

# **Super Filter**

*Model NFF*

*Iron, Manganese, Hydrogen Sulfide Reduction*

**Operating and Maintenance Manual**



Enjoy clean, stain-free laundry and dishes . . . and fresher tasting water. The Super Filter Model NFF removes Iron, Manganese and Hydrogen Sulfide with no chemicals required for regeneration.

## NFF Specifications

Item Number	Model Description	Media Cu Ft	Flow Rates USGPM		Installation Space Inches - WxDxH	Fiberglass Tank Size - Inches	Shipping Weight
			Service	Min. Backwash			
9069	NFF10	1.0	6	12*	14 x 14 x 62	12 x 52	180
9070	NFF20	2.0	12	15*	16 x 16 x 60	14 x 50	330
9082	NFF710	1.0	6	12*	14 x 14 x 62	12 x 52	180
9083	NFF720	2.0	12	15*	16 x 16 x 60	14 x 50	330

Maximum Water Temperature = 110°F (43°C)  
 Maximum Operating Pressure = 100 PSIG (689 kPa)  
 Pipe Size = 1"  
 Electrical = 110V / 60Hz (standard)

- At the stated service flow rates, the pressure drop through these devices will not exceed 15 psig.
- The manufacturer reserves the right to make the product improvements which may deviate from the specifications and descriptions stated herein, without obligation to change previously manufactured products or to note the change.

*\*For satisfactory operation, the pumping rate of the well system must equal or exceed the indicated backwash flow rate. Simply set the unit to backwash every day.*

## Removal Capacity

Iron .....	30 ppm	Minimum Bed Depth .....	20"
Hydrogen Sulfide .....	15 ppm	pH Range .....	5.0 - 9.0
Manganese .....	10 ppm	Freeboard Required .....	30 - 50%

The Super Filter Model NFF uses an oxidizing filter media. The media uses the dissolved oxygen in the water supply to oxidize target contaminants. Through the use of an air eductor (not included), additional oxygen introduced to the water can greatly enhance the performance of the NFF filter models. We recommend the installation of either;

Item #33354 — Hydrocharger, PVC Plastic, 1" FNPT

Item #32393 — Micronizer, Noryl Composite Construction, 1" MNPT

The Hydrocharger or Micronizer assembly should be installed upstream of the Super Filter Model NFF and adjusted to draw air for approximately one third of the pump cycle.

# Operating Instructions

## How Your Automatic Filter Works

Raw water enters your home through the main supply line, enters your filter, and passes downward through the media bed. The filtered water then flows up and into your household water lines.

## Water Pressure

Your water filter is designed to operate under normal water pressures from 20 psi to 100 psi.

## Regeneration and Automatic Bypass

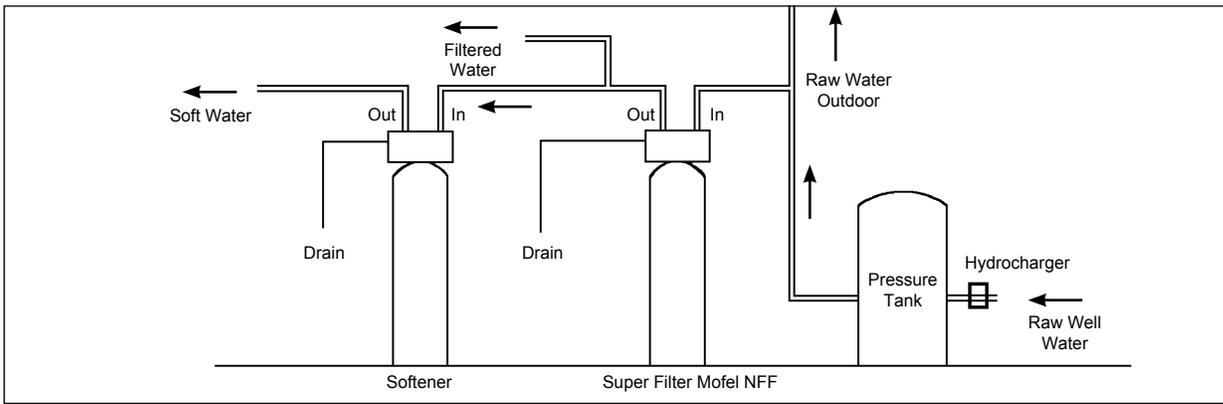
Water filters are factory set to regenerate at 1:00 a.m. during a period of little or no water use. The regeneration cycle lasts approximately 15 minutes, after which filtered water service is restored. While regeneration is taking place, "raw water" automatically bypasses the filter if required. If possible, avoid using water during regeneration to prevent unfiltered water entering your household plumbing system.

NOTE: When more than one filter is being used, regeneration should be staggered by 15 minute intervals from 1 a.m.

## New Sounds

You will notice new sounds, such as the hum of the timer, as your filter operates. During regeneration, it will not be uncommon to hear water running to the drain.

## Typical Installations



## Installation and Start-up Procedure

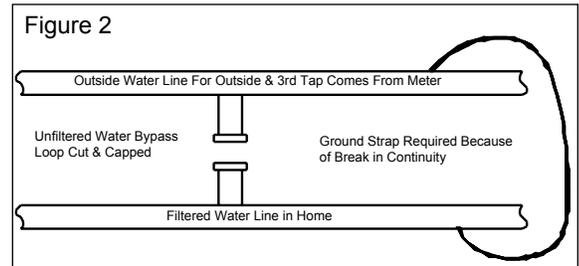
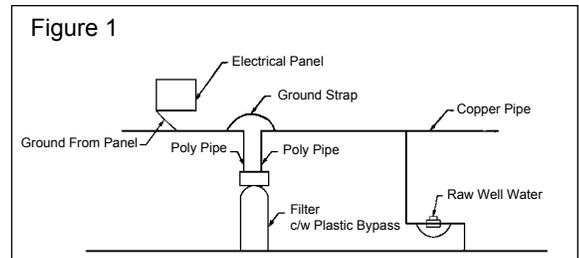
### CAUTION:

If the ground from the electrical panel or breaker box to the underground copper pipe is tied to the copper water lines and these lines are cut during installation, an approved grounding strap must be used between the two lines that have been cut in order to maintain continuity. The length of the grounding strap will depend upon the number of units being installed and/or the amount of copper pipe being replaced with poly. See Figure 1.

In all cases where metal pipe was originally used and is later interrupted by poly pipe, as in Figure 1 or by physical separation as in Figure 2, to maintain proper metallic pipe bonding, an approved ground clamp c/w not less than #6 copper conductor must be used for continuity.

Check your local electrical code for the correct clamp and cable size.

1. Place filter on a flat surface in desired location, near a drain and 115 volt AC outlet. Subjecting your filter to freezing or to water temperatures above 120°F (49°C) will void the warranty.
2. Load media in filter. All filters are supplied with the media separate. **Please refer to page 3 Installation and Replacement of Filter Media Pak.**
3. Remove the valve from the carton. Carefully position the valve over it and turn securely on to the fiberglass tank.
4. Make inlet and outlet water connections to meet applicable plumbing codes. A 1" inlet line is recommended. When sweat fittings are used, solder the adapters for the inlet and outlet to the copper pipe first. This procedure is necessary because the controls must not be subjected to temperatures above 160°F (71°C). Then, using teflon tape, screw the adapters for the inlet, outlet and drain into the valve. CAUTION: do not use pipe thread compound as it may attack the materials in the valve body.
5. On the drain, use 1/2" hose barb supplied and full 1/2" hose (not supplied) for the drain line and make the shortest run to a suitable drain. The drain line must be secured in position at the end which discharges into the drain so it cannot be inadvertently moved from the drain.
6. Loosen the two screws on the timer cover to remove it from the timer. See page 4 for Programming Instructions for all units.



7. Automatic water filters are supplied from the factory in the BACKWASH position, ready for start up. Turn on the water supply to the unit. Open the supply line slowly and allow the air to escape from the filter before turning the supply water on all the way. Allow the unit to backwash until all the air is no longer showing at the drain. This may take up to 15 minutes so you need to unplug the timer until you are ready to continue.
8. Plug the timer in, set the time and frequency of regeneration to regenerate daily. Allow the unit to complete the cycle on its own from this point.

ALL GOVERNMENT CODES GOVERNING INSTALLATIONS OF THESE DEVICES MUST BE OBSERVED.

## Installation & Replacement of Filter Media Pak

Check to ensure all components and media parts are received.

### Loading the Media-Pak

Place the distributor tube down the center of the tank. The top of this tube should be plugged with a rag or cork to prevent media from entering. Pour the bag of coarse gravel into the tank, then pour the bag of fine gravel into the tank.

It is important that the distributor tube is not moved or pulled out as it would not be possible to put it down to the bottom of the tank once gravel or media are in the tank.

Finally pour the larger bag(s) of media into the tank.

Once this is done, the rag or cork should be removed from the distributor tube. Clean off the top of the tank. Finally place the control valve on the tank and onto the distributor tube. Tighten the control valve onto the tank. Connect or reconnect the inlet and outlets and drain. The control valve should be in the backwash position. Slowly open the inlet valve water supply and slowly fill the filter tank until water appears at the open drain line. Return the control to the service position and shut the inlet off for approximately one hour to allow the media to soak in the water.

After one hour, turn inlet water on slowly and place the control into the backwash position and plug the unit's electrical cord into a constant power source. Let the unit continue through its regeneration cycle automatically.

The regeneration is necessary so all media fines are backwashed down the drain to ensure clean filtered water. After this media has been replaced, it may be necessary to reset the present time of day on the control valve timer as it will have been unplugged for some time.

### Replacing the Media

The first step in replacing the media bed is to shut off the water supply to the filter. Then place the unit into the backwash position to release any pressure in the lines. At this point, you must disconnect the plumbing from the inlet and outlet. Then unscrew the control valve (Item A) from the fiberglass tank. Once this has been done, remove the distributor tube (Item B). Then you can remove the filter media and two types of gravel from the tank. The quickest way to do this is by simply tipping the tank upside down into a large drum or pail. The tank must be rinsed out completely and have no media or gravel left in it at all.

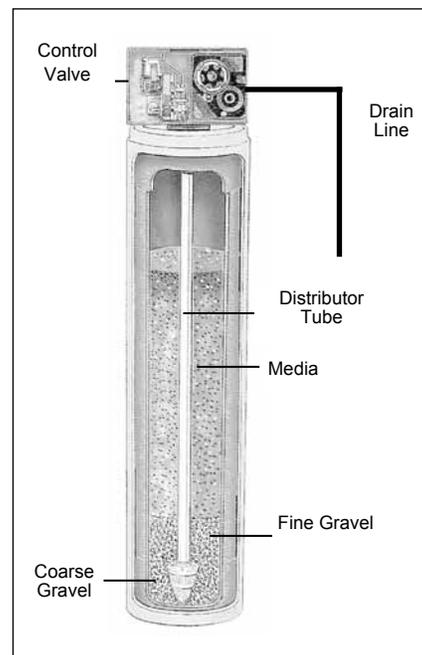


Figure 4

# Programming Backwash Controls for NFF10 & NFF20

## Setting The 24-Hour Timer

Press and hold the red button in to disengage the drive gear. Turn the large dial until the actual time of day is opposite the time of day pointer. Release the red button to re-engage the drive gear.

## Setting The Backwash Frequency

The filter control features a skipper wheel with twelve numbered tabs and trip fingers. Each represents one day of a twelve day schedule. The control is shipped with all the skipper wheel tabs pushed outwards. **Leave the tabs to regenerate every day for proper operation.**

## Manual Regeneration

Turn the manual regeneration knob clockwise. This slight movement of the manual regeneration knob engages the program wheel and starts the regeneration process. The back center knob will make one revolution in approximately three hours and stop in the position shown in the drawing. Actual backwash time is 14 minutes. In any event, treated water may be drawn after rinse water stops flowing from the filter's drain line.

NOTE: The NFF10 and NFF20 timer's programs will be out of sync if you turn the knob too far or do not allow the drive motor to stop completely before continuing to the next step. If this happens while doing any procedure, rotate the knob clockwise until the white dot lines up with the time of day arrow and the unit will return to the service position. You can then start again.

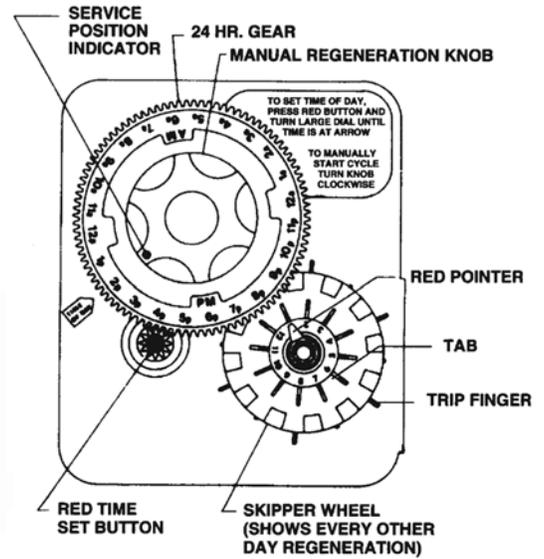


Figure 3

# 7000SXT Operating Instructions

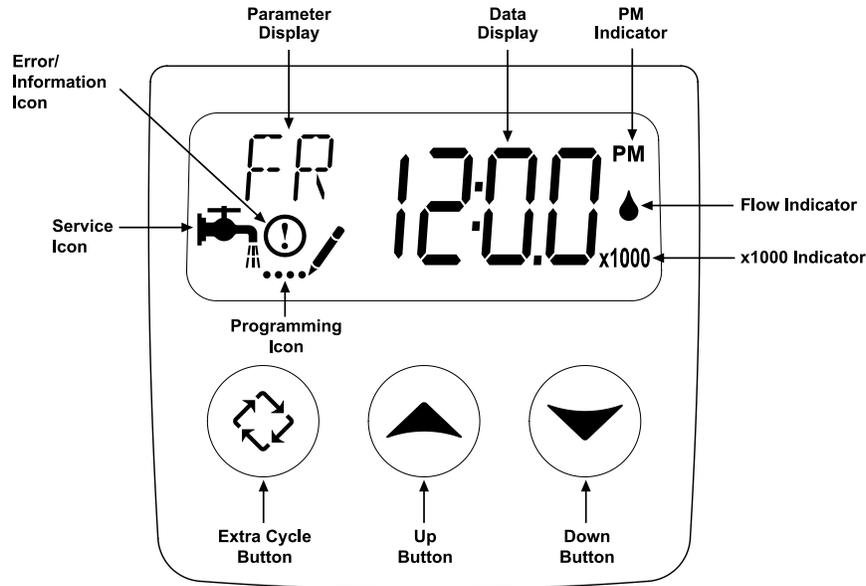


Figure 3

The valve has been pre-programmed with factory settings as follows:

## Regeneration Cycle Step Programming

1. Backwash .....6 minutes
2. Rapid Rinse .....4 minutes

Whenever the valve is in Service the current time of day can be set, the control programmed, or an extra regeneration initiated at any time.

## Set Time of Day

1. Press and hold either the Up or Down buttons until the programming icon replaces the service icon and the parameter display reads TD.
2. Adjust the displayed time with the Up and Down buttons.
3. When the desired time is set, press the Extra Cycle button to resume normal operation. The unit will also return to normal operation after 5 seconds if no buttons are pressed.

## Queueing a Regeneration



1. Press the Extra Cycle button. The service icon will flash to indicate that a regeneration is queued.
2. To cancel a queued regeneration, press the Extra Cycle button.

## Regenerating Immediately

Press and hold the Extra Cycle button for five seconds.

Installation Tip: The 7000 SXT Filter should not be allowed to regenerate at the same time as any other water treatment units. If adjustment is required, consult programming chart to adjust default regeneration time. Default setting is 11:00 pm.)

User Programming Mode Options		
Abbreviation	Parameter	Description
DO	Day Override	The timer's day override setting THIS IS AN OPTION ONLY. PLEASE DO NOT ADJUST BEFORE CONSULTING AN AUTHORIZED DEALER.
RT	Regeneration Time	The time of day that the system will regenerate (meter delayed, timeclock, and day-of-week systems)
H	Feed Water Iron Content	The iron content in ppm of the inlet water - used to calculate system capacity for metered systems
RC	Reserve Capacity	The fixed reserve capacity
CD	Current Day	The current day of week

**NOTES:**

Some items may not be shown depending on timer configuration.

The timer will discard any changes and exit User Mode if any button is not pressed for sixty seconds.

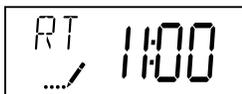
**User Programming Mode Steps**

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. Use this display to adjust the Day Override. This option setting is identified by "DO" in the upper left hand corner of the screen.

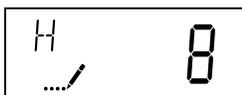


THIS IS AN OPTION ONLY. PLEASE DO NOT ADJUST BEFORE CONSULTING AN AUTHORIZED DEALER.

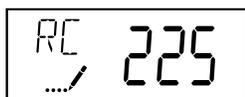
3. Press the Extra Cycle button. Use this display to adjust the Regeneration Time. This option setting is identified by "RT" in the upper left hand corner of the screen.



4. Press the Extra Cycle button. Use this display to adjust the Feed Water Iron Concentration in ppm. This option setting is identified by "H" in the upper left hand corner of the screen.

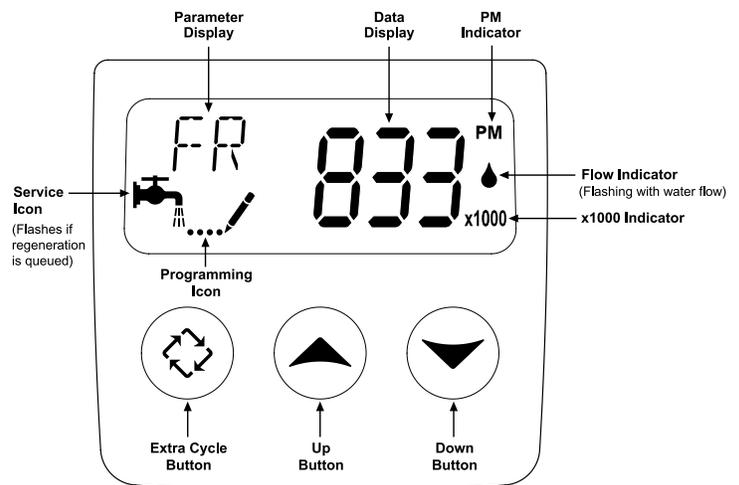


5. Press the Extra Cycle button. Use this display to adjust the Fixed Reserve Capacity. This option setting is identified by "RC" in the upper left-hand corner of the screen.



# of People	RC
1	75
2	150
3	225

6. Press the Extra Cycle button to end User Programming Mode.



## Error Codes

Note: Error codes appear on the In Service display

Error Code	Probable Cause	Recover and Resetting
[Err 0]	Drive motor is stalled	Unplug the unit from the power source
[Err 1]	Drive motor is running continuously	When power is restored to the unit, the Err _ display code clears. If the condition causing the error has not been resolved the Err _ code reappears in the four digit display. Do not attempt to troubleshoot this problem any further.
[Err 2]	<p>There have been more than 99 days since the last Regeneration. If the Day of the Week mode of regeneration is selected and days since last regeneration exceeds 7 days.</p> <p>[ 7 - - 5 ]: There have been more than 7 days since the last regeneration. All individual settings (d1, d2, d3, d4, d5, d6, d7) are set to 0.</p>	<p>Regeneration must occur for the unit to recover, the display to clear and the valve to function normally.</p> <p>[ 7 - - 5 ]: To recover from [Err2], the user must initiate a regeneration or set at least one individual day to 1.</p>
[Err 3]	Control board memory failure.	Perform a Master Reset. If the error returns, do not attempt to troubleshoot this problem any further.

## Error Display Example



NOTE: Unit will flash when an error exists.

# Maintenance Instructions

Maintenance of your new water filter requires very little time or effort but it is essential. Regular maintenance will ensure many years of efficient and trouble free operation.

## Care of All Water Filters

To retain the attractive appearance of your new water filter, clean occasionally with a mild soap solution. Do not use abrasive cleaners, ammonia or solvents. Never subject your filter to freezing or to water temperatures above 120°F.

## Trouble Shooting Guide

PROBLEM	CAUSE	CORRECTION
1. Filter bleeds iron, manganese and/or hydrogen sulfide.	<ul style="list-style-type: none"> <li>a. Bypass valve is open</li> <li>b. Electrical service to unit has been interrupted</li> <li>c. Defective or stripped media bed</li> <li>d. Quality of water has worsened</li> <li>e. Filter capacity too small</li> <li>f. Filter not backwashing enough</li> <li>g. Excessive water usage</li> <li>h. Not regenerating every day.</li> </ul>	<ul style="list-style-type: none"> <li>a. Close bypass valve</li> <li>b. Assure permanent electrical service (check fuse, plug or switch).</li> <li>c. Replace media.</li> <li>d. Have water sample analyzed to determine any change.</li> <li>e. Replace with larger unit or add another filter.</li> <li>f. Be sure control is not clogged or drain line restricted. Be sure water pressure has not dropped and that pump has sufficient capacity.</li> <li>g. Make sure there are no leaks in toilets or sinks.</li> <li>h. Reprogram control valve (see page 4).</li> </ul>
2. Filter fails to regenerate	<ul style="list-style-type: none"> <li>a. Electrical service to unit has been interrupted</li> <li>b. Timer is defective</li> <li>c. Power failure</li> <li>d. Timer motor does not run</li> </ul>	<ul style="list-style-type: none"> <li>a. Assure permanent electrical service (check fuse, plug or switch).</li> <li>b. Replace timer.</li> <li>c. Reset time of day.</li> <li>d. Replace defective motor.</li> </ul>
3. Loss of water pressure	<ul style="list-style-type: none"> <li>a. Not enough water volume or pressure to backwash properly</li> </ul>	<ul style="list-style-type: none"> <li>a. Correct water supply problem.</li> </ul>
4. Loss of media through drain line	<ul style="list-style-type: none"> <li>a. Air in water system</li> <li>b. Backwash rate too fast</li> </ul>	<ul style="list-style-type: none"> <li>a. Assure that well system has proper air eliminator control. Check for dry well condition.</li> <li>b. Check drain flow control for proper flow rate.</li> </ul>
5. Drain flows continuously	<ul style="list-style-type: none"> <li>a. Foreign material in control</li> <li>b. Timer motor stopped or jammed</li> </ul>	<ul style="list-style-type: none"> <li>a. Remove piston assembly and inspect bore, remove foreign material and check control in various regeneration positions.</li> <li>b. Replace timer motor.</li> </ul>

# Guarantee

WaterGroup Inc. guarantees that your new water conditioner is built of quality material and workmanship. When properly installed and maintained, it will give years of trouble free service.

## **Seven Year Complete Parts Guarantee:**

WaterGroup Inc. will replace any part which fails within 84 months from date of manufacture, as indicated by the serial number provided the failure is due to a defect in material or workmanship. The only exception shall be when proof of purchase or installation is provided and then the warranty period shall be from the date thereof.

## **Lifetime Guarantee on Mineral Tanks and Brine Tanks:**

WaterGroup Inc. will provide a replacement mineral tank or brine tank to any original equipment purchaser in possession of a tank that fails within his/her lifetime, provided that the water conditioner is at all times operated in accordance with specifications and not subject to freezing.

## **General Provisions:**

WaterGroup Inc. assumes no responsibility for consequential damage, labor or expense incurred as a result of a defect or for failure to meet the terms of these guarantees because of circumstances beyond its control.

# WaterGroup