

# RainSoft®

*Environmental Products for the Home ...since 1953*

## **RFC SERIES ACID NEUTRALIZING WATER TREATMENT SYSTEM**

# Owner's Manual



This product is manufactured in an ISO 9001:2000 certified facility.



Models RFC 100P Y, RFC 100P YZ, RFC 150P Y, RFC 150P YZ conform to WQA S-200 for the specific performance claims as verified and substantiated by test data. See the performance data sheet for specific reduction claims.

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Congratulations! You now own the finest RainSoft Water Treatment System available to homeowners. To enjoy the maximum benefits of this system, please read the contents of this Owners Manual.

## Application Limitations

- Hardness levels should not exceed 5 grains per gallon.
- The well pump flow rate must exceed 6 gallons per minute. Failure to properly backwash the system at a rate of 6 gallons per minute will inhibit the filter's ability to perform as designed.
- Service flow rates that exceed 6 gallons per minute may cause the system not to function as designed. To avoid the possibility of excessive water use, do not use multiple faucets at the same time.
- Your untreated water quality may change over time. Changes in your untreated water quality that exceed the system's capabilities, may require the use of additional equipment. If a change in the quality of your untreated water has occurred, please contact your RainSoft Dealer immediately.
- If you live in an area that has severe climate changes from summer to winter, you may notice a change in the operating performance of the system. Please contact your RainSoft Dealer for further recommendations.

**! Important Note:** If hardness levels exceed 5 grains per gallon, the system will still perform properly, but the longevity of the filter media may be affected. Frequent rebedding of the system may be required.

**📎 Helpful Tip:** The average flow rate from a faucet is 1.5 gallons per minute and for bathtubs and showers 3 to 5 gallons per minute. To ensure that the maximum service flow rate has not been exceeded, avoid running water for the bathtub or shower during the operation of your dishwasher and/or washing machine.

**📎 Helpful Tip:** A change in water temperature can affect the operating conditions of your equipment. Warm water has a lower density than cold water and requires a greater water flow to effectively clean during backwash.

## Operational Specifications

### Plumbing

3/4 inch to 1 1/4 inch

### Drain Line

1/2 inch

### Water Pressure

20 psi – 120 psi (1.38 bar – 8.27 bar)

### Operating Temperatures

40° F – 100° F (4.4° C – 37.8° C)

### pH Range

Models RFC 100P Y and RFC 150P Y: 5.0 – 7.0

Models RFC 100P YZ and RFC 150P YZ: 4.5 – 6.0

### Electrical Requirements

A properly grounded alternating current supply (110 VAC 60 Hz or 230 VAC 50 Hz) is required for the operation of this system. Please check the transformer for the correct voltage requirements.

### Existing Plumbing Conditions

Plumbing should be free from lime and/or iron buildup. Piping that contains large amounts of lime and/or iron should be replaced.

### Bypass Valve

The bypass valve enables you to bypass the system in situations of: emergency leaks in the equipment, service calls and/or outdoor water use.

**! Important Note:** If the system will be used on well water, make sure the well can deliver enough water to properly backwash the system. Failure to properly backwash the system will result in premature system failure.

## Additional Specifications

- Do not install this system where water is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.
- This system must be installed in accordance with all applicable state and local laws and regulations.
- This system must be installed in an area not affected by extreme heat, cold or the elements. The selected installation area must be adequate for easy service of all parts.
- This system is designed to treat cold water only. The installation must be on a cold water supply.

## Data Chart

Model	Tank Size	Media	Maximum Service Flow Rate	Backwash Rate	psi Drop @ Service Flow Rate	Capacity
RFC 100P Y	10 x 44	1.0 cu.ft. Azinute	6.0 gpm	6.0 gpm	3.0 psi	20,000 gallons
RFC 100P YZ	10 x 44	0.7 cu.ft. Azinute 0.3 cu.ft. Super Azinute	6.0 gpm	6.0 gpm	3.0 psi	20,000 gallons
RFC 150P Y	10 x 54	1.5 cu.ft. Azinute	6.0 gpm	6.0 gpm	3.0 psi	30,000 gallons
RFC 150P YZ	10 x 54	1.05 cu.ft. Azinute 0.45 cu.ft. Super Azinute	6.0 gpm	6.0 gpm	4.0 psi	30,000 gallons

## Maintenance Requirements

### Regeneration Valve

The regeneration valve is designed to last a lifetime, but from time to time it may be necessary to clean and lubricate the moving parts. Your water quality and the amount of regeneration necessary will affect this maintenance schedule. Your local RainSoft Dealer is knowledgeable in the different water qualities and will have the necessary parts to complete this service.

### Filter Media

The filter media will eventually become exhausted or consumed and will need to be replaced. We recommend replacing or refilling the filter media every 6 months or earlier if necessary. Your RainSoft Dealer can give you specific replacement schedules based on your water usage and incoming water quality. For replacement filter media (part number 14828 and/or 14829), please contact your local RainSoft Dealer.

## Certification Information

Models RFC 100P Y, RFC 100P YZ, RFC 150P Y, and RFC 150P YZ conform to WQA S-200 for the specific performance claims as verified and substantiated by test data. Please refer to the performance data sheets for specific reduction claims.

Water treatment devices sold to retail consumers in California, accompanied by certain health claims, must be certified by the State of California Department of Public Health. This product is not certified in the State of California for the purpose of making health claims.

# Installation Instructions

## 1. Safety Precautions

- To prevent accident or injury, do not hoist the unit over your shoulder. Use a hand truck to transport the unit.
- Do not lay the unit on its side.
- Wear safety glasses and work gloves during the installation.

## 2. Test the Raw Water

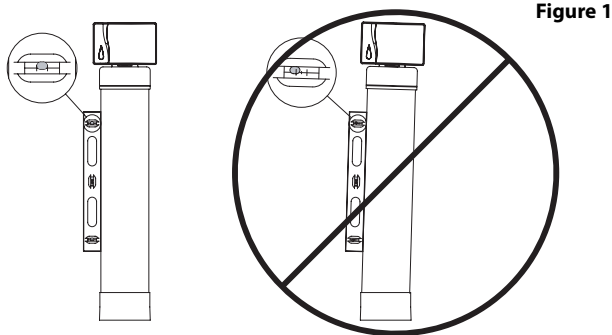
- Test the raw water to ensure that the pH range falls within the “Application Limitations”.

## 3. Check the Well Pump Flow Rate

- With no water running in the system, open a faucet and let the water run. When the pump motor starts, note the time and close the faucet. When the pump motor stops, record the time in seconds.
- Run water into a measured container (pail with markings, gallon jug, etc.) until the pump starts. Record the number of gallons in the container.
- Divide the gallons of water in the container by the number of seconds the pump ran. This number is your gallons per second. (The number should be less than one.)
- To calculate the gallons per minute, multiply the gallons per second by 60. Repeat this procedure at least three times to obtain the average well pump flow rate.

## 4. Locate a Site for the System

- The installation site must have a level, smooth, and clean surface. If the location is not level, you will need to make the necessary adjustments (see figure 1).



- If the system is located outdoors, protect the unit from direct sunlight. Direct sunlight can damage the fiberglass and other system components. If necessary, build a box or shed.

## 5. Install the Valve Head

- Remove the cap plug from the tank.
- Lubricate the riser pipe o-ring and tank o-ring with the proper silicone lubricant.
- Align the control valve with the riser pipe and slowly lower the control valve onto the riser pipe, using a twisting motion.
- Align the control valve with the tank. Push down on the control valve and continue to turn it clockwise until the valve o-ring seals against the tank.

**Important Note:** For Massachusetts Residents Only: The Commonwealth of Massachusetts Plumbing Code 248 CMR shall be adhered to. A licensed plumber shall be used for this installation.

**Important Note:** The well pump flow rate must exceed the recommended backwash flow rate of 6 gallons per minute for the system to clean effectively. Failure to properly backwash the system will result in premature system failure.

**Example:** The water measurement is 6.5 gallons and the pump time is 40 seconds.

$6.5 \text{ gallons} / 40 \text{ seconds} = 0.1625 \text{ gallons per second}$

$0.1625 \text{ gallons per second} \times 60 \text{ seconds} = 9.75 \text{ gallons per minute}$

For this example, the well pump flow rate is 9.75 gallons per minute.

**Important Note:** The system must be level to ensure a proper backwash. Systems that are not installed on a level surface may channel and shorten the mineral life.

**Important Note:** The system can only be installed outdoors in climates that do not reach freezing levels.

**Important Note:** Do not over-tighten the valve to the tank.

## 6. Turn Off the Water and Drain the Plumbing

- Turn off the water at the meter or the pressure tank.
- Drain all the pipes. Do not sweat pipes with water in them; steam will damage the plastic parts in the valve.
- To drain the plumbing system, open all the faucets in the house and flush the toilets. The water will drain out of the lowest faucet or outlet.

## 7. Bypass the Outside Faucets

- Install plumbing pipes to bypass the outside faucets. If the plumbing is not accessible, provide an untreated hose bib on the inlet pipe.

## 8. Create the Plumbing Connection

- Once the plumbing is complete, connect the yoke to the bypass valve (see figure 2).

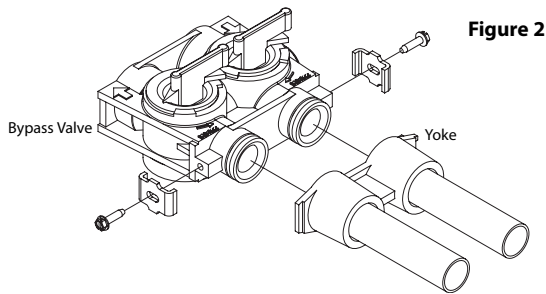


Figure 2

- Support all plumbing connected to the yoke.
- Do not point the soldering torch directly at the mineral tank or control valve. These composite materials will last a lifetime, but can not withstand the intense heat from a torch.
- Avoid short connections of pipe between the system and the water heater. If you can't avoid a short connection, move the system to another location. As a last resort, install a heat trap or check valve. If this causes "water hammer", install a water hammer suppressor.
- Connect the raw water supply to the inlet pipe connection of the yoke. When looking at the front of the unit, the inlet is the pipe connection on the right side of the valve (see figure 3). There is an arrow molded into bypass valve indicating the direction of flow.
- Connect the treated water pipe to the outlet pipe connection on the yoke. When looking at the front of the unit, the outlet is the pipe connection on the left side of the valve (see figure 3). There is an arrow molded into the bypass valve indicating the direction of flow.

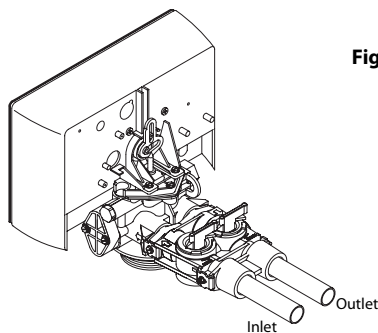



Figure 3

 **Helpful Tip:** This procedure will allow air to enter the plumbing system.

 **Important Note:** The bypass valve is not designed to withstand heat from soldering or twisting from the attached threaded connections.

 **Important Note:** Too much weight on the plumbing connections will cause a leak.

 **Important Note:** Short connections of pipe may allow hot water to back up into the system.

## 9. Set the Bypass Valve to Bypass

- Move the bypass valve handles to the bypass position. The valve handles should be perpendicular to the pipes (see figure 4).

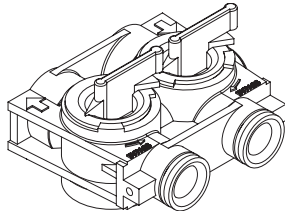


Figure 4

## 10. Install the Drain Line and Air Gap (Air Gap Not Supplied)

- Connect the 1/2 inch ID drain line to the drain outlet on back of the valve, opposite the inlet connection (see figure 5). A fitting is required to connect the female pipe thread to the drain line.

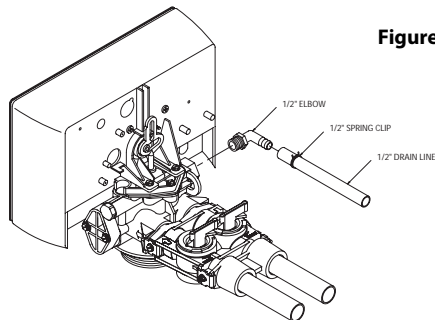


Figure 5

- Run the drain line to the air gap (see figure 6).

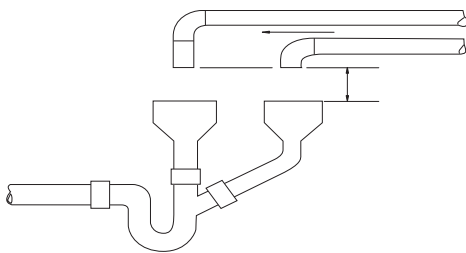


Figure 6

## 11. Create the Electrical Connection

- Remove the supplied wire from the warranty pack.
- Attach the U shaped connectors (supplied) to the wire with a crimping tool (not supplied).
- Connect the wire to the transformer (see figure 7).
- Insert the other end of the wire, with the connector, into the back of the control box (see figure 7).
- Plug the transformer into a 110 VAC 60 Hz or 230 VAC 50 Hz outlet.

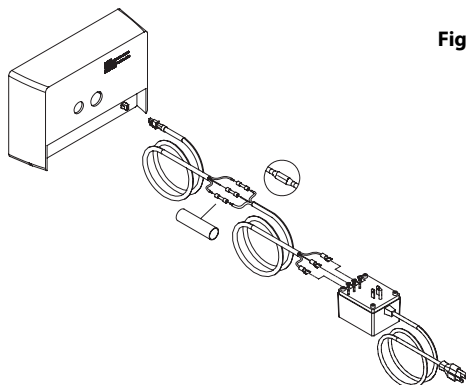


Figure 7

**Helpful Tip:** The drain line operates under pressure and can be installed higher than the filter.

**Important Notes:** The air gap should be two times the diameter of the drain line or a minimum of two inches. Please check your local plumbing codes to ensure compliance.

The air gap must be open and free of obstructions to achieve a proper backwash rate (see figure 6).

**Helpful Tip:** If the wire is too short, use the supplied connectors and shrink tubing to lengthen the wire (see figure 7).

**Helpful Tip:** Squeeze the connector to release it from the box.

**Helpful Tip:** Check the transformer label for the correct voltage requirement.

# System Start Up

## 1. Turn on the Water and Check for Leaks

- Close all faucets and turn the water back on at the water meter or pressure tank.
- Check for leaks. If a leak is present, drain the plumbing again before soldering.

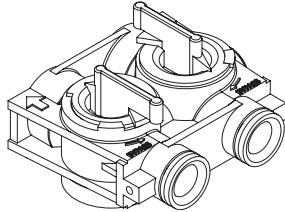
## 2. Flush the Remaining Debris from the System

- Open the cold water faucet on your bathtub.
- Allow the system to flush the remaining dirt and debris into the bathtub, until the water runs clear.
- Open all remaining faucets and allow the plumbing to release any trapped air in the system.
- Close all faucets.

 **Helpful Tip: This procedure will prevent dirt and debris from entering the valve.**

## 3. Open the Bypass Valve

- Move the bypass valve handles to the service position. The valve handles should be parallel to the pipes (see figure 8).



**Figure 8**

- Open the bathtub faucet again and allow the system to fill and flush for approximately 5 minutes.

 **Important Note: Additional flushing may be required to remove residue from the plumbing.**

## 4. Flush the Remaining Untreated Water from the Water Heater

- Run hot water in the bathtub to remove any remaining untreated water.

## 5. Set the Timer

- Please refer to the System Settings on pages 9-10.

# System Settings

## Operation of the Timer

The timer is designed for years of maintenance free service, with minimal initial setup. Once the parameters are established and set by a RainSoft Representative, there is no need to adjust or change the parameters of the timer. If a noticeable change in the quality of your water has taken place, please contact your RainSoft Dealer immediately.

## How to Adjust the Time of Day

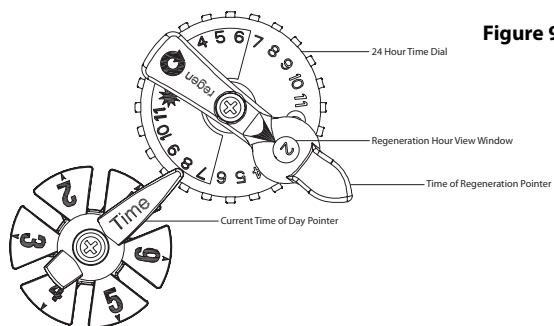
To set or change the time of day, pull out and rotate the 24 Hour Time Dial until the corresponding hour on the dial is lined up with the Current Time of Day Pointer (see figure 9).

After the position of time is reached, release the 24 Hour Time Dial, ensuring that the dial reseats in gear.

## How to Adjust the Time of Regeneration

To set or change the time of regeneration, pull out and rotate the Time of Regeneration Pointer until the desired time of regeneration is viewable in Regeneration Hour View Window (see figure 9).

Release the Time of Regeneration Pointer, ensuring that the pointer seats properly on the 24 Hour Time Dial.



**Helpful Tips:** The nighttime period is the half colored black with a moon. The daytime period is depicted by the light colored half with a sun.

If you change from standard to daylight savings time, you may want to reset the time of day. If the power goes out, you must reset the time of day.

**Important Note:** If you have more than one system, do not set the regenerations for the same time of day. We recommend setting the regenerations at least two hours apart.

## How to Adjust the Backwash Time

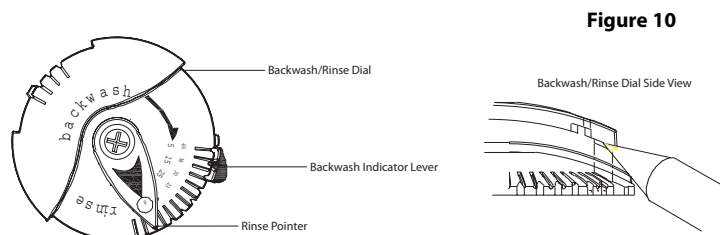
The recommended backwash time for most applications is 10–15 minutes. To set or change the backwash time, hold the Backwash Indicator Lever and rotate the Backwash/Rinse Dial to the desired backwash time (see figure 10). The Backwash Indicator Lever will lock itself into the new position.

## How to Adjust the Fast Rinse Time

The factory setting is 8 minutes, which is adequate for most applications. If you choose to adjust the fast rinse time, hold the Backwash/Rinse Dial and move the Rinse Pointer with a pen or leverage device to the desired fast rinse time (see figure 10). The Rinse Pointer will lock itself into the new position.

**Important Notes:** When adjusting this function, it is recommended that the power be disconnected.

**Important Note:** When adjusting this function, it is recommended that the power be disconnected.



## How to Adjust the Frequency of Regenerations

The recommended regeneration schedule for most applications is every day or every other day in cases of low iron and/or minimal water use. The days of regeneration are based on a 6 day timing scheme. A pressed numbered pin will correspond to an automatic regeneration when that particular day is reached.

To set or change the frequency of regenerations, simply press in the corresponding day pin to initiate an automatic regeneration on that day (see figure 11).

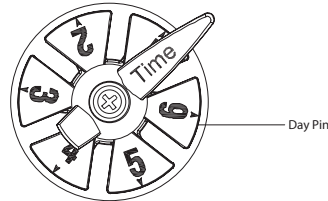


Figure 11

**Example: If your water consumption dictates a regeneration every 3 days, simply press in the number 1 and 4 pin.**

## How to Manually Initiate a Regeneration

If you foresee using a large quantity of water, a manual regeneration is often recommended. To manually initiate a regeneration, press the Manual Regeneration Button (see figure 12).

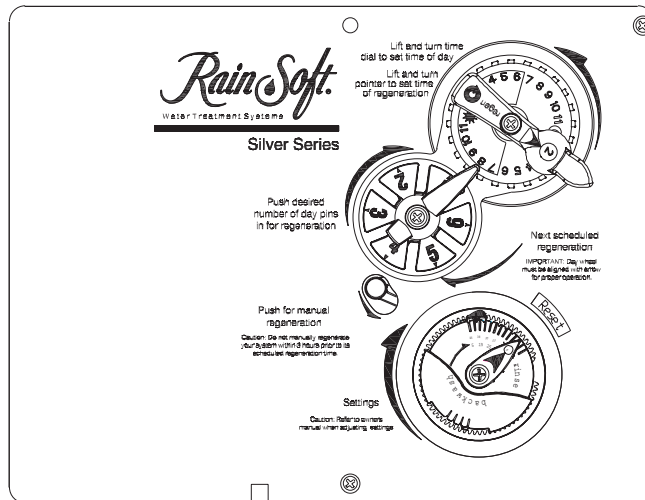
## How to Cancel a Manual Regeneration

To cancel a manual regeneration that is already in progress, simply rotate the Backwash/Rinse Dial until the Rinse Pointer is in the middle of the Reset section on the timer faceplate (see figure 12).

When the timer has been reset, the regeneration will be cancelled and the timer will return to the service position.

**! Important Note: Cancelling a regeneration that is already in progress may stop the filter from properly cleaning.**

Figure 12

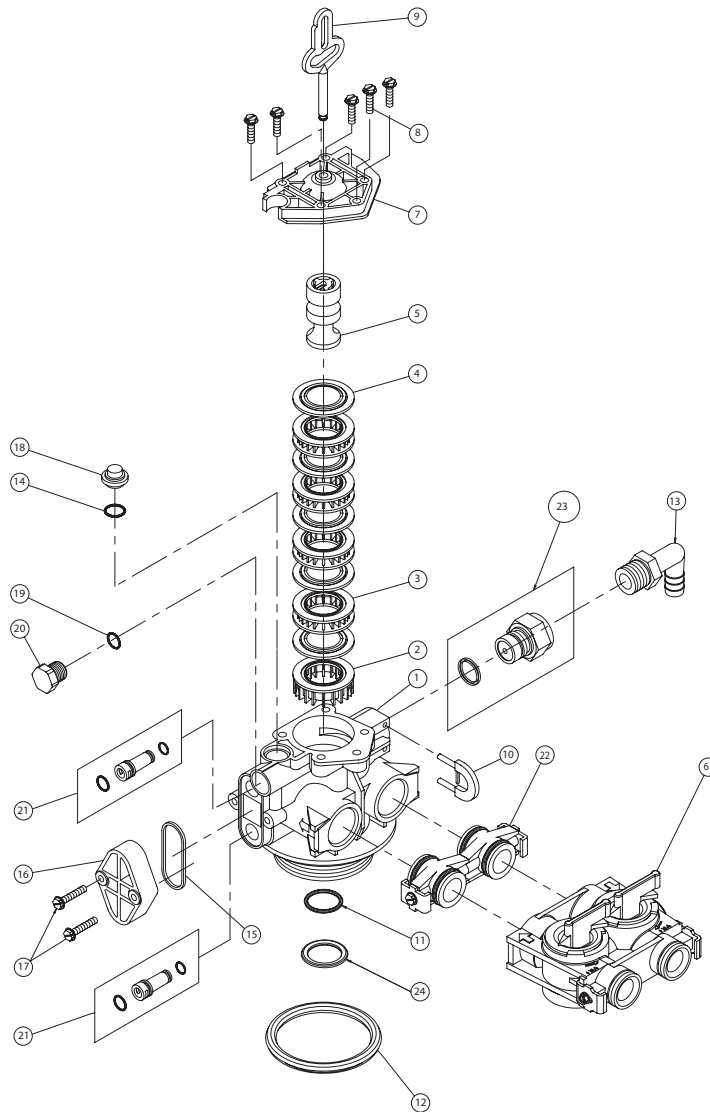


## Troubleshooting Guide

Symptom	Cause	Solution
<b>1. System Fails to Regenerate Automatically</b>	<ol style="list-style-type: none"> <li>The power supply is plugged into an intermittent or dead power source.</li> <li>The proper day pins are not depressed.</li> </ol>	<ol style="list-style-type: none"> <li>Connect to a constant power source.</li> <li>Push in the proper day pins.</li> </ol>
<b>2. System Regenerates at the Wrong Time</b>	<ol style="list-style-type: none"> <li>The timer is not set properly.</li> <li>The time is off due to daylight savings.</li> </ol>	<ol style="list-style-type: none"> <li>Reset the time of day and hour of regeneration.</li> <li>Reset the time of day.</li> </ol>
<b>3. Poor Water Quality</b>	<ol style="list-style-type: none"> <li>The raw water has changed.</li> <li>The bypass valve is open.</li> <li>The power supply is disconnected.</li> </ol>	<ol style="list-style-type: none"> <li>Call your RainSoft Dealer for a new water analysis.</li> <li>Close the bypass valve.</li> <li>Plug in the power supply.</li> </ol>
<b>4. Loss of Water Pressure</b>	<ol style="list-style-type: none"> <li>Low pressure to the system.</li> </ol>	<ol style="list-style-type: none"> <li>Bypass the system to confirm the problem. If the problem still exists after bypass, it is not related to the RainSoft equipment. Have your water distribution system checked. If the problem is resolved after bypass, contact your RainSoft Dealer for service.</li> </ol>
<b>5. Constant Flow to the Drain</b>	<ol style="list-style-type: none"> <li>Foreign material in the valve.</li> </ol>	<ol style="list-style-type: none"> <li>Call your RainSoft Dealer to clean the valve.</li> </ol>

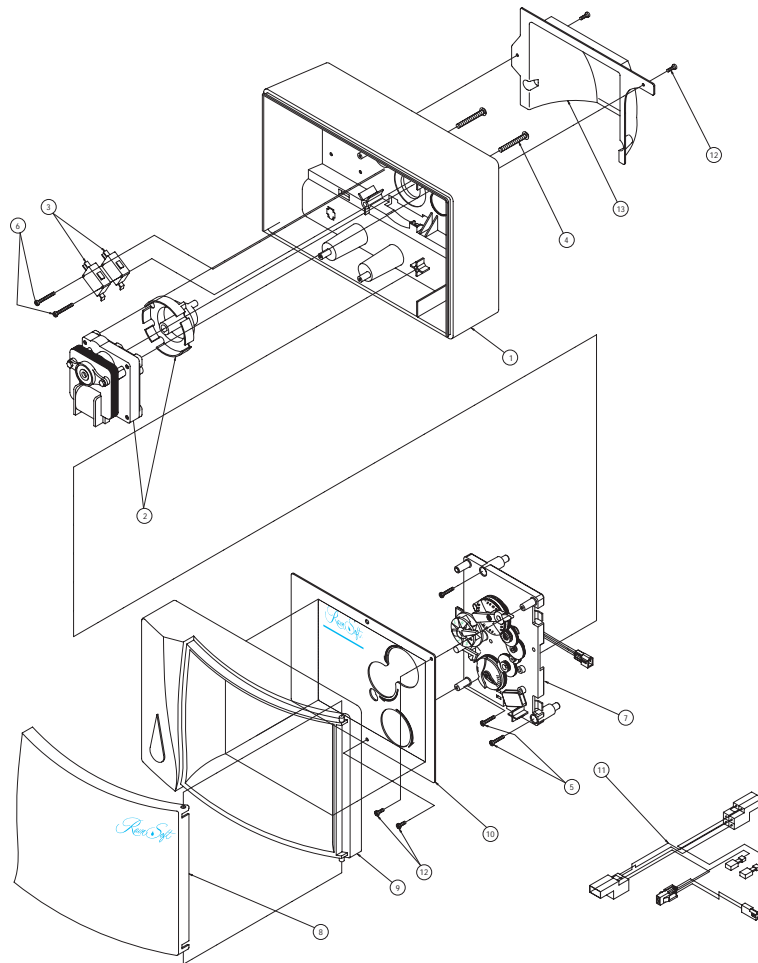
**If the troubleshooting guide did not resolve the symptom, please contact your local RainSoft Dealer for service. If you cannot locate your local RainSoft Dealer, please contact RainSoft Customer Service at 1-800-860-7638 or log onto [www.rainsoft.com](http://www.rainsoft.com) for the name and location of your nearest Dealer.**

# Valve Exploded View and Parts List



Item	Quantity	Part Number	Description
1	1	17863	Composite Valve Body
2	1	17864	Spacer End
3	4	17865	Internal Spacer
4	5	17866	Internal Seal
5	1	18160	Retainer & Down Flow Piston
6	1	17557	Composite Bypass Valve
7	1	17869	End Plug Assembly
8	5	17870	10-24 x .812 Screw Hex Washer Head
9	1	17871	Piston Rod
10	1	17887	Retainer Drain
11	1	17888	O-ring - 121
12	1	17889	O-ring - 336
13	1	17939	1/2" NPT X 1/2" Barb Poly Elbow
14	1	13329	O-ring - 014
15	1	17949	Injector Seal
16	1	17950	Injector Cap
17	2	17951	10-24 x 1.0 Screw Hex Washer Head
18	1	18271	Brine Valve Plug
19	1	17958	O-ring - 015
20	1	18270	Filter Plug
21	2	17617	C-Injector Plug Assembly
22	1	17560	3/4" Coupling Adapter Assembly
23	1	18287	6.0 Drain Line Flow Control Assembly
24	1	18445	Distributor Tube Retainer O-ring

# Control Exploded View and Parts List



Item	Quantity	Part Number	Description
1	1	17487	Rear Housing
2	1	18619	24V 50/60 Hz Valve Motor with Filter Cam
		18620	Drive Motor
		18278	Down Flow Gear/Cam Filter
		19029	45 ° Switch Actuator Silver Contact
4	2	17548	10-32 X 1.50 Screw Pan Head Phil Mach SS
5	3	17544	4-20 X .625 Screw Pan Head Phil SS
6	2	18135	4 x 1.25 Screw Slotted Hex Washer Type 25
7	1	18251	Timer Plate, 6 Day Filter Assembly 24V 60 Hz
		18252	Timer Plate, 6 Day Filter Assembly 24V 50 Hz
8	1	17489	Front Housing Door, Silver
9	1	17854	Front Housing, Silver
10	1	17495	Mechanical Timer Cover Plate
11	1	17553	Mechanical Wire Harness
12	4	17542	4-20 X .375 Screw Pan Head Phil SS
13	1	17490	Rear Housing Cover

# *Limited Lifetime Warranty*

*For as long as you own the equipment*

RainSoft Division of Aquion Water Treatment Products, believing its

## **RFC WATER FILTRATION SYSTEM**

to be of exceptional quality, hereby warrants said equipment to its first purchaser at retail as follows:

**THE TREATMENT TANK AND VALVE ARE WARRANTED AGAINST DEFECTS IN MANUFACTURE FOR THE LIFETIME OF THE FIRST PURCHASER AT RETAIL.**

**THE ELECTRICAL PARTS (IF APPLICABLE) ARE WARRANTED AGAINST DEFECTS IN MANUFACTURE FOR FIVE YEARS AND PRO-RATA WARRANTED FOR AN ADDITIONAL FIVE YEARS.**

**THE FILTER MEDIA IS NOT WARRANTED. THE FILTER MEDIA SERVICE LIFE IS DEPENDENT ON SPECIFIC WATER CONDITIONS AND USAGE.**

This warranty begins at the time the equipment is first connected for use, and is contingent upon the return of a signed owner's registration card.

This warranty does not require replacement of the entire unit. If the equipment does not perform properly, you should request service from the dealer that sold you the equipment. If you are not satisfied, you should notify our Customer Service Manager. If we are not able to arrange local servicing, you should send the defective part(s) (or, if you prefer, send the entire unit,) directly to the manufacturer, freight prepaid, with proof of purchase and a copy of this warranty. The defective part(s) (or entire unit) will either be repaired or new RainSoft part(s) furnished, for a nominal charge to cover labor, handling, packing and the increase, if any, in the retail price of the part(s) since the date of purchase. Genuine RainSoft parts must be used. Failure to use genuine RainSoft parts will void the warranty and certifications.

This warranty does not include labor charges, and does not cover installation, transportation, or any other claims or torts. Some states do not allow the exclusion or limitation of incidental or consequential damages, so parts of the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. You also have implied warranty rights. In the event of a problem with warranty service or performance, you may be able to go to a small claims court, a State court, or a Federal District Court.

This warranty is void if equipment is not installed and operated according to instructions. It does not apply to damage caused by abuse, accident, neglect, freezing, fire, or other abnormal conditions beyond the company's control. This warranty is void on any part from which the manufacturing date has been removed or made illegible.

Benefits will be provided by various types of RainSoft equipment when installed and operated according to the manufacturer's recommendations. Operational, maintenance and replacement requirements are essential for the product to perform as advertised. All claims are based on the best available information at the time of printing. Manufacturer makes no representations as to the suitability of this equipment for a particular application. Buyer relies entirely on the dealer's recommendations in the purchase of this equipment.

Independent RainSoft dealers may include, together with your RainSoft product, a product or component that is not manufactured by RainSoft or their parent company, AWTP, LLC. Any non-RainSoft product may be covered by the manufacturer of that product, and is not covered by the RainSoft warranty. AWTP, LLC does not warrant that your RainSoft product and the non-RainSoft product will perform properly when used together, and assume no liability therefore.

RainSoft Division of Aquion Water Treatment Products  
2080 East Lunt Avenue  
Elk Grove Village, Illinois 60007 USA

# Installer Specification Sheet

Dealer Name: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Installation Number: \_\_\_\_\_

Installation Date: \_\_\_\_\_

Model Number: \_\_\_\_\_

Serial Number: \_\_\_\_\_

Line Pressure: \_\_\_\_\_ (psi)

Iron: \_\_\_\_\_

pH: \_\_\_\_\_

Sulfur: \_\_\_\_\_

Backwash Flow Rate: \_\_\_\_\_ (gpm)

Recommended Regeneration Frequency: **Every Day**

Recommended Backwash Time: \_\_\_\_\_ (10 minutes minimum)



RainSoft Division of Aquion Water Treatment Products  
2080 East Lunt Avenue  
Elk Grove Village, Illinois 60007  
Main Switchboard: 1.847.437.9400  
Customer Service: 1.800.860.7638  
[www.rainsoft.com](http://www.rainsoft.com)