C Series Water Softeners

Installation & Operation Manual (Please save for future reference)



Thank you for purchasing one of our ENVIROGARD / Rainfresh Water Softeners. We are committed to ensuring that you are **totally satisfied**.

If you have any problems, don't go back to the store – **please contact us !** Most issues can be resolved over the phone. Help Line : 1-800-667-8072 (Monday to Friday 8:30 AM to 5:00 PM EST)

www.rainfresh.ca

TABLE OF CONTENTS

	A. System Specifications 2				
	B. How Your Water Conditioner Works	. 2			
(C. Safety Precautions & Cautions	. 2			
	D. Installation	. 3			
	a. Electrical Requirements	. 3			
	b. Unpacking the unit	. 3			
	c. Plumbing the Softener	. 4			
	E. Start-up and Programming	. 6			
	a. Language Selection & Basic Programming	. 7			
	b. Advanced Programming	. 9			
	c. Disinfecting the Softener	. 10			
	d. Manual Regeneration	. 11			
	F. Other Features	. 11			
(G. Maintenance	. 11			
	H. Troubleshooting	. 13			
	I. Exploded Diagram & Parts List				
	J. Warranty	. 15			





Certified by IAPMO R&T against CSA B483.1 and NSF/ANSI 44

A. SYSTEM SPECIFICATIONS & DIMENSIONS

MODEL NUMBER	30C	40C
Qty High Capacity resin	0.88 ft ³	1.06 ft ³
Resin Type	High capacity cation softening resin	
Rated Service Flow (GPM)	10.5	11.9
Pressure Drop at Rated Service Flow (psi)	12.0	15.0
Rated Softening Capacity (Grains)	10,263 @ 2.64 lbs	14,456 @ 3.18 lbs
Efficiency (grains/lb salt)	3,887	4,543
Max Flow Rate to Drain (GPM)	2.4	2.4
Working Pressure	Min 20 psi – Max 125 psi*	
Operating Temperature	Min 39 – Max 100°F	
Voltage	110V AC	

* Note: Install pressure regulator and water hammer arrestor if pressure exceeds rated pressure at any time.

The manufacturer reserves the right to make product improvements which may deviate from the specifications and descriptions stated herein, without obligation to change previously manufactured products or to note the change.

These softeners conform to NSF/ANSI 44 for the specific performance claims as verified and substantiated by test data. These models are efficiency rated. The efficiency rating is valid only at the stated salt dose and maximum service flow rate. They have a demand initiated regeneration (D.I.R.) feature that complies with specific performance specifications in-tended to minimize the amount of regenerant brine and water used in their operation. These softeners have a rated softener efficiency of not less than 3350 grains of total hardness exchange per pound of salt (based on sodium chloride) and shall not deliver more salt than their listed ratings. The rated salt efficiency is measured by laboratory tests described in NSF/ANSI Standard 44. These tests represent the maximum possible efficiency due to individual application factors including water hardness, water usage, and other contaminants that reduce the softener's capacity.

Feed Water Quality:

Iron < 0.5 PPM; Manganese < 0.05 PPM ; Turbidity < 1 NTU ; Free Chlorine < 0.5 PPM ; Hydrogen Sulphide – Nil ; Organics – Nil. If feed water quality exceeds above limits, please call Rainfresh for advice on additional treatment that may be necessary.

B. HOW YOUR WATER CONDITIONER WORKS

Your Rainfresh Softener removes hardness using a process called Ion Exchange. In this process, when hard water flows through the unit, hardness-causing minerals such as Calcium & Magnesium, are trapped by the media (called *Resin*) and an equivalent amount of sodium ions are released into the water. When the capacity of the resin to trap hardness minerals is exhausted, the unit is re-charged by softener salt in an **automatic process** called *Regeneration*. During regeneration, the unit first backwashes to remove any sediment, rust or other particulates, that may have accumulated in the unit. This is followed by introduction of a saturated salt solution (*brine*) that bumps off the trapped hardness to drain and recharges the resin with sodium. It then goes through a final rinse & refills the salt tank with water for the next regeneration.

Once you program the unit at the time of installation, the regeneration process happens automatically. All you need to do is to ensure that there is always enough salt in the salt tank. The unit automatically calculates when to regenerate based on your water hardness and use.

C. SAFETY PRECAUTIONS AND CAUTIONS BEFORE INSTALLATION

- Follow all applicable province/state and local regulations.
- Handle your water softener carefully. Do not lie on side, turn upside down, drop or drag.
- This unit requires softener salt (sodium chloride) to regenerate. Softener salt is available at most retailers. Persons on sodium restricted diets should consider the added sodium as part of their overall intake. Potassium chloride can be used as an alternate in such situations. Please consult Rainfresh technical support.
- Install a pressure regulator and water hammer arrestor if pressure exceeds maximum rating at any time. Note: If daytime pressure is over 80 psi, night time pressure may exceed maximum pressure rating.
- Do not install on water that is microbiologically unsafe without adequate disinfection before or after the unit. For effective disinfection install a Rainfresh Drinking Water System or Rainfresh UV disinfection system.
- For use on cold water only.

- Only use thread seal tape (Teflon® tape) for fitting connections into unit. DO NOT USE pipe dope or chemical • sealants.
- If water pipes are used to ground electrical system, install jumper wire (#4 gauge solid copper wire) across the unit to maintain proper grounding of your electrical system
- **Protect your unit from freezing** drain the unit if freezing temperatures exist.
- NOTE: IF SOLDER TYPE FITTINGS ARE USED DO NOT USE torch near inlet/outlet connections. All solder joints should be made before joining pipe to filter head. Use only lead-free solder and flux.
- DO NOT over-tighten metal fittings on to unit connections.
- Place the unit on a flat level surface. Do not place shims under the unit to level it. The weight of the unit full of water and salt can cause the cabinet to crack at the shim.
- The unit should only be moved by 2 or more people due to heavy weight. Failure to do so can result in injury.
- The unit must be installed in an area where there is reasonable access to the salt tank for regular salt filling.

D. INSTALLATION

Electrical Requirements:

- The automatic control valve requires a constant power supply 110V AC. We recommend a GFI (ground fault interrupter) outlet within 5 feet of the softener. Extension cords are not recommended.
- If water pipes are used to ground electrical system, you will need to install a jumper wire across the filter unit.

Unpacking the unit

The unit includes:



Unpack the unit and *discard the plastic air pack* inside the unit. Place the unit at the location where you intend to install it.

- Stand back and look at the softener to make sure it is standing straight up and not tilted to one side. Make sure your chosen location will be fairly level, dry, and protected from possible freezing conditions. The softener can sit directly on the floor and will not corrode. DO NOT set the softener onto make shift platforms as this can damage the salt tank, or may cause it to topple.
- The system has 3 connections an inlet, an outlet, and a drain line connection. If you are looking at the back of the unit (**fig 1**), the inlet is on the left side. Warning: Make sure that you have correctly identified the inlet of the system. REVERSING THE CONNECTIONS WILL RESULT IN RESIN BEADS BEING THROWN INTO YOUR HOME'S PLUMBING SYSTEM CAUSING DAMAGE TO IT AS WELL AS THE SOFTENER.



The following pipe can be used for installing your new system - Copper, CPVC, and PEX are the most popular.

Installation Location Installation location for city (municipally treated) water







Installation location for well water



Plumbing in your softener

- If your hot water tank is electric, turn off the power to it to avoid damage to the element in the tank.
- If you have a private well, turn the power off to the pump then shut off the main water shut off valve. If you have municipal water, simply shut off the main valve. Go to a faucet, (preferably on the lowest floor of the house) turn on the cold water until all pressure is relieved and the flow of water stops.

- Position the softener in the desired location. The unit comes with two 90° ¾" male NPT elbow fittings (see fig 1). You can rotate them at any angle to suit your installation. Make sure that the bypass valve is in bypass mode as shown in fig 2.
- Note: To change the connection fitting, simply remove the locking clips by hand and pull the fitting out. Insert new fitting and reinstall locking clip (fig 3).
- Plumb in the softener using appropriate fittings.
- Unscrew the cabinet top using a screwdriver and move the top aside, making sure that the electronic cable underneath does not detach from the circuit board.
- Attach the drain hose (15 ft included) to the drain fitting and secure it with a hose clamp (fig 4) (included).
- Run the drain line to a nearby laundry tub, standing pipe or floor drain (fig 5) and cut off excess tubing.

NOTE ABOUT DRAIN LINE: You can run the drain hose from the unit to the ceiling joists (max 8 ft ceiling) and run it to the nearest laundry tub or drain pipe. This can be run up overhead or down along the floor. Use band clamps to hold the drain tubing in place. If running drain line more than 15 feet from the softener (max 25 ft), increasing the line size to 3/4" will be required. Please follow your local plumbing & other applicable codes for where to run softener discharge water. NEVER MAKE A DIRECT CONNECTION INTO A WASTE WATER DRAIN. A PHYSICAL AIR GAP OF AT LEAST 1.5" SHOULD BE USED TO AVOID BACTERIA AND WASTEWATER TRAVELING BACK THROUGH THE DRAIN LINE INTO THE SOFTENER (see **fig 5**). If you have other water conditioners, such as an iron filter, carbon filter, tannin filter etc., RUN



THE DRAIN TUBING FOR EACH UNIT SEPARATELY. DO NOT TEE (COMBINE) DRAIN TUBING FROM OTHER UNITS.



You can also use code-approved air-gap attachments available at most plumbing stores.

- Attaching the overflow tubing: If the overflow fitting is not pre-attached to the cabinet, then drill a ¾" hole on the side of the softener about ¾ of the way from the bottom (fig 6). Insert the over flow fitting from the outside and tighten the nut from the inside to lock it.
- Attach the rest of the drain tubing to the overflow fitting and run to the floor drain with an appropriate air gap, as shown in fig 5. If you do not have any more drain tubing left, you will need to purchase extra tubing at your local plumbing retailer. WARNING : DO NOT TEE THE OVERFLOW TUBING TO THE DRAIN TUBING
- Re-attach the cabinet top and secure it with the screws.

Fig 6

- The salt tank is pre-connected to the control head. Lift the cabinet lid and add about 5 gallons of water in the salt tank. This is not a critical level but just helps with the process for the first regeneration. Then add 2 bags (20 Kg bags) of salt to start with. DO NOT ADD MORE THAN 2 BAGS OF SALT to prevent salt bridging.
- Turn main house shut-off valve on slightly and watch for leaks. Ensure a faucet is on somewhere and that its aerator is removed to avoid clogging from loosened scale in the pipes. If you have no leaks, proceed to the next steps.

Turn on the water supply

- Using the Allen key (included), turn the bypass <u>inlet</u> slightly (refer to fig 2) to allow water to run into the unit. The water should initially fill the tank slowly. Once the tank is full of water, you can open valve fully. This prevents resin from being pushed up into the control head by the initial surge of water going in.
- Make sure there are no leaks in your plumbing before proceeding.
- At the nearest cold treated water tap remove the faucet screen and open the faucet. Using the Allen key (included), open the <u>outlet side</u> of the bypass valve and let water run a few minutes or until the system is free of any air or foreign material resulting from the plumbing work. Close the water tap when water runs clean, and then proceed to start up instructions.
- Connect the control value to the power adapter (fig 7) & connect the adapter to the power supply.

NOTE: Your unit is not yet ready for service until you complete manual regeneration (see pages 7-11)

E. START UP & PROGRAMMING

The control valve is controlled with simple, user-friendly electronics displayed on an LCD screen.

When power is first supplied, the valve electronics may take up to a minute to initialize. During this time the screen may show "INTIALIZING WAIT PLEASE". Do not touch any buttons at this time. When the valve reaches the service position, it will display the following information in sequence. THIS IS NORMAL

- 1. Date & Time
- 2. Total & Remaining Gallons
- **3.** No. of people in the house & Reserve Capacity
- 4. Estimated days left for next regeneration
- 5. Last Regeneration date
- 6. Total # of regenerations
- 7. Total Treated Gallons of water
- 8. Overrun Total

The control valve has a display screen and 4 buttons

- 9. Current and Peak water flow rate
- 10. Day override
- 11. Rinse override
- 12. Delayed Regeneration
- 13. Regeneration Time
- 14. Refill Time
- 15. Valve Model
- 16. Valve ID





PROGRAMMING

(I) LANGUAGE SELECTION





20 + 5 x (0.3) = 20 + 1.5 = 21.5 GPG

Note: If you do not know your water hardness, we highly recommend that you get a water test to confirm this. Until then you can leave the setting at default.





(III) ADVANCED PROGRAMMING

In the advanced programming, you can change individual regeneration cycle times. DO NOT change these without confirming with Rainfresh technical support. By changing these values your unit can malfunction





Disinfecting the Softener

It is possible that during shipping, storage & installing, bacteria can go into the unit. Therefore, as a good installation practice, it is recommended that the softener be disinfected prior to use. To disinfect, open the lid of the brine well in the salt tank and add approx. 3 tablespoons of fresh common household bleach. Replace lid & proceed to manual regeneration.

Manual Regeneration

To perform a manual regeneration, follow the following steps.

YOUR UNIT IS NOW READY FOR SERVICE

F. OTHER FEATURES

Control operation during a power failure

In the event of a power failure, the valve will keep track of the time and day for 48 hours. The programmed settings are stored in a non-volatile memory and will not be lost during a power failure. If power fails while the unit is in regeneration, the valve will finish regeneration after power is restored. If the valve misses a scheduled regeneration due to a power failure, it will queue regeneration at the next regeneration time once power is restored.

Safety float

The brine tank is equipped with a safety float which prevents your brine tank from overfilling as a result of a malfunction such as a power failure.

New sounds

You may notice new sounds as your water softener operates. The regeneration cycle lasts approximately 2 hours. During this time, you may hear water running intermittently to the drain.

Manual bypass

In the case of emergency, such as an overflowing brine tank, you can isolate your water softener from the water supply using the bypass valve located at the back of the control. To resume soft water service, open bypass valve by rotating the knobs counterclockwise.





Open this lid & pour bleach inside

G. MAINTENANCE

Adding Salt

Fill the salt tank only with nugget or pellet salt that is specifically for water softeners only. **DO NOT USE rock salt, road salt or other types of impure salts.** Use only high grade water softener salt (Sodium Chloride). You can use Potassium Chloride but you will need to increase salt settings to "Iron & Mn" (see bullet 18, page 9). Check the salt level monthly. It is important to <u>ALWAYS maintain the salt level above the water level</u>. To add salt, simply slide the cabinet lid and add the salt directly into the brine tank. Be sure the brine well cover is on and fill only to the height of the brine well. The salt tank should never be empty.

WARNING : DO NOT OVERFILL THE SALT TANK TO THE TOP. Once you can see the water level in the tank, do not fill more than 2-3 bags of salt.

Preventing and breaking a Salt Bridge

Humidity or wrong type of salt may create a cavity between the water and the salt. This action, known as "bridging", prevents the brine solution from being made, leading to your water supply being hard. If you suspect salt bridging, pour some warm water over the salt to break up the bridge. Allow at least four hours to produce a brine solution, and then manually regenerate the softener. This should always be followed up by allowing the unit to use up any remaining salt and then thoroughly cleaning out the brine tank.

If you are unable to break the bridge this way, take a strong rod and carefully push down the salt, working it up and down (see fig on the right). **Do not** pound on the walls of the tank. If the wrong kind of salt has been used, take it out and fill with nugget or pellet salt.

Care of Your Softener

To retain the attractive appearance of your new water softener, clean occasionally with mild soap solution. Do not use abrasive cleaners, ammonia or solvents.

Cleaning the Injector Assembly

Sediment, salt and silt will restrict or clog the injector. A clean water supply and pure salt will prevent this from happening. The injector assembly is located on the right side of the control valve. This assembly is easy to clean.

Shut off the water supply to your softener and reduce the pressure by opening a cold soft water faucet. Using a screwdriver, remove the two screws holding the injector cover to the control valve body. Carefully remove the assembly and disassemble as shown in Figure 6. The injector orifice is removed from the valve body by carefully turning it out with a large screwdriver. Remove the injector throat the same way. Carefully flush all parts including the screen. Use a mild acid such as vinegar to clean the small holes in the orifice and throat.



Reassemble using the reverse procedure.







H. TROUBLESHOOTING

Please consult the following troubleshooting guide before calling customer service.
If you are unable to resolve the problem using the guide below, please call Customer Service at 18006678072 (Monday to Friday 8:30 am to 5:00 pm Eastern Time)

• Please have your receipt and model number ready before calling. Customer service can request digital photos of your installation to help resolve the unit.

ISSUE	POSSIBLE CAUSE	POSSIBLE SOLUTION
A. Unit fails to start	1. No power supply	1. Check electrical service & re-set time of day
a regeneration	2. Defective circuit board	2. Replace circuit board
cycle	3. Defective motor	3. Replace motor
	4. Defective meter	4. Replace meter
B. Water is hard	 Bypass valve is closed 	1. Open bypass valve
	2. No salt in salt tank	2. Add salt to salt tank
	3. Plugged injector/screen	3. Clean parts (see page 12)
	4. Leak between valve and riser tube	4. Check if riser is cracked or O-ring is
	5. Internal valve leak	damaged. Replace faulty parts
		5. Replace valve seals, spacer and piston assly
C. Salt use is high	1. Salt setting high	1. Under ADVANCED PROGRAMMING change
		salt setting to high efficiency (not
		recommended for water with iron)
D. Low water	1. Iron or scale buildup in line feeding	1. Clean/replace supply line
pressure	softener	2. Clean control valve & add resin cleaner to
	2. Iron buildup inside valve or tank	clean bed. Increase regeneration frequency
	3. Inlet of control valve plugged due	3. Clean control valve inlet
	to dirt	
E. Resin in drain line	1. Air in water system	1. Check well system for proper air elimination
	2. Incorrect or missing drain line flow	2. Check and replace DLFC
	control (DLFC)	3. Check and secure all connections from valve
	3. Unit sucking air during brine draw	to brine safety float
F. Too much water	1. Plugged injector or screen	1. Clean parts (page 12)
in brine tank	2. Plugged brine valve	2. Clean parts
	3. DLFC plugged	3. Clean DLFC
G. Unit fails to draw	1. DLFC plugged	1. Clean DLFC
brine	2. Injector or screen is plugged	2. Clean parts
	3. Inlet pressure too low	3. Increase min pressure to at least 25 psi
	4. Internal valve leak	4. Replace seals, spacer & piston assembly
H. Unit cycles	1. Defective circuit board	1. Replace faulty parts
continuously		
I. Water flows to	1. Valve settings incorrect	1. Check valve settings
drain	2. Internal leak	2. Replace seals, spacer & piston assembly
continuously		

Need help troubleshooting? Call Toll Free 1-800-667-8072 Monday to Friday 8:30 AM to 5 PM EST.

I. PARTS LIST



INJECTOR SET #1 WHITE THROAT

NOZZLE #1 WHITE THROAT

60010609 60010610

No.	Part # (WaterGroup)	Part# (Canature	Description	Qt
A48	60010656	21499033	QC BRINE ELBOW	1
A47	60010088	05056108	BLFC Fitting Nut	1
A46	60010087	05056033	BLFC Ferrule	1
A45	13244	05056100B	BLFC Copper Fitting	1
A44	60010083	05056138	0-Ring-@14×1.8	1
A42	60010081	05056035	BLFC Button Retainer	1
A41	60010229	05010082	Drain Fitting-B	1
A39	60010069	05056172	Secure Clip-S	1
A38	60010089	05056086	Screw-M5×30(Hexagon with Washer)	2
A37	60010090	05056029	Injector Cover	1
A36	60010091	05056205	0-RING(23.9×1.8)	1
A33	10227	05056103	Injector Screen	1
A32	60010093	05056177	Injector Body	1
A31	60010094	05056067	0-Rinq-φ7.8×1.9	2
A30	60010095	05056037	Air Disperser	1
A29	12638	05056066	0-Ring- φ11 ×2	1
A28		injector Injector 0-Ring-q Injector 0-Ring-q1 Injector 0-Ring-q1 0-Ring-q1 Injector Injector Special W	Injector Seat	1
A27	Ι		Injector Stem	1
A26	Ι		0-Ring-q12×2	- 2
A25	t		Injector Spacer	1
A24	(0022		Quad Ring	1
A23	60032		0-Ring-φ12.5×1.8	1
A22			Injector Cap	1
A21	I		Injector Screen	1
A20			Special Washer	1
A19			Retaining Ring	1
A18	60010076	05056088	Screw-M5×16(Hexagon with Washer)	- 2
A17	60010075	05056087	Screw-M5×12(Hexagon)	3
A10	14241	05056204	Spacer	- 8
A9	13242-02	05056073	Seal	5
A 8	60095083	05030001	Bnt85 Valve Body	1
A7	60010077	05056063	0-ring-p78.74×5.33	1
A6	60010080	26010103	0-ring-φ25×3.55	1
A 5	60010599	07060007	Valve Bottom Connector	1
A 4	60010099	13000426	Screw-ST2.9×13(Large Wafer)	- 2
A3	60095614	05030013	0-ring-φ30×2.65	1
A2	60095063	05030004	Bnt85 End Cover	1
A1	60010596	05056508	Screw-M5×12(Hexagon with Washer)	- 5
A16	60010645	05056047	End Plug Retainer	Г
A15	60010508	05005605	End Plug	Γ
A14	60095082	05030002B	Bnt85 Piston Rod	\uparrow
A13	60010647	05056097	Piston Pin	
A17	30010011	05056077R	Piston Retainer	+
		1 00000000000000	r stor netallier	

Г



	DESCRIPTION		
1 Control Valve Display Module			
2	Top distributor		
3	Riser		
Δ	Media Tank for model 30C – 9"x 35		
4	Media Tank for model 40C – 10"x 35		
5	Softener resin		
6	Cabinet		
7	Cabinet top cover		
8	Brine safety float		
9	Brine Well		
10	Salt (not included)		
11	Bottom Distributor		
12	Power adapter (110V)		

To order replacement parts: Call 1800 667 8072 Monday to Friday 8:00 AM to 5 PM EST.

J. Limited Warranty

This "C" Series Softener System is warranted to the original Consumer purchaser for a period of one (1) year, from the date of purchase, against defects in materials or workmanship. The electronic controls and mineral tank are warranted for 5 and 10 years respectively against defects in materials or workmanship. The company's obligation under this warranty shall consist of repair or replacement, at its option, of any part found by company inspection to be defective, provided that the product has not been misused, abuse, altered or damaged by Consumer with respect to the original installation, as determined by the company. This warranty will not apply if water passing through the System has a) Turbidity / Suspended Solids > 5 ppm (mg/l). b) Hydrogen Sulphide concentrations greater than 0.05 mpm (0.05 mg/l). c) Iron concentration greater than 0.5 ppm (0.5 mg/l) or Manganese greater than 0.05 ppm (0.05 mg/l), f) Tannins or colour. This limited Warranty applies only to a unit when returned to the Warrantor at the owner's expense and in accordance with shipping instructions received from the Warrantor. This warranty does NOT cover, and is intended to exclude, any liability on the part of Envirogard for any incidental damages, consequential damages, labour charges or any other costs incurred in connection with the purchase, installation, use, maintenance or repair of the system whether under this warranty or any other warranty implied by law. Some province/states do not allow the exclusion of incidental or consequential damages, so 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 province/state to province/state. This warranty applies only to softeners purchased in Canada or the U.S.A.





Envirogard Products Limited

446 Major Mackenzie Drive East, Richmond Hill, ON L4C 1J2, Canada **Tel :** (905) 884 9388 **Helpline:** 1800 667 8072 **Web:** www.rainfresh.ca

16