CLEAN WATER STORE

Clean Water Made Easy

www.cleanwaterstore.com

Pro-Ox Lite 5900-BT AIR



Iron & Manganese Filter with Air Injection

Installation & Maintenance Guide

Thank you for purchasing a Clean Water System! With proper installation and a little routine maintenance, your system will provide iron-free water for many years.

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

The Pro-Ox Lite filter media **must be activated with 1 cup of unscented liquid chlorine bleach** when you first install it. It is easy to do, but it is a critical step (see page 9).

Bring the water pressure up **very slowly** during the first backwash so the media is not pushed up into the control valve. Leave the air draw turned off during start-up (page 14).

The Pro-Ox Lite media contains dust. Wear a paper mask and ventilate the area when you first pour the media into the tank.

Water pressure: 30 PSI recommended minimum, 90 PSI maximum.

Water temperature: 34 to 100°F. For indoor installation only. Protect from sunlight, rain and freezing.

For Assistance:

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

Email us: support@cleanwaterstore.com

Website: www.cleanwaterstore.com

Start-up videos: youtube.com/playlist?list=PLIYo0ek4wcmy4VVdNpgNomZBc0sLHjxM0

Table of Contents

Packing List	4
How Your Pro-Ox Lite 5900-BT AIR Works	5
System Install Steps Overview and Pre-Installation	6
Best Practices for Piping & Drain Installation	7
Fig 2. Diagram of a Typical Installation	8
Copper or Metal Piping; Add Filter Media and Install the Valve	9
Attach the Bypass, Electrical Connections, Battery	11
Piping Installation	12
External Drain Line Flow Control; Program Your Valve: Main Menu	13
Program Your Valve: Master Programming Mode	14
Detailed Steps to Starting Up Your System	15
Using the Optional Bluetooth Legacy View App	17
Normal Operation and Manual Backwash	21
Maintenance	22
Troubleshooting	23
How to Remove Media Stuck in the Control Valve	25
Service Instructions	26
How to Replace the Pro-Ox Lite Media	28
Powerhead Exploded View and Parts List	29
Valve Body Exploded View and Parts List	30
Limited Warranty	32

Packing List

All systems include: 5900-BT AIR control valve with air check valve, bypass valve with 1" pipe connectors, top screen, 12-volt power supply, small tube of silicone grease, funnel for adding media, **spare air piston and spare injector screen**, and this start-up guide. Find your size below to see what else is included.

Pro-Ox Lite AIR 1.0 cubic foot (9" x 48" tank)

9" x 48" filter tank with distributor tube and bottom basket
12 lbs. filter gravel
Qty 2: ½ cubic foot bags of Pro-Ox Lite media

Pro-Ox Lite AIR 1.5 cubic foot (10" x 54" tank)

10" x 54" filter tank with distributor tube and bottom basket
16 lbs. filter gravel
Qty 3: ½ cubic foot bags of Pro-Ox Lite media

Pro-Ox Lite AIR 2.0 cubic foot (12" x 52" tank)

12" x 52" filter tank with distributor tube and bottom basket
20 lbs. filter gravel
Qty 4: ½ cubic foot bags of Pro-Ox Lite media
External drain line flow control, 10 GPM (see page 13)

Not included: 9-volt battery (for keeping the time during power outages; install it after the first backwash).

What to Do if Your Tank Is Not Level Out of the Box

The filter tank base is not glued to the tank. Occasionally a base tilts during shipping. If the tank does not sit level, hold the empty tank and tap it on a concrete or solid floor once or twice to level it.

How Your Pro-Ox Lite 5900-BT AIR Works

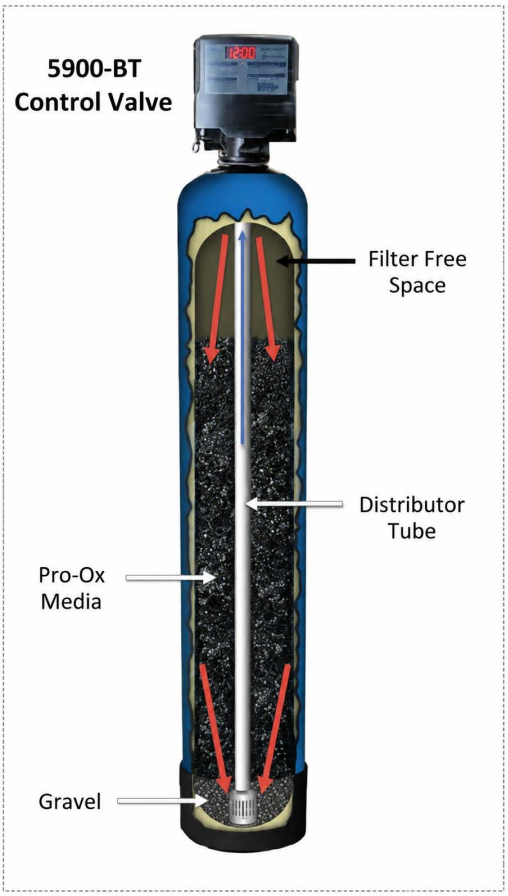
The Pro-Ox Lite 5900-BT AIR, when properly applied, is an efficient and cost-effective system for removing iron, manganese and mild sulfur (rotten-egg) odor.

The 5900-BT AIR control valve keeps a compressed **air pocket** in the free space at the top of the tank while the system is in service. As water passes through the air pocket, iron is oxidized and dissolved oxygen is added to the water.

Water then flows down through the Pro-Ox Lite media (red arrows), which filters out the oxidized iron and manganese, and up the distributor tube (blue arrow) to your home.

During backwash the flow is reversed: water flows down the distributor tube and up through the media, lifting, expanding and cleaning it. Backwash is usually done at night, every 3 to 4 days.

Each night the valve draws a fresh pocket of air into the tank through the air injector, for maximum oxidation.



Note About Aeration

You may notice tiny air bubbles in the water during the first week or so after installation. This is normal and goes away.

Some well waters do not need aeration, and the air draw can be turned off. You can also run the first 2 weeks without aeration, see how it works on your water, and turn the air draw on later (page 14).

System Install Steps Overview

1. **Put the gravel in first, then the Pro-Ox Lite media.** Add 1 cup of unscented liquid bleach and let it soak at least 1 hour (up to 24 hours is OK).
2. **Make the plumbing connections** from your existing system to the bypass assembly, installing extra valves, unions, pressure gauges and hose bibs as needed.
3. Attach the control valve to the tank, and to the bypass assembly.
4. Install the drain line tubing (and the external drain line flow control on the 2.0 cu ft system).
5. Plug in the power supply and program the valve, with the air draw (step 4) set to 0 for start-up.
6. Follow the start-up instructions to put the system online and check that it is leak-free. Then turn the air draw back on.

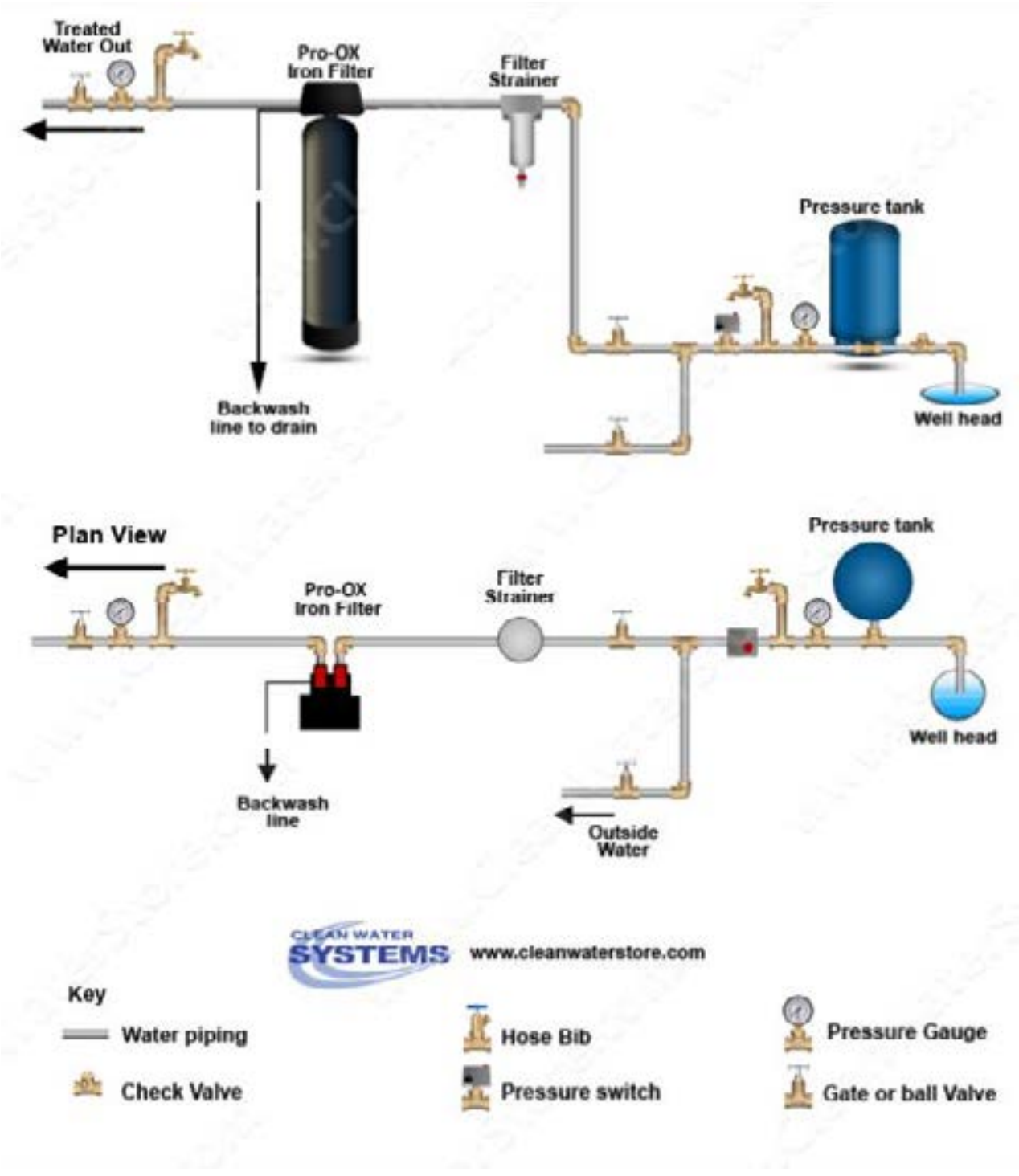
Pre-Installation

1. Check your packing list to make sure you have received all the parts before you start.
2. If you will be turning off the water to the house and you have an electric water heater, turn off the power to the water heater before you begin.
3. Pick a dry, level spot for your filter where it won't be exposed to freezing temperatures, direct sunlight, wind or rain.
4. Check that your well pump can supply the backwash flow for your size. Measure it at the pressure tank, not at a faucet (page 24). A filter that can't backwash fully will plug up.
5. After the system is installed and running, your water may be discolored or carry sediment or rust for a day or two, especially with older or corroded piping. This clears up.

Best Practices for Piping & Drain Installation

1. See the typical installation (Fig 2). The Pro-Ox Lite AIR filter is installed **after the pressure tank.**
2. Install on a level floor or surface.
3. Install the filter at least 10 feet ahead of the water heater inlet, or use a check valve, to prevent damage from hot water backing up.
4. **Do NOT install the unit in direct sunlight or where it can freeze.**
5. **Locate the unit near an unswitched, 120-volt / 60 Hz grounded outlet.**
6. Connect the IN pipe to the 5900-BT inlet and the OUT pipe to the outlet.
7. Install a working gate or ball valve before the filter and one after it, as shown in Fig 2. Pressure gauges are optional. A hose bib (a faucet you can attach a garden hose to) is strongly recommended after the filter and before the second ball valve, for rinsing and taking water samples.
8. If you use copper pipe, do not sweat the pipe directly onto the 5900-BT valve. Keep the torch away from the plastic valve.
9. You do not need unions. The 5900-BT has quick-release couplings that make it easy to put the filter on bypass and remove it from the piping.
10. Run the drain line from the drain outlet to a drain with flexible poly tubing. The drain line can run up to about 4 feet above the tank and then down to a drain; this may need a one-way flapper-style check valve. If it runs longer than 20 feet, use 3/4" tubing.
11. **Most plumbing codes require an air gap at the drain**, so that if your sewer or septic tank backs up, it can't cross-connect with the drain tubing (for example, when running the tubing into a washing machine drain pipe).

Fig 2. Diagram of a Typical Installation



Installation Into Copper or Metal Piping

If your filter is installed in a metal (conductive) plumbing system, such as copper or galvanized steel pipe, the plastic bypass and connectors interrupt the electrical continuity of the plumbing. Stray currents from improperly grounded appliances, or galvanic activity, can then no longer ground through the pipes. Some homes were built to codes that ground appliances through the plumbing.

Install a bypass made of the same material as the existing plumbing, or a grounded "jumper wire" that bridges the equipment and restores continuity, before using the system. A ground jumper wire with pipe clamps costs a few dollars at any home center or hardware store.

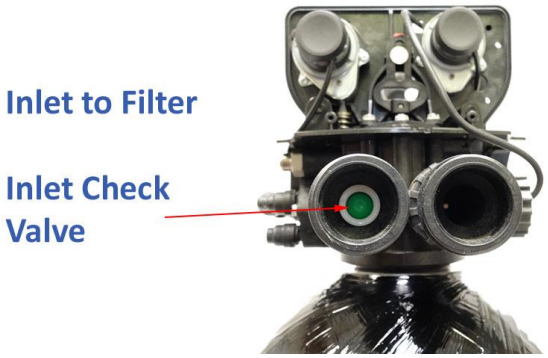
Add Filter Media and Install the Control Valve

1. **"Test fit" the distributor tube first.** Find the divot in the tank bottom that keeps the tube centered, before you add gravel, so the tube does not stick up past the top of the tank.
2. We ship one of two styles of funnel, a blue one or a black one, depending on availability.
3. With the blue funnel, cover the top of the distributor tube with electrical, duct or masking tape so no gravel or media goes down the tube.
4. Leave a folded tab of tape so you can pull it off easily after filling.
5. Hold the tube centered until there is enough gravel and media to support it. **The top of the distributor tube should be level with the top opening of the tank.**





6. Add the filter gravel that came with your order. The gravel should cover the bottom distributor screen before you add the media.
7. Next, add the Pro-Ox Lite media.
8. The tank should be about 2/3 full. Don't fill much more than 2/3 full, even if there is media left over.
9. **Add 1 cup of unscented household bleach down the distributor tube and fill the tank completely with water.** Let it soak at least 1 hour, up to 24 hours, before you connect it to the piping.



10. Remove the tape from the top of the distributor tube. **Be careful not to pull the tube up.**
11. Attach the plastic top screen to the underside of the control valve. It is a funnel-shaped screen that snaps on and turns clockwise to lock.
12. **Screw on the control valve:** put a small amount of silicone grease on both O-rings on the bottom of the valve (O-rings only, not the tank threads) and screw the valve on carefully.
13. **Do not lubricate the tank threads or any fitting other than O-rings. Do not use pipe-joint compound, vegetable oil, Teflon tape, Vaseline or other greases on the tank threads.**
14. If you accidentally pull the distributor tube up after the gravel and media are in, it must be re-seated. You can usually do this by spraying water down the tube with a garden hose while pushing on the tube. If that doesn't work, empty the tank and start over.
15. **Do not hard-pipe the drain line with PVC or copper; use flexible tubing.** If you do use hard PVC, you must be able to remove it and attach flexible tubing for testing.
16. **Clamp the drain tubing firmly to the barbed fitting with a hose clamp** to prevent leaks or blow-offs.

> The **inlet check valve** (photo above) is part of the AIR valve: it sits in the inlet port and holds the air pocket in the tank. Leave it in place.

Attach the Bypass

Make sure all three sets of O-rings are lubricated, then insert and screw the bypass onto the end connectors. The O-rings are already on the valve, with the inlet check valve on the left (inlet) side. Screw the elbow fittings onto the ends of the bypass and attach them to the IN and OUT service pipes. There is supposed to be some "play" in the assembly; don't over-tighten.

Electrical Connections

P = Power: use this connection. It is the jack on the outside of the valve, nearest the side. Plug the power supply into P, then into an always-on wall outlet.



B = optional (powered in the backwash step only). S = optional (powered in the regeneration step only). B and S power optional external relays, pumps or solenoid valves and are not used in most homes.

Install a 9-Volt Battery (not included)

> **Do not install the battery until after the initial backwash.**

Connect a 9-volt battery to the battery cable under the control panel; the battery sits under the panel. The panel lifts off without tools. During a power outage the battery keeps the time of day (the display turns off to save power). If the power goes out during a backwash, the motor moves the valve to a shut-off position so water doesn't run to the drain. Replace the battery after a long outage.

Piping Installation

1. Use Teflon tape on pipe threads. Connect the IN pipe to the inlet and the OUT pipe to the outlet. Facing the front of the 5900-BT, water enters on the right and exits on the left (from the back, it enters on the left).
2. The inlet and outlet are on the bypass valve, which is also marked with arrows.



3. Install a hose bib after the system, and a working gate or ball valve before the filter and one after it, as shown in Fig 2. Pressure gauges are optional, but **a hose bib after the filter and before the second ball valve is strongly recommended.** It makes it easy to rinse the new system at start-up and gives you a place to test water before it enters the house.
4. With copper pipe, don't sweat the pipe directly onto the valve; the plastic will melt.
5. You don't need unions; the quick-release couplings let you bypass and remove the filter easily.
6. Run the drain line from the drain outlet with flexible tubing. It can run up to about 4 feet above the tank and then into a drain.
7. Most plumbing codes require an air-gap connection at the drain, so a backed-up sewer or septic tank can't connect with the drain tubing.



Hose Bib

External Drain Line Flow Control ("DLFC")



The **2.0 cubic foot (12" x 52") system** comes with a 10 GPM external drain line flow control. It has three parts: a 1" x ¾" adapter, the DLFC and two hose barb fittings. The 1.0 and 1.5 cubic foot systems use the flow control built into the valve and don't need one.

Assemble the parts with Teflon tape, with the **flow arrow pointing toward the drain.** It can go anywhere in the drain line run, even at the end. Clamp it to a wall.

Program Your Valve: Main Menu



1. Remove the cover by pulling the front and back tabs out slightly and lifting it straight up.
2. Press the Menu/Enter button to enter the main menu (time of day flashes).
3. Press Set/Change to set the time of day (the first digit flashes). Each press increases the value; to go lower, go "all the way around."
4. Press Menu/Enter to accept each digit. With all digits flashing, press Menu to set A.M. or P.M.
5. **Days between backwashes (A):** press Set/Change. **Set A to 3 or 4** to start (A-04 = every 4 days). Backwash every 2 to 3 days if iron is high or the water is heavily used.
6. **Days between air draws (d):** press Set/Change. **Set d to 1** (d-01) to draw fresh air every night. The air draw uses a little water and makes some noise; the valve still backwashes only on the days set in A.
7. Press Menu/Enter to exit.

Program Your Valve: Master Programming Mode

1. Regeneration time (r)

Press Menu/Enter. To enter Master Programming Mode, press and hold both buttons for 5 seconds. The first display is the regeneration time, shown with an "r" on the left. "Regeneration" means the backwash, air-draw and rinse cycles. **We recommend 2 A.M.**, or a time when no water is used. If you have 2 or more filters, set them at least an hour apart. Example: r 12A = 12 A.M. (factory setting).

2. Regeneration cycle steps

The next displays set the length, in minutes, of each step in the regeneration cycle. Step 1 (air release) is not programmable and does not appear; it takes about 4½ minutes. A step is skipped by setting it to 0.

Step	What it does	Start-up setting	Normal setting
1	Air release (not programmable)	about 4½ min	about 4½ min
2	Backwash	10 min [2 - 10]	10 min [2 - 10]
3	Rest	5 min [3 - 05]	5 min [3 - 05]
4	**Air draw**	**0 min [4 - 00]**	**20 min [4 - 20]**
5	Rapid rinse	6 min [5 - 06]	6 min [5 - 06]

> **Start-up:** set the air draw (step 4) to 0 until the media has been flushed clean (page 15). Then come back here and set step 4 to 20 minutes. If the air draw is left at 0, the filter won't draw air.

3. Bluetooth and password

Press Menu/Enter again to show "bE 1". Set to 01 to enable Bluetooth for the Legacy View app, or 00 to disable it. Press Menu/Enter again: "bTPP" shows, then the password (1234 by default). Press Menu/Enter to return to the home screen (time of day and days until backwash).

See Historical Data and Real-Time Flow Rate

Press and hold Menu/Enter to see: **Flo** flow rate now (GPM) · **Gt r** / **g tot** total gallons through the filter · **rC r** / **rC** number of regenerations · **gPdL** gallons used each day · **Gbrl** gallons between regenerations · **PfDL** peak flow in the last 24 hours. If you get stuck, keep pressing Menu/Enter until you are back at the home screen.

Detailed Steps to Starting Up Your System

1. New Pro-Ox Lite media has black fines (dust) in it. They must be rinsed out by backwashing, which can take several backwashes. **Keep the air draw (step 4) at 0 during start-up** (page 14).
2. **MAKE SURE THE SYSTEM IS PIPED CORRECTLY**, with the water supply going to the inlet on the bypass valve.
3. **MAKE SURE BOTH THE INLET AND OUTLET BYPASS VALVES ARE CLOSED** to start.
4. **CLOSE THE BALL OR GATE VALVE AFTER THE FILTER SO NO WATER CAN ENTER THE HOME DURING THE FIRST BACKWASH.** If you did not install a hose bib and valve after the filter, don't use any water in the house during start-up.
5. Put any filters or softeners installed after this filter in bypass until all the media fines are rinsed out.
6. If the days remaining is not already 1, press and hold Set/Change.
7. Press and hold Set/Change again until the valve starts a regeneration. It first releases air (step 1, about 4½ minutes), then goes to backwash: the display reads **2 - 10**.
8. When it is in backwash, start putting the valve in service by turning the inlet bypass knob counterclockwise **a little, slowly**, until you hear water passing into the filter. Stop and wait until water comes out of the drain line; it is often mixed with air.
9. When there are no more bubbles, keep opening the inlet a little at a time, pausing a minute or two each time. The flow out of the drain line should increase as you open it.
10. After several minutes the inlet should be fully open with no media coming out. The water will be black, turning gray. It does not get crystal clear in backwash, only at the end of the rapid rinse and in service.
11. After the backwash the filter rests for 5 minutes, then the rapid rinse starts (with step 4 at 0, there is no air draw).

12. To skip to the next step (past the rest, for example), hold Set/Change for 3 seconds. Let the unit do the rapid rinse and return to service (time of day shows).
13. Start another regeneration (press and hold Set/Change) and repeat the backwash, rest and rinse. **Repeat this 3 or 4 times** to clean the media.
14. Open the outlet on the bypass valve, then open the hose bib after the system and let the water run until it is clear. Then run water in the house from a bathtub, laundry sink or other fixture without an aerator screen (residue can catch in the screen) for 5 to 10 minutes to flush the pipes.
15. **Note:** the backwash water may still look black even after several backwashes. Once the filtered water runs clear after the first 3 or 4 backwashes, the filter is ready to use.
16. **Turn the air draw on:** enter Master Programming Mode (page 14) and set step 4 to **20 minutes [4 - 20]**. Check that the days between air draws (d) is 1.
17. Install the 9-volt battery (page 11).
18. Put any softeners or filters after this one back in service.

Congratulations, you are done starting up your filter system!

You may see tiny air bubbles in your water for the first week or so after the air draw is turned on. This is normal and goes away. To check the air draw is working, start a manual regeneration and, when the display shows 4 on the left, hold a finger over the opening of the mushroom-shaped air check fitting: you should feel suction.

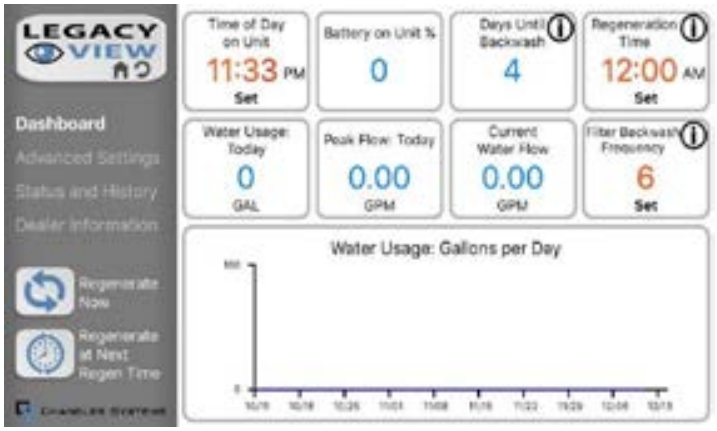
Installing and Using the Optional Bluetooth Legacy View App

For simpler set-up and control, install the Legacy View app on a Bluetooth 4.0+ smartphone or tablet. Times and settings can be set from the app **except the air draw minutes: set the air draw (step 4) on the control valve** (page 14).

1. Download and install Legacy View from the Google Play Store or Apple App Store.
2. Open the app.
3. Choose your valve from the list of available devices (your 5900-BT, or valves if you have more than one system).
4. If your valve doesn't show up, or there is a problem connecting, press "Scan for Devices" or the Legacy View logo to refresh the list.
5. If the valve has a password other than the default, the app asks for it the first time you connect. You won't need to enter it again unless it changes.
6. The app can update the valve's firmware. App updates from the Google Play Store or Apple App Store may include new valve firmware with new features or improvements. It's up to you whether to send an update to the valve; it takes about 1 minute.



Legacy Phone App Dashboard

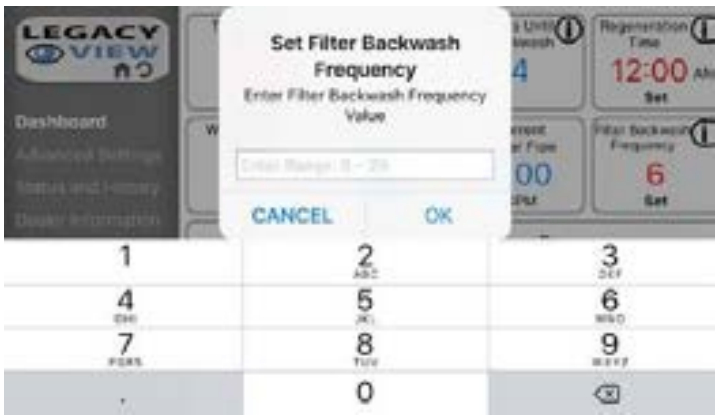


From the Dashboard, all items in **ORANGE** can be changed (except the air draw; set that on the control valve), while blue fields are information only.

> Not sure what a field does? Tap the Info icon.



1. Change the time of day (press "Set" to set it from your phone's time).



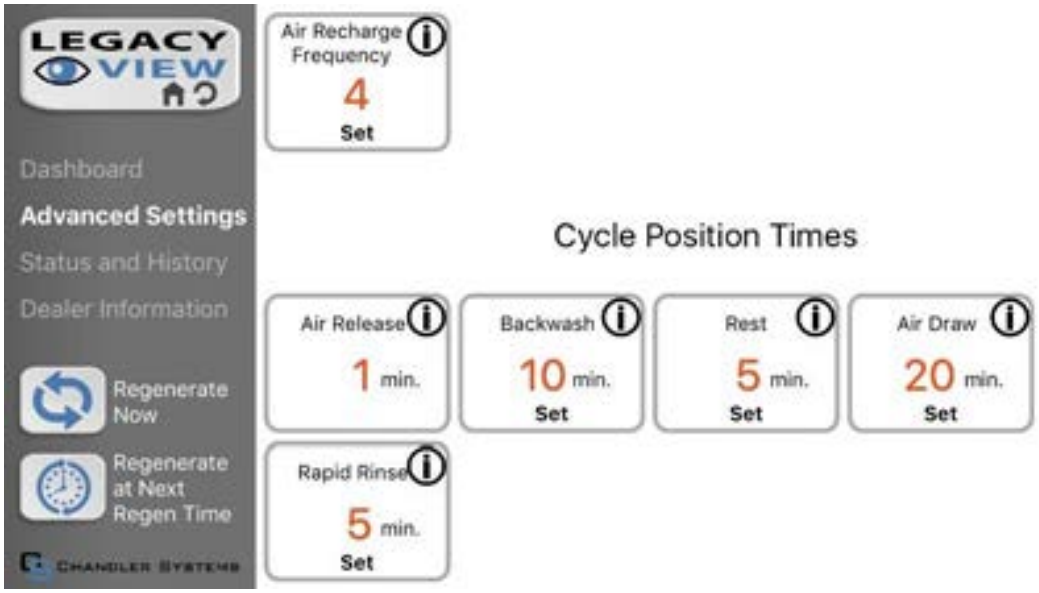
2. Set the backwash frequency: the number of days between backwashes.



3. Set the regeneration time. Example: for 2 A.M., type 2 and press OK.

Legacy App Advanced Settings

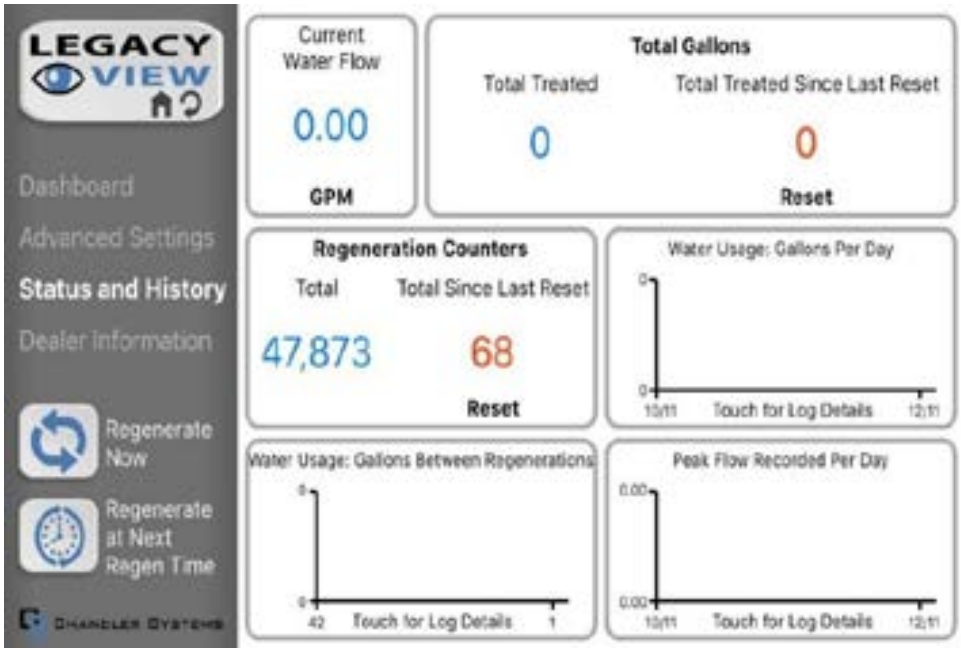
From Advanced Settings, all items in **ORANGE** with a "Set" button can be changed. "Air Recharge Frequency" is the days between air draws (d). Set the **Air Draw** minutes on the control valve, not in the app.



Touch any chart to see a detailed list of the last 60 days.

Status and History Using Legacy View

From Status and History, all items in **ORANGE** can be reset.



Start a Regeneration or Backwash



Option 1: tap "Regenerate Now."



To force the unit into the next cycle step, tap "Go to Next Regen Step."



Option 2: "Regenerate at Next Regen Time" backwashes the system at the next regeneration time.

Filter System Normal Operation

- The normal display alternates between the time of day and the days until the next regeneration.
- The days remaining count down to 1. When the count reaches 1, a regeneration starts at the next scheduled regeneration time.
- On nights without a backwash, the valve draws a fresh air pocket (when d = 1). It uses a little water and makes some noise.

Battery Back-Up (9-Volt Battery)

1. Attach a 9-volt battery (not supplied) to its cable. The battery lies on the bottom plate of the valve, below the circuit board. **Do not install it until after the initial backwash.**
2. The battery keeps the time during a power outage (all other settings are stored on the circuit board). If the power fails during a backwash, it moves the valve to a step that doesn't let water run to the drain. Replace the battery afterwards.

How to Start a Manual Backwash

1. If the days remaining is not already 1, press and hold Set/Change. After about 7 seconds the display reads [1].
2. With days remaining at 1, press and hold Set/Change again. After about 5 seconds the regeneration starts.
3. To fast-cycle through the steps: press and hold Set/Change; after 3 seconds the valve moves to the next step.

Maintenance

No weekly or monthly maintenance is needed. Plan on this once a year, depending on your water use and quality:

1. **Clean the air injector and its screen** (items 17 and 18, page 30). The air is drawn in through the injector, so a dirty injector stops the air draw. It takes about 10 minutes and no special tools. If water drips or spits from the mushroom-shaped air check fitting, clean the injector right away.
2. **Inspect the seals and spacers** (item 3, page 30) and replace them if they are worn. Do this sooner if the valve runs water to the drain while in service.
3. Check the air draw: start a manual regeneration and, at step 4, feel for suction at the air check fitting (page 16).

> **Spare parts in the box:** your system ships with a **spare air piston** and a **spare injector screen**. Keep them with the system. The AIR valve has its own piston; order the 5900-BT AIR piston and the 5900 Series Seal & Spacer Kit when you need more.

Before any service, follow the Service Instructions on page 26. How-to service videos:

youtube.com/watch?v=1osPgdCqESk&list=PLIYo0ek4wcmzVhl_GtOd6O8P8R54CySmt
youtube.com/watch?v=bJdHkx1KENo&list=PLIYo0ek4wcmys4q2Ff6-cqF7QjSMpvtAx

Media Life

Pro-Ox Lite media typically lasts about 8 to 10 years. When iron starts to come through and shocking and backwashing don't fix it, replace the media (page 28).

Shocking the Media

If your water has iron bacteria, or iron starts coming through, shock the media: with a sediment pre-filter installed, turn off the water, open the housing, add 1 cup of household bleach, close it, turn the water on and run a tap after the filter for about a minute. Let it soak at least 1 hour (up to a week is fine), then start a manual backwash. No pre-filter? Install one first (it also protects the valve), then shock.

Troubleshooting

Find your symptom in the left column. Work down the causes in order; the first ones are the most likely and the easiest to fix.

Check these first

- The bypass knob is in Service, not Bypass.
- The valve is plugged into an always-on outlet (not one on a light switch).
- The display shows the correct time of day.
- Water pressure: 30 PSI recommended minimum, 90 PSI maximum.
- The drain line isn't kinked or frozen, and has an air gap at the drain.
- If you have a sediment pre-filter, the cartridge isn't clogged.
- Water temperature is between 34 and 100°F.
- A fresh 9-volt battery is in the valve.

Control valve: 5900-BT AIR (Chandler Signature 3)

Water running to the drain? During a regeneration the display shows the step number on the left and the minutes left on the right, so flow to the drain is normal then. A drip or steady flow while it shows the time of day usually means worn piston seals.

Problem	Likely cause	What to do
Water running to the drain while in service (a drip or a steady flow), or stuck in backwash	Power went out during a backwash.	Install a 9-volt battery in the valve. With it, the valve moves to a no-flow position when the power goes out.
	Worn or dirty piston and seals (sand, grit, iron or rust).	Replace the AIR piston and the seal and spacer kit (pages 26–27; about 20 minutes). Lubricate the new seals with food-grade silicone only.
Display shows Err and a flashing number (the valve stops and the buttons don't respond)	Err 2: the valve is looking for its home position.	Let it run. It goes back to the normal display, or shows another code.
	Err 3: the encoder is unplugged, or debris has jammed the piston.	Unplug the power and battery, check the encoder cable is plugged in firmly, plug back in (codes clear only then). If it returns, replace the piston, seal and spacer kit.
	Err 4: the valve can't find its home position (powerhead).	Cycle the power. If it returns, replace the powerhead.
	Err 5: motor overload, usually a stiff or worn piston.	Unplug the power and battery, then reconnect. Replace the piston, seal and spacer kit. If Err 5 still returns, replace the motor.
	Err 6: no motor current (motor cable unplugged).	Unplug the power, reseat the motor cable at the board, plug back in. If it returns, replace the motor or circuit board.
Display is blank, or the filter never backwashes	Outlet switched off, the 12-volt power supply unplugged or failed, or the time of day is wrong after an outage.	Use an always-on outlet and check both ends of the power supply cord. Set the time of day and put a fresh 9-volt battery in the valve. Still blank: replace the 12-volt power supply (we sell them).
Flow display reads 0, or gallons don't count down	The meter cable is loose, or the turbine in the meter is stuck.	Unplug the power and battery, push the meter cable firmly in at both ends, and plug back in. Still 0: bypass, relieve the pressure, and clean the turbine in warm water or vinegar so it spins freely. The filter still backwashes on its day setting (A) in the meantime.
Weak flow to the drain during a backwash	The drain line flow control is plugged, or the drain line is kinked.	Rinse the flow control button in the drain fitting (or the external DLFC on the 2.0 cu ft system) and put it back the same way. Straighten the drain line.
Leak at the valve, bypass or fittings	Dry or unseated O-rings on the bypass or connectors, or a loose fitting.	Bypass and relieve the pressure. Lubricate the O-rings with food-grade silicone, seat them, and hand-tighten. Valve body leaks: put the system in bypass and replace the control valve.

Water quality: Pro-Ox Lite iron filter with air draw

Check your backwash

During backwash your well pump must supply at least this many gallons per minute. Measure the pump's flow at the pressure tank, not at a faucet: a hose bib may only flow 3 to 4 GPM. With no water running, open a hose bib near the pressure tank and drain it into a 5-gallon bucket, counting the gallons until the pump turns on. Close the hose bib and time, in seconds, how long the pump takes to build back up to pressure and shut off. Pump flow (GPM) = gallons ÷ seconds × 60. Full steps and a calculator: cleanwaterstore.com/resource/calculators/how-to-determine-pump-flow-rate-on-systems-with-pressure-tanks/

Media (cu ft)	Tank	Minimum well pump flow (GPM)
1.0	9" x 48"	6
1.5	10" x 54"	7
2.0	12" x 52"	10

Problem	Likely cause	What to do
Black or gray water after start-up	Fine Pro-Ox Lite particles. This is normal for a new filter.	Run 3 or 4 more manual backwashes until the water runs clear. Keep a softener or other equipment in bypass until then.
Iron, stains or color still coming through	The media is coated and needs shocking.	Shock the media with 1 cup of household bleach through the sediment pre-filter (page 22), let it soak at least 1 hour, then backwash. No pre-filter? Install one first, then shock.
	Backwash isn't frequent enough for your iron level.	Set the days between backwashes (A) to 3, or to 2 if iron is high.
	Iron above the system's rating, pH too low, or the media is worn out (Pro-Ox Lite lasts about 8 to 10 years).	Test the raw and filtered water and send us the results.
Media not cleaning, or iron or odor returns soon after a backwash	Your well can't supply the minimum backwash flow.	Check your well pump's flow rate (see Check your backwash above).
Rotten-egg smell comes back	Bacteria in the well or pipes (often after the house sat empty or the well was serviced), or the water heater's anode rod (hot water only).	Shock-chlorinate the well and the house plumbing, then backwash the filter. Hot water only: have the heater's anode rod replaced.
Not drawing air (no suction at the air inlet)	The air draw (step 4) is still set to 0 from start-up, the air injector or its screen is plugged, or the duck bill check valve is stuck.	Check that step 4 is set to 20 minutes and the days between air draws (d) to 1. Start a manual regeneration; when the display shows 4 on the left, hold a finger over the mushroom-shaped air check fitting: you should feel suction. None: clean the air injector and screen. Still clogged: replace the air injector. Then check the duck bill check valve in the fitting.
Water dripping or spitting from the mushroom-shaped air check fitting	The air injector is dirty (the air is drawn in through it), or the duck bill check valve in the fitting is worn.	Bypass and relieve the pressure. Remove and clean the air injector and screen (a spare screen came with your system). Still spitting: replace the air injector. If the duck bill check valve is worn, replace it too.
Low water pressure after the filter	The media is packed because the backwash isn't strong enough, or the pre-filter is clogged.	Change the pre-filter cartridge, if you have one. Check your well pump's flow rate (above) and run 2 or 3 manual backwashes.

Before you call, have ready

Model and serial number from the valve label · a photo of the display and any error code · whether drain water is a drip or a steady stream · raw and filtered water test results, if you have them.

Contact us

Toll-free 1-888-600-5426
or 1-831-462-8500
support@cleanwaterstore.com

How to Remove Media Stuck in the Control Valve

Sometimes, during the first backwash at start-up only, media gets lifted into the control valve. You can tell this has happened because there is little or no flow, either to the drain in backwash or to the house in service.

1. Put the inlet bypass in the closed position.
2. From service, start a manual regeneration by pressing and holding Set/Change.
3. The valve goes to backwash and starts counting down. Press and hold Set/Change again and wait for the valve to move to and stop at the rapid rinse step (step 5).
4. With the valve in rapid rinse, open and close the inlet bypass valve several times.
5. With the inlet off, advance the valve back to service, then press and hold Set/Change again to put the valve back in backwash.
6. Open the inlet just enough to hear water passing through the valve. You should see a matching slow flow out of the drain line. Open it further slowly, a little at a time.

Any time the valve is in backwash or rapid rinse, you can unplug the power to hold it in that step so it doesn't time out. When you plug it back in, after a minute it returns to where it was (for example, 2:32 left in backwash).

Media can't be pushed into the valve during rapid rinse or service, only during backwash, when the flow is reversed, and only at start-up.

The goal, after pushing the media back into the tank in rapid rinse, is to get the inlet fully open in backwash without jamming media back into the valve. Once you've done that, you're done.

Service Instructions: Do These Before Any Service

A1. Turn off the water supply to the filter and put it in bypass.
A2. Remove the cover and relieve the water pressure in the valve by stepping it into backwash for a moment. Return the valve to service.
A3. Unplug the power supply from the outlet and unplug the 9-volt battery.

How to Replace the Powerhead

B1. Remove the valve cover and disconnect the power supply.
B2. Disconnect the meter cable from the circuit board and feed it through the control (if the meter is being reused).
B3. Remove the lower back base screws and detach the lower back base.
B4. Remove the screw and washer at the drive yoke.
B5. Remove the powerhead mounting screws.
B6. The whole powerhead now lifts off easily.
B7. Put the new powerhead on the valve. Make sure the drive pin on the main gear engages the slot in the drive yoke (the wide side of the yoke upright faces left, away from the motor).
B8. Replace the powerhead mounting screws, and the screw and washer at the drive yoke.
B9. Reattach the lower back base.
B10. Reconnect the meter cable and the power supply.
B11. Reinstall the cover.

How to Replace the Piston Assembly

The AIR valve has its own piston (a spare came with your system).

C1. Follow steps A1–A3.
C2. Disconnect the meter cable from the circuit board.
C3. Remove the lower back base screws and detach the lower back base.
C4. Remove the screw and washer at the piston drive yoke. Remove the powerhead mounting screws; the powerhead lifts off.
C5. Remove the piston retaining plate screws.
C6. Pull up on the end of the piston yoke until the assembly is out of the valve.
C7. Inspect inside the valve for anything that would interfere with its operation.
C8. Install new seals and spacers (next page).
C9. Push the new piston assembly into the valve by its end plug.
C10. Twist the drive yoke carefully clockwise to line it up with the drive gear.
C11. Reinstall the piston retaining plate screws.
C12. Follow steps B5–B9.

How to Replace the Seals and Spacers

D1. Follow steps A1–A3.
D2. Disconnect the meter cable from the circuit board.
D3. Remove the screw and washer at the piston drive yoke and the powerhead mounting screws; the powerhead lifts off. Remove the piston retaining plate screws.
D4. Pull up on the end of the piston rod yoke until the assembly is out of the valve. Remove the seals and spacers. (The special end spacer must be reused.)
D5. Lubricate the new seals with the silicone lubricant in the seal and spacer kit. Make sure the special end spacer is seated in the valve body. Install the new seals and spacers one at a time, pressing around the outer edge of each seal to seat it. When they are all seated, there is ¼" of space between the top seal and the top of the valve body.
D6. Follow steps C9–C12.

How to Clean the Air Injector

Follow steps A1–A3. Remove the two screws holding the injector cover (item 15, page 30), pull out the injector (item 17) and the injector screen (item 18). Rinse them in clean water until the small openings are clear (don't use metal tools, which can damage the injector). Replace the screen if it is torn or clogged; a spare came with your system. Reinstall with the injector seal (item 16) in place, then plug the valve back in and check for suction at the air check fitting during step 4.

How to Replace the Meter

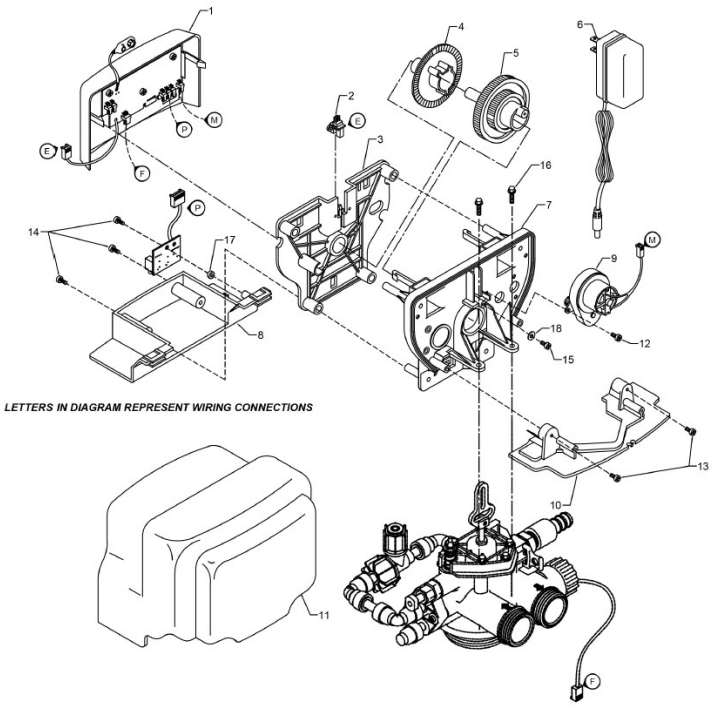
E1. Follow steps A1–A3.
E2. Unplug the meter cable from the front of the circuit board.
E3. Unscrew the meter assembly nut from the valve body.
E4. Remove the meter and clean or replace it.
E5. Reinstall the meter, nut and cable.

How to Replace the Pro-Ox Lite Media

Pro-Ox Lite media typically lasts about 8 to 10 years. If you ever need to replace it, it is easily dumped out and replaced:

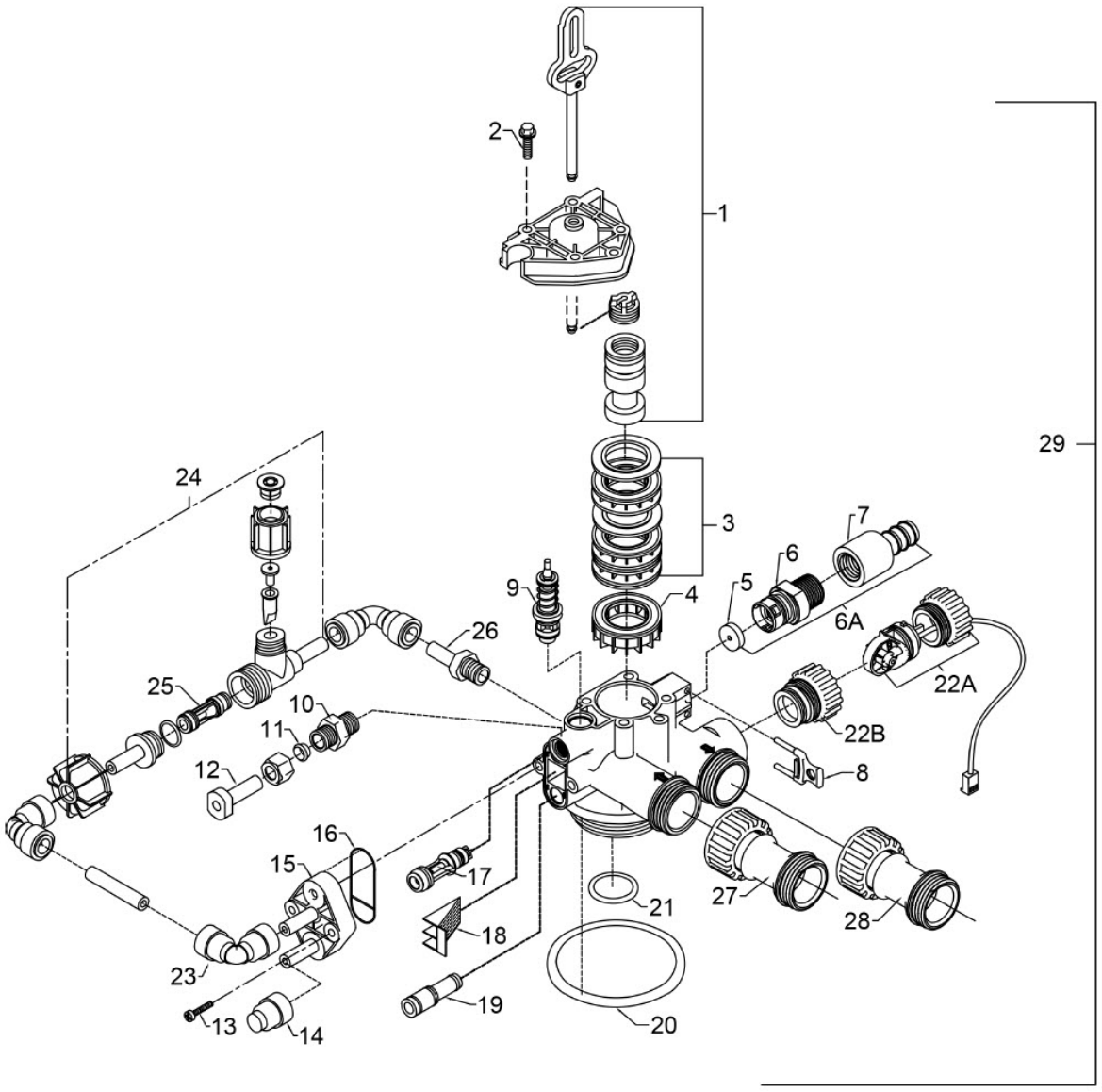
1. Turn off the water to the system and relieve the pressure by opening a hose bib or faucet after the filter.
2. Put the system on bypass and remove the couplings between the bypass valve and the control valve.
3. Unscrew the control valve and set it aside.
4. Siphon the water out of the tank with a small flexible tube inserted down the distributor tube.
5. Lay down a clean tarp outside, or somewhere you can flush water and clean out the tank.
6. Put a garden hose in the tank and let water flow down the center distributor tube. The media will flow out onto the tarp.
7. Flush out all the media and gravel and discard it in the trash.
8. Rinse out the tank until clean.
9. Add ½ cup of household bleach and a few gallons of water, and rinse the inside of the tank.
10. Rinse out the tank until the chlorine is gone.
11. Add gravel and new Pro-Ox Lite media, activate it with bleach, and start up the system following the original directions in this guide (page 9).

Control Valve Powerhead Assembly Exploded View



Ref	Description	Part Number	Qty
0	360 Powerhead Assy.	20014X100	1
1	360 Circuit Board Assy.	20014X101	1
2	Encoder	20001X124	1
3	Front Plate	20001X004	1
4	Encoder Wheel	20001X007	1
5	Main Gear	21001X120	1
6	Power Supply	20001X125	1
7	Back Plate	20001X005	1
8	Lower Front Base For Cover	20111X002	1
9	Motor	20016X006	1
10	Switch Spacer	20111X004	1
11	Slide Cover	20111X017	1
12	Motor Screw	SC2	4
13	Screw	SC9	2
14	Screw	SC10	3
15	Piston Screw	20001X007	1
16	Valve Hex Screw	20001X001	2
17	Circuit Board Washer	20111X014	1
18	Piston Washer	20001X002	1

Valve Body Assembly Exploded View (5900-BT AIR)



Item 3 is the 5900 Series Seal & Spacer Kit. Items 17 and 18 are the air injector and injector screen; item 24 is the external air injection assembly with the mushroom-shaped air check fitting; item 27 is the inlet check valve. Parts list on the next page.

Valve Body Parts List (5900-BT AIR)

Ref	Description	Part No.	Qty
1	Piston Assembly	20009X231	1
2	10-24 X 13/16 Hex Head	20001X226	5
3	Seal and Spacer Kit	20561X253	1
4	Bottom Spacer	N/A	1
5a	DLFC 5.0 Button	20251X272	1
	DLFC 7.0 Button	20251X273	1
6a	Flow Control Assembly 5.0	20017X262	1
	Flow Control Assembly 7.0	20017X264	1
6	Drain Line Flow Control Housing	20017X100	1
7	Drain Line Hose Barb, Straight	20017X255	1
8	DLFC Clip	20017X214	1
9	Brine Valve	20009X225	1
10	Brine Line Flow Control Assy.	20009X228	1
11	Brine Line Ferrule	20251X305	1
12	Plug	20009X005	1
13	10-24 X 1 Hex Screw	20001X226	2
14	3/8" Push Lock Plug	20009X010	1
15	Injector Cover 360	20009X001	1
16	Injector Seal	20001X224	1
17	Injector	20017X219-1	1
18	Injector Screen	20001X222	1
19	Injector Plug	20001X217	1
20	Tank O-Ring	20561X205	1
21	Distributor Pilot O-Ring	20561X204	1
22a	Flow Meter	20017X203	1
22b	Flow Meter Plug	20017X201	1
23	3/8" Push Lock Elbow	GA-Q0620626BV	1
24	External Air Injection Assembly	65555X250	1
25	Injector w/o Check Ball	20001X219-1	1
26	Stem Adapter	GA-S0660416B	1
27	Inlet Check Valve	20017X293	1
28	Extension	20017X292	1
29	Valve Body Complete	VH2-A-BT-N-D15	1

Limited Warranty

We warrant this water filter, when installed according to factory recommendations, to be free from defects in materials and workmanship as follows.

Warranty Periods

Component	Warranty
Fiberglass mineral (filter) tank, 6" to 13" diameter	**Lifetime** of the original purchaser, at the original installation address. Covers the tank shell only.
Control valve (5900-BT AIR)	**5 years** from the date of installation
All other components	**1 year** from the date of installation
Filter media, seals, spacers, pistons, injectors and other normal wear items	Not covered

Conditions

1. The same warranty periods apply to residential and commercial installations.
2. Installation must follow local codes and the instructions in this guide.
3. Failure must not result from exposure to weather, sunlight, freezing, rodents, misuse, alteration, fire, lightning, power surges, sand or grit, vacuum, external impact or neglect.
4. Water pressure must not exceed 90 PSI, and water temperature must stay between 34 and 100°F.
5. Subject to these terms, we will repair or replace, at our option, any part found defective in materials or workmanship. A Returned Goods Authorization (RGA) is required in advance; defective parts must be returned freight prepaid.
6. This warranty does not cover labor, installation or removal costs, shipping charges, or damages caused by delays, consequential or incidental damages, or other causes beyond our control. It does not cover pipes, fixtures or appliances, and extends to the water treatment components only.
7. This warranty is to the original purchaser and is not transferable.
8. No other guarantee or warranty, expressed or implied, applies to this product, except as required by law. A repair or replacement under this warranty does not extend the warranty period. This warranty gives you specific legal rights; you may also have other rights, which vary by state.

6-Month Satisfaction Guarantee: complete residential water treatment systems can be returned within 6 months of purchase, even if installed and used, for a full refund of the purchase price. The customer pays return shipping. Call or email first for an RGA number. Full terms: www.cleanwaterstore.com/returns-warranty/

Clean Water Systems & Stores Inc. · 2806 Soquel Ave Ste A, Santa Cruz, CA 95062 · 1-888-600-5426 · support@cleanwaterstore.com