



OWNER'S MANUAL & INSTALLATION GUIDE

Applicable Models:

**IR-10-B | IR-13-B | IR-8-F | IR-10-F
IR-10-IRL | IR-12-IRL | IR-13-IRL**



**PLEASE READ THIS MANUAL CAREFULLY
BEFORE ATTEMPTING INSTALLATION
FAILURE TO FOLLOW THESE INSTRUCTIONS
MAY VOID YOUR WARRANTY.**

Congratulations on the purchase of your Iron Rival Series water treatment system. You have purchased one of the finest iron treatment systems on the market today. The Iron Rival Series water treatment system uses a multi-faceted treatment process consisting of a combination of aeration, oxidation, and filtration for the reduction/removal of iron, manganese, and hydrogen sulfide from your water supply.

This manual is designed to provide owners, installers, and service technicians with detailed information about the installation, start-up, and operation of your new filter system.

The heart of your Iron Rival System is the Fleck 2510SXT control valve. It is manufactured by one of the world's largest water treatment companies. The Fleck 2510 control valve is well respected for its reliability, serviceability, simple operation, and value. The integrated Fleck SXT digital valve controller offers unsurpassed simplicity of operation, yet complete control over all important valve operations. You can rest assured that you have made a solid investment in the quality of your water supply!

Once installed and correctly set-up, your Iron Rival water treatment system is designed to offer low maintenance operation. The control valve will perform regular backwash and regeneration functions automatically. For your convenience, your system has been pre-programmed for you by our technicians. Should you need to change any of the settings, simply following the instructions provided in this manual.

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OPERATING CONDITIONS

The following chart provides guidance on the operating conditions required for successful operation of your Iron Rival system. Use of this equipment outside of these operating conditions may adversely affect the performance of your system, result in system damage including water leaks and resulting property damage, and may void your warranty.

	Iron Rival IR-10-B	Iron Rival IR-13-B	Iron Rival IR-8-F	Iron Rival IR-10-F	Iron Rival IR-10-IRL	Iron Rival IR-12-IRL	Iron Rival IR-13-IRL
Catalyst Media Used	BIRM	BIRM	FILOX	FILOX	IRON RIVAL LIGHT	IRON RIVAL LIGHT	IRON RIVAL LIGHT
Pre-Oxidation by Captive Air Charge?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Tank Size	10 x 54	13 x 54	4 x 44	10 x 54	10 x 54	12 x 54	13 x 54
Media Volume	1.0 CF	1.5 CF	0.5 CF	1.0 CF	1.5 CF	2.25 CF	2.75 CF
Maximum Water Pressure	70 PSI*	70 PSI*	70 PSI*	70 PSI*	70 PSI*	70 PSI*	70 PSI*
Minimum Water Pressure	30 PSI	30 PSI	30 PSI*	30 PSI	30 PSI	30 PSI	30 PSI
Optimal Water Pressure	40-65 PSI	40-65 PSI	40-65 PSI	40-65 PSI	40-65 PSI	40-65 PSI	40-65 PSI
Maximum Water Temperature	110°F (43°C)	110°F (43°C)	110°F (43°C)	110°F (43°C)	110°F (43°C)	110°F (43°C)	110°F (43°C)
Minimum Air Temperature	32°F (0°C)**	32°F (0°C)**	32°F (0°C)**	32°F (0°C)**	32°F (0°C)**	32°F (0°C)**	32°F (0°C)**
pH Range	6.8 to 9.0	6.8 to 9.0	5.0*** to 9.0	5.0*** to 9.0	6.0*** to 9.0	6.0*** to 9.0	6.0*** to 9.0
Maximum Iron	Up to 5 ppm	Up to 10 ppm	Up to 10 ppm	Up to 20 ppm	Up to 15 ppm	Up to 20 ppm	Up to 20 ppm
Maximum Manganese	Up to 1 ppm****	Up to 1 ppm****	Up to 2 ppm	Up to 5 ppm	Up to 3 ppm	Up to 5 ppm	Up to 5 ppm
Max. Hydrogen Sulfide	not recommended	not recommended	Up to 5 ppm	Up to 10 ppm	Up to 5 ppm	Up to 7 ppm	Up to 7 ppm
Max. (Peak) Flow Rate	7.5 GPM	11 GPM	6 GPM	12 GPM	8 GPM	10 GPM	12 GPM
Service Flow Rate	5 GPM	8 GPM	5 GPM	8.5 GPM	6 GPM	7 GPM	8 GPM
Backwash Flow Rate							
Cold Water <60F	5 GPM	9 GPM	5 GPM	8 GPM	5 GPM	7 GPM	8 GPM
Warm Water >60F	7 GPM	11 GPM	8 GPM	11 GPM	6 GPM	8 GPM	10 GPM
Backwash Frequency	Every 3 days	Every 3 days	Daily	Daily	Every 3 days	Every 3 days	Every 3 days

* if your home water pressure is greater than 70 PSI, you should have a pressure reduction valve installed by a certified plumber prior to installing this product.

** the unit cannot be subjected to freezing conditions or severe damage to the system and/or your property could occur.

*** pH correction is recommended where pH levels are less than 6.5 to prevent damage to your plumbing system and potential leaching of metals from copper and brass plumbing components and solder. Contact your dealer for recommendations.

**** but only if pH is 8.0 to 8.5 and iron to manganese ratio is 10:1 or higher

Service flow rates are based on contaminant levels not exceeding 50% of the stated levels above. Reduce service flow rate expectations as contaminant levels rise above this threshold, particularly if they are approaching the stated levels above.

CONFIRM THAT YOUR WATER CONDITIONS AND AVAILABLE BACKWASH FLOW RATES MEET THE ABOVE SPECIFICATIONS FOR THE MODEL YOU ARE INSTALLING BEFORE COMMENCING THE INSTALLATION PROCESS. IF IN DOUBT, CALL YOUR DEALER FOR ADVICE. INSTALLED UNITS CANNOT BE RETURNED.

INSTALLATION



We recommend that you read the entire instructions before commencing the actual installation. While we strongly recommend that a licensed plumber perform all installation work, a mechanically-inclined homeowner can install an Iron Rival system. In all cases, it is critical that the installation be done in accordance with these instructions and all applicable plumbing and electrical codes. Be sure to obtain all required permits. If these instructions and the applicable codes are in conflict, the relevant plumbing/electrical code shall be followed. Equipment failure, personal injury, or property damage can result if this equipment is not installed properly.

Step 1. – Pre-Installation Inspection

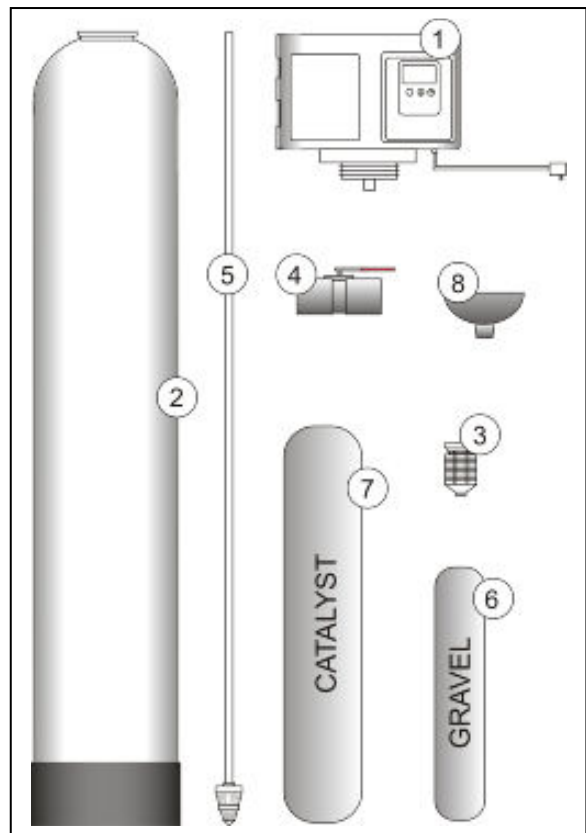
Inspect all of the components that you received with your unit. You should have received the following:

1. Fleck 2510XST Control Valve
2. Treatment Tank
3. Upper Locking Stack Diffuser
4. Bypass
5. Riser tube and lower distributor
6. Bag or box of gravel
7. Bag(s) or box(es) of catalyst media
8. Funnel

You may have also received a tank cover/jacket kit if you ordered this option with your system.

Step 2. – Selecting an Installation Location

We recommend interior installation only. The system cannot be allowed to freeze or severe system damage could occur. The system should not be installed in direct sunlight as long-term exposure to UV light could damage components of the system. Furthermore, direct sunlight could raise the



internal water temperature in the treatment tank and reduce backwash effectiveness. In most cases, the Iron Rival should be located AFTER the expansion tank and sediment pre-filters (if applicable), and BEFORE a water softener, carbon filters, and/or ultraviolet (UV) sterilizer (if applicable), and the hot water heater. If possible, it is also generally desirable to place the Iron Rival AFTER the plumbing branch off to your outdoor irrigation water.

Select a location for installation of your Iron Rival that is within close proximity to the main incoming water lines of the home. The location should have a firm, level surface with sufficient space for the treatment tank. Ensure that there will be sufficient space surrounding the unit to facilitate maintenance.

You will also need access to a standard, non-switched, grounded 120volt (60 Hz) electrical outlet. The Fleck 2510SXT control valve comes with a 5 foot long electrical cord. An extension cord may be used to reach a suitable electrical outlet. If this option is used, ensure that the extension cord is UL/CSA certified and of an appropriate wire gauge for the application.

You will also require a nearby floor drain or standpipe to discharge the drain water from the backwash cycle (a drain standpipe for a washing machine, floor drain, or sump pump are excellent drain options). We recommend that the drain line be connected to a minimum 1½" drain standpipe or floor drain located ideally below the top of the head of your Iron Rival. If possible, the drain should be no farther than 20 feet from the system.

Note: Never connect the drain line directly into a drain pipe. Allow an air gap between the drain tubing and waste line to prevent the possibility of back-siphoning. We do not recommend use of a check valve as it may become clogged with contaminants ejected from the system during backwash.

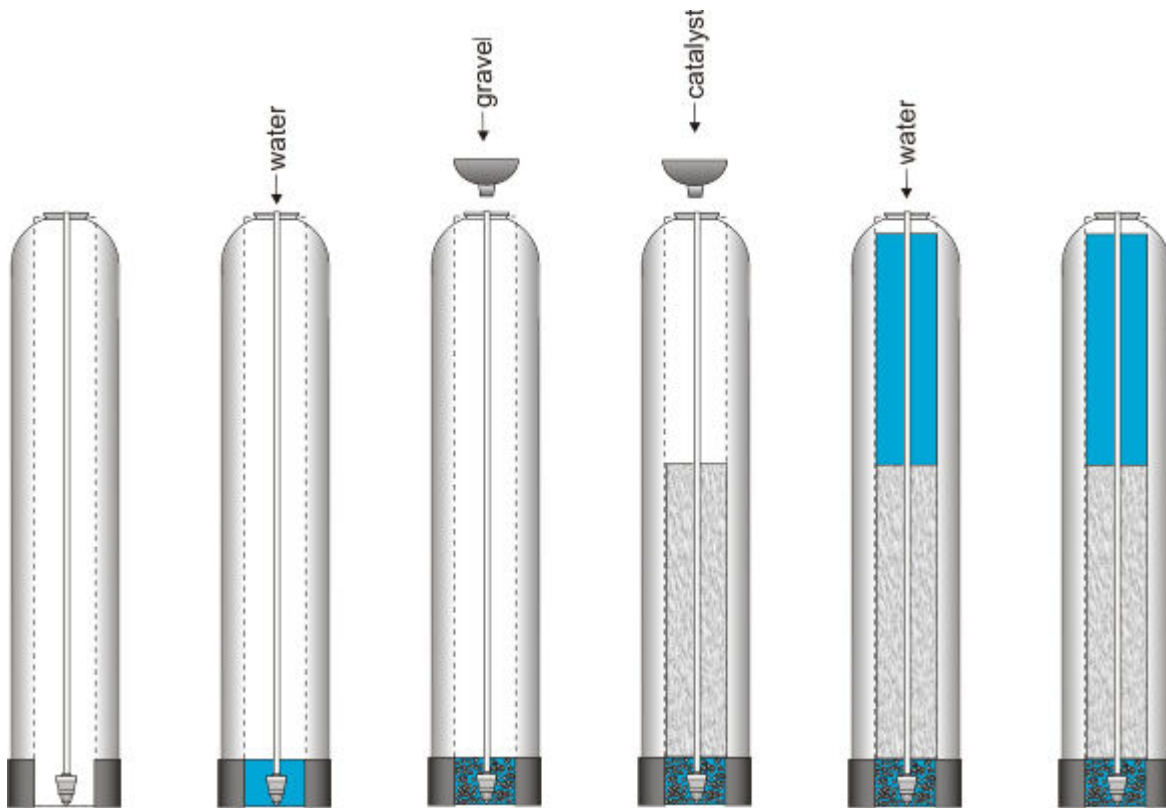
Step 3. – Prepare Treatment Tank

Two types of media are supplied with your Iron Rival system: washed gravel which forms the base layer (underbedding) in your treatment tank, and specialized catalyst media (either Birm, Filox, or Iron Rival Light) depending on the model purchased), that promotes the rapid oxidation of the contaminants.

Before you start, gather the main treatment tank, the Fleck 2510SXT control valve, upper locking stack diffuser, distributor and riser tube assembly (shipped inside the tank), funnel, and the bags or boxes of gravel and catalyst media. Place the tank in the location where it will sit when the installation is complete. Temporarily, remove the riser/tube distributor assembly from the treatment tank. Hand tighten the Fleck 2510SXT control valve on the tank, and mark where the front of the tank will be. Turn the tank so that the front of the tank is where you want it when it is full – once it is full of media and water, it becomes very heavy and is hard to move!

Remove the controller and re-insert the distributor and riser tube assembly into the tank. The distributor, which looks like a plastic screen, is pre-connected to the end of the long plastic riser tube which extends from the bottom of the tank to the top of the tank where the control valve is attached. At the bottom of the tank, there is a recess in the center of the tank to accept the distributor to keep it aligned properly in the center of the tank. The riser tube has been pre-cut to the correct height for you. When the distributor is correctly positioned, the top of the riser tube will be almost perfectly flush with the top of the tank. If the tube is protruding above the tank, the distributor tube is not nested correctly in the recess at the bottom of the tank.

Add enough water to the tank to cover the lower distributor with a minimum of 6 inches of water. This will prevent damage to the lower distributor as gravel is loaded. Place the funnel into the tank so that the riser tube is in the middle. Place tape over the open end of the riser tube. This will prevent gravel or media from accidentally going down the tube during the following steps.



Take the bag/box of gravel and using a small scoop, add enough gravel to the tank through the funnel to completely cover the distributor plus about 1 to 2 inches. Be sure to provide some pressure on the riser tube while adding the gravel so as to ensure that the distributor does not shift out of its recess. Ensure that you create an even layer of gravel across the bottom of the tank. A rigid piece of thin wall tubing (conduit, copper pipe, etc.), approximately 1” longer than the tank height works well as a leveling tool. As the tank fills, ensure that the riser tube remains centered in the opening at the top of the tank.

Once this is complete, add the catalyst media in the same manner. Depending on the capacity of the system, there will only be enough media to fill the tank to about 1/2 to 2/3 full. Use all of the catalyst media provided. The treatment tank should never be filled to the top of the tank as the remaining space, known as the “freeboard” is necessary for the media to have room to move during the backwash cycle. Once the set-up is complete, the freeboard space will also contain a pressurized pocket of air that provides aeration to begin the contaminant removal process.

Once you have finished adding the media to the tank, remove the tape from the distributor tube. Be careful not to pull upwards on the riser tube while doing this as it is important that the distributor remain in its recess at the bottom of the tank.

Fill the treatment tank with water up to within a couple of inches of the top of the tank. This will allow the media to pre-soak, thereby preventing media loss during the initial backwash.

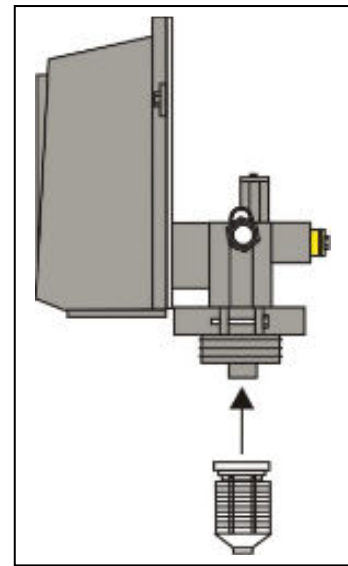
If you purchased an optional tank jacket kit, install it now.



DO NOT INITIATE A REGENERATION OF THIS SYSTEM FOR A MINIMUM OF 24 HOURS AFTER ADDING THE WATER TO ALLOW ADEQUATE PRE-SOAKING – BACKWASHING BEFORE THE MEDIA IS SATURATED WILL CAUSE A LOSS OF MEDIA AND POTENTIAL DAMAGE TO THE CONTROL VALVE.

Attach the upper locking stack diffuser onto the underside of the control valve. Be sure to twist and lock into place.

Lubricate the tank O-ring seal. Note: Only use silicone lubricant. The Fleck 2510SXT control valve (head) can now be secured to the top of the tank. Before attaching the valve, check to make sure that there is no debris such as gravel or media in the tank threads. Screw the control valve onto the tank – make sure that the riser tube inserts into the center hole in the upper stack diffuser and the control valve as you screw down the valve. The control valve should be hand-tightened (clockwise). Do not use the control valve's timer assembly for leverage and do not use tools. A firm grasp with both hands at the base of the valve will work. Do NOT use pipe cement (“pipe dope”) or Teflon tape on the threads.



Step 4. – Turn off the Water & Electric Water Heaters

Turn off the household main water shutoff valve. Open all plumbing fixtures inside the home as well as the outside faucets to drain as much water out of the plumbing system as possible.

If you have a conventional electric water heater or an on-demand (tankless) electric water heater, we highly recommend that you turn off the electricity to the heater while installing any water treatment equipment. Following completion of the entire installation, restore the water flow by turning on the household main water valve and allow all air to be purged from the plumbing system before turning the power back on to your water heater. **Failure to follow this procedure could result in serious, permanent damage to the heating elements in your water heater.**

Step 5. – Prepare and Install Inlet and Outlet Plumbing Connections

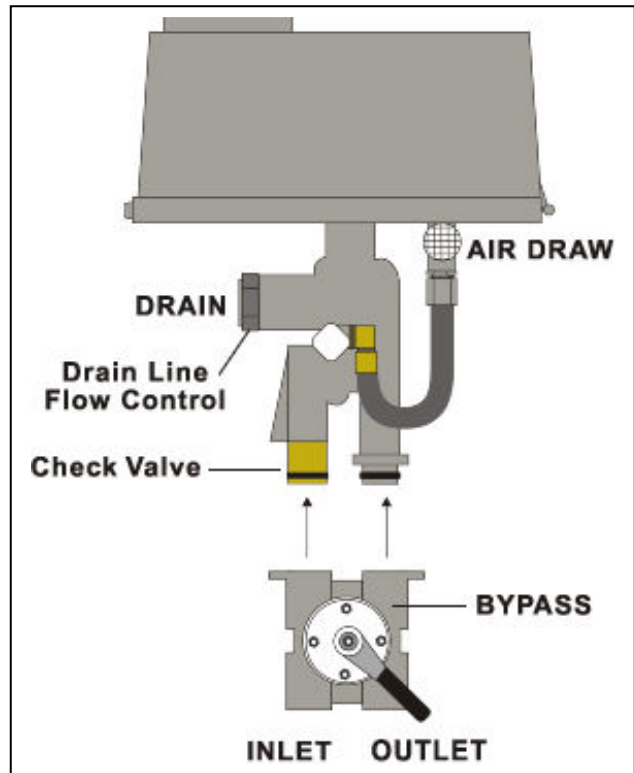
Teflon[®] tape is the only sealant to be used on the bypass and drain fittings.

A bypass assembly is included with your system. Depending on the size of your Iron Rival, the bypass will generally have 3/4" or 1" NPT threaded fittings to connect to your main incoming and outgoing water lines. You will need to purchase the appropriate NPT threaded fittings to connect to the material and size of your main water line (inlet and outlet). Locate the inlet and outlet ports on the back of the Fleck 2510SXT control valve. Note that the inlet and outlet are marked with arrows indicating the correct direction of water flow. When you are looking at the back of the control valve, the inlet is on the left and the outlet is on the right. A brass check valve is pre-installed on

the inlet side of the control valve. Check the corresponding markings on the bypass to ensure the correct direction of water flow and insert the bypass (do not secure the clips yet). The in and out arrows on the bypass should be pointing the same direction as the in and out arrows on the outside of the control valve.

BE VERY CAREFUL TO MAKE SURE YOU PLUMB THE SYSTEM IN THE RIGHT DIRECTION, OTHERWISE YOU WILL LOOSE THE MEDIA OUT OF THE TANK INTO YOUR HOUSE LINES.

Plumb your main incoming and outgoing water lines using suitable pipe, fittings, elbows, etc. as necessary to create a tidy, secure installation up to the back of the bypass valve (including the correct connection adapters to mate with the threaded fittings on the bypass). Be sure to follow all local plumbing codes. It is recommended that downward loops (minimum 12") be created in the plumbing immediately before and after the Iron Rival. These loops serve to limit the migration of air in the plumbing system in the event that some escapes the treatment system during regeneration.



VERY IMPORTANT:

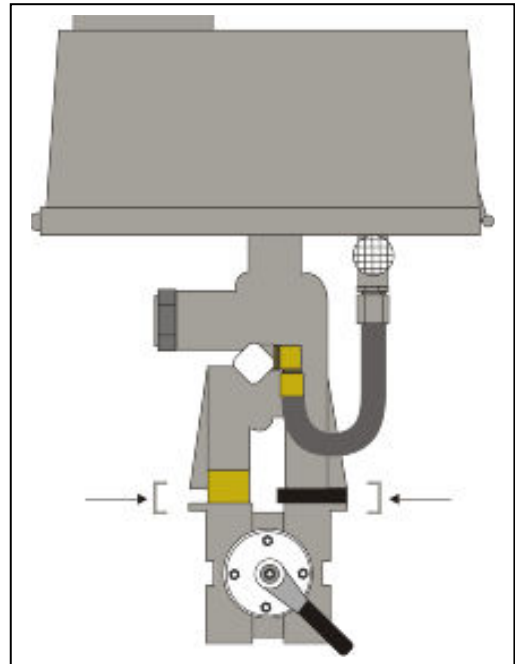


If you wish to use copper piping and will be soldering the joints, **DO NOT** apply heat near your control valve or bypass or serious internal damage to these parts could occur. Always solder joints with these components detached. If you are using copper adapters, it is recommended that you solder a 5" piece of copper pipe into each of the connection adapters away from the valve, then let them cool off before threading them onto the bypass valve. After they cool off, apply Teflon tape or joint compound to the threads and securely tighten them to the bypass valve.

Once you have prepared the plumbing up to the point of the bypass following the above instructions, you can connect your plumbing lines to the bypass valve. We highly recommend that you remove the bypass before making these connections as you may inadvertently apply too much pressure on the valve while securing the adapters, causing damage to the valve housing.

Once all plumbing to the bypass has been completed, you can connect the bypass to the control valve. Push the bypass onto the back of the valve and secure it using the two stainless steel clips with screws located on the back of the control valve. Do not overtighten - it is normal for some “play” to exist when the bypass valve is properly seated. This allows for minor misalignment of the piping connections and relieves stress on the valve.

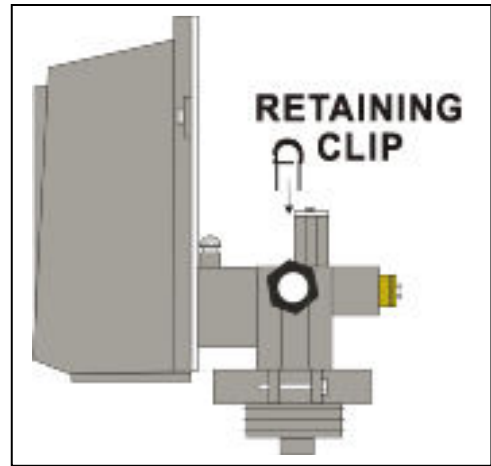
Place the bypass in the “bypass” position.



Step 6. – Drain Line Installation

During the backwash and regeneration cycle, your Iron Rival will send captured contaminants out the drain port. This port needs to be connected to a suitable household drain ideally within 20 feet of your treatment tank. A nearby floor drain, sump pump, or a standpipe for a washing machine is an excellent option. We recommend that the drain line be connected to a minimum 1½" drain standpipe or floor drain located ideally below the top of the head of your Iron Rival. You will need to purchase suitable pipe or tubing for the drain line. The minimum diameter of the drain line for residential applications should be ¾ inch. Commercial drain lines should be the same size as the drain line flow control. While polyethylene tubing or copper pipe is suitable, we recommend rigid PVC or CPVC pipe for the drain line. If you are using flexible tubing, be sure that there are no “kinks” or “crimps” in the tubing after installation, that may cause a flow restriction. If used, overhead drain lines are not to exceed a height of 5 feet above the control valve and should be not more than 50 feet in length. Should an overhead drain line be utilized, it is recommended that the drain line be increased in size (diameter), and that it not be fastened flush to the bottom of a floor joist, to minimize noise transfer to the upstairs of a home during regeneration.

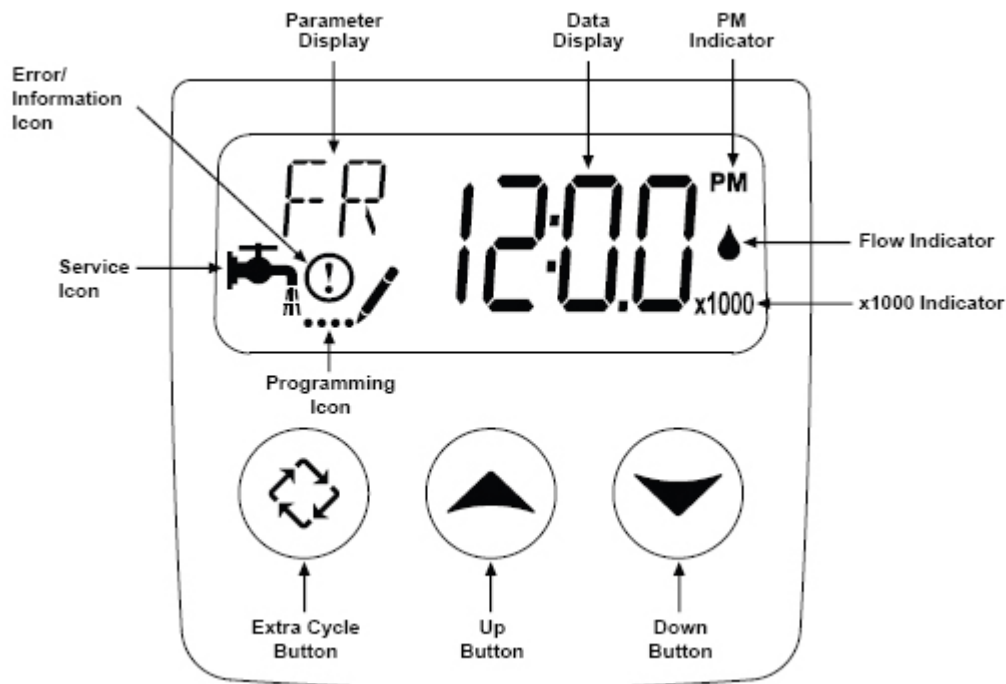
Locate the drain port on the back of your valve controller. The drain line flow control with threaded fitting is pre-attached to the control valve. To remove the drain line flow control, pull up on the retaining clip to remove it and then grasp the drain line flow control and pull outward. Using an appropriate fitting, connect the drain line flow control to your drain line tubing/pipe. Re-insert the drain line flow control into the control valve and securely lock into place with the retaining clip. Ensure that the drain line is secured along its route to the drain. The drain line will be under pressure when the regeneration / backwash cycle is working, therefore make sure the drain line is well secured so it can not move around when pressurized. If not adequately secured, the drain line could vibrate during backwash, particularly during the initial purge of air from the top of the tank, causing excessive noise. If this is experienced, use additional fixtures to better secure the drain line. The drain line should not be exposed to freezing temperatures.



Note: Never connect the drain line directly into a drain. Allow an air-gap of a minimum of 1 inch (check local codes) between the drain line and waste line to prevent possibility of back-siphon. Always follow local codes.

Step 7 – Control Valve Set-up

During cold weather, the installer should warm the control valve to room temperature before operating. Note: All electrical connections must be done according to local codes.



Plug the control valve into a standard, grounded 120volt (60 Hz) electrical outlet. Be certain that the outlet is uninterrupted and not controlled by a switch. The Fleck 2510SXT control valve comes with a 5 foot long electrical cord. An extension cord may be used to reach a suitable electrical outlet. Ensure that the extension cord is UL/CSA certified and of an appropriate wire gauge for the application.

The digital display on the control valve will illuminate. Open the valve's protective housing by removing the screw located at the top right of the control valve and swinging the door open. This will give you access to the buttons on the control valve. The digital display should be alternating between the current time setting (which is probably incorrect), and the number "3" which indicates the number of days remaining until the next regeneration cycle. You will also see the "service" icon which appears as a small faucet in the bottom left corner of the display window.

NOTE: The Iron Rival control valve may need to reset to the home position when it is powered up. If it does, the motor will run until it reaches service mode and time of day will return.

We will first set the time of day to the correct time. Press either the UP or DOWN button and hold for a few seconds. The parameter display will read "TD" (Time of Day) and the "programming" mode icon will appear (4 dots and a pencil). Use the UP and/or DOWN buttons to change the time displayed to the correct time of day. Once the display shows the correct time, press the EXTRA CYCLE button to save your changes.



Your Iron Rival has been pre-programmed to regenerate every 3 days and to perform the regeneration process at 12:30am in the morning when it is very unlikely that water will be required in the home. Unless advised by us, we do not recommend altering the frequency of regeneration. However, you may edit the time that the regeneration process occurs if 12:30am is not ideal for you. If you have a water softener or other automatic backwashing water treatment systems, make sure that they are not set to regenerate at the same time. Follow the instructions under "User Programming Mode" to change the regeneration time if desired.

Step 8 – Initial Start-up and Leak Testing

Ensure that the bypass is in the bypass position. Turn on the main water supply. Open a cold water tap nearby and let the water run for a few minutes or until the system is free of foreign material (usually solder) and air that may have resulted from the installation. Once clean, close the water tap. Inspect your plumbing connections for leaks and repair any leaks found before proceeding.

Before putting the system into service, it is critical that the catalyst media soak for a minimum of 24 hours before you proceed with the remainder of the installation.

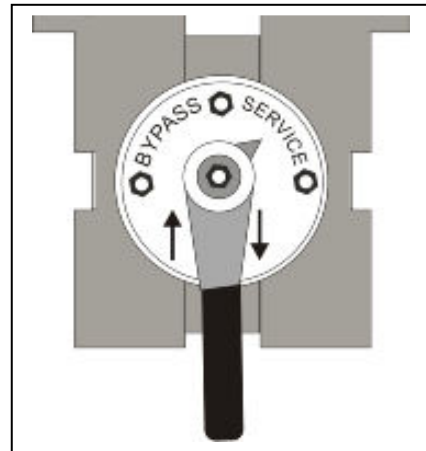


DO NOT INITIATE A REGENERATION OF THIS SYSTEM FOR A MINIMUM OF 24 HOURS AFTER ADDING WATER TO THE TREATMENT TANK TO ALLOW ADEQUATE PRE-SOAKING – BACKWASHING BEFORE THE MEDIA IS SATURATED WILL CAUSE A LOSS OF MEDIA AND POTENTIAL DAMAGE TO THE CONTROL VALVE.

Once the catalyst media has been adequately pre-soaked for 24 hours:

WITH THE BYPASS STILL IN THE BYPASS POSITION, press the EXTRA CYCLE button and hold it down for about 5 seconds until you hear the valve change positions and the parameter display changes to read “BW” (Backwash) and the time starts counting down. Once the motor has stopped moving (no more noise), press the EXTRA CYCLE button again to advance to the next stage of the regeneration cycle – “BD” (Brine Draw / Air Draw). Once the valve has stopped moving, press the EXTRA CYCLE button again to advance to the next stage of the regeneration cycle – “RR” (Rapid Rinse).

Without delay, immediately begin to slowly open the bypass to the service position, allowing water to flow into the system. Water and air will begin to flow to the drain line and will continue for 1 minute. At the end of this time, the valve will re-position and the filter will return to normal service mode. Inspect your drain line plumbing connections and repair any leaks immediately before proceeding. If the plumbing pipe rattled or vibrated during this process causing excessive noise, use additional fasteners to better secure the drain line.



Slowly open a cold filtered water tap nearby and let the water run for a few minutes until the system is purged of all air that may have resulted from the installation. Repeat for other faucets in the home starting at the highest elevation and working down to the lowest point until all air is purged. The initial flow of water may be slightly discolored. This is normal and will go away quickly.

It is now safe to turn the electricity back on to your water heater.

Press the EXTRA CYCLE button and hold it down for about 5 seconds to initiate a complete regeneration cycle.



DO NOT INITIATE A REGENERATION OF THIS SYSTEM FOR A MINIMUM OF 24 HOURS AFTER ADDING WATER TO THE TREATMENT TANK TO ALLOW ADEQUATE PRE-SOAKING – BACKWASHING BEFORE THE MEDIA IS SATURATED WILL CAUSE A LOSS OF MEDIA AND POTENTIAL DAMAGE TO THE CONTROL VALVE.

The control valve will perform a standard regeneration automatically, including a 14 minute backwash, 40 minute air draw, and 1 minute rapid rinse (your settings may differ due to programming selected by our technicians for your specific water conditions). Once this process is complete, your set-up and installation is done!

Congratulations! Your system is now ready to provide treated water to your home!

If you have a tank-style water heater, it will still contain untreated water for a few days, but your cold water lines will begin dispensing treated water right away.

REGENERATION

The regeneration process is automatically engaged and controlled by your control valve. Your system was pre-programmed at the factory based on your water conditions. In most cases, your system will be programmed at the factory to regenerate every 3 days at 12:30am. Models with Filox-R media will generally be set to regenerate daily.

There are 3 steps to the regeneration process:

- Step 1: Backwash: factory pre-set for 14 minutes (parameter display code BW)
- Step 2: Air Draw: factory pre-set for 40 minutes (parameter display code BD)
- Step 3: Rapid Rinse: factory pre-set for 1 minute (parameter display code RR)

Unless directed by a water treatment professional familiar with this system, we do not recommend that you alter the duration of any of the regeneration cycles. If necessary, these parameters can be adjusted thru the Master Programming Mode (see below).

During each step of regeneration, the digital display on the control valve will indicate the cycle currently underway and the amount of time remaining in that cycle.

There may be instances where more frequent regeneration is required. For instance, if your water consumption increases considerably due to additional guests at your home, or if your feed water conditions temporarily worsen, you may want to perform a manual regeneration. You can choose to initiate a manual regeneration immediately or the next time the regeneration time of day is reached:

To initiate a manual regeneration the next time the regeneration time of day is reached:

Press the EXTRA CYCLE button once. The “service” icon will begin to flash indicating that a regeneration is scheduled next time the regeneration time of day is reached.

To cancel a queued regeneration, press the EXTRA CYCLE button.

To initiate an immediate manual regeneration:

Press the EXTRA CYCLE button and hold it down for 5 seconds until the regeneration process begins.

Skip through regeneration steps:

There may be times that it may be desirable to skip through regeneration steps without allowing them to fully complete. This would be most typical during servicing. When a cycle engages, always wait until the motor has stopped before skipping to the next cycle. You can hear the valve motor while it is repositioning the valve at the beginning of each cycle. During the regeneration process, you can advance to the next step by pressing the EXTRA CYCLE button.

The control valve will continue to keep time and the passage of days for a minimum of 48 hours in the event of power failure.

CHANGING TIME OF DAY

During regular service mode, the digital display will alternate between the current time of day and the number of days until the next scheduled regeneration. For proper operation, it is important that the valve display the correct time of day. To change the time of day, press either the UP or DOWN button and hold for a few seconds. The “programming” icon will appear. Use the UP and/or DOWN buttons to change the time displayed to the correct time of day. Once the display shows the correct time, press the EXTRA CYCLE button to save your changes.

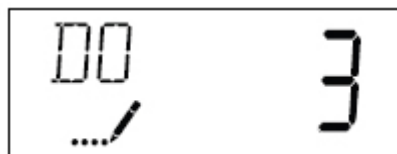


USER PROGRAMMING MODE

The User Programming Mode allows you to set the frequency of regeneration and the time of day that regeneration will take place.

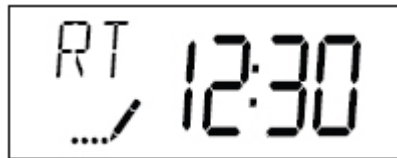
To enter the User Programming Mode, press the UP and DOWN arrows at the same time and hold for 5 seconds until the “programming” mode icon appears. If the current time display is 12:01PM, you cannot enter the User Programming Mode – simply wait a minute before attempting.

The display will first show the **DAYS OVERRIDE** (parameter display code DO). This is the setting that determines the frequency of regenerations (measured in days). It is generally recommend that the system regenerate at least every 3 days for models using Birm media and daily for models using Filox-R media. Failure to do so, could result in decline in contaminant removal performance and loss of water pressure due to media clogging.



To change the setting, use the UP and DOWN buttons. Press the EXTRA CYCLE button when done. If you do not want to change the current setting, simply press the EXTRA CYCLE button to skip to the next step.

The display will now show the **REGENERATION TIME** (parameter display code RT). This is the setting that determines the time of day that the automatic regeneration will start. It is strongly recommended that regenerations be set to occur at night when water will not be in use. If you have other water treatment equipment that backwashes (such as a water softener), make sure that your Iron Rival is not set to backwash at the same time.



To change the setting, use the UP and DOWN buttons. Press the EXTRA CYCLE button when done. If you do not want to change the current setting, simply press the EXTRA CYCLE button return to service mode.

The system should now return to normal service mode. The unit will also return to normal operation after 5 seconds if no buttons are pressed.

MASTER PROGRAMMING MODE

The Master Programming Mode is designed for professional use only. Unless directed by a water treatment professional familiar with the system, it is not recommended that any of the Master Programming Mode settings be modified.

To enter the Master Programming Mode, first set the time of day to 12:01PM. With the time display showing 12:01PM, enter the Master Programming Mode, by pressing the UP and DOWN arrows at the same time and holding for 5 seconds until the “programming” mode icon appears.

In this mode, you can adjust a parameter setting by using the UP and DOWN buttons. To save your changes and/or to skip to the next parameter, press the EXTRA CYCLE button. Press the EXTRA CYCLE button at the last parameter to save all settings and return to normal operation. The control will automatically disregard any programming changes and return to normal operation if it is left in Master Programming Mode for 5 minutes without any keypad input. The following settings are the factory default settings for the Iron Rival:

Parameter	Parameter Code	Option Code	Option Description
Display Format	DF	GAL	Gallons
Valve Type	VT	St1b	Standard Downflow/Upflow, Single Backwash
Control Type	CT	tc	Time Clock
Number of Tanks	NT	1	Single Tank System

Day Override	DO	3*	Every 3 days*
Regeneration Time	RT	12:30	12:30am
Backwash	BW	14:00	14 minutes
Air Draw	BD	40:00	40 minutes
Rapid Rinse	RR	1:00	1 minute
Brine Fill	BF	OFF	off

* for models using Filox media, this setting should be “1” (daily)

RESETS

WARNING: USE OF THE RESET FUNCTIONS IS NOT RECOMMENDED EXCEPT UNDER THE GUIDANCE OF A WATER TREATMENT PROFESSIONAL FAMILIAR WITH THIS EQUIPMENT.

Soft Reset: Press and hold the EXTRA CYCLE and DOWN buttons for 25 seconds while in normal Service mode. This resets all parameters to the system default values except days since regeneration in the time clock system.

Master Reset: Hold the Extra Cycle button while powering up the unit. This resets all of the parameters in the unit. Check and verify the choices selected in Master Programming Mode.

CONTROL OPERATION DURING A POWER FAILURE

The 2510SXT valve/controller includes integral power backup. In the event of power failure, the control shifts into a power-saving mode. The control stops monitoring water usage, and the display and motor shut down, but it continues to keep track of the time and day for a minimum of 48 hours.

The system configuration settings are stored in a non-volatile memory and are stored indefinitely with or without line power. The Time of Day flashes when there has been a power failure. Press any button to stop the Time of Day from flashing.

If power fails while the unit is in regeneration, the control will save the current valve position before it shuts down. When power is restored, the control will resume the regeneration cycle from the point where power failed. Note that if power fails during a regeneration cycle, the valve will remain in it’s current position until power is restored. The drain line plumbing configuration should include all required safety components to prevent overflows resulting from a power failure during regeneration.

The control will not start a new regeneration cycle without line power. If the valve misses a scheduled regeneration due to a power failure, it will queue a regeneration. Once power is restored, the control will initiate a regeneration cycle the next time that the Time of Day equals the

programmed regeneration time. Typically, this means that the valve will regenerate one day after it was originally scheduled.

MAINTENANCE & TROUBLESHOOTING

WARNING: The controller MUST be depressurized before removing any quick connection clips for servicing. The connector should be pushed toward the control while removing clips.

Service Recommendations

Your Iron Rival is built for long term operation with limited maintenance. In harsh conditions, particular where water is acidic, highly contaminated, or where excessive levels of hydrogen sulfide are present, the seals and spacers and piston assembly may require periodic servicing or replacement. A service professional should be contacted for this maintenance.

Birm media will generally last many years. In ideal conditions, it can last indefinitely, however, a more typical life is 5 to 7 years. The Birm media can be replaced if it becomes depleted. Filox-R media will generally last in excess of 10 years as long as it is adequately backwashed to remove trapped contaminants. Inadequate backwash duration or flow rates could cause media clogging which could require the replacement of the media to restore flow and pressure performance.

Troubleshooting

PROBLEM	CAUSE	CORRECTION
1. Iron Rival valve fails to regenerate	A. Electrical service to unit has been interrupted. B. Timer is defective.	A. Assure permanent electrical service (check fuse, plug, pull chain or switch). B. Replace timer.
2. Loss of water pressure.	A. Iron buildup in line to water conditioner. B. Iron buildup in water conditioner. C. Inlet of control plugged due to foreign material broken loose from pipe by recent work done on plumbing system.	A. Clean line to water conditioner. B. Clean control and add mineral cleaner to mineral bed. Increase frequency of regeneration and/or backwash time. C. Remove pistons and clean control.
3. Loss of mineral through drain line.	A. Drain line flow control too large.	A. Check to ensure drain line flow control is sized properly for your mineral tank.
4. Iron in treated water.	A. Bypass valve is open. B. Unit does not draw air during regeneration. C. Injector screen plugged. D. Tank does not fully flush with air during regeneration. E. Water usage depletes oxidizer capacity before regeneration. F. Leak at distributor tube. G. Internal valve leak	A. Close bypass valve. B. Check the air inlet check valve. Clean or replace as needed. C. Clean injector screen. D. Verify the draw time setting and adjust as needed. E. Adjust regeneration frequency to meet demand. F. Make sure distributor tube is not cracked. Check O-ring and tube pilot. G. Replace seals and spacers and/or piston.

ERROR CODES

Code	Error	Cause	Reset & recovery
0	Cam Sense Error	The valve drive took longer than 6 minutes to advance to the next regeneration position.	Unplug the unit and examine the control valve. Verify that all cam switches are connected to the circuit board and functioning properly. Verify that the motor and drive train components are in good condition and assembled properly. Check the valve and verify that the piston travels freely. Replace/reassemble the various components as necessary. Plug the unit back in and observe its behavior. The unit should cycle to the next valve position and stop. If the error re-occurs, unplug the unit and contact technical support.
1	Cycle Step Error	The control experienced an unexpected cycle input.	Unplug the unit and examine the control valve. Verify that all cam switches are connected to the circuit board and functioning properly. Enter Master Programming mode and verify that the valve type and system type are set correctly with regard to the unit itself. Step the unit through a manual regeneration and verify that it functions correctly. If the error re-occurs unplug the unit and contact technical support.
2	Regen Failure	The system has not regenerated for more than 99 days.	Perform a Manual Regeneration to reset the error code. Enter Master Programming mode and verify that the unit is configured properly. As appropriate for the valve configuration, check that the correct system capacity has been selected, and that the day override is set properly. Correct the settings as necessary.
3	Memory Error	Control board memory failure.	Perform a Master Reset and reconfigure the system via Master Programming mode. After reconfiguring the system, set the valve through a manual regeneration. If the error re-occurs, unplug the unit and contact technical support.

WARRANTY INFORMATION

Fleck Controls, Inc. ("Fleck") and the Structural North American division of Essef Corporation ("Essef"), affiliated companies collectively doing business as "Pentair Water Treatment" (collectively referred to herein as "Pentair Water Treatment") manufactures their respective products ("Products") and parts ("Parts") under the highest standards of workmanship using quality materials. The Fleck 2510 SXT control valve and Structural brand fiberglass treatment tanks are used in all Iron Rival Systems. Pentair Water Treatment expressly warrants these Products and Parts as follows:

WARRANTY COVERAGE

"Fleck" branded products are warranted to be free from defects in material and/or workmanship under normal use and service for a period of five (5) years from the date of shipment from its manufacturing plant.

Structural FRP residential fiberglass tanks having diameters of 6" to 13" are warranted to be free from defects in material and/or workmanship under normal use for a period of ten (10) years from the date of manufacture.

Any replacement Product or Part will be warranted only for the remainder of the original warranty period or thirty (30) days, whichever is longer.

EXCLUSIONS FROM THIS LIMITED WARRANTY

This warranty does not cover:

- A. Exclusions applicable to all Pentair Water Treatment products:
 - 1. Defects not reported to Pentair Water Treatment with the above described warranty period.
 - 2. Any items manufactured by other companies. Such items may carry warranties offered by the original manufacturers.
 - 3. Problems resulting from failure to comply with installation instructions or drawings, or improper installation.
 - 4. Damage caused by acts of nature or problems resulting from abuse, misuse, negligence or accident by any party other than Pentair Water Treatment.
 - 5. Problems resulting in whole or in part from alteration, modification or attempted repair of these Products or Parts by any party other than Pentair Water Treatment.
 - 6. Pistons, Seals, Spacers, and Brine Valves on all hot water valves. These parts require maintenance as part of a yearly service schedule.
 - 7. Noncompliance with applicable codes, and ordinances including without limitation, plumbing codes.
 - 8. Damage due to chemical attack.

- B. Additional exclusions applicable Structural PolyGlass Composite FRP branded products:
 - 1. Warranty applies only to original owner at the original installation location.
 - 2. Failure to adhere to installation and operation instructions, including failure to operate tank in accordance with limitations stated of product label.
 - 3. Failure to properly size tank to pump manufacturer's recommendations.
 - 4. Use of product with water containing sediment or chemicals.
 - 5. Injury to tank or any part thereof caused by exposure to vacuum, freezing, external impact, chemical attack from liquid and gasses, fire, floods and lightning.

- C. Specific exclusion applicable to PolyGlass branded products:
Use in applications other than residential water softeners and filters.

WARRANTY OBLIGATIONS OF PENTAIR WATER TREATMENT – Should a defect in workmanship and/or material in Products or Parts covered by this warranty become evident during the term of the warranty, then upon compliance with the procedures, as set forth below, Pentair Water Treatment, at its option, will: In the case of Products, issue a credit in the amount of the original purchase price of the product, or repair or replace the defective Products. Pentair Water Treatment will consider, in good faith customer preference in making a determination whether to issue a credit or repair or replace a Product. In the case of Parts, whether purchased new or exchanged on a Product by other parts, Parts may not be returned for credit or repair. Pentair Water Treatment will only be responsible for the replacement of defective Parts.

PROCEDURE FOR OBTAINING WARRANTY PERFORMANCE –

A. In order to obtain the benefits of this Limited Warranty, defective Products and/or Parts must be returned to Pentair Water Treatment as soon as possible after discovery of the defect, but in no event later than the expiration date of the warranty period provided in this Limited Warranty. The subject Product or Parts must be returned to the original point of shipment, freight prepaid, along with a letter stating the model number, serial number, if any, the date of purchase of the item which is claimed to be defective and a brief description of the problems encountered. Pentair Water Treatment is not responsible under this Limited Warranty for any cost of shipping or transportation incurred in connection with the return of the Products or Parts.

NO OTHER WARRANTIES – To the maximum extent permitted by applicable law, PENTAIR WATER TREATMENT DISCLAIMS ALL OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, with regard to the Product(s), Part(s) and/or any accompanying written materials. This limited warranty gives you specific legal rights. You may have others which vary from state/jurisdiction to state/jurisdiction.

NO LIABILITY FOR CONSEQUENTIAL DAMAGES – To the maximum extent permitted by applicable law, in no event shall Pentair Water Treatment or your water dealer be liable for any damages whatsoever (including without limitation, loss of time, inconvenience, expenses such as telephone calls, labor or material charges incurred in connection with the removal or replacement of the Product(s) or Part(s), special, incidental, consequential, or indirect damages for personal injury, loss of business profits, business interruption, loss of business information, or any other pecuniary loss) arising out of the use of or inability to use the defective Product(s) or Part(s), even if Pentair Water Treatment has been advised of the possibility of such damages. In any case, Pentair Water Treatment's entire liability under any provision of this Limited Warranty shall be limited to the amount actually paid for the Product(s) or part(s). PLEASE NOTE: Because some states/jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, the above limitation or exclusion may not apply.

WARRANTIES OR REPRESENTATIONS BY OTHERS – No dealer or other person has any authority to make any warranties or representations concerning Pentair Water Treatment or its products. Accordingly, Pentair Water Treatment is not responsible for any such warranties or representations.

OTHER RIGHTS – This warranty gives specific legal rights, and other rights may apply. Such rights vary from state to state.