

HARMONY SERIES

WHOLE HOUSE WATER SOFTENER OWNER'S MANUAL

FOR MODEL NO.
AS-HS32D
AS-HS48D
AS-HS64D



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WELCOME

Thank you for choosing Aquasure. Before you starting installing your Aquasure Harmony Series Whole House Water Softener. Please take a few minute to become familiar with the basics.

INSPECTION & PREPARATION

Understanding How The Water Softener Works

The principle behind water softening is simple chemistry. A water softener contains resin beads which hold electrically charged ions. When hard water passes through the softener, calcium and magnesium ions are attracted to the charged resin beads. The result is removal of calcium and magnesium ions which produces soft water.

I. Be Familiar with the System Before Installation



IMPORTANT! Please read the entire manual and become familiar with instructions and parts needed before proceeding with the installation.

Inspect the System

Please take the system and all the components out of the box. Inspect the system and all the connection fittings carefully, make sure nothing is damaged during shipping. If any part is cracked or broken, please do not proceed with the installation and contact Aquasure or your distributor for an exchange or diagnosis.

System Components Breakdown (See Dia. A)

- Aguatrol Valve Electronic Meter
- 4' of 3/8" Brine Line
- Brine Tank
- Bypass Valve
- Drain Line Fitting
- 15' of 1/2" Drain Line
- Top Distributor
- Resin Media
- Resin Tank
- Riser Tube & Bottom Distributor
- Control Valve
- Upper Distributor Basket
- Power Transformer
- Brine Connector Pack
- Small Parts Kit

Required Tool List for System Installation

- Channel Locks
- Screwdriver
- Teflon Tape
- Razor Knife
- Two Adjustable Wrenches
- Plastic inlet and outlet fittings are included with the softener. To maintain full valve flow, 1" pipe to and from the softener fittings are recommended.
- Use copper, bass, or PEX pipe and fittings. Some codes may also allow PVC plastic pipe.
- Additional tools may be required if modification to home plumbing is required.

Required Components not Included with the System

Extra Course Grade or Crystal water softener salt is needed to fill the brine tank

II. System Operation Parameter and Installation checklist



IMPORTANT! The following condition for feed water supply must be met or warranty will be void and manufacturer assumes no responsibility for damage to system or property.

1. Water Temperature Parameter

System must not be installed at an area where it is exposed to direct sunlight and must be protected against freezing and extreme heat.

• Maximum: 100° F (37.8° C) Minimum: 32° F (0° C)

2. Water Pressure Parameter

The maximum allowable inlet water pressure is 125 psi. If daytime pressure is over 80 psi, night time pressure may exceed the maximum allowed water pressure. Use a pressure reducing valve (PRV) to reduce the pressure if needed.

 Maximum: 125 PSI (8.78 kg/cm2) Minimum: 25 PSI (1.75 kg/cm2)

3. Chlorine & Chloramine Tolerance

Softener resin may degrade in the presence of chlorine or chloramines. If the feed water contains chlorine or chloramines, reduced life of the resin could occur. In these conditions, a whole house carbon filtration system with chlorine, chloramine reducing media is recommended.

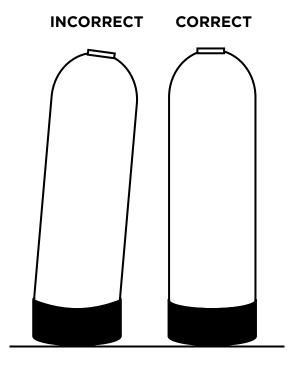
Maximum: 2 ppm

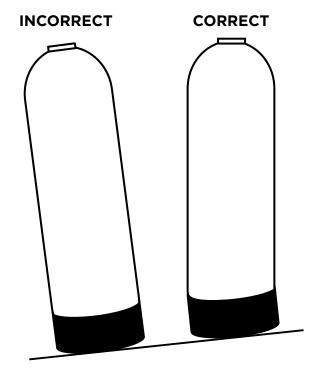
4. Pre-install environment checklist

- Do not use with water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.
- Properly ground to conform with all governing code and ordinances. Use only lead-free solder and flux for all sweat-solder connections as required by state and federal codes.
- Place the softener as close as possible to the pressure tank (well system) or water meter (city water).
- Place the softener as close as possible to a floor drain, or other acceptable drain point (laundry tub, sump, standpipe, etc.).
- Connect the softener to the main water supply pipe before the water heater. Do not run hot water through the softener. Temperature of water passing through the softener must be less than 100° F.
- Outside faucets and irrigation system should be supplied with pre-softened water. If this is not possible, be sure to bypass the softener when watering grass or plants. Chronic soft water exposure can be detrimental to plant life.
- Place softener in a place where water damage is least likely to occur if a leak develops.
- A 120 volt electric outlet is needed within 6 feet of the softener. The transformer has an attached 8 foot power cable. Be sure the electric outlet and transformer are protect from wet weather or water.
- If installing in an outside location, necessary steps must be taken to assure the softener, installation plumbing, wiring, etc. are protected from the elements and contamination
- The resin tank should be located close to a drain to prevent air breaks and back flow.

III. Installation Safety Guide

- Handle with care when moving the water softening system. Do not turn upside down, drop, drag, or set on areas with sharp protrusions.
- The system works on standard 110v power plug only. Do not use any other transformer except the ones that is included with the system
- Transformer must be plugged into an indoor 120 volt, grounded outlet only.
- Use clean water softening salt only with at least 99.5% pure. Extra course grade or crystal salt are recommended. Do not use rock, block, granulated or ice cream making salts. They contain contaminants that could cause problems during maintenance
- Always keep salt lid in place on the softener unless servicing or refilling the unit.
- All of our resin tanks have level adjusting tank bases. These tanks are designed to work with a "floating" base. This allows the tank to be leveled on any surface. Some applications may not have level surface to place the tank. The floating base allows the tank to be leveled within the base and ensure proper operation. Sometimes the based can shift during shipping. It can be adjusted back by lifting the tank up no higher than 5" 10", and letting it drop to help level the base.





INSTALLING THE SYSTEM

IMPORTANT! Locate and test the main water supply valve to the home before installing the system. If the main water supply valve fails to shut off the water completely during the test, we recommend contacting your local plumber to fix the valve before begin installing the system.



WARNING! If the system is installed on a metal (Conductive) plumbing system, i.e., copper or galvanized metal, the plastic components of the system will interrupt the continuity of the plumbing system. As a result, any arrant electricity from improperly grounded appliances downstream or potential galvanic activity in the plumbing system can no longer ground through contiguous metal plumbing. Some homes may have been built in accordance with building codes, which actually encouraged the grounding of electrical appliances through plumbing. A grounded "jumper wire" bridging the equipment and reestablishing the contiguous conductive nature of the plumbing system must be installed prior to your system use.

STEP 1. Shutting off the Main Water Supply Valve



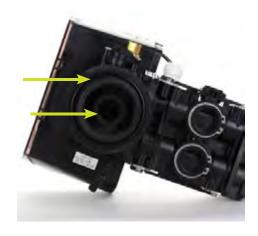
WARNING! If the hot water tank is electric, turn off the power to the hot water tank first to A avoid damage to the element in the tank. If the source water is coming from a private well. Power off the well water pump and then shut off the main water supply valve.

- 1. Locate the main water supply valve of the house and turn off completely by turning the shut-off handle clockwise.
- 2. Test to see if the water is completely shut off by turning on the closest faucet in the cold water position. If the cold water cannot be shut off, please contact your local plumber to fix the valve before begin installing the system.

STEP 2. Softener Preparation

1. Remove the resin tank from carton.

2. Lubricate both O-rings on the bottom of the control valve (center and outer).



3. Install the upper basket on the bottom of the valve by lining up the tabs, pressing in, then turning the basket clock-wise to lock it in place.



4. Place the upper basket over the distributor tube and push the valve on the tank. Thread the valve on the tank by turning it clockwise. Be sure not to cross-thread the valve on the tank. The valve should thread easily in the tank. If not, it may be cross-threaded.



5. Tighten the valve hand tight, then snug it further by tapping it with the palm of the hand. DO NOT use tools to tighten the valve or damage could occur.



STEP 3. Connecting the System



\IMPORTANT! On copper plumbing systems be sure to install a grounding wire between the inlet and outlet piping to maintain grounding.



WARNING! Any solder joints being soldered near the valve must be done before connecting \sim any piping to the valve. Always leave at least 6" (152 mm) between the control valve and joints being soldered when soldering pipes that are connected to the valve. Failure to do this could cause damage to the valve.

- 1. The Aquatrol valve is equipped with 3/4" male NPT connections. It is recommended that these connections are made using Teflon tape.
- 2. The inlet and outlet can be identified on the bypass valve. There are arrows stamped in the bypass valve showing the flow direction. The arrow pointing toward the valve is the inlet and the arrow pointing away from the valve is the outlet.
- 3. Apply the Teflon tape onto the bypass inlet and outlet fittings.
- 4. Connect the inlet and outlet of the softener using appropriate fittings.
- 5. All piping should be secured to prevent stress on the bypass valve and connectors.
- 6. Connect the drain hose to the valve by pressing it into the Quick Connect port. Run the drain hose to the nearest laundry tub or floor drain. This can be ran up overhead or down along the floor. Drain hose should be a minimum of 1/2". If running the drain line more than 20 ft linear, it is recommended to increase the hose size to 3/4" and be sure there is no sags or a "drop" in the hose all the way to the drain destination.

Note: A direct connection into a waste drain is not recommended. 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.

7. Connect the brine line to the control valve by removing the nut on the control valve and sliding it on the brine line. Then install the plastic sleeve on the brine line. Push the brass tube stiffener in the brine line. Install the cone shaped screen in the brass tube stiffener.







8. Push the brine line in the brass fitting on the control valve until it stops. Then push the nut down on the fitting and tighten it hand tight. Use channel locks to tighten the nut an additional 1/2 to 1 full turn.



10. Remove the nut from the brine safety valve outside the white brine well. Slide the nut onto the brine line.



9. Connect the brine line to the brine tank by pushing the brine line through the hole in the side of the tank.



11. Push the brine line into the elbow of the brine safety valve in the brine well until it stops. Tighten the nut hand tight then turn it another 1/2 to 1 full turn with channel locks.



- 12. Pour in at least two bags of salt and 5 gallons of clean water into the brine tank.
- 13. Place the unit in the bypass position. Slowly turn on the main water supply at the nearest cold treated water tap nearby and remove the faucet screen. Open the faucet and let water run a few minutes or until the system is free of any air or foreign material resulting from the plumbing work.
- 14. Make sure there are no leaks in the plumbing system before proceeding. Close the water tap when water runs clear.
- 15. Open the brine tank lid and add 5 gallons of water to the brine tank. Add a minimum of 80lbs of salt to the brine tank.



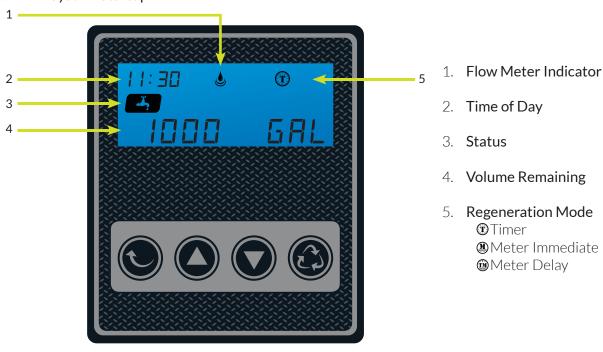
Service Position



NOTE:

The system is not ready for service until you complete the system startup section of this owner's manual

STEP 4. System Startup





Setting Button

- 1. Enter into setting menu
- 2. Confirm the current setting, and enter into the next step
- 3. When used simultaneously with up button, it will enter into master programming



Up / Down Buttons

- 1. Adjust current settings
- 2. Go one step forward or backward



Cycle Button

- 1. Save the setting and return to service
- 2. Enter into queued regeneration mode
- 3. A long press for 5 6 seconds will initiate a immediate regenerate
- 4. Terminate the current regeneration step and goes to the next step
- 1. Plug the power transformer into an approved power source. Connect the power cord to the valve.
- 2. When power is supplied to the control, the screen will display the time of day, gallons remaining and the mode. Press and hold the "Cycle" button. The valve will display "GOTO BW" and will continue to move until it reaches the backwash system.
- 3. Once the valve is in the backwash (BW) cycle the display will show a time value (10), open the inlet on the bypass valve slowly and allow water to enter the unit. Air from the tank will begin to push out of the control valve drain. Allow all air to escape from the unit before turning the bypass fully open. If there is a large "knocking" sound, the water is being fed too quickly and should be slowed. Once there is a steady stream of water coming from the system drain with no air coming out, allow water to run to drain for 3-4 minutes or until all media/resin fines are washed out of the softener which is indicated by clear water in the drain hose.

- 4. When the backwash cycle is complete, the valve will advance to the brine draw (BD) position. Once the valve reaches the BD cycle, push and release the "Cycle" button. The display will show "GOTO RR" (Rapid Rinse). Once the valve reaches the rinse cycle, allow the water to run for the entire rinse cycle
- 5. When the rinse cycle is complete, the valve will advance to the "BF" position. Once in the brine fill position, check that the control valve is pushing water into the brine tank (remove brine well cap to confirm that the water level is rising in the brine tank). Allow the valve to refill for the full amount of time as displayed on the screen to insure a proper brine solution for the next regeneration.
- 6. When the refill cycle is complete, the valve will automatically advance to the SERVICE position. Open the outlet valve on the bypass, then open the nearest treated water spigot or faucet (remove faucet screen to prevent clogging) and allow the water to run until clear, close the tap and replace the faucet screen.

STEP 5. Programing Unit

1. Setting Time of Day

Press the Settings Button to accept and continue.





Default setting is "Timer"

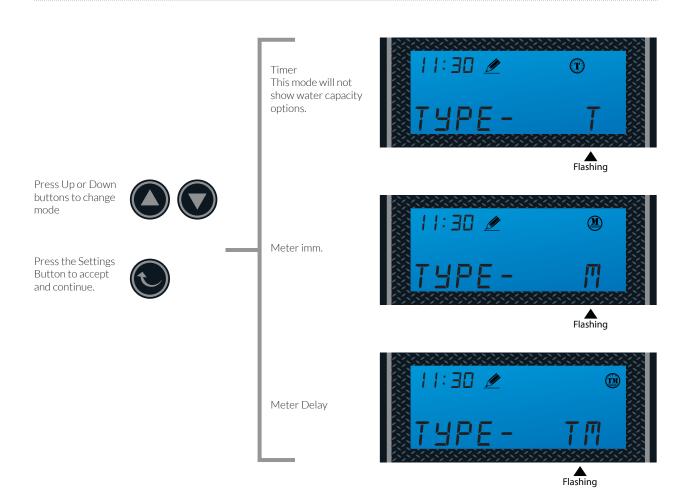
NOTE:

See page 22 for feature and display in regards to each of the three regeneration mode. Choose the mode that best fit your need.





Choose Between Time, Meter Immediate or Meter Delayed

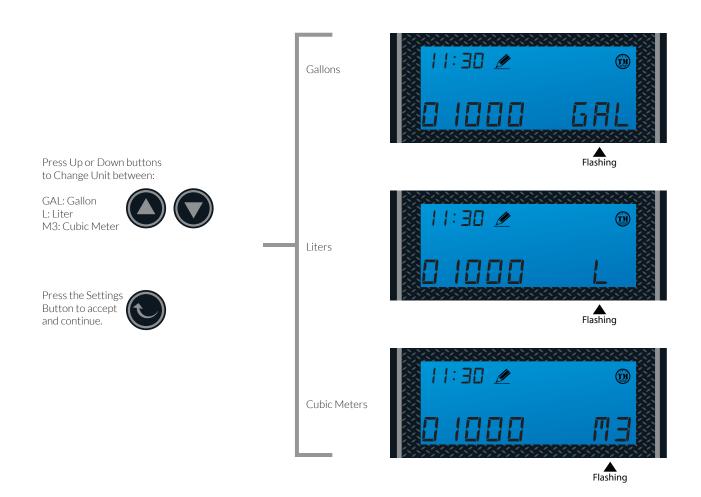








Set Unit Measurement - Gallons, Liters or Cubic Meters



Press Up or Down buttons to set water capacity.



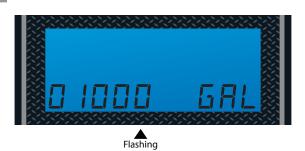


Press the Settings Button to accept, cursor moves left and the number flashes.



NOTE:

Enter the number of gallons that was determined in the Total Gallons Calculation worksheet in page 20. This worksheet must be completed to determine the proper gallons.











4. Regeneration Time and Hours Override



Timer Mode

Default: 2:00 a.m. - 072 hours Hours Override range: 3, 4, 6, 8, 12 hours, then every 24 hours (24, 48, 76... 960)

Meter Imm & Meter Delay Modes

Default: 2:00 a.m. - OFF Hours Override range: Every 24 hours (24, 48, 76... 960)















Use UP and DOWN buttons to adjust Hours Override

Hours Override































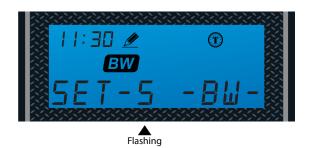














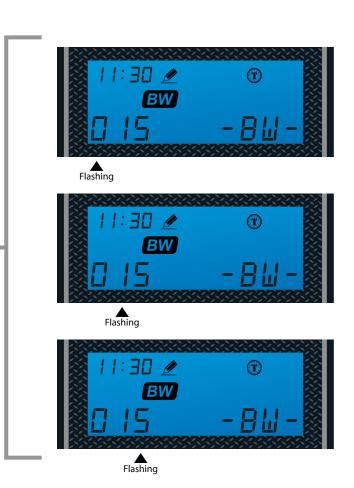
Default setting is 015

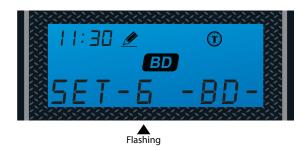
Press Up or Down buttons to change Back Wash time (Minutes) Range: 0 - 999



Press the Settings Button to accept and continue to next digit









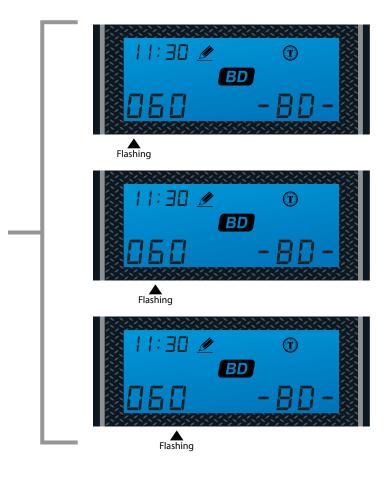
Default setting is 060

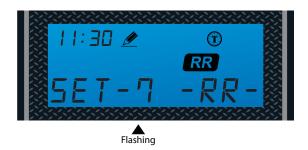
Press Up or Down buttons to change Brine time (Minutes) Range: 0 - 999

Press the Settings Button to accept and continue

to next digit









Default setting is 010

Press Up or Down buttons to change the Rapid Rinse time (Minutes) Range: 0 - 999













Default setting is 012

Press Up or Down buttons to change the Water Filling Time (Minutes) Range: 0 - 999





Press the Settings Button to accept and continue to next digit



NOTE: Use the table below to determine the proper BF setting for your unit.



Davanahar	Aquasure Water Softener		
Parameter	AS-HS32D	AS-HS48D	AS-HS64D
Medium Salt Curve Capacity Setting	32,000	48,000	64,000
Brine Fill Settings in Minutes	6	8	10

TOTAL GALLONS CALCULATION

The Aquatrol valve uses a meter to count the gallons of water being treated through the system. Once the gallons programmed in the unit has been exhausted, the system will regenerate. The total gallons of treatable water the system can produce is based on the system size, family size, and the hardness level of the feed water. A simple calculation is done to determine the amount of gallons to input during the programming portion of the installation.

NOTE: This calculation must be completed to program the unit:

Total Gallons = System Capacity in Grains (see chart below) / Hardness in (GPG) Grains Per Gallon (determined by water test) - Number of People X 75 Gallons

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Parameter	AS-HS32D	AS-HS48D	AS-HS64D
Medium Salt Curve Capacity Setting	32,000	48,000	64,000
Brine Fill Settings in Minutes	6	8	10

Example:

System Capacity: AS-HS32D System/32,000 Grains (chart above)
Feed Water Hardness: 25 GPG (must be tested on-site by the end user or installer)

Number of People: 3

(32,000 Grains / 25 GPG) - (3 People X 75 Gallons) = Total Gallons 1,280 Gallons - 225 Gallons = 1,055 Total Gallons

1,055 Gallons would be inputted for Total Gallons during programming.

If the hardness level is given in ppm or mg/L, it can be converted to Grains Per Gallon by dividing the value by 17.1.

Input the site values in the equation below to figure out your total gallons value:

(_Grains /	GPG) - (People X 75 Gallons)
	Gallons	Gallons =	Total Gallons

CONGRATULATION!

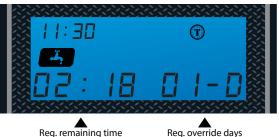
Your system is ready to use. Please document the system installation time and maintain the system at its recommended interval.

FEATURE & DISPLAYS

1. Display in Service

Timed Regeneration Mode

The display will show the current time, remaining time to the next set regeneration, and the days override.



Reg. remaining time

Meter Immediate Regeneration Mode

The display will show the current time and the remaining treated water to the next regeneration.



Reg. remaining capacity

Meter Delay Regeneration Mode

The display will show the current time and the remaining treated water alternatively. When the remaining treated water counts down to zero the display changes to the regeneration time set by the user.



Reg. remaining time

2. Backlight Screen

The backlight on the screen will go off automatically after one minute if no buttons are pressed. To light it up again press any button on the touch pad.

3. Memory during power failure

All program settings are stored in permanent memory. Current valve position, cycle step elapsed, time of day are stored during the power failure. Reset the current time is necessity when power up.

If the valve stopped at a regeneration stage when power failure, the valve will return to prior position when power up. It takes 4 to 5 minutes to reset to the position.

The display shows as:

The system will show the status when power failure after find the position.



4. Restore factory settings

- 1) Pull out the power
- 2) Press the button and plug in the power simultaneously
- 3) Release the

The system is now restored



5. Manual regeneration

Queued Regeneration

When the valve is in service position press the



button to activate the queued regeneration.

Queued Regeneration means the system will initiate a regeneration at the time set. If missed, it will initiate on the next day.

The display shows the Queued Regeneration in TIMER Mode



The display shows the Queued Regeneration in Meter Delay Mode



The display shows the Queued Regeneration in Meter Delay Mode.

The system will initiate a regeneration - either the treated water remaining counts down to zero or the remaining time counts down to zero, whichever is first.

Flashing



5. Manual regeneration

Immediate Regeneration

When the valve is in service position, press and hold the button for 5 seconds, an immediate regeneration will be initiated.

Examples:

"BW" Flashing (ready to "Backwash")



When the time counts down to zero or press the button



"BD" Flashing (ready to "brine)



Stop Regenerating
When regenerating, press the simultaneously, then stop regenerating the display will return to the service position.

The display shows as:



PRODUCT DIMENSION

VALVE DIMENSIONS

Aquasure Water Softeners				
Model	Tank Size	А	В	С
AS-HS32D	9"x48"	58"	50"	9"
AS-HS48D	10"x54"	64"	56"	10"
AS-HS64D	12"x52"	62"	54"	12"



SYSTEM TROUBLESHOOT

Problem	Cause	Correction	
1) The control fails to	A) Disconnected meter cable	A) Reconnect the meter cable	
Regenerate automatically	B) Transformer damaged	B) Replace the transformer	
	C) Electronic controller or sensor damaged	C) Replace or repair	
2) Regeneration at wrong time	A) Timer improperly set, due to power failure	A) Reset timer	
3) loss of capacity	A) Increase draw water hardness	A) reset unit to the new capacity	
	B) Brine concentration or quantity	B) Keep brine tank full of salt at all times. Clean it yearly. Salt may be bridged. If using a salt grid Plate insure refill water is over it	
	C) Rinse fouling	C) Consolidate the rinse tank, clean the rinse and prevent future fouling	
	D) Poor distribution, channeling (Uneven bed service)	D) Check distributors and backwash flow	
	E) Internal control leak	E) Replace the spacer, seal or piston	
	F) Aging of rinse	F) Check for resin oxidation caused by Chlorine. Mushy resin	
	G) Loss of rinse	G) Check for correct bed depth. Broken distributors. Air or gas in bed: Well gas Eliminator loose brine line	
4) Poor water quality	A) Check items listed in Problem # 3	A) Check items listed in Correction # 3	
	B) Bypass is open	B) Close the bypass	
	C) Channeling	C) Check for too slow or high service flow	
5) Excessive salt use	A) High salt setting	A) adjust salt setting	
	B) Excessive water in brine tank	B) refer to problem # 7 tank	
6) Loss of water pressure	A) Fouling of inlet pipe	A) Clean or replace the pipeline	
	B) Fouled resin	B) Clean the resin. Pretreat to prevent	
	C) Improper backwash	C) Too many resin fines. Reset the flow rate and time of backwash	
7) Excessive water in brine	A) Plugged drain line	A) Check drain line and clean flow control	
tank	B) Brine valve plugged or damaged	B) Clean or replace the brine valve	
	C) Injector plugged	C) Clean injector, replace injector screen	
	D) Low inlet water pressure	D) Increase water pressure to allow Injector to perform properly	
8) Softener fails to brine draw	A) Plugged drain line	A) Clean drain line and flow control	
	B) Plugged injector	B) Clean or replace the injector and screen	
	C) No water in the brine tank	C) Check for restriction in B.L.FC. Ensure Safety float is not stuck	
	D) Low water pressure	D) Increase water pressure	
	E) Brine line injects air during brine draw	E) Check brine line for air leaks	
	F) Internal control leak	F) Check seal, spacer and piston for scratches and dents	
9) Control cycles continuously	A) Faulty timer	A) Replace timer	
10) Continuous flow to drain	A) Foreign material in the control	A) Call dealer. Clean valve, rebuild unit	
	B) Internal control leak	B) Same as above	
	C) Piston jammed in brine or back wash position	C) Same as above	

SEE THE AQUATROL MANUAL FOR ADVANCE INSTALLATION PROCEDURES

LIMITED PRODUCT WARRANTY

Aquasure warrants that your new water conditioner is built of quality material and workmanship. When properly installed and maintained, it will give years of trouble free service.

Five Year Valve, Electronics and Resin Guarantee

Aquasure will replace any part on the valve or electronics which fails or the softening resin within (5) five years from date of manufacture, as indicated by the serial number, provided the failure is due to a defect in material or workmanship. The only exception shall be when proof of purchase or installation is provided and then the warranty period shall be from the date thereof. Resin and internal control valve parts will not be covered for systems used to remove iron, manganese or with very high chlorine concentrated feed waters.

Ten Year Warranty on Resin Tank and Brine Tank

Aquasure will provide a replacement resin tank or brine tank to any original equipment purchaser in possession of the Aquatrol water softener that fails for (10) ten years after the date of purchase, provided that it is at all times operated in accordance with specifications and not subject to freezing.

General Provisions

Aquasure assumes no responsibility for consequential damage, labor or expense incurred as a result of a defect or for failure to meet the terms of these guarantees because of circumstances beyond our control. Installation workmanship failure is not covered under warranty. Damage caused by environmental conditions such as, lightening strikes, humidity or heat will not be covered under warranty.

These warranties are in lieu of all other warranties expressed or implied, and we do not authorize any person to assume for us any other obligation on the sale of this water conditioner. No responsibility is assumed for delays or failure to meet these warranties caused by strike, government regulations or other circumstances beyond the control of Aquasure.

Obtaining Warranty Coverage or General Inquiries

If coverage is available, you may obtain coverage under this Limited Product Warranty by providing Aquasure with proof of original purchase, and that you are the original purchaser. For service under this Limited Product Warranty, you must notify Aquasure by phone at 1-800-661-0680, by email at support@aquasureusa.com, or in writing at 12403 Central Ave. #536, Chino, CA 91710-2604. In making the claim, please provide your name, address, phone number, a description of the product involved, and an explanation of the defect.

SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATIONS OF INCIDENTAL OR CONSEQUENTIAL DAMAGES SO THE ABOVE LIMITATION 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. THIS WARRANTY MAY BE TRANSFERRED TO A SUBSEQUENT OWNER WITH WRITTEN APPROVAL OF AQUASURE AND PAYMENT OF STANDARD TRANSFER FEE.

