



Installation Instructions and Owner's Manual

XB & XB-ARSENIC Series Backwashing Filter Systems



First Sales, LLC

12630 US Highway 33 N, Churubusco, IN 46723
Phone (260) 693-1972 Fax (260) 693-0602

XB Series Instruction Manual 190403.docx

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Pre-installation Instructions

Description of the backwashing filter

The XB systems include a filtration tank (with gravel and distributor) and a backwashing control valve with bypass. Filtration media for use with the XB systems are purchased separately and selected from the following types:

PART	MEDIA	VOLUME	PACKAGE	SHIP. WT.
NUMBER	TYPE / APPLICATION	(CU. FT.)		(LBS.)
A10	ACTIVATED CARBON TASTE & ODOR REDUCTION	1.00	BAG	29
A05P		0.50	PAIL	14
ACC10	CATALYTIC CARBON CHLORAMINE REDUCTION	1.00	BAG	29
ACC05P		0.50	PAIL	14
B10	BIRM REDUCTION OF IRON AND MANGANESE	1.00	BAG	41
B05P		0.50	PAIL	20
C05P	CALCITE SELF LIMITING ACID NEUTRALIZER	0.50	PAIL	45
FA10	FILTER – AG SUSPENDED SOLIDS REDUCTION	1.00	BAG	24
FA05P		0.50	PAIL	12
ZEO10	ZEOLITE SUSPENDED SOLIDS/ SEDIMENT REDUCTION	1.00	BAG	25
Z05P		0.50	PAIL	50
N05	NEUTRALIZER ACID NEUTRALIZER	0.50	PAIL	43
ARSENIC-10	ARSENIC REDUCTION REPLACEMENT MEDIA for XB- ARSENIC FILTERS	1	BAG	50
QFS05P	QUARTZ FILTER SAND (.45mm x .55mm) SEDIMENT REDUCTION	0.50	PAIL	51

The XB-ARSENIC systems include a filtration tank (with gravel and distributor), arsenic reduction media (shipped separately) and a backwashing control valve with bypass. Media is included only with XB-ARSENIC units.

Pre-installation Instructions (cont.)

Successful Application

Any filter media may have specific limitations and/or requirements for successful application. A water sample should be submitted to First Sales for analysis and recommendation by Customer Service.

XB-ARSENIC IMPORTANT: Contact First Sales technical services to assist with proper sizing based on the level of arsenic in the water and the flow rate requirement. The arsenic test results must be from a certified laboratory to ensure accuracy. Other water quality information is required as well, and will determine if pre-treatment equipment is required to meet the influent water quality pre-requisites for the XB-ARSENIC system: Iron < 0.1 ppm, Manganese < 0.01 ppm, pH < 8.0, Silica < 30 ppm, Hardness > 5 gpg is preferred but not required unless silica is present.

Once the system has been installed, an arsenic test should be done to determine if the arsenic level is being reduced sufficiently (10 ppb or less, per the EPA MCL) and should be tested regularly (every 6 months recommended) to ensure the system is functioning properly and to indicate when the media has become exhausted.

Time of Backwash

Periodically the control valve will go through a backwash cycle. This cycle is factory preset to 12:00 A.M. flushing the accumulated sediment and/or precipitant to the drain. After the backwashing process the unit is now prepared for the next period of service.

Water Supply

This filter will function properly when the water supply is furnished by a jet pump, submersible pump, variable speed (constant pressure) pump or community water supply. As with all other filter systems, however, it is imperative that the well pump provides enough flow rate for the filter to adequately backwash. In order to ensure sufficient backwash flow rate the following pumping rate test should be performed prior to installing the backwashing filter.

1. Make certain no water is being drawn in the house.
2. Open spigot nearest pressure tank.
3. When well pump starts, close spigot and measure time (in seconds) to refill pressure tank (well pump turns back off). This is **Cycle Time**.
4. Using a container of known volume, draw water from pressure tank and measure how many gallons until the pump turns back on again. This is **Draw Down**.
5. Calculate pumping rate by dividing draw down by cycle time and multiplying by 60.

$$\frac{\text{Draw Down (gallons)}}{\text{Cycle Time (seconds)}} \times 60 = \text{Pumping Rate (gallons per minute)}$$

Example: Draw down is 8 gallons
Cycle time is 65 seconds

$$\frac{8 \text{ gallons}}{65 \text{ seconds}} \times 60 = 7.4 \text{ gpm (gallons per minute)}$$

Pre-installation Instructions (cont.)

Location Considerations

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

1. The backwashing filter must be installed after the pressure tank (private well system only).
2. The system 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 (refer to unit specifications). An air gap should be provided between the backwashing filter drain line and plumbing drain.
3. All water conditioning equipment should be installed at least 10' prior to the water heater. Water temperatures exceeding 100°F can damage the internal components of the control valve and filter tank. 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. Water pressure must not exceed the range of 25 - 100 psi.
5. The system must not be subject to freezing temperatures.
6. The control valve requires 115/120 V, 60 Hz electricity from a three prong outlet that is not wired to a switch.
7. Never install a cartridge type filter prior to the backwashing filter. Any cartridge or in-line filter (if desired) may be installed after the backwashing filter. This will prevent restricting the water flow and pressure available for backwash.
8. 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 filter.

Typical Installation

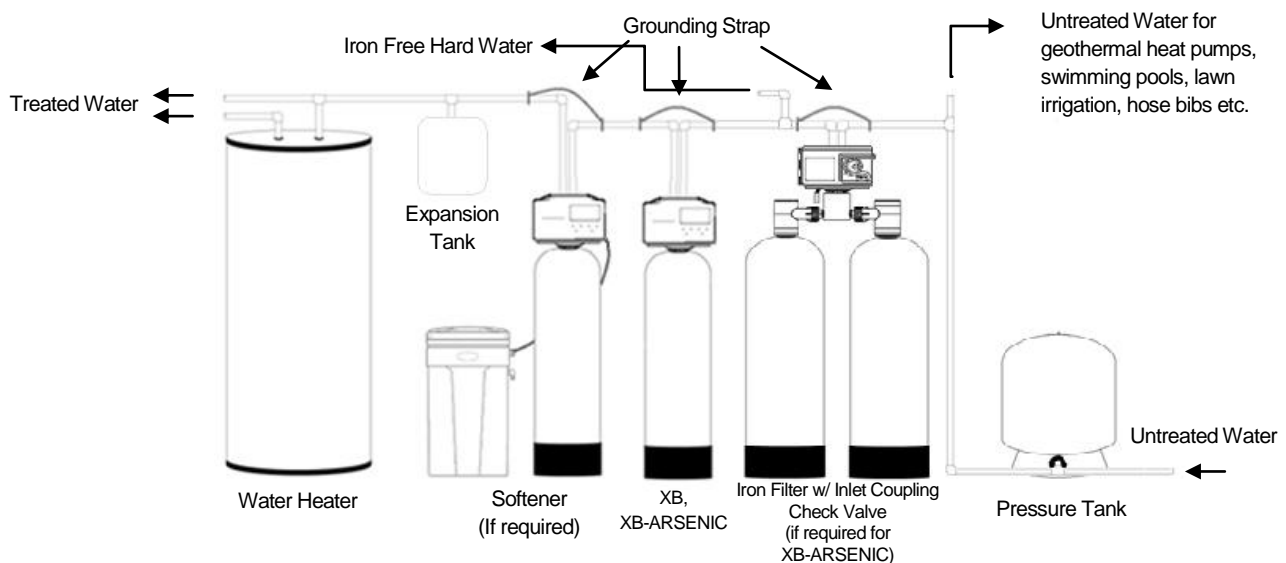


FIGURE 1: Typical Installation

Detailed Installation Instructions

- STEP 1:** Carefully remove all components from packaging. **DO NOT DISCARD PACKAGING** until all water filter system components and fittings have been located.
- STEP 2:** “-DH” suffix models fill media through dome hole & skip to step 4. With the backwashing filter unit in the upright position, remove the control valve from the mineral tank being **careful to not pull the distributor out of the gravel at the bottom of the tank**.
- STEP 3:** Cover the top of the distributor tube with the included red cap and, using the included blue media funnel, pour filter media(s) into the mineral tank. If using multiple filter media types, load in the order of heaviest (most dense) to lightest (least dense). 12” – 14” of space **MUST** be left empty at the top of the mineral tank to allow for media bed expansion during backwash and to prevent filter media from being discharged through the drain line.
- STEP 4:** Use a garden hose or bucket to fill the media tank with water. **Carbon or Filter Ag should soak for at least 2 hours before executing STEP 11 and the other remaining steps.**
- STEP 5:** Clean mineral tank (or dome hole) threads to remove any filter media. If “-DH” suffix model, replace dome plug. Otherwise, remove red cap from distributor tube and reinstall control valve by threading it securely onto the mineral tank. (O-ring seal; **HAND TIGHTEN ONLY!**)
- STEP 6:** Attach the 90 degree adapters to the inlet and outlet of the control valve (if desired). Hand tighten union nuts. Do not over tighten. Attach bypass valve to the inlet/outlet of control valve or of the 90 degree adapters (if installed).
- STEP 7:** Shut off water at main supply. Relieve pressure by opening nearest faucet. **SHUT OFF POWER OR FUEL SUPPLY TO WATER HEATER.**
- STEP 8:** 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.
- STEP 9:** Use the provided polyethylene tubing (**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. **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 10:** Plug the filter into an un-switched electrical outlet. Ensure control valve is in the “Service” position (time of day is displayed on the screen {refer to page 5 for Home Screen Display}). Place bypass valve in the “Bypass” position (refer to Figure 2 below). Open main supply valve or turn on power to pump on private well systems.

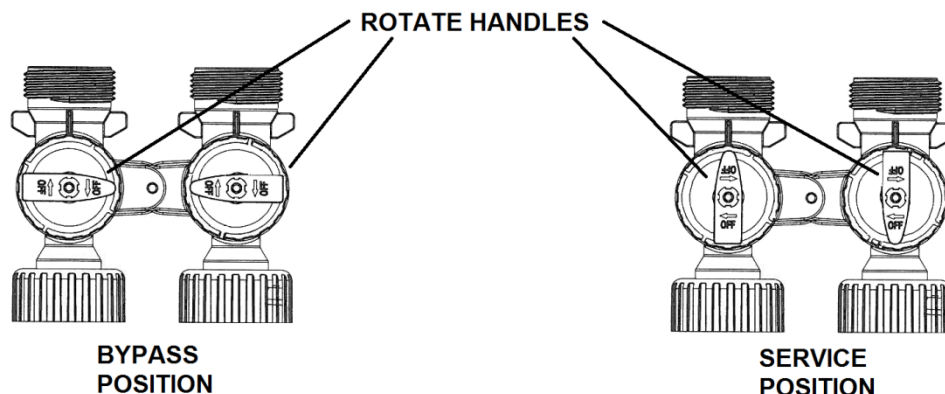


FIGURE 2: Bypass Valve Operation

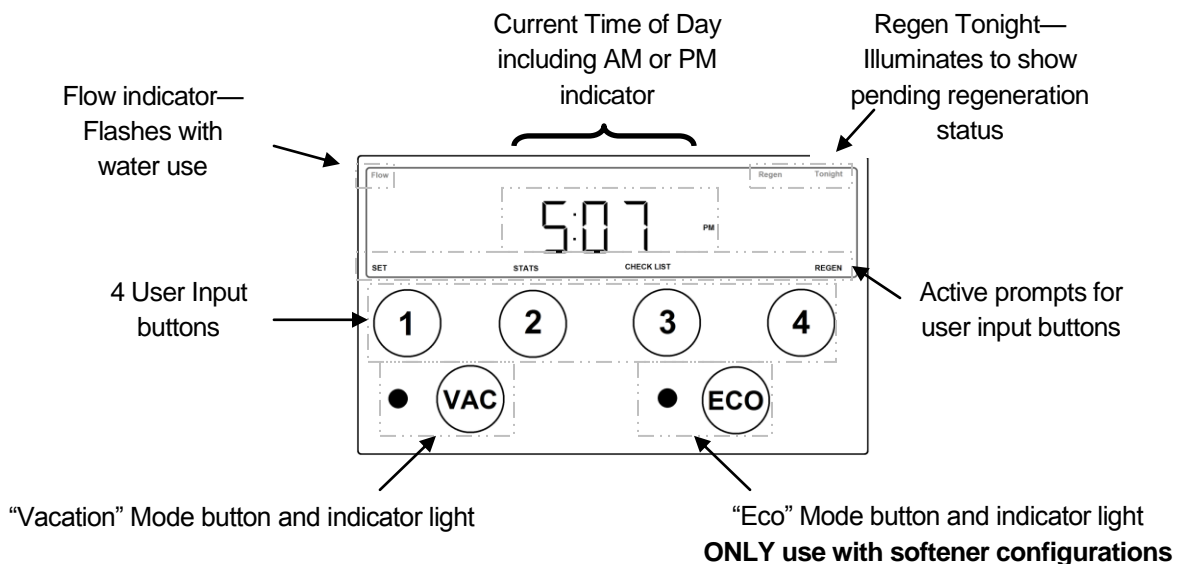
Detailed Installation Instructions (continued)

- STEP 11:** Hold down the REGEN button until the motor starts. This will advance the control valve to the backwash position. Once the backwash cycle countdown begins, unplug the power from the control valve to keep it in the backwash position.
- STEP 12:** Rotate the INLET knob of the bypass valve $\frac{1}{4}$ of the way to Service allowing unit to fill slowly. This will slowly purge trapped air and carbon media fines to the drain. Be patient. When all air and carbon fines have been purged from the system and only water is running to the drain; slowly rotate the inlet knob of the bypass valve to the "Service" position. Stop momentarily if air or media fines appear in the drain and allow it to clear. Repeat until fully in the service position and then turn the outlet knob to the service position also.
- STEP 13:** Plug the power cable back in. The unit will return to service and display the Home Screen.
- STEP 14:** Check for leaks and correct as necessary.
- STEP 15:** Turn power or fuel supply back on to water heater.
- STEP 16:** Press the SET button to set the current time of day on the timer (note AM and PM).

Media Replacement

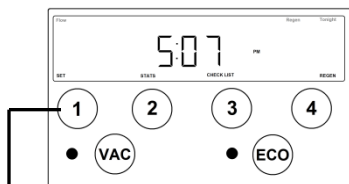
If media replacement is ever required, a wet/dry shop vacuum can be used to remove the filter media from the filter tank. **CAUTION:** There is a layer of gravel under the filter media. Make sure that only filter media is extracted. The filter media should then be replaced by new media. Ensure that there is a minimum of 14 - 18" (depending on the type of media) from the media to the top of the tank to allow room for expansion during backwash cycle. The original start up and flushing procedure should be repeated with the new media.

Display and Operation - Home Screen



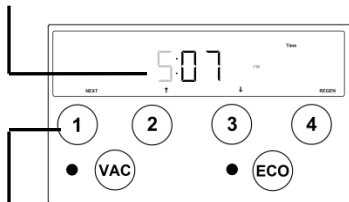
The active prompts displayed at the bottom of the circuit board indicate the function of each user button.

Display and Operation - Setting Time



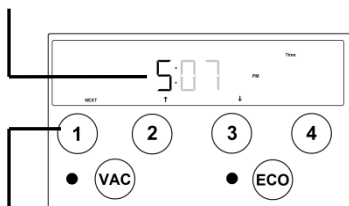
"Home" screen displays current time-of-day.

Press 'SET' button to access time set screen.



Using '↑' and '↓', set the current time-of day hours. Note the AM and PM indicator and set the time accordingly.

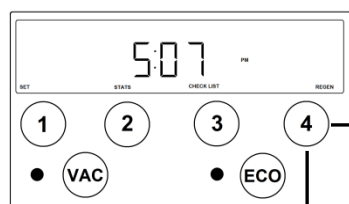
Press 'NEXT' button to set current minutes.



Using '↑' and '↓', set the current minutes.

Press 'NEXT' button to save changes and return to 'Home' screen.

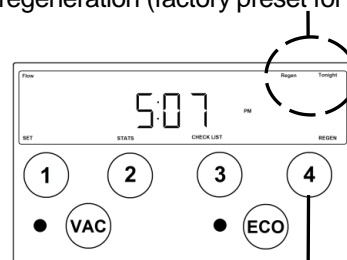
Regeneration



Momentarily pressing and releasing the 'REGEN' button will cause the Regen Tonight indicator to illuminate on the top right side of the display. The regeneration process will begin at the next programmed time-of-regeneration (factory preset for 12:00 AM)

Pressing and HOLDING the 'REGEN' button for approximately 3 seconds will initiate an immediate regeneration.

NOTE: The regeneration cycle will disable the 'Regen Tonight' indicator (if illuminated). The regeneration cycle will also reset the gallons remaining until next regeneration (applies to softener configurations only) and the days override interval.

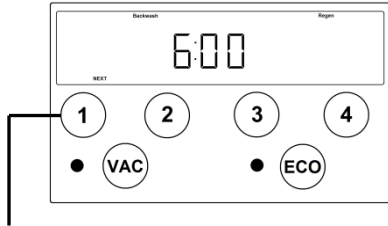


Momentarily pressing and releasing the 'REGEN' button again will cancel the delayed regeneration cycle.

Regeneration Continued

The following cycles are listed in the factory programmed sequence. Each cycle in the process may be advanced without waiting for the programmed cycle duration, for installation, troubleshooting, or maintenance purposes by pressing the 'NEXT' button.

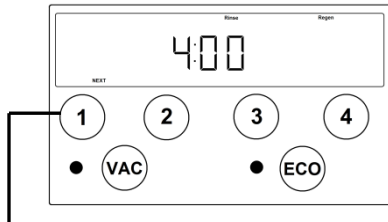
Cycle: BACKWASH



Press 'NEXT' button to advance to Rinse Cycle.

1. The Backwash and Regen indicators will be illuminated on the display.
2. The control valve will advance to the Backwash position.
3. The cycle duration will begin to count down on the display once the control valve is in the proper position.
4. Water will flow up through the filter media then out the drain flushing accumulated solids.
5. The control valve has an internal bypass to allow untreated water to be used for service during this cycle.

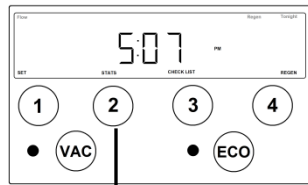
Cycle: RINSE



Press 'NEXT' button to return control to the HOME position.

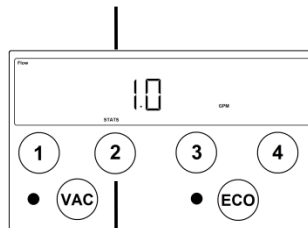
1. The Rinse and Regen indicators will be illuminated on the display.
2. The control valve will advance to the Rinse position.
3. The cycle duration will begin to count down on the display once the control valve is in the proper position.
4. Water will flow down through the filter media then out the drain preparing the filter bed for service.
5. The control valve has an internal bypass to allow untreated water to be used for service during this cycle.

Display and Operation - Stats



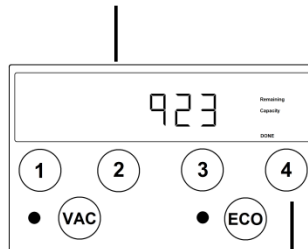
Pressing 'STATS' button advances screen to current flow rate.

"Home" screen displays current time-of-day. The flow indicator will flash if water is being used. The "Regen Tonight" indicator will be illuminated if the filter is queued for regeneration.



"Current Flow" screen displays the flow rate that is currently being treated by the softener (if any). The word FLOW is displayed on top left corner of screen whether water is being used or not. Display registers flow rate in gallons per minute. **DOES NOT APPLY to XB Series units.**

Pressing 'NEXT' button advances screen to volume remaining.

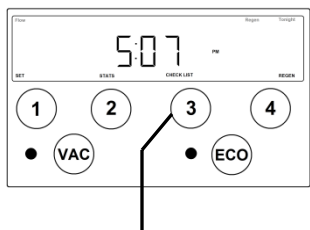


"Volume remaining" screen displays the number of gallons that can be treated before the scheduled regeneration cycle when the control valve is configured for a softener. **DOES NOT APPLY to XB Series units.**

Pressing 'DONE' button returns display to Home Screen.

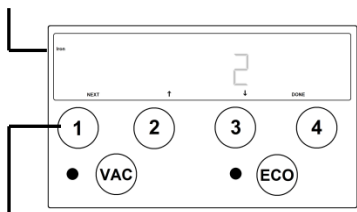
Display and Operation – Installer Settings – Cycles

The installer settings provide access to the control valve cycle times. The factory settings have been programmed for maximum efficiency. Altering the factory programmed cycles will affect the systems performance. NOTE: Extreme caution must be taken when adjusting the control valve cycles. Decreasing a cycle time or completely deleting the cycle may cause the system to stop functioning.



“Home” screen displays current time-of-day.

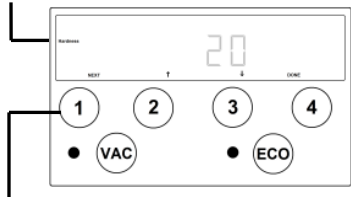
Press and HOLD ‘CHECKLIST’ button for approximately 3 seconds to access installer settings.



Ensure the **Iron** indicator is illuminated on the left side of the display and using the ‘↑’ and ‘↓’ buttons set the incoming iron concentration.

NOTE: This setting only applies if the control valve is configured for a softener. **It should be set to “0” for the XB Series units.**

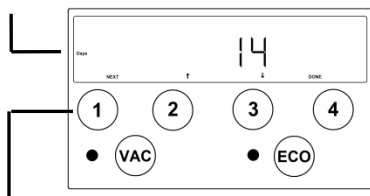
Press ‘NEXT’ button to set incoming HARDNESS level.



Ensure the **Hardness** indicator is illuminated on the left side of the display and using the ‘↑’ and ‘↓’ buttons set the incoming hardness level.

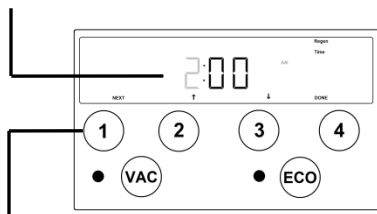
NOTE: This setting only applies if the control valve is configured for a softener. **It should be set to “0” for the XB Series units.**

Press ‘NEXT’ button to set regeneration DAYS OVERRIDE interval



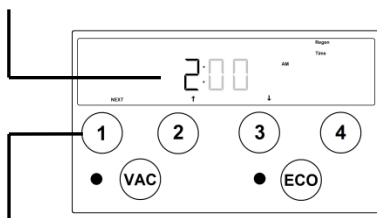
Using ‘↑’ and ‘↓’, set the desired day override interval. The regeneration day override function will cause the filter to regenerate after a designated number of days. The override interval will reset after every regeneration cycle whether initiated manually or by volume. The day override function will be disabled if the VACATION mode is active. **This should be set to “3” for XB Series units.**

Press ‘NEXT’ button to set REGENERATION TIME hours.



Ensure the **Regen Time** indicator is illuminated. Using ‘↑’ and ‘↓’, set the desired time of regeneration hours. Note the AM and PM indicator and set the time accordingly. **This should be set to “12 AM” for XB Series units.**

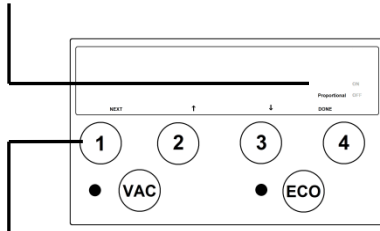
Press ‘NEXT’ button to set REGENERATION TIME minutes.



Ensure the **Regen Time** indicator is illuminated. Using ‘↑’ and ‘↓’, set the desired time of regeneration minutes. **This should be set to “00” for XB Series units.**

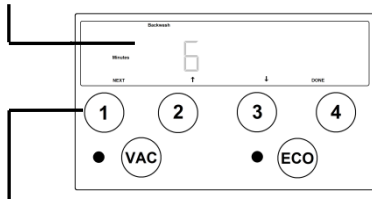
Display and Operation – Installer Settings – Cycles (continued)

Press 'NEXT' button to set PROPORTIONAL BRINING.



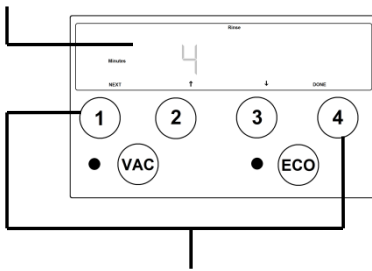
Using '↑' and '↓', the Proportional Brining function can be set to ON or OFF. This feature can also be manually toggled on or off with the ECO button on the face of the front panel. **IMPORTANT: This feature only applies when the control valve is configured for a softener. This feature must be turned off for XB Series units. Otherwise, the unit will not regenerate.**

Press 'NEXT' button to set cycle #1 duration.



Ensure the **Backwash** and **Minutes** indicators are illuminated. Using '↑' and '↓', set the desired length of time for BACKWASH cycle

Press 'NEXT' button to set cycle #2 duration.

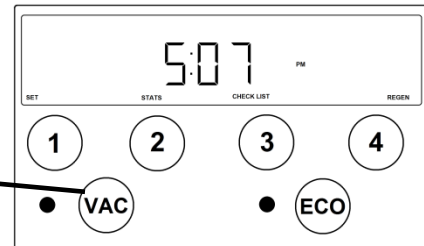


Ensure the **Rinse** and **Minutes** indicators are illuminated. Using '↑' and '↓', set the desired length of time for RINSE cycle.

After all cycles have been set press either 'NEXT' or 'DONE' button to return to Home Screen.

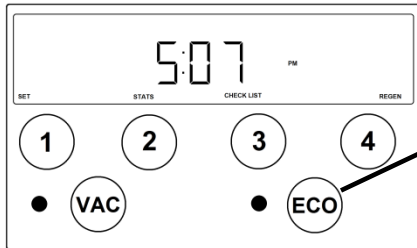
Vacation Mode

The VACATION mode may be activated or deactivated by pressing the VAC button on the front panel. The red LED light will be illuminated when the vacation mode is activated.



Once activated, the vacation mode will prevent the water filter from regenerating. This may be used if the house will not be occupied for an extended period of time. The vacation mode is initiated by pressing the VAC button on the front panel. Vacation mode must be manually deactivated with XB units. **Vacation mode should not be activated if using Calcite or Neutralizer media, to keep the media from "cementing".**

ECO Mode



The ECO mode may be activated or deactivated by pressing the ECO button on the front panel. The green LED light will be illuminated when the ECO mode is activated.

The ECO Mode MUST only be used when the control valve is configured for a water softener.

This feature does not apply to XB units.

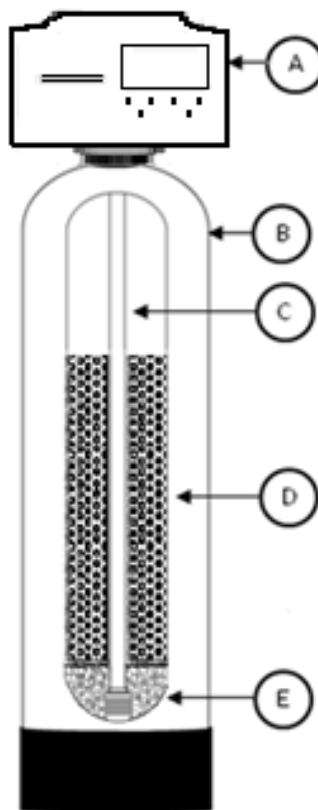
Specifications

Description	Model Number			
	XB1044 XB1044ARSENIC	XB1054	XB1248 XB1248ARSENIC	XB1354
Volume, cu. ft. Filter media (See page 2)	1.0	1.5	2.0	2.5
Gravel Underbed, lbs.	20	20	25	30
Operating Flow Rate, gpm				
Cont. (no duration limit, 5 gpm/ft ²)	2	3	4	5
Svc. (intermittent flow, 10 gpm/ft ²)	5	6	8	9
Peak (10 min or less, 15 gpm/ft ²)	8	8	12	14
Regen. Flow Rates, gpm				
¹ Backwash & Rapid Rinse	5	5	7	7
²Connection Size, Type	¾" MNPT	¾" MNPT	¾" MNPT	¾" MNPT
Factory Programming Settings				
Day Override Setting	3	3	3	3
Regeneration Time	12:00 AM	12:00 AM	12:00 AM	12:00 AM
Backwash (minutes)	8	8	8	8
Fast Rinse (minutes)	4	4	4	4
Total Water Used, gallons	60	60	84	84
Dimensions, in.				
Mineral Tank, diameter x height	10 x 44	10 x 54	12 x 48	13 x 54
Overall, depth x width x height: (less 90° close installation adapters)	21 x 11 x 55	21 x 11 x 65	21 x 12 x 59	21 x 13 x 59
(with 90° close installation adapters)	17 x 11 x 59	17 x 11 x 69	17 x 12 x 63	17 x 13 x 69
Approximate Ship Wt., lbs.	53	56	61	82

¹Some media may require a different DLFC to be installed

²Add a "-1" suffix to model number for 1" MNPT connection

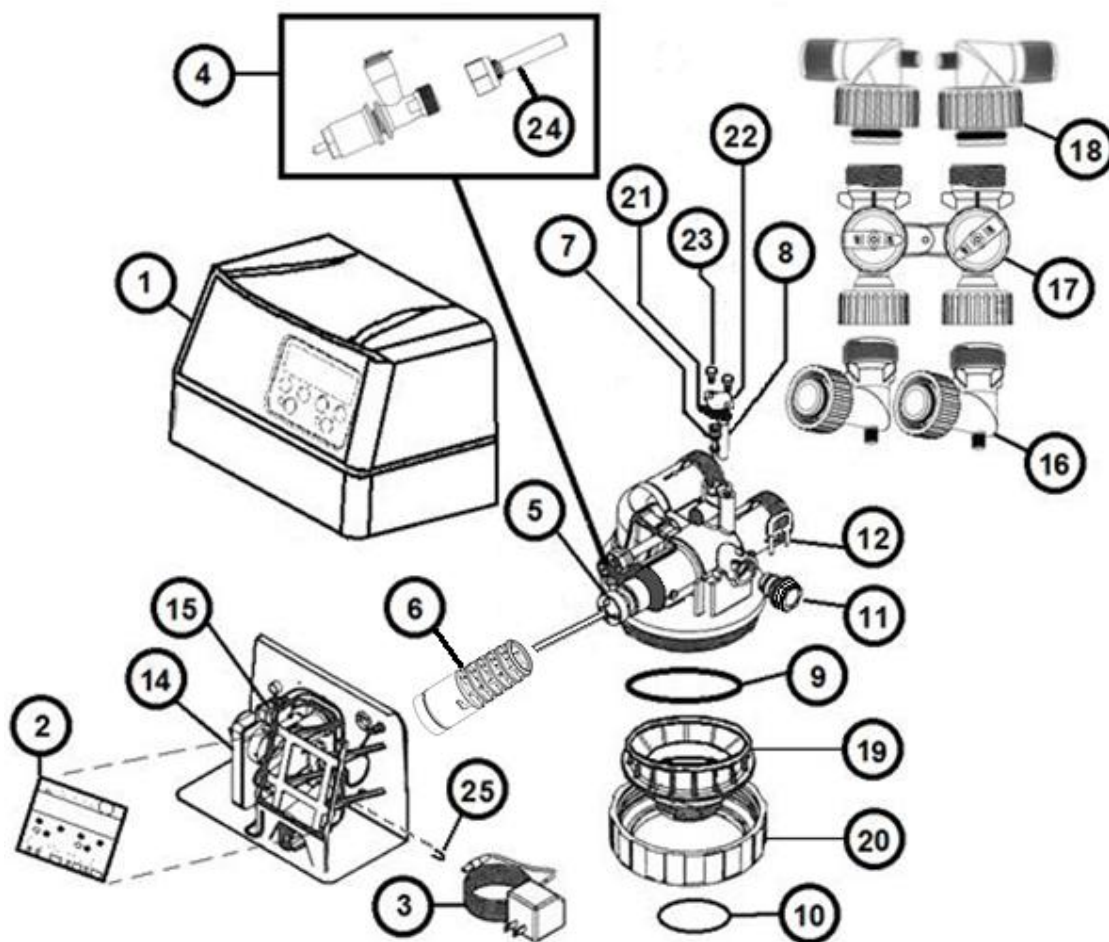
Component Parts Breakdown



REF	DESCRIPTION	MODEL NUMBER			
		XB1044 XB1044ARSENIC	XB1054	XB1248 XB1248ARSENIC	XB1354 XB1354ARSENIC
A	Control Valve	XB1044 VLV ASSY L/BP	XB1054 VLV ASSY L/BP	XB1248 VLV ASSY L/BP	XB1248 VLV ASSY L/BP
B	Mineral Tank	MTP1044N ¹ MTP1044DOME	MTP1054N ¹ MTP1054DOME	MTP1248N ¹ MTP1248DOME	MTP1354N ¹ MTP1354DOME
C	Distributor	D100S-48	D100S-54	D100S-48	D100S-54
D	Media Qty	1 cu ft	1.5 cu ft	2 cu ft	2.5 cu ft
E	1/4" x 1/8" gravel	QC20	QC20	QC20	1.5 – QC20
NOT SHOWN	90 deg. Adapters, bypass valve, 1" elbows & 3/4" compression fittings	Refer to Control Valve Breakdown on following pages.			
NOT SHOWN	Optional Tank Jacket	TJZ1054-BK	TJZ1054-BK	TJZ1252-BK	TJZ1252-BK
NOT SHOWN	Distributor Adapter	SA900	SA900	SA900	SA900
NOT SHOWN	Top Screen	FHS101	FHS101	FHS101	FHS101

¹Only applies to models with "-DH" suffix.

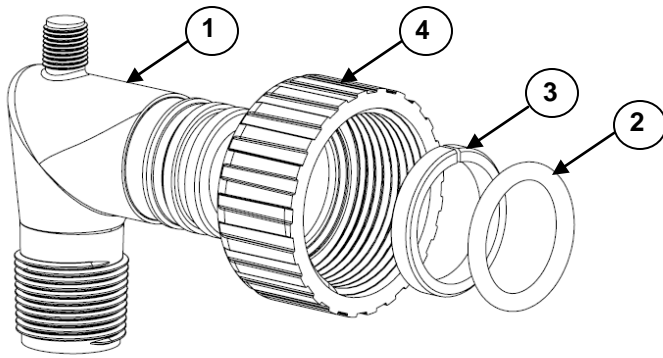
Control Valve Parts Breakdown



REF #	Part Number	Description
1	FCC-950	Front Cover
2	PCB-3486	Circuit Board (specify unit model)
3	DC-12	DC Adaptor with cord
4	BV910-BW	Brine Valve Assembly for BW Filt.
5	CAB945	Piston and Rod Assembly
6	TSS900	Seal Cartridge Assembly
7	RVS932	Injector Assembly w/o-rings
8	FS165	Injector Filter Screen
9	OR344	Valve to Tank Adaptor O-Ring
10	OR337	Tank O-ring
11	FC902	Drain Fitting, 3/4" MNPT (NEW)
	FC901	Drain Fitting, 1/2" FPT (OLD)
12	FC103	Drain Fitting Retainer Clip
14	MCA945	Motor and Cam Assembly (includes nut micro switches)
15	7779K420-MICRO	Micro Switch (2 required)

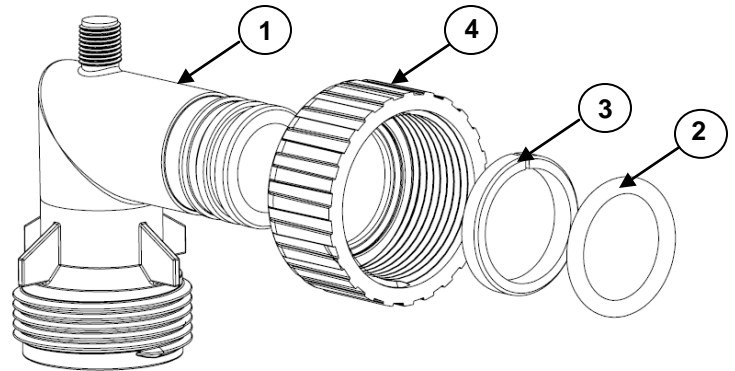
REF #	Part Number	Description
16	EBA910	90° Bypass Elbow
17	BP 213	Bypass Valve
18	EBA975	¾" NPT Elbow (includes nut and o-ring)
	EBA900	1" NPT Elbow (includes nut and o-ring)
	EBA915	1 ½" NPT Elbow (includes nut and o-ring)
19	TAF131	Tank Attachment
20	TN101	Tank Nut
21	VG145	Venturi Gasket
22	VP145	Venturi Plate
23	VB145	Venturi Hex Head Bolt, 18-8 SS 1/4-20 x 1/2"
24	QCF987	Quick Connect Flow Assembly
25	HPC-075	Hair Pin Clip
NOT SHOWN	GL463412	Drain Fitting, Hose Barb, 90° Elbow, 3/4" FPT x 1/2" barb (NEW)
	12338	Drain Fitting, Hose Barb, 90° Elbow, 1/2" MNPT x 1/2" barb (OLD)

Installation Fitting Assemblies



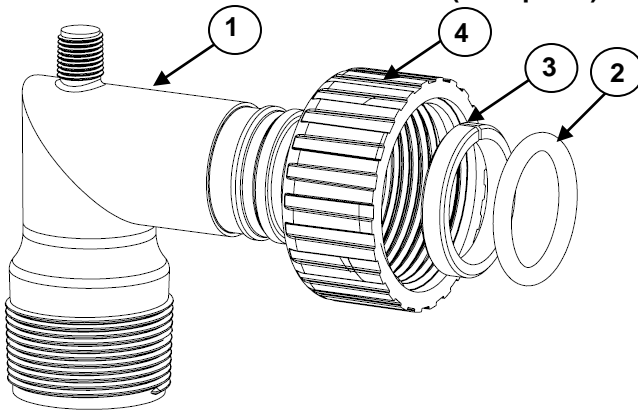
1" PVC MALE NPT ELBOW			
Ref	Part #	Description	Qty
	EBA900	1" Elbow Assembly	1*
1	EB100	1" Elbow	1
2	OR323	O-ring, -323	1
3	C 101	Split Ring Retainer	1
4	C 102	Connector Nut	1

(*2 required)



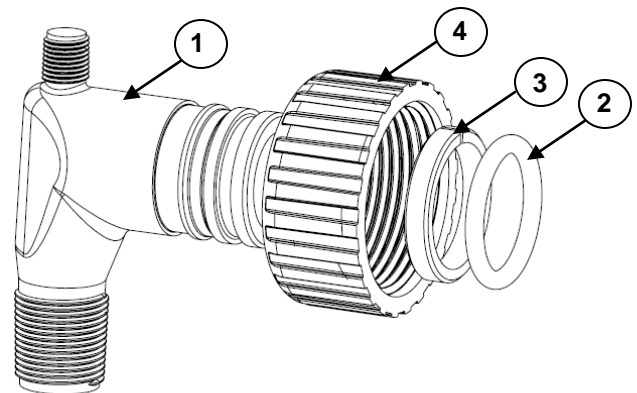
90 DEGREE BYPASS ELBOW			
Ref	Part #	Description	Qty
	EBA910	90° Bypass Elbow Assembly	1*
1	EB175	Bypass Elbow	1
2	OR323	O-ring, -323	1
3	C 101	Split Ring Retainer	1
4	C 102	Connector Nut	1

(*2 required)



1-1/2" PVC MALE NPT ELBOW			
Ref	Part #	Description	Qty
	EBA915	1-1/2" Elbow Assembly	1*
1	EB150	1.5" Elbow	1
2	OR323	O-ring, -323	1
3	C 101	Split Ring Retainer	1
4	C 102	Connector Nut	1

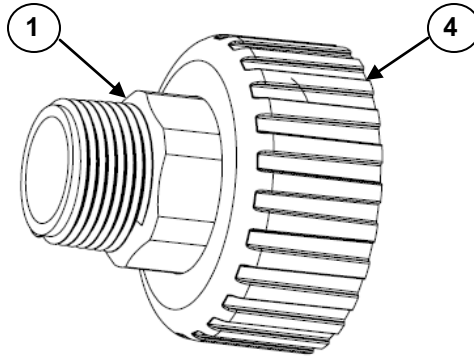
(*2 required)



3/4" PVC MALE NPT ELBOW			
Ref	Part #	Description	Qty
	EBA975	3/4" Elbow Assembly	1*
1	EB750	3/4" Elbow	1
2	OR323	O-ring, -323	1
3	C 101	Split Ring Retainer	1
4	C 102	Connector Nut	1

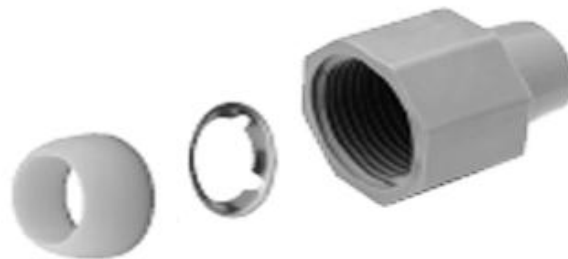
(*2 required)

Installation Fitting Assemblies (cont.)



1" STRAIGHT FITTING			
Ref	Part #	Description	Qty
	TC204-1	1" Straight Fitting Assembly	1*
1	TC101-1	1" Straight	1
2	OR323	O-ring, -323 (not shown)	1
3	C 101	Split Ring Retainer (not shown)	1
4	C 102	Connector Nut	1

(*2 required)



3/4" QUICK CONNECT			
Ref	Part #	Description	Qty
	QFNCR4	3/4" Quick Connect Assembly	1*

(*2 required)

Troubleshooting

PROBLEM	CAUSES	SOLUTIONS
Excessive pressure drop through filter	A) Filter not backwashing B) Filter bed loaded with sand C) Drain line restricted D) Top Screen Fouled E) Control Valve plugged with debris	1) Check drive motor and replace if faulty 2) Ensure uninterrupted power supply 3) Check Backwash frequency setup 4) Verify sediment being removed is less dense than the filter media and install a "Spin-Down" type sediment filter ahead of the filter to remove well sand 5) Verify adequate pumping rate for backwash 6) Check drain line for restriction: frozen, plugged, kinked, exceeds 15', overhead installation, flexible drain line, drain line diameter too small 7) Remove and clean top screen 8) Disassemble and clean control valve
Contaminant not being properly removed	A) Leaking bypass valve B) Internal valve leak C) Distributor not seated properly in control valve D) Water usage flow rate exceeds filter specifications E) Media is fouled or has reached its adsorptive capacity	1) Verify bypass valve is in service position 2) Replace piston, spacers and seals 3) Verify distributor tube seated securely in control valve body 4) Verify actual water usage flow rates against system specifications 5) Increase length of backwash and rinse cycles 6) Re-bed the filter with new media
Loss of media to drain	A) Air in system B) Insufficient soak time before first backwash after installing media	1) Eliminate the source of air in the system 2) Check media level and adjust if necessary
Howling or whistling noise during regeneration	A) Inadequate drain line diameter or drain line restricted	1) Reconfigure or replace drain line
Control Valve cycles continually	A) Faulty switch B) Faulty circuit board C) Faulty timer motor	1) Replace faulty switch 2) Replace faulty circuit board 3) Replace faulty timer motor
Continuous flow of water to drain	A) Loss of electrical power during regeneration B) Program setup incorrectly C) Debris in control valve D) Internal leak in control valve E) Drive motor faulty	1) Ensure electrical outlet is functioning 2) Verify timer programming 3) Disassemble and clean control valve 4) Replace seals and/or piston 5) Replace faulty drive motor
Media in the service lines	A) Unit installed backwards	1) Re-plumb the water lines so that the supply side of the line is connected to the inlet of the bypass and the service side is connected to the outlet.

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
- 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