

WS1 Filox Installation & Start-Up Guide

Thank you for purchasing a Clean Water System! With proper installation and a little routine maintenance your system will be providing treated water for many years.

Your new system comes with a printed Clack Service manual, which along with this start-up guide will help guide you in the installation and start-up of your new system. The Clack service manual covers other types of systems as well such as water softeners and filters, so there may be information in your Clack service manual that does not pertain to your system. Please review this start-up guide entirely before beginning to install your system and follow the steps outlined for best results.

FILOX MEDIA CONTAINS DUST.

USE PAPER MASK AND VENTILATE TO AVOID BREATHING DUST.



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Packing List by Model

1.0 Cubic Foot Filox:

Quantity	Description
1	WS1 Clack Backwash Control Valve
1	Pipe connector kit (either 1" or ¾")
1	WS1 Bypass valve
1	Enpress Vortech filter tank with distributor tube installed
1	Media funnel
1	12 lbs Gravel
2	½ cubic foot boxes of Catalox (Filox) filter media

1.5 Cubic Foot Filox:

Quantity	Description
1	WS1 Clack Backwash Control Valve
1	Pipe connector kit (either 1" or ¾")
1	WS1 Bypass valve
1	Enpress Vortech filter tank with distributor tube installed
1	16 lbs Gravel
3	½ cubic foot boxes of Catalox (Filox) filter media

2.5 Cubic Foot Filox:

Quantity	Description
1	WS1 Clack Backwash Control Valve
1	Pipe connector kit (either 1" or ¾")
1	WS1 Bypass valve
1	Enpress Vortech filter tank with distributor tube installed
1	Media funnel
1	20 lbs Gravel
5	½ cubic foot boxes of Catalox (Filox) filter media

Pre-Installation

1. Review your packing list and make sure you have received all the parts before beginning installation.
2. If you are going to be turning off the water to the house and you have an electric water heater, shut off the power to the water heater before beginning installation in case water heater is accidentally drained.
3. Pick a suitable location for your filter system on a dry level spot where it won't be exposed to freezing temperatures. A minimum of 20 PSI is required. Maximum pressure is 90 PSI.
4. Get all of your plumbing parts together before beginning installation. Installation typically takes 3 to 5 hours. However after installation the Filox Filox Filter must be allowed to run through a complete backwash and rinse cycle.
5. After the system is installed and running, your water may be discolored, or full of sediment or rust, particularly if this is older or corroded piping. Typically this clears up over a day or two.

Best Practices for Piping & Drain Installation

1. See typical installation (see Fig 2). The Filox filter is installed after the pressure tank.
2. Make sure to follow to connect the in pipe to the Clack WS1 inlet and the outlet to the outlet (see Fig 2). As you face the Clack WS1 control from the front, the water enters on the right and exits on the left. From the back (see Fig 2) the water enters on the left. The inlet and outlet are attached to the bypass valve which is marked with arrows as well.
3. Make sure there is a working gate or ball valve before the Clack WS1 Filox filter and also one after as shown in the diagram Fig 2. The pressure gauges are optional and perhaps not necessary but a hose bib (which is a faucet that you can attach a garden hose to) is strongly recommended after the Filox filter before the second ball valve. This makes it easy to rinse your new Filox filter on start-up and gives you a place to test the water before it enters your household plumbing.
4. If you will be using copper piping, do not sweat the copper pipe directly on to the Clack WS1 control valve. Avoid heating up the Clack WS1 control valve plastic with the torch.
5. You do not need unions to install your Clack WS1 control. If you need to remove it, the Clack WS1 has quick-release couplings that make it easy to put the Filox Filox filter on by-pass and remove the filter system from the piping.

- The drain line tubing (not supplied) is connected to a drain from the drain outlet using flexible ½" ID tubing. Note that the drain can run up above the Clack WS1 control and into a drain, it does not have to drain down, as the filter backwashes under line pressure from your well pump. Most plumbing codes require an air-gap connection, so that if your sewer or septic tank backs up, it cannot cross connect with the drain tubing.

How Your Filox Works

See Fig 1. In your Filox the water enters the top of the tank and flows down through the media and up the distributor tube. During backwash, the water flow is reversed and water flows down the distributor tube and up through the media, lifting and expanding the Filox media and washing out rust and sediment to drain. During the backwash the Filox is cleaned by the action of the water flowing through it so untreated well water can be used for backwashing. As a final cycle the Filox is rinsed to drain by water flowing down through the media, up the distributor tube and to the drain.

Note – the Filox filter uses the Vortech distributor plate at the bottom, which comes pre-installed in the filter tank. In some types of backwash filters such as calcite neutralizers and water softeners, no filter gravel is used with the Vortech distributor. However, with Filox media, we do recommend some ¼" filter gravel be used and we include this with every order.

Figure 1: Filox media in tank

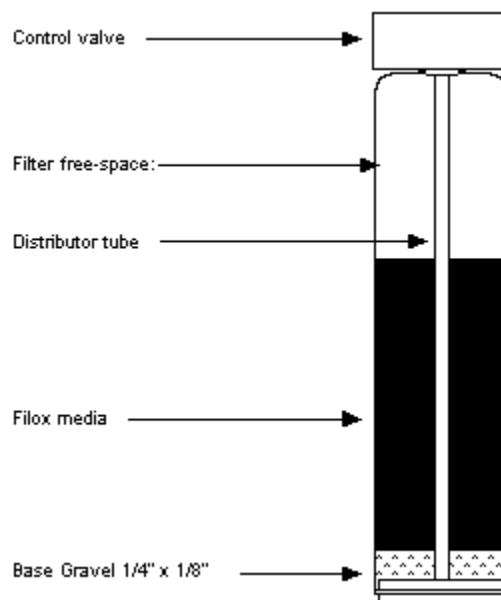
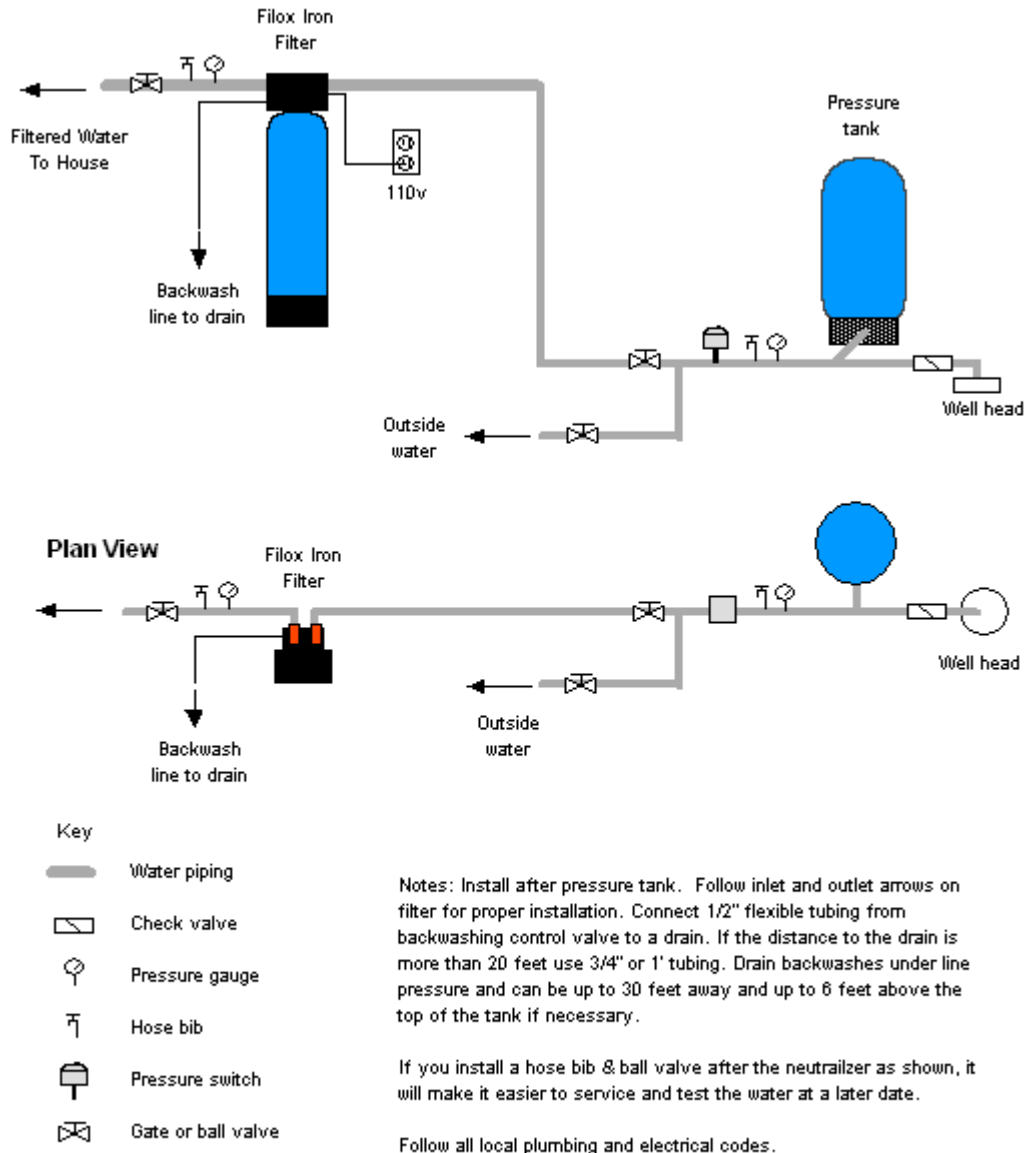


Figure 2 -FiloX Filter Tank Water Flow – Install FiloX filter after the pressure tank



Assembly and Installation Instructions

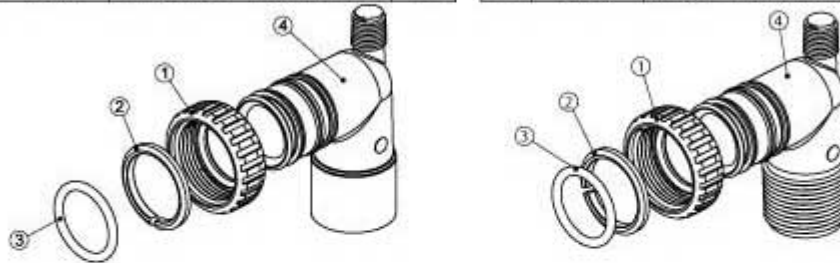
1. Unscrew by hand the entire Clack WS1 control valve from top of tank if it was shipped screwed on. Place distributor tube in tank if not already inside tank. If not already done, make sure blue cap is on top of distributor tube, or wrap the top of distributor tube with electrical or duct tape. You do not want gravel or Filox media to go down the distributor tube.
2. Add filter gravel supplied first, using the funnel sent with the Filox filter. **NOTE: Be sure not to let any parts of the bag or other foreign materials enter the tank when you are adding media.**
3. Next add Filox (Catalox media). Tank will be approximately 2/3rds to 3/4ths full.
4. Remove cap or tape from top of distributor tube.
5. If possible at this point, fill tank completely with water. This will allow the Filox media to settle and eliminate the need of “purging” the air out of the tank later.
6. Add a small amount of silicone grease or vegetable cooking oil to the tank threads and screw on Clack WS1 control valve carefully. Do not use pipe-joint compound, Teflon tape, or Vaseline or other petroleum greases to lubricate tank threads.

Figure 3: Filox WS1 Control Valve



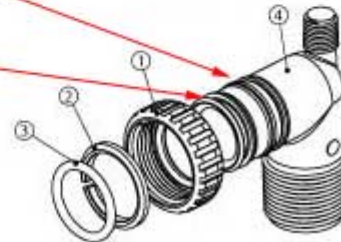
Figure 4: Installation Fittings

C0710-PVC – 3/4" x 1" PVC Solvent 90° Assembly				C10-PVC – 1" PVC Male NPT Elbow Assembly			
No.	Part No.	Description	Qty.	No.	Part No.	Description	Qty.
1	C3151	Nut 1" Quick Connect	2	1	C3151	Nut 1" Quick Connect	2
2	C3150	Split Ring	2	2	C3150	Split Ring	2
3	C3105	O-Ring 215	2	3	C3105	O-Ring 215	2
4	C3189	Fitting 3/4" x 1" PVC Solvent 90°	2	4	C3149	Fitting 1" PVC Male NPT Elbow	2



IMPORTANT: Make sure the split ring is installed between these two ridges on the fitting.

Make sure the o-ring is between the ridges in the front toward the valve.



7. See Figure 4. If the O-ring (3) and Split Ring (2) are not inserted correctly, the Nut (1) will not tighten. If the Nut doesn't tighten up and is still loose when you go to connect the installation fitting assembly, then you know the O-ring and Split Ring are not inserted correctly.
8. See Figure 5 on next page. If red valve handles are in-line with pipe they are in service, not bypass. Move both valves to the BYPASS OPERATION position if not already in bypass.
9. Lubricate the by-pass valve o-rings with some vegetable oil or silicone grease and connect the bypass assembly to the Clack WS1 control by sliding the bypass valve firmly into the body of the Clack WS1. Once bypass is in far enough, you will be able to insert the red connector clips.
10. See by-pass valves. If red valve handles are in-line with pipe they are in service, not bypass. Move both valves to the bypass position if not already in bypass.
11. Now install your water pipes to the Clack WS1 bypass end connectors. (See Fig 3). Make sure inlet is installed to the 'In' pipe connector on the bypass valve and outlet is on the "Out" connector.

12. **Check to make sure Drain Line Flow Control is installed.** This is a small black rubber washer located in the gray drain line fitting. See figure 6 on Page 9. If this is not installed some filter media can wash out the backwash line during backwash cycle.

Figure 5: ByPass Valves

BYPASS VALVE OPERATION

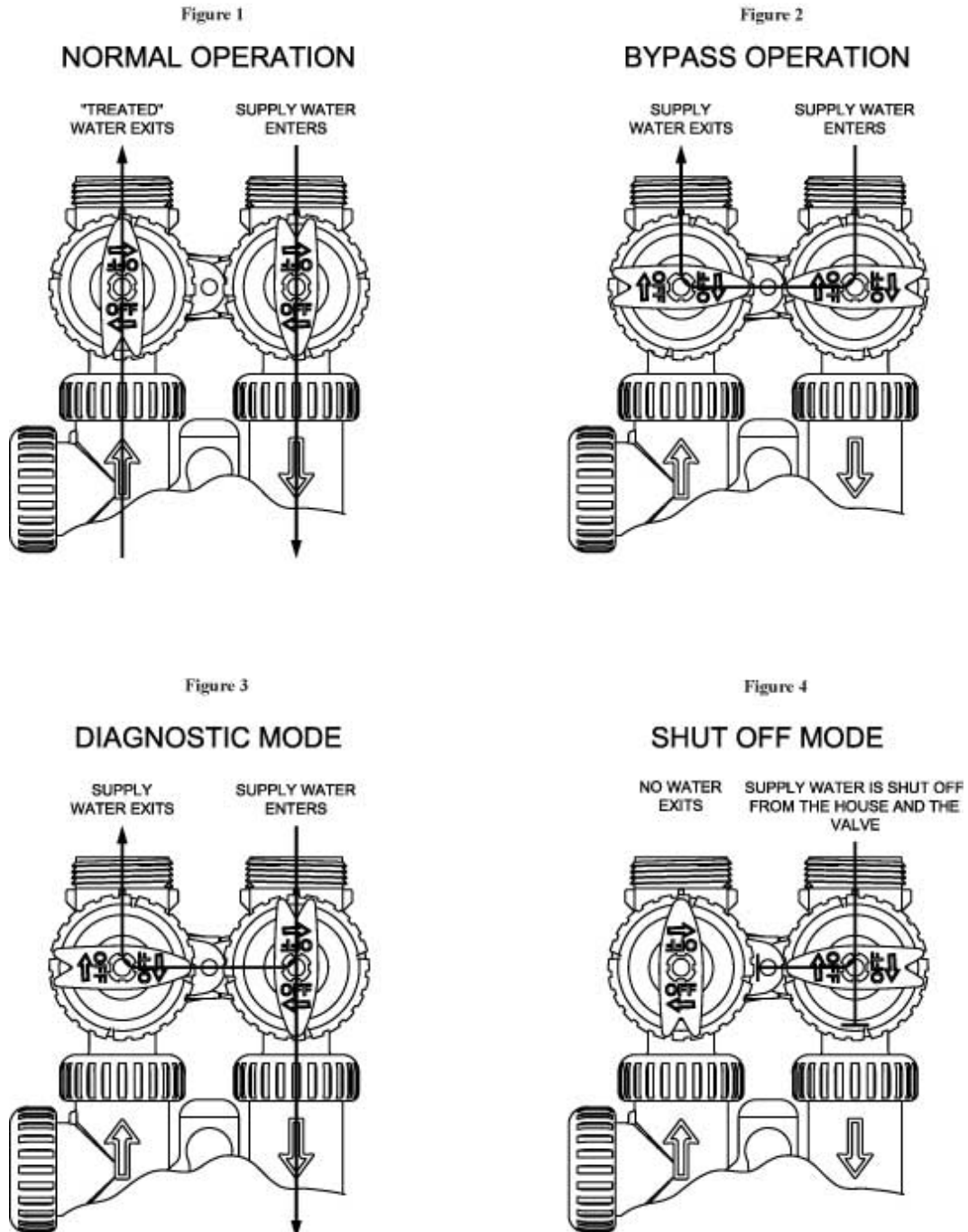
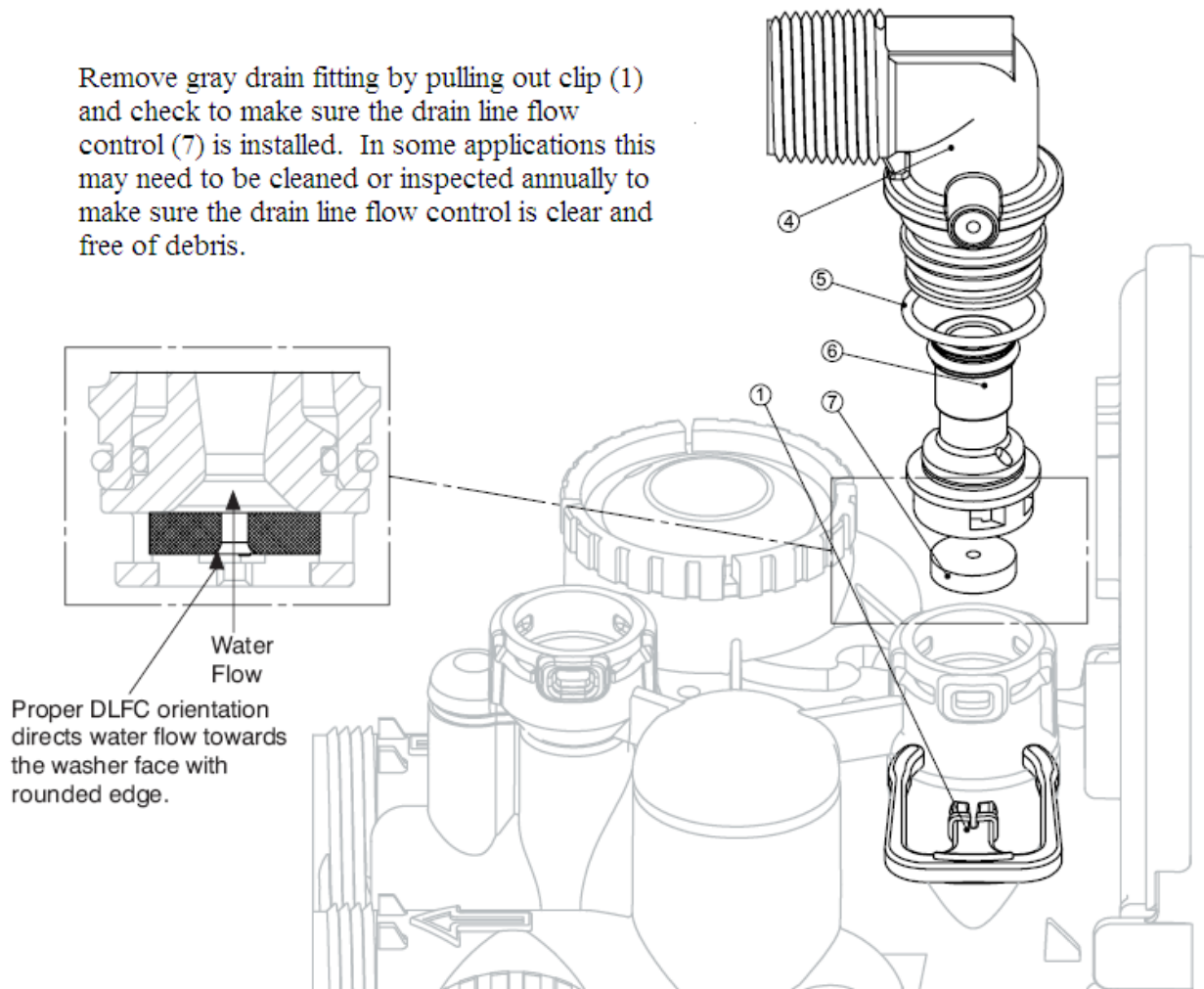


Figure 6 Drain Line Flow Control (DLFC) Washer

Remove gray drain fitting by pulling out clip (1) and check to make sure the drain line flow control (7) is installed. In some applications this may need to be cleaned or inspected annually to make sure the drain line flow control is clear and free of debris.



Proper DLFC orientation directs water flow towards the washer face with rounded edge.

13. Connect some flexible tubing from the drain connection on the Clack WS1 control valve to a suitable drain such as a septic tank or drain to a sewer. It is OK to run the drain line up and over the Clack WS1 Filox filter up to 6 feet above the top of the tank. If the drain line will be more than 20 feet, use larger diameter tubing such as $\frac{3}{4}$ " or 1". Note that it is desirable to be able to run the drain line into a bucket in order to test the backwash flow rate in the future. This is why hard piping the drain line is discouraged, however, if you do use hard PVC piping for the drain line, and you are able to remove the hard PVC drain piping and attach flexible tubing should you ever desire for testing purposes, it is OK to use rigid PVC pipe for the drain. Make sure the drain tubing is firmly clamped to the barbed fitting with a hose clamp to prevent leaks.

14. Plug in your Clack WS1 control valve to an outlet.
15. Set current time of day: Press NEXT button until time of day is displayed. Press and hold the Up or Down button until the SET indicator is displayed and the hour flashes. Press the Up or Down button until the correct hour is displayed. Then press the NEXT button. The minutes will flash. Press the Up or Down button until the correct minute is displayed. Press the NEXT button to return to the Display Screens.

16. SIMPLE PROGRAMMING to Set Backwash and Rinse Cycles

Step 1: Press NEXT and the Down button simultaneously for 5 seconds and release.

Step 2: Select FILTERING if not already selected; Press NEXT

Step 3: Adjust the length of backwash to 10 (for 8 minutes) by using the UP or DOWN arrow button. Press NEXT

Step 4: Adjust the length of the Draw cycle to 5 minutes. Draw cycle is not used, but this period is a rest before 2nd Backwash. Filox filters generally do not use a regenerant chemical so (unlike a greensand or a softener) no Draw cycle is needed. Press NEXT.

Step 5: Adjust the length of the second backwash to 4 minutes.

Step 6: Adjust the length of rinse to 6 (for 6 minutes); Press NEXT.

Step 7: Adjust the length of the Fill (not used) to OFF. Press NEXT to return to time of day.

Finally, to set the Days between backwashes: Press Next and Up button for five seconds and release.

Adjust days to 3 by using Up or Down buttons. If your water has over 7 to 10 ppm of iron in it set to every 1 or 2 days. Press NEXT.

Use Up or Down button to change regeneration backwash time. Default is 2:00 am. If any water is used during the time the system is backwashing, the untreated water will flow into the house and the water will not be interrupted. Press NEXT to exit programming.

That is it! You are done programming.

17. By pressing NEXT you can toggle back between the current time and the days to the Next backwash.

Starting up the Filox Filter - **IMPORTANT STEPS**

1. Leave the By-Pass valves closed. Now you are ready to turn on the water. Turn on the water to the Filox iron filter if not already on but **leave the Filox filter in bypass** mode and check for piping leaks. This is illustrated in Figure 5 on Page 8, and listed as “BYPASS OPERATION”.
2. Run the water for 5 minutes from a hose bib after the Filox filter or from a laundry sink, bath-tub or other fixture in the house that does not have an aerator screen to flush out the and rinse the pipes of any foreign material left in the pipes from the installation of the piping.
3. Leave the Filox filter on bypass with both bypass valves closed. Press the REGEN button for several seconds to start a manual backwash. You will hear the WS1 control valve motor start and the control valve piston will automatically move to the backwash position inside the valve.
4. Now slowly turn the INLET bypass valve to partially or approximately half-way open. This will allow the Filox filter to backwash at a slow rate so you can purge any air and rinse the media initially at a slower rate. You will hear and/or see water flowing out the drain line.
5. At this point the Filox filter will be slowly backwashing , which is the first of two cycles it goes through during backwash (also called “regeneration”). The backwash takes 10 minutes. The next cycle is the rinse which takes 6 minutes. There should be no Catalox media coming out of the drain line, but the water will be black and dirty looking.
6. If you see a slurry of black sand (the Catalox media) coming out during backwash: reduce the inlet water flow to a very low rate by closing the inlet bypass valve or any other valve before the iron filter and let the water run for 1 or 2 minutes. Then press the REGEN button once. This will advance the control valve to the Rinse cycle and out of the Backwash cycle. Now open up the inlet valve to full force and allow the water to rinse to drain for 6 minutes, which is the duration of the Rinse cycle. Once the Rinse is complete, and the control valve is back to the time of day, repeat Step 3 and start the backwash again slowly. If you have high water pressure and/or the media has a lot of air in it, you may have to repeat this process once or twice. It does not hurt it to backwash several times during the start-up process.
7. After the backwash and rinse cycles are complete, press the REGEN button again, and open up both bypass valves to the full open position, to allow the Filox filter to go through another complete cycle of backwash and rinse.
8. **Note it is normal for some small amount of Catalox dust and fines to come out during the backwash, although you do not want to see a large amount of media coming out, which might indicate that the drain flow control is missing (see Item 7 in Fig 6, on Page 9.). If the drain flow control is not missing, and you see large amount of media coming out, just reduce the flow rate by closing the inlet valve, during the first one or two backwash sequences during start-up.**

9. If possible verify that the backwash flow rate is correct: 5.0 GPM for 1.0 cubic foot models, 7.5 GPM for 1.5 cubic foot models and 10 GPM for 2.5 cubic foot models. You can easily run the drain hose to a bucket and using a watch verify the flow rate in gallons per minute.

Maintaining Your WS1 Filox Filter System

There is little or no maintenance required. Every 6 – 10 years the Filox media can be replaced for best results. If your water has a lot of hydrogen sulfide odor or iron and manganese levels over 10 ppm, a chlorine feed pump may be needed to inject a small amount of chlorine before the well pressure tank and Filox filter. The Filox will remove any chlorine tastes or odors. In most cases this is not necessary but chlorination (or ozone, or peroxide injection) before the Filox filter can greatly enhance the ability of the media to remove iron, manganese and hydrogen sulfide.

Troubleshooting the Clack WS1 Filox Filter

One problem that may occur is if you do not have enough backwash flow rate to properly clean the Filox filter. You can verify the backwash flow rate by running the drain line into a bucket and timing it when the Clack WS1 is in Cycle 1 or backwash. A 1.0 or 1.5 cubic foot system should have 5 gallons per minute and a 2.5 cubic foot system should have 10 gallons per minute of backwash.

In some cases, the Clack WS1 may not be programmed correctly. See the Clack WS1 service manual for instructions on how to access the master programming.