Clean Water Made Easy

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Pro-Ox 5900e-AIR 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.**
- The Pro-OX 5900e-AIR Iron Filter must be activated with a 1/2 cup of un-scented liquid chlorine bleach when first installing it. Read instructions for more information. It is easy to do, but a critical step.
- The iron filter must be backwashed and rinsed at least 3 - 5 times to clear out dust and fines when starting up the first time.
- The Pro-OX media contains dust. Use paper mask and ventilate area to avoid breathing dust when first pouring the media into the tank.

Watch How To Videos

http://bit.ly/2kqSal7

For assistance call: 1-831-462-8500 M-F 8AM to 4PM PST

Email us: office@cleanwaterstore.com

More information online: www.cleanwaterstore.com

Table of Contents

Packing List:

Pro-Ox 5900e-AIR 844

Pro-Ox 5900e-AIR control valve w/ bypass assembly with 1” pipe connectors

8” x 44” standard filter tank with distributor tube and bottom basket

Plastic media funnel for adding Pro-OX media

55 lbs. of Pro-OX media

10 lbs. of Chemsorb media

9 lbs. filter gravel

Pro-Ox 5900e-AIR 948

Pro-Ox 5900e-AIR control valve w/ bypass assembly with 1” pipe connectors

9” x 48” standard filter tank with distributor tube and bottom basket

Plastic media funnel for adding Pro-OX media

69 lbs. of Pro-OX media

10 lbs. of Chemsorb media

12 lbs. filter gravel

Pro-Ox 5900e-AIR 1054

Pro-Ox 5900e-AIR control valve w/ bypass assembly with 1” pipe connectors

10” x 54” standard filter tank with distributor tube and bottom basket

Plastic media funnel for adding Pro-OX media

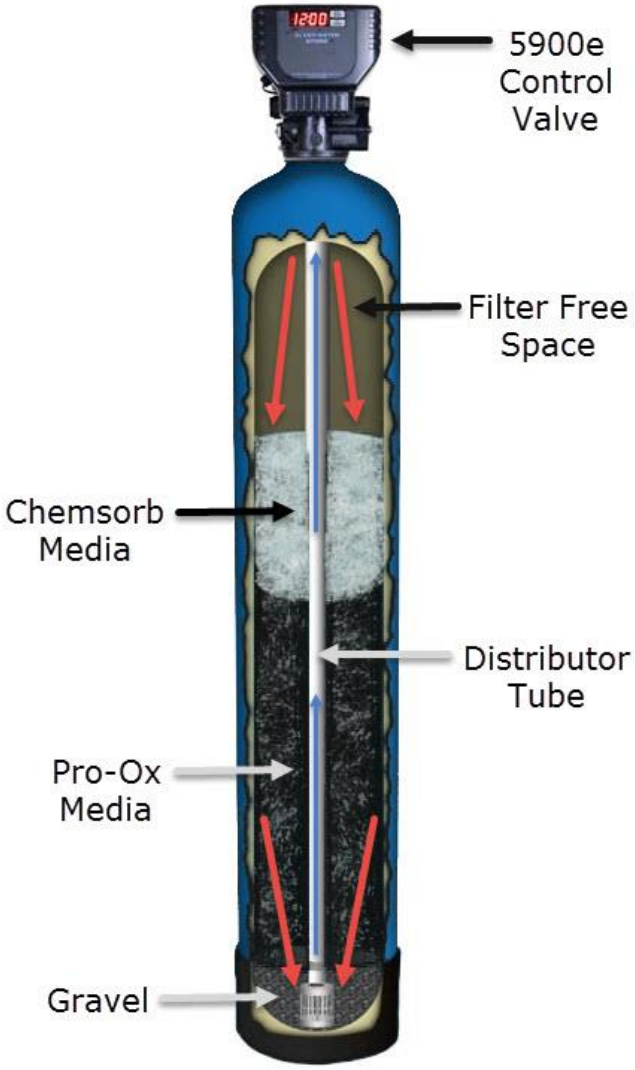
110 lbs. of Pro-OX media

16 lbs. of Chemsorb media

16 lbs. filter gravel

How Your Pro Ox 5900e-AIR Works:

The Pro Ox 5900e-AIR, when properly applied, is an efficient and cost effective system for the removal of iron and odor elimination. The Pro Ox 5900e-AIR control valve maintains a compressed "air pocket" in the top of the tank while the system is in service. As the water passes through the air pocket, iron is oxidized. Additionally, dissolved oxygen is added to the water. The Pro Ox filter media bed then removes the iron from the water. The backwash (usually done at night, once every 2-4 days) will remove accumulated iron and replenish the filter media bed. The regeneration process also adds a fresh air pocket to the system.



System Limitations:

The Pro Ox 5900e-AIR utilizes air, oxidation and filtration for the removal of Iron. This process will leave some air or effervescence in the water. The effervescence may give the water a milky appearance and is simply excess air in the water. While a certain amount of effervescence will always be present, it may be most noticeable during the first 30 days after installation of the system.

Your System Install Flow Chart:

1) Verify that you have received all parts for your system and there are no damaged or missing parts.
2) Build the filter vessel, and fill with water and 1/2 cup of liquid pool chlorine. The longer it soaks while you are doing everything else, the better. Build the filter near to where it goes, it will be very heavy when you are done.
3) Make the plumbing connections from your existing system to the bypass assembly, installing extra valves, unions, pressure gauges or hose bibs as needed.
4) Attach the control head to the tank, and to the bypass assembly.
5) Install the Drain Line tubing and the DLFC (Internal or External)
6) Plug in the power supply and program the valve.
7) Do the Initial Backwashes to put the system online and to verify the system is leak-free.

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. After the installation the Pro Ox 5900e-AIR, it must be allowed to run through several complete backwash and rinse cycles.

5. After the system is installed and running, your water may be discolored, or full of sediment or rust, especially if you have older or corroded piping. This typically clears up over a day or two. Allowing the media to soak (filling the unit up with water and then adding a cup of chloirne)

Best Practices for Piping & Drain Installation:

1. See typical installation (Fig 2). The Pro Ox 5900e-AIR is installed after the pressure tank.

2. Make sure to connect the IN pipe to the Pro Ox 5900e-AIR inlet and the OUT pipe to the outlet (see Fig 3). As you face the Pro Ox 5900e-AIR control from the front, the water enters on the right and exits on the left. 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 Pro Ox 5900e-AIR and also one after as shown in Fig 2. The pressure gauges are optional but a hose bib (which is a faucet to which you can attach a garden hose) is strongly recommended after the Pro Ox 5900e-AIR and before the second ball valve. This makes it easy to rinse your new Pro Ox 5900e-AIR 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 Pro Ox 5900e-AIR control valve. Avoid heating up the Pro Ox 5900e-AIR control valve plastic with the torch.

5. We recommend PEX or PVC pipe up to the Pro Ox 5900e-AIR and then copper after it, if you have copper plumbing.

6. You do not need unions to install your Pro Ox 5900e-AIR control valve. If you need to remove it, the Pro Ox 5900e-AIR has quick-release couplings that make it easy to put the Pro Ox 5900e-AIR on by-pass and remove the filter system from the piping.

7. The drain line tubing (not supplied) is connected to a drain from the drain outlet using flexible 5/8" ID tubing. Note that the drain line can run up above the Pro Ox 5900e-AIR 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.

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.

Fig 1.

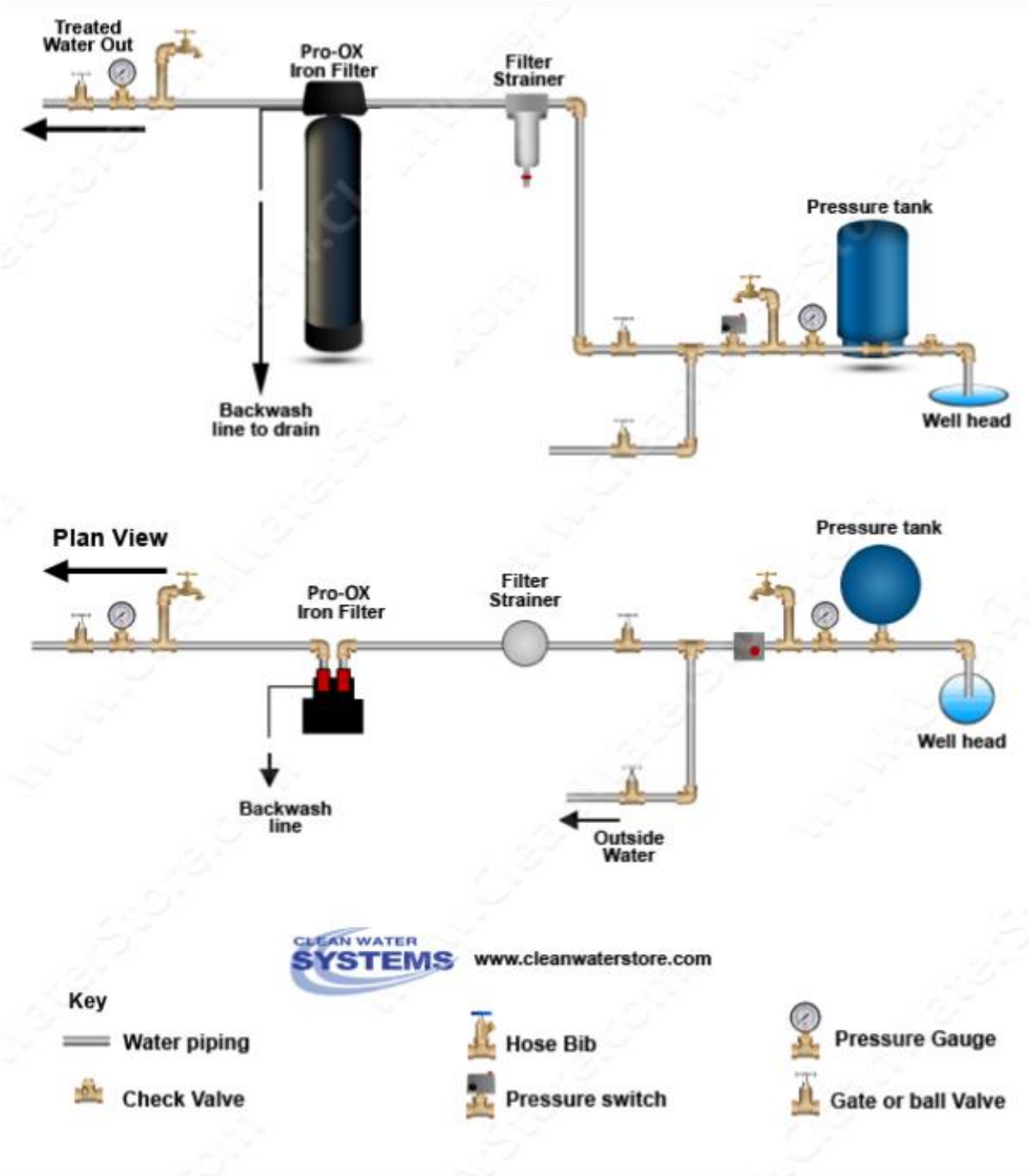

Treated Water Out
Pro-OX Iron Filter
Filter Strainer
Pressure tank
Backwash line to drain
Well head
Plan View
Pressure tank
Pro-OX Iron Filter
Filter Strainer
Well head
Backwash line
Outside Water
CLEAN WATER SYSTEMS
www.cleanwaterstore.com
Key
Water piping
Check Valve
Hose Bib
Pressure switch
Pressure Gauge
Gate or ball Valve

Fig 2:

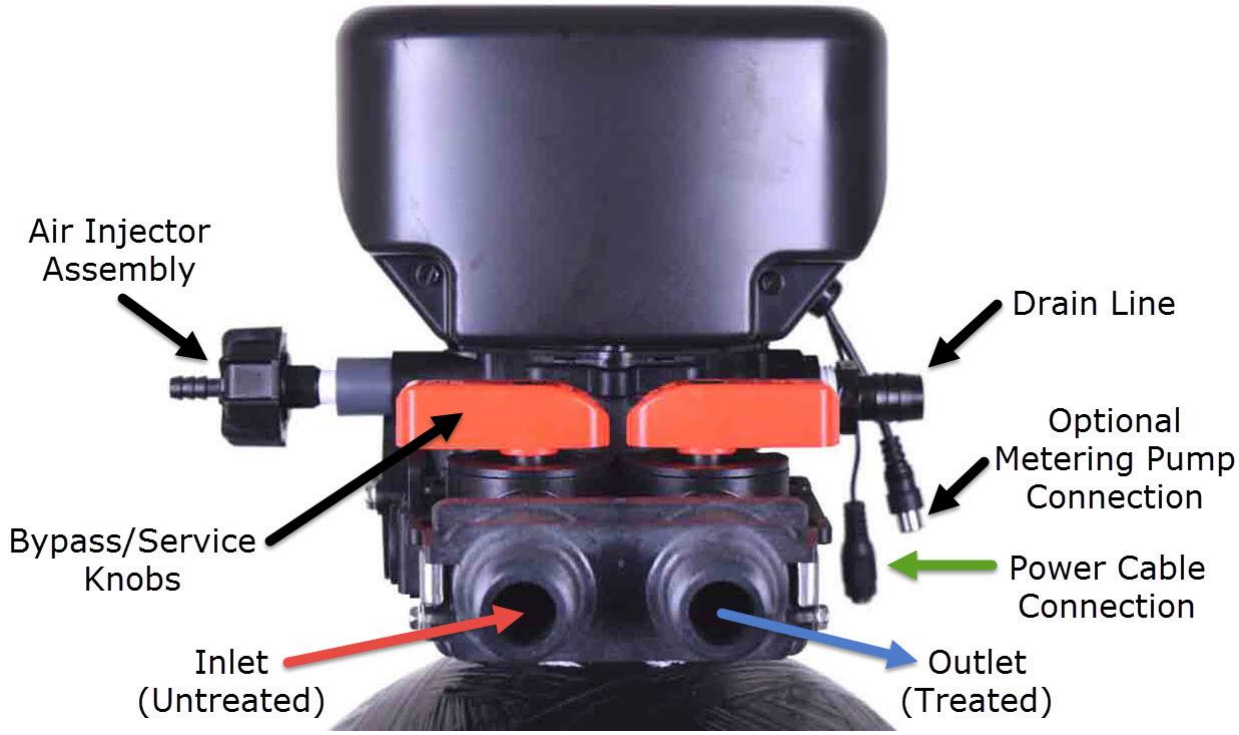


Fig. 3:

Bypass Mode
Knobs In A Line
= Unfiltered Water

Service Mode
Knobs Parallel
= Filtered Water

Assembly and Installation Instructions:

1. Cover the top of the distributor tube with black electrical tape or blue painter's masking tape so that no gravel or media will go down the distributor tube when adding the media. Leave a folded tab of tape so you can easily pull off the tape after filling the tank. **Make sure you "test fit" the distribution tube, and find the divot that keeps the tube centered, before adding the gravel and media.** Hold the tube center until there is enough gravel and media to support the tube.

2. Add the filter gravel that came with your order. The gravel should cover the bottom distributor screen before adding the Pro Ox media.

3. Next, add the Pro-OX media first, and the Chemsorb media last, so that the Chemsorb sits on top of the Pro-OX media. The tank should be about 2/3 full of media, do not fill more than 2/3 full, even if there is media left over.

4. Remove tape from top of distributor tube. **Be careful not to pull up distributor tube when removing tape.**

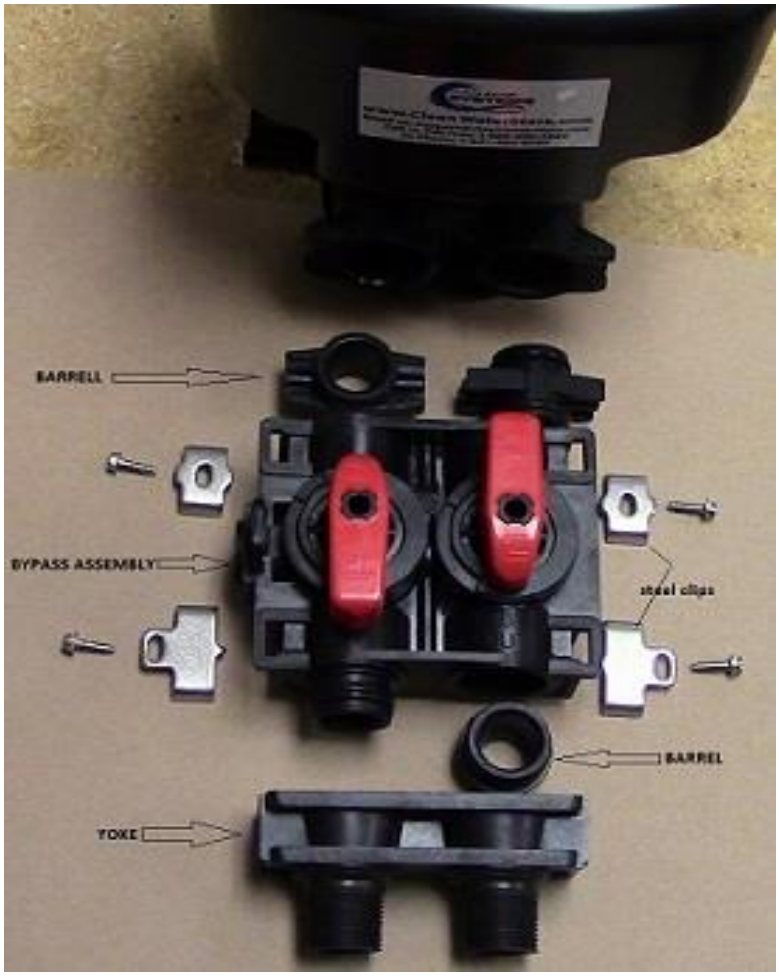
5. Fill the tank completely with well or other water and add ½ cup liquid un-scented chlorine bleach. The chlorine will activate the Pro-Ox media, and the water will reduce the need of purging the air out of the tank later.

6. 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.

Note: If you pull up the distributor tube up after the gravel and media are in the tank (upon initial install or any time after, for service, etc.), it must be re-seated. It is usually possible to do this by jetting water down the distributor tube while pushing on the end of the tube. If this does not work, you must empty the tank completely and start over. Several backwashes will be required afterwards, to re-classify the gravel and media.

Fig 4: 5900e Bypass with Barrels

Fig 5: Bypass with steel mounting clips



Assemble the bypass valve:

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 fully 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 for now.

3. Attach the 1” MPT yoke to the back end of the bypass. Remove the barrels (Figure 5) 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 (Figure 6).

4. Now install your water pipes to the 5900e-AIR 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. Assemble the Drain Line Flow Control (DLFC) Fitting: A ½” MPT X 5/8” OD Barb is included. Using three wraps of Teflon tape and some Teflon paste on the ½” thread, screw that into the Drain Line Fitting. This is located on the side of the valve; it is removed by pulling out the black clip. The DLFC is a black rubber washer with a hole in it- refer to the table to determine which DLFC to install. If your unit backwashes at 10, you will install an external fitting (see separate insert).

6. Connect some flexible tubing from the drain connection on the 5900 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 5900 Pro Ox 5900e-AIR 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 necessary to be able to run the drain line into a bucket in order to test the backwash flow rate upon start up and in the future. **This is why hard piping the drain line is discouraged**. If you use hard PVC piping for the drain line, **you must able to remove the hard PVC drain piping and attach flexible tubing for testing purposes.**

7. **Make sure the drain tubing is firmly clamped to the barbed fitting with a hose clamp to prevent leaks or blow-offs.**

Assemble The Drain Line Flow Control Hose Barb:

.75 CF	5 GPM
1.0 CF	7 GPM
1.5 CF	10GPM

8. Remove the clip and the Drain Line fitting (Upper left). Apply Teflon tape and paste (Upper right). Install the internal DLFC Button on the .75 and 1.0 cf systems; the 1.5 system has an External DLFC. Re-install Drain Line Fitting and put clip securely in place. (Lower right).

9. Next, you will need to program the system to work as a Pro Ox 5900e-AIR 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:

*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 are 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 initial setting for a Pro Ox 5900e-AIR filter is every 4 days
   - Once the last digit is accepted all digits will flash Example [A - 04]
   Notes: -Maximum Value is 29
   -If value is set to 0, automatic regeneration will never occur
   -One cycle must be completed before new setting will be accepted.

5. To Set the Number of Days between Air-Draw Cycles (d) Press the Set/Change Button
   1) **Set to 1 day, to regenerate the system with new air daily.** Example [d - 01]

During this process, the valve will use a little bit of water to create suction in order to regenerate the air, and will make some noise during this cycle. However, the valve will still backwash only on the days that you have programmed it to.

6. 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.

Next you will need to set the Master Programming to be used as a Pro Ox 5900e-AIR filter, continue on to the Master Programming 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, when 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. If you have 2 or more filters, make sure they are programmed to start an hour apart, so they do not backwash at the same time. The first digit(s) indicates the Hour and the other digit indicates A.M. or P.M.

Example: 12 A.M. regeneration time - [r 12A] (factory setting)

2. Regeneration Cycle Step Programming (2)(3)(4)(5)

The next 4 displays viewed are part of a series of option settings used to program the Regeneration Cycle. Up to 4 steps can be programmed, however, some steps may not be necessary for your application and will be set to 0. Additionally, Step 1, the air release, is not programmable, and therefore will not be displayed for programming. 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:

Set each step according to the values below, appropriate for a Pro Ox 5900e-AIR filter:

1 Not Programmable. This is the Air Release cycle. **[Not Displayed]**
2 10 minutes. This is the Backwash cycle. **[2 - 10]**
3 5 minutes. This is a rest cycle. **[3 - 05]**
4 12 minutes. This is the air-draw cycle. **[4 - 12]**
5 6 minutes. This is the Rapid Rinse cycle **[4 – 06]**

bE This menu option is for process control applications not used on your Valve. It will say either 0 or 1, and you do not need to change it.

bttPP This menu option goes with the above, it is not used. It will briefly display 1234 and then the digital display will return to Service Mode.

Note on Air-Draw Cycle (4):

The longer the unit is set to remain in the air-draw cycle (5), the more air is drawn into the system. A default setting of 12 minutes draws air down to the level of a normal media bed height and then returns the unit to the home display. If the system needs more air, increase the time setting for step 4

Exiting the Master Programming Mode:

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

Lastly, you will need to perform initial backwashes to finish setting up the filter and getting it ready for use.

Initial Backwash:

MAKE SURE THE SOUCE WATER ENTERS THE INLET PIPING!

MAKE SURE THAT BOTH THE INLET AND OUTLET VALVES ON BYPASS ARE CLOSED!

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 [1- 00]. This is the step that releases the air and is not programmable- press the Set/Change button when it starts this cycle, which will advance the piston to cycle step 2. Now, proceed to step two.

2 Start to put the valve into the service position by turning the inlet the bypass knob 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, and we must purge the 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 will be black, turning to gray, mostly clear water- the water does not get crystal clear in the Backwash mode (only at the end of Rapid Rinse and during Service).

3 Once the water is mostly 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. **Note:** It may take longer than the ten minutes that are programmed for this step (BW) before you have the valve opened all the way- simply unplug the power supply from the wall when there are still a couple minutes remaining; when you are ready to continue, plug the valve back in, and it will return to where it was.

4 Let the unit do the Rapid Rinse cycle and 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.

External DLFC:

If you bought a 1.5 cubic foot Pro-Ox system, you will get a 10 gpm external Drain Line Flow control. This is three pieces: a ½" x ¾" MPT Adapter, the DLFC, and a hose barb fitting. Assemble the 3 parts using Teflon tape, making sure the flow arrow is facing the right direction. The half inch male pipe thread screws into the Drain Line Fitting.

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)

-Installing the 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.
-The battery back-up continues to count down gallons remaining during power failure (Metered Version)
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 have to be restarted. The battery power will advance the valve to the next cycle where no water is being used.

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 step
    -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

Troubleshooting the 5900 Pro Ox 5900e-AIR Filter:

Backwash Flow Rate

One problem that may occur is if you do not have enough backwash flow rate to properly clean the Pro Ox 5900e-AIR filter. You can verify the backwash flow rate by running the drain line into a bucket and timing it when the 5900 is in backwash. A 0.75 CF system should have 5 gpm, a 1.0 CF system should have 7 gpm, and a 1.5 CF system should have 10 gpm for the backwash cycle.

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 means the cable has disconnected from the circuit board.)

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 positon, or when in the service positon.

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

1) Put the Inlet Bypass in the Closed position.

2) From the Service Mode, press and hold the Set/Change button. The days remaining, if not already at 1, will change to 1. Release the Set/ Change button, and press and hold it again, until you hear the valve advancing, and see the digital display change.

3) The valve will advance to the first step. When it gets there, press the Set/Change button to advance the valve to the second step. Do this until you are at step 5, the rapid Rinse (RR).

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 Set/Change button, past the first cycle and to the second; we are putting the valve back to the Backwash position (Step 2).

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.

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. 2:00 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.

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.