

Water Softener

Economy Softener Model

Owner's Manual



ECONOMY SOFTENER

Table of Contents

Introduction 4

General Warnings 4

Pre-Installation 5

Best Practices for Piping 6

System Setup 7

Installation Instructions 8

General Operation..... 9

Manual Regeneration 12

Operation Settings 13

Specifications 14

Quick Reference Specifications 15

Troubleshooting Procedures 16

Maintaining your Economy Softener 18

Warranty 19

Introduction

Economy Model

Owner's Manual

This Quick Start Guide is specifically designed for the Economy Softener system from Water Depot. The guide is designed to aid in installation, general set-up and troubleshooting. More information online: www.waterdepot.com

GENERAL WARNINGS

If on a rural water source, test water to ensure it is microbiologically safe. If your water is contaminated, it will need to be treated with a different system, speak to a Water Depot Treatment Specialist for more information. The Economy Water Softener does not treat or remove bacteria, cysts or viruses.

All cities are subject to different plumbing codes. It is the purchaser or installer's responsibility to adhere to local codes when installing a water softener. Use extra care when moving your Economy Softener system. Keep upright – do not lay on its side or turn upside down. Keep the brine tank lid on at all times unless servicing or refilling the tank. Follow these general warnings, instructions and the specifications in Table 1. The control valve, fittings and/or bypass are designed to accommodate minor plumbing misalignments, but are not designed to support the weight of a system or the plumbing.

The pipe size for the drain line should be a minimum of ½". Backwash flow rates in excess of 7 GPM or length in excess of 20' require a ¾" drain line. Solder joints near the drain must be done prior to connecting the drain line flow control fitting. Leave at least 6" between the drain line control fittings and solder joints when soldering pipes that are connected on the drain line control fitting. Failure to do this could cause interior damage to the drain line flow control fitting.

When assembling the installation fitting package (inlet and outlet), connect the fitting to the plumbing system first and then attach the nut, split ring and O-ring. Heat from soldering or solvent cements may damage the nut, split ring or O-ring. Solder joints should be cool and solvent cements should be set before installing the nut, split ring and O-ring. Avoid getting primer and solvent cement on any part of the O-rings, split rings, bypass valve or control valve.

- Do not install or store where the unit will be exposed to temperatures below freezing or exposed to any type of weather. Water freezing in the system will damage the unit and void warranty. Do not attempt to treat water over 100°F, as this will also damage the system and void the warranty.
- Do not install in direct sunlight. Excessive sun or heat may cause distortion or other damage to non-metallic parts.
- Do not use Vaseline, oils, other hydrocarbon lubricants or spray silicone anywhere. A silicone lubricant may be used on black O-rings but is not necessary. Avoid any type of lubricants, including silicone, on the clear lip seals.
- Do not use a pipe wrench to tighten or loosen nuts or caps. The nuts and caps are designed to be unscrewed or tightened by hand or with the special plastic wrench. If necessary, pliers can be used to unscrew the nut or cap.
- Do not place a screwdriver in the slots on caps and/or tap with a hammer.
- Do not use pipe dope or other sealants on threads. Use Teflon tape on the threaded inlet, outlet and drain fittings. Teflon tape is not necessary on the nut connection or caps because of O-ring seals.

Note: All electrical connections must be connected according to local codes, be certain the outlet is uninterrupted. Install grounding strap on metal pipes.

Pre-Installation

Economy Model

Owner's Manual

HOW THE ECONOMY SOFTENER WORKS

Inside the media tank there are electrically charged resin beads. The charged resin beads collect and hold hard minerals like a magnet. Once the hardness capacity of the unit has been reached (this varies depending on the size of the unit and how hard the water is), those minerals are rinsed away to drain during a regeneration process. The regeneration process cleans and recharges the beads with a brine solution created using the softener salt in the brine tank. The brine solution is then rinsed away via the drain line and the system is ready for operation.

NOTE: During the regeneration process the system is cleaning itself. This means that any water being used by the household during this process will not be treated. This is why we pre-program the unit to regenerate overnight at 2am. If you find are using water at this time, choose a different time when water will not be utilized for a few hours.

PRE - INSTALLATION

- We strongly recommend having an **untreated** sample of your water tested before installation. This will allow you to correctly program your hardness into the Economy (See General Operations – “Adjusting Hardness”). This test will also show you anything that may hinder the operation of your system, like Iron. Ask a Water Depot Professional for more information.
- If you are going to be turning off the water to the house and you have an electric water heater, shut off the power to the water heater before beginning installation just in case water heater is accidentally drained.
- Pick a suitable location for your system. It must be installed on a dry, level spot, where it won't be exposed to freezing temperatures.
- A minimum of 20 PSI and maximum pressure is 90 PSI is required.
- Gather all plumbing parts and tools before beginning installation. Installation typically takes 3 to 5 hours.

After the system is installed and running your water may be discolored, or full of sediment or rust. If you have older piping that has been exposed to sediment, iron or manganese for some time, you may notice discoloration. Typically this clears up over a day or two, but can persist for weeks if the pipe is made of old, galvanized iron that has corroded.

Best Practices for Piping & Drain Installation

- See the general installation diagram (Fig 1). If a pressure tank is present, install Economy Softener System after.
- Connect the unit to the main water line BEFORE your water heater. Do not allow hot water to run through your Economy Softener.
- Make sure to connect the inlet pipe to the Economy Softener inlet and the outlet to the Economy Softener outlet (see Fig 2). You can see the in and out arrows on the bypass valve which is where the pipes are connected. Unit will not work if connected backwards.
- It is optional to have a working gate or ball valve before the water softener and also one after. If you are installing multiple filter systems (such as iron filter then water softener) you do not need a valve in between each system. The pressure gauges are also optional and not necessary, but a hose bib is strongly recommended after the water softener before the second ball valve. This makes it easy to rinse your new softener on start-up and gives you a place to test the water before it enters your household plumbing.
- If you will be using copper piping, do not sweat the copper pipe directly to the plastic bypass valve. Avoid heating up the bypass valve with the torch or hot pipe.
- You do not need unions to install your Economy Softener. If you need to remove it, the Water Depot Economy Softener has union couplings on the bypass valve that make it easy to put the system on bypass and remove the unit from the piping.
- The drain line tubing (not supplied) is connected to a drain from the drain outlet using flexible ½" ID tubing. Note that the drain can run up above the Economy Softener System and into a drain, it does not have to drain down, although we find better long term results with a draining down position. Most plumbing codes require an air-gap connection, so that if your sewer or septic tank backs up, it cannot cross connect with the drain tubing.

NOTE: Watering the garden or irrigating your landscaping with softened water is not recommended. This will require more salt than usual to be used and in some cases, the sodium can build-up in the soil causing some problems to sensitive plants. It is not often difficult to run hard water (not-softened lines) to the irrigation thereby bypassing the water softener.

Economy System & General Install

Economy Model

Owner's Manual



Figure 1

Top View of Connections

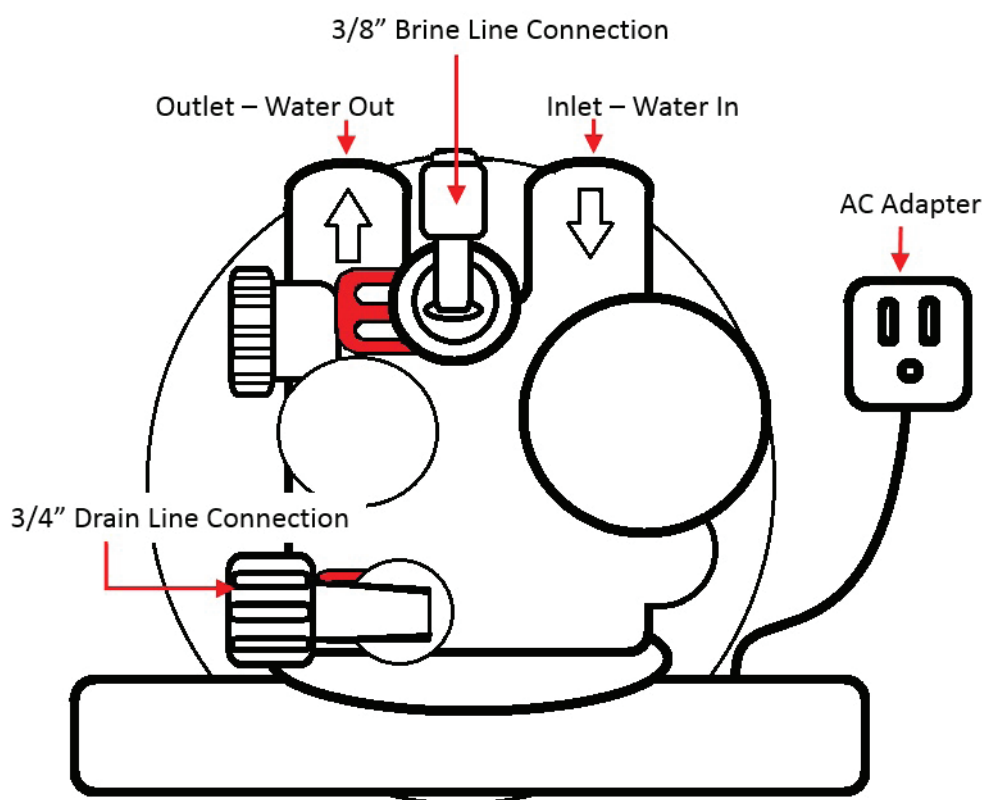


Figure 2

INSTALLATION INSTRUCTIONS

1. Install inlet and outlet piping, drain tubing, and brine line tubing (Fig 2). The brine line tube is included and is shipped inside the brine tank.
2. Connect the over-flow fitting (Fig 1) on the side of the brine tank to a floor drain.
3. Place 2-3 bags of Solar Salt into the brine tank. It is OK to use any kind of water softening salt; however, we find that Solar Salt works best, and does not create build-up in the brine tank.
4. Put the bypass in the normal operation position and open a cold water valve slowly to release the air from the tank and let run for approx. 20 minutes or until water is clear (water may be slightly discolored, this is normal on initial set-up).
5. See the Programming Directions (Fig 3) for instructions on how to program and set softener. Your softener is already programmed for the size tank you have, but you will need to set the current time of day and program the water softener with your water hardness. When programming add an extra 3 grains to your water hardness number for each part of iron in your water. *A water softener is not an Iron filter. It may remove small amounts but results may be inconsistent and high amounts of Iron may affect the efficiency of the Economy Water Softener.
6. Start a manual backwash by pressing and holding the REGEN button for 5 seconds. Once the regeneration is complete, your Economy Softener should be functioning properly.

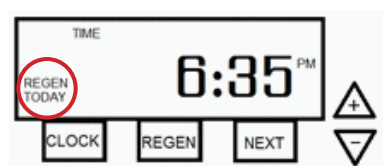
General Operation

Economy Model

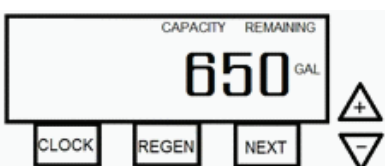
Owner's Manual

When the system is operating you will see three displays: time of day, capacity remaining until regeneration, and the amount of water currently being used in gal/minute. Pressing "NEXT" will toggle between these displays.

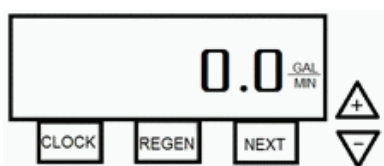
TIME OF DAY



CAPACITY REMAINING



GALLONS/MINUTE



*REGEN TODAY will appear on the display if the system is going to regenerate that evening.

SETTING TIME OF DAY

When initially installing the Economy system or in the event of a prolonged power outage, the time of day will flash, indicating that it needs to be reset. All other information will be stored no matter how long the machine has been without power. Please complete the steps as shown below. To access this mode, press "CLOCK."

Adjust flashing hours with + and – arrows, AM/PM toggles at 12. Press "NEXT" to adjust minutes.

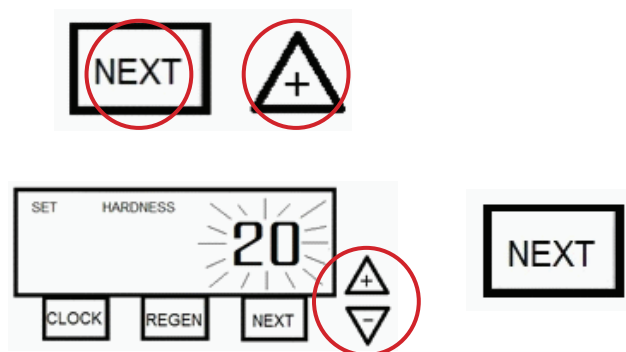


Adjust flashing minutes with + and – arrows. Press "NEXT" to complete and return to main screen.



Adjusting Hardness, Days between Regenerations, and Time of Regeneration

For initial set-up or to make adjustments, please complete the steps as shown below. To access this mode press "NEXT" and "+" simultaneously.



Adjust hardness by using the + and – arrow keys then press "NEXT."

Adjusting Hardness, Days between Regenerations, and Time of Regeneration

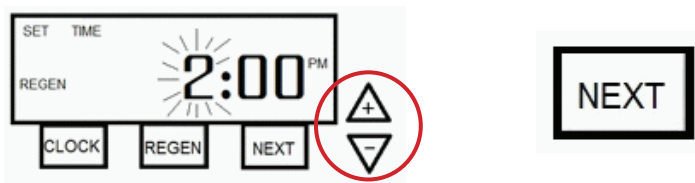
Economy Model

Owner's Manual

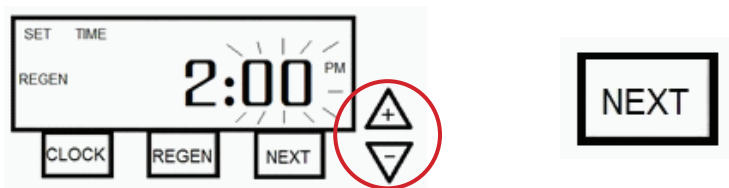
Adjust days between regeneration using + and – arrows. We recommend that this system should go no longer than 14 days without regenerating. When completed press "NEXT."



Adjust time of regeneration hours using the + and – arrows, AM/PM toggles at 12. Press "NEXT"



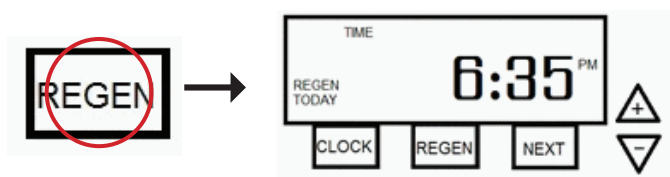
Adjust time of regeneration minutes using the + and – arrows. Press "NEXT" to complete and return to the main display.



Manual Regeneration

NOTE: If brine tank does not contain salt, place salt into the tank and allow at least 2 hours before regeneration. If you need to initiate a manual regeneration, either immediately or that night at the preprogrammed regeneration time, complete the following steps.

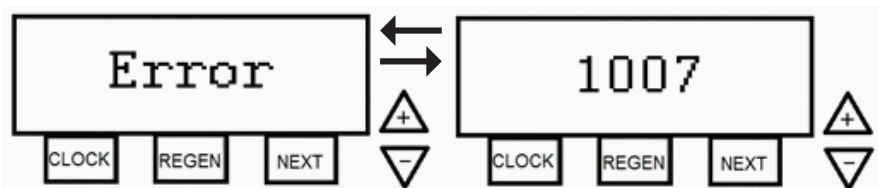
For Regeneration Tonight: Press and release "REGEN." A Flashing "REGEN TODAY" should appear on the display. The system will regenerate at it's preprogrammed regeneration time.



FOR IMMEDIATE REGENERATION Press and hold "REGEN" until you can hear the motor start - this should only take a few seconds.



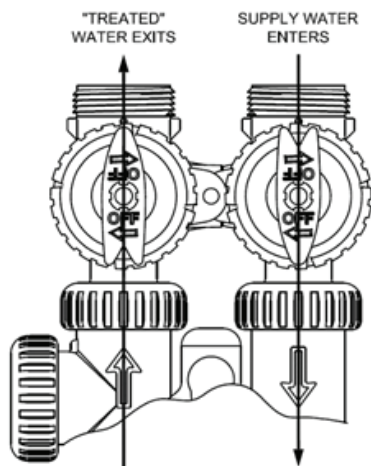
If the display toggles between "Error" and an error code number, call Water Depot and speak with one of our water treatment specialists.



Operation Settings

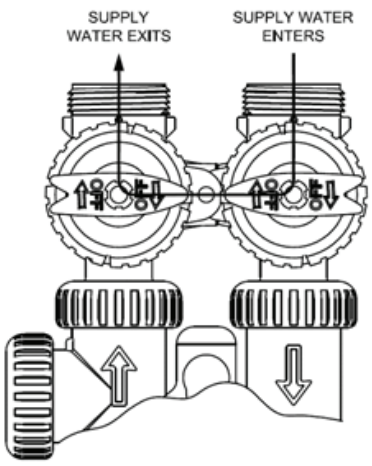
NORMAL OPERATION

The inlet and outlet handles point in the direction of flow indicated by the engraved arrows on the control valve. Water flows through the control valve during normal operation and this position also allows the control valve to isolate the media bed during the regeneration cycle.



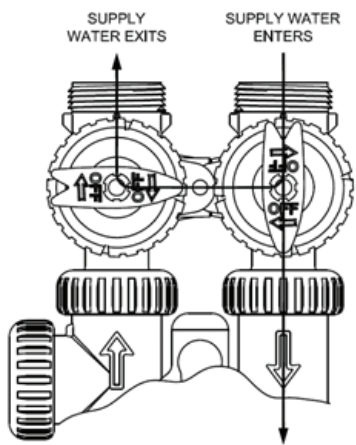
BYPASS OPERATION

The inlet and outlet handles point to the center of the bypass, the control valve is isolated from the water pressure contained in the plumbing system. Untreated water is supplied to the plumbing system.



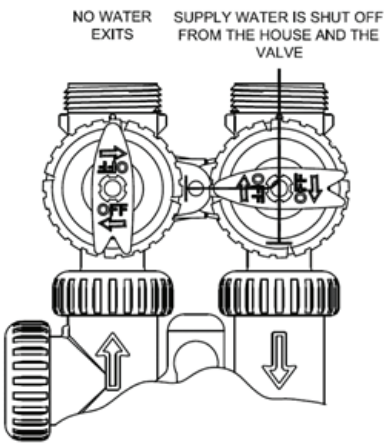
DIAGNOSTIC POSITION

The inlet handle points in the direction of flow and the outlet handle points to the center of bypass valve. System water pressure is allowed to the control valve and the plumbing system while not allowing water to exit from the control valve to the plumbing.



SHUT-OFF POSITION

The inlet handle points to the center of the bypass valve and the outlet handle points in the direction of flow, the water is shut off to the plumbing system. If water is available on the outlet side of the softener it is an indication of water bypass around the system (i.e. a plumbing connection somewhere in the building bypasses the system)



Specifications

Minimum/Maximum Operating Pressures	20 psi (138 kPa) - 125psi (862 kPa)	
Minimum/Maximum Operating Temperatures	40°F (4°C) - 110°F (43°C)	
AC Adapter:	<u>U.S</u>	<u>International</u>
Supply Voltage	120 V AC	230V AC
Supply Frequency	60 Hz	50 Hz
Output Voltage	12 V AC	12 V AC
Output Current	500 mA	500 mA
No user serviceable parts are on the PC board, the motor, or the AC adapter. The means of disconnection from the main power supply is by unplugging the AC adapter from the wall.		

Table below contains a summary of specifications for the control valve and bypass valve.

QUICK REFERENCE SPECIFICATIONS

Service flow rate 1" (includes bypass and meter)	27 gpm (102.2 lpm) @ 15 psig (103 kPa) drop	
Backwash flow rate 1" (includes bypass)	27 gpm (102.2 lpm) @ 25 psig (172 kPa) drop	
Service flow rate 1.25" (includes meter)	34 gpm (128.7 lpm) @ 15 psig (103 kPa) drop	
Service flow rate 1.25" (includes bypass and meter)	32 gpm (121.1 lpm) @ 15 psig (103 kPa) drop	
Backwash flow rate 1.25"	32 gpm (121.1 lpm) @ 25 psig (172 kPa) drop	
Backwash flow rate 1.25" (includes bypass)	30 gpm (113.5 lpm) @ 25 psig (172 kPa) drop	
Minimum/Maximum Operating Pressures	20 psi (138 kPa) - 125 psi (862 kPa)	
Minimum/Maximum Operating Temperatures	40°F (4°C) - 110°F (43°C)	
AC Adapter:	<u>U.S</u>	<u>International</u>
Supply Voltage	120 V AC	230V AC
Supply Frequency	60 Hz	50 Hz
Output Voltage	12 V AC	12 V AC
Output Current	500 mA	500 mA
Regenerant Refill Rate	0.5 gpm (1.9 lpm)	
Injectors	See Injector Graphs	
Drain Line Flow Controls	See Table 7	
Inlet/Outlet Fitting Options	(a) 1" NPT elbow which has a unique drill out feature to allow a 1/4" NPT connection to the inlet and/or outlet (b) 3/4" & 1" PVC solvent weld fitting	

Quick Reference Specifications

	(c) 1" straight brass sweat fitting (d) 3/4" straight brass sweat fitting (e) 1" plastic male NPT fitting (f) 1 1/4" plastic male NPT fitting (g) 1" plastic male BSPT fitting (h) 1 1/4" plastic male BSPT fitting
Distributor Tube Opening WS1HR&HS Valve	1.05" outside diameter (3/4" NPS)
Distributor Tube Opening WS1.25HR&HS Valve	1.32" outside diameter (1" NPS) 32 mm outside diameter
Tank Thread	2 1/2" - 8 NPSM
Control Valve Weight	4.5 lbs. 2.0 kg
PC Board Memory	Nonvolatile EEPROM (electrically erasable programmable read-only memory)
Compatible with regenerants/chemicals	Sodium chloride, potassium chloride, potassium permanganate, sodium bisulfite, chlorine and chloramines.

Troubleshooting Procedures

1. Timer does not display time of day	a. AC adapter unplugged	a. Connect Power
	b. No electric power at outlet	b. Repair outlet or use working outlet
	c. Defective AC adapter	c. Replace AC adapter
	d. Defective PC board	d. Replace PC board
2. Timer does not display correct	a. Switched outlet	a. Use uninterrupted outlet
	b. Power outage	b. Reset time of day
	c. Defective PC board	c. Replace PC board
3. No softening/filtering display when water is flowing	a. Bypass valve in bypass position	a. Put bypass valve in service position
	b. Meter connection disconnected	b. Connect meter to PC board
	c. Restricted/stalled meter turbine	c. Remove meter and check for rotation or foreign material
	d. Defective meter	d. Replace meter
	e. Defective PC board	e. Replace PC board
4. Control valve regenerates at wrong time of day	a. Power outages	a. Reset control valve to correct time of day
	b. Time of day not set correctly	b. Reset to correct time of day
	c. Time of regeneration	c. Reset regeneration time
	d. Control valve set at "on 0" (immediate regeneration)	d. Check control valve set-up procedure regeneration time option
	e. Control valve set at NORMAL + on 0	e. Check control valve set-up procedure regeneration time option
5. ERROR followed by code number ERROR code: 1001 - Unable to recognize start of regeneration ERROR code: 1002 - Unexpected Stall ERROR code: 1003 - Motor ran too long, timed out trying to reach next cycle position	a. Control valve has just been serviced	a. Press NEXT and REGEN for 3 seconds or unplug power source jack (black wire) and plug back in to reset control valve
	b. Foreign mater is lodged in control valve	b. Check piston and spacer stack assembly for foreign matter.
	c. High drive forces on piston	c. Replace piston (s) and spacer stack assembly
	d. Control valve piston not in home position	d. Press NEXT and REGEN for 3 seconds or unplug power source jack (black wire) and plug back in to reset control valve

Troubleshooting Procedures

<p>ERROR code: 1004 - Motor ran to long, timed out trying to reach home position</p> <p>If other ERROR codes display contact the factory.</p>	e. Motor not inserted fully to engage piston, motor wires broken or disconnected motor failure	e. Check motor and wiring. Replace motor if necessary.
	f. Drive gear label dirty or damaged, missing or broken gear	f. Replace or clean drive gear
	g. Drive bracket incorrectly aligned to back plate	g. Reset drive bracket property
	h. PC board is damaged or defective	h. Replace PC board
	i. PC board incorrectly aligned to drive bracket	i. Ensure PC board is correctly snapped on to drive bracket
6. Control valve stalled in regeneration	a. Motor not operating	a. Replace motor
	b. No electric power at outlet	b. Repair outlet or use working outlet
	c. Defective AC adapter	c. Replace AC adapter
	d. Defective PC board	d. Replace PC board
	e. Broken drive gear or drive cap assembly	e. Replace drive gear or drive cap assembly
	f. Broken piston retainer	f. Replace drive cap assembly
	g. Broken main regenerant	g. Replace main regenerant piston
7. Control valve does not regenerate automatically when REGEN button is depressed and held	a. AC Adapter unplugged	a. Connect AC adapter
	b. No electric power at outlet	b. Repair outlet or use working outlet
	c. Broken drive gear or drive cap assembly	c. Replace drive gear or drive cap assembly
	d. Defective PC board	d. Replace PC board
8. Control valve does not regenerate automatically but does when REGEN button is depressed	a. Bypass valve in bypass position	a. Put bypass valve in normal operating position
	b. Meter connection disconnected	b. Connect meter to PC board
	c. Restricted/Installed meter turbine	c. Remove meter and check for rotation or foreign matter
	d. Defective meter	d. Replace meter
	e. Defective PC board	e. Replace meter
9. Time of day flashes on and off	a. Power has been more than two hours, the AC adapter was unplugged and then plugged back into the wall outlet, the AC adapter plug was unplugged and then plugged back into the board or the NEXT and REGEN buttons were pressed to reset the valve.	a. Reset the time of day

Maintaining your Economy Softener

PRE-FILTER

A Pre-Filter provides protection for your system by preventing large particles from entering the unit. This helps keep the entire system cleaner, preventing build-up and clogging. The Pre-Filter needs to be replaced periodically. Rate of replacement will vary depending on the quality of the water entering the filter and is recommended for both municipal and rural water supplies (see Figure 1 – Pre-Filter).

KEEP YOU RESIN CLEAN

Resin acts like a magnet for calcium and magnesium. The salt or brine solution then pushes those minerals out during the regeneration process and they get rinsed away to the drain. Iron, manganese, silt, metal particles and organic compounds – are all things that can also be commonly found in water and over time, will coat the resin bead causing inefficiencies, or in some cases, total failure. Using a resin cleaner will prolong the life of your system, and help it run at its best efficiency (see Figure 1 – Res-Care Feeder).

SOFTENER SALT LEVELS

Salt levels need to be checked a few times a month to ensure your unit is working at its best efficiency. Over our 30+ years of experience, we've found that Solar Salt works best for our water softening systems. Solar Salt is a cleaner, purer form of softener salt that does not dirty the brine tank, create salt bridging or mushing. We discovered that water softeners using Solar Salt require less service and have fewer maintenance issues. If your system does not appear to be using any salt – call a Water Depot near you.

3 YEAR LIMITED WARRANTY

Econo Water Softener Three Year Warranty

Congratulations! You have just purchased one of the highest quality water softener products on the market. Please retain your sales order as proof of your warranty.

To whom is this warranty extended?

Water Depot warrants its products to the original purchaser only with proof of sale and guarantees that the products will be free from defects in materials and workmanship from the original date of purchase in the timelines described below:

Softener Warranty

The water softener warranty is a three year limited warranty. The three year warranty covers the valve body and resin tank. There is a one year warranty on labour caused by manufacturer defects.

- 1 year labour warranty applies if the unit was installed by a Water Depot Technician.
- 60 day leak warranty on all installed units.
- Failure to keep salt in your brine tank will void your warranty.

General Provisions

The warranties above are effective provided the Econo Water Softener is operated at water pressures not exceeding 125 psi, and at water temperatures not exceeding 120°F. No warranty is made with respect to defects not reported within the warranty period and/ or defects or damages due to neglect, misuse, alterations, accident, misapplication, physical damage, or damage caused by fire, acts of God, freezing or hot water or similar cause.

THERE ARE NO WARRANTIES ON THE WATER SOFTENER BEYOND THOSE SPECIFICALLY DESCRIBED ABOVE. ALL IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, ARE DISCLAIMED TO THE EXTENT THEY MIGHT EXTEND BEYOND THE ABOVE PERIODS. THE SOLE OBLIGATION OF WATER DEPOT UNDER THESE WARRANTIES IS TO REPLACE OR REPAIR THE COMPONENT OR PART WHICH PROVES TO BE DEFECTIVE WITHIN THE SPECIFIED TIME PERIOD, AND WATER DEPOT IS NOT LIABLE FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES. NO WATER DEPOT FRANCHISE, AGENT, REPRESENTATIVE OR OTHER PERSON IS AUTHORIZED TO EXTEND OR EXPAND THE WARRANTIES EXPRESSLY DESCRIBED ABOVE.

Some provinces do not allow limitations on how long an implied warranty lasts or exclusions or limitations of incidental or consequential damage, so the limitations and exclusions in this warranty may not apply to you. This warranty gives you specific legal rights, and you may have other rights which vary from province to province.



WARRANTY REGISTRATION INFO

Thank you for purchasing from Water Depot. Please activate the warranty on your new product by visiting:

www.waterdepot.com

and clicking Online Warranty Registration