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COURTENAY

WS1 Softener Installation & Start-Up Guide

Thank you for purchasing a Van Isle Conditioner. 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 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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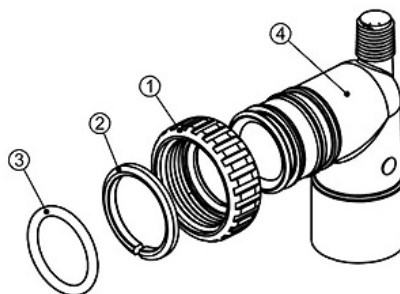
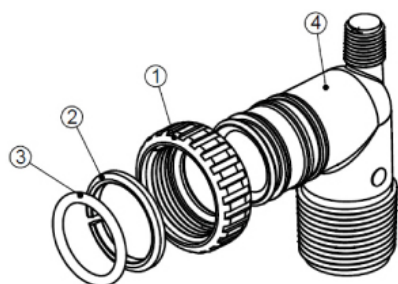
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Pre- Installation

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. After installation the WS1 filter must be allowed to run through a complete backwash and rinse cycle (also called 'regeneration'). This takes about 90 minutes.
5. After the system is installed and running, your water may be discolored, or full of sediment or rust, if you have older piping that has been exposed to sediment, iron or manganese for sometime. Typically this clears up over a day or two.

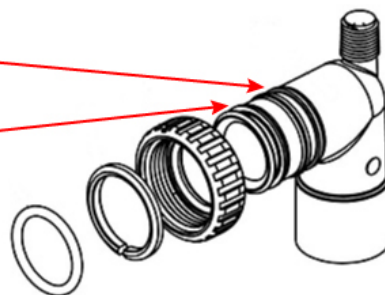
C0710-PVC – ¾" x 1" PVC Solvent 90° Assembly			
No.	Part No.	Description	Qty.
1	C3151	Nut 1" Quick Connect	2
2	C3150	Split Ring	2
3	C3106	O-Ring 216	2
4	C3189	Fitting ¾"x1" PVC Solvent 90°	2

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



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.





Best Practices for Piping & Drain Installation

1. The filter is installed after the pressure tank on well water systems. See Fig. 1 Usually you do not want to water the garden or irrigate your landscaping with treated water. This will require more salt than usual to be used and in some cases the sodium can build-up in the soil causing some problems to sensitive plants. It is often not difficult to re plumb so you can run untreated water to the irrigation and outside hose bibs thereby bypassing the filter.
2. Make sure to connect the inlet pipe to the WS1 filter inlet and the outlet to the outlet. You can see the in and out arrows on the back of the control valve where the bypass is connected.
3. Make sure there is a working gate or ball valve before the filter and also one after as shown in the diagram. If you are installing multiple filter systems you do not need a valve in between each system. A hose bib (which is a faucet that you can attach a garden hose to) is strongly recommended after the tannin filter before the second ball valve. This makes it easy 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 to the plastic bypass valve. Avoid heating up the bypass valve with the torch.
5. You do not need unions to install your filter. If you need to remove it, the WS1 controller has union couplings on the bypass valve that make it easy to put the filter on bypass 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 ½" ID tubing. Note that the drain can run up above the WS1 filter and into a drain, it does not have to drain down, as the filter backwashes under line pressure from your well pump. If the drain line will be more than 20 feet, use larger diameter tubing such as ¾" or 1". 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. 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.

BYPASS VALVE OPERATION

Figure 1
NORMAL OPERATION

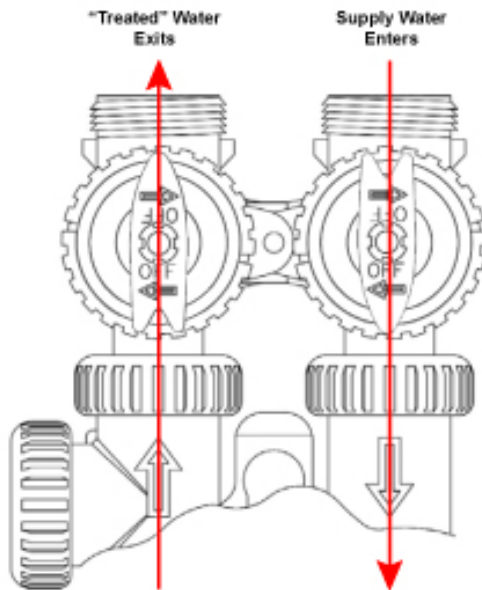


Figure 2
BYPASS OPERATION

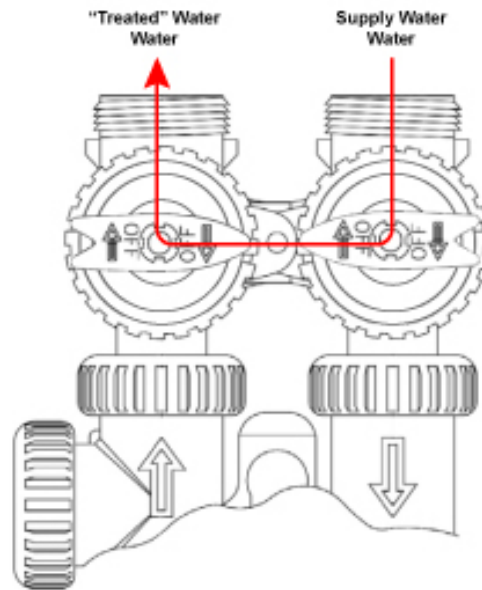


Figure 3
DIAGNOSTIC MODE

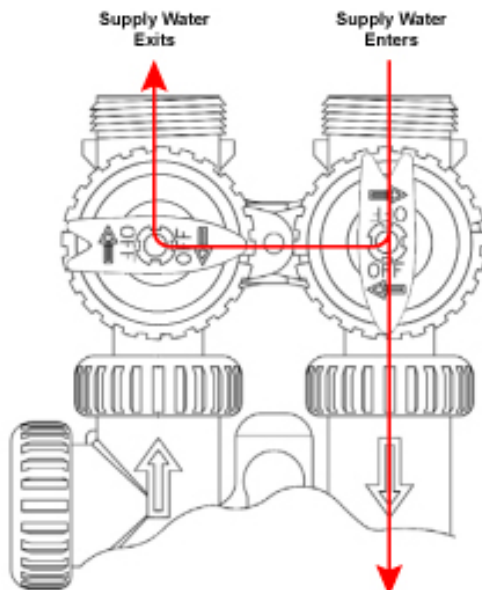


Figure 3
SHUT OFF MODE

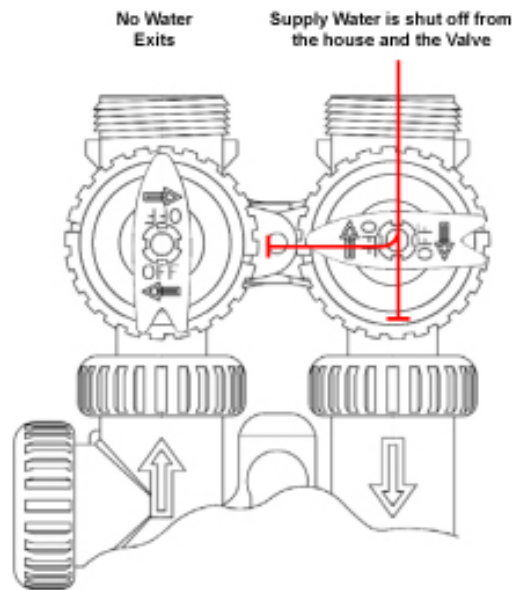


Fig. 1 Auto Backwash Softener Filter System flow Diagram (not to scale)

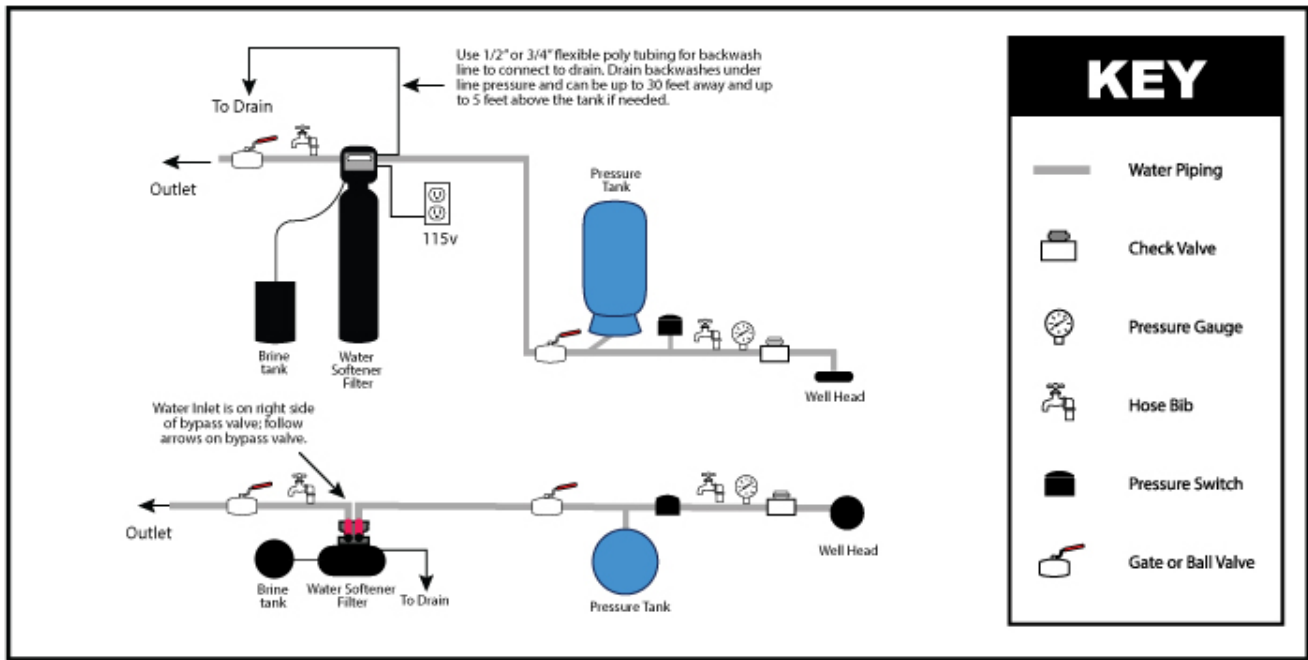
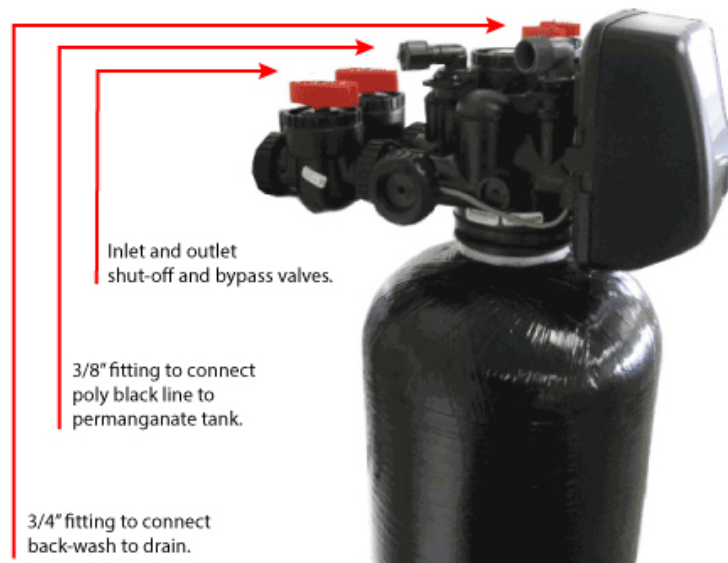
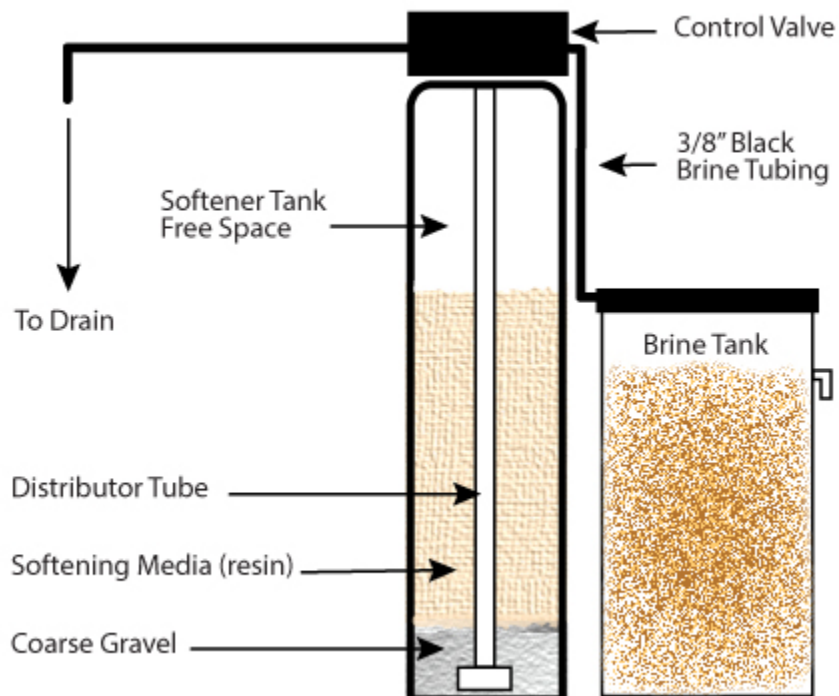


Fig 2: Clack WS1 Metered Control



7. Connect the controller to the brine tank with the 3/8" tubing supplied in the brine tank. Note that the overflow fitting on the side of the brine tank does not need to be connected, unless the filter is installed in a closet or somewhere where overflowing salt water could cause a problem. Water rarely overflows the brine tank however.


Fig. 3: Filter diagram showing cut-away of media



8. Add approximately 5 gallons of water to brine tank, then add 3 – 5 bags of salt (40 – 50lbs each). You do not have to add water to the brine tank again after this first time during the start-up. The controller fills it automatically during the regeneration.

9. See the accompanying Clack WS1 Basic Controller Programming Instructions on how to program. Your filter is already programmed for the size of conditioner you have. It will regenerate based on the amount of water which can be treated measured in gallons or every 6 days which ever comes first. The only thing you should have to set is the time of day and possibly the time of regeneration. The default for this is 2:00am which is a good time for regeneration unless you have more than one conditioner. They should not regenerate at the same time. Water should not be used while the conditioner is regenerating. If you taste salty water after regeneration, run the water until it clears up.

10. Now you are ready to turn on the water. Turn on the water and leave the filter on bypass and check for leaks.



11. 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.

12. 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.

13. There should be no media coming out of the drain line, but the water may be turbid and dirty looking. 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. 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 the rest of the regeneration. After filter has been regenerating for 20 minutes, look inside the brine tank, and you should see that the brine tank is empty. At the end of the regeneration check to make sure that the filter has added water to the brine tank to make brine for the next regeneration cycle. The regeneration takes approx. 1 1/2 hours.

14. If possible verify that the backwash flow rate is correct. The recommended backwash flow rate for 1.0 cubic foot and 1 1/2 cubic foot is 2.2 gallons per minute. 2 cubic foot is 3.2 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 regenerate the media. It is recommended that you do 2 – 3 regenerations when the conditioner is new so that the media gets fully charged.

Maintaining Your Water Softening System

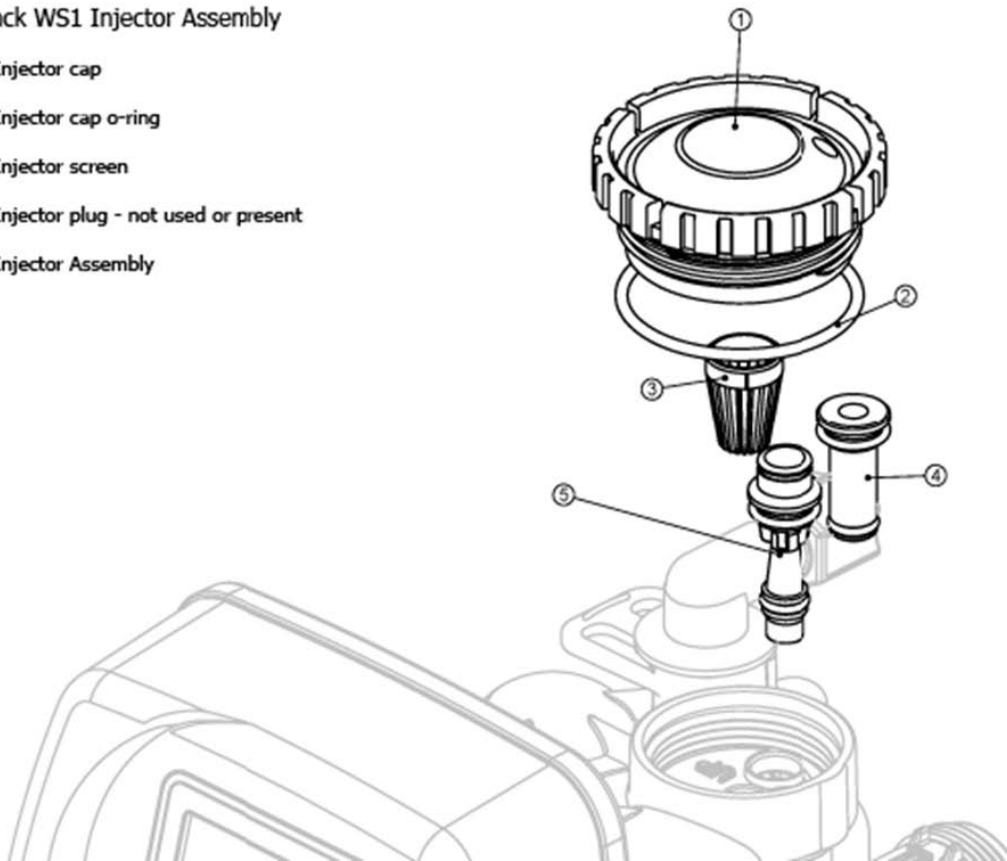
WS1 filters require little maintenance. The primary task is to add salt to the brine tank as required. You should add as much salt as you can while keeping the water level as high as the salt. This way the salt cannot bridge above the water level. If the salt gets extremely low or runs out, the conditioner will not be able to treat the water as the media will become exhausted. If this happens add salt to the brine tank and put the conditioner through a couple of regenerations right away. Push the REGEN button for several seconds to regenerate the filter manually and have treated water again.

If you have much iron or manganese in the water you should get a Res Care feeder kit for your brine tank. It helps clean the media of iron and manganese.

Besides adding salt, it is important to clean the injector 1 to 3 times a year, depending on how much iron you have in your water. If your water is really high in iron, over 5 ppm, you may need to do it 3 times a year, otherwise once a year works well for most applications.

Clack WS1 Injector Assembly

1. Injector cap
2. Injector cap o-ring
3. Injector screen
4. Injector plug - not used or present
5. Injector Assembly




Step 1: Put the filter on bypass by closing the inlet and outlet bypass valves.

Step 2: Release the water pressure inside the Clack control valve. If you put the filter on bypass, you can do this by pressing the REGEN button. This will allow the control valve to enter a backwash cycle and since the water is turned off because the control valve is on bypass, it will release the pressure.

Step 3: Unscrew the injector cap and lift off. Loosen cap with pliers if necessary.

Step 4: Remove the screen and clean if fouled. The injector can be pried out with a small flat screwdriver. The injector consists of a throat and a nozzle. Chemically clean the injector with vinegar or sodium bisulfite ("Iron Out" or "CLR" etc). The holes can be blown out with air.

NOTE: Both pieces have small diameter holes that control the flow rates of water to insure that the proper concentration of regenerate is used. Sharp objects, which can score the plastic, should not be used to clean the injector. Scoring the injector or increasing the diameter of the hole could change the operating parameters of the injector. Push the injector back firmly in place; replace the screen and hand tighten the injector cap.



Step 5: Disconnect the black 3/8" poly tubing line that connects to the control valve from the brine tank.

Step 6: With the water off push "Regen" to start regeneration. Push "Regen" again to get into the "Brine" cycle. Turn the water pressure back on slowly and check for leaks.

Step 7: With the filter in the 2nd cycle, which is "Brine" cycle, it should be drawing or sucking in air and you can verify this by putting your thumb over the hole on the outside of control valve where the tube from the brine line is attached.

Step 8: Close the bypass to shut the water off. Press the REGEN button continuously until the controller is in the service position. Time will be displayed. At this point, you can re-connect the poly tubing to the control valve.

Step 9: After the control valve is back in its service position, then you can press the REGEN button and allow it go to through a complete regeneration and backwash cycle.