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Fleck 7000-SXT MangOX Installation & Start-Up Guide

For MangOX Filters with PotPerm tank for use with chlorine bleach

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

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

MANGOX MEDIA CONTAINS DUST.

USE PAPER MASK AND VENTILATE TO AVOID BREATHING

DUST.



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Packing List by Model

1.0 Cubic Foot MangOX:

Quantity	Description
1	Fleck 7000-SXT Backwash Control Valve
1	Pipe connector kit (either 1" or ¾")
1	Fleck 7000-SXT Bypass valve
1	Enpress filter tank with distributor tube installed
1	Media funnel
1	12 lbs Gravel
2	½ cubic foot boxes of MangOX filter media
1	Potassium permanganate black solution tank (remove white pad inside)

1.5 Cubic Foot MangOX:

Quantity	Description
1	Fleck 7000-SXT Backwash Control Valve
1	Pipe connector kit (either 1" or ¾")
1	Fleck 7000-SXT Bypass valve
1	Enpress filter tank with distributor tube installed
1	Media Funnel
1	16 lbs Gravel
3	½ cubic foot boxes of MangOX filter media
1	Potassium permanganate black solution tank (remove white pad inside)

2.0 Cubic Foot MangOx

Quantity	Description
1	Fleck 7000-SXT Backwash Control Valve
1	Pipe connector kit (either 1" or ¾")
1	Fleck 7000 Bypass valve
1	Enpress filter tank with distributor tube installed
1	Media funnel
1	16 lbs Gravel
4	½ cubic foot boxes of MangOx filter media
1	Potassium permanganate black solution tank (remove white pad inside)

2.5 Cubic Foot MangOX:

Quantity	Description
1	Fleck 7000-SXT Backwash Control Valve
1	Pipe connector kit (either 1" or ¾")
1	Fleck 7000-SXT Bypass valve
1	Enpress filter tank with distributor tube installed
1	Media funnel
1	16 lbs Gravel
5	½ cubic foot boxes of MangOX filter media
1	Potassium permanganate black solution tank (remove white pad inside)

Pre-Installation

1. Review your packing list and make sure you have received all the parts before beginning installation.
2. If you are going to be turning off the water to the house and you have an electric water heater, shut off the power to the water heater before beginning installation in case water heater is accidentally drained.
3. Pick a suitable location for your filter system on a dry level spot where it won't be exposed to freezing temperatures. A minimum of 20 PSI is required. Maximum pressure is 90 PSI.
4. Get all of your plumbing parts together before beginning installation. Installation typically takes 3 to 5 hours. However after installation the MangOX MangOX 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. Typically this clears up over a day or two.

Best Practices for Piping & Drain Installation

1. See typical installation (see Fig 2). The MangOX filter is installed after the pressure tank. If you are also installing a water softener, install the softener after the MangOX filter.
2. Make sure to follow to connect the in pipe to the Fleck 7000-SXT inlet and the outlet to the outlet (see Fig 2). As you face the Fleck 7000-SXT control from the front, the water enters on the right and exits on the left. From the back (see Fig 2) 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 Fleck 7000-SXT MangOX filter and also one after as shown in the diagram 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 MangOX filter before the second ball valve. This makes it easy to rinse your new MangOX 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 Fleck 7000-SXT control valve. Avoid heating up the Fleck 7000-SXT control valve plastic with the torch.
5. You do not need unions to install your Fleck 7000-SXT control. If you need to remove it, the Fleck 7000-SXT has quick-release couplings that make it easy to put the MangOX MangOX 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 Fleck 7000-SXT 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 MangOX Filter Works

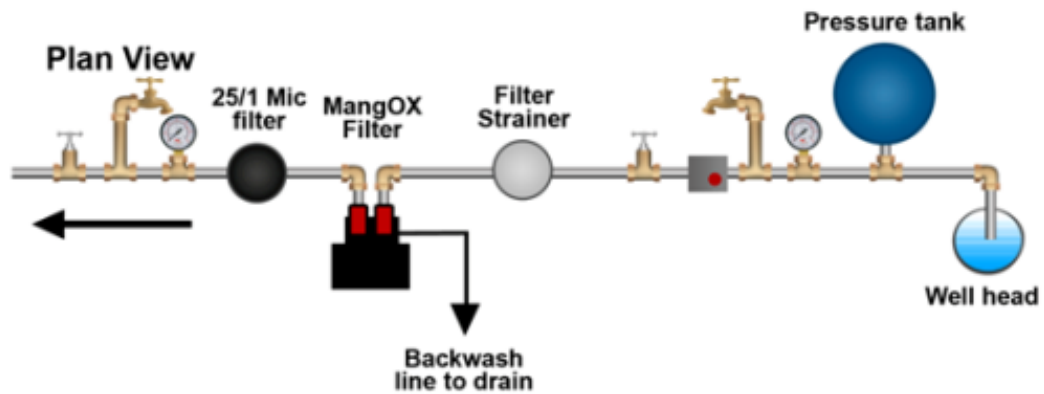
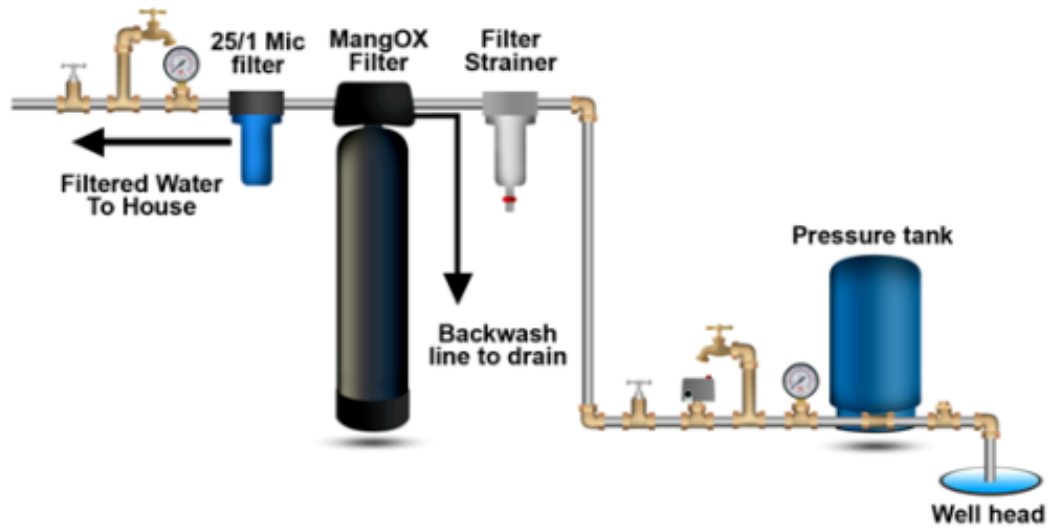
See Fig 1. In your MangOX the water enters the top of the tank (red arrows) and flows down through the media and up the distributor tube (blue arrows). Iron and manganese in the water turns to an oxidized particle upon contact with the media and is trapped in the media. During backwash, the water flow is reversed and water flows down the distributor tube and up through the media, lifting and expanding the MangOX media, and removing all the iron and rust trapped in the filter. During the backwash the MangOX is cleaned by the action of the water flowing through it.

Fig 1 - MangOX Filter Tank Water Flow



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Fig 2 - Typical MangOX Fleck 7000-SXT piping installation with ball valve and hose bib after the filter



Key



Water piping



Hose Bib



Check Valve



Pressure switch



Pressure Gauge



Gate or ball Valve

Fig 3: Fleck 7000 from the rear showing the inlet and outlet 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 Fleck 7000 side view

Fleck 700 MangOx Control Valve

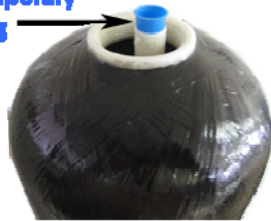


Assembly and Installation Instructions

1. Unscrew by hand the entire Fleck 7000-SXT control valve from top of tank if it was shipped screwed on. Place distributor tube in tank if not already inside tank. If not already done, make sure 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 MangOX to go down the distributor tube.

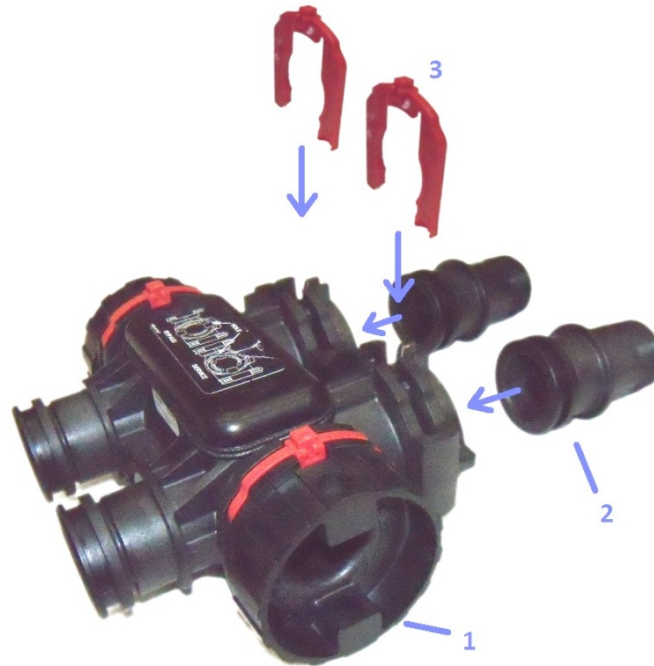
Plug or tape top of distributor tube to prevent media from entering distributor tube when adding media. Remove when finished.

Temporary plug



2. Add filter gravel supplied first, using the funnel sent with the MangOX filter. **NOTE: Be sure not to let any parts of the bag or other foreign materials enter tank when adding media.**
3. Next add MangOX (MANG-OX media). Tank will be approximately 60% full.
4. Remove cap or tape from top of distributor tube.
5. If possible at this point, fill tank completely with water. This will allow the MangOX media to settle and eliminate the need of “purging” the air out of the tank later.
6. **NOTE Regarding Teflon tape and pipe sealants:** It is OK to use Teflon tape and pipe sealant on the water pipe connector threads, where you attach your pipes or plumbing to the Fleck 7000. **DO NOT USE any Teflon tape or pipe joint compound on the tank itself or on the threads where the Fleck 7000 threads into the tank.** Please Note: When installing Fleck 7000 backwash control-timer valve on to the top of the filter tank, do not over-tighten. Tighten with hands, there is no need for a pipe wrench or other wrench.
7. See how the Fleck by-pass is connected (Fig 5). Note that Items 2 in Fig 3 below are the pipe connectors and the other end is what gets attached to the control valve. Items 3 are the red clips that hold the pipe connectors to the by-pass valve. To put system on or off bypass do NOT remove the red clips. Just turn knobs (1). **Fleck 7000 is usually shipped in by-pass position.**
8. Make sure the by-pass valve is in the bypass position when starting the installation. Follow the IN and OUT arrows on the bypass valve and control valve for proper connection of in and out water piping. Leave in the BY-PASS position for now.

Fig 5 Fleck 7000 By-Pass (1) & Pipe Connectors (2)



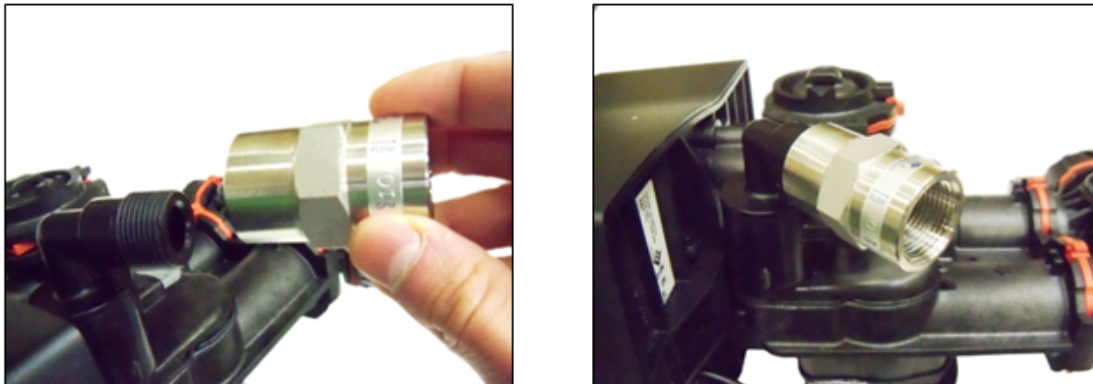
9. Lubricate the **by-pass valve o-rings only** on the pipe connectors with some vegetable oil or silicone grease and connect the bypass assembly to the Fleck 7000 control by sliding the bypass valve firmly into the body of the Fleck 7000. Once bypass is in far enough, you will be able to easily insert the red connector clips. **DO NOT USE PETROLEUM GREASE ON ANY PART OF THE FLECK 7000 CONTROL VALVE.**



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10. Now install your water pipes to the Fleck 7000-SXT bypass end connectors. Our preferred method is to wrap the pipe threads with 2 or 3 wraps of Teflon tape, then apply a thin coating of white non-hardening Teflon joint compound paste (available at all hardware stores) before attaching the pipe fittings. Make sure inlet is installed to the 'In' pipe connector on the bypass valve and outlet is on the "Out" connector.
11. Connect some flexible tubing from the drain connection on the Fleck 7000-SXT 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 Fleck 7000-SXT MangOX filter up to 4 feet above the top of the tank. If the drain line will be more than 20 feet, and especially if your system is a 2.0 or 2.5 cubic foot size, 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.
12. For the 1.5, 2.0 and 2.5 cubic foot and larger systems only: use external drain backwash flow control. If you have a 1.0 cubic foot size, the flow control is internal and there is no external flow control. Wrap some Teflon tape on the black drain fitting, and screw on the flow control. See Figure 6.

Fig 6 - Stainless Steel Backwash Drain Flow Control (1.5, 2.0 and 2.5 Cubic Foot Systems Only)



13. Next, connect the solution tank to the Fleck 7000 control valve with the black tubing, provided with the POT-PERM tank.

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Attaching the perm tubing to the perm solution tank & the Fleck 7000 brine valve



14. Begin by sliding the plastic injector nut on to the tubing by putting the tubing through the non-threaded side of the nut. Next, slide the black (or clear) compression ring on to the tubing with the narrower diameter going on first. Then slide the taller, white compression ring on to the tubing with the wider diameter going on first. The two compression rings should lay flesh against each other on the tubing. Slide them in to the injector nut and place the tubing into the injector valve. Finally, push the injector nut, which now has the compression rings inside of it, on to the threading of the injector valve and rotate the nut clockwise, screwing it on to the injector valve. Tighten it down to finger tightness. The tubing should be firmly attached and not slide out if pulled on.



15. Repeat step 14 to attach the tubing to the solution tank. This uses the same process, but on the solution tank valve.
16. Remove the felt polypro pad in the POT-PERM tank and discard. (This would be needed if you were using permanganate powder). Add 1 quart of non-perfumed household bleach to the POT-PERM tank and add 2 gallons of water. Note the tank may NOT be used with solid chlorine pellets or powder, but it is OK to use liquid bleach. It is OK to use potassium permanganate powder with the MangOX system, but don't mix chlorine with permanganate... Use one or the other.

Fig 7 Solution Tank Connection



17. Set up your Programming. Start by plugging in your Fleck 7000-SXT control valve to an outlet.
18. Enter Master Programming by following these steps: Set the Time Of Day display to 12:01 P.M. Press the Extra Cycle button (to exit Setting Time of Day mode). Then press and hold the Up and Down buttons together until the programming icon replaces the service icon and the Display Format screen appears.
19. First item that displays should read: DF GAL (this stands for US gallons format, if it is different change by using the up or down arrow)
20. Press the extra cycle button one time.
21. 2nd item that displays should read: "St2b". If it is different, use the up or down arrow to reset to St2b which is the correct setting.
22. Press the extra cycle button one time.
23. 3rd item that displays should read: 'tc" (stands for time-clock delayed regeneration)
24. Press the extra cycle button one time.
25. Next item that displays is Unit Capacity. This is not used for the greensand filters and can be skipped. Press Extra Cycle button one time.
26. The 5th item that displays is the frequency of the regeneration each week and should say A – 7 for every 7 days. If you are having some problems with iron bleed-through after the filter has been online for a few days you may want to change it to A - 4. 13.
27. Press the extra cycle button one time. Next item should display: 1 – 10, which refers to 10 minutes of backwash. If your water is extremely high in iron you can change this setting to 12 or 14 minutes to allow some extra backwash time.
28. Press the extra cycle button one time. This is the cycle where solution is sucked in from the POT PERM Solution tank, and if bleach is in the tank, will chlorinate and clean the MangOX Mang-OX media with chlorine bleach. This cycle is 60 minutes long and should display: 2 – 60.

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29. Press the extra cycle button one time. This cycle is a second backwash and will clean the media of any residual chlorine. This cycle should display: 3 – 5.
30. Press the extra cycle button one time. This is a rapid rinse and should display: 4 – 8.
31. Press the extra cycle button one time. This should display: 5 -12. This final cycle adds water to the POT PERM solution tank.
32. Press the extra cycle button one time. It will read: LF60 This refers to 60 hz electrical power which is we have in the U.S. If you are in a different country and use 50hz you can change it here.
33. Press the extra cycle button one time to return to the time of day and in-service position.
34. Now press the Extra Cycle button once more.
35. Set the current time of day: Press and hold either the Up or Down buttons until the programming icon replaces the service icon and the parameter display reads T0. Set the current time of day by pressing the up or down arrows until it is the current time of day. When the desired time is set, press the Extra Cycle button to resume normal operation, or wait 5 seconds and the unit will return to normal operation if no button is pressed.
36. You are done programming!
37. Turn on the water and leave the Fleck 7000 control on bypass and check for leaks. Leave the ball valve after the MangOX filter closed, so water is still off to the house, but connect a garden hose and open up the hose bib after the MangOX filter and allow the water to run for several minutes. This important step clears out any foreign material that may be in the pipes from the piping installation. If you do not have a valve installed after the MangOX filter and you do not have a hose bib, you will need to turn the water on inside the house to let the water run. Use a bathtub or laundry sink or other fixture that does not have an aerator screen.
38. Press the Extra Cycle button for a second or two which will start a manual backwash.
39. Now you can slowly turn the bypass valve to the service position. **You do NOT remove the red clips on the bypass knobs in order to turn the bypass valves from the bypass to the service position.** First open the Inlet Side of the bypass valve. Second slowly open the Outlet Side of the bypass until it is in the full service position. The Fleck 7000 bypass valve knobs are a little stiff, so you can use a screw driver placed in the holes to turn the knobs. Turn the bypass valve knobs in the correct direction which is counter-clockwise as you face the bypass valve knobs.
40. There should be no MangOX media coming out of the drain line, but the water will be black or dirty looking. At this point the MangOX filter will be in a backwash cycle. The backwash takes 10 minutes. If the water slows down or stops during the first 10 minutes of backwash, press the Extra Cycle to move the Fleck 7000-SXT control to the next cycle, the Rinse cycle. Then repeat the backwash and rinse after the rinse cycle is done, by pressing the Extra Cycle again. If you have high water pressure you may need to turn on the water slowly to the MangOX filter at first to prevent some MangOX fines from coming out the backwash. However it is normal for some small amount of fines to come out

during the backwash, although you do not want to see a large amount of media coming out, which would mean you have very high water pressure, or the drain flow control for the Fleck 7000-SXT is missing.

41. If possible verify that the backwash flow rate. You can easily run the drain hose to a bucket and using a watch verify the flow rate in gallons per minute. For example, if the backwash fills a 5 gallon bucket in 30 seconds, you have 10 gallons per minute or 10 GPM.

42. **An adequate backwash is critical to properly clean the MangOX media**

1.0 Cubic Foot Model: 8 GPM minimum 10 GPM recommended

1.5 Cubic Foot Model: 8 GPM minimum 10 GPM recommended

2.0 Cubic Foot Model: 10 GPM minimum 12 GPM recommended

2.5 Cubic Foot Model: 13.0 GPM minimum 15 GPM recommended

43. After the backwash cycle is complete, the 7000-SXT control enters the brine cycle, where it will draw in the chlorine bleach solution from the solution tank. This cycle takes 60 minutes.

44. The next cycle is the 2nd backwash cycle, then the rinse cycle, and finally it refills the solution tank as the last cycle.

45. After the MangOX filter has gone through a regeneration cycle, it may be necessary to repeat the above procedure once or two more times before the media is completely cleaned out.

Maintaining Your MangOX Filter System

Once a week, or at least once a month, add 2 cups of household bleach to the auxiliary chlorine (POT PERM) tank. Never mix permanganate and chlorine bleach together or use permanganate, if you are also using bleach. Other than add bleach, there is little or no maintenance required. Every 5 – 10 years the MangOX media can be replaced for best results.

If your water has a lot of hydrogen sulfide odor or iron and manganese levels over 10 ppm, a chlorine feed pump may be needed to inject a small amount of chlorine before the well pressure tank and MangOX filter. In most cases this is not necessary but chlorination (or ozone, or peroxide injection) before the MangOX filter can greatly enhance the ability of the media to remove iron, manganese and hydrogen sulfide.

Troubleshooting the Fleck 7000-SXT MangOX Filter

One problem that may occur is if you do not have enough backwash flow rate to properly clean the MangOX filter. You can verify the backwash flow rate by running the drain line into a bucket and timing it when the Fleck 7000-SXT is in Cycle 1 or backwash.

In some cases, the Fleck 7000-SXT may not be programmed correctly. See the Fleck 7000-SXT service manual for instructions on how to access the master programming. Your Fleck 7000-SXT should be set for FLtr or Filter mode and have two cycles, backwash and rinse.

If you are still getting some iron through the system, you can adjust the filter to backwash every 1 or 2 days. In some cases if the untreated water is high in hydrogen sulfide, or the iron level is over 5 ppm, a chlorinator system may be needed before the iron filter, in order for the MangOX media to work properly.

Fleck 7000 Filter System (Non Flow Sensor) Standard Programming Guide

This is for the standard MangOX filter systems that do NOT have the optional flow sensor. If your system is equipped with a flow sensor, see next section Page 13. There are two types of programming, standard USER PROGRAMMING, where you can set the time of day and days between backwash. The second type is MASTER PROGRAMMING where you can set the length of the backwash and rinse cycles, and make sure the control is set to the correct settings for your type of MangOX filter:

User Programming

1. Press the Up and Down buttons for five seconds while in service, and the time of day is NOT set to 12:01 PM.
2. **Day Override (Display Code DO): Set to 1 to 14** based on your particular filter system requirements. Use the Up or Down arrows to change the setting. This is the critical setting that allows your filter to backwash every fixed number of days. See your Installation and Start-up Guide for more information or contact us for suggestions for this setting. Press the Extra Cycle button.
3. **Regeneration Time (Display Code RT): Set to 2:00 am** generally or sometime when no water is being used, and no other filter or softener is likely to be in a regeneration cycle. Press the Extra Cycle button.
4. Press the Extra Cycle button to end User Programming Mode.

**The timer will exit Diagnostic Mode after 60 seconds if no buttons are pressed.
Press the Extra Cycle button to exit Diagnostic Mode at any time.**

Master Programming

Perform a Master Reset: Unplug the Fleck 7000 from the electrical wall outlet. Hold the Extra Cycle button while plugging in and powering up the unit. This resets all of the parameters in the unit.

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Enter Master Programming Mode: Set the Time Of Day display to **12:01 P.M.** Press the Extra Cycle button (to exit Setting Time of Day mode). Then press and hold the Up and Down buttons together until the programming icon replaces the service icon and the Display Format screen appears.

Note, that when the Master Programming Mode is entered, all available option setting displays may be viewed and set as needed. Depending on current option settings, some parameters cannot be viewed or set.

1. **Display Format (Display Code DF): Set display to GAL** (stands for U.S. Gallons), or change to Liters or Cubic Meters if out of the U.S. Press the Extra Cycle button to go to the next step.
2. **Valve Type (Display code VT): Set to "St2b"**. If it is different, use the up or down arrow to reset to dF which is the correct setting. Press the extra cycle button one time
3. **Control Type (Display Code CT): Set to TC. Refers to Time Clock type, which it is.** Press the Extra Cycle button.
4. **Day Override (Display Code DO): Set to 7 or other** based on your particular filter system requirements. Use the Up or Down arrows to change the setting. This is the critical setting that allows your filter to backwash every fixed number of days. See your Installation and Start-up Guide for more information or contact us for suggestions for this setting. Press the Extra Cycle button.
5. **Regeneration Time: (Display Code RT): Set to 2:00 am** generally or sometime when no water is being used, and no other filter or softener is likely to be in a regeneration cycle. Press the Extra Cycle button.
6. BW – Stands for BackWash length in minutes. 1 – 10 refers to 10 minutes of backwash. If your water is extremely high in iron you can change this setting to 12 or 14 minutes to allow some extra backwash time, but 10 minutes is a good setting. Press the extra cycle button one time
7. BD – stands for Brine Draw. This is the cycle where solution is sucked in from the POT PERM Solution tank, and if bleach is in the tank, will chlorinate and clean the filter media with chlorine bleach. This cycle is 60 minutes long and should display: 2 – 60. Press the extra cycle button one time.
8. BW - This cycle is a second backwash and will clean the media of any residual chlorine. This cycle should display: 3 – 5. Press the extra cycle button one time.
9. RR – This is the Rapid Rinse cycle and should display: 4 – 8. Press the extra cycle button one time
10. BF - This is the Brine Fill, where the solution tank is refilled with water to make solution for the next cycle. . This should display: 5 -12. This mean it the cycle will last for 12 minutes. This final cycle adds water to the POT PERM solution tank. Press the extra cycle button one time.

11. It will read: LF60 This refers to 60 hz electrical power which is we have in the U.S. If you are in a different country and use 50hz you can change it here.
12. Press the extra cycle button one time to return to the time of day and in-service position.

Fleck 7000 Metered Flow Sensor Filter System Programming Guide

This is for Fleck 7000 backwash filters that have are equipped with the optional flow sensor. There are two types of programming, standard USER PROGRAMMING, where you can set the time of day and gallons of water used and/or days between backwash. The second type is MASTER PROGRAMMING where you can set the length of the backwash and rinse cycles, and make sure the control is set to the correct settings for your type of MangOX filter:

User Programming

You can go into User Programming and make adjustments if you want to the flow meter setting or Day Override setting. Use the User Programming to avoid having to go through the Master Programming for quick changes to these settings below:

1. Press the Up and Down buttons for five seconds while in service, and the time of day is NOT set to 12:01 PM.
2. **Day Override (Display Code DO): Set to 1 to 14** based on your particular filter system requirements. Use the Up or Down arrows to change the setting. This is the critical setting that allows your filter to backwash every fixed number of days. See your Installation and Start-up Guide for more information or contact us for suggestions for this setting. Press the Extra Cycle button.
3. **Regeneration Time (Display Code RT): Set to 2:00 am** generally or sometime when no water is being used, and no other filter or softener is likely to be in a regeneration cycle. Press the Extra Cycle button.
4. **Feed Water Hardness:** Use this setting to adjust the feed water hardness. Set for 20 for most applications. Press the Extra Cycle button. Note that actual 'Feed Water Hardness' is irrelevant to filter systems, since hardness is being removed. Rather this is just how the

5. **Fixed Reserve Capacity (Display Code RC): Set to 0.** No fixed reserve capacity is required for filters. Press the Extra Cycle button.
6. Press the Extra Cycle button to end User Programming Mode

Master Programming Mode (for Flow Sensor type)

Perform a Master Reset: Unplug the Fleck 7000 from the electrical wall outlet. Hold the Extra Cycle button while plugging in and powering up the unit. This resets all of the parameters in the unit.

Enter Master Programming Mode: Set the Time Of Day display to **12:01 P.M.** Press the Extra Cycle button (to exit Setting Time of Day mode). Then press and hold the Up and Down buttons together until the programming icon replaces the service icon and the Display Format screen appears.

Note, that when the Master Programming Mode is entered, all available option setting displays may be viewed and set as needed. Depending on current option settings, some parameters cannot be viewed.

1. **Display Format (Display Code DF): Set display to GAL** (stands for U.S. Gallons), or change to Liters or Cubic Meters if out of the U.S. Press the Extra Cycle button to go to the next step.
2. **Valve Type (Display code VT): Set to DF2b.** This means it is set for standard Downflow mode, similar to a water softener so we can take advantage of the flow meter in this Fleck 7000 5-cycle valve, but we won't be using all the 5 cycles that the water softeners use. Press the Extra Cycle button to go to the next step.
3. **Control Type (Display Code CT): Set to Fd. This is the Meter Delayed option.** This tells the Fleck 7000 control to meter or keep track of the amount of water used, but then wait until the pre-set regeneration (backwash and rinse cycles) time, typically in the middle of the night. Press the Extra Cycle button.
4. **Unit Capacity (Display Code C): Set to 30.** Use this display to set the Unit Capacity. This setting specifies the treatment capacity of the unit. Since we are not using this for softening, where the capacity of the softening resin can be accurately defined, 30 is a number we can start with. This can be set higher or lower later which will allow the meter to backwash more or less frequently based on the capacity. Press the Extra Cycle button.
5. **Feedwater Hardness (Display Code H): Set to 10 to 20.** This is the feedwater hardness, that allows the meter to calculate the number of gallons between backwashes. It is a little meaningless for

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filter valves, and is designed for water softener which remove 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.

6. **Reserve Selection (Display Code RS): Set to SF.** It is not relevant to filter control valves.

7. **Safety Factory (Display Code SF):** Set to 0.

8. **Day Override (Display Code DO): Set to 1 to 14** based on your particular filter system requirements. Use the Up or Down arrows to change the setting. This is the critical setting that allows your filter to backwash every fixed number of days. See your Installation and Start-up Guide for more information or contact us for suggestions for this setting. Press the Extra Cycle button.

9. **Regeneration Time: (Display Code RT): Set to 2:00 am** generally or sometime when no water is being used, and no other filter or softener is likely to be in a regeneration cycle. Press the Extra Cycle button.

10. **Regeneration Cycle Step Times:** Use this display to set the various minutes of each cycle. Some of the cycles will be set to 0. **Do not set any of the cycles to Off.** Use the Up or Down arrows to change the setting to the desired setting. Press the Extra Cycle button to accept the setting and move to the next parameter.
 - a. **B1 – Backwash: Set to 8 to 10 minutes.**
 - b. **BD - Brine Draw: Set to 0.**
 - c. **B2 - 2nd Backwash: Set to 0 for most applications.**
 - d. **RR - Rapid Rinse: Set to 6 to 8 minutes**
 - e. **BF - Brine Fill: Set to 0.**
 - f. **SV - Service (meaning it is in Service or filtering mode) no setting is needed for this.**
Press the Extra Cycle button

11. **Flow Meter Type (Display Code FM):** Set to t1.2 (which is standard Fleck 7000 meter). Press the Extra Cycle button.

12. Press the Extra Cycle button to save all settings and exit Master Programming Mode. Note that the control valve may take several minutes to re-home and re-set after the Master Programming steps, do not unplug the control during this process.