

Clack WS1 Catalytic Carbon Filter Installation & Start-Up Guide

Thank you for purchasing a Van Isle Water System for the removal of hydrogen sulfide! With proper installation and a little routine maintenance your system will be providing treated water for many years.

Your new system comes with a start-up guide that will help guide you in the installation and start-up of your new system. Please review this start-up guide entirely before beginning to install your system and follow the steps outlined for best results.

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Pre-Installation

- 1. 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.
- 2. Pick a suitable location for your filter system. Find a spot near a drain, on a dry level spot and where it won't be exposed to freezing temperatures. A minimum of 20 PSI is required. Maximum pressure is 90 PSI.
- 3. Get all of your plumbing parts together before beginning installation. After installation, the filter must run through a complete backwash and rinse cycle.
- 4. 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 filter is installed after the pressure tank.

IF YOUR WATER SYSTEM IS UNTREATED FOR BACTERIA YOU SHOULD INSTALL AN ULTRAVIOLET STERILIZER AFTER THE CARBON FILTER!

- 2. As you face the Clack WS1 control from the front, the water enters on the right and exits on the left. (see Fig 2) 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 filter and also one after as shown in the diagram Fig 2.
- 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 filter on by-pass and remove the filter system from the piping.



6. The drain line tubing (not supplied) is connected to a drain from the drain outlet using flexible minimum 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 Catalytic Carbon Works

See Fig 1. In your filter, the water enters the top of the tank and flows down through the media and up the distributor tube. The down flow type removes hydrogen sulfide and can be backwashed, which cleans and reclassifies the media, preventing channeling. During backwash, the water flow is reversed and water flows down the distributor tube and up through the media, lifting and expanding the media. During the backwash the media is cleaned by the action of the water flowing through it.



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Fig. 1:





Fig. 2 Catalytic Carbon Filter Tank Water Flow – Install filter after the pressure tank

Fig 3: Catalytic Carbon WS1 Control Valve



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- 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 tighten the unions.
- 8. 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.
- 9. See by-pass valves (Fig 5). 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.
- 10. 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.

Fig 4: Installation Fittings

C0710-PVC – ¾" x 1" PVC Solvent 90° Assembly				
No.	Part No.	Description	Qty.	
1	C3151	Nut 1" Quick Connect	2	
2	C3150	Split Ring	2	
3	C3106	O-Ring 216	2	
4	C3189	Fitting ¾"x1" PVC Solvent 90⁰	2	

C10-PVC – 1" PVC Male NPT Elbow Assembly				
No.	Part No.	Description	Qty.	
1	C3151	Nut 1" Quick Connect	2	
2	C3150	Split Ring	2	
3	C3106	O-Ring 216	2	
4	C3149	Fixing ¾"x1" Male NPT Elbow	2	



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11. Connect some flexible tubing from the drain connection on the Clack WS1 control valve to a suitable drain, complete with an air gap. It is OK to run the drain line up and over the Clack WS1 filter up to 4 feet above the top of the tank. If the drain line will be more than 20 feet, use larger diameter tubing such as ¾" 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 to use Teflon tap or Teflon pipe joint compound on the threads to attach the barbed fitting to the drain fitting on the control valve. The drain tubing is then firmly clamped to the barbed fitting with a hose clamp to prevent leaks. Now insert the 3/8 screen and 3/8 Murlock check valve into the brine line flow control.



BYPASS VALVE OPERATION







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- 12. See accompanying sheets regarding programing to set time of day, regeneration time etc. Remember the WS1 Metered Controller must be in "Filter Regen" Mode. Cycle 1, backwash for 8 minutes and Cycle 2, brine for 40 minutes, Cycle 3, OFF, Cycle 4, rinse 8min. The rest of the cycles must be off. There can be no backwash after the brine cycle or all air in the tank will be lost.
- 13. Now you are ready to turn on the water. Turn on the water and leave the filter on bypass and check for leaks.
- 14. Press the REGEN button for several seconds which will start a manual backwash. Once controller is in backwash unplug it so it will stay in backwash as long as necessary.
- 15. Now you can slowly turn the bypass valve to the service position. First, partially open the Inlet side of the bypass valve so the tank fills slowly. Second slowly open the Outlet side of the bypass until it is in the full service position. Once the tank is full of water and is coming out of the drain you can fully open the inlet side of the bypass valve.
- 16. There should be no media coming out of the drain line, but the water will be turbid and dirty looking. Leave the controller in backwash as long as it takes for the water to run clear. Once clear you can plug the controller back in and let it finish the backwash and brine (air injection) cycle. The backwash take's 8 minutes. The brine cycle takes 40 minutes. It is recommended to put the filter through a second backwash before putting into service for the house.
- 17. Note it is normal for some small amount of dust and fines to come out during the backwash, although you do not want to see a large amount of media coming out, which would mean you have very high water pressure, or the drain flow for the controller is missing.
- 18. If possible verify that the backwash flow is 5 gallons per minute, which is the recommended backwash flow rate for 1.0 cubic foot model. If you have a 11/2 cubic foot it should be backwashing at 7.5 gallons per minute. You can easily run the drain hose to a bucket and using a watch verify the flow rate in gallons per minute. An adequate backwash is critical to properly clean the media.



Maintaining Your WS1 Catalytic Carbon Filter System

There is little or no maintenance required. Catalytic Carbon works through absorption, so if taste, odor etc. starts slipping through it is time to replace the carbon.

Troubleshooting the Clack WS1 Catalytic Carbon Filter

One problem that may occur is if you do not have enough backwash flow rate to properly clean the 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 cubic foot system should have 5 gallons per minute and a 1.5 cubic foot system should have 7.5 gallons per minute of backwash.

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