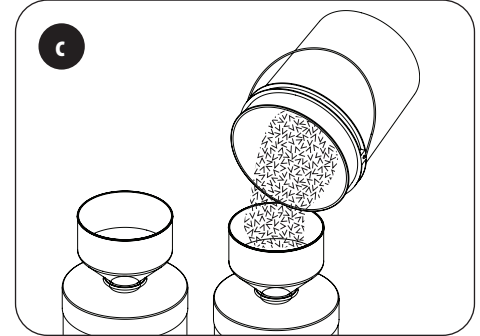
The unit should be  
depressurized before  
installing or replacing media



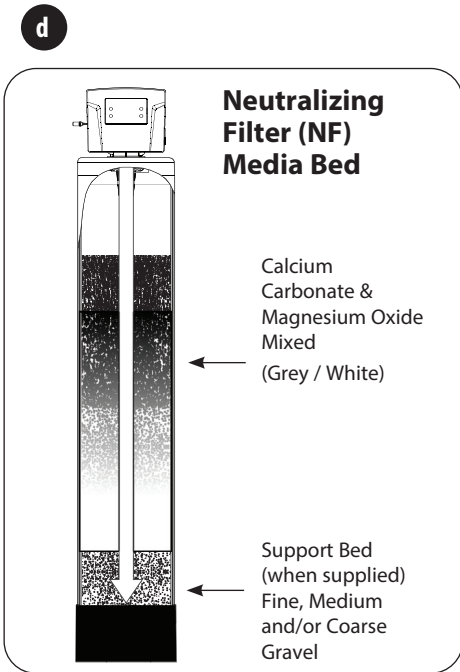
**a)** Remove the valve from the mineral tank.  
Add bottom cone only in TOC Models



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

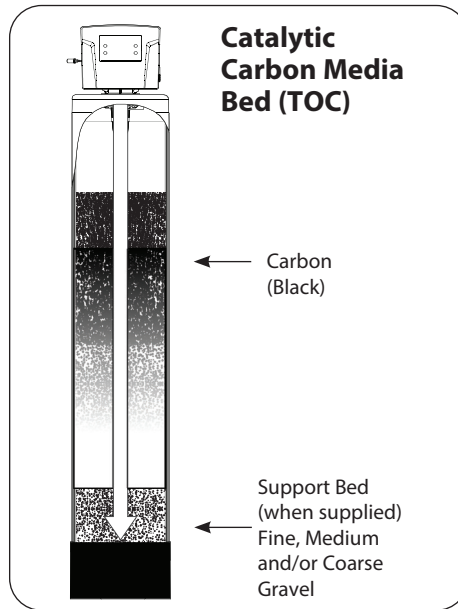


**c)** Fill support bed first.  
The media will not always spill down inside the tank and may need to be swept inside.  
  
A large funnel (sold separately makes filling the tank easier and neater. (Or an empty 1 gallon or 4 liter container with the bottom cut out makes a good funnel.)



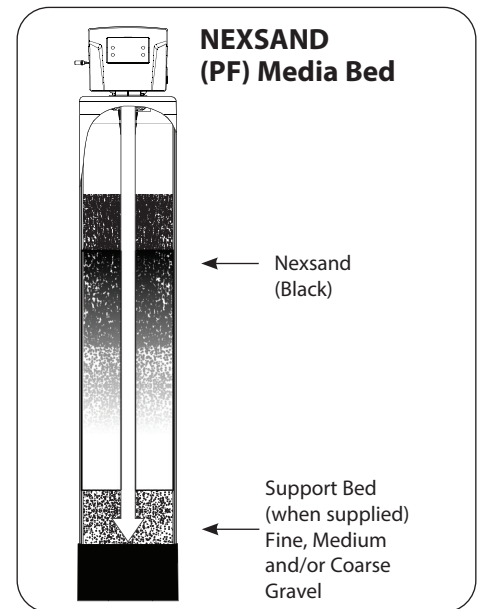
Fill tank one quarter full of water to protect distribution during gravel installation.

Place the media into the tank in the order indicated above. Slowly and carefully add the gravel support bed and the filtration media leveling each layer as it is placed into the tank.

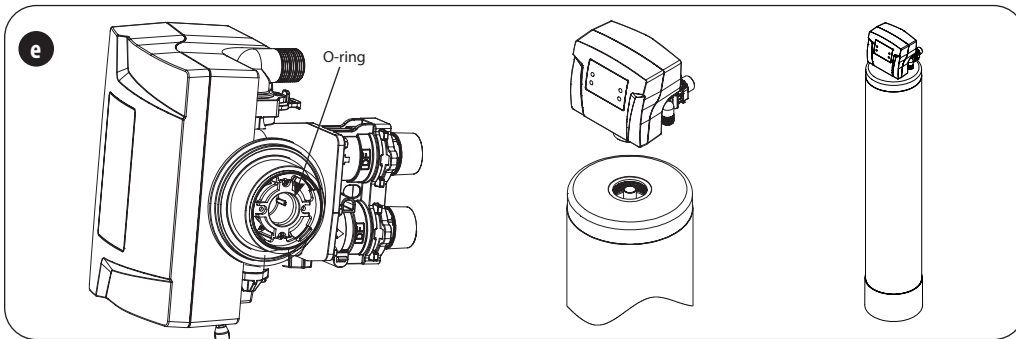


Fill support bed first. During the filling process, ensure the distributor tube stays on the bottom of the tank, reasonably centered. Remove the tape from the distributor once media is loaded.

Whenever possible, fill the tank outdoors to avoid problems with dust. If filling indoors, a dust mask should be worn.

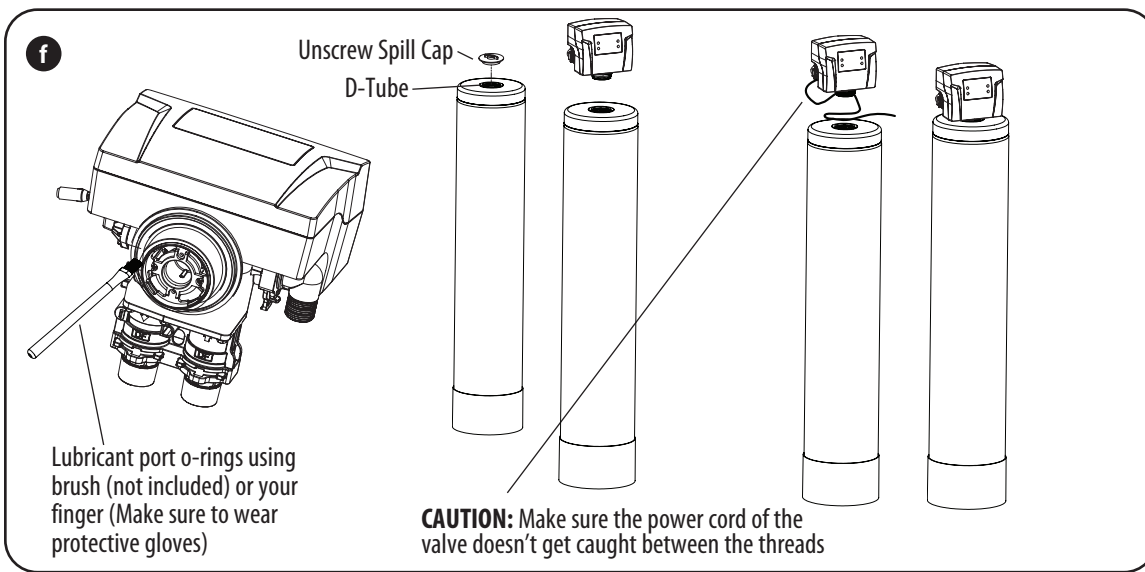


# PREPARATIONS



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

**NOTE**  
Some medias like those used in NF Models are sacrificial and deplete faster depending on inlet water conditions and usage. The media replenishment is more frequent in high water usage and more acidic water cases. The dome hole models are available and supplied in which the dome hole is available for a quick addition or replenishment of media in the tank.

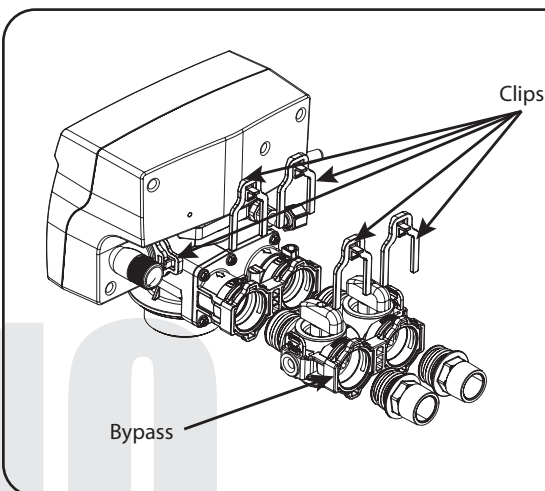


**CAUTION!**  
DO NOT use petroleum based lubricants as they will cause swelling of o-ring seals.

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

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

**D)** Lube the bottom valve o-rings with the lubricant supplied, and attach the upper cone. Unscrew the spill cap. Carefully slide the d-tube inside the valve and screw the valve inside the tank such that the power cord doesn't get caught between the valve and the tank.



## Attaching Bypass to Control Valve

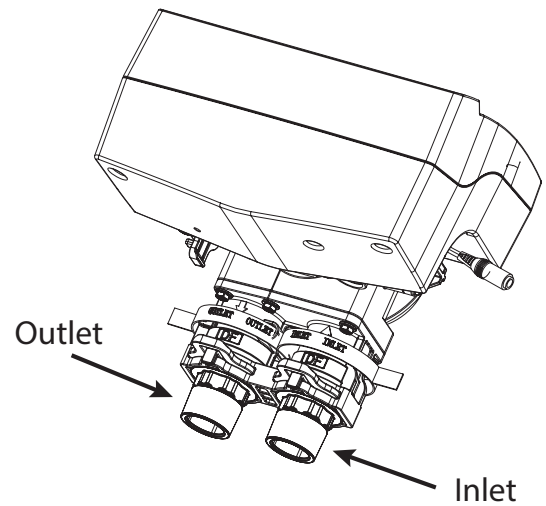
Make sure the bypass is attached well to the control valve. Connect the straight or elbow connectors to the bypass with red clips. Connect the inlet and outlet of the water Softener to the plumbing of the house. The control valve must not be submitted to temperatures above 43°C (110°F). When sweat fittings are used, to avoid damaging the control valve, solder the threaded copper adapters to the copper pipe and then, using Teflon tape, screw the assembly into the bypass valve. Do not use pipe thread compound as it may attack the material in the valve body.

**Note:** The bypass must be installed in the control valve. It is not a replacement for the installation of the 3-ball valve bypass that is required when connecting to the raw water supply.

# INSTALLATION STEPS

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

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



## Facts to Remember When Planning Your Installation

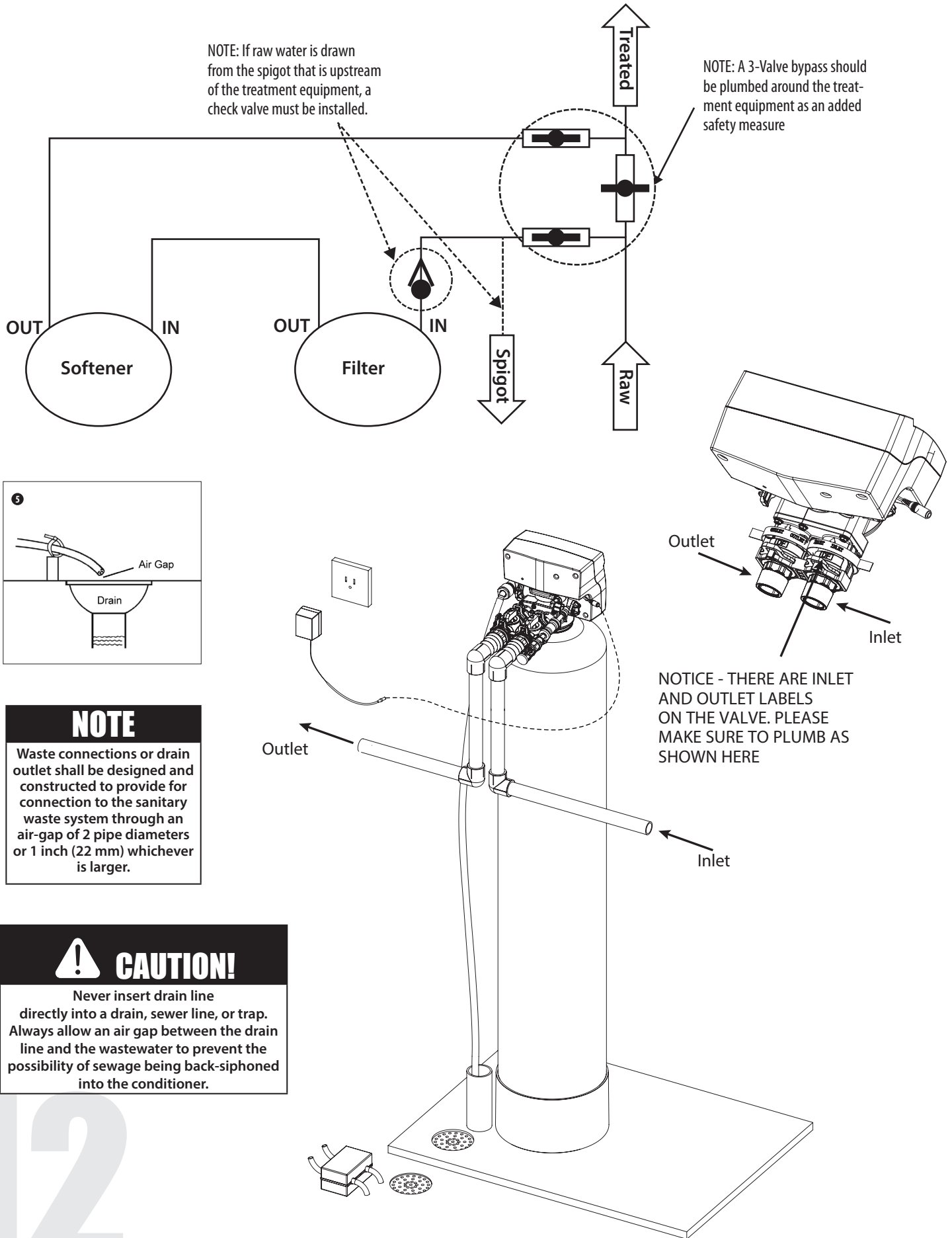
1. All installation procedures must conform to local and state or provincial plumbing codes.
2. If raw water is drawn from a source (outside spigot) before the water treatment equipment, it is necessary to install a check valve. See page 14.
3. Make sure the bypass is attached well to the control valve. Connect the straight, elbow, or flex connectors to the bypass with red clips. Connect the inlet and outlet of the water filter to the plumbing of the house. The control valve must not be submitted to temperatures above 43°C (110°F). When sweat fittings are used, to avoid damaging the control valve, solder the threaded copper adapters to the copper pipe and then, using Teflon tape, screw the assembly into the bypass valve.  
Do not use pipe thread compound as it may attack the material in the valve body.
4. Apply Teflon Tape and o-rings to the fittings
5. Connect filter to the house plumbing. Any solder joints near the valve must be done before connecting any piping to the valve. Always leave at least 6" (152 mm) between the valve and joints when soldering pipes that are connected to the valve. Failure to do this could cause damage to the valve.
6. **Drain Line connection:** Using Teflon tape, screw the 1/2" hose barb and attach o-ring into the drain port in the valve. Attach 1/2" drain hose included to the hose barb and tighten securely with a hose clamp included. Run the drain line to a floor drain or a laundry drain. Complete any necessary plumbing.
7. Using the allen key (included), place the unit in the bypass position. Slowly turn on the main water supply. At the nearest cold treated water tap remove the faucet screen, open the faucet and let water run a few minutes or until the system is free of any air or foreign material resulting from the plumbing work.
8. Make sure there are no leaks in the plumbing system before proceeding. Close the water tap when water runs clean.

# INSTALLATION

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

**Correct Installation of the Check Valve:** Install 1" check valve on inlet of bypass valve. *The check valve needs to be installed at the highest possible level of the plumbing line to avoid air trap. Please see an example below:*

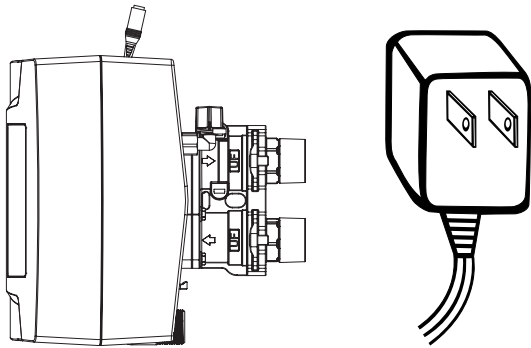
# INSTALLATION



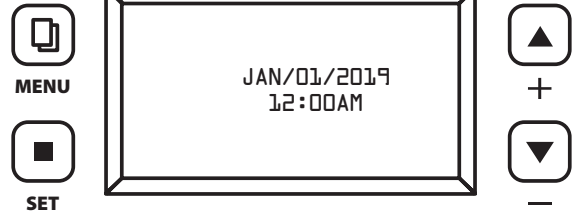
# STARTUP INSTRUCTIONS

## 1. Connect the Transformer to the Valve





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



## Screen Display Button Configuration:



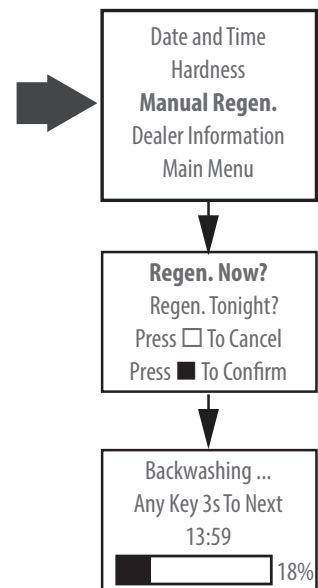
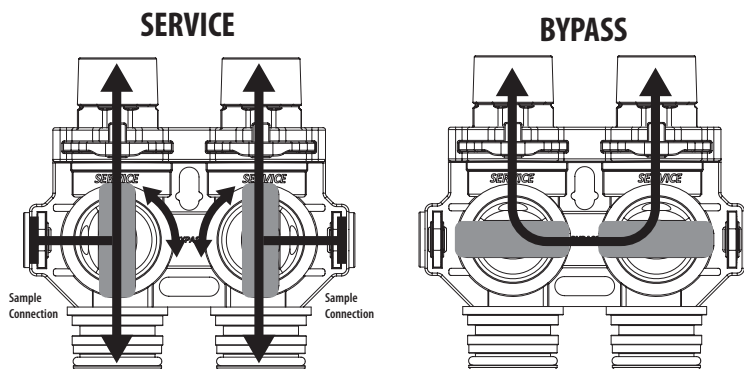
## Key Pad Settings:

-  This function is to enter the basic set up information required at the time of installation.
-  This function is to accept the values if changed and advance to the next page in the menu.
-   These buttons are used to increase or decrease the value of the settings while in the programming mode.

## 2. Manually Regenerate the Valve

Manually Regenerate the Valve and move it to backwash position.

Press Menu Key  and Scroll down  using Up and Down Arrow buttons to "Manual Regen". Press "SET"  Select "Regen Now"



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

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

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

**5.** Unplug the power cord from the power supply, open inlet. Check the drain line flow. Allow the water to run for 30 minutes.

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

**7.** The Valve is already programmed from the factory. Please set up date and time of day as shown on next page.

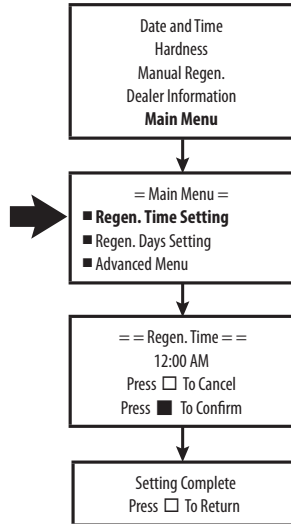
## Set Up Current Time of Day and Regeneration Time When Filter Should Regenerate When No one uses Water in House.

Press Menu Key  and Select "Date and Time" using "Set"  button and set For setting the regeneration time,

Press Menu Key  and Select Main Menu till you hear a beep and select Regen time.

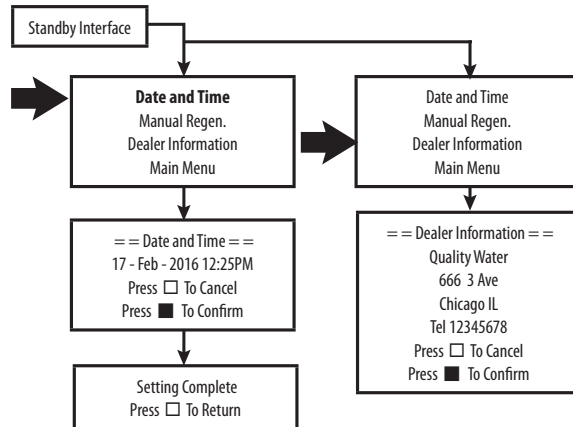
### Setting the Regeneration Time

Press **Menu** key. Press **—** to advance to Advanced Menu  
 Press **SET** or until you hear a beep  
 Press **+** or **—** to choose menu option. Press **SET** to enter  
 Press **+** or **—** to change option. Press **SET** to accept



### Setting Time of Day and Dealer Information

Press **Menu** key  
 Press **SET** or until you hear a beep  
 Press **+** or **—** to choose menu option. Press **SET** to enter  
 Press **+** or **—** to change value. Press **SET** to accept




## MAINTENANCE INSTRUCTIONS


### Care of Your Filter

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

### Replacing Media Bed

The media bed in a neutralizing filter is slowly dissolved and has to be replaced. The frequency of replacement varies, depending on water quality - consult Leaf Home Water Solutions to determine the expected life of your media bed.

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

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

## MAINTENANCE INFORMATION

Please have the information below filled out and available when calling in:

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

### Additional notes:

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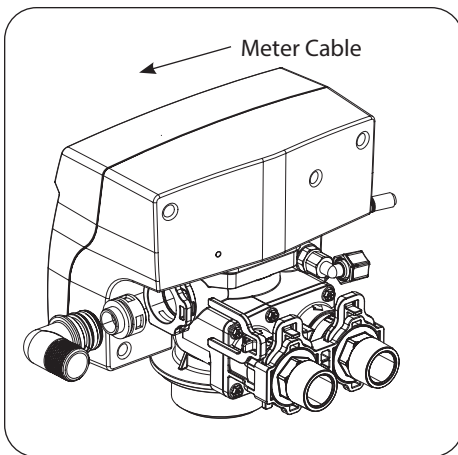
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# SERVICING CONTROL VALVE

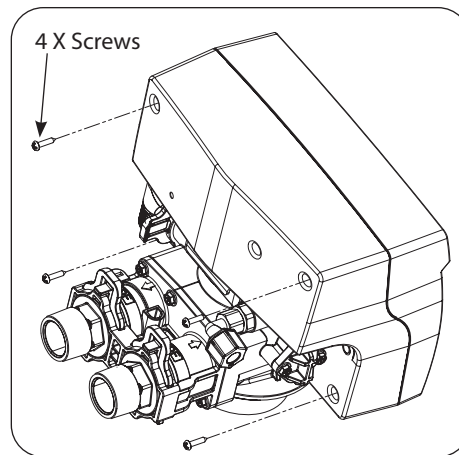
## Before Servicing

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

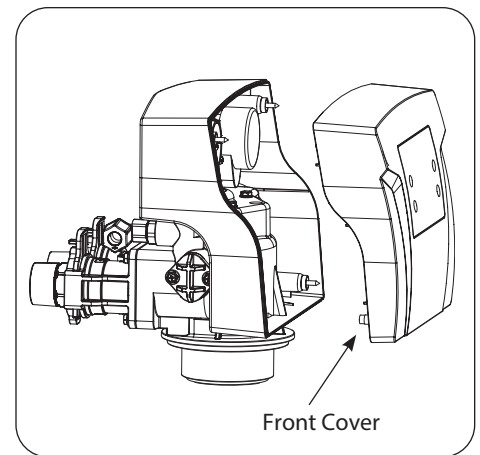
## TIMER REPLACEMENT



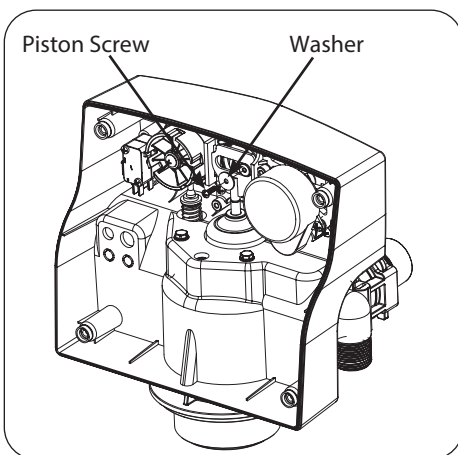
1. Disconnect the meter cable from the meter. (If flow meter is attached)



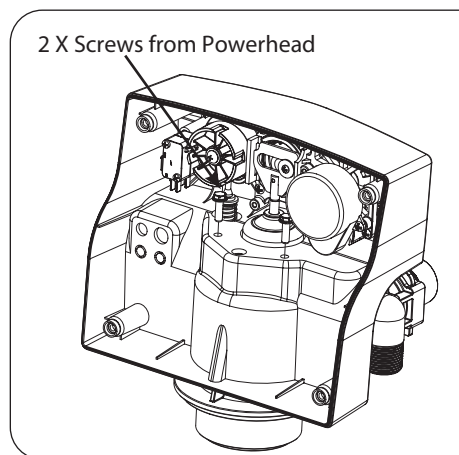
2. Remove four screws from the back of the valve cover



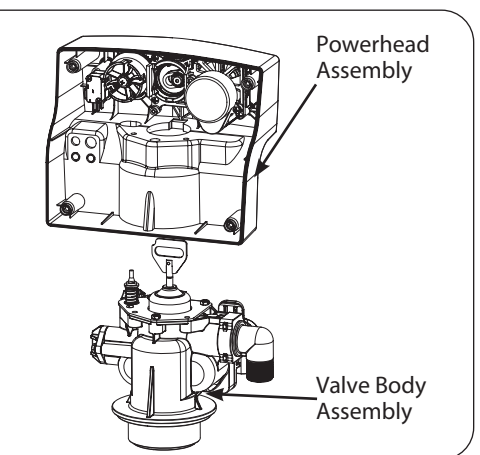
3. Remove the front cover of the valve.



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

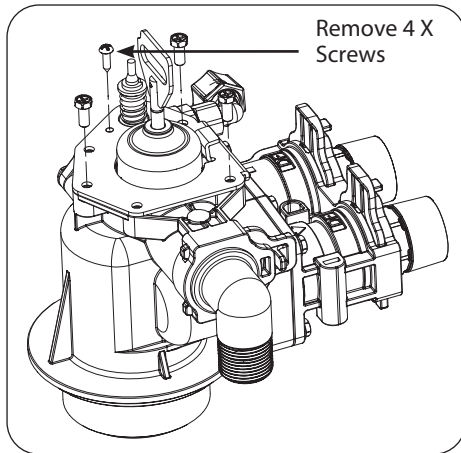


5. Remove the two screws from the powerhead as shown.

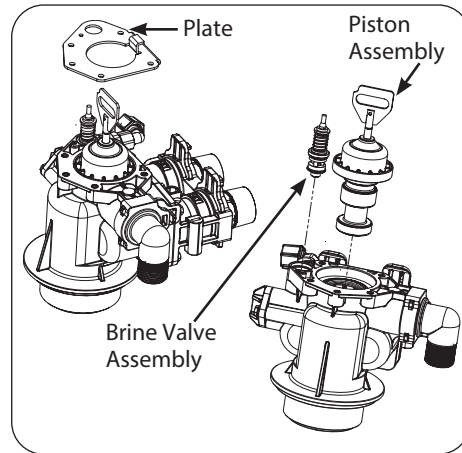


6. Lift the powerhead from the valve body assembly.
7. Replace the powerhead by reverse following the steps in this section.

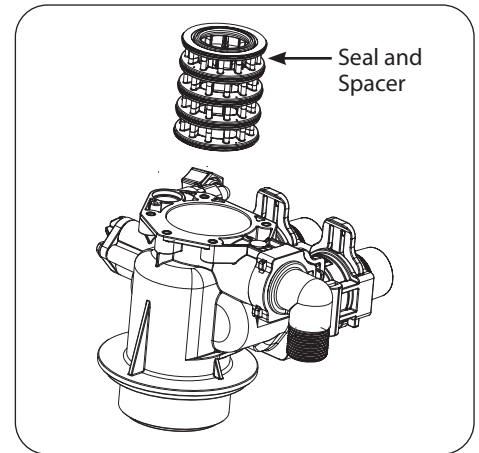
# PISTON ASSEMBLY REPLACEMENT



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



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

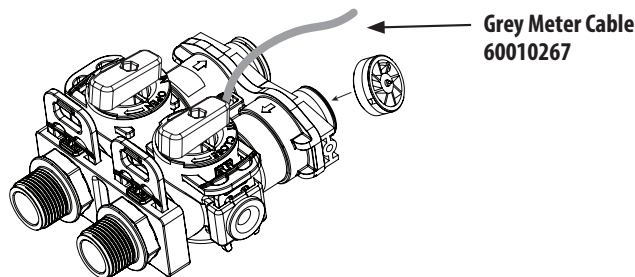


5. Replace piston assembly followed by timer assembly.
6. Replace the piston assembly and reverse following steps in this section.

# REPLACING THE BYPASS AND METER CABLE

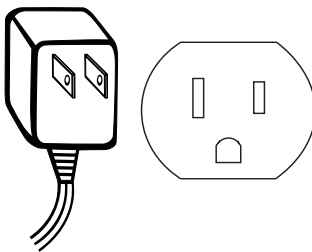
Follow the steps below.

**60095101** Bypass comes with Meter and Grey Meter Cable



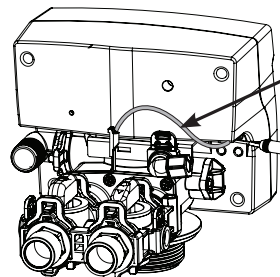
## Step 1

Unplug the power from the wall socket.



## Step 2\*

Remove 2 screws and clips from bypass.

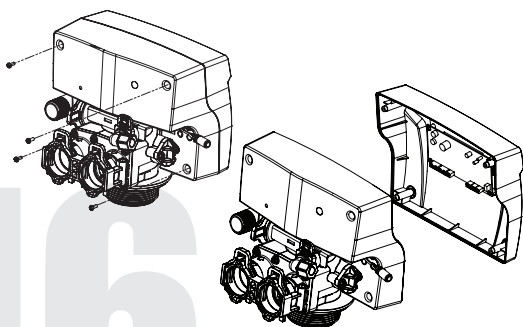


Disconnect the meter cable from the bypass.

## \*NOTE

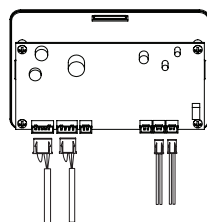
Water to the household needs to be turned off and pressure relieved before Step 2

## Step 3 Remove Cover.



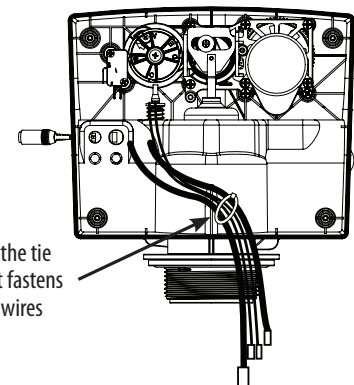
## Step 4

Disconnect the cables from the front PCB display.



## Step 5

Disconnect the cables from the rear PCB display.

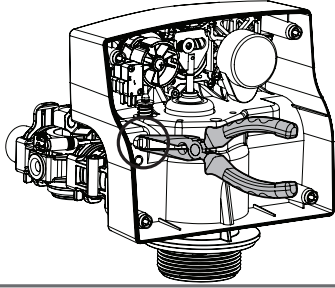




# REPLACING THE BYPASS AND METER CABLE CONT.

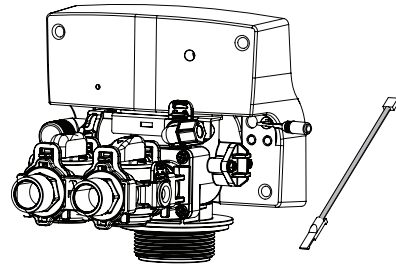
## Step 6

Remove strain relief with pliers.



## Step 7

Replace the old cable with the new Cable.

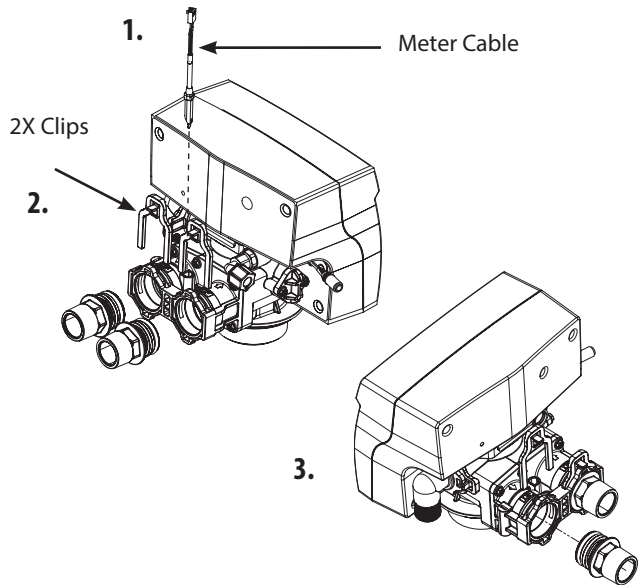


## Step 8

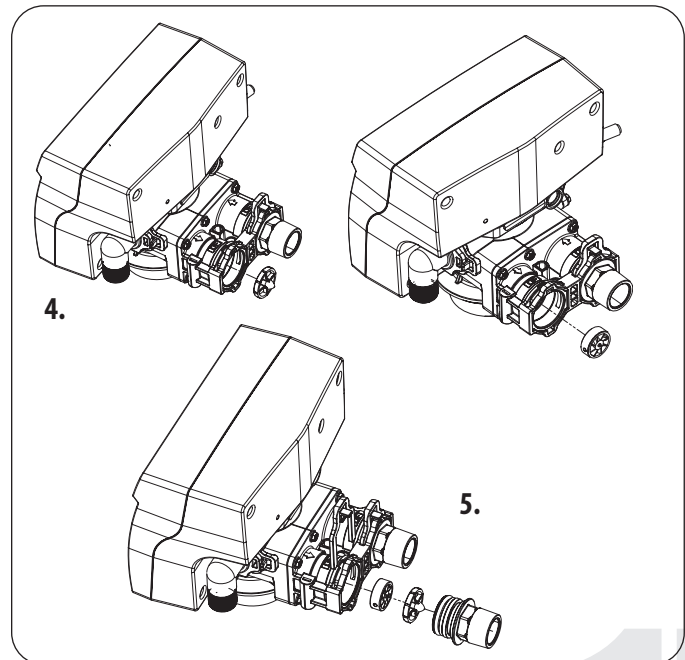
Assemble the valve. Plug the power supply back into the wall socket and follow the programming shown on right:

*To verify the programming press and hold the MENU button for 5 seconds to unlock the screen.  
Press and hold the Up and Down Arrows.  
Press the down arrow to get to METER RATIO then press SET.  
Press UP or Down Arrow to choose Turbine-H and press SET.  
Set as per charts on right:\*\**

# METER ASSEMBLY REPLACEMENT

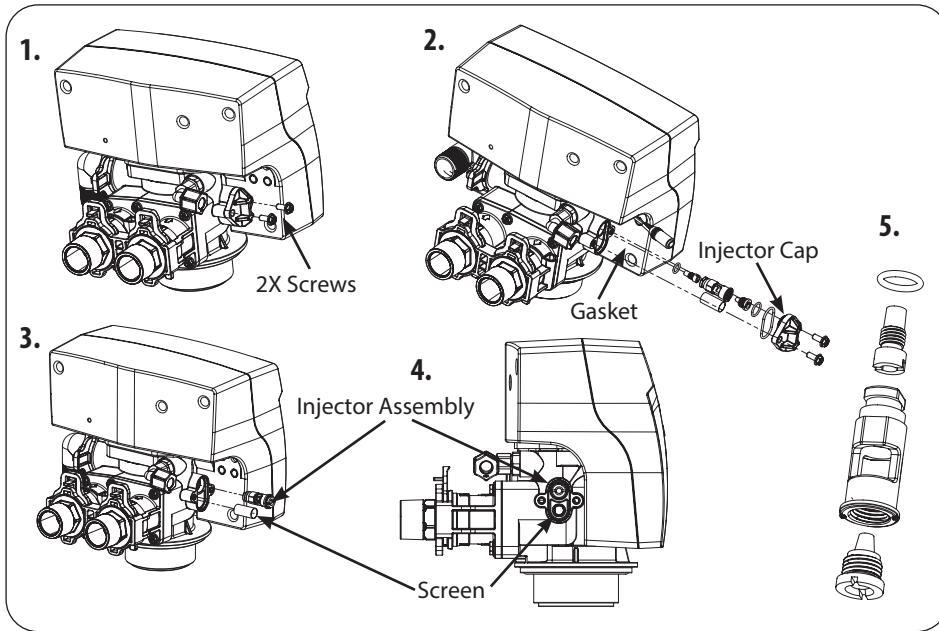


1. Disconnect the meter cable from the meter.
2. Disconnect the valve from bypass by removing clips
3. Remove the coupling adapter from the valve



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

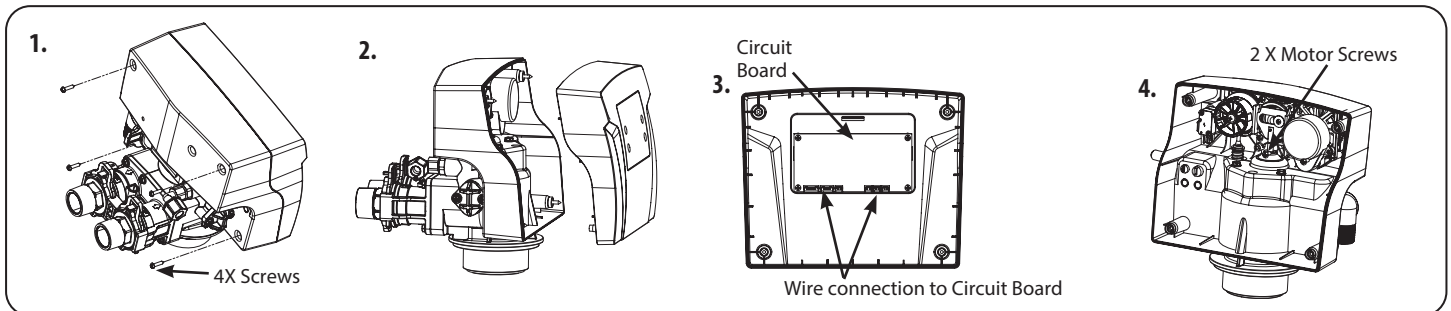
# CLEAN INJECTOR ASSEMBLY



1. Remove the two screws from the injector cap
2. Pull the injector cap and gasket
3. Pull the injector assembly and Screen
4. Replace/Clean screen and injector assembly and put it back in the valve in appropriate location as shown
5. Put back the injector cap. Lubricate the injector assembly o-rings and injector cap gasket. Care should be taken to put all o-rings and gaskets in place and Lubricate them so that they don't pinch

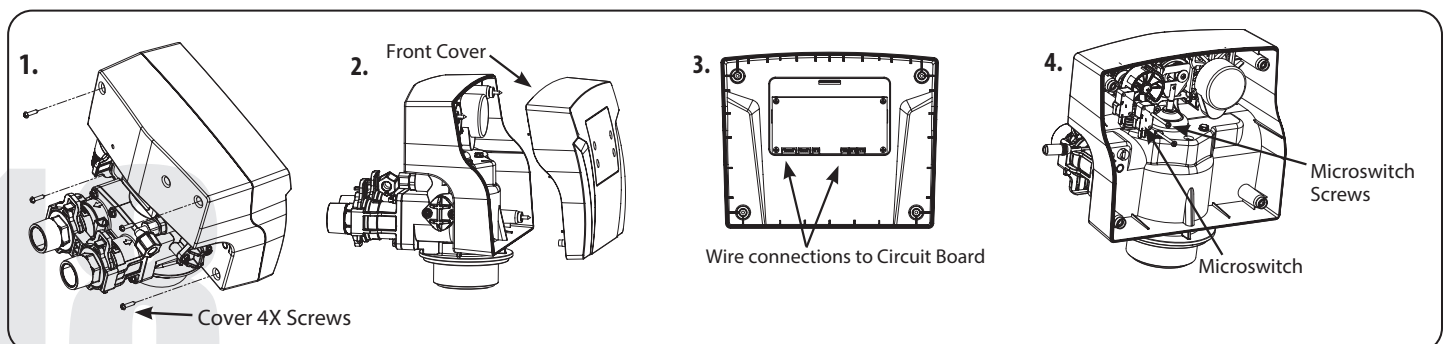
# REPLACE MOTOR

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

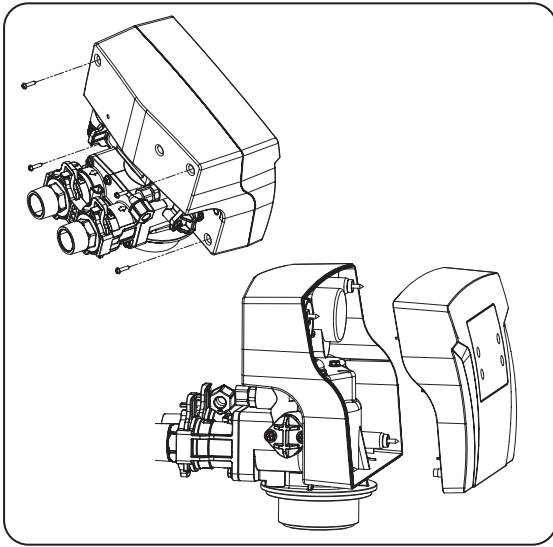


# REPLACE MICROSWITCHES

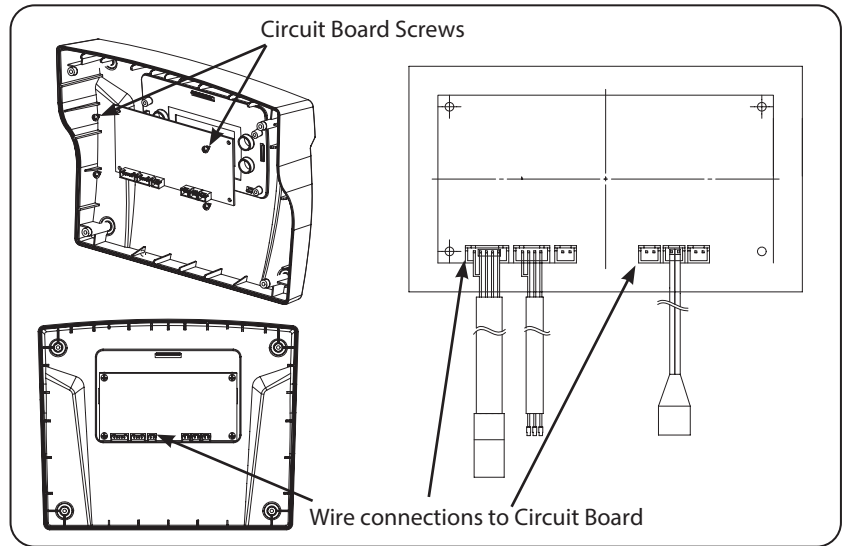
1. Remove screws from the back of the valve and pull the cover
2. Remove all connections from the circuit board
3. Remove the two screws from the microswitch
4. Replace the microswitch, connections and cover



# CIRCUIT BOARD REPLACEMENT

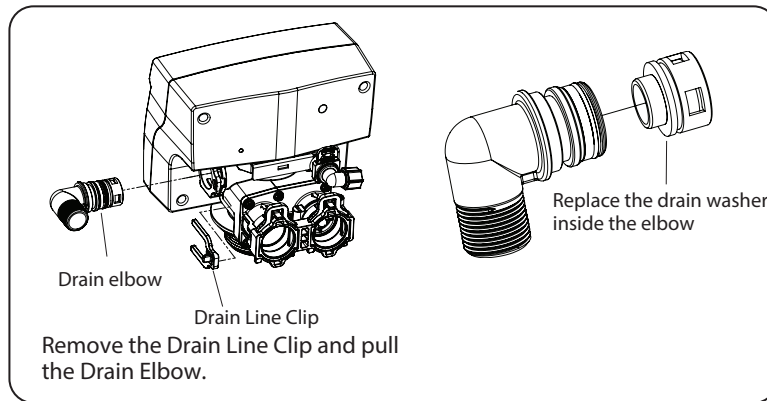


1. Remove the screws from the back of the valve and pull the front cover



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

# DRAIN WASHER REPLACEMENT



Remove the Drain Line Clip and pull the Drain Elbow.

# AFTER SERVICING

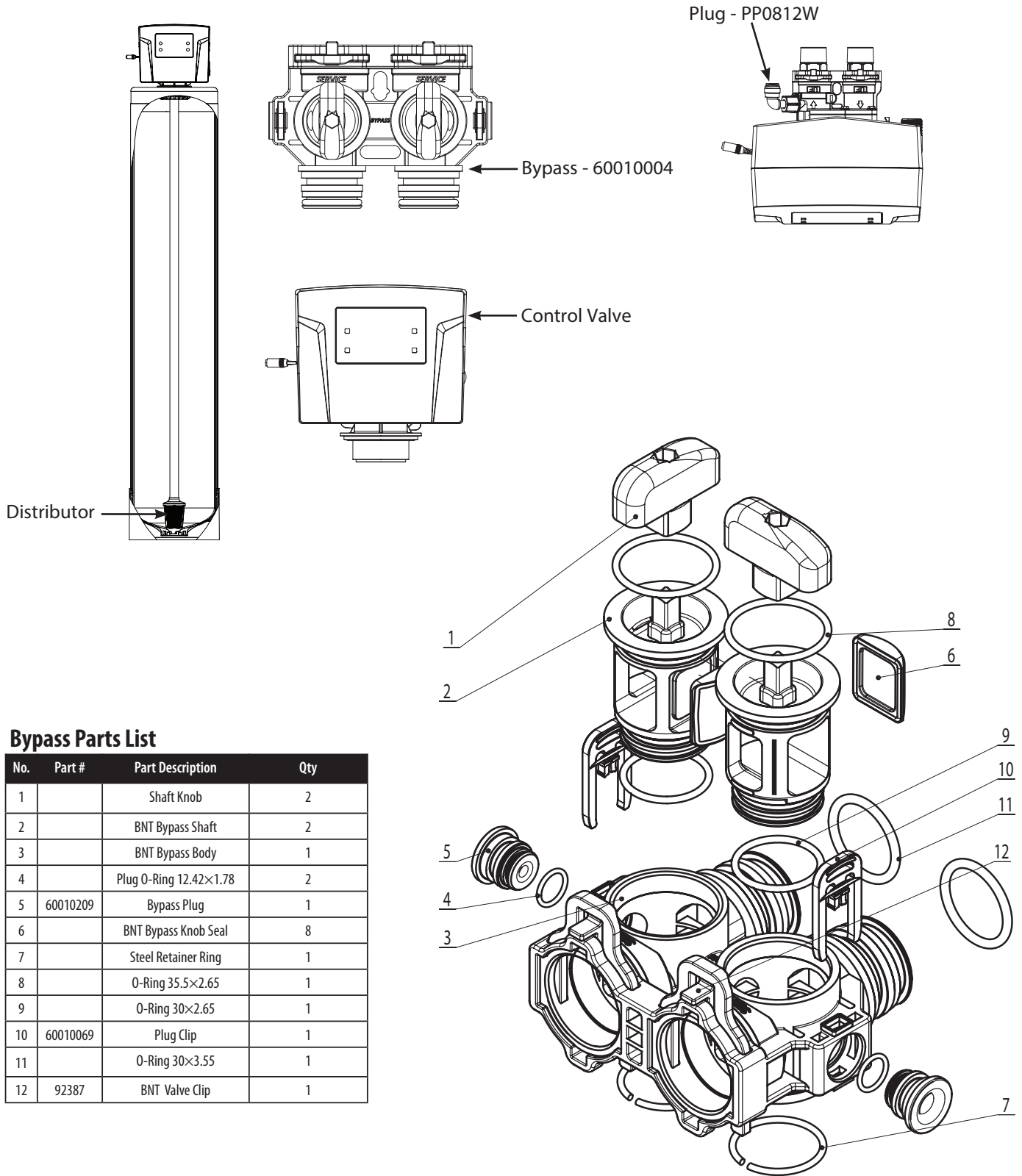
1. Reconnect drain line.
2. Return bypass or inlet valve to normal in service position. Water pressure will automatically build in the filter.

## NOTE

Be sure to shut off any bypass line.

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

# PARTS BREAKDOWN

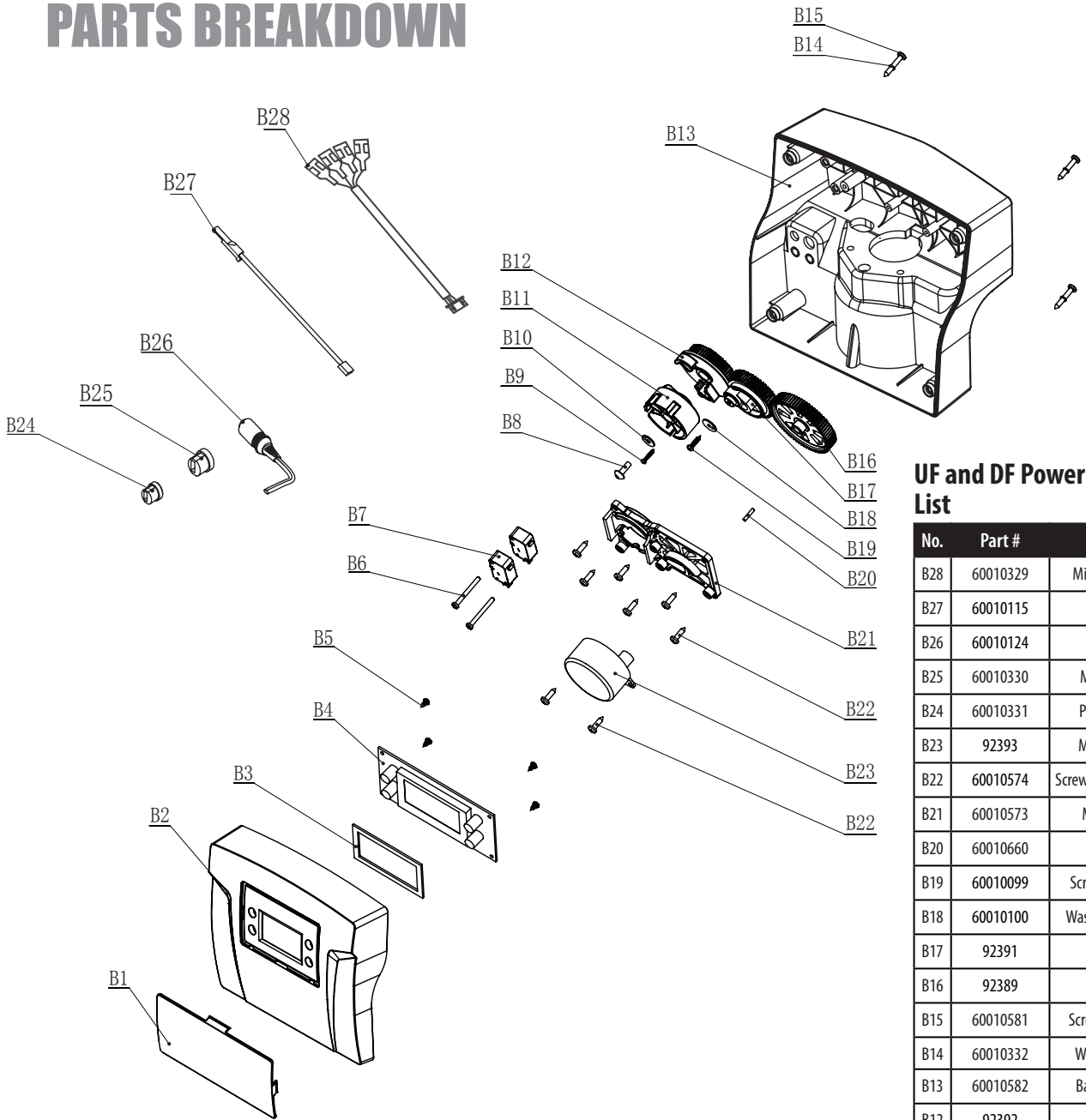


## Bypass Parts List

No.	Part #	Part Description	Qty
1		Shaft Knob	2
2		BNT Bypass Shaft	2
3		BNT Bypass Body	1
4		Plug O-Ring 12.42x1.78	2
5	60010209	Bypass Plug	1
6		BNT Bypass Knob Seal	8
7		Steel Retainer Ring	1
8		O-Ring 35.5x2.65	1
9		O-Ring 30x2.65	1
10	60010069	Plug Clip	1
11		O-Ring 30x3.55	1
12	92387	BNT Valve Clip	1

Model	Mineral Tank Size	Tank # (Natural Color)	Tank # (Black Color)	Distributor#	Valve #	Media Bed #
LWTOC1.5	10 x 54	25010049	25010051	50010005	10010043	95403
LWNF1.5	10 x 54	25010049	25010051	50010005	10010043	93502
LWPF1.5	10 x 54	25010049	25010051	50010005	10010043	95644

# PARTS BREAKDOWN



## UF and DF Power Head Parts List

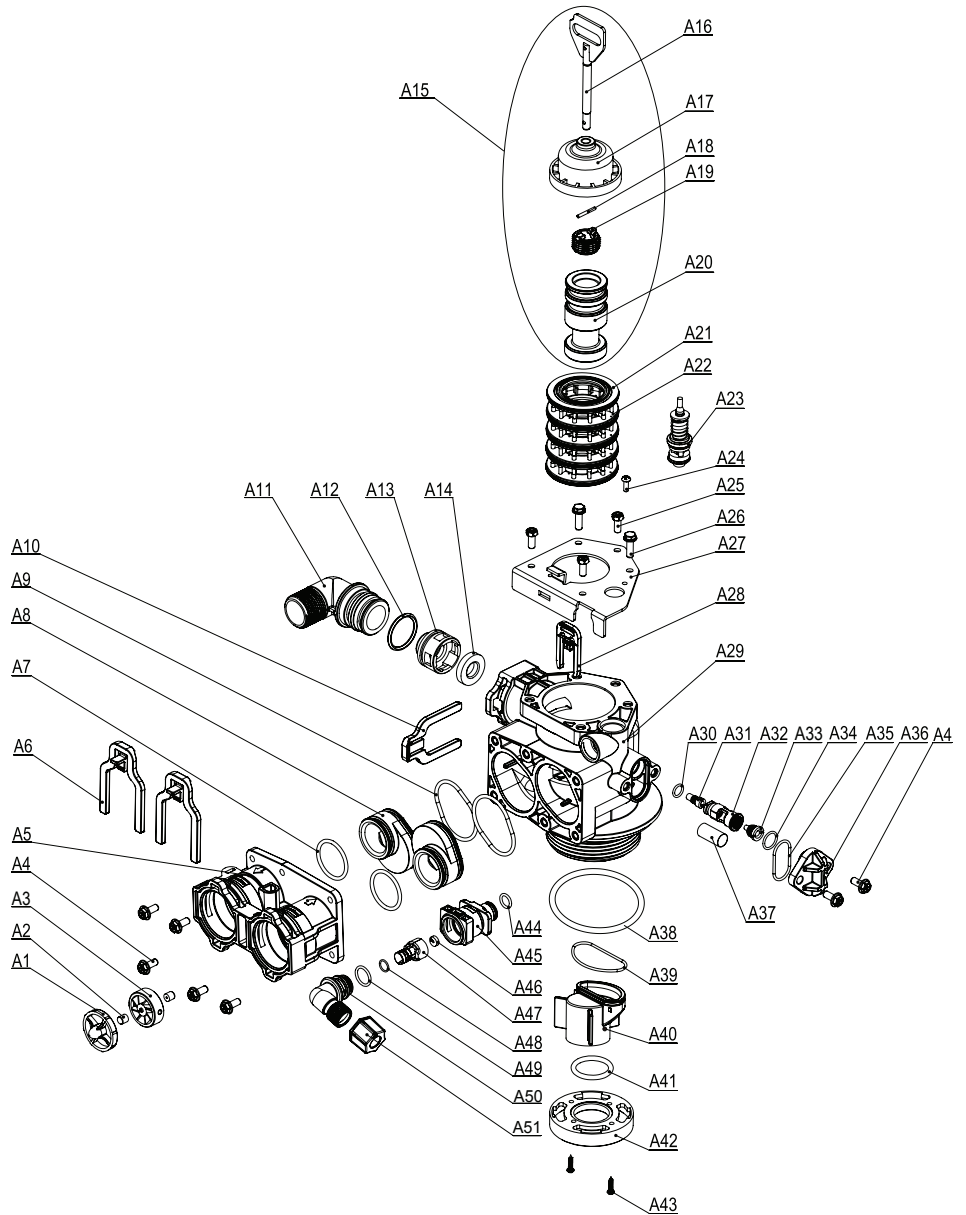
No.	Part #	Description	Qty
B28	60010329	Micro Switch Cable	1
B27	60010115	Meter Cable	1
B26	60010124	Power Cable	1
B25	60010330	Meter Cable Clip	1
B24	60010331	Power Cable Clip	1
B23	92393	Motor 12VAC 3W	1
B22	60010574	Screw on Mounting Plate	8
B21	60010573	Mounting Plate	1
B20	60010660	Motor Pin	1
B19	60010099	Screw on Main Gear	1
B18	60010100	Washer on Main Gear	1
B17	92391	Main Gear	1
B16	92389	Drive Gear	1
B15	60010581	Screw on Back Cover	4
B14	60010332	Washers on Screw	4
B13	60010582	Back Cover(Black)	1
B12	92392	Brine Gear	1
B11	60010577 -UF 60010576 - DF	Locating wheel(UF)	1
B10	60010661	Washer on Locating Wheel	1
B9	60010333	Screw 2.2×13	1
B8	60010575	Screw on Locating Wheel	1
B7	60010580	Micro Switch	2
B6	60010579	Screws on Micro Switch	2
B5	60010572	Screws on PCB	4
B4	92388	PCB	1
B3	60010571	PCB Absorb Shock Foam	1
B2	60010570	Front Cover (Black)	1
B1		Controller Touch Panel	1

# PARTS BREAKDOWN

## Parts list of control valve body:

No.	Part #	Description	Qty
A51	60010184	Brine Line Elbow Nut	1
A50	60010172	Brine Line Elbow	1
A49	60010044	O-ring of Brine Line Elbow	1
A48	60010188	O-ring of BLFC Holder	1
A47	60010173	BLFC Holder	2
A46	60010128	BLFC(0.2GPM)(Optional)	1
A45	60010340	Brine Line Connector	1
A44	60010265	O-ring on Brine Line Connector	1
A43	60010099	Screw on Valve Bottom Connector	2
A42	60010599	Valve Bottom Connector	1
A41	60010080	Distributor O-ring	1
A40	60010598	Central Pipe Adaptor	1
A39	60010597	O-ring of Central Pipe Adaptor	1
A38	60010077	Tank Mouth O-ring	1
A37	60010715	Screen Valve	1
A36	60010595	Injector Cover	1
A35	60010341	O-ring of Injector Cover	1
A34	60010186	Big O-ring of Injector Holder	1
A33		Injector Nozzle(Optional)	1
A32	60010174	Injector Holder	1
A31		Injector Throat(Optional)	1
A30	60010187	Small O-ring of Injector Holder	1
A29		Valve Body	1
A28	60010069	Secure Clip Brine Line	1
A27	60010343	End Plug Retainer	1
A26	60010076	Valve Body Connect Screws	2
A25	60010075	End Plug Retainer Screws	3
A24	60010574	Screw 3.5x13	1
A23	60032	Brine Valve Injector Stem Assembly	1
A22		Spacer Valve	8
A21		Seal Valve	5
A20	92383 - DF	Down Flow Piston Valve	1
A19	92384 - UP	PISTON ASSY	1
A18	92384 - UP	92384 - FILTER PISTON ASSY	1
A17	PISTON ASSY	End Plug Valve	1
A16	92385 - FILTER	Piston Rod Valve	1
A15	PISTON ASSY	Piston Assembly Valve(DF)	1
A14		DLFC(2.4GPM)(Optional)	1
A13	60095694	DLFC Holder	1
A12	60010211	O-ring on Drain Elbow	1
A11	60010253	Drain Elbow 3/4" NPT	1
	60010254	Drain Elbow 1" NPT	1
A10	60010227	Secure Clip of Drain Line	1
A9	60010585	Big O-ring of Adaptor Coupling	2
A8		Adaptor Coupling	2
A7		Small O-ring of Adaptor Coupling	2
A6	92387	Adaptor Secure Clip	2
A5	60010589	Valve Connector	1
A4	60010596	Screws of Valve Connector	8
A3	60010238	Impeller Assembly	1
A2		Bush	2
A1	60010587	Impeller Holder	1

Seal and Spacer Kit 92382



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

Part #	Part Description	Part #	Part Description
A46	60010110 BLFC BUTTON #2 0.3GPM A32	A31 and A33	60010613 INJECTOR SET #3 YELLOW THROAT
	60010082* BLFC BUTTON #2 0.7GPM A32		60010614 NOZZLE #3 YELLOW THROAT
	60010128 BLFC BUTTON 0.2GPM	60010686	60010685 INJECTOR SET #4 GREEN THROAT
			60010686 NOZZLE #4 GREEN THROAT
A31 and A33	60010601 INJECTOR SET #0000 BLACK THROAT		12052 1.4 GPM DLFC WASHER
	60010602 NOZZLE #0000 BLACK THROAT		12053 2.0 GPM DLFC WASHER
	60010603 INJECTOR SET #000 GREY THROAT		60010140 #4S 5.0GPM
	60010604 NOZZLE #000 GREY THROAT		60010142 #7S 7.0 GPM
	60010605 INJECTOR SET #00 VIOLET THROAT		60010143 #1 8.0 GPM
	60010606 NOZZLE #00 VIOLET THROAT		60010144 #2 11.0 GPM
	60010607 INJECTOR SET #0 RED THROAT		60010145 #3 14.0 GPM
	60010608 NOZZLE #0 RED THROAT		60010146 #4 17.0 GPM
	60010609* INJECTOR SET #1 WHITE THROAT		60010147 #5 21.0 GPM
	60010610* NOZZLE #1 WHITE THROAT		60010148 #6 24.0 GPM
	60010611 INJECTOR SET #2 BLUE THROAT		
	60010612 NOZZLE #2 BLUE THROAT		

\* Default

# PARTS BREAKDOWN

## INJECTOR PART # for CONTROL VALVE

No.	Part #	Part Description	Qty
1	60010601	INJECTOR THROAT( BLACK 0000#)	1
2	60010602	INJECTOR NOZZLE( BLACK 0000#)	1
3	60010603	INJECTOR THROAT( GREY 000#)	1
4	60010604	INJECTOR NOZZLE( GREY 000#)	1
5	60010605	INJECTOR THROAT( PURPLE 00#)	1
6	60010606	INJECTOR NOZZLE ( PURPLE 00#)	1
7	60010607	INJECTOR THROAT( RED 0#)	1
8	60010608	INJECTOR NOZZLE( RED 0#)	1
9	60010609	INJECTOR THROAT ( WHITE 1#)	1
10	60010610	INJECTOR NOZZLE ( WHITE 1#)	1
11	60010611	INJECTOR THROAT( BLUE 2#)	1
12	60010612	INJECTOR NOZZLE( BLUE 2#)	1
13	60010613	INJECTOR THROAT( YELLOW 3#)	1
14	60010614	INJECTOR NOZZLE( YELLOW 3#)	1

## DLFC PART # for CONTROL VALVE

No.	Part #	Part Description	Qty
1	60095720	BNT95DLFC-0(4.0 GPM)	1
2	60010143	BNT95DLFC-1(7.0GPM)	1
3	60010144	BNT95DLFC-2(11.0GPM)	1
4	60010145	BNT95DLFC-3(14.0GPM)	1
5	60010146	BNT95DLFC-4(17.0GPM)	1
6	60010147	BNT95DLFC-5(21.0GPM)	1
7	60095692	BNT95DLFC-6(24.0GPM)	1
8	60095721	BNT95DLFC-1S(2.4GPM)	1
9	60095722	BNT95DLFC-2S(3.5GPM)	1
10	60095723	BNT95DLFC-3S(4.5GPM)	1
11	60010140	BNT95DLFC-4S(5.0GPM)	1
12	60095724	BNT95DLFC-5S(6.0GPM)	1
13	60095725	BNT95DLFC-6S(6.0GPM)	1
14	60010142	BNT95DLFC-7S(7.0GPM)	1

## BLFC PART # for CONTROL VALVE

No.	Part #	Part Description	Qty
1	60010128	BNT95BLFC (0.2 GPM)	1
2	12053	BNT95BLFC-1(2.0 GPM)	1
3	60010162	BNT95 BLFC-7(1.35 GPM)	1

# TROUBLE SHOOTING GUIDE

Problem	Possible Solutions
<p><b>1. CONDITIONER DELIVERS HARD WATER</b></p> <p>A. Bypass valve is open            B. No salt in brine tank            C. Injector or screen plugged            D. Insufficient water flowing into brine tank            E. Hot water tank hardness            F. Leak at distributor tube            G. Internal valve leak            H. Flow meter jammed            I. Flow meter cable disconnected or not plugged into meter cap            J. Improper programming</p>	<p>A. Close bypass valve            B. Add salt to brine tank and maintain salt level above water level            C. Replace injectors and screen            D. Check brine tank fill time and clean brine line flow tank control if plugged            E. Make sure distributor tube is not cracked. Check o-ring and tube pilot            F. Make sure distributor tube is not cracked. Check o-ring and tube pilot            G. Replace seals and spacers and/or piston            H. Remove obstruction from flow meter            I. Check meter cable connection to timer and meter cap            J. Reprogram the control to the proper regeneration type, inlet water hardness, capacity or flow meter size.</p>
<p><b>2. CONDITIONER FAILS TO REGENERATE</b></p> <p>A. Electrical service to unit has been interrupted            B. Timer is not operating properly            C. Defective valve drive motor            D. Improper programming</p>	<p>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</p>
<p><b>3. UNIT USES TOO MUCH SALT</b></p> <p>A. Improper salt setting            B. Excessive water in brine tank            C. Improper programming</p>	<p>A. Check salt usage and salt setting            B. See #7            C. Check programming and reset as needed</p>
<p><b>4. LOSS OF WATER PRESSURE</b></p> <p>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.</p>	<p>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</p>
<p><b>5. LOSS OF RESIN THROUGH DRAIN LINE</b></p> <p>A. Air in water system            B. Drain line flow control is too large</p>	<p>A. Assure that well system has proper air eliminator control. Check for dry well condition.            B. Ensure drain line flow control is sized</p>
<p><b>6. IRON IN CONDITIONED WATER</b></p> <p>A. Fouled resin bed            B. Iron content exceeds recommended parameters</p>	<p>A. Check backwash, brine draw and brine tank fill. Increase frequency of regeneration. Increase backwash time.            B. Add iron removal filter system</p>
<p><b>7. EXCESSIVE WATER IN BRINE TANK</b></p> <p>A. Plugged drain line flow control            B. Brine valve failure            C. Improper programming</p>	<p>A. Clean flow control            B. Replace brine valve            C. Check programming and reset as needed</p>
<p><b>8. SALT WATER IN SERVICE LINE</b></p> <p>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</p>	<p>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</p>
<p><b>9. CONDITIONER FAILS TO DRAW BRINE</b></p> <p>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</p>	<p>A. Clean drain line flow control            B. Clean or replace injectors            C. Replace screen            D. Increase line pressure (line pressure must be at least 30 psi at all times)            E. Change seals and spacers and/or piston assembly            F. Check programming and reset as needed            G. Replace timer</p>
<p><b>10. CONTROL CYCLES CONTINUOUSLY</b></p> <p>A. Timer not operating properly            B. Faulty microswitches and/or harness            C. Faulty cycle cam operation</p>	<p>A. Replace timer            B. Replace faulty microswitch or harness            C. Replace cycle cam or reinstall</p>



# TROUBLE SHOOTING GUIDE

Problem	Possible Solutions
<b>11. DRAIN FLOWS CONTINUOUSLY</b> A. Foreign material in control B. Internal control leak C. Control valve jammed in brine or backwash position D. Timer motor stopped or jammed teeth E. Timer not operating properly	A. Remove piston assembly and inspect bore. Remove foreign material and check control in various regeneration positions B. Replace seals and/or piston assembly C. Replace piston and seals and spacers D. Replace timer motor and check all gears for missing teeth E. Replace timer
<b>12. (Error Code) (Error E1) - Electrical Trouble Shooting:</b> <b>Issue1:</b> When the controller is plugged, the buzzer beeps and the screen displays "System Error E1" <b>Cause:</b> The wire of micro switch is not plugged or loose.	Check the micro switch and connect the wire well.
<b>13. (Error Code) (Error E2) - Electrical Trouble Shooting:</b> <b>Issue2:</b> The buzzer beeps and the screen displays "System Error E2" <b>Cause:</b> The motor can not find its right position, micro switch or motor malfunction, automatic circuit protection action.	Check the current of micro switch and motor.

# MASTER PROGRAMMING GUIDE

Below is how the settings are set at factory:

MODELS	PRESS '+' AND '-' FOR 8 SECONDS						PRESS MENU KEY AND SCROLL TO 'MAIN MENU'. THEN PRESS 'SET' TILL IT BEEPS					VALVE SETTINGS				
	LANGUAGE	REGION	VALVE	METER RATIO	SALT VS EFFICIENCY	AUTO CALCULATION	REGEN. MODE	BACK WASH DURATION	RINSE DURATION	REGEN TIME SETTING	REGEN DAY SETTING	Injector	Injector Color	BLFC Washer	DLFC Washer	DLFC Washer Code
LWNF1.5	ENGLISH	US GALLONS	FILTER	1.364	DONT TOUCH	OFF	DAYS	10	10	12:00AM	3 DAYS	#1	White	0	5.0	4S
LWTOC1.5	ENGLISH	US GALLONS	FILTER	1.364	DONT TOUCH	OFF	DAYS	10	10	12:00AM	3 DAYS	#1	White	0	5.0	4S
LWPF1.5	ENGLISH	US GALLONS	FILTER	1.364	DONT TOUCH	OFF	DAYS	10	10	12:00AM	3 DAYS	#1	White	0	10.0	2

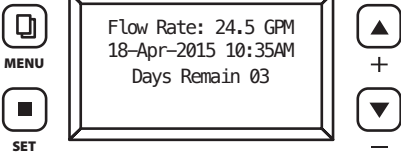
# MASTER PROGRAMMING GUIDE

## Key Pad Configuration:

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

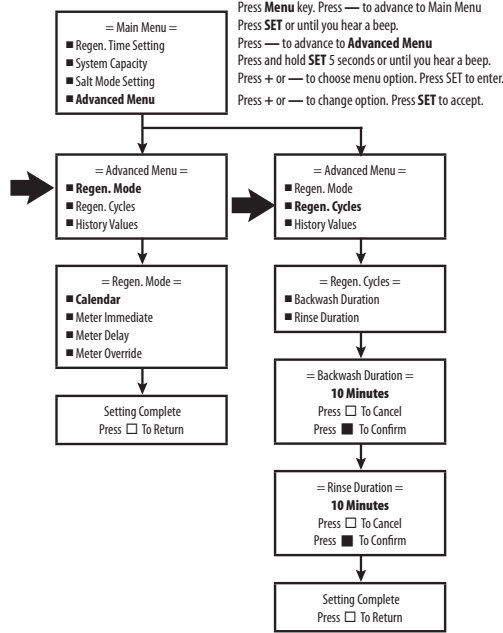
**SET** This function is to accept the values if changed and advance to the next page in the menu

**+ / -** These buttons are used to increase or decrease the value of the settings while in the programming mode



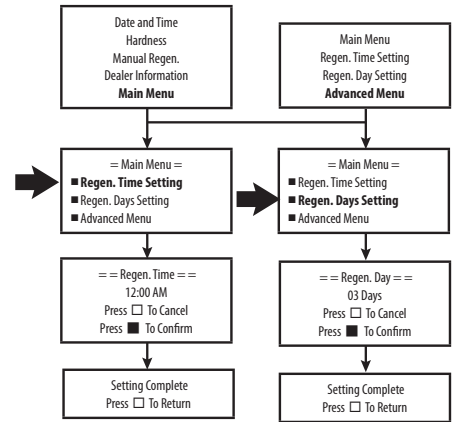
## Step B - Advanced Menu

Press **Menu** key. Press **—** to advance to Advanced Menu  
 Press **+** or **—** to choose menu option. Press **SET** to enter  
 Press **+** or **—** to change option. Press **SET** to accept



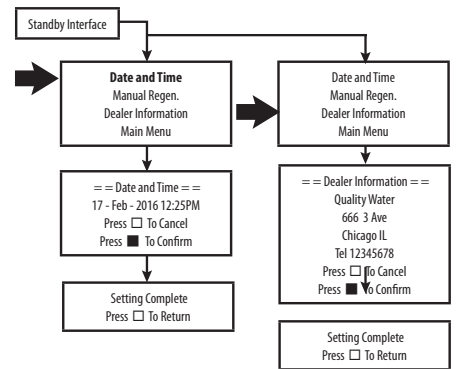
## Step C - Main Menu

Press **Menu** key. Press **—** to advance to Advanced Menu  
 Press **SET** or until you hear a beep  
 Press **+** or **—** to choose menu option. Press **SET** to enter  
 Press **+** or **—** to change option. Press **SET** to accept



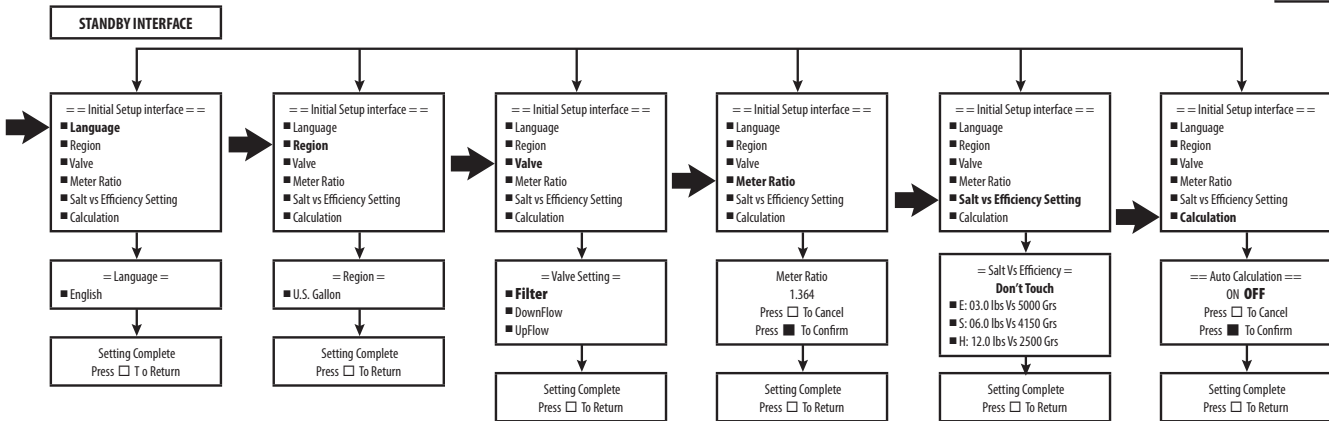
## Step D - User Setting

Press **Menu** key  
 Press **SET** or until you hear a beep  
 Press **+** or **—** to choose menu option. Press **SET** to enter  
 Press **+** or **—** to change value. Press **SET** to accept




## Step A - Region Setting


Press **+** and **—**. Hold until you hear a beep (8 seconds).  
 Press **+** or **—** to choose menu option. Press **SETTINGS** to enter.  
 Press **+** or **—** to change option. Press **SETTINGS** to accept.



# DIAGNOSTIC SCREEN

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


Press "MENU" key . Press - to advance to Main Menu

Press "SET"  or until you hear a beep.

Press - to advance to Advanced Menu

Press and hold "SET"  5 seconds or until you hear a beep.

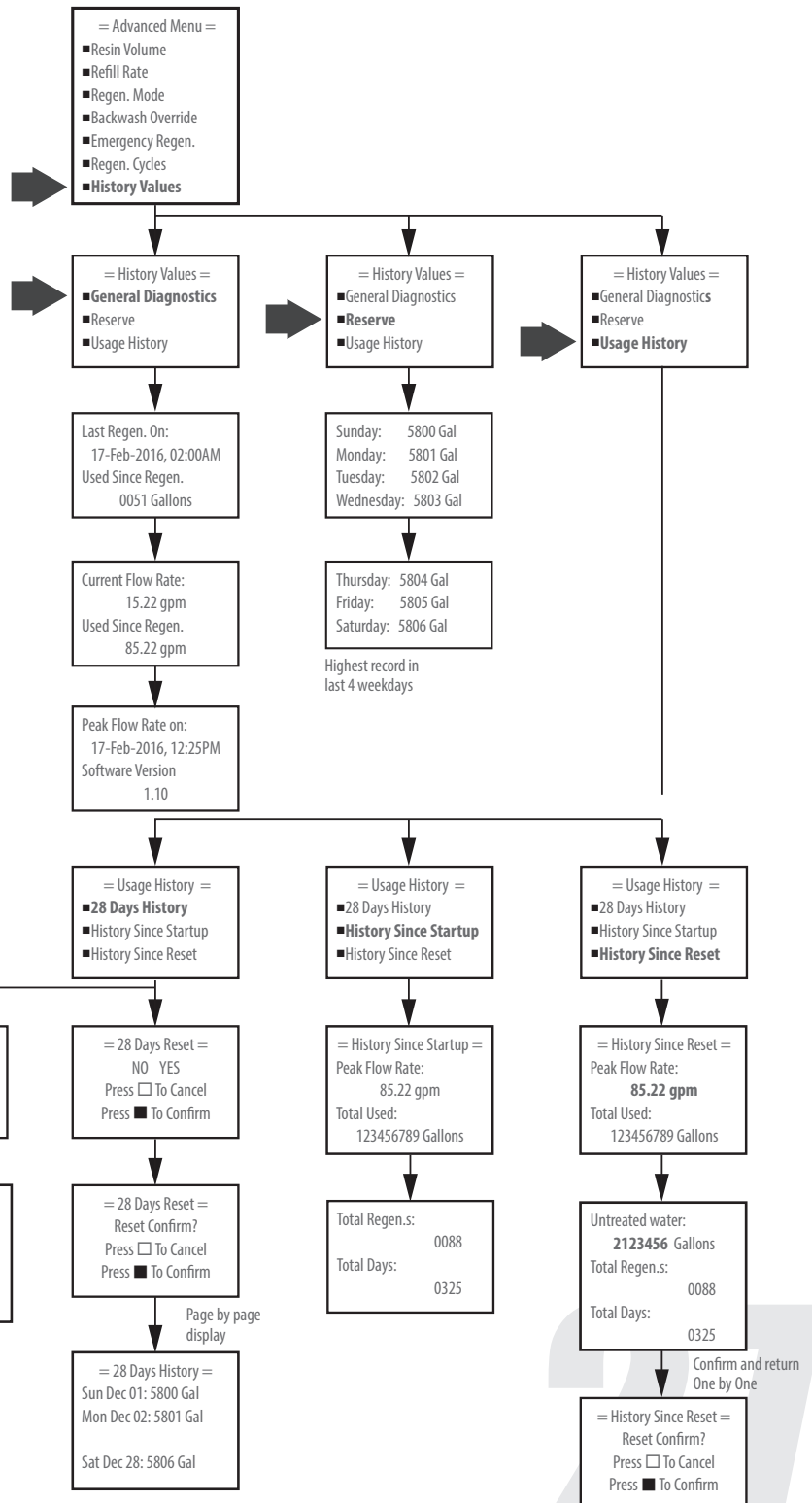
Press - to advance to History Values

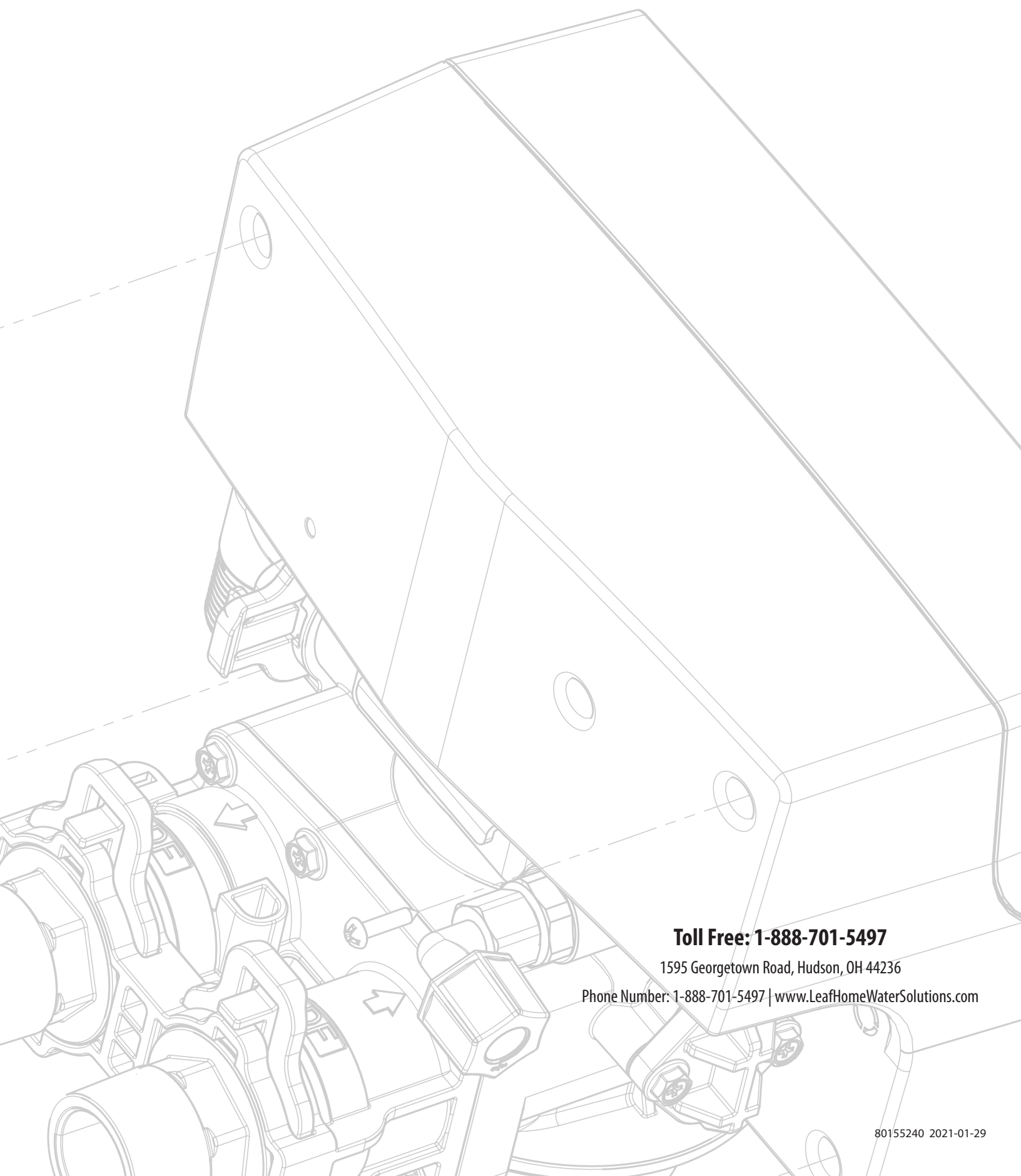
Press "SET"  or until you hear a beep.

Press "+"  or "-"  to choose menu option. Press "SET"  to enter.

Press "+"  or "-"  to change option. Press "SET"  to accept.

PARAMETER	DESCRIPTION
LAST REGEN ON	Date of last system regeneration.
USED SINCE REGEN	Volume used since last regeneration.
CURRENT FLOW RATE	The current system flow rate.
PEAK FLOW RATE	The peak or highest flow rate since last regeneration.
SOFTWARE VERSION	The software version programmed on the PCB.
RESERVE	The calculated reserve for each day based on the highest days usage over the past 4 weeks.
28 DAYS HISTORY	The volume used for each of the last 28 days.
USAGE HISTORY	The usage since system start up and from the last reset.
TOTAL USED	The total volume used.
TOTAL REGENS	The total quantity of regenerations.
TOTAL DAYS	The total days in operation.





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