Installation Instructions and Owner's Manual

Clean Stream Series

Whole House Backwashing Filter

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Pre-installation Instructions

Description of the water filter system

This filter system includes a media tank that has been preloaded with filter sand, a blend of catalytic and coconut shell carbon and a backwashing control valve. Incoming water flows into the control valve and is directed down through the media. This media uses adsorption to remove objectionable tastes and odors as well as providing sediment filtration of the water. The filtered water then returns to the control valve where it is directed into the service lines.

Periodically the control valve will go through a backwash cycle. The frequency of this backwash process will depend on the incoming water quality and amount of water used. This backwash cycle is factory preset to occur every third day. This cycle will typically begin at 1:00 A.M.

Water Quality

The water should be tested to determine the concentration, or levels of the items listed below:

Hardness - Hardness in drinking water is defined as those minerals that dissolve in water having a positive electrical charge (cat ions). The primary components of hardness are calcium (Ca++) and magnesium (Mg++) ions. But dissolved iron (Fe++) and manganese (Mn++) also contribute to total "adjusted" hardness. Hardness produces scale, soap scum and white mineral deposits which shorten the life of water using appliances, plumbing and fixtures. Water that has less than 1 grain of hardness is considered to be "soft" water. If soft water is desired, install a softener following the CS filter.

pH - A measurement of the acidity of the water. pH is reported on a scale from 0 to 14. Neutral water has a pH of 7.0, lower values indicate acidic water. If your pH is below 6.8 you may consider installing an acid neutralizer before the water softener to elevate the pH.

Iron - A naturally occurring metallic element. Iron levels in excess of 0.3 milligrams/liter (mg/l) combine with oxygen causing orange or red (rust) stains on plumbing fixtures. Iron exists in some water sources in clear water (ferrous) state, red water (ferric) state or bacterial form. If bacterial or ferric (red water) iron is present or iron level exceeds 4.0 mg/l, an iron filter should be installed ahead of the CS filter.

Manganese - A naturally occurring metallic element. Manganese levels as low as 0.05 milligrams/liter (mg/l) can combine with oxygen to cause dark brown or black staining on fixtures. Additionally, manganese can cause an odor in the water similar to a "rotten egg" smell. This water softener may reduce manganese as well as iron; however, an iron filter may be required in some cases.

Tannin - A naturally occurring humic acid. Tannin is caused by water passing through decaying vegetation. Coffee and Tea are prime examples of tannin in water. Tannin levels as low as 0.5 milligrams per liter can cause a yellow discoloration in water. Consult your dealer for a system designed to remove both tannin and hardness.

Hydrogen Sulfide - A naturally occurring gas. Hydrogen sulfide, more commonly referred to as sulfur, causes a distinct odor similar to "rotten eggs." Due to its gaseous nature, hydrogen sulfide must be tested at the well site within 1 minute of drawing the sample. If sulfur is present additional equipment will be required. The CS can reduce low levels of sulfur in drinking water.

Pre-installation Instructions (cont.)

Location Considerations

The proper location to install the water filter system will ensure optimum performance and satisfactory water quality. The following factors should be considered in selecting the location of the equipment.

1. The water filter should be installed after the pressure tank (private well system only).

2. The water softener should be installed as close as possible (preferably within 15') to an adequate floor or laundry drain capable of handling the backwash cycle volume and flow rate (5 gpm).

3. All water conditioning equipment should be installed prior to the water heater. Water temperatures exceeding 100°F can damage the internal components of the control valve and filter tank. Install with at least 10' of pipe before the water heater to prevent thermal damage to the equipment. An expansion tank may need to be installed in the line to the water heater in order to allow for thermal expansion and comply with local plumbing codes.

4. The water filter should not be subject to freezing temperatures.

5. Install any cartridge or in-line type filter installed after to the water filter to prevent restriction the water flow and pressure available for backwash and possibly interfere with normal operation.

6. Appliances requiring extended periods of continuous or high flow water use (i.e. geothermal heat pumps, swimming pools, lawn irrigation, outside hose bibs, etc.) should bypass the water filter. (see installation diagram Fig. 1).

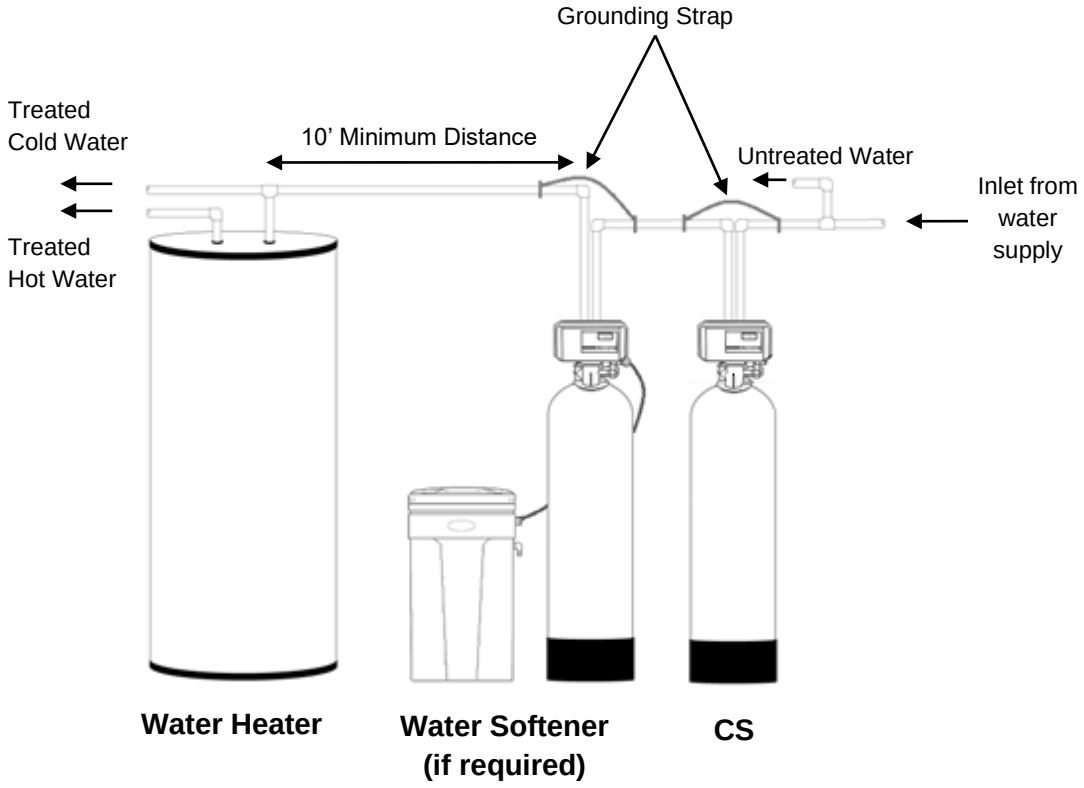


FIGURE 1: Typical Installation

Installation Instructions

STEP 1: Carefully remove all components from packaging. DO NOT DISCARD PACKAGING until all water softener components and fittings have been located.

STEP 2: Use clips and screws provided and attach bypass valve to the inlet/outlet of the control valve. See Figure 2 below.

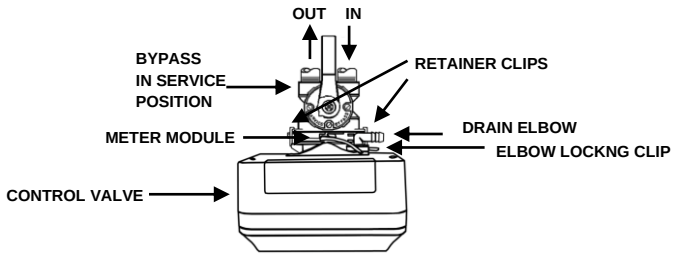


FIGURE 2: Top View of Control Valve

STEP 3: Place unit at desired installation position. Be sure it is within 15 feet of a drain that is lower than the control valve and near a non-switched electrical outlet. Be sure the tank is on a level and firm base. Install the unit with at least 10 feet of piping before the water heater to prevent hot water from backing into the filter. **DO NOT plug into electrical outlet at this time.**

STEP 4: Shut off water at main supply. Relieve pressure by opening nearest faucet. On private well systems, turn off power to pump and drain pressure tank. **SHUT OFF POWER OR FUEL SUPPLY TO WATER HEATER.**

STEP 5: Cut main supply line as required to fit plumbing to inlet and outlet of bypass valve. **DO NOT PLUMB INLET AND OUTLET BACKWARDS.** Piping should be supported. Do not apply heat to any fitting attached to the bypass or control valve. Perform all plumbing according to local plumbing codes. Connect the inlet to the water supply and the outlet to the piping going toward the water heater.

STEP 6: Use polyethylene drain line tubing provided (**NO VINYL TUBING**) to run drain line from control valve discharge fitting to floor drain or sump pit capable of handling the backwash rate of the filter (refer to specifications and flow rate on page 9). **DISCHARGE END OF THE DRAIN LINE MUST BE FIRMLY SECURED!** There must be an air gap at the end of the drain line to prevent siphoning of waste water and meet plumbing code. Total length of drain line should be 15' or less. AVOID OVERHEAD DRAINS.

STEP 7: Place bypass in the "Bypass" position (refer to Figure 3 below). Open main supply valve or turn on power to pump on private well systems.

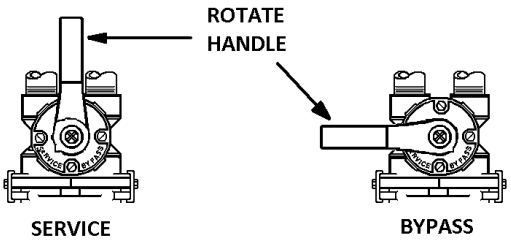


FIGURE 3: Stainless Steel Bypass Valve

Installation Instructions (cont.)

STEP 8: Plug the transformer into an un-switched electrical outlet and attach the power cord into the control valve. Then press and hold down the center “ADVANCE” button for 5 seconds and release after “GO TO BW” appears on the screen (See Figure 4, page 7). Wait until the valve reaches the backwash position (a countdown timer will be displayed) and unplug unit from electrical outlet.

STEP 9: Refer to Figure 3 (page 5) for appropriate bypass valve operation. Rotate bypass lever of stainless steel bypass ¼ of the way to Service allowing unit to fill slowly. Filling the media tank in this position will force any trapped air and carbon dust to the drain. Leave the unit in bypass until the air is purged and only water runs to the drain.

STEP 10: Once the air is purged, gradually continue turning the bypass valve until it is fully in the service position. Leave the unit in backwash until the drain water runs completely clear of any fine carbon particles.

STEP 11: Plug the transformer back into the electrical outlet and allow the unit to complete the regeneration cycles or manually step through the remaining cycles by pressing the “ADVANCE” button when a cycle countdown is displayed until the display returns to the time display.

STEP 12: Check for leaks and correct as necessary.

STEP 13: Turn power or fuel supply back on to water heater.

STEP 14: Set the current time of day on control valve (note AM and PM) (refer to Figure 4, page 7).

Display Operation

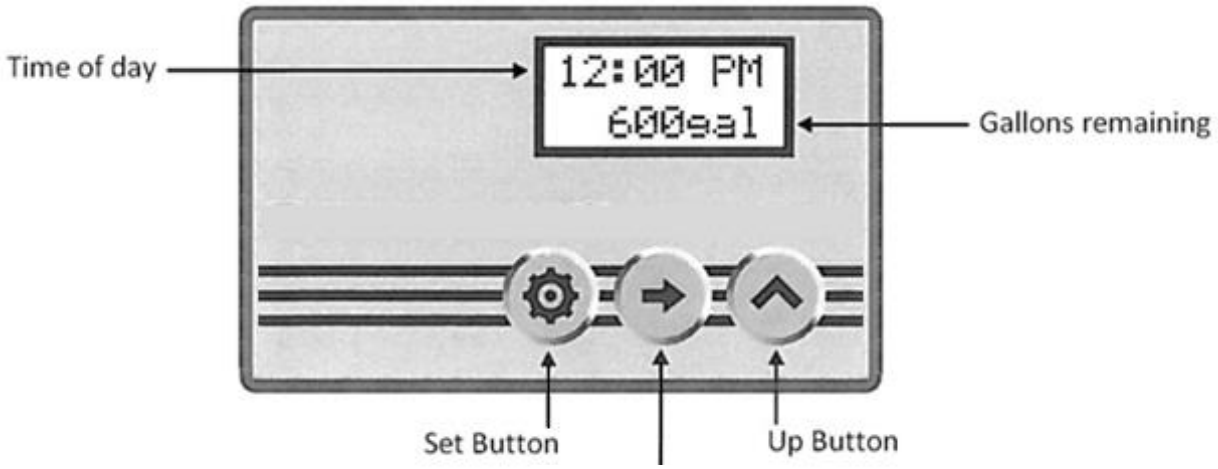


FIGURE 4: Front of Electronic Meter Timer

SET BUTTON

1. Press and hold Set Button for 5 seconds to enter Programming Mode.
2. When valve is in Programming Mode, press Set Button to confirm setting and advance to next menu option.

ADVANCE BUTTON

1. Press and hold “Advance Button” for 5 seconds to initiate an immediate regeneration cycle.
2. Press and release “Advance Button” during a regeneration cycle to immediately advance the valve to the next step in the regeneration process.
3. When the valve is in Programming Mode, press the “Advance Button” to move the cursor.

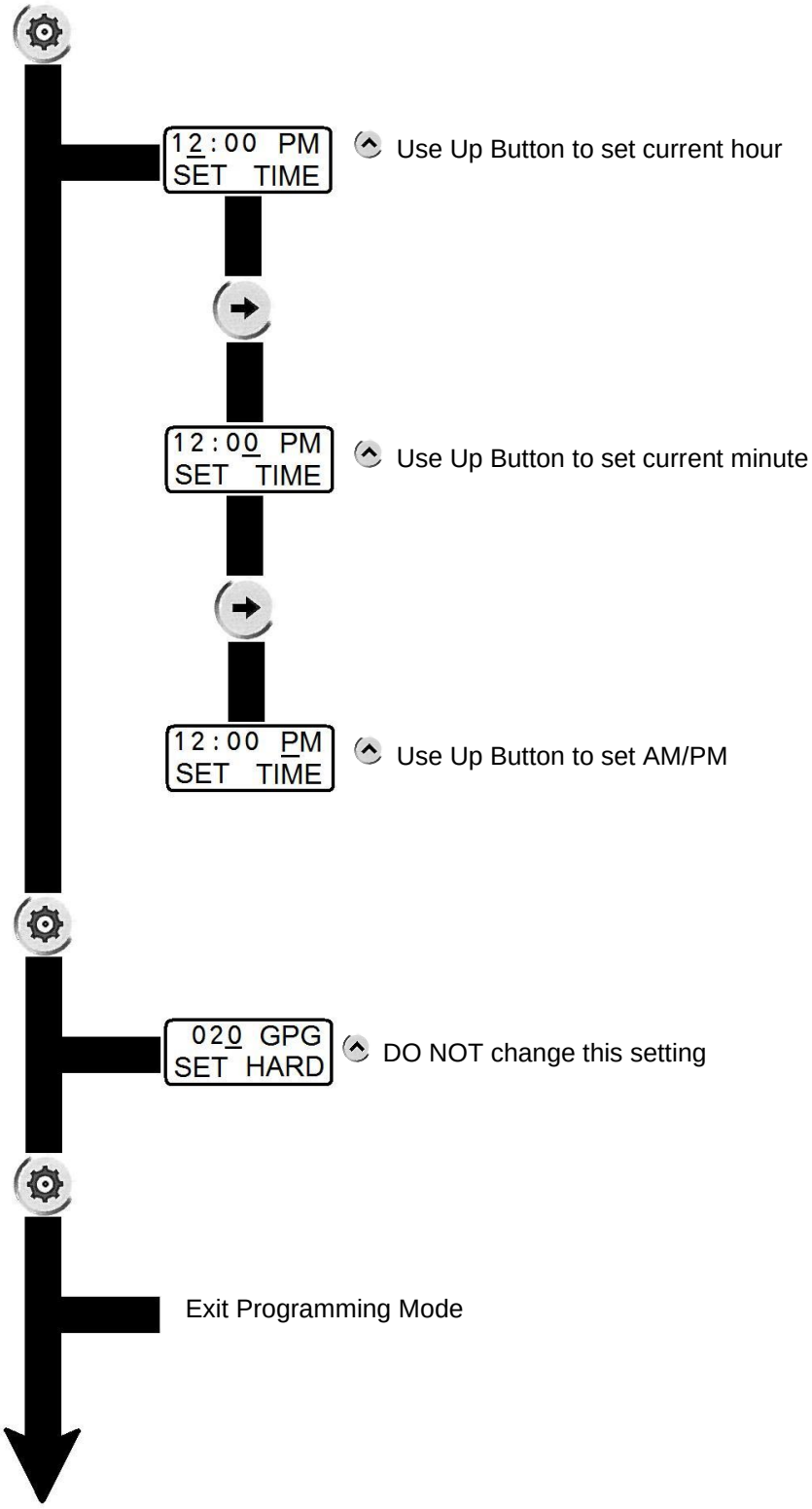
UP BUTTON

1. When the valve is in the Programming Mode, press Up Button to adjust setting.

Control Valve Programming

Enter Programming Mode:

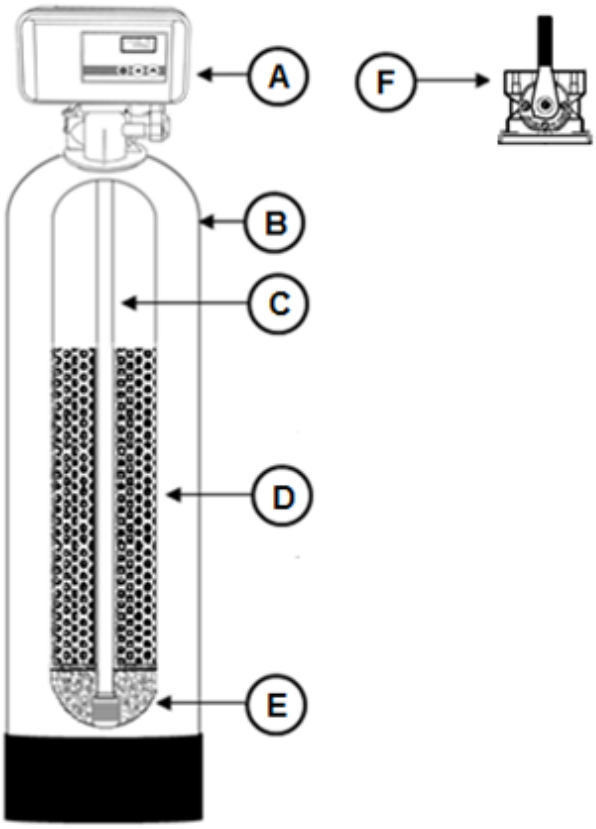
Press and Hold the SET Button for 5 seconds.



Specifications

Description	Model Number		
	CS-1	CS-1.5	CS-2
Volume, cu. ft. Blend of GAC, catalytic carbon & Filter sand (refer to page 10)	1.0	1.5	2
Gravel Underbed, lbs.	20	20	20
Operating Flow Rate, gpm			
Continuous (no duration limit)	3	4	5
Peak (10 mins. or less)	10	12	13
Regen. Flow Rates, gpm			
Backwash & Rapid Rinse	5	5	7
Service Pipe Size, in.	¾"	¾"	¾"
For 1" use "-1S" suffix	1"	1"	1"
Factory Programming Settings			
Day Override Setting	3	3	3
Regeneration Time	1:00 AM	1:00 AM	1:00 AM
Default size setting	OFF	OFF	OFF
Regenerate after capacity (grains)	12,000	12,000	12,000
Backwash (minutes)	8	8	8
Brine Draw (minutes)	1	1	1
Fast Rinse (minutes)	4	4	4
Brine Refill (minutes)	1	1	1
Total Water Used, gallons	60	60	84
Dimensions, in.			
Mineral Tank, diameter x height	10 x 44	10 x 54	12 x 48
Overall, length x width x height	14 x 10 x 52	14 x 10 x 62	14 x 12 x 56
Approximate Ship Wt., lbs.	77	100	125

Component Parts Breakdown



REF	DESCRIPTION	MODEL NUMBER		
		CS-1	**CS-1.5**	**CS-2**
A	Control Valve	CS-1 Vlv Assy L/BP	CS-1 Vlv Assy L/BP	CS-2 Vlv Assy L/BP
B	Mineral Tank	MTP1044N	MTP1054N	MTP1248N
C	Distributor	D100S-48	D100S-54	D100S-48
D	Media	2 – CS05P	3 - CS05P	4 - CS05P
E	1/4/ x 1/8 gravel	QC20	QC20	QC20
F	Stainless Steel Bypass Valve	60040SS 60041SS*	60040SS 60041SS*	60040SS 60041SS*

*Optional 1” bypass for models with “-1S” suffix. I.E. CS-1-1S or CS-1.5-1S

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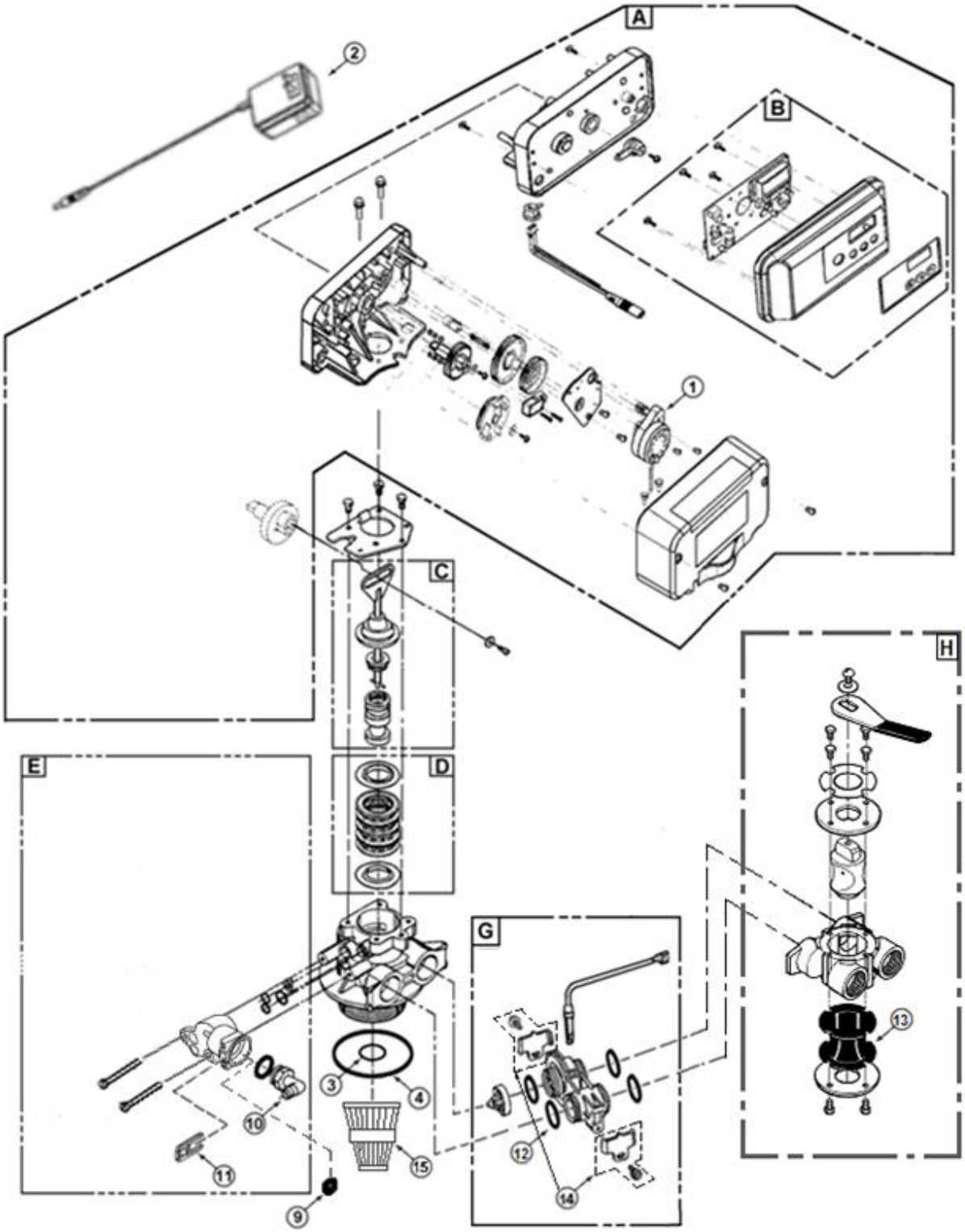
Control Valve Parts Breakdown



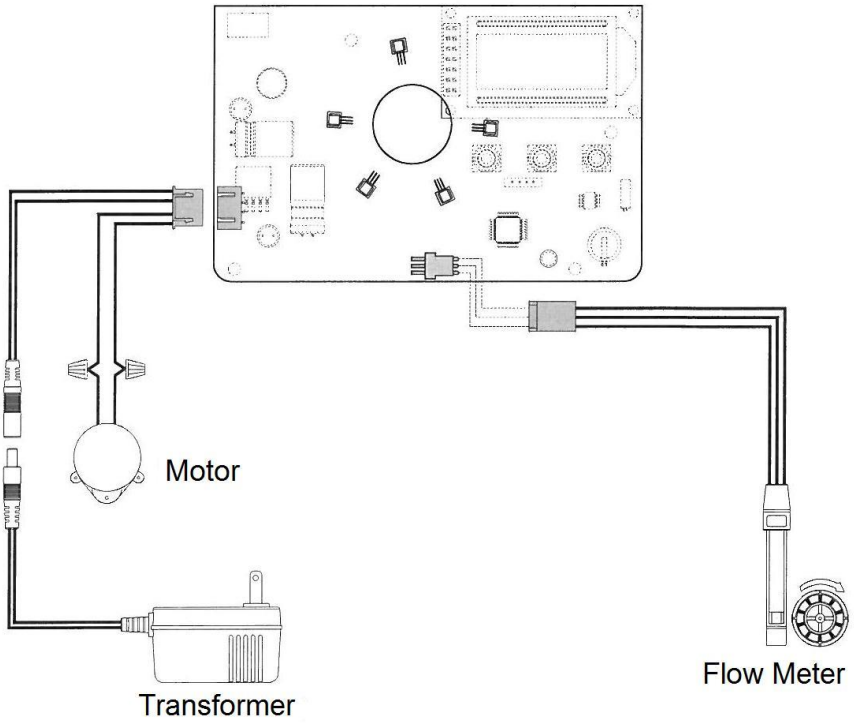
Control Valve Parts List

REF #	Part Number	Description
A	NE-PH	Powerhead, Metered
B	NE-FC	Front Panel and Circuit Board Assembly
C	60102-NES	Piston Assembly for NES
D	60125	Seal and Spacer Kit
E	NE-BW HOUSING	Drain Housing, Blank DLFC
G	EM-1	Meter Module (includes cable)
H	60040SS	¾" Stainless Steel Bypass Valve
	60041SS	1" Stainless Steel Bypass Valve (Optional: add "-1S" to model number)
1	42349	Motor, 24v/60hz, 2 RPM
2	NE-TRANS	Transformer, 110v Input--24v Output
3	13304	O-Ring, Distributor, -121
4	12281	O-Ring, Tank, -338
9	12092	Flow Control Washer, 5.0 GPM (for model CS-1 & CS-1.5)
	12408	Flow Control Washer, 7.0 GPM (for model CS-2)
10	NE-DRAIN ELB	Drain Elbow, Quick Connect x ½" barbed
11	NE-DRAIN CLIP	Quick Release Clip, Drain Elbow
12	NE-CON	Connector O-Ring
13	14105	Bypass Valve Seal, Single Lever
14	NE-CLIPS	Clips & Screws Set for NE, FE
15	18280-02	Top Screen, Bayonet Style

Troubleshooting

PROBLEM	CAUSE	SOLUTION
1. Filter fails to regenerate	A. Electrical service to unit has been interrupted	A. Ensure permanent electrical service to unit (switch, circuit breaker, plug, etc.)
	B. Faulty control board	B. Replace control board
	C. Defective drive motor	C. Replace drive motor
	D. Improper unit programming	D. Check programming and correct as needed
2. Sediment, taste or odor present in treated water	A. Bypass valve is open	A. Close bypass valve
	B. Cross connect in plumbing	B. Verify no cross connects exist
	C. Actual flow rates higher than system specified flow rates	C. Replace filter with a larger unit or limit flow
	D. Carbon filter media is exhausted	D. Re-bed the filter
	E Leak at distributor tube	E. Check length of distributor tube and pilot tube o-ring
	F. Internal valve leak	F. Replace piston and seals/spacer kit
	G. Sediment is smaller than 20 microns	G. Install a 5 micron sediment filter after the filter
3. Unit regenerates continually	A. Faulty circuit board	A. Replace the front panel assembly
4. Loss of water pressure	A. Filter too small for application	A. Check application requirements and resize water softener as required
	B. Foreign material buildup in plumbing system or filter	B. Clean or replace plumbing, as necessary, or reprogram the filter for more frequent regeneration
5. Water leaks to drain continuously	A. Foreign material in control valve	A. Remove and inspect piston and seal kit. Replace as necessary
	B. Drive motor stopped during regeneration cycle	B. Check for obstruction in piston and seals. Replace drive motor. Inspect condition of power head gears
	C. Control valve continuously cycling	C. See Problem #3
	D. Internal valve seal leak	D. Replace seals and/or piston

Electrical Connections



TEN YEAR LIMITED WARRANTY

WARRANTY — First Sales, LLC warrants this water conditioner against any defects that are due to faulty material or workmanship during the warranty period. This warranty does not include damage to the product resulting from accident, neglect, misuse, misapplication, alteration, installation or operation contrary to printed instructions, or damage caused by freezing, fire, flood, or Acts of God. From the original date of consumer purchase, we will repair or replace, at our discretion, any part found to be defective within the warranty period described below. Purchaser is responsible for any shipping cost to our facility and any local labor charges.

- One year on the entire water conditioner
- Five years on the control valve
- Five years on the salt storage tank
- Ten years on the mineral tank

GENERAL CONDITIONS — Should a defect or malfunction occur, contact the dealer that you purchased the product from. If you are unable to contact the dealer, contact First Sales, LLC at (260) 693-1972. We will require a full description of the problem, model number, serial number, date of purchase, and selling dealer's business name and address.

We assume no warranty liability in connection with this water conditioner other than specified herein. This warranty is in lieu of all other warranties, expressed or implied, including warranties of fitness for a particular purpose. We do not authorize any person or representative to assume for us any other obligations on the sale of this water conditioner.

FILL IN AND KEEP FOR YOUR RECORDS

Original Purchaser	Date of Purchase	Model #	Serial #
Address of Original Installation		City	State
Dealer Purchased From	Dealer Address	City	State

First Sales, LLC
12630 U.S. 33 North, Churubusco, IN 46723