



Clean Water Made Easy

www.cleanwaterstore.com

5700-E 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..... | 3 |
| 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 |
| Pre-Installation..... | 4 |
| Best Practices for Piping & Drain Installation | 4 |
| How Your Carbon Filter Works..... | 5 |
| Fig 1 - Carbon Filter Tank Water Flow..... | 5 |
| Fig 2 - Typical Carbon Filter 5700-E piping installation with ball valve and hose bib after the filter .. | 6 |
| Fig. 3: CWS 5700-E valve from the rear showing the inlet (left) and outlet (right) end-connector fittings (1" or 1-1/4" NPT in Noryl plastic). Brass end-connectors are also available for connecting to copper tubing. | 7 |
| Fig. 4: CWS 5700-E Bypass Assembly | 7 |
| Assembly and Installation Instructions..... | 8 |
| Fig. 5: 5700-E By-Pass and Service Positions..... | 9 |
| Programming Instructions: | 11 |
| Troubleshooting the 5700-E Carbon Filter | 21 |

Packing List

Carbon Filter 1.0 cubic foot size

5700-E Backwash Control Valve w/ Bypass Assembly and Pipe connector kit (1" or ¾")

10" x 44" (or 9" x 48") filter tank with distributor tube

Blue media funnel for adding the Carbon media

12lbs. Filter gravel

1 cubic foot of Carbon media

Carbon Filter 1.5 cubic foot size

5700-E 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

5700-E 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

20lbs. Filter gravel

2.0 cubic foot of Carbon media

Carbon Filter 2.5 cubic foot size

5700-E Backwash Control Valve w/ Bypass Assembly and Pipe connector kit (1" or ¾")

13" x 54" filter tank with distributor tube

Blue media funnel for adding the Carbon media

35lbs. Filter gravel

2.5 cubic foot of Carbon media

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. See typical installation on page 7 (Fig 2). The Carbon filter is installed after the pressure tank.
2. Make sure to connect the IN pipe to the 5700-E inlet and the OUT pipe to the outlet (see Fig 3). As you face the 5700-E 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 5700-E Carbon Filter and also one after as shown in Fig 2. The pressure gauges are optional and perhaps not necessary but a hose bib (which is a faucet that you can attach a garden hose to) is strongly recommended after the 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.
4. If you will be using copper piping, do not sweat the copper pipe directly on to the 5700-E control valve. Avoid heating up the 5700-E control valve plastic with the torch.

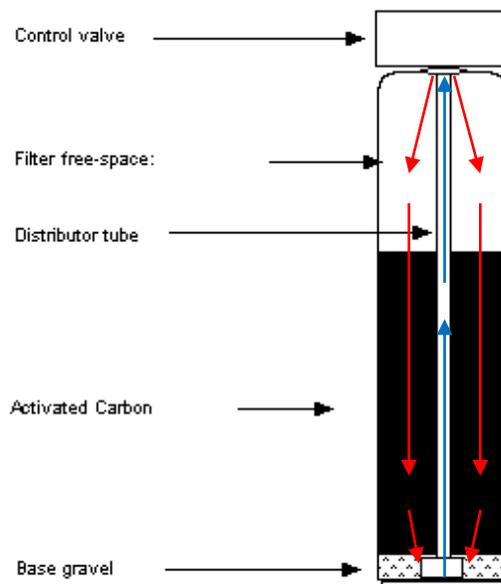
5700-E Carbon Filter Installation & Startup Guide

5. You do not need unions to install your 5700-E control valve. If you need to remove it, the 5700-E has quick-release couplings that make it easy to put the Carbon filter on by-pass and remove the filter system from the piping.
6. The drain line tubing (not supplied) is connected to a drain from the drain outlet using flexible ½" ID tubing. Note that the drain can run up above the 5700-E 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.

How Your Carbon Filter Works

See Fig 1 below. 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.

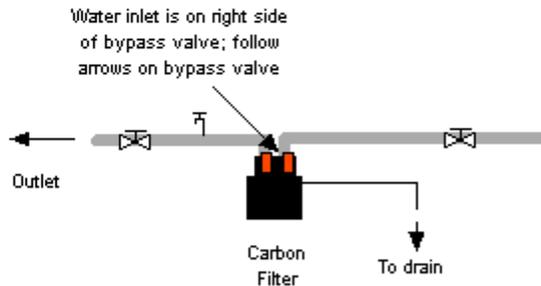
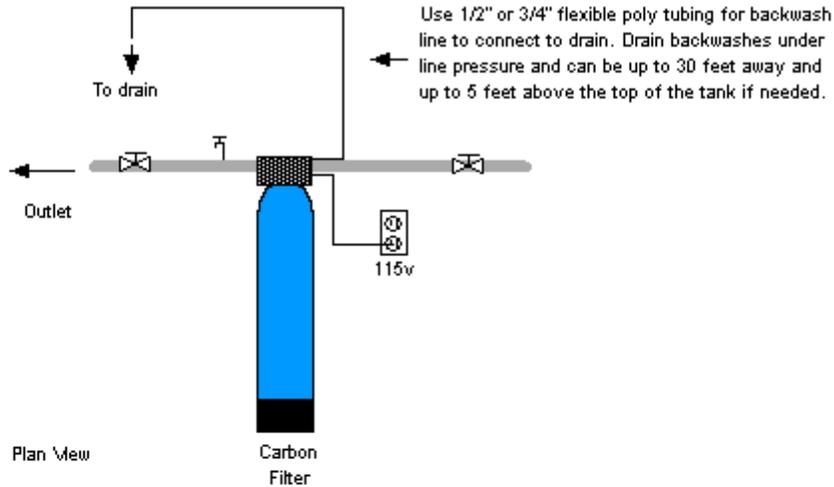
Fig 1 - Carbon Filter Tank Water Flow



5700-E Carbon Filter Installation & Startup Guide

Fig 2 - Typical Carbon Filter 5700-E piping installation with ball valve and hose bib after the filter

Auto Backwash Carbon Filter System for Chlorinated City Water
Flow Diagram Not to scale



Key

-  Gate or ball valve
-  Pressure gauge
-  Hose bib (spigot)
-  Water piping

Notes: follow inlet and outlet arrows on filter for proper installation. Connect 1/2" flexible tubing from backwashing control valve to a drain. If the distance to the drain is more than 20 feet use 3/4" or 1" tubing. Follow all local plumbing and electrical codes.

If you install a hose bib & ball valve after the filter as shown, it will make it easier to service and test the water at a later date.

INSTALL ON CHLORINATED DISINFECTED WATER ONLY

5700-E Carbon Filter Installation & Startup Guide

Fig. 3: CWS 5700-E valve from the rear showing the inlet (left) and outlet (right) end-connector fittings (1" or 1-1/4" NPT in Noryl plastic). Brass end-connectors are also available for connecting to copper tubing.

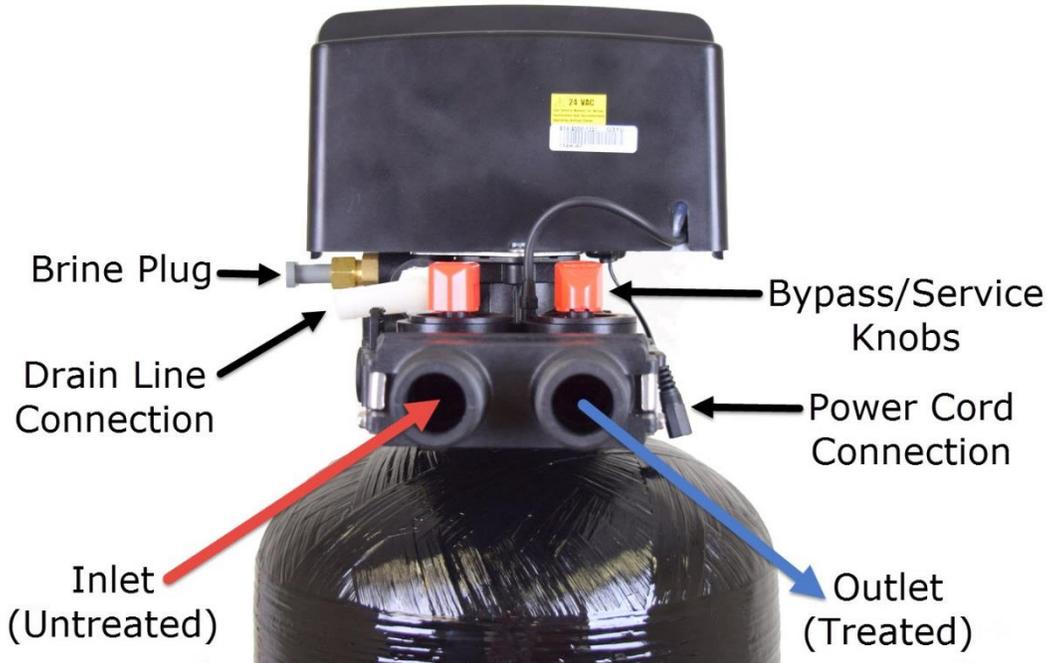
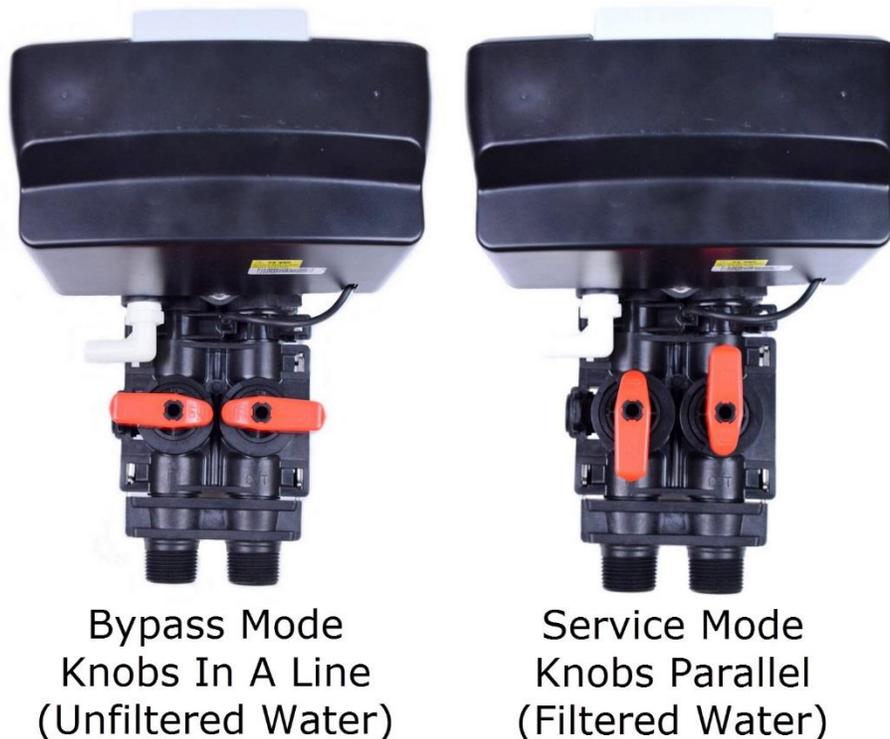


Fig. 4: CWS 5700-E Bypass Assembly



5700-E Carbon Filter Installation & Startup Guide

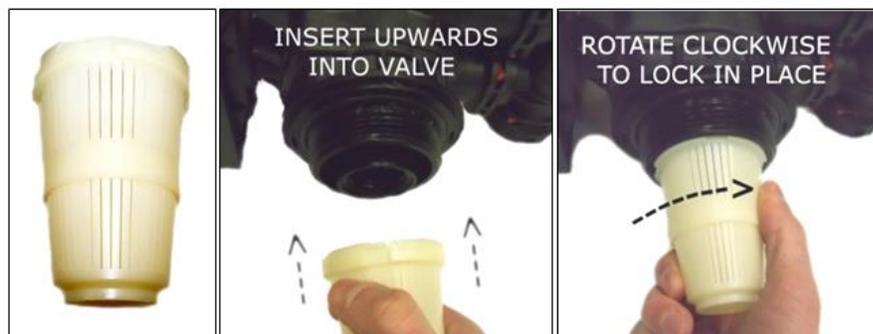
Assembly and Installation Instructions

1. By hand, unscrew the entire 5700-E control valve from top of tank if it was shipped screwed on. Place distributor tube in tank if not already inside. If not already done, make sure the blue cap is on top of distributor tube, or wrap the top of distributor tube with electrical or duct tape. You do not want gravel or Carbon to go down the distributor tube.

Plug or tape top of distributor tube when adding media to prevent media from entering. Remove when finished.



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 will be about 2/3rds full of media.
4. Remove cap or tape from top of distributor tube. Be careful not to pull up distributor tube when removing cap or tape.
5. If possible at this point, fill tank completely with water. This will allow the Carbon Filter media to settle and eliminate the need of “purging” the air out of the tank later.
6. Attach plastic top screen to the under-side of the 5700-E control valve. It is a funnel-shaped plastic screen that snaps on to the control valve and prevents resin from being backwashed out to drain during the regeneration cycles.

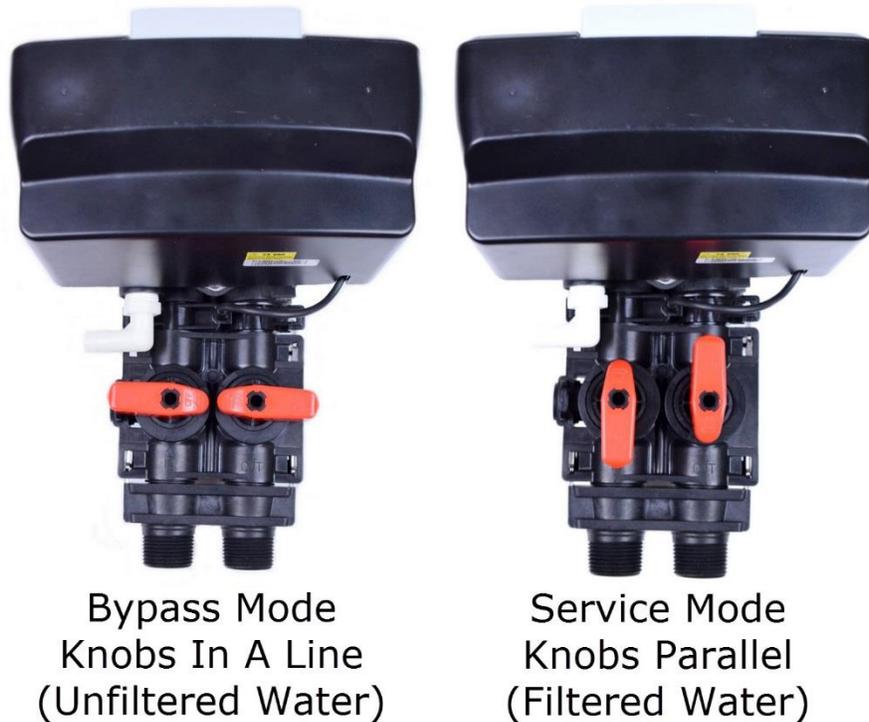


7. Add a small amount of silicone grease or vegetable cooking oil to the tank threads and screw on 5700-E control valve carefully. Do not use pipe-joint compound, Teflon tape, or Vaseline or other petroleum greases to lubricate tank threads.

5700-E Carbon Filter Installation & Startup Guide

- See how the by-pass assembly is connected. Note the pipe connectors in Fig. 3 while the other end is what gets attached to the control valve. **Your 5700-E is usually shipped in the by-pass position.**

Fig. 5: 5700-E By-Pass and Service Positions



- Lubricate the by-pass valve o-rings with some vegetable oil or silicone grease and connect the bypass assembly to the 5700-E control by sliding the bypass valve firmly into the body of the 5700-E.
- Next lubricate the end-connectors with some silicone grease or vegetable cooking oil and insert them into the bypass valve.
- Note that the 5700-E is usually shipped in the bypass position. There is a bypass valve knob on both the inlet and the outlet (Fig 3). You can easily tell if it is in bypass because the two knobs will be in line with each other (Fig 5). If the valve is in the Service position (Fig 5) the knobs will be parallel to each other. Make sure both sides are in the by-pass position.
- Now install your water pipes to the 5700-E bypass end connectors. Make sure inlet is installed to the 'In' pipe connector on the bypass valve and outlet is on the "Out" connector.
- Connect some flexible tubing from the drain connection on the 5700-E 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 5700-E Carbon Filter up to 4 feet above the top of the tank. If the drain line will be more

5700-E Carbon Filter Installation & Startup Guide

than 20 feet, use larger diameter tubing such as $\frac{3}{4}$ " or 1". Note that it is desirable to be able to run the drain line into a bucket in order to test the backwash flow rate in the future. This is why hard piping the drain line is discouraged, however, if you do use hard PVC piping for the drain line, and you are able to remove the hard PVC drain piping and attach flexible tubing should you ever desire for testing purposes, it is OK to use rigid PVC pipe for the drain. Make sure the drain tubing is firmly clamped to the barbed fitting with a hose clamp to prevent leaks.

14. Plug your 5700-E control valve into an outlet. After being plugged in, the screen may display "WAITING PLEASE" while it finds the service position. By default, the control valve will be set to work like a Water Softener, but that's not correct for this application. So, 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.
15. Continue on to the next page to begin the programming instructions

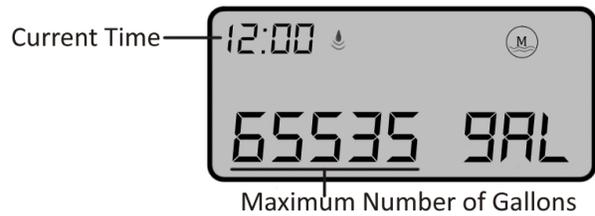
Programming Instructions:

Normal Operation

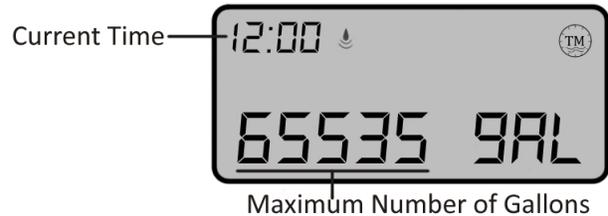
Time Mode: Home screen will display days and hours left until the unit regenerates.



Meter Mode: Meter mode tracks the number of gallons used instead of regenerating on a specific time. In this mode immediate regeneration will occur once the unit hits its target calculated number of gallons based on hardness settings.



Timed Meter Mode: Timed Meter Mode tracks the number gallons used, like the Meter Mode, but waits until its set time to regenerate instead of immediately. The water droplet to the right of Current Time signifies the unit tracking water flow. The Timed Meter Mode should be used with the Calendar Over-ride shown on the next page.



This will allow the unit to backwash after a programmed number of gallons, or a programmed number of days, whichever comes first.

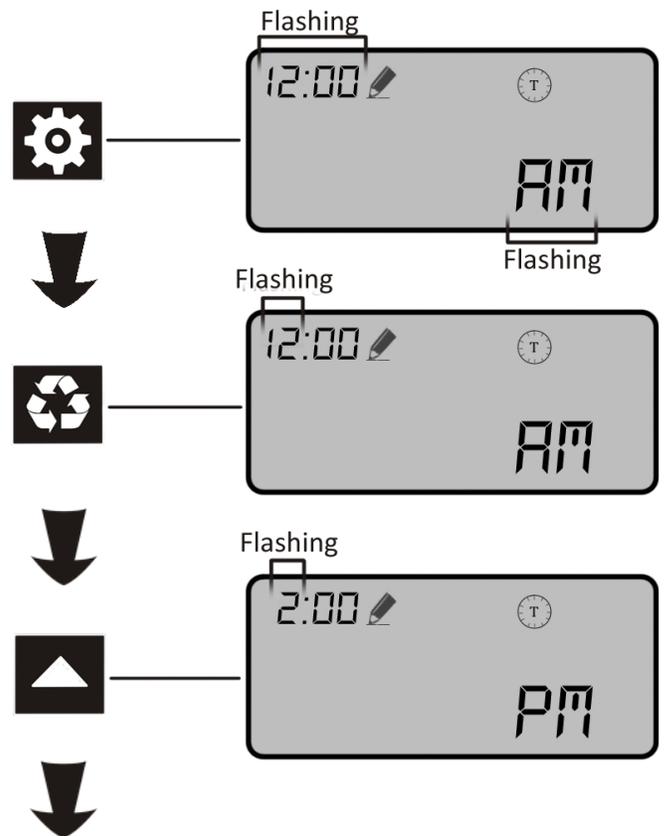
Meter & Timed Meter Menus

The following menus will allow you to change the current time, unit hardness, and calendar day override settings within the Meter and Timed Meter Modes.

Current Time settings: Press the gear to begin menus. Current time and period of the day will be flashing.

After pressing the Regen button, only the hour portion will be flashing.

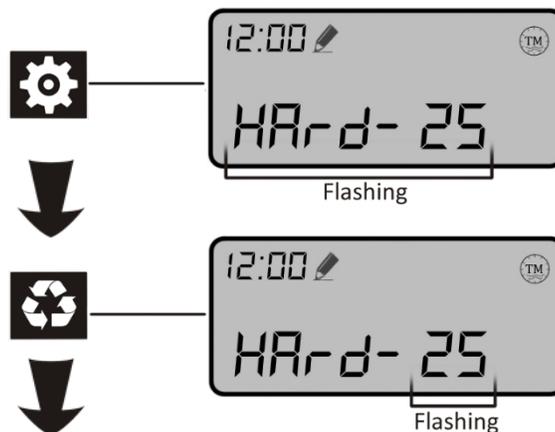
Use the up and down arrows to adjust the time. Press the gear again to switch to the minute portion. Note, once the timer passes a 12 hour period it will automatically change from A.M. to P.M.



Unit Hardness settings: Hard-25 will be flashing.

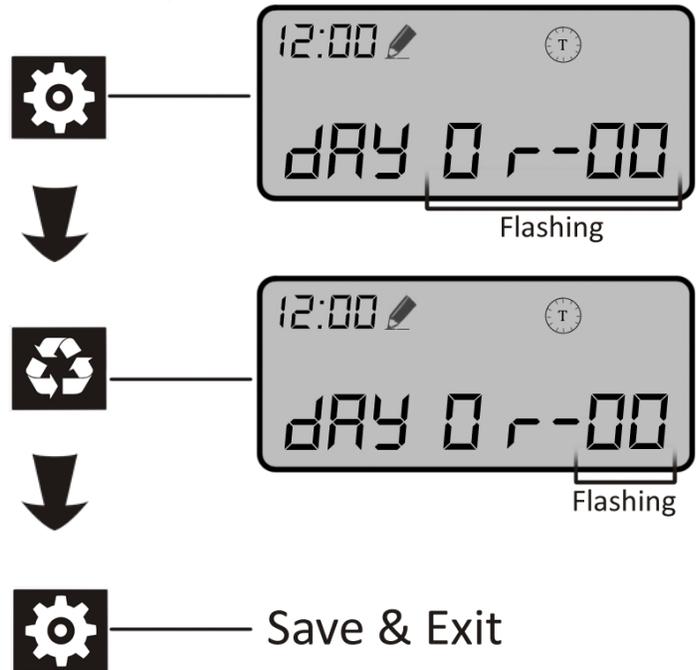
Pressing the Regen button will allow changes to hardness to be made. The unit has a range of 1-99 grains per gallon. This is the feedwater hardness, which allows the meter to calculate the number of gallons between backwashes. It is a little meaningless for a

carbon filter valve, and is designed for water softener which removes calcium hardness in grains per gallons. However, if you **set it to 20 to start with**, you will later see the number of gallons between cycles when you are finished programming based on your size of system. It is not that critical, because you want the filter to backwash once a week or every few days based on the type of filter system you have, by setting the Day Override.



Calendar Day Override setting:
Allows user to set a time to regenerate by if the unit hasn't met its set meter amount within that time period.

Pressing the Regen button allows you to change the days. Default setting is 0 days, but can range from 0-99 days. The recommended setting is for 7 days.

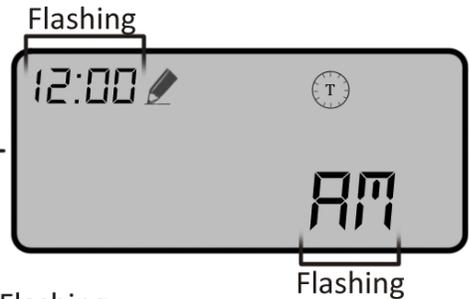


Time Menu

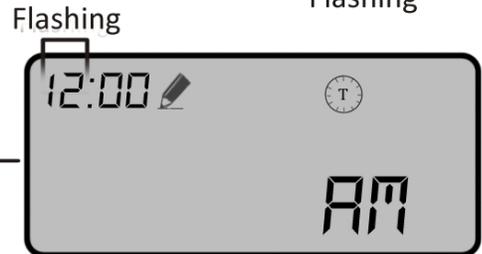
The following menu will let you change the Current Time and the Regeneration Day for Time Mode only.

5700-E Carbon Filter Installation & Startup Guide

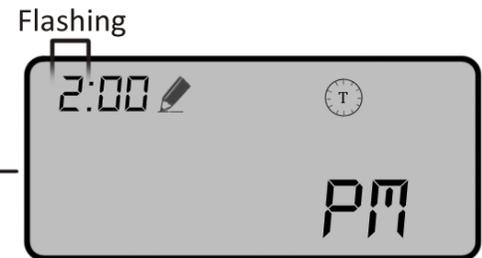
Current Time settings: Press gear to begin menus. Current time and period of the day will be flashing.



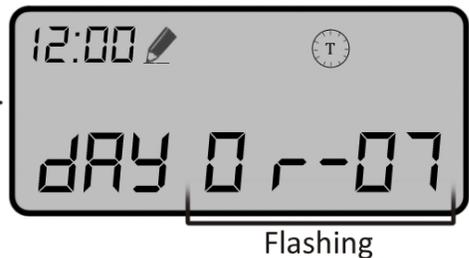
After pressing the Regen button, only the hour portion will be flashing.



Use the up and down arrows to adjust the time. Press the gear again to switch to the minute portion. Note, once the timer passes a 12 hour period it will automatically change A.M. to P.M.

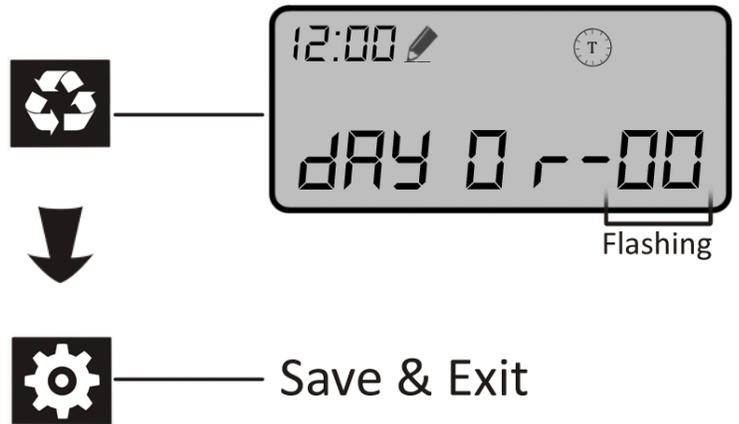


Pressing the gear again brings you to the Regeneration day setting.



Time Menus Continued...

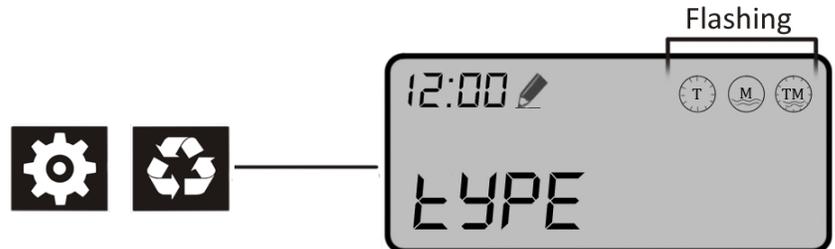
Using the up and down arrows, you can set the number of days you wish to have between regenerations. The unit has a range of 1-99 days. Default setting is 7 days.



Advanced Menu

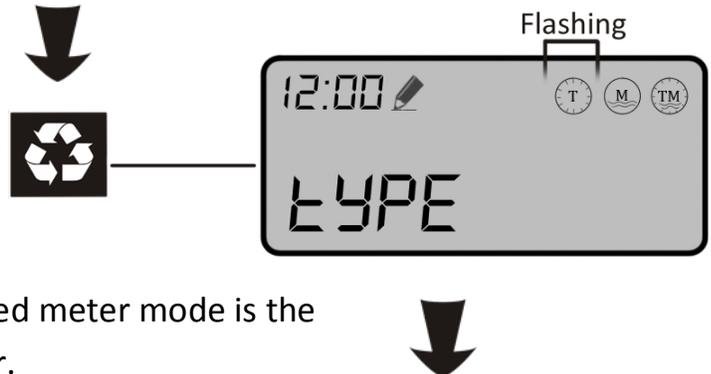
Within the Advance Menu the Regeneration Mode, Regeneration Cycle Period Lengths, and Unit Capacity are adjustable.

To enter, press both the Gear and Regen button at the same time. All mode types will be flashing.



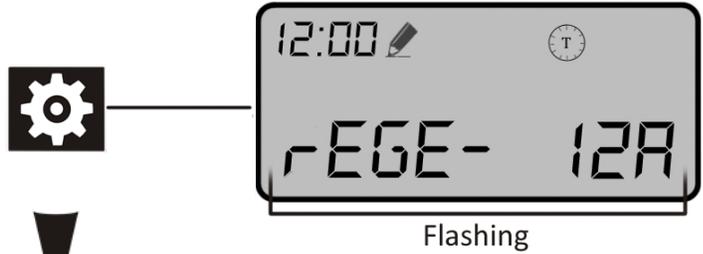
Press the Regen button again to select the mode type you wish to be in.

Use the up and down arrow to scroll through the modes. Timed meter mode is the recommended setting for a carbon filter.

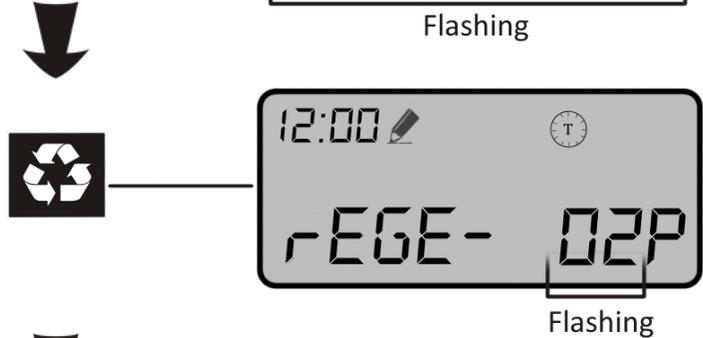


Advanced Menus Continued..

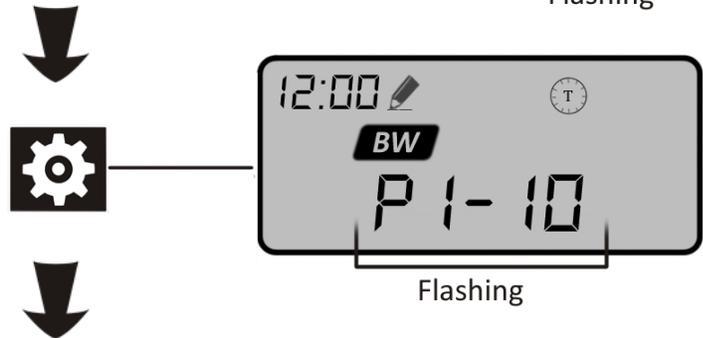
After selecting the mode, the time of day the unit is set to regenerate will appear.



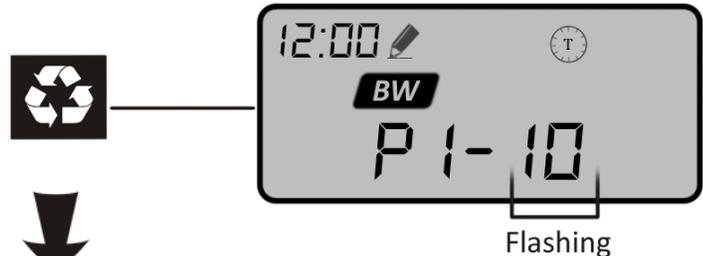
Pressing the Regen button will allow the time to be changed. Use the up and down arrows to adjust the hours and A.M. and P.M. settings.



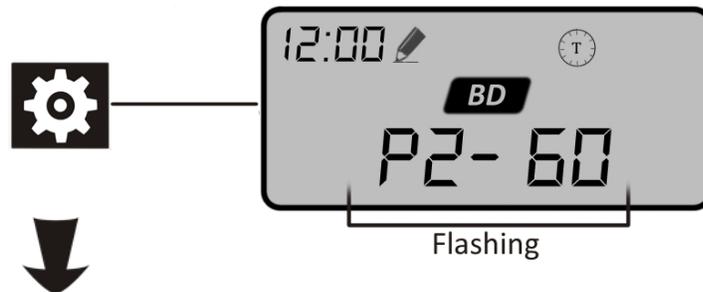
Pressing the gear again will bring you to phase 1, Backwash. BW will be present and P1-10 will be flashing.



Total minutes spent in backwash will be flashing. The unit can be programmed for 0-99 minutes. The recommended setting for a carbon filter is 10 minutes.

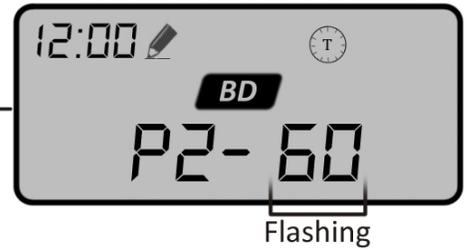


Next menu displays brine draw settings. BD will be present and P2-60 will be flashing.

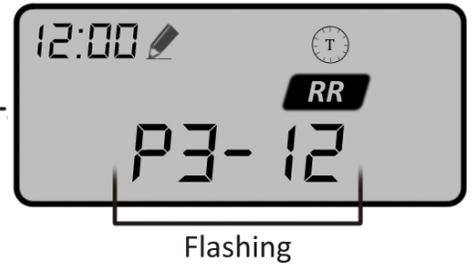


Advanced Menus Continued..

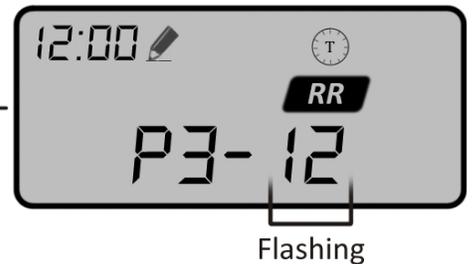
Total minutes the unit draws brine will be flashing. Unit can be set anywhere from 0-99 minutes. Set to 0 for a carbon filter.



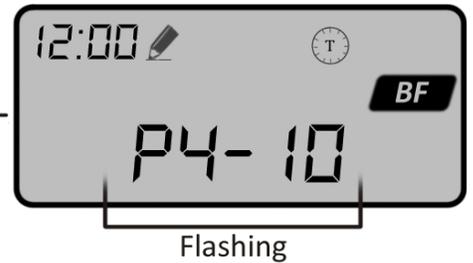
This menu displays Rapid Rinse settings. RR will be present and P3-12 will be flashing.



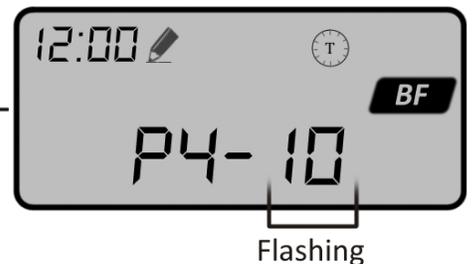
Total minutes the unit rinses will be flashing. Unit can be set anywhere from 0-99 minutes. Set to 6 for a carbon filter



This menu displays Brine Refill settings. BF will be present and P4-10 will be flashing.



Total minutes the unit fills the brine tank for will be flashing. Unit can be set anywhere from 0-99 minutes. Set to 0 for a carbon filter.

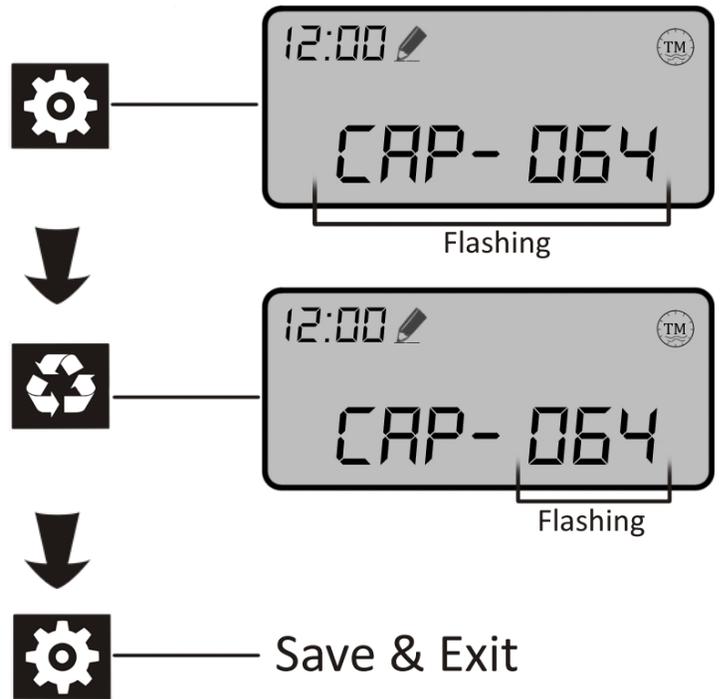


Advanced Menus Continued..

This last menu is to change the unit's capacity. This is determined by the tank size.

Unit has a range of 1-199 Capacity (for Meter and Timed Meter Modes only). Depending on your tank size, enter the following value from the table below.

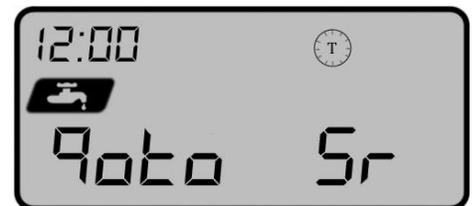
For a 1 C.F. system, enter: 032
For a 1.5 C.F. system, enter: 048
For a 2.0 C.F. system, enter: 064



Immediate Regeneration

While in service position, hold the Regen button in for 5-6 seconds to initiate an immediate regeneration.

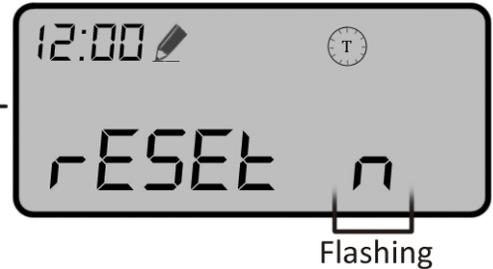
Pressing the Regen button again will jump to the next cycle phase. Holding the two arrow buttons together will terminate Immediate Regeneration and return the unit to service position.



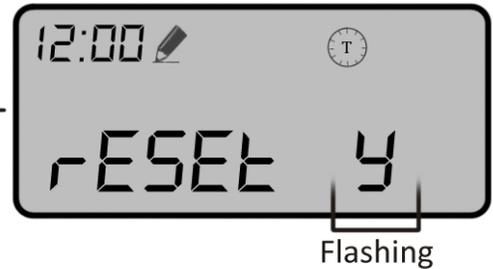
Restore Factory Settings

Hold the Regen button while plugging in the power supply to the unit. After the unit has powered up release Regen button.

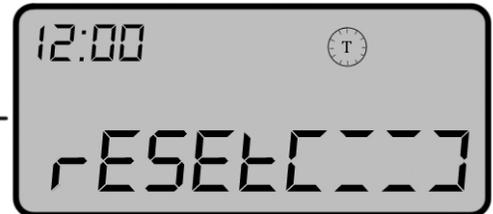
Next press the Regen button again to select no next to reset.



Using the down arrow, scroll to yes.



Hitting the Gear will begin resetting the unit.



Power Outage Memory

During a loss of power, all program settings will be stored in permanent memory. The current valve position, cycle step and time of day are all stored as well, but upon power up a reset of the current time will be necessary.

If the unit were to lose power during a regeneration stage, the valve will return back to its prior position when the outage occurred. *The unit will take 4-5 minutes to reset back to that position.*

Troubleshooting the 5700-E Carbon Filter

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 5700-E is in Cycle 1 or backwash. A 1.0 or 1.5 cubic foot system should have 5 gallons per minute and a 2.5 cubic foot system should have 10 gallons per minute of backwash.

In some cases, the 5700-E may not be programmed correctly. See the 5700-E service manual for instructions on how to access the master programming.