

RainSoft Division of Aquion Water Treatment Products
2080 East Lunt Avenue
Elk Grove Village, Illinois 60007
1.847.437.9400 or 1.800.860.7638
www.rainsoft.com

RainSoft®

Water Treatment Systems
Since 1953

EC4 SERIES WATER TREATMENT CONTROL

Owner's Manual



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

Part No.: 16367
Rev: A 05/06

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Congratulations on your purchase of a RainSoft EC4 Upgrade Control.

This Owner's Manual is designed to assist with the operation and maintenance of your water treatment control. It is our sincere hope that this manual is clear, concise, and helpful to you as a new owner.

Questions? If you have any questions regarding the installation, operation, or servicing of this equipment, please contact your local RainSoft Dealer. Your local RainSoft Dealer is familiar with your particular water conditions, and is able to address your concerns promptly and efficiently.

Application Limitations

- On hardness levels of 60 grains and higher, the system may not achieve a hardness of less than 1 grain, due to high total dissolved solids; some bleed through is possible. Bleed through can also be caused by sodium levels higher than 1000 parts per million. In either case, your system can be programmed to minimize these effects; see your RainSoft Dealer for details.
- Chlorine or Chloramine levels on municipality treated water should not exceed 4 parts per million.* When Chlorine or Chloramine levels are 4 parts per million* or greater, it can have adverse effects on your system. In applications where high levels are a concern, pre-filtration is necessary to reduce the Chlorine or Chloramine to an acceptable level; see your RainSoft Dealer for details.
- When this system is installed on water with Ferrous iron, also known as clear water iron, the maximum range of removal is based on local water conditions. The range is generally 2 to 10 parts per million. Your equipment may require special programming, along with an additive to the brine tank, to maximize the equipment's ability to remove iron; see your RainSoft Dealer for details.

* Maximum disinfectant level of Chlorine or Chloramine recommended from the EPA.

! Important Note: Oxidizing agents, such as Chlorine or Chloramine in excess of 4 ppm, and/or Ferrous iron will foul the resin bed. Fouled resin is not eligible for warranty replacement.

Operational Specifications

Plumbing: $\frac{3}{4}$ " to $1\frac{1}{4}$ "

Drain Line: $\frac{1}{2}$ "

Water Pressure: 20 psi – 120 psi (1.38 bar – 6.89 bar)

Operating Temperatures: 40°F – 100°F (4.4°C – 37.8°C)

Electrical Requirements: A properly grounded alternating current supply (110 VAC 60 Hz or 230 VAC 50 Hz) is required for system operation. Verify that the supplied transformer is the correct voltage for the application.

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.

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 and accessibility.
- The installation must be on a cold water supply.

Salt Requirements

RainSoft water conditioners use: water softener block salt, solar salt, or potassium chloride. Please contact your local RainSoft Dealer for brands that are available in your area.

Resin Cleaners

It is always wise to provide preventative maintenance for your system. If small amounts of iron are present in your water, use a salt containing iron remover or add RainSoft water conditioner cleaner to the salt tank when adding salt. If an excessive amount of iron is present in your water, we recommend the installation of an iron filter before the conditioner; see your RainSoft Dealer for details.

Maintenance Requirements

The regeneration valve body 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 regenerations 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.

Product Certification Information

Water treatment devices sold to retail consumers in California, accompanied by certain health claims, must be certified by the State of California Department of Health Services. This EC4 Upgrade Control is not certified in California for the purpose of making health claims.

! Important Note: Rock salt is not recommended for RainSoft water conditioners. If rock salt is used, the salt container must be cleaned out periodically. Do not use granulated salt! The use of granulated salt may cause service problems.

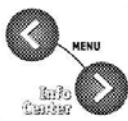
! Important Note: If you use a cleaner containing nitric acid or other strong oxidizing agents, please use caution and follow instructions carefully.

Helpful Tip: We recommend that this service be performed every three years or earlier if necessary.

Understanding the Customer Settings



Function of the Keys:



Menu Forward and Menu Back Keys: Use to scroll through the list of functions or to change the menu choice.

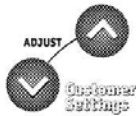
Info Center Key: Use to access the Information Center.

Manual Regeneration:



Manual Regeneration Key: Use to initiate a manual regeneration.

Enter Key: Use to select or enter the menu of choice.



Adjust Up and Adjust Down Keys: Use to alter the blinking value.

Customer Settings Key: Use to access the Customer Settings.

Programming Options:

Salt Level: Sets the level of salt in the salt tank.

Vacation Set: Puts the system into hibernation while you are on vacation or gone for extended period of time.

Salt Alarm: Sets the audio and visual alarms to be active and the time they will sound or inactive with no sound.

Time of Day: Sets the current time of day.

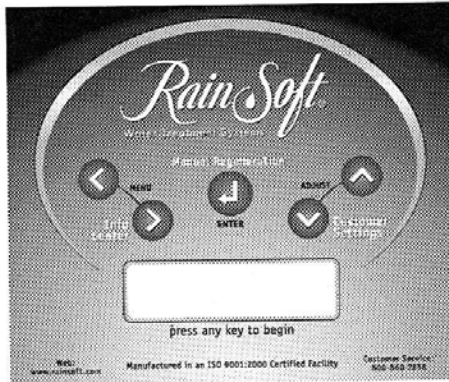
Current Day: Sets the current day of the week.

Current Date: Sets the current date by month/day/year.

Auto Daylight Savings Time: Sets the computer to automatically adjust for daylight savings time in applicable areas.

Time of Regeneration: Sets the hour of day that the computer will regenerate the system, based on the parameters set.

Programming the Customer Settings



If the display is not lit, press any key to begin. When the display is lit, press the **Customer Settings** key.

THE COMPUTER WILL DISPLAY: **SALT LEVEL**

- Fill the salt tank to level 4 with solar salt, block salt, or potassium chloride.
- Use the **Adjust Up** and **Adjust Down** keys to change the amount of salt to the level indicated on the salt tank scale.
- Press the **Menu Forward** key to advance to **VACATION SET**.

THE COMPUTER WILL DISPLAY: **VACATION SET: OFF**

- To leave this setting **OFF**, press the **Menu Forward** key to advance to **SALT ALARM**.
- To select **ON**, press the **Adjust Up** or **Adjust Down** key.
 - THE COMPUTER WILL DISPLAY: **DAYS AWAY: 2**
 - Use the **Adjust Up** and **Adjust Down** keys to change the number of days away, if desired.
 - Press the **Menu Forward** key to advance to **SALT ALARM**.

THE COMPUTER WILL DISPLAY: **SALT ALARM: ON SET FOR 5:00 P.M.**

- To leave this setting **ON**, press the **Menu Forward** key.
 - Use the **Adjust Up** and **Adjust Down** keys to change the alarm time, if desired.
 - Press the **Menu Forward** key to advance to **TIME OF DAY**.
- To select **OFF**, press the **Adjust Up** or **Adjust Down** key.
 - Press the **Menu Forward** key to advance to **TIME OF DAY**.

THE COMPUTER WILL DISPLAY: **TIME OF DAY**

- Use the **Adjust Up** and **Adjust Down** keys to change the hour of day.
- Press the **Menu Forward** key to access the minutes of day. Use the **Adjust Up** and **Adjust Down** keys to change the minutes.
- Press the **Menu Forward** key to advance to **CURRENT DAY**.

THE COMPUTER WILL DISPLAY: **CURRENT DAY**

- Use the **Adjust Up** and **Adjust Down** keys to select the current day.
- Press the **Menu Forward** key to advance to **CURRENT DATE**.

Helpful Tip: Use the **Menu Forward** and **Menu Back** keys to scroll to the parameter you wish to set or change. To exit the **Customer Settings** at any time, press the **Enter** key.

Helpful Tip: The salt tank scale is located on the side of the salt tank. For larger tanks, a salt scale sticker is available through your RainSoft Dealer, part number 19024.

Important Notes: If you select **Vacation Set**, the computer will provide a 16 hour delay for your convenience. If water use is detected after the 16 hour delay, the **Vacation Set** is deactivated. One day prior to the scheduled return, the system will regenerate at the normal regeneration time. This feature will ensure a fresh conditioner bed upon your arrival.

Helpful Tip: Select an alarm time that is most convenient for you.

Helpful Tip: Use the **Menu Back** key to edit your selection.

THE COMPUTER WILL DISPLAY: **CURRENT DATE**


- Use the **Adjust Up** and **Adjust Down keys** to change the month.
- Press the **Menu Forward key** to access the day. Use the **Adjust Up** and **Adjust Down keys** to change the day.
- Press the **Menu Forward key** to access the year. Use the **Adjust Up** and **Adjust Down keys** to change the year.
- Press the **Menu Forward key** to advance to **AUTO DAYLIGHT SAVINGS TIME**.


THE COMPUTER WILL DISPLAY: **AUTO DAYLIGHT SAVINGS TIME: ON**


- To leave this setting **ON**, press the **Menu Forward key** to advance to **TIME OF REGEN**.
- To select **OFF**, press the **Adjust Up** or **Adjust Down key**.
 - Press the **Menu Forward key** to advance to **TIME OF REGEN**.

THE COMPUTER WILL DISPLAY: **TIME OF REGEN: 2:00 A.M.**

- Use the **Adjust Up** or **Adjust Down key** to change the hour of regeneration, if desired.
- Press the **Menu Forward key** to exit the Customer Settings.

 **Helpful Tip:** Use the **Menu Back** key to edit your selection.

 **Helpful Tip:** If auto daylight savings time is "ON", the system will automatically adjust the clock in the spring and fall. Only set the daylight savings time to "OFF" if daylight savings time is not observed in your area.

 **Important Note:** When you exit the Customer Settings, the computer will automatically save any changes that have occurred.

Understanding a Manual Regeneration

Manual Regeneration Options:

If the display is not lit, press any key to begin. When the display is lit, press the **Manual Regeneration key**.

THE COMPUTER WILL DISPLAY: **MANUAL REGEN NOW OR LATER?**

- To select **NOW**, press the **Enter key**. The computer will provide a 10 second count down before regeneration.
- To select **LATER**, press the **Menu Forward key** and then the **Enter key**. The computer will display: **Manual Regen Later** (at the set regeneration time).

Cancelling a Manual Regeneration:

- To cancel a manual regeneration before the countdown reaches 0 or before the hour of regeneration occurs, press the **Menu Forward** or **Menu Back key**.
- To cancel a manual regeneration already in progress, press and hold the **Menu Back key**. The system will return to service automatically.

System Alarms

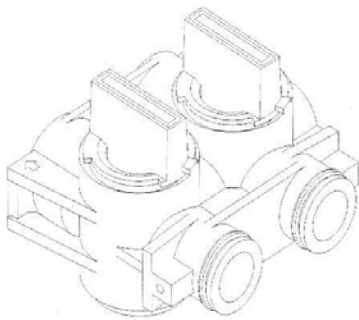
Your system is equipped with several alarm tones: **low salt**, **no salt**, and **service required**. To silence the alarms, press any key.

Low Salt or No Salt: When your system's salt alarm sounds, you will have the option of refilling the salt tank now or postponing the alarm until later. To add salt now, follow the onscreen prompts. To postpone the alarm, use the **Adjust Up** and **Adjust Down keys** to select the number of days you wish to postpone the alarm. Press the **Enter key** after the number of days has been selected.

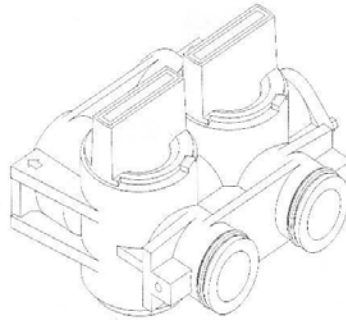
Service Required: Please contact your local RainSoft Dealer for service.

Operation of the Bypass Valve

The manually operated bypass valve enables the conditioner to be isolated from the water service line for maintenance, service, and outdoor water use. It also maintains the continuity of the water supply when the conditioner is disconnected.



Operating Position



Bypass Position for maintenance, service, and outdoor water use.

Understanding the Information Center

The Information Center provides current alarm information, water usage, and general information about your system. To access this information, please follow the directions listed below.

If the display is not lit, press any key to begin. When the display is lit, press the **Info Center key**. To view the list of diagnostics, use the **Menu Forward** and **Menu Back keys**. To exit the Information Center at any time, press the **Enter key**.

The following items are displayed in the Information Center:

Model Size: Displays the model information.*

System Status: Displays the system's current status, including any alarm information.

Salt Level: Displays the current salt level.

Salt Alarm: Displays the "ON/OFF" condition and the time set to sound the salt alarm.

Time of Regen: Displays the hour set for regeneration.

Avg. Water Use: Displays the average water use in gallons per day.

Avg. Weekly Salt Used: Displays the average weekly salt used in pounds.

Current Flow Rate: Displays the flow rate through the system when water is being used.

Current Water Used: Displays the current gallon count since the last regeneration.

Hardness: Displays the programmed hardness in grains (based on the Dealer's water analysis).

Iron: Displays the programmed iron in parts per million (based on the Dealer's water analysis).

Est. Next Regen =: Displays the estimated number of days until the next regeneration.

Vacation Set: Displays the "ON/OFF" condition.

Conditioner Installed: Displays the date of installation.

Filter Installed: Displays the date of installation (if applicable).

Drinking Water Installed: Displays the date of installation (if applicable).

AirMaster Installed: Displays the date of installation (if applicable).

Web Address: Displays the RainSoft web address.

For Service Call: Displays the service phone number.

! Important Note: The Information Center is a display only mode and will not allow any changes to the settings or current service run data.

* Not applicable for upgrade controls.

Helpful Tip: The Average Water Use will be accurate 7 days after start up.

Helpful Tip: The Current Water Used is a live function and will count up as the gallons are used.

Helpful Tip: The Estimated Next Regen is based on water consumption. It may take 14 days after start up to provide an accurate estimate.

Troubleshooting Guide

Symptom	Cause	Solution
1. System fails to regenerate automatically.	<ol style="list-style-type: none"> 1. The power supply is plugged into intermittent or dead power source. 2. The system is not counting gallons. 	<ol style="list-style-type: none"> 1. Connect to a constant power source. 2. Call your RainSoft Dealer for service.
2. System regenerates at the wrong time.	<ol style="list-style-type: none"> 1. The computer is not set properly. 2. The time is off due to daylight savings. 3. The maximum system capacity has been exceeded. 	<ol style="list-style-type: none"> 1. Reset the time of day/hour of regeneration. 2. Verify that auto daylight savings time is set to "ON". 3. Limit water usage until the regeneration is complete.
3. Poor water quality.	<ol style="list-style-type: none"> 1. The raw water has changed. 2. The bypass valve is open. 3. The power supply is disconnected. 	<ol style="list-style-type: none"> 1. Call your RainSoft Dealer for a new water analysis. 2. Close the bypass valve. 3. Plug in the power supply.
4. Loss of water pressure.	<ol style="list-style-type: none"> 1. Low pressure to the unit. 	<ol style="list-style-type: none"> 1. Bypass the system. If the problem still exists after bypass, it is not related to a RainSoft product; check your water distribution system. If the problem is resolved after bypass, call your RainSoft Dealer for service.
5. Excessive water in the brine tank or salty water.	<ol style="list-style-type: none"> 1. The drain line is plugged/restricted. 2. The brine valve is dirty. 3. Low inlet pressure. 4. The injector is plugged. 	<ol style="list-style-type: none"> 1. Check the water flow to the drain. Check for crimps in the drain line. Call your RainSoft Dealer for service. 2. Call your RainSoft Dealer for service. 3. Call your RainSoft Dealer to increase the inlet pressure. It must be a minimum of 20 psi. 4. Call your RainSoft Dealer for service.
6. System fails to use salt.	<ol style="list-style-type: none"> 1. The drain line is plugged/restricted. 2. The injector is plugged. 3. Low inlet pressure. 4. No water in the brine tank. 	<ol style="list-style-type: none"> 1. Check the water flow to the drain. Check for crimps in the drain line. Call your RainSoft Dealer for service. 2. Call your RainSoft Dealer for service. 3. Call your RainSoft Dealer to increase the inlet pressure. It must be a minimum of 20 psi. 4. Call your RainSoft Dealer for service.
7. Constant flow to the drain.	<ol style="list-style-type: none"> 1. Foreign material in the valve. 2. Excessive water pressure. 	<ol style="list-style-type: none"> 1. Call your RainSoft Dealer for service. 2. Install a pressure regulator.

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 logon to www.rainsoft.com for the name and location of your nearest authorized Dealer.

Limited Lifetime Warranty

For as long as you own the equipment

RainSoft Division of Aquion Water Treatment Products, believing its

WATER TREATMENT CONTROL

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

The control valve is warranted against defects in manufacture for the lifetime of the first purchaser at retail.

The electrical parts are warranted against defects in manufacture for five years and pro-rata warranted for an additional five years.

The treatment tank and resin carry the remainder of the original warranty based on the date of installation.

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.

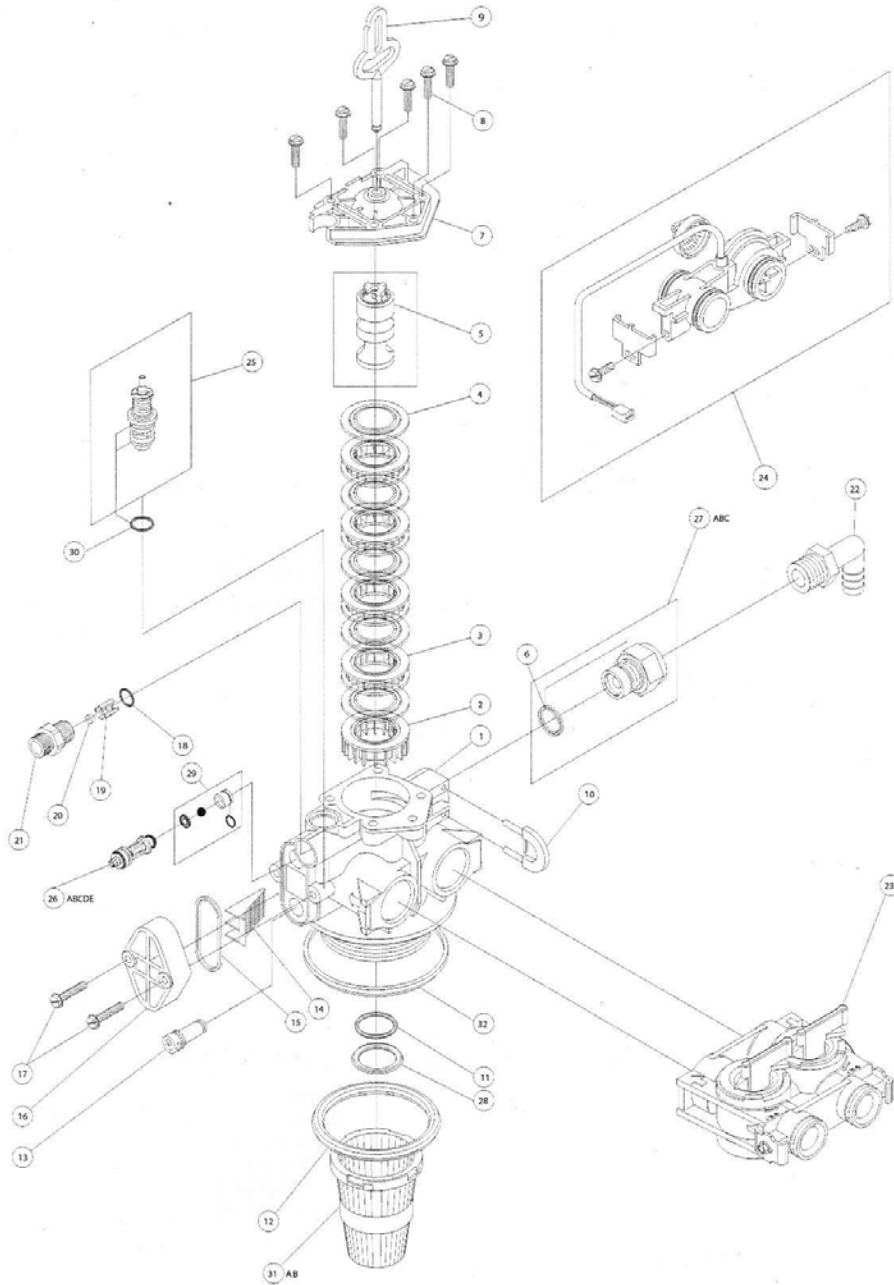
This warranty is void if equipment is not installed and operated according to instructions. It does not apply to damage caused by abuse, accident, neglect, freezing, fire, or other abnormal conditions beyond the company's control. This warranty is void on any part from which the manufacturing date has 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, AWTR, LLC. Any non-RainSoft product may be covered by the manufacturer of that product, and is not covered by the RainSoft warranty. AWTR, LLC does not warrant that your RainSoft product and the non-RainSoft product will perform properly when used together, and assumes no liability therefore.

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2080 East Lunt Avenue
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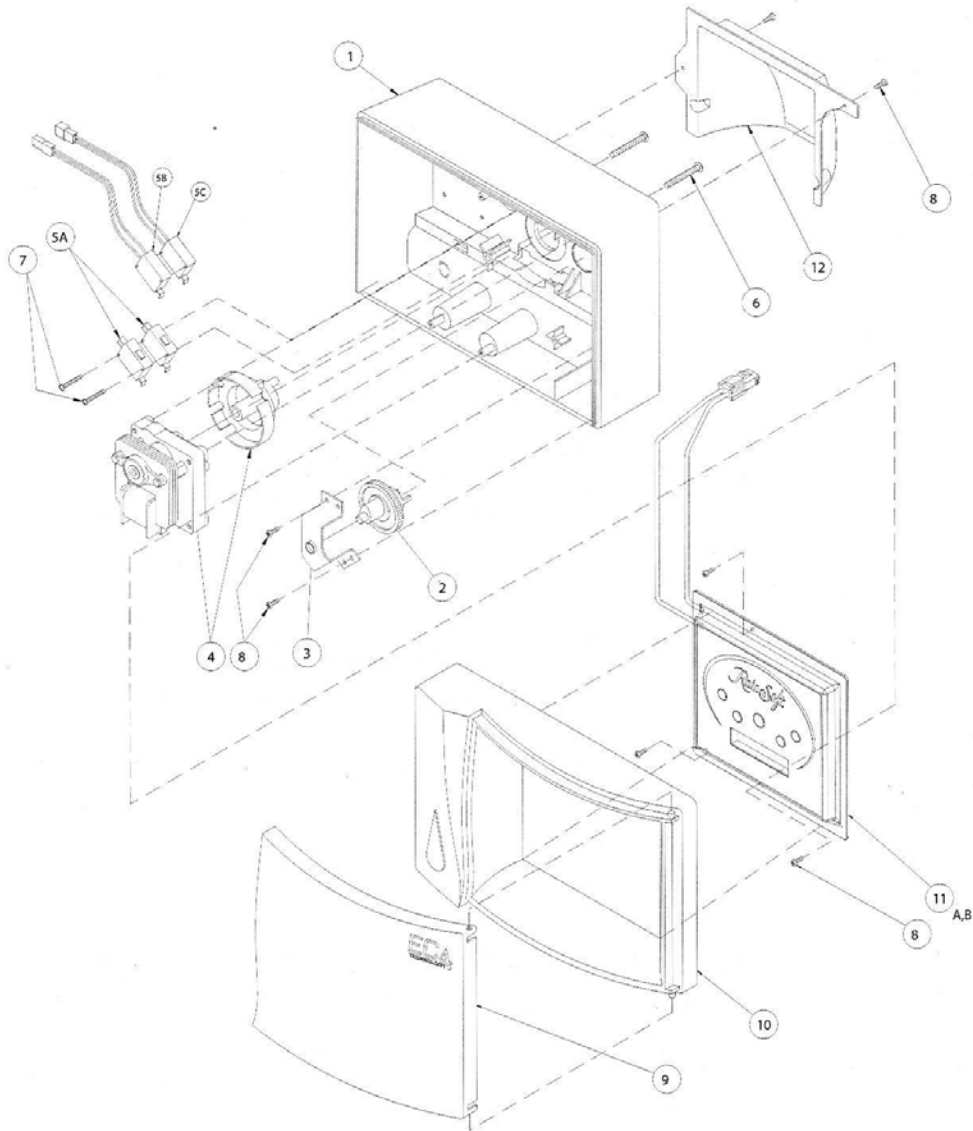
Valve Exploded View



Valve 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	10258	O-ring - 017
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	17617	Injector plug assembly
14	1	17948	Injector screen
15	1	17949	Injector seal
16	1	17950	Injector cap
17	2	17951	Screw hex washer head 10-24 x 1.0
18	1	17958	O-ring - 015
19	1	17953	Retainer blfc button
20	1	17954	Flow control washer 0.25 gpm
21	1	17957	Adapter blfc 0.25 gpm
22	1	17939	1/2" npt x 1/2" barb poly elbow
23	1	17557	Composite bypass valve
24A	1	17560	3/4" coupling adapter assembly
24B	1	17558	Turbine meter assembly with cable
25	1	17812	Refill shut-off assembly
26A	1	17893	#00 injector assembly
26B	1	17947	#0 injector assembly
26C	1	18194	#1 injector assembly
26D	1	19318	#2 injector assembly
26E	1	19393	#3 injector assembly
27A	1	17991	1.5 drain line flow control assembly
27B	1	17992	2.0 drain line flow control assembly
27C	1	17994	3.0 drain line flow control assembly
28	1	18445	Riser pipe retainer o-ring
29	1	19739	Check ball cage assembly
30	2	13329	O-ring - 014
31A	1	17941	Diffuser upper basket 1 x .008 red
31B	1	18985	Diffuser upper basket 1 x .02 white
32	1	19328	Tank retainer seal

Control Exploded View



Control Parts List

Item	Quantity	Part Number	Description
1	1	17487	Rear housing
2	1	17501	Brine cam gear
3	1	17492	Brine cam gear bracket
4	1	17537	Valve motor w/computer cam 24V 50/60 Hz
5A	2	17526	Switch 45 deg actuator gold contact (indoor)
5B	1	19536	Sealed switch C-NC male connector red (outdoor)
5C	1	19537	Sealed switch C-NO female connector brown (outdoor)
6	2	17548	10-32 x 1.50 screw pan h phil ss
7	2	18135	4 x 1.25 screw slotted hex washer type 25
8	7	17542	4-20 x .375 screw pan h phil ss
9	1	19713	Front door housing
10	1	17854	Front housing
11A	1	19701	EC4 computer assembly
11B	1	19693	EC4 PCB computer wire harness
12	1	17490	Rear housing cover