



Clean Water Made Easy

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5900e Greensand Filter 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 iron-free water for many years.

Please review this start-up guide entirely before beginning to install your system, and follow the steps outlined for best results.

GREENSAND MEDIA CONTAINS DUST. USE PAPER MASK AND VENTILATE TO AVOID BREATHING DUST.

Questions?

Call us toll-free: 1-888-600-5426 or 1-831-462-8500

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Packing List

Greensand Filter 0.75 cubic foot size

5900e Plus Backwash Control Valve w/ Bypass Assembly and Pipe connector kit (1" or ¾")
8" x 44" filter tank with distributor tube
Blue media funnel for adding the Greensand media
8 lbs. Filter gravel
0.75 cubic foot of Greensand media

Greensand Filter 1.0 cubic foot size

5900e Plus Backwash Control Valve w/ Bypass Assembly and Pipe connector kit (1" or ¾")
9" x 48" filter tank with distributor tube
Blue media funnel for adding the Greensand media
12lbs. Filter gravel
1 cubic foot of Greensand media

Greensand Filter 1.5 cubic foot size

5900e Backwash Control Valve w/ Bypass Assembly and Pipe connector kit (1" or ¾")
10" x 54" filter tank with distributor tube
Blue media funnel for adding the Greensand media
16 lbs. Filter gravel
1.5 cubic feet of Greensand media

Greensand Filter 2.0 cubic foot size

5900e Backwash Control Valve w/ Bypass Assembly and Pipe connector kit (1" or ¾")
12" x 52" filter tank with distributor tube
Blue media funnel for adding the Greensand media
20 lbs. Filter gravel
2.0 cubic feet of Greensand media

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Greensand Filter 2.5 cubic foot size

5900e Backwash Control Valve w/ Bypass Assembly and Pipe connector kit (1" or ¾")

13" x 54" filter tank with distributor tube

Blue media funnel for adding the Greensand media

35 lbs. Filter gravel

2.5 cubic feet of Greensand media

Greensand Filter 3.0 cubic foot size

5900e Backwash Control Valve w/ Bypass Assembly and Pipe connector kit (1" or ¾")

14" x 65" filter tank with distributor tube

Blue media funnel for adding the Greensand media

50 lbs. Filter gravel

3.0 cubic feet of Greensand media

ALL FILTERS COME WITH A TOP SCREEN, POWER SUPPLY, HOSE BARB FITTING AND DRAIN LINE FLOW CONTROL BUTTONS

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 Greensand 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. This typically clears up over a day or two.

Best Practices for Piping & Drain Installation

1. See typical installation on page 7 (Fig 2). The Greensand filter is installed after the pressure tank.
2. Make sure to connect the IN pipe to the 5900e inlet and the OUT pipe to the outlet (see Fig 3). As you face the 5900e control from the front, the water enters on the right and exits on the left.

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From the back (see Fig 3) 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 5900e Greensand Filter and also one after as shown in 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 Greensand Filter and before the second ball valve. This makes it easy to rinse your new Greensand 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 5900e control valve. Avoid heating up the 5900e control valve plastic with the torch.
5. You do not need unions to install your 5900e control valve. If you need to remove it, the 5900e has quick-release couplings that make it easy to put the Greensand 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 5900e 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.

Installation of Your System into Copper or Metal Piping Systems:

If your new filter system is to be installed in a metal (conductive) plumbing system, i.e. copper or galvanized steel pipe, the plastic components of the system will interrupt the electrical continuity of the plumbing system.

As a result, any stray currents from improperly grounded appliances downstream or potential galvanic activity in the plumbing system can no longer ground through the contiguous metal plumbing.

Some homes may have been built in accordance with building codes, which encouraged the grounding of electrical appliances through the plumbing system.

Consequently, the installation of a bypass consisting of the same material as the existing plumbing, or a grounded "jumper wire" bridging the equipment and reestablishing the contiguous conductive nature of the plumbing system must be installed prior to your systems use.

This is simple and easy step to take if you are installing your water treatment system into copper piping. A simple ground jumper wire with a pipe clamp can be purchased at any Home Center, or hardware store, etc. for a few dollars.

Assembly and Installation Instructions:

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1. Wrap the top of distributor tube with black electrical tape or blue painter's masking tape so that no gravel or Greensand media will go down the distributor tube when adding the media. Leave a folded tab of tape that you will be able to grab onto to gently pull off the tape after filling the tank. When you are ready to screw the valve head on, apply silicone lubricant to the outside of the distribution tube, and the O-ring on the control valve where the tube goes in.



2. Add the filter gravel that came with your order. You want the gravel to cover the bottom distributor screen before adding the Greensand media.
3. Next add Greensand media. The tank should be about 2/3rds full of media.
Do not fill past 2/3rds, even if there is some extra media left over.
4. Remove tape from top of distributor tube. Be careful not to pull up distributor tube when removing tape.
5. Fill tank completely with water. This will allow the Greensand Filter media to settle and reduce the need of purging the air out of the tank later.
6. Attach plastic top screen to the under-side of the 5900e control valve. It is a funnel-shaped plastic screen that snaps on to the control valve and prevents media from being backwashed out to drain during the regeneration cycles.



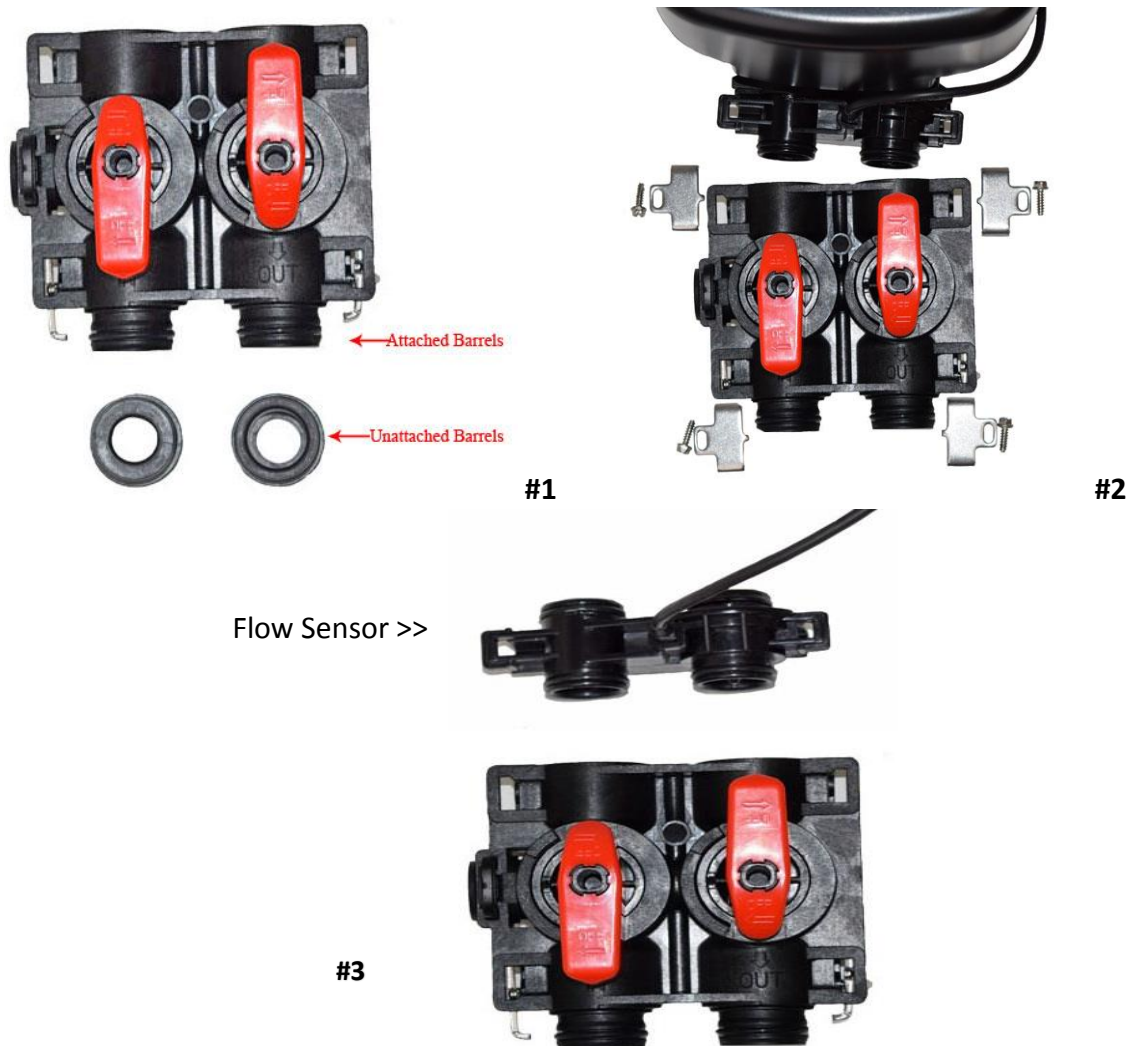
7. Add a small amount of silicone grease to both O-rings on the bottom of the control valve and screw on 5900e control valve carefully. **Do not use pipe-joint compound, vegetable oil, Teflon tape, or Vaseline or other petroleum greases to lubricate tank threads.**

Fig 5. 5900e By-Pass and Pipe Connectors:



Assemble the bypass valve:

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Flow Sensor >>

1. When you remove the bypass valve from the box, the valves are in the open position. Holding the bypass so that you are reading the In and Out (so that the words are not upside down to you when holding the bypass), note the following:
2. The red handles are slightly arrow-shaped; the pointed end is pointing in the direction of flow when open. The Inlet valve (on the left) turns clockwise, from full open at "12:00 o'clock", to full closed at "3:00 o'clock". The Outlet valve turns clockwise from "6:00 o'clock" full open to "9:00 o'clock" full closed. The valves are stiff when new, so open and close them a few times. **Leave them closed.**
 - a) Choose which yoke (3/4" or 1", not pictured) you wish to attach to the back end of the bypass. Remove the barrels (picture 1) and apply a small amount of silicone lubricant to each of the O-rings (two on each barrel, four total) Push the barrels back into the bypass, and push the yoke onto the barrels. Attach the steel mounting clips on each side and screw in the two screws (picture 2).

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- b) If the valve you are attaching the bypass to has a flow sensor (see picture 3), lube the two O-rings and push the bypass assembly onto the flow sensor, and attach the steel mounting clips and screws.
3. If the valve you are attaching the bypass to does not have a flow sensor, then it has the same type of barrels that are on the opposite side of the bypass. Take out the barrels and apply silicone grease to all four O-rings and push in the barrels and attach the bypass.

Assemble The Drain Line Flow Control Hose Barb:

Remove the clip, and then remove the Drain Line Fitting. Apply Teflon tape and paste to the Hose Barb Fitting. Screw them together. Install the proper Drain Line Flow Control Button.



Remove the clip and the Drain Line Fitting (1st pic). Add Teflon tape and paste (2nd pic). Install DLFC



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Button (3rd pic). Re-install Drain Line Fitting and put clip securely in place (fourth pic). Choose which DLFC Button to install based on the cubic foot size of your system (see table above). Note that there is no DLFC for the 10 and 12 GPM units.

4. Now install your water pipes to the 5900e bypass end connectors. **Make sure inlet is installed to the "In" pipe connector on the bypass valve and outlet is on the "Out" connector.**
5. Connect some flexible tubing from the drain connection on the 5900e 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 5900e Greensand 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 $\frac{3}{4}$ " 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.

Fig 6. 5900e Pot Perm Line Installation:



Insert $\frac{3}{8}$ " diameter tubing into the potassium permanganate/brine tank connection. Screw the nut with the sleeve and Ferrell attached to prevent leaking. Note in photos, you may receive either black or white tubing.

Fig 7. 5900e Potassium Permanganate Tank Set-Up & Installation:



6. First remove the rubber band that comes on the float assembly from the manufacturer. Add enough clean water to the pot perm solution tank to bring water level about 1" above the felt pad. Add one 2 or 5-lb jug of potassium permanganate granules to the potassium perm tank by pouring it directly on top of the white felt pad. Do not pour permanganate down the white plastic brine well where the black line is attached.
7. See the over-flow barbed fitting on the side of the perm tank. You do not have to connect this to a drain. If the safety float were to malfunction, there is a small chance that pot perm solution will drip out of this fitting. If this would cause a big mess where you have installed the greensand filter, hook some tubing to this and run to a bucket, floor pan or floor drain. Normally no pot perm solution will leak out of this fitting.

Next, you will need to program the system to work as a Greensand Iron Filter. There are a few settings that must be changed before the system can be put into service. Plug in the control valve and continue on to the next page to begin the programming instructions.

Programming Your Valve:



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*While scrolling through numbers, it only increases the value. To decrease the value, you will have to “go all the way around” to get back to a lower value.

1. To enter main menu press the Menu/Enter button
(Time of day will flash)

2. To set time of day press the Set/Change button
(First digit will begin to flash)

- **To change digit value press the Set/Change button**

- **To accept the digit press the Menu/Enter button**

- (Next digit will flash)

- (Once hours is accepted all digits will flash)

3. With all digits flashing press the Menu Button to set A.M. or P.M.

- (Once A.M./P.M. is accepted the next menu item will flash)

Example [A]

4. To Set Regeneration Frequency Press the Set/Change Button

- **The recommended setting for a Greensand filter is every 4 days**

- Once the last digit is accepted all digits will flash

Example [A - 04]

-If value is set to 0, automatic regeneration will never occur

5. To exit menu press the Menu/Enter button

Note: If no buttons are pressed for 60 seconds or longer the menu will automatically be exited.

Pressing and holding the Menu/Enter button will also access some options: **Flo**- this is the flow rate, if water is running, it will display the volume, in gallons per minute. **Gt r**- This the total # of gallons that has gone through the filter. **g tot**- this is the same as the previous. **rC r**- number of regeneration done. **rC**- the same. **gPdL**- shows how many gallons used each day. **Gbrl**- is the gallons used between regenerations. **PfDL**- This shows the peak, or highest flow rate that has passed through the filter in the last 24 hours.

Next you will need to set the Master Programming to be used as a Greensand filter, continue on to the next page to finish the programming instructions.

Master Programming Mode:

Entering Master Programming Mode

-To enter Master Programming Mode press and hold both buttons for 5 seconds.

1. Regeneration Time (r)

Press the Menu/Enter Button. The next display viewed is the option setting for Regeneration Time. It is identified by the letter 'r' in the left digit. Set the desired time of day that a regeneration may occur, if required. **We recommend setting the system to backwash at 2 AM**, or at any time that it is unlikely that any water will be used. The first digit(s) indicates the Hour and the other digit indicates A.M. or P.M.

Example: 2 A.M. regeneration time - [r 2A] (factory setting)

2. Regeneration Day Override (A)

Press Menu/Enter Button. This display is used to set the maximum amount of time (in days) the unit can be in service without a regeneration. This option setting is identified by the letter 'A' in the left digit.

Example: Override every 7 days - [A - 07] (Factory Setting)

To Adjust this Value, press the Set/Change Button.

To Accept the Digit Value, press the Menu/Enter Button.

We recommend that you backwash your Greensand system once every 3 or 4 days.

3. Regeneration Cycle Step Programming (1)(2)(3)(4)

The next 4 displays viewed are part of a series of option settings used to program the Regeneration/Backwash Cycle. Up to 4 steps can be programmed. Each display is used to set the duration time in minutes for that specific step in a regeneration cycle. A step # will turn on for the regeneration cycle step being programmed. Regeneration steps are *skipped* by setting the display to 0 as shown below:

Examples: Regeneration Cycle Step #1 - 10 minutes - [1 - 10] (Factory Setting)

Regeneration Cycle Step #2 - skipped - [2 - - 0]

Set each step according to the values below, appropriate for a Greensand Filter:

- 1 10 minutes. This is the Backwash cycle. [1 - 10]
- 2 60 minutes. This is the Brine Draw cycle. [2 - 60]
- 3 06 minutes. This is the Rapid Rinse cycle. [3 - 6]
- 4 For the Brine Refill Cycle, set the time according to the size of your system below:

0.75 cf: [4 - 4]. 1.0 cf: [4 - 5]. 1.5 cf: [4 - 6]. 2.0 cf: [4 - 6]. 2.5 cf: [4 - 6]. 3.0 cf: [4 - 8].

Exiting the Master Programming Mode

Press the Menu/Enter Button until all steps have been viewed. The Program Mode will be exited and normal operation resumed. If no buttons are pressed for 60 seconds or longer in Master Programming Mode, it will be exited automatically.

Initial Backwash:

- 1 If days remaining is not already at 1 press and hold the Set/Change button. Now, press and hold the set change button again, until the valve begins the backwash cycle and the display reads 1 – 10. Now, proceed to step two.
- 2 Start to put the valve into the service position by turning inlet the bypass knobs counter-clockwise about a quarter inch, until you can hear water passing through the bypass into the filter. Stop and wait until you see water coming out of the drain line. It will often be mixed with air bubbles, but we will want to get all of that air out. When you do not see bubbles anymore, keep opening the valve, a little bit at a time, stopping for a minute or two each time. You want to see a corresponding increase in flow out of the drain line as you increase the flow of water into the filter. After several minutes, you should have the valve fully open, and with no media coming out. The water may appear milky white.
- 3 Verify that the backwash flow corresponds with the size of your system below. 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 Greensand media and prevent it from cementing together.

0.75 CF	5 GPM	2.0 CF	7 GPM
1.0 CF	5 GPM	2.5 CF	10 GPM
1.5 CF	5 GPM	3.0 CF	12 GPM

- 4 Once the water is clear, press and hold the Set/Change button, and after 3 seconds the valve will start to advance to the “Rinse” position. Once again, allow the water to flow for about five minutes or until the water is clear.
- 5 Press and hold the Set/Change button advance to the “Service” position. Next, open the outlet on the bypass valve and then open the nearest treated water faucet to the unit and allow the water to run until it is clear. We advise using a bathtub, laundry sink, or other fixture that does not have an aerator screen as any remaining residue may get caught in the screen.

Congratulations, you are done setting up your valve!

Maintenance:

Normal Operation

- Normal display alternates between time of day and days until regeneration.
- Days remaining until the next regeneration will count down from the regeneration day override value to 1 day remaining.
- Once the count reaches 1, a regeneration cycle will be initiated at the next designated regeneration time.

Battery back-up (this unit uses a standard 9 volt alkaline battery)

- To install the battery the back-cover must be removed by removing the two back-cover screws.
- Next insert the battery into the battery holding clip and snap the 9 volt battery connector onto the battery.
- Replace back-cover
- Features of battery back-up
- The battery back-up maintains the time of day during power failures.

Note: During power failure to conserve battery power the display is turned off. However, to confirm that the battery is working you can press either button and the display will turn on for five seconds.

- * Menus cannot be accessed during power failure
- * If a power failure occurs while the valve is in regeneration the regeneration will resume operation once the power is restored

How To Start An Extra Regeneration Cycle

1. Starting delayed extra cycle

- If days remaining is not already at 1 press and hold the Set/Change button.
- After 3 seconds the days remaining display will read 1
- Regeneration cycle will be initiated at the next designated regeneration time

2. Starting Immediate Extra Cycle - First, complete above delayed cycle steps

- With days remaining at 1 press and hold the Set/Change button
- After 3 seconds the regeneration cycle will begin.

3. Fast Cycling Through Regeneration

- First complete above immediate cycle steps
- Press and hold the Set/Change button
- After 3 seconds the valve will start to advance to the next step

Error Codes

There are five (5) error codes that could indicate a possible problem with the control valve:

Error 2 - Homing slot expected. Valve will start looking for home.

(Normal operation continues)

Error 3 - Encoder is not sending a signal

(Valve requires service to continue)

Error 4 - Unable to find homing slot

(Valve requires service to continue)

Error 5 - Motor overload (stalled position or shorted motor)

(Valve requires service to continue)

Error 6 – Motor not getting power (usually, cable has disconnected from circuit board)

Adding Potassium Permanganate:

Add one 5-lb jug of potassium permanganate every 3 - 4 months. Check the potassium permanganate solution tank and when you see the mound of potassium permanganate disappear after a few months, just add another 5-lb jug. In some cases, you won't see the mound; you might just see solution after a couple of weeks. This is OK; you still only need to add the potassium permanganate every 3 months in most cases. If you have it set to regenerate (backwash cycles) every 1 – 3 days, you might need to add it more frequently, perhaps every 2 months.

Troubleshooting the 5900e Greensand Filter:

Pot Perm Not Being Sucked In During Regeneration

Most problems occur when the 5900e is not drawing in the brine. Make sure the injector is drawing in the brine:

1. Remove the brine tank tubing where it enters the 5900e control valve.
2. Initiate a backwash and skip to the Brine Cycle by following the steps below:
 - A. Starting delayed extra cycle
 - If days remaining is not already at 1 press and hold the Set/Change button.
 - After 3 seconds the days remaining display will read 1
 - Regeneration cycle will be initiated at the next designated regeneration time
 - B. Starting Immediate Extra Cycle - First, complete above delayed cycle steps
 - With days remaining at 1 press and hold the Set/Change button
 - After 3 seconds the regeneration cycle will begin.
 - C. Fast Cycling Through Regeneration
 - First complete above immediate cycle steps
 - Press and hold the Set/Change button

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-After 3 seconds the valve will start to advance to the next step, which is the Brine Cycle, where it is supposed to suck in the brine solution.

3. If it is sucking strongly, check the brine tank float inside the brine well and make sure there are no rubber bands around it, and that is free of obstructions. In some cases, it may need to be replaced or cleaned, if there is suction at the control valve, but no brine is being drawn in.
4. If there is NO suction at the control valve port where you removed the brine line tubing, then the injector should be cleaned.
5. If the injector has been cleaned and there is still no suction check to make sure there is obstruction in the backwash line; that the backwash line does not go up and over the softener more than several feet (which causes pressure loss and the injector not to work correctly); finally check to make sure there is enough pressure. If possible increase your water pressure to softener from your well pump and see if a slightly increased pressure makes the injector work. We recommend a minimum 30 PSI but it does work better if there is 40 to 50 minimum PSI.

System Not Backwashing Adequately

The other main problem that may occur is if you do not have enough backwash flow rate to properly clean the water softener. You can verify the backwash flow rate by running the drain line into a bucket and timing it when the 5900e is in Cycle 1 or backwash. A 1.0 or 1.5 cubic foot system should have 2.0 gallons per minute and a 2.5 cubic foot system should have 4.0 gallons per minute of backwash.

Pot Perm Tank Not Filling with Enough Water

Sometimes if the pot perm tank is not filling adequately, it is possible that the float assembly in the tank is set too low. You would want the float to be several inches above the air check valve inside the tank. This will allow for enough water to be added to the tank before shutting the brine fill cycle. If necessary, pull the float assembly rod up to the appropriate height, and cut the rod at that height, leaving while keeping the rubber washers the adequate space to hold the float in place.

Backwash Flow Rate

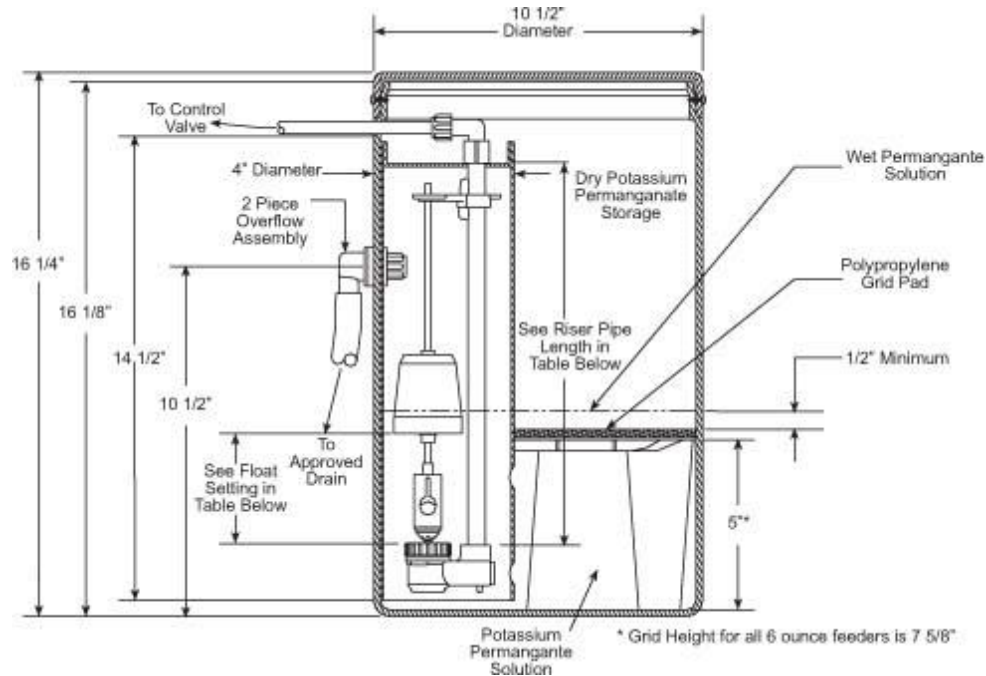
One problem that may occur is if you do not have enough backwash flow rate to properly clean the Softener. You can verify the backwash flow rate by running the drain line into a bucket and timing it when the 5900e is in Cycle 1 or backwash. A 1.0 or 1.5 cubic foot system should have 5 gallons per minute and a 2.5 cubic foot system should have 10 gallons per minute of backwash.

In some cases, the 5900e may not be programmed correctly. See the 5900e service manual for instructions on how to access the master programming.

What to Do If Your Filter Tank Does Not Sit Level On the Floor

Your black filter tank base is not glued to the bottom of your tank. Occasionally tank bases will become crooked during shipment. If you find that that your tank does not sit level on the floor, you can easily adjust it by holding the empty tank and rapping it on a concrete or solid floor once or twice in order to level it.

Potassium Permanganate Tank with Float



Permanganate Tank Not Filling With Permanganate Solution

Potassium permanganate is a powder that is poured on top of the “grid pad” in the pot perm tank. During the brine fill cycle, water is added to the pot perm tank to make up the pot perm solution required for the next regeneration.

If your pot perm does not have 1/2" to 1" of solution above the grid pad, the first to check is to make sure it is filling the tank:

1. Disconnect the 3/8" black poly line at the pot perm tank or at the control valve.
2. Put the system into a regeneration cycle and advance to the Brine Fill cycle.
3. If it IS filling, remove the safety float and make sure the air check ball is moving free and not stuck. A stuck float is often the cause of this problem and can be easily fixed. If the float is defective or older than 5 years, replace float.
4. If it is NOT filling during the Brine Fill (BF) cycle, then make sure there are enough minutes. It should be set for 12 minutes for standard size Clack pot perm tanks. If you have a larger commercial size tank, set for 20 minutes.
5. If it is still not filling, the brine valve may need to be cleaned. In the 5900e manual, in the diagram “Valve Assembly”, disconnect the parts listed and clean them thoroughly.

How To Remove Media From Control Head

Sometimes, when doing the Initial Backwash, the media gets lifted up into the control head. You can tell this happened because you will have little or no flow, either going out to drain while in the backwash position, or when in the service position.

To remove media from a control head, do the following:

- 1) Put the Inlet Bypass in the Closed position.
- 2) From the Service Mode, initiate a manual regeneration, by pressing and holding the regen button (button on far left).
- 3) The valve will advance to the BW (backwash) position, and start counting down. Press the Regen button again, and wait for the valve to advance and stop at the Rapid Rinse (RR) position.
- 4) With the valve in the RR position, open and close the Inlet Bypass valve several times. After the third or fourth time, leave it in the open position and check the drain line- do you have a good solid flow? 90% of the time, the answer is yes, but sometimes, even after opening and closing the valve many times, you still don't have good flow... But, in either case (good or no flow), continue...
- 5) With the Inlet Valve OFF, Advance the valve back to Service position again, and again press and hold the Regen button, we are putting the valve back to the Backwash position.
- 6) Open the Inlet valve just enough so you can hear the water passing thru the valve- you should notice a corresponding slow flow out of the drain line. After a minute, if there are no air bubbles present, open the valve about another quarter inch- again, you should see a corresponding increase in the flow... And you will continue until the valve is full open.

IMPORTANT:

Any time that you are in the Backwash or Rapid Rinse position, you may need to unplug the power- this will hold the valve in its current position, so it doesn't 'time out' and go to the next position. When you plug the valve back in, after a minute it will return to where it was when you unplugged it (i.e. 2:32 remaining in BW). Understand, it is not possible to jam media into the head while in Rapid Rinse, or Service, just in the Backwash, when the flow direction is reversed.

What you are trying to accomplish, after you have pushed the media back in to the tank in the Rapid Rinse position, is to get the Inlet valve all the way open in the Backwash position, without it jamming media back in the head, and this is the part where you have to go slow, open up the Inlet valve a little bit at a time and let it run for a few minutes- this is why you may have to unplug it- and then, once you have done that, finally, do one more backwash, starting with the Inlet valve open, just as it will be when it does it automatically at night. Once it does that successfully, you are done.

5900e Greensand Filter Installation & Startup Guide

More Troubleshooting Tips:

PROBLEM / SYMPTOM	POSSIBLE CAUSE	SOLUTION
<p>Iron or manganese or sulfur odor in treated water after Greensand Filter</p>	<p>No permanganate in solution tank</p> <p>Not backwashing often enough</p> <p>Water being used when Greensand Filter is in regeneration.</p> <p>Permanganate solution is not being sucked in during the regeneration brine cycle.</p> <p>Greensand media exhausted</p>	<p>Add permanganate powder to tank and regenerate greensand filter</p> <p>Set to backwash more frequently. Backwash twice in one day and re-check water.</p> <p>If any water is used during the 90 minute regeneration cycle, untreated water will enter household piping. Set time Greensand Filter regenerates to a time when no one will be using the water.</p> <p>Clean brine injector</p> <p>Clean potassium permanganate tank</p> <p>Replace permanganate support pad in permanganate tank</p> <p>Inadequate backwash flow. Make sure there that Greensand Filter is backwashing at the correct backwash flow rate (5 to 10 gallons per minute depending on size of filter).</p> <p>Low water pressure. Increase water pressure to unit by adjusting well pump pressure switch, or replacing well pump.</p> <p>Replace Greensand media with new Greensand.</p>

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Strong sulfur odor before and after Greensand filter	High levels of hydrogen sulfide gas in well water	In some cases, the greensand filter may need a chlorine feed (or ozone, oxygen or other oxidizer) prior to the filter. Make sure Greensand filter is working correctly, and try regenerating it once or twice a day for one week. If odor persists, replace Greensand media or add a chlorinator ahead of the Greensand Filter.
Pink water (permanganate) in household water	Inadequate backwash of Greensand Filter Clogged brine injector Inadequate rinse time Too much permanganate	Make sure Greensand Filter has adequate backwash at a good pressure and flow rate Clean or replace injector Set rinse cycle to longer time Lower float so that level of permanganate is lower in permanganate solution tank.
Potassium permanganate tank over-filling or over-flowing	Clogged brine injector	Clean or replace injector

Service Instructions:

Replacing The Brine Valve, Injectors, and Screen

1. Turn off water supply to conditioner:
 - a. If the conditioner installation has a “three valve” by-pass system, first open the valve in the by-pass line, then close the valves at the conditioner inlet and outlet.
 - b. If the conditioner has an integral by-pass valve, put it in the by-pass position.
 - c. If there is only a shut-off valve near the conditioner inlet, close it.
2. Relieve water pressure in the conditioner by stepping the control into the backwash position momentarily. Return the control to the service position.
3. Unplug electrical cord from outlet.
4. Disconnect brine tube and drain line connections at the injector body.

5A. To Replace Brine Valve.

1. Remove the control valve back cover. Disconnect the meter signal wire from the meter.
2. Remove screw and washer at drive yoke. Remove powerhead mounting screws. The entire powerhead assembly will now lift off easily.
3. Remove piston retaining plate screws and Pull upward on end of piston yoke until assembly is out of valve.
4. Pull brine valve from injector body, also remove and discard O-ring at bottom of brine valve hole.
5. Apply silicone lubricant to new O-ring and reinstall at bottom of brine valve hole.
6. Apply silicone lubricant to O-ring on new Brine valve assembly and press into brine valve hole, shoulder on bushing should be flush with injector body.

5B. To Replace Injectors and Screen.

1. Remove injector cap screws, remove cap & O-ring.
2. Remove injector assembly. Apply silicone lubricant to new injector assembly O-rings and install. Be sure to push injector assembly in tightly so O-rings are seated. Install screen.
3. Apply silicone lubricant to O-ring and install on injector cap.
6. Insert screws thru injector cap and into mating holes in the valve body. Tighten screws.
7. Reconnect brine tube and drain line.
8. Return by-pass or inlet valve to normal service position.
9. Check for leaks at all seal areas. Check drain seal with the control in the backwash position.
10. Plug electrical cord into outlet.
11. Set time of day and cycle the control valve manually to assure proper function. Make sure control valve is returned to the service position.
12. Make sure there is enough pot-perm in the brine tank.
13. Start regeneration cycle manually.