

# Owner's Manual



**Models:**  
**AWP-SE1 and AWP-SE2 Series**  
**Water Conditioners**

425 Clair Rd. W, Guelph, Ontario, Canada N1L 1R1  
t. (+1) 519.763.1032 • tf. 1.800.265.7246 (US and Canada only)  
t. +31 73 747 0144 (Europe only) • f. (+1) 519.763.5069  
e-mail: [info@viqua.com](mailto:info@viqua.com)  
[www.viqua.com](http://www.viqua.com)



# Table of Contents

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General Information	3
Installation	5
Operation	7
Troubleshooting	12
Replacement Parts	14
Specifications	26
Quick Reference Guide	27
Manufacturer's Warranty	28

## Water Test

Hardness	_____	gpg
Iron	_____	ppm
pH	_____	number
Nitrates*	_____	ppm
Manganese	_____	ppm
Sulphur	_____	yes/no
Total Dissolved Solids (TDS)	_____	

\* Over 10 ppm (expressed as Nitrogen) may be harmful for human consumption. AWP water conditioners do not remove nitrates or coliform bacteria, this requires specialized equipment.

Your VIQUA Impression series water conditioners and backwashing filters are precision built high quality products. These units will deliver conditioned water for many years to come, when installed and operated properly. Please study this manual carefully and understand the cautions and notes before installing. This manual should be kept for future reference. If you have any questions regarding your water conditioner, contact your local dealer or VIQUA.

# Section 1 General Information

## 1.1 Pre-installation Instructions for Dealers

The manufacturer has preset the water treatment unit's sequence of cycles, cycle times, salt dose, exchange capacity and salt dose refill time.

The dealer should read this page and guide the installer regarding hardness, day override, and time of regeneration, before installation.

For the installer, the following must be used:

- Program Installer Settings, Hardness, Day Override (preset to 12 days), and Time of Regeneration (preset to 2 a.m., refer to [Section 3.2](#))
- Read Normal Operating Displays
- Set Time of Day
- Read Power Loss and Error Display

For the homeowner, refer to [Section 3.2](#).

### 1.1.1 Impression Series Water Softeners

During operation, the normal user display is time of day and gallons per minute.

**Days Remaining** is an optional display but is not normally used. Each of these can be viewed by pressing **NEXT** to scroll through them. When stepping through any programming, if there aren't any buttons pressed within 5 minutes, the display returns to a normal user display. Any changes made prior to the 5 minute time out are incorporated.

To quickly exit any Programming, Installer Settings, etc., press set clock. Any changes made prior to the exit are incorporated. If desired, two regenerations within 24 hours are possible with a return to the preset program. To do a double regeneration:

1. Press the **REGEN** button once. "**REGEN TODAY**" will flash on the display.
2. Press and hold the **REGEN** button for three seconds until a regeneration begins.

Once the valve has completed the immediate regeneration, the valve will regenerate one more time at the preset.

## 1.2 Bypass Valve

The bypass valve is typically used to isolate the control valve from the plumbing system's water pressure in order to perform control valve repairs or maintenance. The 1" full flow bypass valve incorporates four positions including a diagnostic position that allows a service technician to have pressure to test a system while providing untreated bypass water to the building. Be sure to install bypass valve onto main control valve, before beginning plumbing, or make provisions in the plumbing system for a bypass.

The bypass body and rotors are glass filled Noryl® and the nuts and caps are glass filled polypropylene. All seals are self-lubricating EPDM to help prevent valve seizing after long periods of non-use. Internal O-rings can easily be replaced if service is required.

The bypass consists of two interchangeable plug valves that are operated independently by red arrow shaped handles. The handles identify the direction of flow. The plug valves enable the bypass valve to operate in four positions.

1. **Normal Operation Position:** 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 for normal operation of a water softener or filter. During the regeneration cycle this position provides regeneration water to the unit, while also providing untreated water to the distribution system. Refer to [Figure 1](#).
2. **Bypass Position:** The inlet and outlet handles point to the center of the bypass. The system is isolated from the water pressure in the plumbing system. Untreated water is supplied to the building. Refer to [Figure 2](#).

## General Information

- Diagnostic Position:** The inlet handle points toward the control valve and the outlet handle points to the center of bypass valve. Untreated supply water is allowed to flow to the system and to the building, while not allowing water to exit from the. Refer to [Figure 3](#). This allows the service technician to draw brine and perform other tests without the test water going to the building.

**Note:** The system must be rinsed before returning the bypass valve to the normal position.

- Shut Off Position:** The inlet handle points to the center of the bypass valve and the outlet handle points away from the control valve. The water is shut off to the building. The water treatment system will depressurize upon opening a tap in the building. A negative pressure in the building combined with the softener being in regeneration could cause a siphoning of brine into the building. If water is available on the outlet side of the softener or filter it is an indication of water bypassing the system. Refer to [Figure 4](#). (i.e. a plumbing cross-connection somewhere in the building).

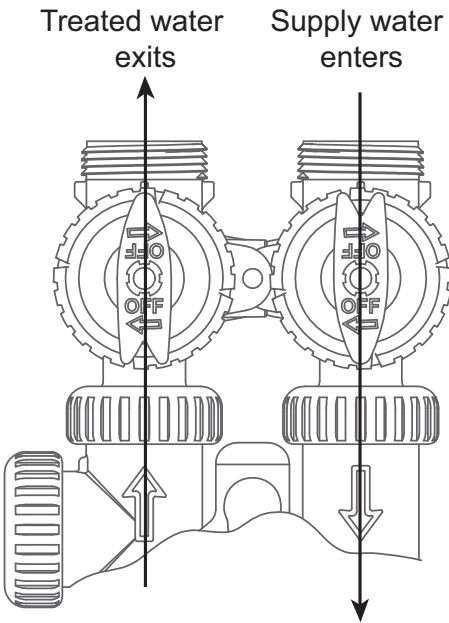


Figure 1 Normal Operation Position

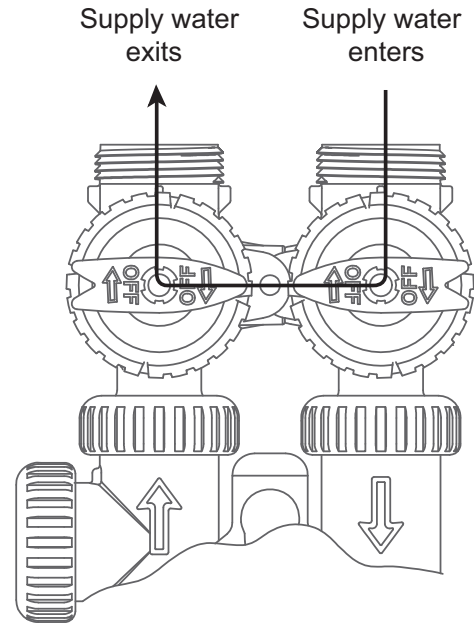


Figure 2 Bypass Position

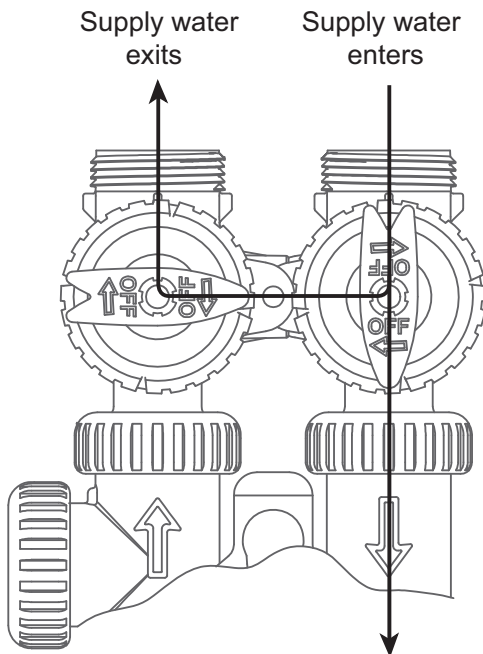


Figure 3 Diagnostic Position

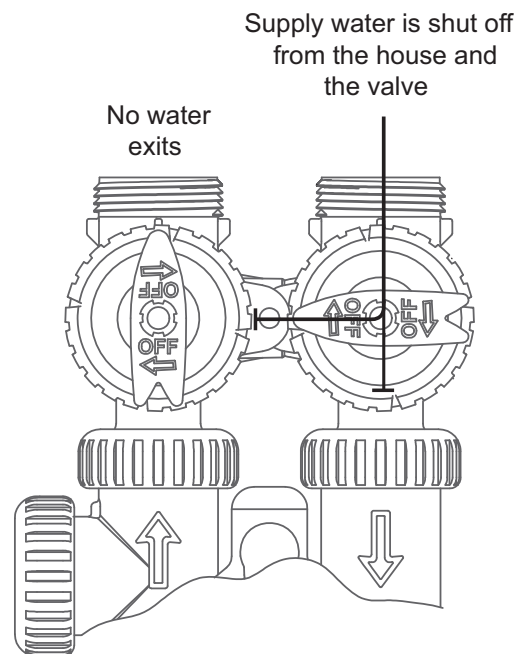


Figure 4 Shut Off Position

## Section 2 Installation

### ⚠ WARNING

- Changes or modifications made to this system without the consent of the manufacturer could render the system unsafe for operation and may void the manufacturer's warranty.
- The control valve, fittings and/or bypass are designed to accommodate minor plumbing misalignments. There is a small amount of "give" to properly connect the piping but the water softener is not designed to support the weight of the plumbing.
- **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 red or clear lip seals.
- **DO NOT** use pipe dope or other sealants on threads. Teflon<sup>®</sup> tape must be used on the threads of the 1" NPT inlet and outlet, the brine line connection at the control valve, and on the threads for the drain line connection. Teflon<sup>®</sup> tape is not used on the nut connections or caps because O-ring seals are used. The nuts and caps are designed to be unscrewed or tightened by hand or with the special plastic Service Wrench, #CV3193-01. If necessary pliers can be used to unscrew the nut or cap.
- **DO NOT** use a pipe wrench to tighten nuts or caps.
- **DO NOT** place screwdriver in slots on caps and/or tap with a hammer.

#### Site Requirements:

- Water pressure - 25-100 psi
- Water temperature - 0.5-37.7 °C (33-100 °F)
- Electrical - 115/120V, 60Hz uninterrupted outlet
- The tank should be on a firm level surface
- Current draw is 0.5 amperes
- The plug-in transformer is for dry location only

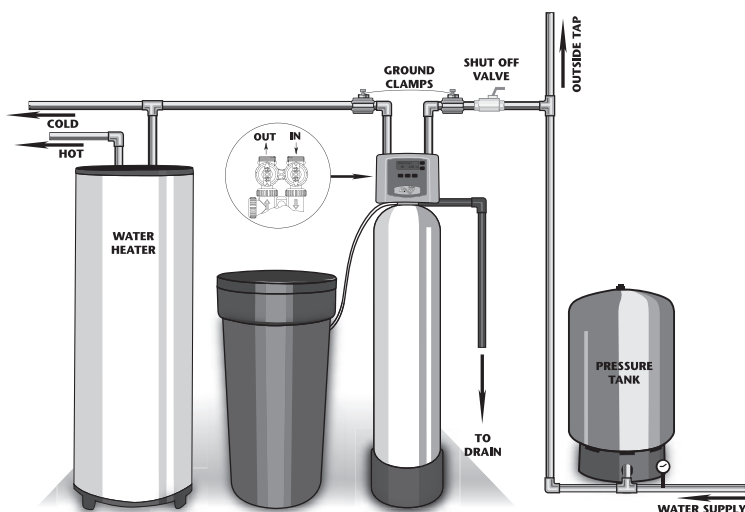


Figure 5 Well Water Installation

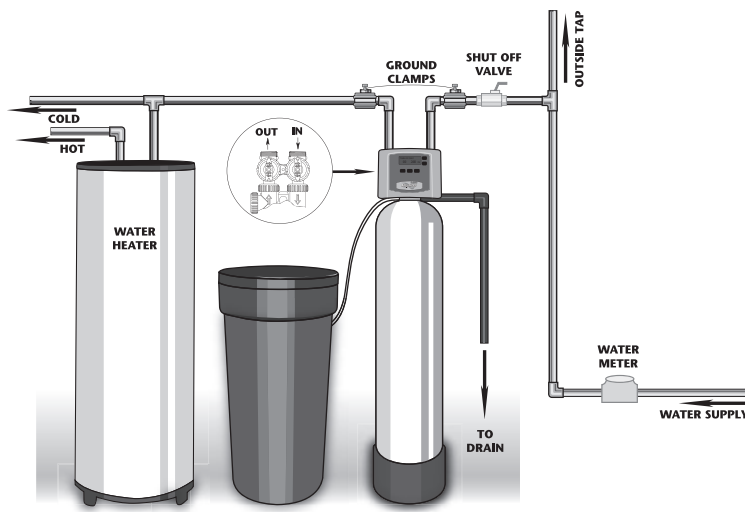


Figure 6 Municipal Water Installation

1. The distance between the drain and the water conditioner should be as short as possible.
2. As salt must be periodically added to the brine tank, it should be located where it is easily accessible.
3. Do not install any water conditioner with less than 10 feet of piping between its outlet and the inlet of a water heater.
4. Do not locate unit where it or its connections (including the drain and overflow lines) will ever be subjected to room temperatures under 0.5 °C (33 °F).
5. **Inlet/Outlet Plumbing:** Be sure to install Bypass Valve onto main control valve before beginning plumbing. Make provisions to bypass outside hydrant and cold hard water lines at this time. Install an inlet shutoff valve and plumb to the unit's bypass valve inlet located at the right rear as you face the unit. There are a variety of installation fittings available. They are listed in [Section 5.10](#). 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 solder flux, primer, and solvent cement on any part of the O-rings, split rings, bypass valve or control valve. If the building's electrical system is grounded to the plumbing, install a copper grounding strap from the inlet to the outlet pipe. Plumbing must be done in accordance with all applicable local codes.

## Installation

6. **Drain Line:** Make sure that the drain handles the backwash rate of the system. 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 flow control fitting and solder joints. Failure to do this could cause interior damage to the flow control. Install a 1/2" I.D. flexible plastic tube to the Drain Line Assembly or discard the tubing nut and use the 3/4" NPT fitting for rigid pipe (recommended). If the backwash rate is greater than 7 gpm, use a 3/4" drain line. Where the drain line is elevated but empties into a drain below the level of the control valve, form a 7" loop at the discharge end of the line so that the bottom of the loop is level with the drain connection on the control valve. This will provide an adequate anti-siphon trap. Piping the drain line overhead <10 ft is normally not a problem. Be sure adequate pressure is available (40-60 psi is recommended). Where the drain empties into an overhead sewer line, a sink-type trap must be used. Run drain tube to its discharge point in accordance with plumbing codes. Pay special attention to codes for air gaps and anti-siphon devices.

**Note:** Drain line nut will not be supplied for units having a backwash rate greater than 7 gpm.

7. **Brine Tank Connection:** Install the 3/8" O.D. polyethylene tube from the Refill Elbow to the Brine Valve in the brine tank.
8. **Overflow Line Connection:** An overflow drain line is recommended where a brine overflow could damage furnishings or the building structure. Your softener is equipped with a brine tank safety float which greatly reduces the chance of an accidental brine overflow. In the event of a malfunction, however, an overflow line connection will direct the "overflow" to the drain instead of spilling on the floor where it could cause considerable damage. This fitting is an elbow on the side of the brine tank. Attach a length of 1/2" I.D. tubing to fitting and run to drain. Do not elevate overflow line higher than 3" below bottom of overflow fitting. Do not "tie" this tube into the drain line of the control valve. Overflow line must be a direct, separate line from overflow fitting to drain, sewer, or tub. Allow an air gap as per the drain line instructions.

### ⚠ CAUTION



- Never insert a drain line into a drain, sewer line, or trap.
- Always allow an air gap between the drain line and the wastewater to prevent the possibility of sewage being back-siphoned into the conditioner.

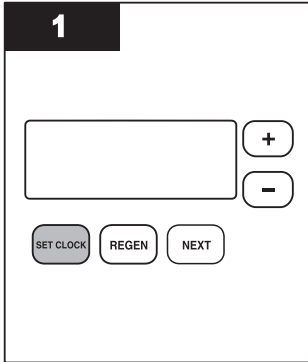
## Section 3 Operation

### 3.1 Programming Procedures

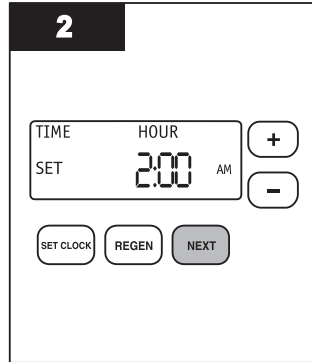
#### 3.1.1 Set Time of Day

Time of day should only need to be set after extended power outages or when daylight saving time begins or ends. If an extended power outage occurs, the time of day will flash on and off indicating that the time should be reset.

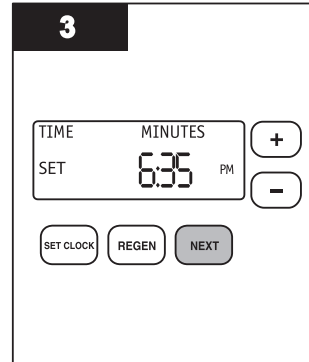
Procedure:



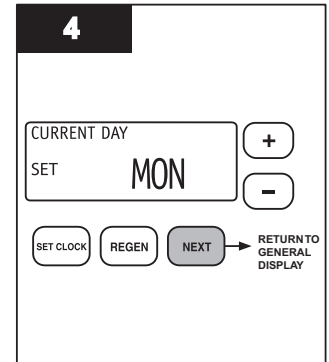
- Press **SET CLOCK**.



- For Current Time (hour), set the hour of the day using **+** or **-** buttons. “**AM/PM**” toggles after 12.
- Press **NEXT**.



- For Current Time (minutes), set the minutes using **+** or **-** buttons. If it is desired to back up to the previous step press **REGEN** button once.
- Press **NEXT**.

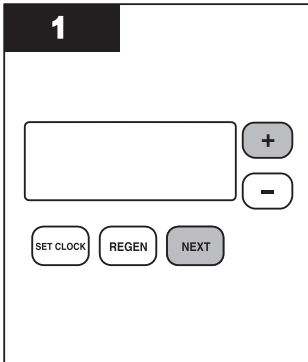


- For Current Day, set the day of the week using **+** or **-** buttons. If it is desired to back up to the previous step press **REGEN** button once.
- Pressing **NEXT** will exit **SET CLOCK** and return to the general operating display.

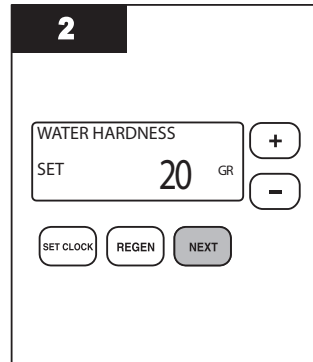
#### 3.1.2 Programming

**Note:** The manufacturer has preset the unit so that the gallons between regenerations will be automatically calculated after the hardness is entered.

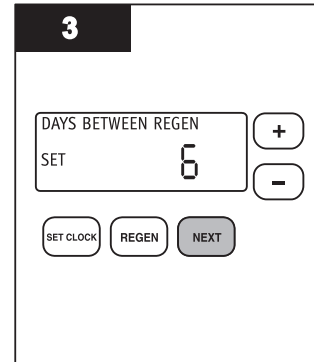
Procedure:



- Press **NEXT** and **+** simultaneously for 3 seconds.



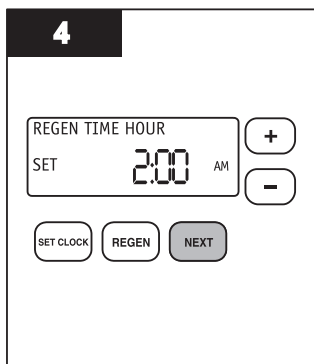
- **Hardness:** Set the amount of hardness in grains per gallon (default 20) using the **+** or **-** buttons. The allowable range is from 1 to 150 in 1 grain increments.



#### Days Between Regeneration (Day Override):

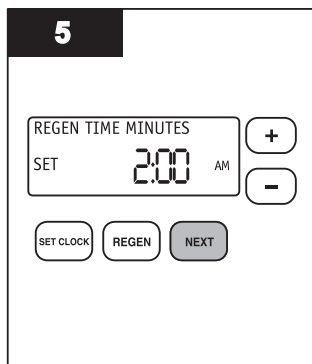
- Set Day Override using **+** or **-** buttons (6 is recommended);
- Set number of days between regeneration (1 to 28) or
- Set to “**OFF**”
- Press **NEXT** or press **REGEN** to return to the previous step.

**Note:** The manufacturer has factory set 6 days as the default. This is the maximum number of days between regenerations. If this is set to “**OFF**”, regeneration initiation is based solely on gallons used. If any number is set (allowable range from 1 to 28), a regeneration initiation will be called for on that day even if a sufficient number of gallons were not used to call for a regeneration.



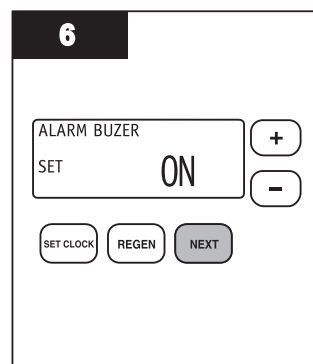
- Regeneration hours: Press **NEXT** or press **REGEN** to return to the previous step.

**Note:** The manufacturer has factory set 2:00 A.M. as the default. This is the hour of day for regeneration and can be reset by using + or - buttons. "AM/PM" toggles after 12. The default time is 2:00 A.M. (recommended for a normal household).



- Set the regeneration minutes using + or - buttons.
- Press **NEXT**.

- Press **REGEN** to return to previous step.
- To initiate an immediate manual regeneration, press and hold the **REGEN** button for three seconds. The system will begin to regenerate immediately. The control may be manually stepped through the regeneration cycles by pressing **REGEN**.



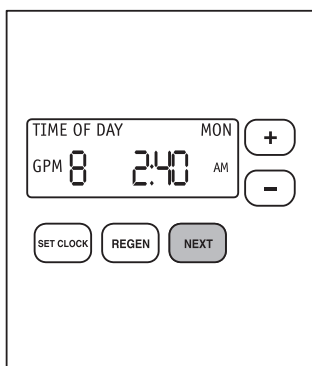
- Turn the alarm OFF or ON using + or - buttons.
- Press **NEXT** to exit installer programming.

**Note:** The manufacturer has factory set ON as the default. Alarm will sound immediately after regeneration if there is no salt or if another error has occurred.

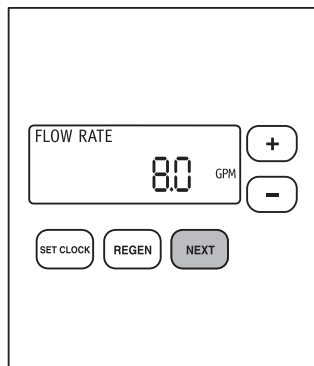
## 3.2 Displays and Instructions

### 3.2.1 General Operation

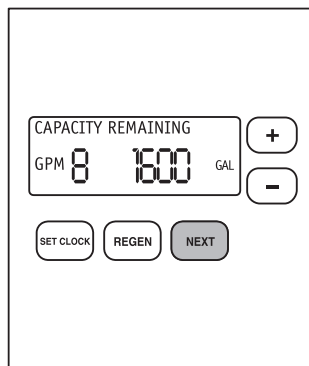
When the system is operating, one of four following displays may be shown. Pressing **NEXT** will toggle between the displays.



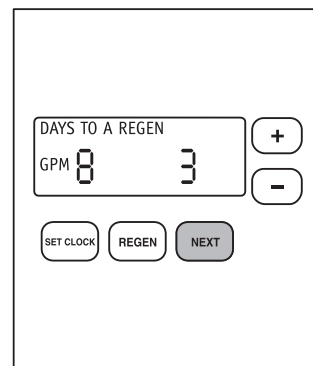
Current "TIME OF DAY" and "GPM"



**FLOW RATE** is the current treated water flow rate through the system measured in GPM.



**CAPACITY REMAINING** is the gallons that will be treated before the system signals a regeneration cycle.



**DAYS TO A REGEN** is the number of days left before the system goes through a regeneration cycle, based on the days override value.

If the system has called for a regeneration that will occur at the preset time of regeneration, the words "**REGEN TODAY**" will appear on the display.

If a water meter is installed, "**GPM**" flashes on the display when water is being treated, indicating gallons per minute going through the system.

### 3.2.2 Regeneration Mode

Typically a system is set to regenerate at a time of no water usage. If there is a demand for water when the system is regenerating, untreated water will be delivered. When the system begins to regenerate, the display will change to include information about the step of the regeneration process and the time remaining for that step to be completed. The system runs through the steps automatically and will reset itself to provide treated water when the regeneration has been completed.

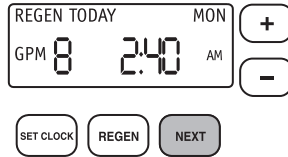




### 3.2.3 Manual Regeneration

Sometimes there is a need to regenerate before the control valve calls for it. This may be needed if a period of heavy water use is anticipated or when the system has been operated without salt.

1. To initiate a manual regeneration at the next preset regeneration time, press and release **REGEN**. “REGEN TODAY” will flash on the display to indicate that the system will regenerate at the next regeneration time (set in [Section 3.1.2](#), steps 4 and 5). If **REGEN** button is pressed by mistake, press the same button again to cancel the command.
2. To initiate a manual regeneration immediately, press and hold the **REGEN** button for three seconds. The system will begin to regenerate immediately. This command cannot be cancelled.



**Note:** “REGEN TODAY” and “TIME OF DAY” will flash alternately if a regeneration is expected tonight.

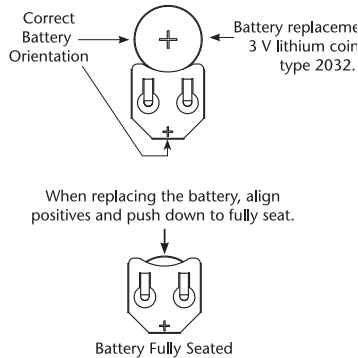
Once a manual regeneration is initiated, the unit will go into the “**BACKWASH**” position, followed by the steps listed in [Section 3.3](#). During this sequence the water softener will deliver water, but it will be untreated.

### 3.2.4 Power Loss and Battery Replacement

The AC transformer comes with a 15 foot power cord and is designed for use with the control valve; the transformer should only be used in a dry location.

In the event of a power outage, the control valve will remember all settings and time of day. If an extended power outage occurs, the control valve will keep time of day until the battery is depleted. When the battery becomes depleted, the only item that needs to be reset is the time of day and will be indicated by the time of day flashing. All other settings are permanently stored in the nonvolatile memory.

If a power loss occurs and the time of day flashes, this indicates that the battery is depleted. The time of day should be reset and the non rechargeable battery should be replaced. The battery is a 3 Volt lithium coin cell type 2032 and is readily available at most stores. To access battery location, remove front cover, refer to [Section 5.1](#).



### 3.2.5 Check Salt Indicator and Audible Alarm

This control valve is equipped with a Low Salt Warning to alert homeowners that the system is operating in a low salt condition. This usually indicates that the salt level in the brine tank is too low to operate properly. If “**CHECK SALT**” appears on the screen, there will usually be an audible alarm that sounds also (if turned on), alerting you to these conditions.

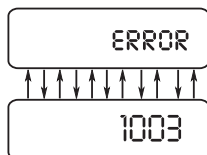
**To turn off alarm:** If the audible alarm sounds due to a low salt condition, press any button on the face of the control valve to turn off. If salt is not added to the brine tank before the next regeneration, the “**CHECK SALT**” indicator will alarm again.

**Note:** If you feel that the salt level is adequate (at least 1/3 full) in the brine tank, please contact the dealer that installed your system for service.

## Operation

### 3.2.6 Error Message

If the word “ERROR” and a number are alternately flashing on the display record the number and contact your dealer for help. This indicates that the control valve was not able to function properly.



### 3.2.7 Brine Tank Maintenance and Salt

Refill the brine tank as necessary, making sure at least 1/3 of the brine tank is full at all times. Without proper salt levels, the water softener may not operate properly.

The manufacturer recommends the use of solar salt for best results. The brine tank is manufactured for the use of solar, pellets, or rock salt. If rock salt is used, a cleaning of the brine tank every six months is recommended.

## CAUTION



Damage or destruction to the media may occur if salts containing additives are used with the Sanitizer models. Most “solar” and/or “block” salts do not contain additives detrimental to this unit. If unsure, please check with manufacturer. Many “pellet” or “cube” type salts are formulated with cleaning agents or additives which can cause harm to the media. Salt manufacturers do not always list additives in their products. Please check with salt manufacturers for any cleaning agents, binders or phosphate material added to salt.

## 3.3 Start-up Instructions

- After installation is complete, rotate bypass handles to bypass mode, refer to [Figure 2](#).
- Turn on water and check for leaks.
- Fully open a cold water faucet - preferably a laundry sink or bathtub with no aerator.
- Allow water to run until clear to rid pipes of debris which may have occurred during installation.

### 3.3.1 Softeners

System regeneration sequence will flow in the following order.

**Note:** *If the following order changes then refer to the “Dealer Manual” or contact VIQUA).*

1. BACKWASH
2. REGENERANT DRAW AND SLOW RINSE
3. FAST RINSE
4. BRINE TANK REFILL
5. END (return to service – softening)

The system is now ready for filling with water and for testing.

1. With the softener in the bypass mode ([Figure 2](#)) and the control valve in normal operation where the display shows either the time of day or the gallons remaining, manually add 5" of water to the regenerant tank.

**Note:** *If too much water is put into the brine tank during softener start up, it could result in a “salty water” compliant after the first regeneration.*

During the first regeneration the unit will draw out the initial volume of brine/regenerant and refill it with the correct preset amount.

2. Press and hold the **REGEN** button until the motor starts. Release button. The display reads “**BACKWASH**” and the remaining time in this step is counting down. Unplug the transformer so that the valve will not cycle to the next position. Open the inlet handle of the bypass valve very slightly allowing water to fill the tank slowly in order to expel air.

**⚠ CAUTION**

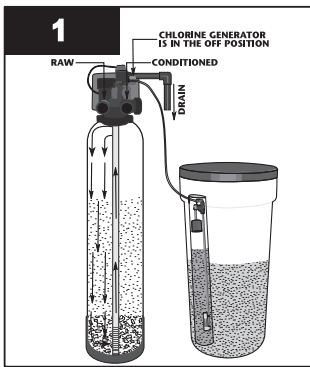


If water flows too rapidly there will be a loss of media to the drain.

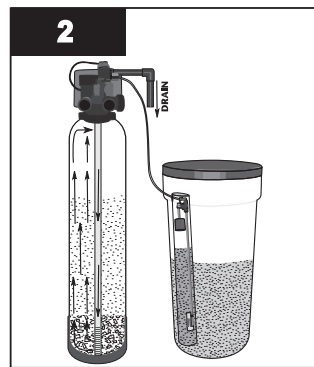
3. When the water is flowing steadily to the drain without the presence of air, slowly open the inlet valve. Restore power and momentarily press the **REGEN** button to advance the control to the **“REGENERANT DRAW”** position.
4. The bypass is now in the diagnostic mode (Figure 3). Check to verify that water is being drawn from regenerant brine tank with no air leaks or bubbles in the brine line. There should be a slow flow to the drain.
5. Momentarily press **REGEN** again until the display reads **“RINSE”**. There should be a rapid flow to the drain. Unplug transformer to keep the valve in the **“RINSE”** position. Allow to run until steady, clear, and without air. While the unit is rinsing load the brine tank with water softener salt. Restore power.
6. Place bypass valve in the normal operating mode (Figure 1) by opening the outlet bypass handle. Press **REGEN** until the display reads **“FILL”** and then press **REGEN** again to return to the normal service position with **“TIME OF DAY”** being displayed.

**3.3.2 Water Conditioner Flow Diagrams:**

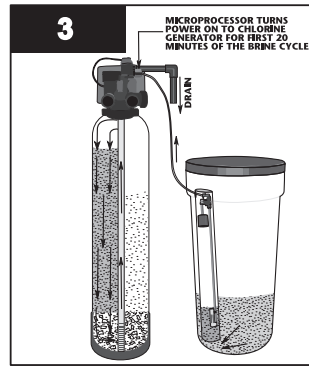
**LEGEND:**



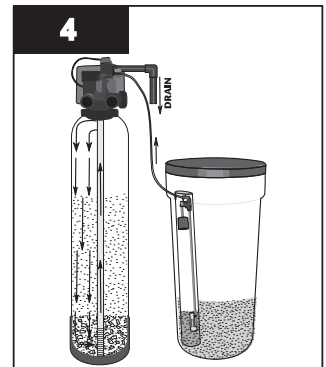
- **SERVICE POSITION:** Raw water enters control head and flows down through the Zeolite mineral, removing hardness and iron (neutralizing acidic water conditions on SE1 models).



- Raw water enters control head and flows into lower distributor upward through mineral bed and out to drain, lifting and cleaning turbid particles from Zeolite bed.

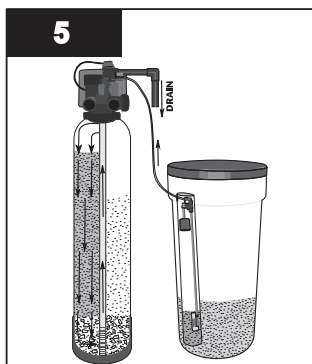


- **BRINE RINSE POSITION:** Raw water enters control head flowing through the injector, drawing brine from the brine tank. Microprocessor turns on the chlorine generator allowing brine and chlorine to flow through the Zeolite mineral, sanitizing and regenerating the water conditioner.

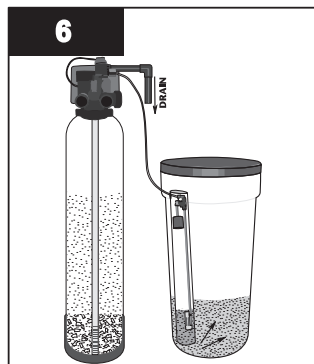


- **SLOW RINSE POSITION:** Chlorine generator is turned off, raw water enters control head and flows down through the Zeolite mineral, rinsing chlorine and brine to drain.

## Troubleshooting



- **RAPID RINSE POSITION:** Chlorine generator is off. Raw water enters control head and flows down through the Zeolite mineral, rinsing any excess brine to drain.



- **BRINE TANK FILL POSITION:** Water enters control head to self clean injector while flowing back to refill the brine tank. Unit will deliver soft water in this position.

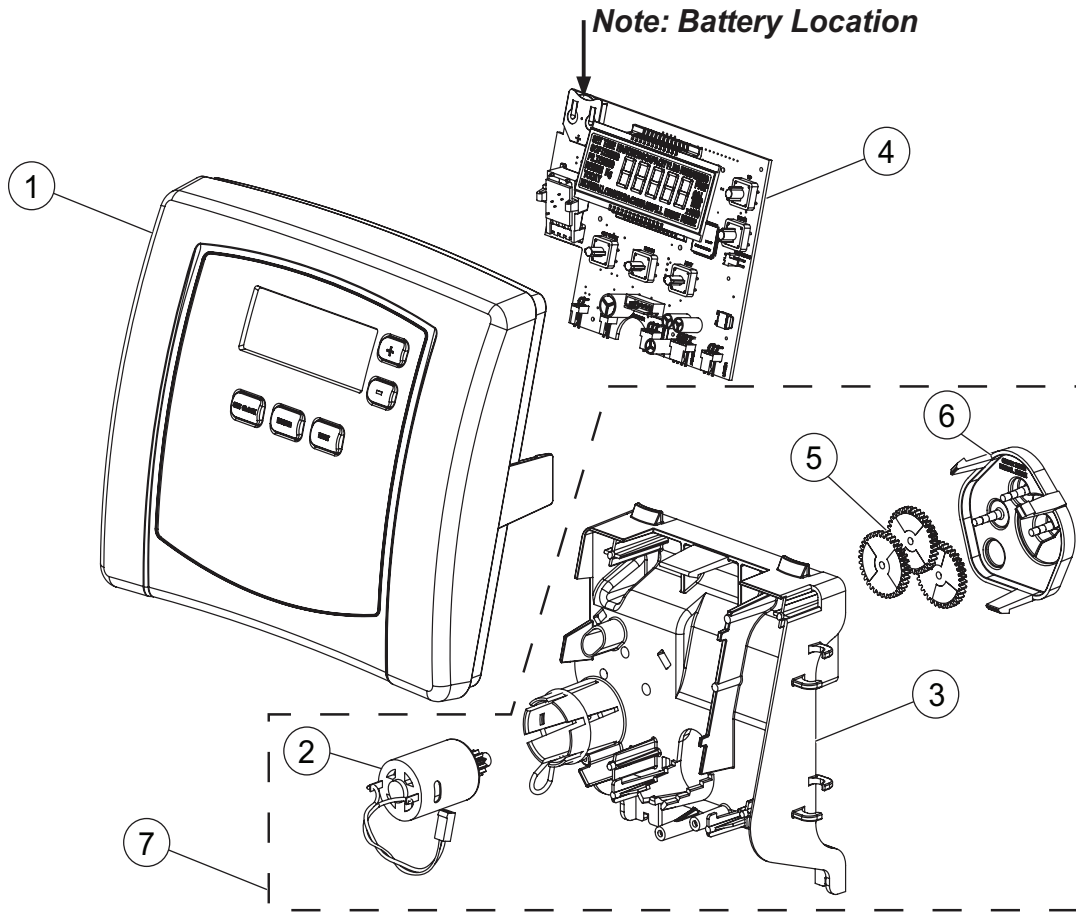
## Section 4 Troubleshooting

Symptom	Possible Cause	Possible Solution
Timer does not display "TIME OF DAY"	Transformer unplugged	• Reconnect transformer
	No power at outlet	• Repair or use working outlet
	Defective transformer	• Replace transformer
	Defective PC board	• Replace PC board
Time does not display correct time of day or "TIME OF DAY" flashes	Outlet is on a switch	• Used un-switched outlet
	Power outage; transformer was unplugged from either wall outlet or from PC board	• Reset time of day and replace battery. Refer to <a href="#">Section 3.2.4</a>
	Defective PC board	• Replace PC board
"CHECK SALT" appears on screen with audible alarm	Low salt in brine tank - alarm activated	• Push any button on cover to stop alarm and add salt to brine tank
	Plugged injector and/or injector screen	• Clean or replace injector and screen
	Drain line plugged or restricted	• Clean drain line restriction
	Chlorine generator probes are dirty	• Clean or replace chlorine generator
	System drawing in air	• Tighten fittings in brine system
	System "short brining"	• Clean brine line flow control, check for bridging or hardened salt around brine well, increase brine refill time
Doesn't display "SOFTENING" when water is flowing	Bypass valve in bypass position	• Put bypass in service position
	Meter cable disconnected	• Reconnect PC board
	Restricted/stalled meter turbine	• Remove meter and check for debris
	Defective meter	• Replace meter
	Defective PC board	• Replace PC board
Unit regenerates at wrong time of day	Past power outage	• Reset time of day
	Incorrect time of day displayed	
	Time of regenerant set incorrectly	• Reset time of regeneration
	Control set at "ON 0"	• Check with regeneration time option in programming
	Control set at "NORMAL + on 0"	

Symptom	Possible Cause	Possible Solution
Valve stalled in regeneration	Motor not operating	<ul style="list-style-type: none"> <li>Replace motors</li> </ul>
	No power at outlet	<ul style="list-style-type: none"> <li>Repair outlet or use working outlet</li> </ul>
	Defective transformer	<ul style="list-style-type: none"> <li>Replace transformer</li> </ul>
	Defective PC board	<ul style="list-style-type: none"> <li>Replace PC board</li> </ul>
	Broken drive gear or drive cap assembly	<ul style="list-style-type: none"> <li>Replace gear or drive cap assembly</li> </ul>
	Broken piston retainer	<ul style="list-style-type: none"> <li>Replace drive cap assembly</li> </ul>
	Broken main or regenerant piston	<ul style="list-style-type: none"> <li>Replace main or regenerant piston</li> </ul>
Valve does not regenerate automatically when <b>REGEN</b> button is pressed	Transformer unplugged	<ul style="list-style-type: none"> <li>Connect transformer and PC board power</li> </ul>
	No power at outlet	<ul style="list-style-type: none"> <li>Restore power</li> </ul>
	Broken drive gear or drive cap assembly	<ul style="list-style-type: none"> <li>Replace gear or drive cap assembly</li> </ul>
	Defective PC board	<ul style="list-style-type: none"> <li>Replace PC board</li> </ul>
Valve does not regenerate automatically but does when <b>REGEN</b> button is pressed	Bypass valve not in normal operating mode	<ul style="list-style-type: none"> <li>Refer to <a href="#">Section 1.2</a></li> </ul>
	Meter disconnected	<ul style="list-style-type: none"> <li>Reconnect to PC board</li> </ul>
	Obstructed meter turbine	<ul style="list-style-type: none"> <li>Clear obstruction</li> </ul>
	Defective meter	<ul style="list-style-type: none"> <li>Replace meter</li> </ul>
	Programming error	<ul style="list-style-type: none"> <li>Review programming</li> </ul>
	Defective PC board	<ul style="list-style-type: none"> <li>Replace board</li> </ul>
<p>“<b>ERROR</b>” followed by code #</p> <p>“<b>ERROR</b>” code 1001 – unable to recognize start of regeneration</p> <p>“<b>ERROR</b>” code 1002 – unexpected stall</p> <p>“<b>ERROR</b>” code 1003 – motor ran too long</p> <p>Timed out trying to reach next cycle position (If other codes appear, contact factory)</p>	Valve has just been serviced	<ul style="list-style-type: none"> <li>Press <b>NEXT</b> and <b>REGEN</b> for 3 seconds or momentarily unplug power source from PC board</li> </ul>
	Foreign material stuck in valve	<ul style="list-style-type: none"> <li>check piston and spacer stack for obstruction</li> </ul>
	Excessive piston resistance	<ul style="list-style-type: none"> <li>replace piston(s) and spacer stack assembly</li> </ul>
	Piston not in home position	<ul style="list-style-type: none"> <li>press <b>NEXT</b> and <b>REGEN</b> or momentarily unplug PC board power</li> </ul>
	Motor gears not fully engaged – motor wires broken – missing or broken gear	<ul style="list-style-type: none"> <li>Check motor wiring</li> </ul>
	Center drive gear reflector dirty or damaged – missing or broken gear	<ul style="list-style-type: none"> <li>Replace or clean drive gear(s)</li> </ul>
	Drive bracket incorrectly aligned on backplate	<ul style="list-style-type: none"> <li>Reset drive bracket</li> </ul>
	PC board is damaged or defective	<ul style="list-style-type: none"> <li>Replace PC board</li> </ul>
	PC board incorrectly aligned on drive bracket	<ul style="list-style-type: none"> <li>Reset PC board onto drive bracket</li> </ul>

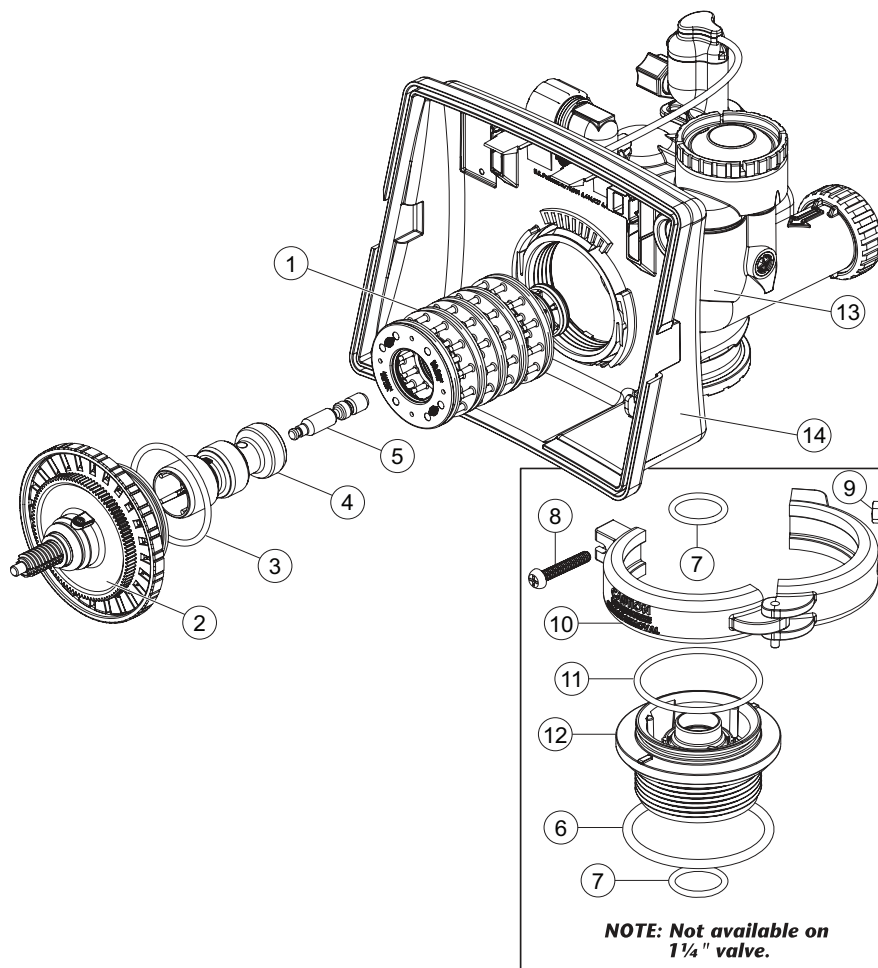
## Section 5 Replacement Parts

### 5.1 Front Cover and Drive Assembly



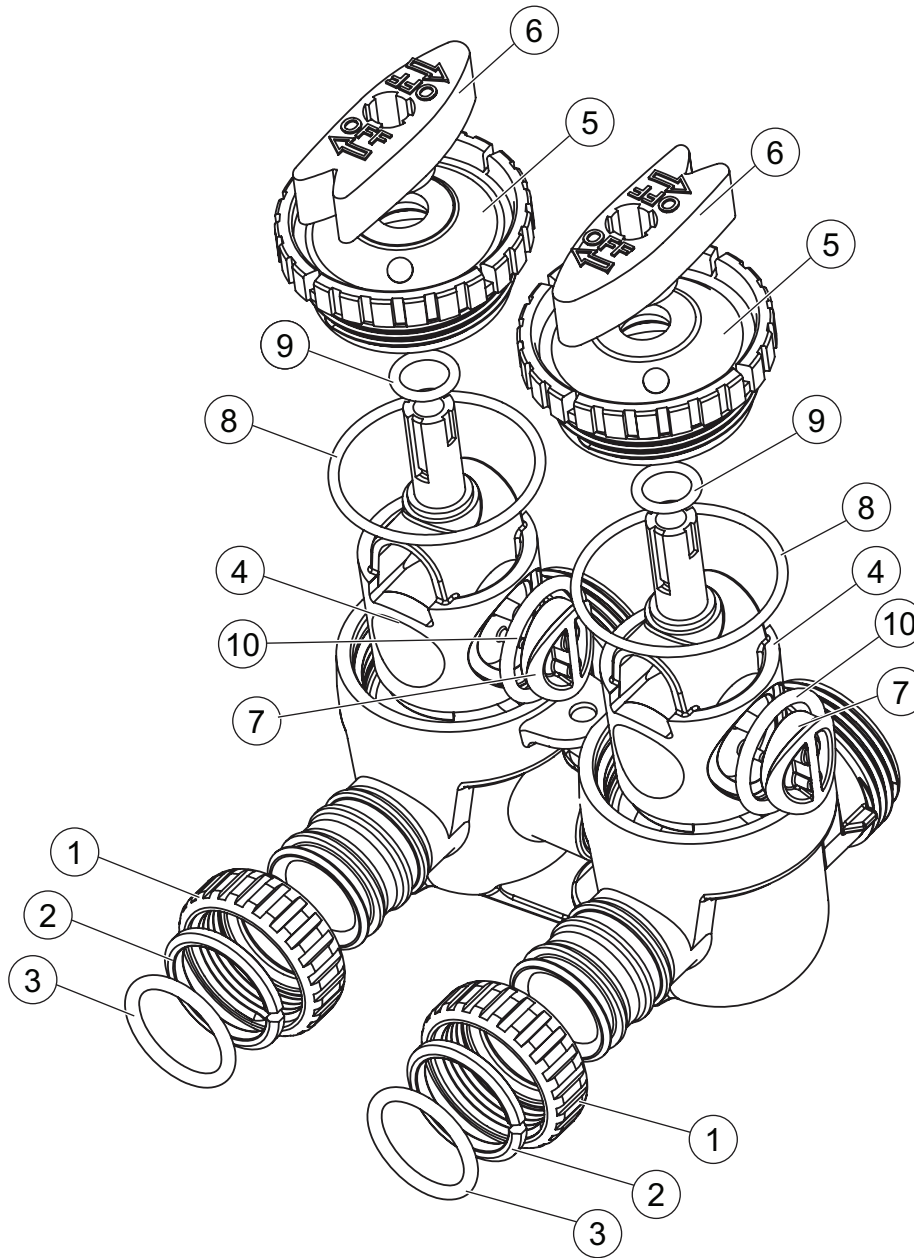
Item	Description	Part Number	Quantity
1	Black cover	CV3540S-A	1
	Grey cover	CV3540-WS-A	1
2	Motor	CV3107-1	1
3	Drive bracket & spring clip	CV3106-1	1
4	PC board, CC	CV3554WS	1
5	Drive gear, 12 x 36	CV3110	3
6	Drive gear cover	CV3109	1
7	Drive assembly, CC	CV3002CC	1
N/A	Transformer, 110V-12C	CV3526	1

## 5.2 Piston Assembly



Item	Description	Part Number	Quantity
1	1" spacer stack assembly	CV3005	1
	1.25" spacer stack assembly	CV3430	1
2	Drive cap assembly	CV3004	1
3	O-ring 228	CV3153	1
4	1" piston assembly down-flow	CV3011	1
	1" piston assembly up-flow	CV3011-01	1
	1.25" piston assembly down-flow	CV3407	1
5	Regenerant piston	CV3174	1
6	O-ring 337	CV3180	1
7	O-ring 215	CV3105	1
8	Screw, 1/4-20x1-1/2 18-8SS	CV3556	1
9	Nut, 1/4-20 HEX 18-8SS	CC1-00318337	1
10	QC2 clamp assembly (includes screw & nut)	CV3016	1
11	O-ring 230	CV3452	1
12	WS1 QC2 tank adapter assembly (includes O-ring)	CV3015	1
13	1" body assembly down-flow	CV3001	1
	1" body assembly up-flow	CV3001UP	1
	1.25" body assembly down-flow	CV3020	1
14	Drive backplate	CV3541	1

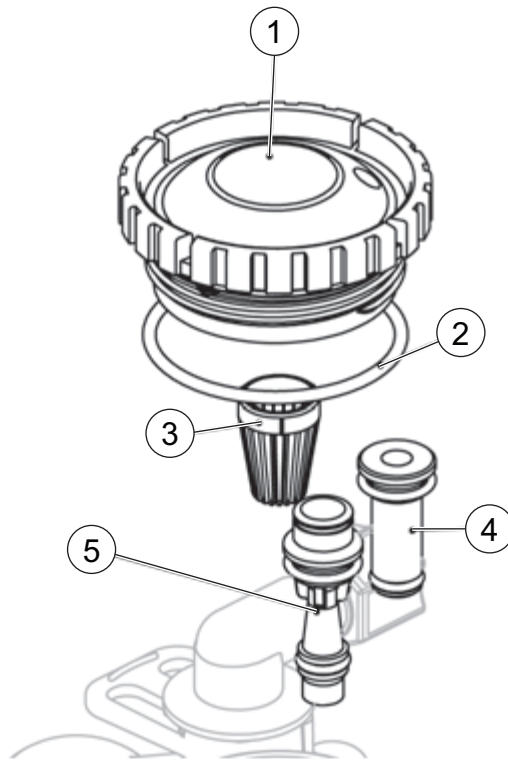
### 5.3 Bypass Valve Assemblys



Item	Description	Part Number	Quantity
1	Nut, 1" quick connect	CV3151	2
2	Split ring	CV3150	2
3	O-ring 215	CV3105	2
4	Bypass rotor, 1"	CV3145	2
5	Bypass cap	CV3146	2
6	Bypass handle	CV3147	2
7	Bypass rotor seal retainer	CV3148	2
8	O-ring 135	CV3152	2
9	O-ring 112	CV3155	2
10	O-ring 214	CV3156	2

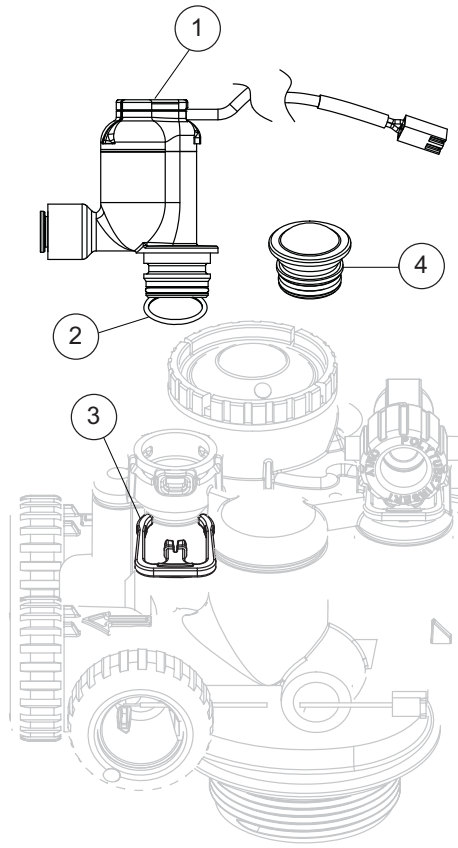


## 5.4 Injector Assembly



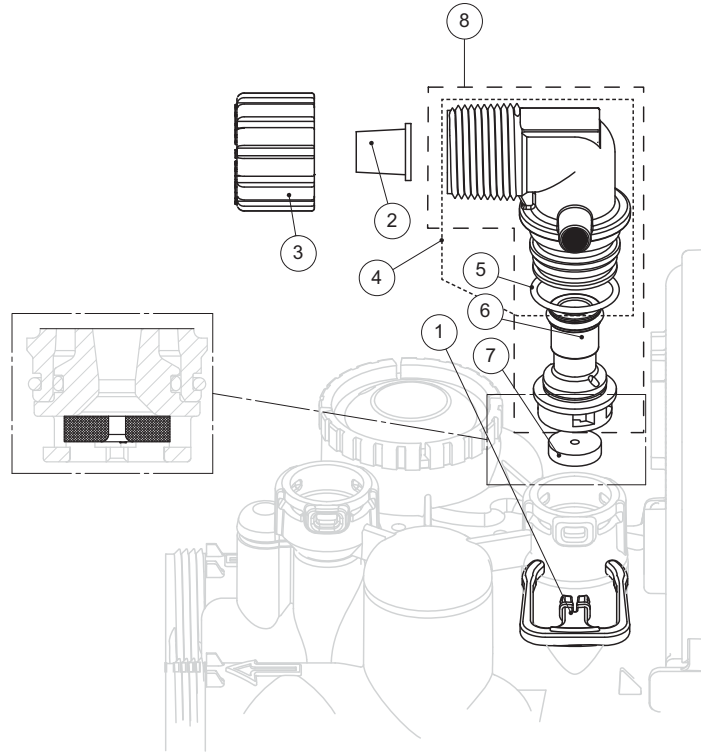
Item	Description	Part Number	Quantity
1	Injector cap	CV3176	1
2	O-ring 135	CV3152	1
3	Injector screen	CV3177	1
4	Injector assembly plug	CV3010-1Z	1
5	A injector assembly, BLACK	CV3010-1A	1
	B injector assembly, BROWN	CV3010-1B	
	C injector assembly, VIOLET	CV3010-1C	
	D injector assembly, RED	CV3010-1D	
	E injector assembly, WHITE	CV3010-1E	
	F injector assembly, BLUE	CV3010-1F	
	G injector assembly, YELLOW	CV3010-1G	
	H injector assembly, GREEN	CV3010-1H	
	I injector assembly, ORANGE	CV3010-1I	
	J injector assembly, LIGHT BLUE	CV3010-1J	
	K injector assembly, LIGHT GREEN	CV3010-1K	

## 5.5 Chlorine Generator Assembly



Item	Description	Part Number	Quantity
1	Chlorinator	CV3395	1
2	O-ring 019	CV3163	1
3	Locking clip	CH4615	1
4	Refill port plug assembly	CV3195-01	1

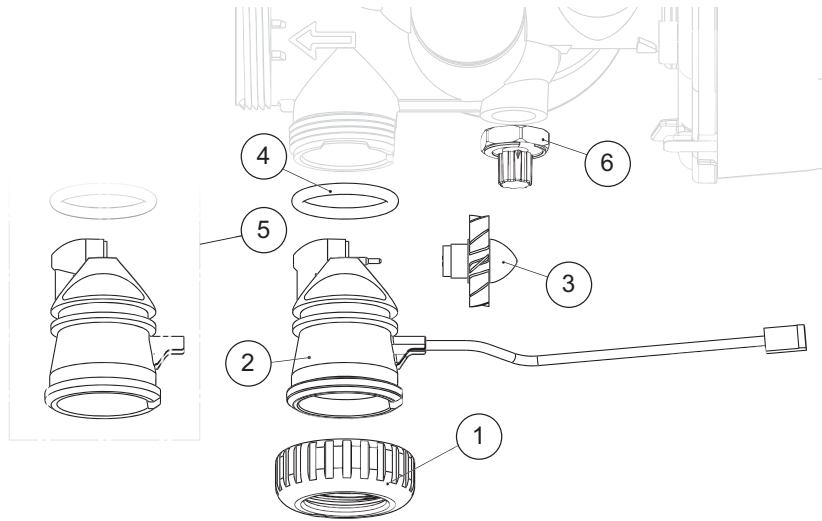
## 5.6 Drain Line Assembly 3/4"



Item	Description	Part Number	Quantity
1	Elbow locking clip	CH4615	1
2	<b>OPTIONAL</b> insert, 5/8" tube	CPKP10TS8-BULK	1
3	<b>OPTIONAL</b> nut, 3/4" drain elbow	CV3192	1
4	Drain elbow, 3/4" NPT with O-ring	CV3158-02	1
5	O-ring 019	CV3163	1
6	DLFC retainer assembly	CV3159-01	1
7	0.7 DLFC for 3/4" elbow	CV3162-007	1
	1.0 DLFC for 3/4" elbow	CV3162-010	
	1.3 DLFC for 3/4" elbow	CV3162-013	
	1.7 DLFC for 3/4" elbow	CV3162-017	
	2.2 DLFC for 3/4" elbow	CV3162-022	
	2.7 DLFC for 3/4" elbow	CV3162-027	
	3.2 DLFC for 3/4" elbow	CV3162-032	
	4.2 DLFC for 3/4" elbow	CV3162-042	
5.3 DLFC for 3/4" elbow	CV3162-053		
8	Drain elbow and retainer assembly	CV3331	1

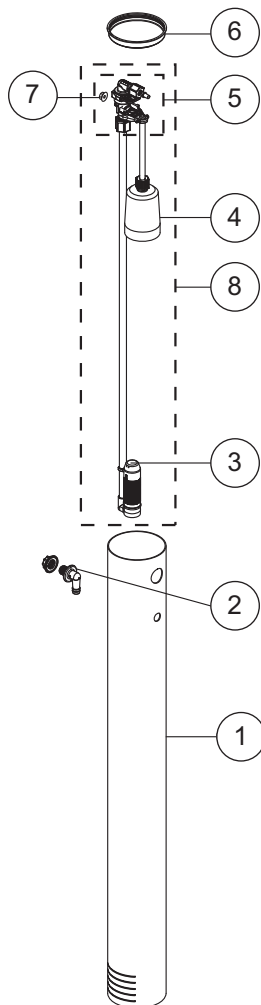
**Note:** Items 2 and 3, nut and insert are only used with 1/2" I.D. by 5/8" O.D. poly-tubing. For other piping material, the 3/4" NPT is used.

## 5.7 Water Meter and Meter Plug



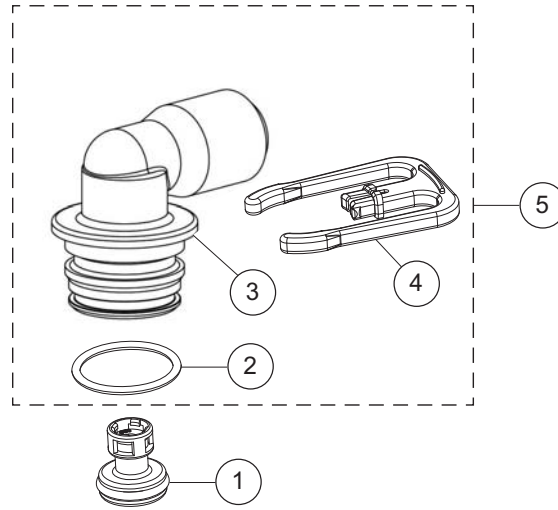
Item	Description	Part Number	Quantity
1	Nut, 1"QC	CV3151	1
2	Meter assembly, includes items 3 and 4	CV3003	1
3	Turbine assembly	CV3118-01	1
4	O-ring 215	CV3105	1
5	Meter plug assembly	CV3003-01	1
6	<b>OPTIONAL</b> mixing valve	CV3013	1

## 5.8 Safety Float Assembly



Item	Description	Part Number	Quantity
1	4" x 32" brine well (18" x 36" BT)	CH1030-32	1
	4" x 34.5" brine well (18" x 40" BT)	CH1030-34.5	1
2	2 piece overflow set	CH1018	1
3	474 air check assembly, 1/2" x 48"	CH4500-48	1
4	474 float assembly, 32" with two grommets	CH4640-32	1
5	474 safety brine valve with 0.5 gpm flow control	CH4600-50	1
6	Cap 4" brine well	CH7016	1
7	Nut safety brine valve stand off	CH4626	1
<b>Assemblies</b>			
8	0.5 gpm safety float assembly, 18" x 36"	CH4700-32WR-1	1
	0.5 gpm safety flow assembly, 18" x 40"	CH4700-34.5WR-1	1

## 5.9 Safety Float Brine Elbow Assembly



Item	Description	Part Number	Quantity
1	474 0.5 gpm flow control	CH4655	1
2	O-ring 019	CH3163	1
3	3/8" elbow cap, Parker fitting	CV4144	1
	1/2" elbow cap	CH4612	
4	Elbow locking clip	CH4615	1
5	Safety float brine elbow assembly	CV3330-A	1

### 5.10 Installation Fitting Assemblies (Sold separately)

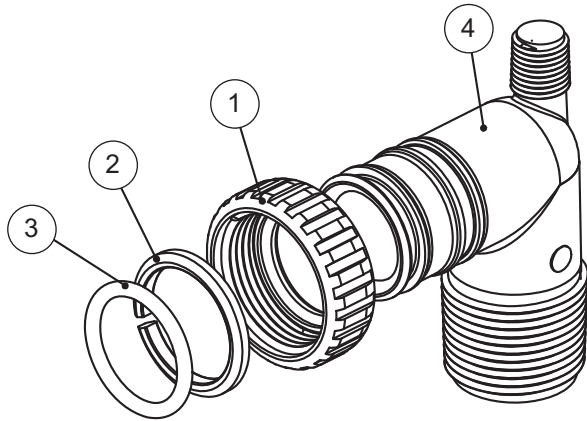


Figure 7 1" PVC Male NPT Elbow Assembly (CV3007)

Item	Description	Part Number	Quantity
1	Nut, 1" quick connect	CV3151	1
2	Split ring	CV3150	1
3	O-ring 215	CV3105	1
4	Fitting	CV3149	1

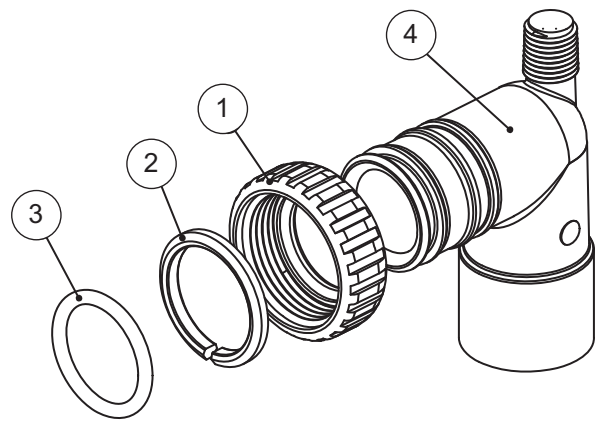


Figure 8 3/4" and 1" PVC Solvent Elbow Assembly (CV3007-01)

Item	Description	Part Number	Quantity
1	Nut, 1" quick connect	CV3151	1
2	Split ring	CV3150	1
3	O-ring 215	CV3105	1
4	Fitting	CV3199	1

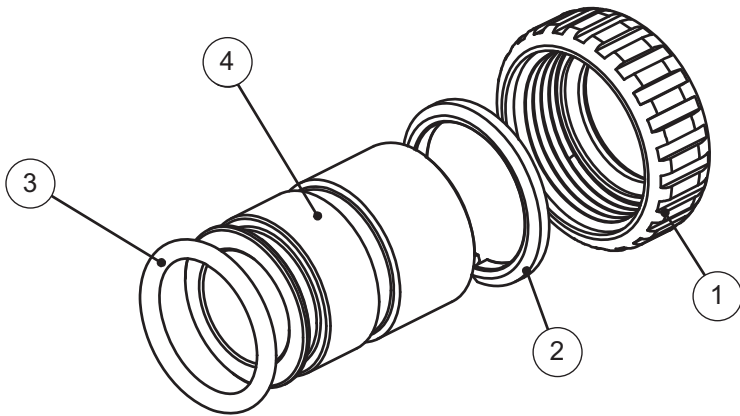


Figure 9 1" Brass Sweat Assembly (CV3007-02)

Item	Description	Part Number	Quantity
1	Nut, 1" quick connect	CV3151	1
2	Split ring	CV3150	1
3	O-ring 215	CV3105	1
4	Fitting	CV3188	1

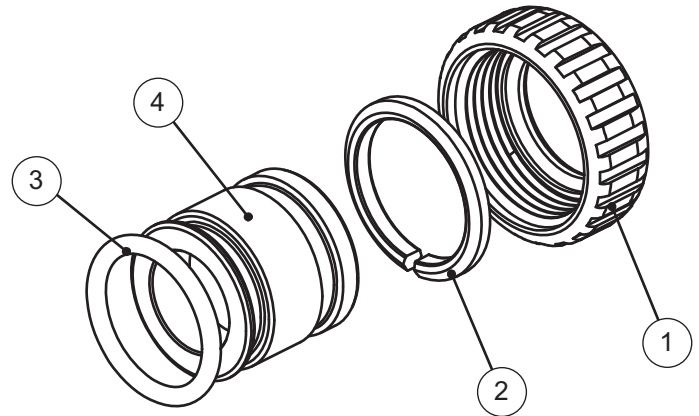


Figure 10 3/4" Brass Sweat Assembly (CV3007-03)

Item	Description	Part Number	Quantity
1	Nut, 1" quick connect	CV3151	1
2	Split ring	CV3150	1
3	O-ring 215	CV3105	1
4	Fitting	CV3199-01	1

## Replacement Parts

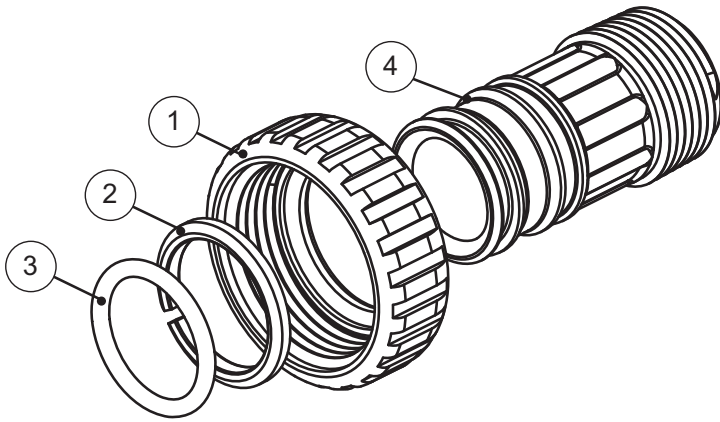


Figure 11 1" PVC MALE NPT ASSEMBLY (CV3007-04)

Item	Description	Part Number	Quantity
1	Nut, 1" quick connect	CV3151	1
2	Split ring	CV3150	1
3	O-ring 215	CV3105	1
4	Fitting	CV3164	1

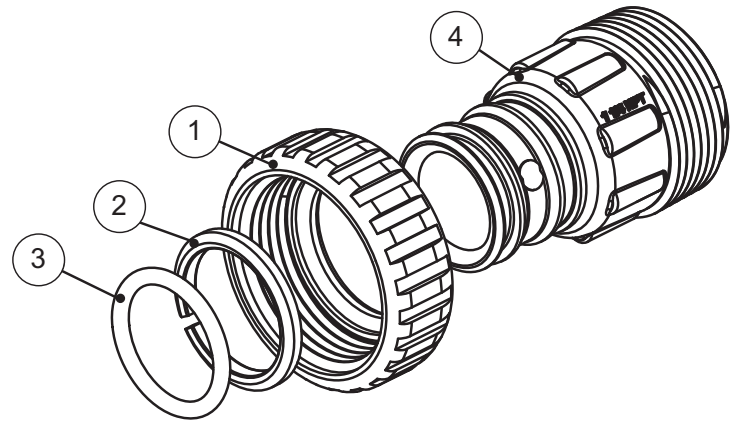


Figure 12 1/4" PLASTIC MALE ASSEMBLY (CV3007-05)

Item	Description	Part Number	Quantity
1	Nut, 1" quick connect	CV3151	1
2	Split ring	CV3150	1
3	O-ring 215	CV3105	1
4	Fitting	CV3317	1

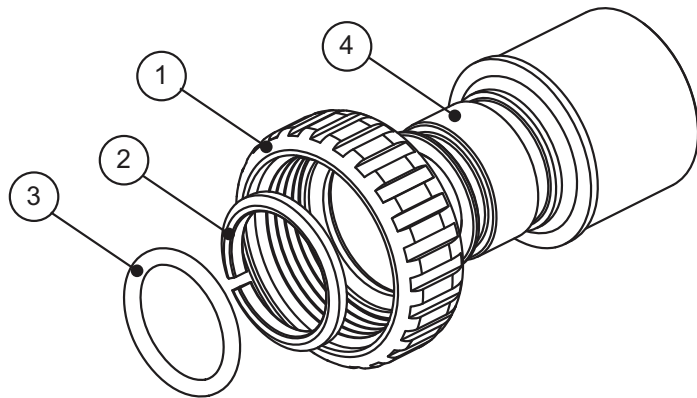


Figure 13 1 1/4" and 1 1/2" Brass Sweat Assembly (CV3007-09)

Item	Description	Part Number	Quantity
1	Nut, 1" quick connect	CV3151	1
2	Split ring	CV3150	1
3	O-ring 215	CV3105	1
4	Fitting	CV3375	1

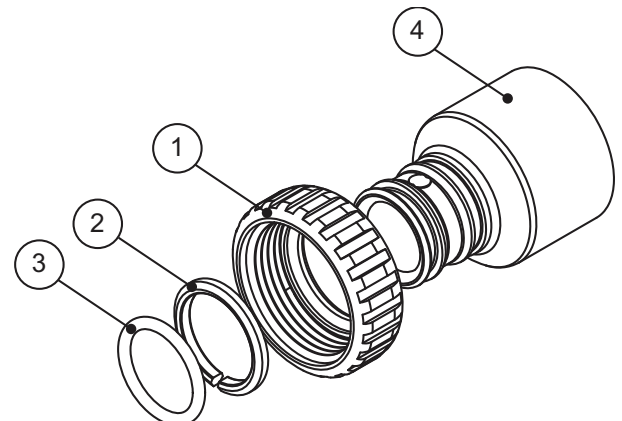
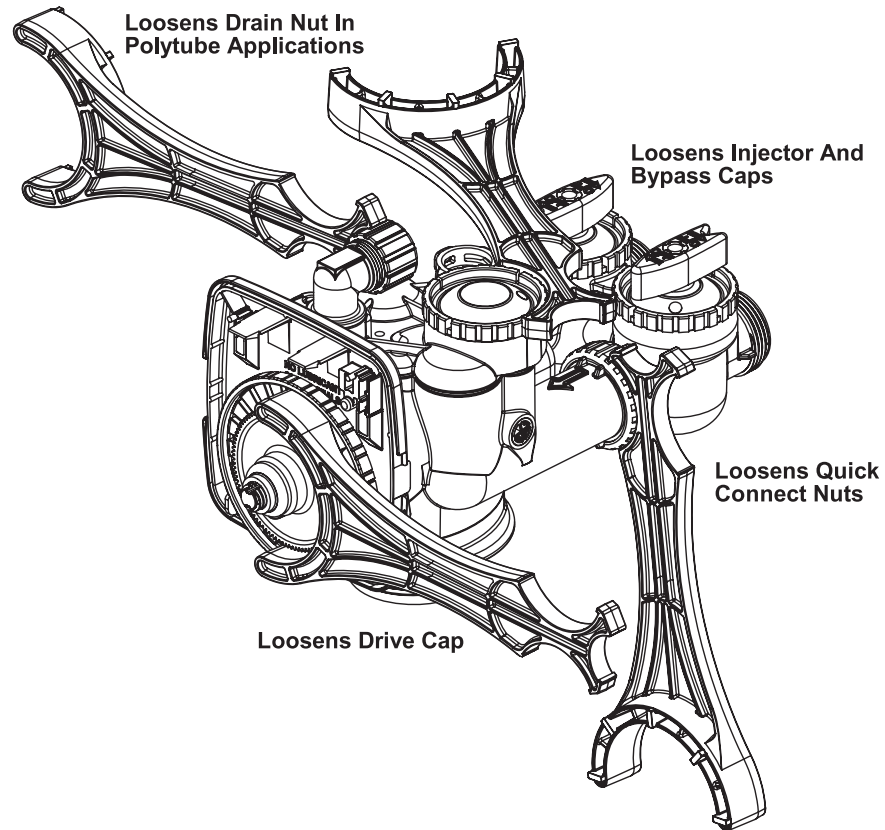


Figure 14 1 1/4" and 1 1/2" Pvc Solvent Assembly (CV3007-07)

Item	Description	Part Number	Quantity
1	Nut, 1" quick connect	CV3151	1
2	Split ring	CV3150	1
3	O-ring 215	CV3105	1
4	Fitting	CV3352	1



## 5.11 Service Wrench - CV3193-01



Although no tools are necessary to assemble or disassemble the valve, the Service Wrench, (shown in various positions on the valve) is available to aid in assembly or disassembly.

# Section 6 Specifications

Model	AWP 1054SE1	AWP 1354SE1	AWP 1465SE1	AWP 1665SE1	AWP 1054SE2	AWP 1354SE2	AWP 1465SE2	AWP 1665SE2	
1Capacity: (Grains/lbs NACL)	22600 @ 15.9 220700 @ 12.42.4 16400 @ 6.1	36900 @ 21.2 33600 @ 15.9 28300 @ 9.5	52000 @ 30.0 47000 @ 22.0 40000 @ 13.0	67000 @ 9.0 60000 @ 29.0 51000 @ 17.0	34800 @ 15.9 32000 @ 12.4 22900 @ 6.1	60300 @ 26.5 48300 @ 15.9 28200 @ 9.3	84000 @ 37.0 68000 @ 22.0 40000 @ 13.0	108000 @ 48.0 87000 @ 29.0 51000 @ 17.0	
Efficiency (grains/lb) at Lowest Setting	2700	3100	3100	3000	3800	3000	3100	3000	
Amount of Media	0.04 m <sup>3</sup> (1.5 ft <sup>3</sup> )	0.07 m <sup>3</sup> (2.5 ft <sup>3</sup> )	0.10 m <sup>3</sup> (3.5 ft <sup>3</sup> )	0.13 m <sup>3</sup> (4.5 ft <sup>3</sup> )	0.04 m <sup>3</sup> (1.5 ft <sup>3</sup> )	0.07 m <sup>3</sup> (2.5 ft <sup>3</sup> )	0.10 m <sup>3</sup> (3.5 ft <sup>3</sup> )	0.13 m <sup>3</sup> (4.5 ft <sup>3</sup> )	
Maximum Water Hardness	30 gpg	40 gpg	50 gpg	50 gpg	60 gpg	80 gpg	80 gpg	80 gpg	
2Maximum Iron	10.0 ppm	15.0 ppm	15.0 ppm	15.0 ppm	10.0 ppm	15.0 ppm	15.0 ppm	15.0 ppm	
Minimum pH Required	6.0	6.0	6.0	6.0	7.0	7.0	7.0	7.0	
Total pH Adjusted	252	432	580	730	252	432	580	730	
3Peak Flow Rate @ 15 psid	64.4 lpm (17.0 gpm)	71.9 lpm (19.0 gpm)	71.9 lpm (19.0 gpm)	71.9 lpm (19.0 gpm)	64.4 lpm (17.0 gpm)	71.9 lpm (19.0 gpm)	71.9 lpm (19.0 gpm)	71.9 lpm (19.0 gpm)	
Continuous Flow Rate @ 5 psid	30.3 lpm (8.0 gpm)	34.1 lpm (9.0 gpm)	37.9 lpm (10.0 gpm)	41.6 lpm (11.0 gpm)	30.3 lpm (8.0 gpm)	34.1 lpm (9.0 gpm)	37.9 lpm (10.0 gpm)	41.6 lpm (11.0 gpm)	
Water Pressure Range	25-100 psi	25-100 psi	25-100 psi	25-100 psi	25-100 psi	25-100 psi	25-100 psi	25-100 psi	
Water Temperature	0.5-37.7°C (33-100°F)	0.5-37.7°C (33-100°F)	0.5-37.7°C (33-100°F)	0.5-37.7°C (33-100°F)	0.5-37.7°C (33-100°F)	0.5-37.7°C (33-100°F)	0.5-37.7°C (33-100°F)	0.5-37.7°C (33-100°F)	
Electrical Voltage	110V/50-60Hz	110V/50-60Hz	110V/50-60Hz	110V/50-60Hz	110V/50-60Hz	110V/50-60Hz	110V/50-60Hz	110V/50-60Hz	
Pipe Size	3/4" brass	3/4" brass	1" brass	1" brass	3/4" brass	3/4" brass	1" brass	1" brass	
Overall Dimension	Media Tank & Valve (width x height) 25.4 cm x 157.5 cm (10" x 62") Brine Tank (width x height) 45.7 cm x 91.4 cm (18" x 36") SE Systems 63.5 kg (140 lbs) SE-HS Systems 70.7 kg (156 lbs)	33 cm x 157.5 cm (13" x 62") 45.7 cm x 102 cm (18" x 40") 99.8 kg (220 lbs) 109.3 kg (241 lbs)	35.3 cm x 185.4 cm (14" x 73") 45.7 cm x 102 cm (18" x 40") 116.3 kg (256 lbs) 129.1 kg (284 lbs)	40.6 cm x 185.4 cm (16" x 73") 45.7 cm x 102 cm (18" x 40") 141.4 kg (311 lbs) 157.3 kg (346 lbs)	25.4 cm x 157.5 cm (10" x 62") 45.7 cm x 91.4 cm (18" x 36") 63.5 kg (140 lbs) 70.7 kg (156 lbs)	33 cm x 157.5 cm (13" x 62") 45.7 cm x 102 cm (18" x 40") 99.8 kg (220 lbs) 109.3 kg (241 lbs)	33 cm x 157.5 cm (13" x 62") 45.7 cm x 102 cm (18" x 40") 99.8 kg (220 lbs) 109.3 kg (241 lbs)	35.3 cm x 185.4 cm (14" x 73") 45.7 cm x 102 cm (18" x 40") 116.3 kg (256 lbs) 129.1 kg (284 lbs)	40.6 cm x 185.4 cm (16" x 73") 45.7 cm x 102 cm (18" x 40") 141.4 kg (311 lbs) 157.3 kg (346 lbs)

\* SULPHUR REDUCTION - For applications requiring the additional removal of Hydrogen Sulphide up to 1 ppm (sulphur or "rotten egg" smell), special systems (-HS) are available which include KDF media between the gravel underbed and the Crystal-Right® Zeolite.

1 All Advanced Water Products Water Conditioners are factory pre-set at medium salting. Note: influent waters must be at least 3 gpg and have a minimum TDS of 80 ppm. A calcite or corosex unit may be needed for correct operation on acidic waters.  
 2 Iron removal may vary depending on form of iron, pH and other local conditions. On waters that are pre-chlorinated or where other pre-oxidation occurs, an iron precipitate can form that is too small to be filtered.  
 3 Unit not tested for capacity at these flow rates. Water quality may vary.

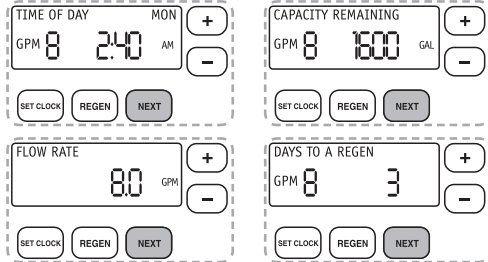
Model	AWP1054SE1		AWP1354SE1		AWP1465SE1		AWP1665SE1		AWP1054SE2		AWP1354SE2		AWP1465SE2		AWP1665SE2	
	MIN	GAL	MIN	GAL	MIN	GAL	MIN	GAL	MIN	GAL	MIN	GAL	MIN	GAL	MIN	GAL
Backwash	12	48	12	84	12	108	12	120	12	48	12	84	12	108	12	120
Brine & Rinse	90	36	90	72	90	92	90	103	90	36	90	72	90	92	90	103
Rapid Rinse	4	16	4	28	4	36	4	40	4	14	4	20	4	36	4	40
Brine Refill	9:56	5	11:53	6	15:51	8	19:56	10	9:56	5	11:53	6	15:51	8	19:56	10
Total	116	105	118	190	122	244	116	273	116	97	118	158	122	244	116	273

# Section 7 Quick Reference Guide

## General Operation

When the system is operating, one of the following four displays will be shown:

“TIME OF DAY/GPM”, “FLOW RATE”, “CAPACITY REMAINING” or “DAYS TO A REGEN”. Pressing **NEXT** will toggle between the three choices.



## Manual Regeneration

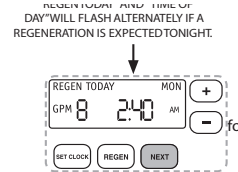
**Note:** For softeners, if brine tank does not contain salt, fill with salt and wait at least two hours before regeneration. If you need to initiate a manual regeneration, either immediately, or the same night at the pre programmed time, for regeneration (typically 2:00 AM), complete the following steps.

### For Immediate Regeneration:

Press and hold **REGEN** until valve motor starts (typically 3 seconds).

### For Regeneration the same night:

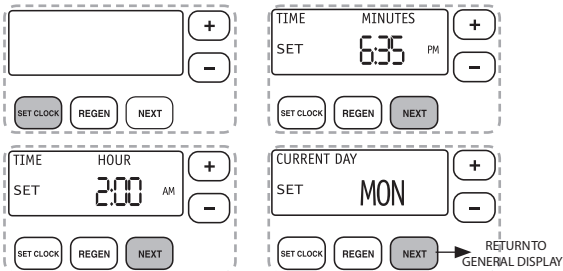
Press and release **REGEN** (notice that flashing “REGEN TODAY” appears).



## To Set Time of Day

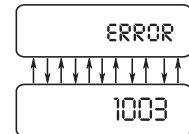
In the event of a prolonged power outage, time of day flashes, indicating that this needs to be reset. All other information will be stored in memory no matter how long the power outage.

- 1 Accessed by pressing **SET CLOCK**
- 2 Adjust hours with **+** and **-** buttons, AM/PM toggles at 12
- 3 Press **NEXT**
- 4 Adjust minutes with **+** and **-** buttons
- 5 Press **NEXT**
- 6 Adjust current day with **+** and **-** buttons
- 7 Press **NEXT** to complete and return to normal operation



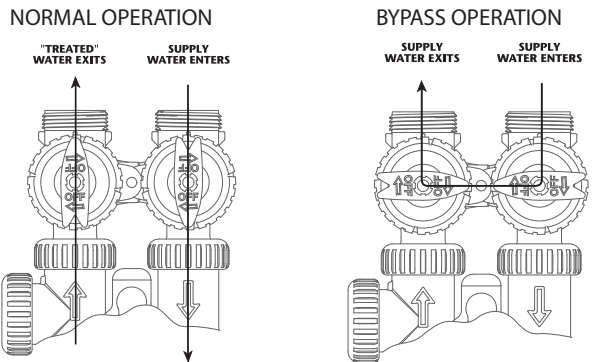
## Error

If the display toggles between “ERROR” and an error code (i.e. a number), call a service technician and report the error code.



## Bypass

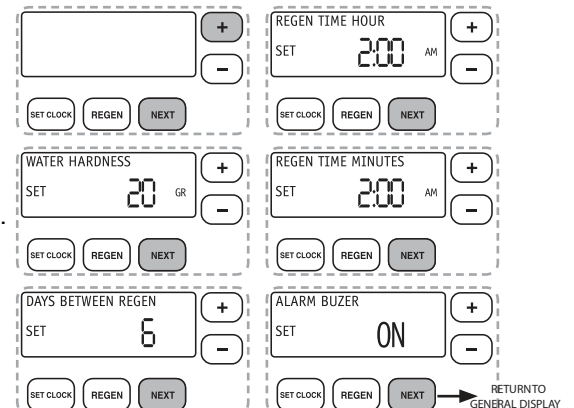
To shut off water to the system, position arrow handles as shown in the bypass operation diagram below. If your valve doesn't look like the diagram below, contact your service technician for instructions on how to shut off water.



## Adjust Harness, Days Between Regeneration, Time of Regeneration and Alarm Buzzer:

For initial set-up or to make adjustments, please complete the following steps:

- 1 Accessed by pressing **NEXT** and **+** button simultaneously
- 2 Adjust hardness using **+** and **-** buttons
- 3 Press **NEXT**
- 4 Adjust days between regenerations using **+** and **-** buttons
- 5 Press **NEXT**
- 6 Adjust time of regeneration hour with **+** and **-** buttons, “AM/PM” toggles at 12:00.
- 7 Press **NEXT**
- 8 Adjust time of regeneration minutes with **+** and **-** buttons
- 9 Press **NEXT**
- 10 Turn alarm buzzer ON or OFF with **+** and **-** buttons
- 11 Press **NEXT** to complete and return to normal operation



# Section 8 Manufacturer's Warranty

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This Advanced Water Products water conditioner unit is conditionally guaranteed against defects in material and workmanship for a period of three (3) years unless otherwise specified. The fiberglass "Mineral Tank" is conditionally guaranteed against defects in material and workmanship for a period of ten (10) years to the original owner of the equipment. The warranty does not include freezing of equipment, vacuum on system, or extreme pressure (+125 psi). The "Brine Tanks" are conditionally guaranteed against defects in material and workmanship for a period of five (5) years. The water conditioning "Media" is conditionally guaranteed against defects in material and workmanship for a period of one (1) year. The warranty does not cover change in water test, mis-application of media, use of mineral cleaners in brine tank including salt additives, lack of maintenance, or any other acts of God. VIQUA will not be responsible for any labour charges to the customer incurred by the dealer or any freight charges to or from the customer. The above provisions of the guarantee will be valid as long as the unit is connected with identical properties and conditions of the original installation and owned by the original owner. Provisions should be made by the owner, that in the event of leaking or overflow of the brine tank that the resulting flow of water will not damage any surroundings. No responsibility is assumed for loss of use of the unit, inconvenience, loss or damage to personal property or any consequential damages. This warranty extends only to repair or replacement (at the manufacturer's discretion) of this product in accordance with the conditions stated within.



425 Clair Rd. W, Guelph, Ontario, Canada N1L 1R1  
t. (+1) 519.763.1032 • tf. (+1) 800.265.7246 (US and Canada only)  
t. (+31) 73 747 0144 (Europe only) • f. (+1) 519.763.5069  
e-mail: [info@viqua.com](mailto:info@viqua.com)  
[www.viqua.com](http://www.viqua.com)