



Clean Water Made Easy

www.cleanwaterstore.com

7500 Carbon 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 chlorine 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.

CARBON 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

Email us: support@cleanwaterstore.com

See more information on our website:
www.cleanwaterstore.com/resources



Clean Water Made Easy

www.cleanwaterstore.com

Table of Contents

Packing List:.....	2
Carbon Filter 0.75 cubic foot size.....	2
Carbon Filter 1.0 cubic foot size.....	3
Carbon Filter 1.5 cubic foot size.....	3
Carbon Filter 2.0 cubic foot size.....	3
Carbon Filter 2.5 cubic foot size.....	3
Carbon Filter 3.0 cubic foot size.....	3
Pre-Installation:.....	4
Best Practices for Piping & Drain Installation:	4
Installation of Your System Into Copper or Metal Piping Systems:	5
How Your Carbon Filter Works:	5
Assembly and Installation Instructions:	6
Build Your 3-Way Bypass:	7
Programming Your Valve:	8
Programming the 7500 Valve:	10
Initial Backwash:	12
Maintenance:	13
Normal Operation	13
Troubleshooting the 7500 Carbon Filter:.....	13
Backwash Flow Rate.....	13
Manufacturer Troubleshooting Guide:	14

Packing List:

Carbon Filter 0.75 cubic foot size

7500 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 Carbon media

8 lbs. Filter gravel

0.75 cubic foot of Carbon media

7500 Carbon Filter Installation & Startup Guide

Carbon Filter 1.0 cubic foot size

7500 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 Carbon media

12 lbs. Filter gravel

1 cubic foot of Carbon media

Carbon Filter 1.5 cubic foot size

7500 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 Carbon media

16 lbs. Filter gravel

1.5 cubic foot of Carbon media

Carbon Filter 2.0 cubic foot size

7500 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 Carbon media

20 lbs. Filter gravel

2.0 cubic foot of Carbon media

Carbon Filter 2.5 cubic foot size

7500 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 Carbon media

35 lbs. Filter gravel

2.5 cubic foot of Carbon media

Carbon Filter 3.0 cubic foot size

7500 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 Carbon media

50 lbs. Filter gravel

3.0 cubic foot of Carbon media

7500 Carbon Filter Installation & Startup Guide

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, and make sure you have received all of your packages before beginning or scheduling an installation. Installation typically takes 3 to 5 hours. However, after installation the Carbon 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. Make sure to connect the Inlet **from** your water source. Make sure to connect the Outlet to **where the water is being used** and be sure and install the External Flow Control fitting onto the Drain Port. From the male pipe thread on the External Flow fitting, you can transition to a barb fitting and run tubing to where you need to.
2. Make sure there is a working gate or ball valve before the 7500 Carbon Filter and also one after. The pressure gauges are optional, but they are a great way to tell at a glance if your filter needs to be backwashed. A hose bib (which is a faucet to which you can attach a garden hose) is strongly recommended after the Carbon Filter and before the second ball valve. This makes it easy to rinse your new Carbon Filter on start-up and gives you a place to test the water before it enters your household plumbing.
3. If you will be using copper piping, do not sweat the copper pipe directly on to the 7500 control valve. Avoid heating up the 7500 control valve plastic with the torch.
4. You should install unions and a bypass around the valve, so that you can remove it and still have water (See Build Your Bypass).
5. The drain line tubing (not supplied) is connected to a drain from the External Flow Control fitting using a Female X Barbed fitting and flexible tubing. Note that the drain can run up above the 7500 control head and into a drain, it does not have to drain down, as the filter backwashes

7500 Carbon Filter Installation & Startup Guide

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.

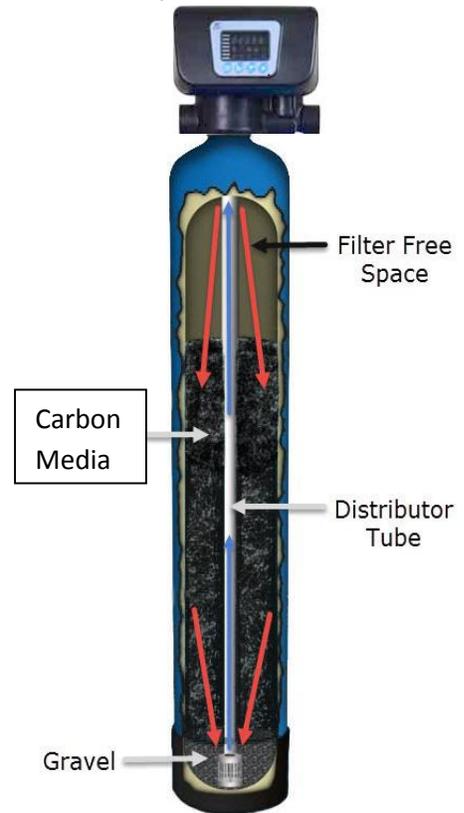
Some homes may have been built in accordance with building codes, which encouraged the grounding of electrical appliances through the plumbing system.

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.

How Your Carbon Filter Works:

See Fig 1 on the right. In your Carbon Filter the water enters the top of the tank (red arrows) and flows down through the media and up the distributor tube (blue arrows). The downflow type Carbon Filter removes sediment and can be backwashed, which cleans and re-classifies the Carbon, preventing channeling. During backwash the flow of water is reversed and water flows down the distributor tube and up through the media, lifting and expanding the Carbon media. During the backwash the Carbon is cleaned by the action of the water flowing through it.



7500 Carbon Filter Installation & Startup Guide

Assembly and Installation Instructions:

1. Wrap the top of distributor tube with electrical or duct tape so that no gravel or Carbon media will go down the distributor tube when adding the media.



2. Add the filter gravel that came with your order. You want the gravel to cover the bottom distributor screen before adding the Carbon media.
3. Next add Carbon media. The tank should be about 2/3rds full of media, do not fill more than 2/3rds, even if there is some media left over.
4. Remove cap or tape from top of distributor tube. Be careful not to pull up distributor tube when removing cap or tape.
5. Fill tank completely with water. This will allow the Carbon Filter media to settle and reduce the need of purging the air out of the tank later.
6. Add a small amount of silicone grease to the inner O-ring, where the distribution tube goes. Next, install the top screen (This is a funnel-shaped plastic screen that locks into the control valve and prevents resin from being backwashed out to drain during the regeneration cycles.). Now, lubricate the main tank O-ring and screw on 7500 control valve carefully. Do not use pipe-joint compound, vegetable oil, Teflon tape, or Vaseline or other petroleum greases to lubricate tank threads.



Build Your 3-Way Bypass:

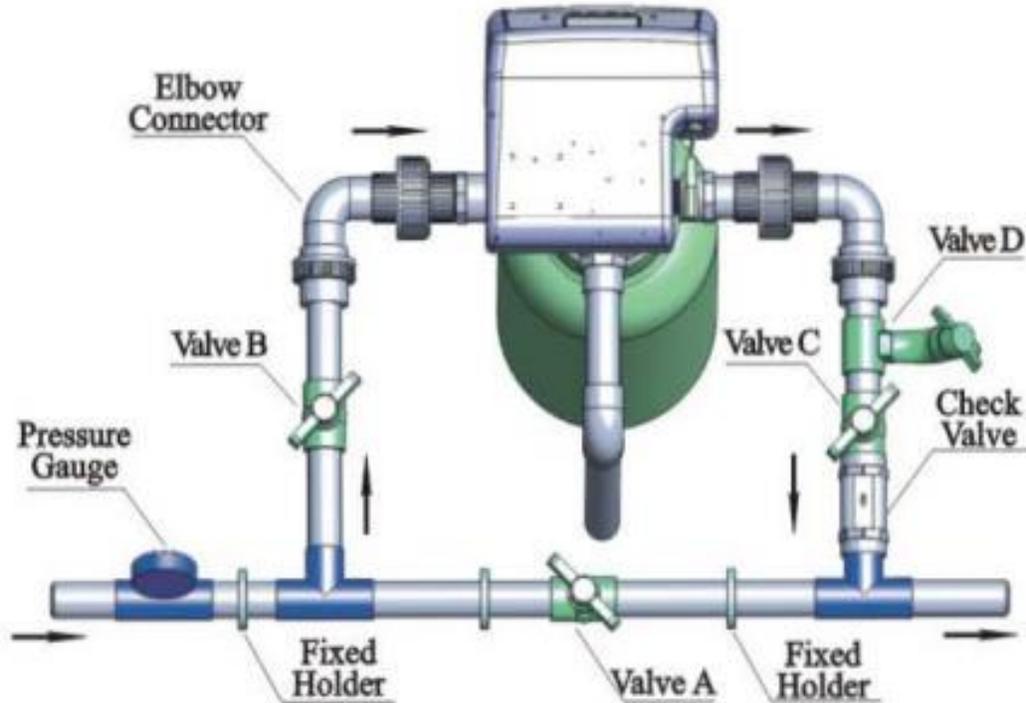


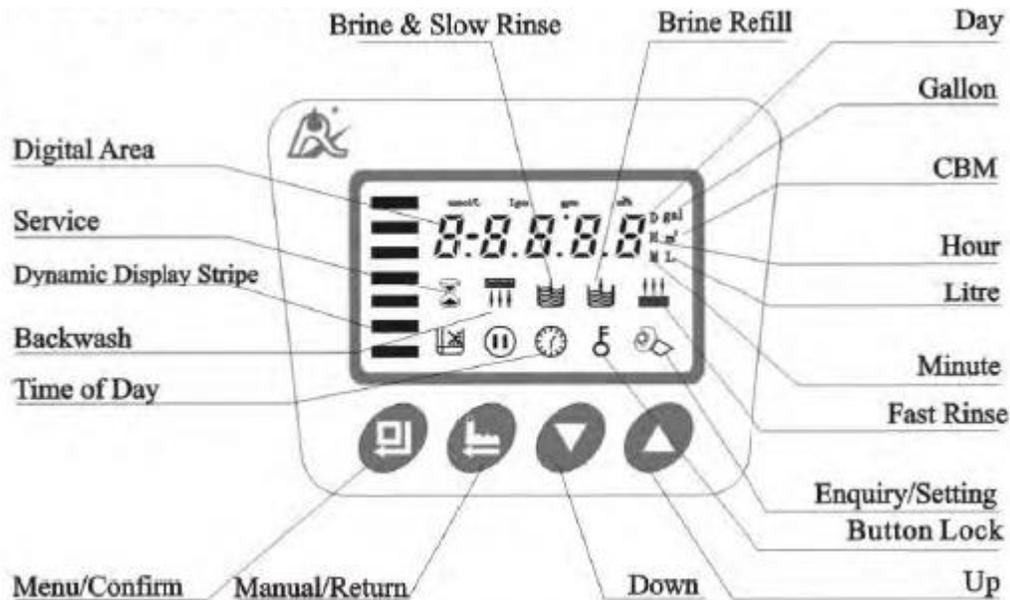
Figure 1-2

The 7500 Does not come with a pre-made bypass; you have to build one yourself. Schedule 40 or 80 PVC, or Pex pipe is okay to use. You also can get a pair of flex lines- instead of the unions shown where the Elbow Connector is, you could have slip by male fittings, then flex lines, then male nipples, and then you do not have to worry about plumbing it with too much pipe deflection- this must be avoided, as pipe deflection will put undue pressure on the control valve threads which may then crack.

7. Next, you will need to program the system to work as a Carbon 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 programming instructions.

7500 Carbon Filter Installation & Startup Guide

Programming Your Valve:



IMPORTANT: Before any operation, the valve menu must be unlocked. If the button lock indicator is displayed, press and hold both the Up and Down buttons for 5 seconds. A sound will indicate the menu is unlocked. The menu will re-lock automatically after 1 minute of inactivity.

Digital Display Icons and the four Service Buttons: In addition to the Dynamic Display Stripe (explained immediately below this) there are six digital icons on the display that will indicate “where the valve is”. They are as follows:

Green Key Icon: Indicates that the buttons are locked; press and hold both scroll buttons to unlock.

Blue Clock-face Icon: Indicates that the red digital display is showing the Current Clock Time.

Blue Hourglass Icon: Indicates how many days remaining until the next backwash.

Green Wrench Icon: This indicates that you are in the programming menu and can change the values.

Red Backwash Icon: three arrows pointing up, underneath a rectangle with dots. This indicates that you are programming the Backwash step, or that the filter is in backwash.

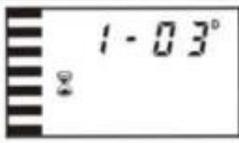
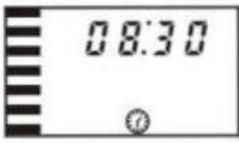
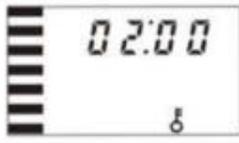
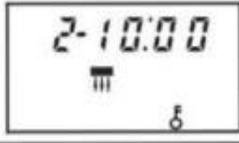
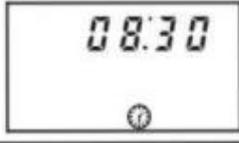
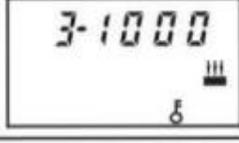
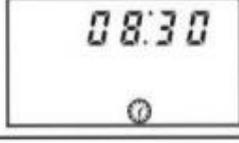
Red Rapid Rinse Icon: three arrows pointing down, on top of a rectangle with dots. This indicates that you are programming the Rapid Rinse step, or that the filter is in Rapid Rinse.

Dynamic Display Stripe: On the left side of the digital display, there are seven green bars that light up and repeat a “going up” pattern. When the valve is in Service Mode, you will see that bar display flashing. The green Key Icon indicates that the buttons are “locked”. To unlock the buttons, press and hold both scroll arrows. While locked, the menu also changes, scrolling between the current clock time (blue Clock Icon will be lit), the number of days until the next

7500 Carbon Filter Installation & Startup Guide

backwash (the blue Hourglass Icon will be lit) and the Backwash Start Time (only the green key is lit).

Sample Displays Showing Service Mode and Backwash and Fast (or Rapid) Rinse Modes:

Service			
Backwash			
Fast Rinse			

Four Service Buttons: Left to right, Menu/Confirm, Manual/ Return, Scroll Down, Scroll Up.

Up and Down Arrows: When the Green Key Icon is lit, press and hold both buttons to unlock. When the Dynamic Display Stripe is blinking, pushing the up/down buttons has no effect. When the Green Wrench icon is lit, pressing either up/down arrow will scroll through the menu options. There are a total of seven Menu items (explained later).

Menu/ Confirm Button (the button on the far left, an empty square with an arrow pointing left): This is the button you press (after you have unlocked the screen) that puts you in the Service Menu, so you can program the valve. The first time you press it, the Dynamic Display Stripe goes away and the Green Wrench icon appears. Whichever of the Icons is lit at this time, pressing the Menu/ Confirm button again will now cause that Icon's value to flash, on the red digital display.

Manual/ Return Button: Second from left, button icon is a "pointing index finger" with a left-pointing arrow underneath.

Pressing this button in Service Mode (Dynamic Display Stripe is running) will **IMMEDIATELY** start a backwash cycle. Pressing this button when in Program Mode will return you to the Service Mode.

A. Time of day indicator

- When the blue Clock Icon is lit, the digital display is showing the current time. That time is displayed in 24-hour format, i.e. 13:00 is 1:00 pm.

7500 Carbon Filter Installation & Startup Guide

B. Button lock indicator

- When the green Key Icon is lit, the buttons are locked. Press and hold both the Up and Down arrows to unlock. Buttons will lock 60 seconds after the last time a button is pressed.

C. Program mode indicator (shown on drawing as Enquiry/ Setting) is the green Wrench Icon. To activate this Icon from Service Mode, press and release the Menu/Confirm button (button on far left, with a square and an arrow pointing left) and the green Wrench Icon will be lit.

- With the green Wrench icon lit, you can press either the scroll Up or scroll Down buttons to navigate to each menu item. You will do this in order to:

- Set/confirm that the valve is programmed for Non-external input mode.
- Set Current Clock Time
- Set the time when you want the filter to backwash
- Set the number of complete backwash cycles it will do at that time
- Set how many days between backwashes
- Set the number of minutes for the Backwash Cycle
- Set the number of minutes for the Rapid Rinse Cycle.

- When the green Wrench Icon is flashing, whatever parameter that is selected (set clock time, set cycle step, etc.) can now be adjusted by using the Scroll buttons.

For example, when you press it the first time, the Dynamic Service Stripe goes away, the Green Wrench Icon is lit, and the other icon that is lit is the Blue Clock Icon- that means that whatever digits are on the red display, they are stating the clock time (in 24 hour mode). When you press the menu/ Confirm button again, the Hours will flash, and now you can change the hour by pressing the scroll arrows. When you are at the correct hour, press the Menu/Confirm button, and the Minutes will flash. After adjusting the minutes with the Scroll arrow, pressing the Menu/Confirm one more time displays your currently set clock time, and the digits are **not** flashing.

Programming the 7500 Valve:

There are seven menu items that we will set and confirm, to program your Carbon filter.

Plug the valve in, and wait for the Service Screen to come on, the Dynamic Display Strip is blinking.

If the green Key Icon is lit, press and hold both Scroll Buttons. The valve will beep and the key Icon will disappear.

Press the Menu/Confirm button (far left) and the Green Wrench Icon will come on.

7500 Carbon Filter Installation & Startup Guide

You can now use either the scroll Up or Down buttons to stop at each of the 7 menu items you will need to program. They are listed below in the order they appear **if you use the scroll down arrow** and, when you enter the programming, it will be at whichever Menu option that was last displayed when the programming mode was exited. The factory default screen is where this list starts:

1. b - 01. This setting must be at b – 01. If it says b – 02, press the Menu/Confirm button, the 02 will start flashing. Press either scroll key and it will display b – 01, press the Menu/Confirm button again, and it will say b – 01 and not be flashing. Press the Scroll Down button to continue.
2. Blue Clock Face Icon is displayed. To change the clock time, press the menu/Confirm button; the hours will flash. Adjust the hours with the scroll arrows. Clock time is 24-Hour (or Military Time), so 1 pm is 13:00, two pm is 14:00, etc.... When you are at the correct hour, press the Menu/Confirm button and the minutes will flash, set the minutes using the scroll up/down buttons, and press the Menu/ Confirm button when done. The time you set will now be displayed, and not flashing. Press the Scroll Down button to continue.
3. This is the screen where you set what time of day the backwash will start. 02:00 (2 am) is the default time. The backwash cycle should be started while no one is using water, and while no other filters you may also have are backwashing. You will adjust the clock time for this as you did for the Current time clock above. **Note:** This is the one parameter that does **not** have an Icon that identifies it. When the Service Screen is automatically scrolling, or you are programming, the Current Clock time shows the Blue Clock face Icon. The Backwash Start Time (also called the regeneration time) does not have an icon.
4. F -00 This menu item sets the number of complete backwash cycles the valve will do, when it reaches the time to do a backwash cycle. The default is F – 00, which is doing **one cycle**. If you set it at F – 01, then it will do **two backwash cycles**. Your 7500 Carbon filter only needs to backwash one time each time, so leave this at F – 00.
5. 1 – 07^d This menu item sets the number of days between regenerations. The default value is saying that the unit will backwash once ever seven days. This is a good starter setting for your Carbon filter, once a week, so leave it at, or adjust it to, 7.
6. 2 – 10_m This menu item is for the number of minutes that the backwash cycle step will run. The default is ten minutes, and should be left at or adjusted to ten minutes.

7500 Carbon Filter Installation & Startup Guide

7. 3 – 10_m This menu item is for the number of minutes for the Fast (or Rapid) Rinse. The default is 10 minutes. Press the menu/confirm button, the 10 will flash; adjust it down to 06 with the Scroll Down button, and press the Menu/ Confirm button. Now the valve is programmed to Rapid Rinse for six minutes. Press the scroll down button, and you are back at the first menu item, b – 01. Press the Menu/Confirm button, and the Green Wrench Icon goes away, the Dynamic Display Stripe returns, and you are done programming your valve.

When the motor is turning -00- is displayed...

This valve can be used with Chemsorb (Sediment media), Calcite (Acid Neutralizer media), Carbon (Carbon media) and different types of Iron Removal media (Pro-Ox, Mang-Ox, Katalox Lite and Greensand with chlorine feed).

Initial Backwash:

- 1 After programming, the system must be run through an initial backwash.
- 2 Close inlet valve B and outlet valve C, and open the bypass valve A. From the initial valve menu, press the Manual/Return button to enter into the backwashing. When the backwash icon is displayed, slowly open the inlet valve B to a quarter position to make the water flow into the resin tank; you should be able to hear the sound of air escaping from the drain pipeline. After all the air is out of the pipeline, open inlet valve B and clean the foreign materials in the tank until the water is clean.
- 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 Carbon media and prevent it from fouling or channeling.

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

7500 Carbon Filter Installation & Startup Guide

- 4 After the backwash, the system will automatically go into the fast rinse stage. Both stages will last for as long as you have programmed that cycle step. The control valve will return to service status (indicated by the up-flowing meter on the left) after the backwash and rinse are complete.

Congratulations, you are done setting up your valve!

Maintenance:

Normal Operation

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

Troubleshooting the 7500 Carbon Filter:

Backwash Flow Rate

One problem that may occur is if you do not have enough backwash flow rate to properly clean the Carbon filter. You can verify the backwash flow rate by running the drain line into a bucket and timing it when the 7500 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.

7500 Carbon Filter Installation & Startup Guide

Manufacturer Troubleshooting Guide:

A. Control Valve Fault

Problem	Cause	Correction
1. Filter fails to rinse	A. Electrical service to unit has been interrupted. B. Rinse time is set incorrect. C. Valve is defective.	A. Assure permanent electrical service (check fuse, plug or switch). B. Reset the time C. Check or replace the valve
2. Filter supply raw water	A. Bypass valve is open B. Riser pipe leak C. Interval valve leak	A. Close the bypass valve B. Make sure riser pipe and O-ring are not cracked. C. Check or change valve body.
3. Water pressure lost	A. Iron is in the water supply pipe. B. Iron mass is in the filter.	A. Clean the water supply pipe. B. Clean valve and add filter materials cleaning chemical, increase frequency of rinsing.
4. Loss of filter materials through drain line	A. Air in the water system. B. The strength of backwash is too high. C. Strainer is broken.	A. Assure that the system is dry and has proper air eliminator control. B. Reduce the strength of backwash. C. Replace the strainer.
5. Control valve cycle continuously.	A. Locating signal wiring break-down. B. Valve is faulty. C. Foreign material stuck the driving gear.	A. Check and connect locating signal wiring. B. Replace valve. C. Take out foreign material.
6. Drain flows continuously.	A. Internal valve leak. B. When electricity fails to supply, the valve is in backwash or fast rinse position.	A. Check and repair valve body or replace it. B. Turn off bypass valve and restart when power on.

B. Controller Fault

Problem	Cause	Correction
1. All indicators display on front panel.	A. Wiring of display board with control board fails to work. B. Control board is faulty. C. Transformer damaged. D. Voltage is not stable.	A. Check and replace the wiring. B. Replace control board. C. Check and replace transformer. D. Check and adjust electrical service.
2. No display on front panel.	A. Wiring of display board with control board fails to work. B. Display board damaged. C. Control board damaged. D. Electricity is interrupted.	A. Check and replace wiring. B. Replace display board. C. Replace control board. D. Check electricity.
3. E1 Flash	A. Wiring of locating board with control board fails to work. B. Locating board damaged. C. Mechanical driver fails. D. Faulty control board. E. Wiring of motor with control board is fault. F. Motor damaged.	A. Replace wiring. B. Replace locating board. C. Check and repair mechanical part. D. Replace control board. E. Replace wiring. F. Replace motor.
4. E2 Flash	A. Hall component on locating board damaged. B. Wiring of locating board with control board fails to work. C. Control board is faulty.	A. Replace locating board. B. Replace wiring. C. Replace control board.
5. E3 or E4 Flash	A. Control board is faulty.	A. Replace control board.