

AvantaPure® Professional Series Water Treatment System by GE

Operation Manual


Models: 269 Upflow Conditioner System



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WATER SOFTENER PERFORMANCE DATA SHEET

Model	Avantapure 269-869-100-1040	Avantapure 269-869-125-1047	Avantapure 269-869-150-1054
Rated Service Flow (gpm)	10.0	13.5	12.5
Pressure Drop at Rated Service Flow Rate (psi)	8.0	15.0	15.0
Rated Capacity (grains @ lb of salt)	10,600 @ 2.47 23,090 @ 9.06 27,918 @ 13.18	14,922 @ 3.0 32,503 @ 11.0 39,299 @ 16.0	17,906 @ 3.6 39,003 @ 13.2 47,158 @ 19.2
Rated Efficiency (grains/lb Salt @ lb of salt)	4,288 /lb. salt @ 2.47 lbs.	4,974 /lb. salt @ 3.0 lbs.	4,974 /lb. salt @ 3.6 lbs.
Maximum Flow Rate During Regeneration (gpm)	2.8	2.8	2.8
General Technologies C110 Ion Exchange Resin (cu ft)	1.0	1.25	1.5
Backwash - GPM	2.7	2.7	2.7
Rapid Rinse/purge - GPM	2.8	2.8	2.8
Operating Pressure: 20 -125 psi or 1.4 – 8.8 kg/Centimeter ² , Operating Temperature: 35 - 100° F or 1.6 – 38° C Acceptable Salt Type: Sodium Chloride – Pellet or solar salt for water softeners		All Systems above tested at 35psi +/- 5 psi, pH of 7.5 +/- 0.5, Capacity Testing Flow Rate = 50% of the rated service flow rate for the various size systems.	
<p>These water softener systems have been tested by WQA and conform to NSF/ANSI 44 for specific performance claims as verified and substantiated by test data. The rated salt efficiencies above were also determined in accordance with NSF/ANSI 44 and are only valid at the salt dosage referenced above. An efficiency rated water softener is a demand initiated regeneration (DIR) softener which also complies with specific performance specifications intended to minimize the amount of regenerant brine and water used in its operation. Efficiency rated water softeners shall have a rated salt efficiency of not less than 3350 grains of total hardness exchanged per pound of salt (based on NaCl equivalency) (477 grams of total hardness exchanged per kilogram of salt), and shall not deliver more salt than its listed rating. The rated efficiency of the water softener, the salt dosage at that efficiency, the capacity at that salt dosage and that of the efficiency is only valid at the stated salt dosage. Efficiency is measured by a laboratory test described in NSF/ANSI 44. The test represents the maximum possible efficiency the system can achieve. Operational efficiency is the actual efficiency achieved after the system has been installed. It is typically less than the efficiency due to individual application factors including water hardness, water usage, and other contaminants that reduce the water softener's capacity. These systems are not intended to be used for treating water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system. Refer to the system Installation and Service Manuals for set-up and programming instructions. Contact your local dealer for parts and service. See your owner's manual for warranty information.</p> <p>Important Notice: For conditions of use, health claims certified by the California Department of Public Health and replacement parts, see product data sheet.</p> <p>Iowa Requirement:</p>			
		<p>Seller: _____</p> <p>Date: _____</p>	
		<p>Buyer: _____</p> <p>Date: _____</p>	
		<p>7/16/10</p>	
		<p>Tested and Certified by the WQA against NSF/ANSI Standard 44 & 372 for softener performance & "lead free" compliance</p>	
		<p>The Avantapure 269 valve has been Tested and Certified by the WQA to NSF Std. 61 section 8 for Material Safety Only</p>	

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How To Use This Manual

This installation manual is designed to guide the installer through the process of installing and starting conditioners featuring the AvantaPure series controllers.

This manual is a reference and will not include every system installation situation. The person installing this equipment should have:

- Training in the AvantaPure series controllers and Autotrol brand valves
- Knowledge of water conditioning and how to determine proper control settings
- Basic plumbing skills
- The directional instructions "left" and "right" are determined by looking at the front of the unit.

Left Side Right Side

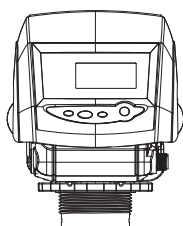


Figure 1

Icons That Appear In This Manual



WARNING: Failure to follow this instruction can result in personal injury or damage to the equipment.

Note: This will make the process easier if followed.

Introduction

Inspect the unit for damage or missing parts. Contact your supplier if any discrepancies exist.

Parts Included

- Resin Tank with Valve
- Brine Tank with Cover
- Power Transformer
- Water Bypass
- Hose Adapter and Flow Control in a bag
- Brine Well Assembly

General

General Warnings and Safety Information

Electrical

There are no user-serviceable parts in the AC adapter, motor, or controller. In the event of a failure, these should be replaced.

- All electrical connections must be completed according to local codes.
- Use only the power AC adapter that is supplied.
- The power outlet must be grounded.
- To disconnect power, unplug the AC adapter from its power source.

Mechanical

- Do not use petroleum based lubricants such as vaseline, oils, or hydrocarbon based lubricants. Use only 100% silicone lubricants.
- All plastic connections should be hand tightened. Teflon tape may be used on connections that do not use an O-ring seal. **Do not use pliers or pipe wrenches.**
- All plumbing must be completed according to local codes.
- Soldering near the drain line should be done before connecting the drain line to the valve. Excessive heat will cause interior damage to the valve.
- Observe drain line requirements.
- Do not use lead-based solder for sweat solder connections.
- The drain line must be a minimum of 1/2-inch diameter. Use 3/4-inch pipe if the backwash flow rate is greater than 7 GPM (26.5 Lpm) or the pipe length is greater than 20 feet (6 m).
- Do not support the weight of the system on the control valve fittings, plumbing, or the bypass.
- It is not recommended to use sealants on the threads. Use Teflon^a tape on the threads of the 1-inch NPT elbow, the drain line connections, and other NPT threads.
- Install appropriate grounding strap across the inlet and outlet metal piping of the water conditioning system to ensure that a proper ground is maintained.



WARNING: Dry location use only, unless used with a Listed Class 2 Power Supply suitable for outdoor use.

a. Teflon is a trademark of E.I. duPont de Nemours.

- Observe all warnings that appear in this manual.

- Keep the media tank in the upright position. Do not turn upside down or drop. Turning the tank upside down will cause media to enter the valve.
- Operating ambient temperature is between 35°F (1°C) and 120°F (49°C).
- Operating water temperature is between 35°F (1°C) and 100°F (38°C).
- Working water pressure range is 20 to 125 psi (1.38 to 8.6 bar). In Canada the acceptable working water pressure range is 20 to 100 psi (1.38 to 6.89 bar).
- Use only regenerant salts designed for water softening. Do not use ice melting, block, or rock salts.
- Follow state and local codes for water testing. Do not use water that is microbiologically unsafe or of unknown quality.
- When filling media tank, do not open water valve completely. Fill tank slowly to prevent media from exiting the tank.
- When installing the water connection (bypass or manifold) connect to the plumbing system first. Allow heated parts to cool and cemented parts to set before installing any plastic parts. Do not get primer or solvent on O-rings, nuts, or the valve.



WARNING: The valve and tank components of this unit have been assembled and tightened to the proper factory torque specifications. Over tightening may result in improper valve, probe and tank alignment and may damage the tank O-ring (PN 1010154).



WARNING: Excessive Weight Hazard. Use two or more people to move and install the conditioner. Failure to do so can result in injury (including back injury).

Equipment Installation

Valve Layout

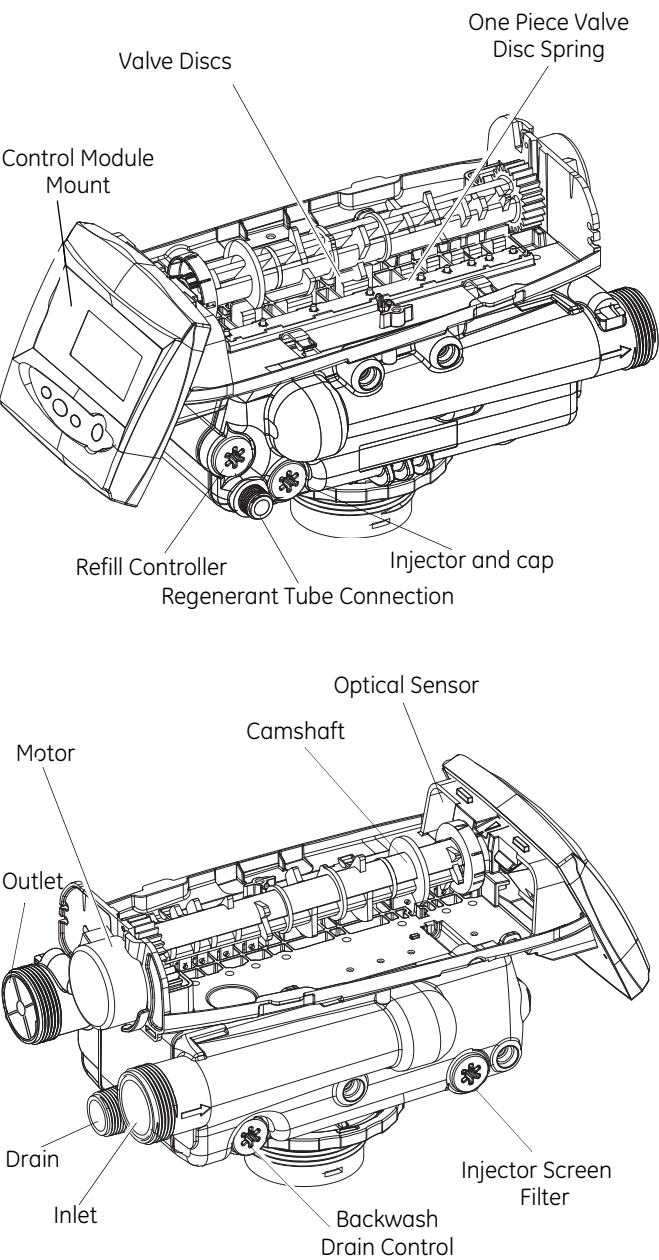


Figure 2

Control Layout

AvantaPure Controller

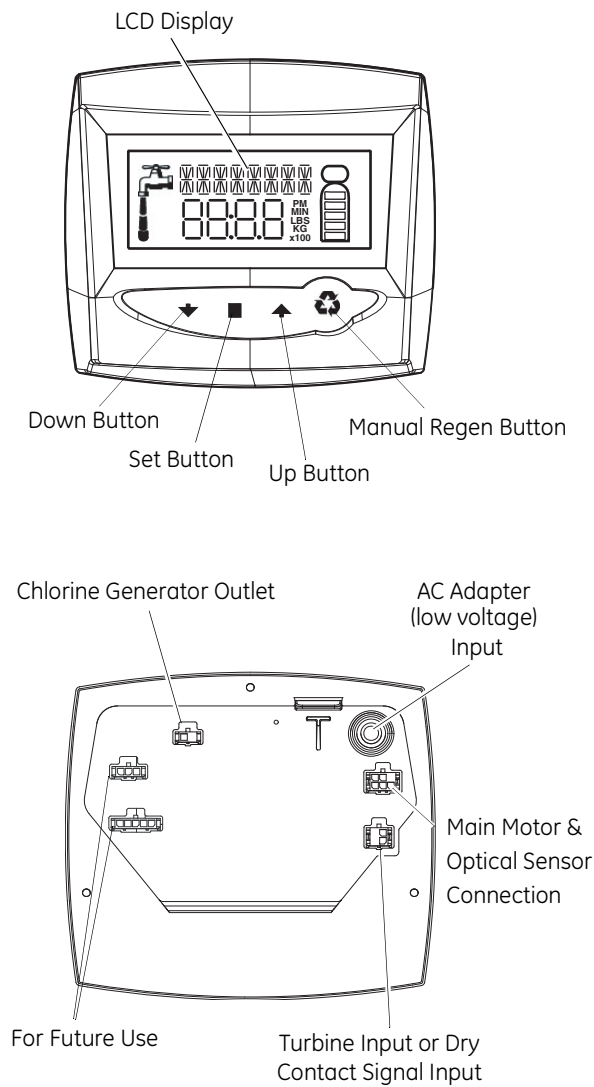


Figure 3

System Specifications

Item Number	4001428	4001429	4001430
Recharge Style	Upflow	Upflow	Upflow
Model Number	269-869-100-1040	269-869-125-1044	269-869-150-1054
Media Tank Size	10" x 40"	10" x 44"	10" x 54"
Resin Volume	1 ft ³	1.25 ft ³	1.5 ft ³
Recharge (Salt) Tank Size	15" x 40"	15" x 40"	15" x 40"
Salt Storage	240 lbs	240 lbs	240 lbs
Drain Water Rate	2.7 gpm	2.7 gpm	2.7 gpm
Service Connection Size	1" NPT	1" NPT	1" NPT
Drain Connection Size	3/4" NPT	3/4" NPT	3/4" NPT
Recharge (Brine) Connection Size	3/8" NPT	3/8" NPT	3/8" NPT
Typical Installation Space Requirements	26"W x 20"D x 46"H	26"W x 20"D x 50"H	26"W x 20"D x 60"H
Shipping Weight	105 lbs	120 lbs	135 lbs

Location Selection

Location of a water conditioning system is important. The following conditions are required:

- Level platform or floor.
- Room to access equipment for maintenance and adding regenerant (salt) to tank.
- Ambient temperatures over 35°F (1°C) and below 120°F (49°C).
- Water pressure below 125 psi (8.6 bar) and above 20 psi (1.38 bar).
- In Canada the water pressure must be below 100 psi (6.89 bar).
- Constant electrical supply to operate the control.
- Total minimum pipe run to water heater of ten feet (three meters) to prevent backup of hot water into system.
- Local drain for discharge as close as possible.
- Water line connections with shutoff or bypass valves.
- Must meet any local and state codes for site of installation.
- Valve is designed for minor plumbing misalignments. Do not support weight of system on the plumbing.
- Be sure all soldered pipes are fully cooled before attaching plastic valve to the plumbing.



WARNING: Dry location use only, unless used with a Listed Class 2 Power Supply suitable for outdoor use.

Outdoor Locations

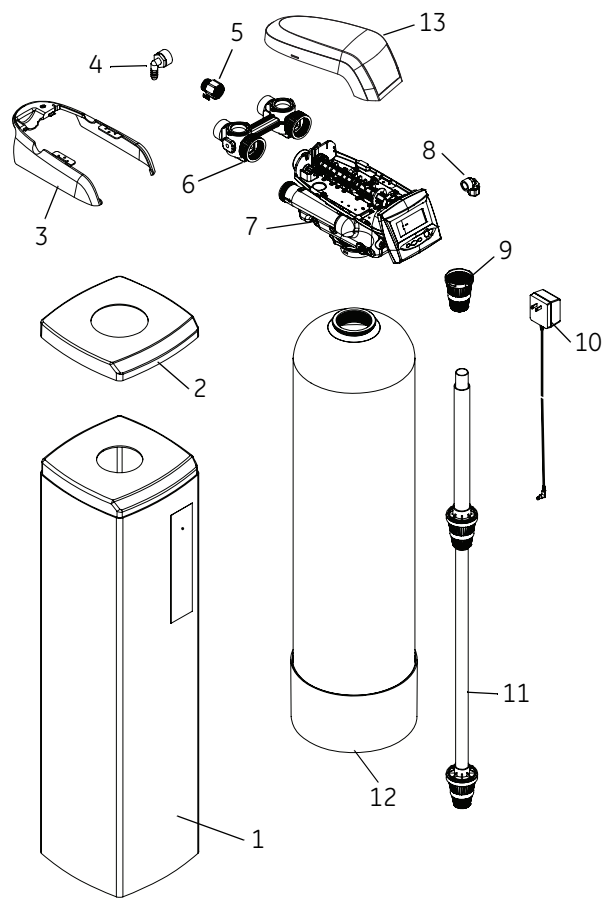
The AvantaPure system is designed to be installed indoors. A protected environment is recommended.

When the water conditioning system is installed outdoors, several items must be considered.

- **Moisture** – The valve and control are rated for NEMA 3 locations. Falling water should not affect performance. The system is not designed to withstand extreme humidity or water spray from below. Examples are: constant heavy mist, near corrosive environment, or upwards spray from sprinkler.
- **Direct Sunlight** – The materials used will fade or discolor over time in direct sunlight. The integrity of the materials will not degrade to cause system failures.
- **Temperature** – Extreme hot or cold temperatures will cause damage to the valve or controller. Freezing temperatures will freeze the water in the valve. This will cause physical damage to the internal parts as well as the plumbing and conditioning resin. High temperatures will affect the control. The display may become unreadable but the control should continue to function. When the temperature returns to normal operating limits, the display will return to normal. A protective cover should assist with high temperature applications.
- **Insects** – The control and valve have been designed to keep all but the smallest insects out of the critical areas. Any holes in the top plate can be covered with a metal foil ductwork tape. The top cover should be installed securely in place.

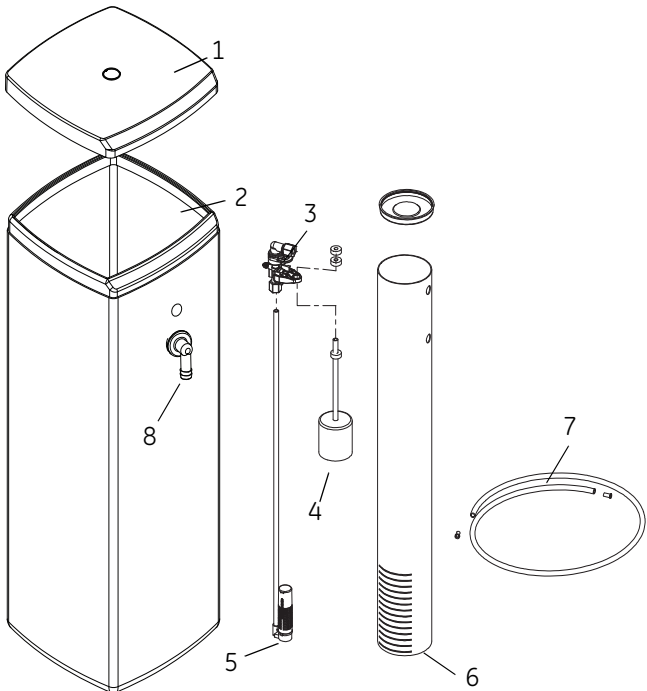
System Features

Resin Tank



- | | | | |
|---|-------------------|----|-----------------------|
| 1 | Resin Tank Shroud | 8 | Brine Fitting |
| 2 | Tank Cover | 9 | Upper Basket |
| 3 | Shield | 10 | Power Transformer |
| 4 | Hose Adapter | 11 | Distributor Tube Assy |
| 5 | Flow Control | 12 | Resin Tank |
| 6 | 1265 Bypass | 13 | Cover |
| 7 | Valve | | |

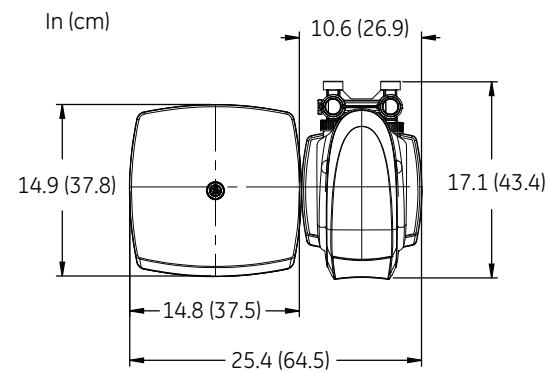
Brine Tank



- | | | | |
|---|-------------|---|------------------|
| 1 | Cover | 5 | Air Check |
| 2 | Brine Tank | 6 | Brine Well |
| 3 | Brine Valve | 7 | Tubing |
| 4 | Float | 8 | Overflow Fitting |

Equipment Installation

Dimensions



Dimension	10 x 40" Tank (25 x 102 cm)	10 x 44" Tank (25 x 112 cm)	10 x 54" Tank (25 x 137 cm)	10 x 54" Filter (25 x 137 cm)
A	39.9 (101)	43.9 (111)	53.9 (137)	53.9 (137)
B	47.4 (120)	51.4 (130)	61.4 (156)	61.4 (156)
C	43.2 (110)	47.2 (120)	57.2 (145)	57.2 (145)
D	41.6 (106)	45.6 (116)	55.6 (141)	55.6 (141)
E	33.7 (85.6)	33.7 (85.6)	33.7 (85.6)	—
F	37.8 (96)	37.8 (96)	37.8 (96)	—

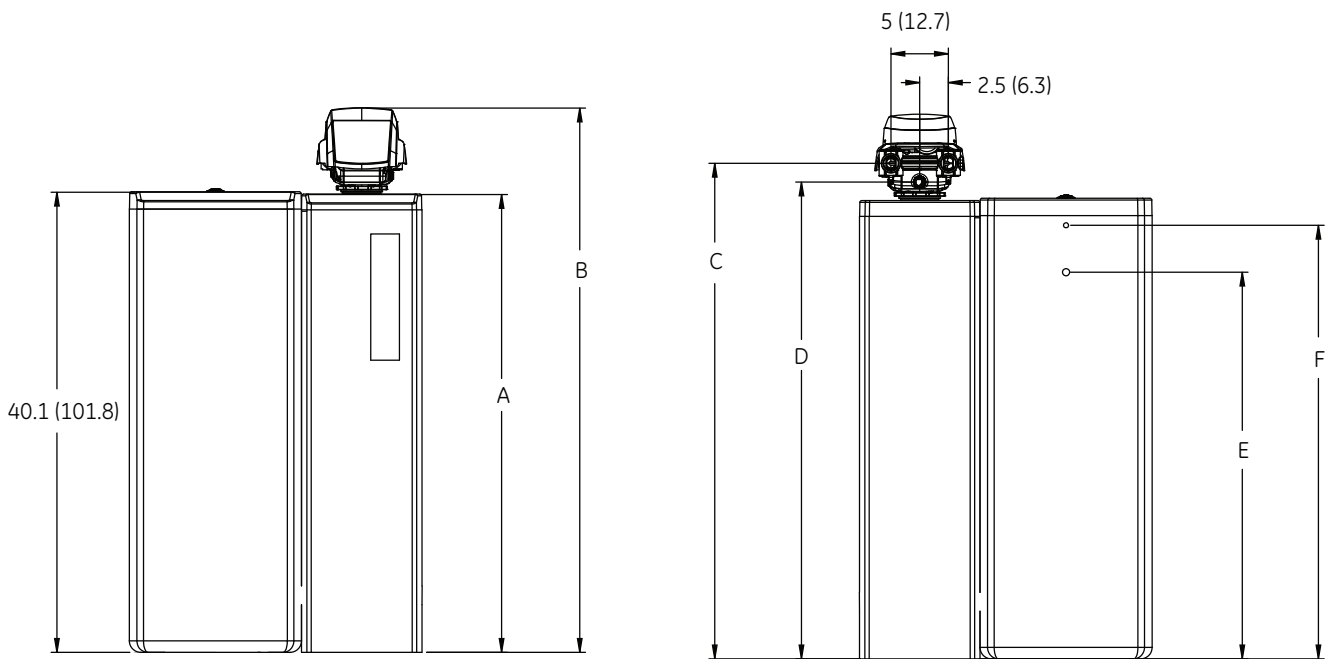


Figure 4

Typical System Layout

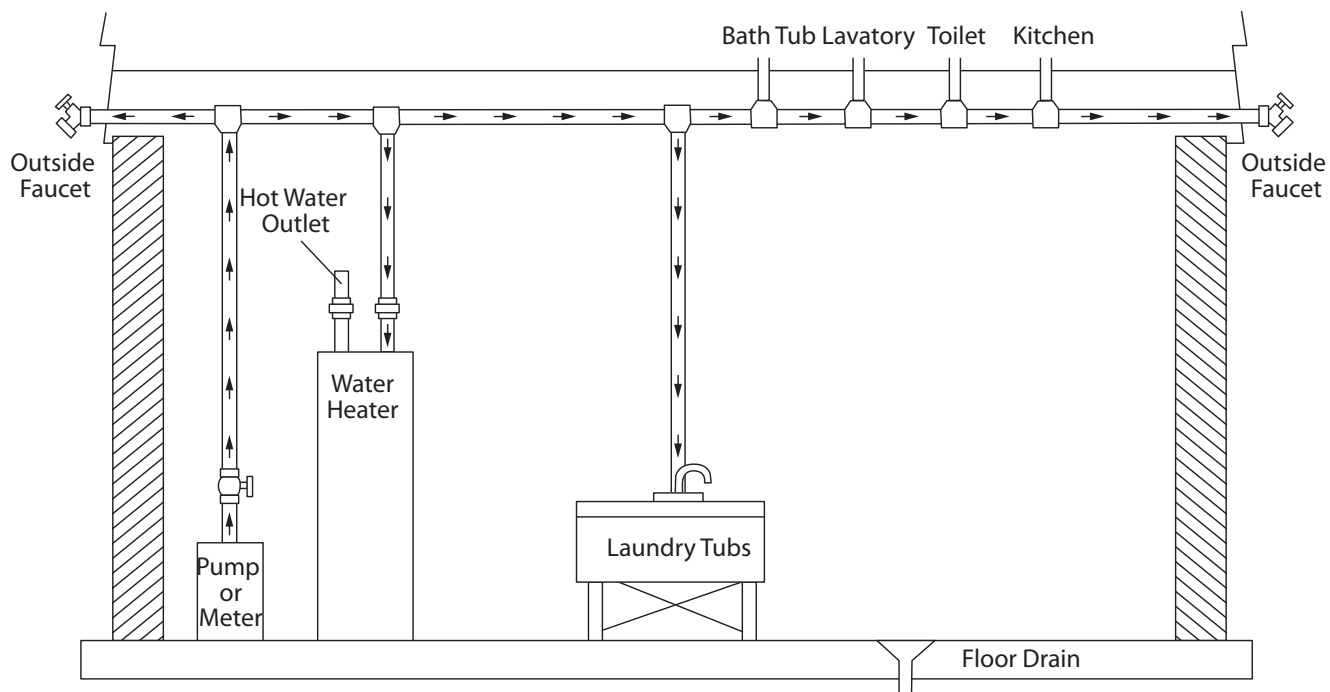


Figure 5 Standard Basement Before Installation. Cold water lines shown.

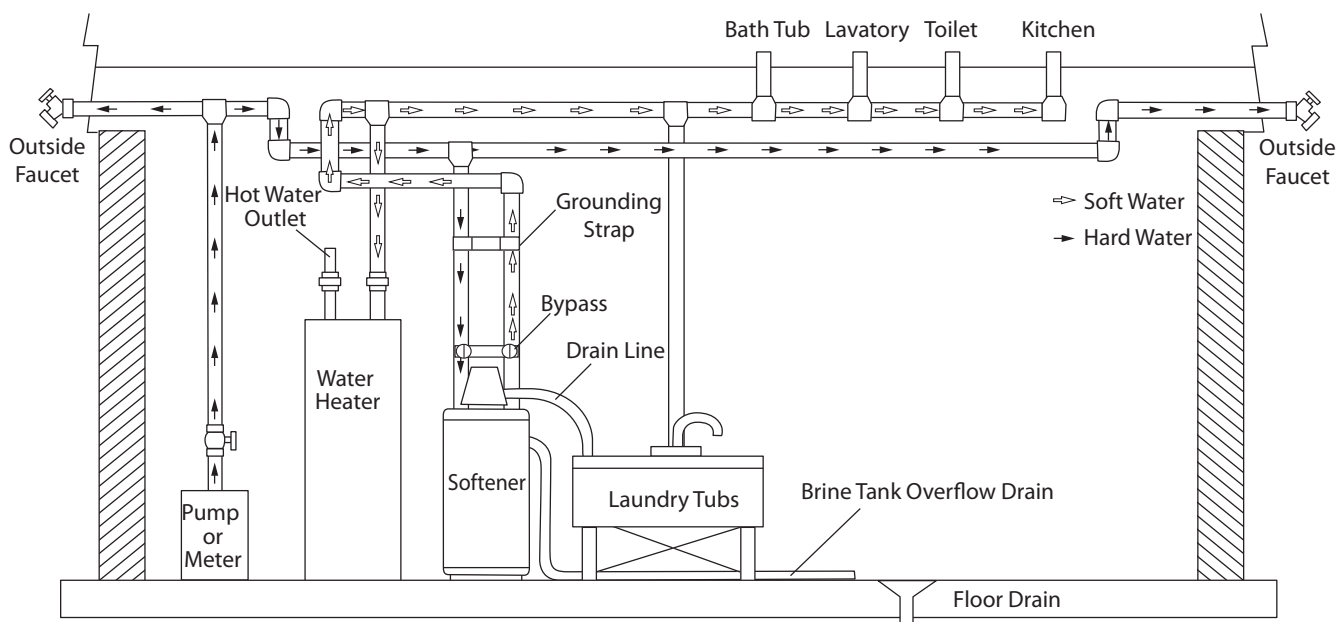


Figure 6 Softened Water Flow Diagram.

Inspection

The AvantaPure system is shipped with several parts unassembled. When parts are removed from the packing, they should be inspected for damage. If any parts are damaged or missing, contact your supplier.



WARNING: When handling the media tank do not turn it upside down or drop on its side.

When the carton is first opened, the softener will be standing upright.

CAUTION! REMOVE BRINE TANK SLOWLY

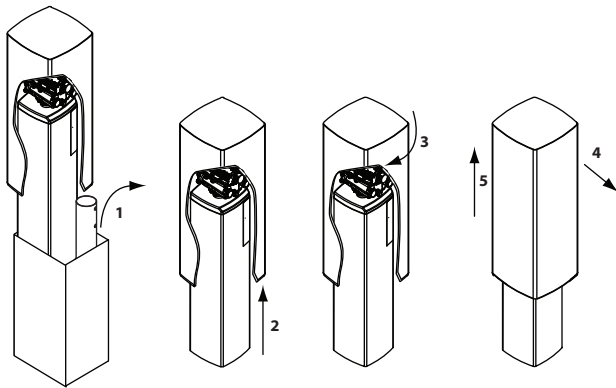


Figure 7



WARNING: The brine tank fits tightly over the valve. When removing the brine tank tip it forward and rotate slightly to pull off. Take care not to damage valve cover or control.

To assemble the system, remove the salt tank components (cover, tank and brine tube assembly) from the shipping container.

1. Remove the brine well and parts bags.
2. Lift the brine tank up 2 feet.
3. Turn the brine tank 1/4 turn to the right.
4. Tilt the brine tank toward the label and slowly lift free.

The media tank can now be removed.

To assemble the Salt Tank:

1. Stand the salt tank up and in position. Level as needed. The tank has two ports that will be connected. One to a drain and one to the valve.
2. Remove the overflow fitting from the brine tube. Place the brine tube in position. Align the large hole in the brine well with the hole in the brine tank. Install the overflow fitting in this hole to secure well to tank. Lay cover aside for now.

To Assemble the Media Tank:

1. Stand the tank up and in position.
2. If the floor under the media tank is uneven, level as needed.



WARNING: The media tank contains loose particles that will shift. If the tank is turned upside down or laid back quickly, the particles may enter the valve. If this happens, the valve may need to be disassembled and cleaned.

Water Line Connections

A bypass valve system should be installed on all water conditioning systems. A model 1265 bypass is included with this system. Bypass valves isolate the conditioner from the water system and allow unconditioned water to be used. Service or routine maintenance procedures may also require that the system is bypassed. Service during routine maintenance and servicing procedures. The illustrations below show the two common bypass methods.

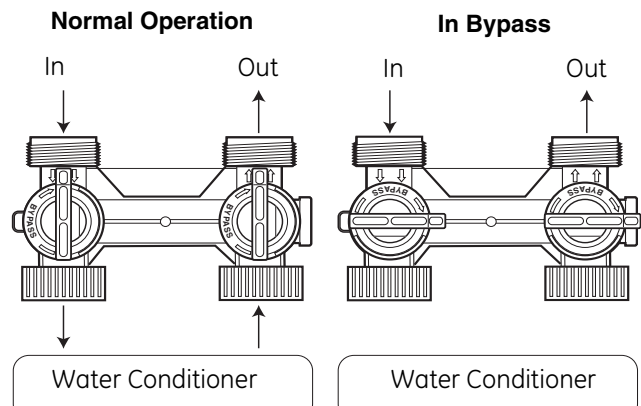


Figure 8 Model 1265 Bypass (Included)

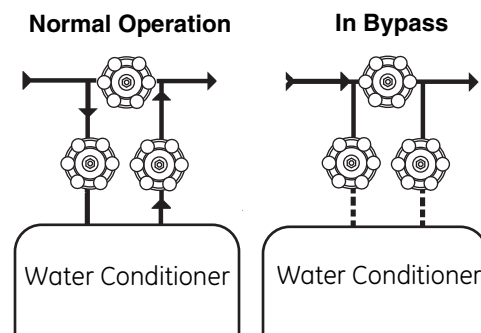


Figure 9 Typical Three Valve Bypass Configuration
(Not provided by manufacturer)

Note: Before turning on the water to the valve, rotate the two handles on the bypass valve 2-3 times. This will help seat the O-rings and prevent leaking.

If the plumbing to the conditioner is metal, a ground strap must be installed.

The plumbing must be self supporting and secure to prevent movement. A piece of metal or a ground strap is secured to both the inlet and outlet pipes, Figure 10.

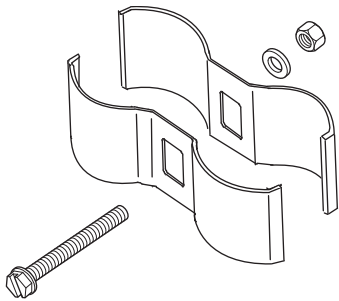


Figure 10 Grounding Strap



WARNING: The inlet water must be connected to the inlet port of the valve. When replacing non-Autotrol valves, the inlet and outlet may be reversed. It is also possible for the plumbing to be installed in an opposite order.
Do not solder pipes with lead-based solder.



WARNING: Do not use tools to tighten plastic fittings. Over time, stress may break the connections. When the 1265 bypass is used, only hand tighten the nuts.



WARNING: Do not use petroleum grease on gaskets when connecting bypass plumbing. Use only 100% silicone grease products when installing any AvantaPure brand valve. Non-silicone grease may cause plastic components to fail over time.

Note: Several tube adapters are available to connect the valve to the water plumbing. See *Parts List*.

Installation Instructions

The 269 conditioner should be installed by someone familiar with plumbing practices.

The conditioner is located after the pressure tank (or incoming water supply) and any filtration equipment. Water that leaves the conditioner will feed the hot water heater and the rest of the building.

Place the conditioner and resin tank in position.

Use the plumbing adapters or the bypass and connect the valve to the building plumbing. Be certain the water in and out valve connections match the plumbing.

Connect the drain line, see *Drain Line Connection*.

Connect the regenerant line, see *Regenerant Line Connection*.

Connect the brine tank overflow, see *Overflow Line Connection*.

Plug in AC adapter to the control. Before loading regenerant or applying power, review the sections on *AvantaPure Controller*, *Programming Conventions*, *Programming Levels I, II, and III*, and *Placing the Conditioner Into Operation*.

Plug the AC adapter into an electrical outlet that is not switched on/off. The controller display will cycle to Level I Programming. Refer to *Level I Programming* for further startup instructions.

Drain Line Connection

Note: Standard commercial practices are expressed here. Local codes may require changes to the following suggestions. Check with local authorities before installing a system.

1. The unit should be above and not more than 20 feet (6.1 m) from the drain. Use an appropriate adapter fitting to connect ½-inch (1.3 cm) plastic tubing to the drain line connection of the control valve.
2. If the backwash flow rate exceeds 5 gpm (22.7 Lpm) or if the unit is located 20-40 feet (6.1 – 12.2 m) from drain, use ¾-inch (1.9 cm) tubing. Use appropriate fittings to connect the ¾-inch tubing to the ¾-inch NPT drain connection on valve.
3. The drain line may be elevated up to 6 feet (1.8 m) providing the run does not exceed 15 feet (4.6 m) and water pressure at the conditioner is not less than 40 psi (2.76 bar). Elevation can increase by 2 feet (61 cm) for each additional 10-psi (.69 bar) of water pressure at the drain connector.
4. Where the drain line is elevated but empties into a drain below the level of the control valve, form a 7-inch (18 cm) loop at the far end of the line so that the bottom of the loop is level with the drain line connection. This will provide an adequate siphon trap. Tie or wire the hose in place at the drain point. Also provide an air gap of at least 1-1/2 inch between the end of the hose and the drain point.
5. Where the drain empties into an overhead sewer line, a sink-type trap must be used.
6. Secure the end of the drain line to prevent it from moving.

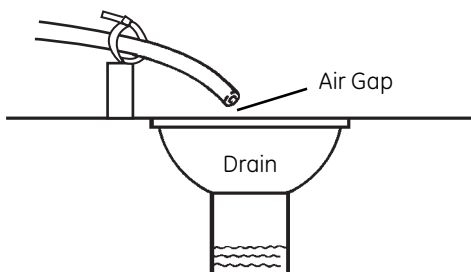


Figure 11 Drain Line Connection

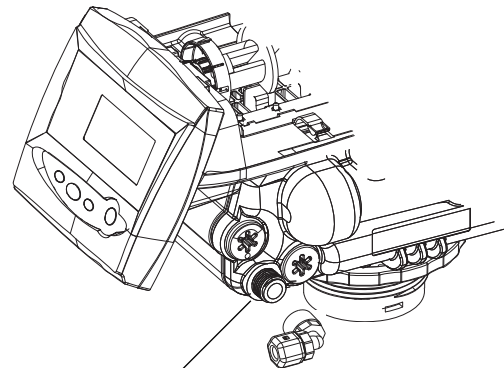


WARNING: Never insert drain line directly into a drain, sewer line or trap (Figure 11). Always allow an air gap between the drain line and the wastewater to prevent the possibility of sewage being back-siphoned into the conditioner.

Regenerant Line Connections

The regenerant line from the tank connects to the valve. Make the connections and hand tighten. Be sure that the regenerant line is secure and free from air leaks. Even a small leak may cause the regenerant line to drain out, and the conditioner will not draw regenerant from the tank. This may also introduce air into the valve causing problems with valve operation.

Ensure that pipe sealant (Teflon^a tape) is applied to the 3/8-inch NPT regenerant line connection.



Regenerant Line Connection

Figure 12

To install the line:

1. Insert one end of the tubing into the elbow on the valve.
2. Hand tighten the nut until tight.
3. Inside the salt tank, remove the cap from the large cylinder to gain access to the connection.
4. Be sure the brass insert is in the end of the brine tubing. Insert the tubing through the opening in the tank.
5. Push the tubing into the plastic nut. Slowly unscrew the nut until the tubing moves into the connection. The tubing will hit bottom.

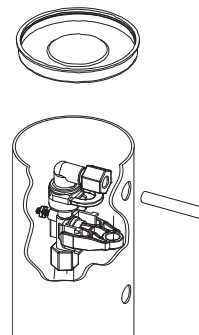


Figure 13

a. Teflon is a trademark of E.I. duPont de Nemours.

Note: Once the tubing has been pushed into the nut it cannot be pulled out. The nut will need to be removed. See Figure 14 for correct assembly.

6. Hand tighten the nut until the connection is tight.

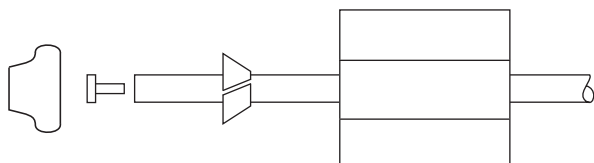


Figure 14

Overflow Line Connection

In the event of a malfunction, the salt TANK OVERFLOW will direct “overflow” to the drain instead of spilling on the floor. This fitting should be on the side of the cabinet. Most tank manufacturers include a post for the tank overflow connector.

To connect the overflow line, locate the tubing connector on side of tank, Figure 15. Attach length of 1/2-inch (1.3-cm) I.D. tubing to fitting and run to drain. Do not elevate overflow line higher than overflow fitting.

Do not tie into drain line of control unit. Overflow line must be a direct, separate line from overflow fitting to drain, sewer or tub. Allow an air gap as per drain line instructions.

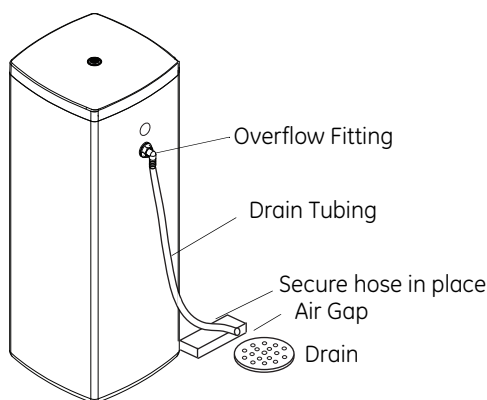


Figure 15

Electrical Connection



WARNING: This valve and control are for dry location use only, unless used with a Listed Class 2 Power Supply suitable for outdoor use.

Note: There are no user serviceable parts in the AC adaptor, motor or the control board.

All controllers operate on a 12-volt alternating current power supply. This requires use of the Pentair Water supplied AC adapter. A variety of AC adapters are available for different applications. These AC adapters are available from your supplier. They include:

AC Adapter	Input Voltage	Application	Part Number
Standard wall-mount	120V 60 Hz	Standard indoor application	1000811
Outdoor rated	120V 60 Hz	UL listed for outdoor installations	1235448

120 VAC AC Adapters:

Make sure power source matches the rating printed on the AC adapter.

Note: The power source should be constant. Be certain the AC adapter is not on a switched outlet. Power interruptions longer than 8 hours may cause the controller to lose the day and time settings. When power is restored, the day and time settings must be re-entered.

Controller Location

The controllers are designed to be mounted on the valve or attached to a flat surface. Installations that do not provide easy access to the valve can have the controller mounted for remote operation.

A remote mount connection, PN 1256257, is available for the AvantaPure Series controller.

System Operation

Treated Water (Downflow)

Untreated water is conditioned as it flows through the resin bed and up the riser. The 269 upflow conditioner is a system that will refill the salt tank at the start of a regeneration cycle. When a regeneration cycle begins, the salt tank is filled and brine is allowed to develop before Cycle 1 starts

Regenerant Refill – Cycle C8

Water is directed to the regenerant tank to create regenerant for the next regeneration.

Backwash (Upflow) – Cycle C1

Flow is reversed by the control valve, directed down the riser, up through the resin bed and sent to drain. The bed is expanded and debris is flushed to the drain.

Regenerant Draw (Downflow) – Cycle C2^a

Water passes through the injector and regenerant is drawn from the regenerant tank. The regenerant is directed to the resin bed. The hardness ions are displaced by sodium ions. Regenerant draw is completed when the air check closes.

Slow Rinse (Downflow) – Cycle C3^a

Water flow moves the regenerant through the resin at a specific rate and rinses to the drain. The resin is regenerated.

Repressurization – Cycle C4

Pressure is balanced in the valve before continuing the regeneration.

Fast Rinse (Downflow) - Cycle C5

Water passes through the resin bed and up through the riser to drain. All remaining regenerant residual is rinsed from the resin bed.

2nd Backwash (Upflow) – Cycle C6

Flow is identical to C1 Backwash. The resin is reclassified.

2nd Rinse (Downflow) - Cycle C7

Flow is identical to C5 Fast Rinse. The resin bed is rinsed to quality.

Cycle Water Flows

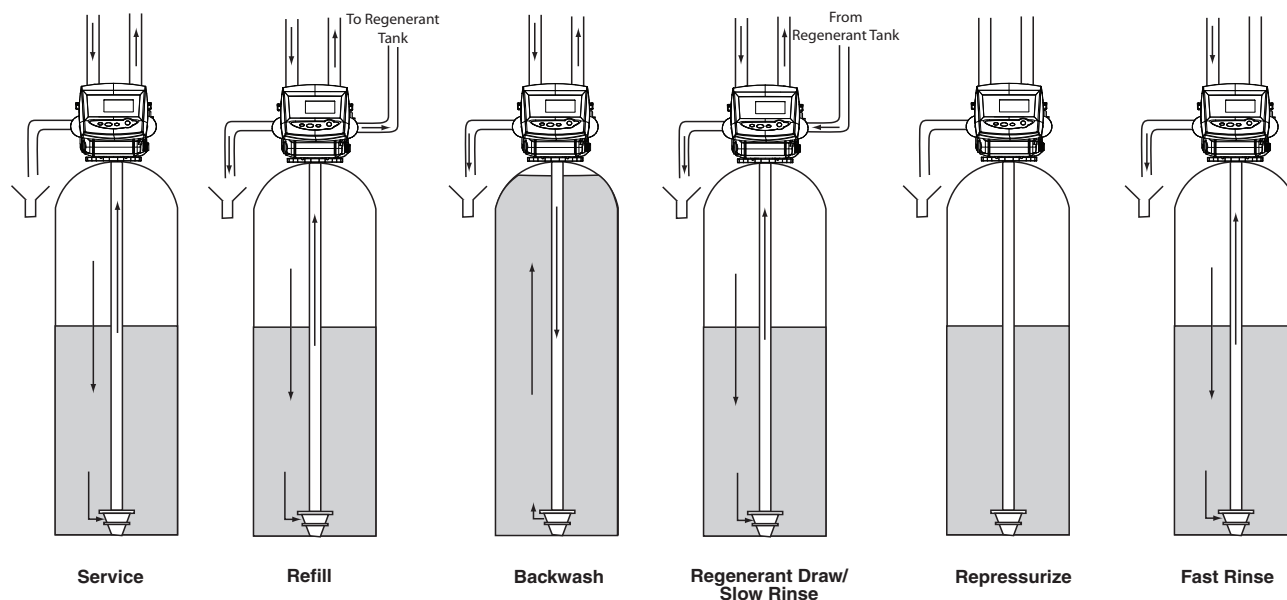


Figure 16

a. The camshaft does not change position between the C2 and C3 cycles. C2 is only momentarily displayed.

Valve Camshaft

The front end of the camshaft has an indicator cup. The cup has slots in the outer periphery and numbers on the inside face (Figure 17).

The numbers can be seen with the cover off, from the front over the top of the controller. The number at the top indicates which regeneration cycle is currently in progress.

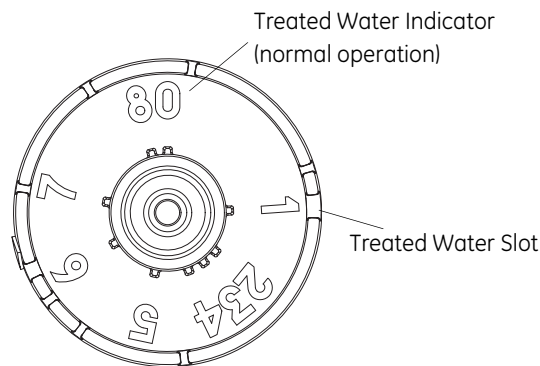


Figure 17

The corresponding slot for the number is positioned at the optical sensor which is approximately 90 degrees out of phase.

Regeneration Cycle Indicators

- 0 = Treated Water - normal operation mode
- 8 = Regenerant Refill
- 1 = Backwash Cycle
- 2 = Regenerant Draw Cycle
- 3 = Slow Rinse Cycle
- 4 = System Pause
- 5 = Fast Rinse Cycle 1
- 6 = Backwash Cycle 2
- 7 = Fast Rinse Cycle 2

Note: If electrical power is not available, the camshaft can be rotated counterclockwise by hand if the motor is removed.

Valve Operation

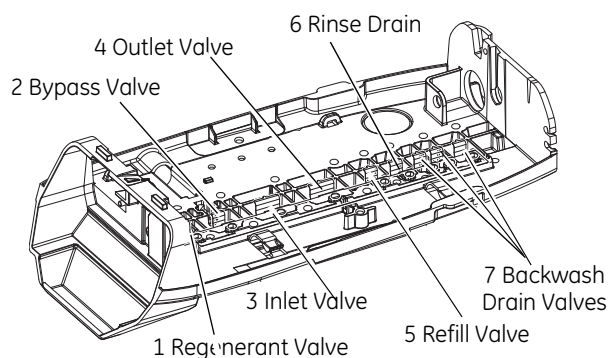




Figure 18 Valve

Injector Instructions

The injectors are coded according to size, by the number of “bumps” molded onto the end of the injector. The valve injector size is based on water pressure of 20 to 60 psi and uses an injector with 5 bumps. If water pressure exceeds 60 psi we recommend using a 4 bump size, see table below.

Water Pressure	Injector Used
20 to 60 psi	 5
61 to 120 psi	 4

Disinfection of Water Conditioners

The materials of construction of the modern water conditioner will not support bacterial growth, nor will these materials contaminate a water supply. During normal use, a conditioner may become fouled with organic matter, or in some cases with bacteria from the water supply. This may result in an off-taste or odor in the water.

Some conditioners may need to be disinfected after installation and some conditioners will require periodic disinfection during their normal life.

Depending upon the conditions of use, the style of conditioner, the type of ion exchanger, and the disinfectant available, a choice can be made among the following methods.

Sodium or Calcium Hypochlorite

These materials are satisfactory for use with polystyrene resins, synthetic gel zeolite, and bentonites.

5.25% Sodium Hypochlorite

These solutions are available under trade names such as Clorox^a. If stronger solutions are used, such as those sold for commercial laundries, adjust the dosage accordingly.

1. Dosage
 - A. Polystyrene resin; 1.2 fluid ounce (35.5 mL) per cubic foot.
 - B. Non-resinous exchangers; 0.8 fluid ounce (23.7 mL) per cubic foot.
2. Brine tank conditioners
 - A. Backwash the conditioner and add the required amount of hypochlorite solution to the well of the regenerant tank. The regenerant tank should have water in it to permit the solution to be carried into the conditioner.
 - B. Proceed with the normal regeneration.

Calcium Hypochlorite

Calcium hypochlorite, 70% available chlorine, is available in several forms including tablets and granules. These solid materials may be used directly without dissolving before use.

1. Dosage
 - A. Two grains (approximately 0.1 ounce (3 mL) per cubic foot.
2. Regenerant tank conditioners
 - A. Backwash the conditioner and add the required amount of hypochlorite to the well of the regenerant tank. The regenerant tank should have water in it to permit the chlorine solution to be carried into the conditioner.
 - B. Proceed with the normal regeneration.

AvantaPure Controller

Power Loss Memory Retention

The controllers feature battery-free time and date retention during the loss of power. This is designed to last a minimum of 8 hours depending on the installation. The controller will continue to keep time and day in dynamic memory while there is no AC power.

The controller will not track water usage on volumetric demand controls in the event of a power failure.

All programmed parameters are stored in the static memory and will not be lost in the event of a power failure. These settings are maintained separately from the time and day settings.

Motor

The controller uses a standard 12-volt AC motor that works with either 50 Hz or 60 Hz. The same motor is used worldwide and does not need to be changed for different power conditions.

Controller Memory

Information entered or calculated by the controller is stored in two different ways.

A static memory will store:

- Model number
- Regenerant setting
- Time of regeneration
- Days between regeneration
- Filter mode

A dynamic memory with 8 hour retention will store:

- Current day of week
- Running clock

Note: Water flow to the valve can be turned on or bypassed when the controller is powered up for the first time.

Variable Reserve Function

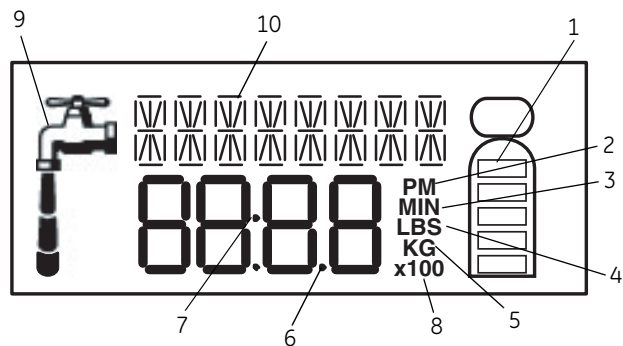
The metered-demand volumetric controllers are designed with a variable reserve feature. This feature automatically adjusts the reserve to the end-user's water usage schedule.

A variable reserve saves salt and water by only regenerating when absolutely necessary, and ensures enough soft water for typical high-water usage days.

Each day of regeneration the controller reviews the last four weeks of water usage for the same day of the week to determine if the remaining capacity is adequate for the next day of the week. If not, it will initiate an automatic regeneration.

a. Clorox is a trademark of the Clorox Company.

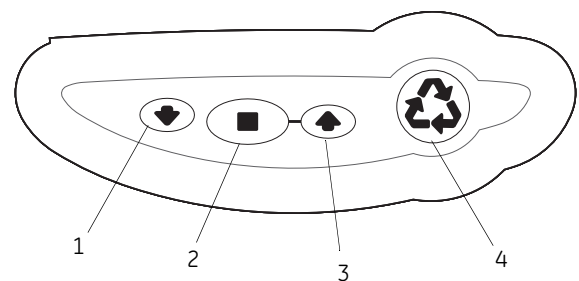
Display Icons







Note: In normal operation and during programming, only a few of the icons will actually be displayed.

- 1. Displays amount of conditioning capacity remaining.
- 2. "PM" indicates that the time displayed is between 12:00 noon and 12:00 midnight (there is no AM indicator). PM indicator is not used if clock mode is set to 24-hour.
- 3. When "MIN" is displayed, the value entered is in minute increments.
- 4. When "LBS" is displayed, the value entered is in pounds.
- 5. When "Kg" is displayed, the value entered is in kilograms or kilograins.
- 6. Four digits used to display the time or program value. Also used for error codes.
- 7. Colon flashes as part of the time display. Indicates normal operation.
- 8. X100 multiplier for large values.
- 9. Shows when water is flowing through the valve.
- 10. Banner display.

Keypad - Button



Button	Function
 Down	Scroll down through a list.
 Set	Press to accept a setting.
 UP	Scroll up through a list.
 Regenerate	Starts a regeneration

Things You Might Need to Know

- When the controller is first plugged in, it may display a flashing Err 3 and scrolling "Call Dealer for Service" message. This means that the controller is rotating to the home position. The Err 3 will clear when the control reaches the home position.
- The preset default time of regeneration is 2:00 AM. If you want to change it, see the *Level II Programming* section.
- The controller can be programmed to regenerate on specific days of the week. See *Level II Programming* section.
- If electrical power is not available, the camshaft can be rotated counterclockwise by hand if the motor is removed.
- The AvantaPure controller sends commands to the motor for camshaft movement. However, water pressure/flow are required during the regeneration cycle for backwash, purge and refill, and brine draw to actually take place.
- Make sure control power source is plugged in. The transformer should be connected to a non-switched power source.

Programming Overview

The AvantaPure controller is designed to operate by setting the Time of Day, Day of the Week, and the Hardness. The remaining settings are set at the factory using a Model Number.

The buttons on the keypad are used to adjust the settings of the controller.

The controller menu has three levels:

Level I Basic — This level is easily accessed by the user. Only the Time of Day, Day of Week and Time of Regeneration can be changed in Level I.

Level II Professional — This level allows the installer to change settings such as hardness, capacity, and cycle times.

Level III History — This operation history and the program are viewable. This information is used to troubleshoot and maintain the system.

Note: If a button is not pushed for thirty seconds, the controller returns to normal operation mode.

Level I Programming

The AvantaPure control can be quickly programmed by following the sequential procedure. Level I program parameters are those that can be accessed by pressing the UP or DOWN buttons.
















- **Model Number:** Select a model from the table based on the application. Review Table 1 and determine your model number before you start.
- **Time of Day:** Includes PM indicator. Can be set to display as a 24-hour clock. See Level II programming
- **Day of Week:** Set to actual day of the week.
- **Time of Regeneration:** Fully adjustable. Default is 2:00 AM.

Note: When the control is set up for a twelve-hour clock a PM indicator will illuminate when the displayed time is in the PM hours. There is no AM indicator.

Table 1

This table is for reference only. Your model number should be set by an AvantaPure Water Treatment Professional based on your specific application requirements.

Model Number	Tank Diameter Resin Cu. Ft.	Total Salt Dosage lbs	Total Capacity Kilograins	Injector Type
47	10 x 40 1.00 Ft ³	2.5	10,000	5 Bump
48	10 x 40 1.00 Ft ³	3.5	12,000	5 Bump
49	10 x 40 1.00 Ft ³	8.5	20,000	5 Bump
50	10 x 40 1.00 Ft ³	13	22,000	5 Bump
51	10 x 44 1.25 Ft ³	3	13,000	5 Bump
52	10 x 44 1.25 Ft ³	11	25,000	5 Bump
53	10 x 44 1.25 Ft ³	16	28,000	5 Bump
54	10 x 54 1.50 Ft ³	4.0	16,000	5 Bump
55	10 x 54 1.50 Ft ³	5.0	18,000	5 Bump
56	10 x 54 1.50 Ft ³	12.5	30,000	5 Bump
57	10 x 54 1.50 Ft ³	19	33,000	5 Bump

Scrolling Display	Buttons to Press	Description	Range
SELECT MODEL NUMBER	press  or  then 	1. Default is 11 Must select model from table	The range is 1-99 however, only the model selections in the table above are valid selections.
TIME OF DAY	press  or  then 	2. Time of Day Set to time of day. Includes PM monitor. The time will flash. Default is a 12 hr clock	12 or 24
DAY XX	press  then  or  press 	3. Day of Week Set to actual day of the week.	SU, MO, TU, WE, TH, FR, SA
REGENERATION TIME	press  then  or  press 	4. Time of Regeneration Set to desired time of regeneration. The time will flash.	Full 24 hours. Increments of 1 minute.
Programming is complete.			
<div>  <div> Service Display Scrolling name and valve model . Time with flashing colon. Capacity remaining shown as 1 to 5 bars. </div> </div>			



WARNING: Only the model numbers in Table 1 are to be used. Using a model number that is not in Table 1 will cause undesirable performance. If the programmed model number needs to be changed follow the steps below to select a valid model.

AvantaPure controller software includes additional Model Numbers that operate other AvantaPure valve types. If the Model number is set incorrectly an **ERROR 3** could be displayed when advancing the valve through the regeneration cycles. The valve will not function properly. The control Model Number must be selected from Table 1 in this service manual.

Viewing and Changing the Model Number

Viewing the Model Number

Press and hold the SET and DOWN buttons simultaneously until the display blanks out. Release buttons.

The Model Number will be displayed. Proceed to the next step to change the Model Number. **Note:** The control will revert back to the service display if no buttons are pushed within 30 seconds

To Change The Model Number

Press and hold the SET button until 0 is displayed

Release button.

A flashing 11 will now be displayed on the screen, which is a default model number.

Press the UP or DOWN button until the desired model number is displayed (See Table 1). *

Press and release the SET button to save the desired model number.

Time of day will scroll and time will be flashing.

*The Model Number setting is very important. The

Level II Programming

Level II program parameters are those parameters used to fine-tune a conditioners operation. These are accessible by pressing and holding the UP and DOWN buttons until the display goes blank. Then release the buttons. Calendar Override is the first Level II parameter displayed. Level II program parameters include:

269 Conditioner Operation Type

CALENDAR OVERRIDE

SALT AMOUNT*

CAPACITY K GRAIN

HARDNESS GPG

SELECT LANGUAGE

CLOCK MODE

UNITS OF MEASURE

INJECTOR SELECTION*

BACKWASH 1

SLOW RINSE

FAST RINSE 1

BACKWASH 2

FAST RINSE 2

OPERATION TYPE 268*

SERVICE INTERVAL

CHLORINE GENERATOR

*View only.

Level II parameters will, in almost all cases, be preset to meet your configuration needs. The predefined system number will preprogram all of the Level II parameters to the selected default values.

Scrolling Display	Buttons to Press	Description	Range
ENTER CALENDAR OVERRIDE	press then or press	1. Calendar Override* Set the maximum days between regenerations.	0-99 days
SALT AMOUNT	LOCKED	2. View Only	
CAPACITY K GRAIN	press then or press	3. System Capacity in Kilo Grains Refer to Table 1.	1-140
HARDNESS GPG	press then or press	4. Hardness Grains per Gallon Set based on measured hardness.	3-200
SELECT LANGUAGE	press then or press	5. Display Language Scroll and select banner language.	1-8
CLOCK MODE	press then or press	6. Clock Select 12 hr or 24 hr.	12 or 24
UNITS OF MEASURE	press then or press	7. Units of Measure Select English or Metric.	0-1
INJECTOR SELECTION	LOCKED	8. View Only	
BACKWASH 1	press then or press	9. First Backwash DO NOT CHANGE	Use factory settings
SLOW RINSE	press then or press	10. Slow Rinse DO NOT CHANGE	Use factory settings
FAST RINSE 1	press then or press	11. First Fast Rinse DO NOT CHANGE	Use factory settings
BACKWASH 2	press then or press	12. Second Backwash DO NOT CHANGE	Use factory settings
FAST RINSE 2	press then or press	13. Second Fast Rinse DO NOT CHANGE	Use factory settings
OPERATION TYPE	LOCKED	14. Valve Type Displays valve type selected at start-up. View Only.	
SERVICE INTERVAL	press then or press	15. Time between service reminder Select number of months between each service reminder.	1-99 months
CHLORINE GENERATOR	press then or press	14. Chlorine Generator Style Select On or Off.	0 or 1 or 2

*Setting days between regeneration to zero will cause the system to not regenerate. This setting is used for selecting regeneration on specific days or to use with a remote regeneration input. Regeneration on specific day is used to provide regeneration when water demands are not steady. For example, if the weekdays have low usage and the weekend is high, then regeneration every three days will not meet the requirements.

Level III Cycle Programming

Historical information can be retrieved from the controller by pressing the SET and DOWN buttons simultaneously, with the controller in the home position. Release both buttons when the controller displays MODEL NUMBER. Press the UP or DOWN buttons to navigate to each setting. The readout will scroll across the top of the display and the value will be displayed below the readout. Upon completing the initial programming procedure the average daily usages will display the same value. These values will change as the unit logs water usage.

Scrolling Display Readout	Range/Values	Valve Type
		269
MODEL NUMBER^a	See Salt/Capacity Table.	X
DAYS SINCE REGENERATION	0 to 255 days	X
PEAK FLOW RATE - DAY AND TIME	Language/Clock Mode Dependant	X
PEAK FLOW RATE GPM^a	0 to 47 GPM	X
WATER TREATED TODAY GAL	0 to 65536 gal.	X
WATER SINCE REGENERATION GAL	0 to 65536 gal.	X
SUNDAY AVERAGE USAGE GAL	0 to 65536 gal.	X
MONDAY AVERAGE USAGE GAL	0 to 65536 gal.	X
TUESDAY AVERAGE USAGE GAL	0 to 65536 gal.	X
WEDNESDAY AVERAGE USAGE GAL	0 to 65536 gal.	X
THURSDAY AVERAGE USAGE GAL	0 to 65536 gal.	X
FRIDAY AVERAGE USAGE GAL	0 to 65536 gal.	X
SATURDAY AVERAGE USAGE GAL	0 to 65536 gal.	X
TOTAL WATER USED GAL X 100^a	0 TO 999900 gal.^a	X
TOTAL WATER USED GAL X 1000000^a	0 to 42,940,000 gal.^a	X
MONTHS SINCE SERVICE^a	0 to 2184 months^a	X

a. Bold text indicates that specific values can be reset. Press and hold the SET button for 5 seconds to reset the value.

Placing 269 Water Conditioning System Into Operation (Fill Brine Tank First)

Quick Cycling the Analyzer Control

It is required that the control be quick cycled to specific regeneration cycles when placing the conditioner into operation. Please review the following instructions for quick cycling the control before proceeding to start-up.

1. With the control in the treated water position, press and hold the REGEN button on the control for 5 seconds. This will initiate a manual regeneration. The control will display an hourglass indicating that the motor and camshaft are turning. The control also displays the total regeneration time remaining. When the control reaches the pre-pressurize cycle, the hourglass is no longer displayed and the motor will turn off. Pressing the SET button will display the time remaining for the current cycle.
2. Press and release the UP and SET buttons to move the control to the next cycle.

Note: The control can be sent directly back to the treated water position from any regeneration cycle. Press and hold the UP and SET buttons (about 5 seconds) until the hourglass icon appears solid. The control will now skip all remaining regeneration cycles.

Start-Up

After you have performed the previous initial power-up steps, you will need to place the conditioner into operation. Follow these steps carefully, as they differ from previous Pro Elite valve instructions.

1. Remove the cover from the valve. Removing the cover will allow you to see that the camshaft is turning, and in which cycle the camshaft is currently positioned.
2. With the supply water for the system still turned off, position the bypass valve to the "not in bypass" (normal operation) position.
3. Press and hold the REGEN button on the control for 5 seconds. This will initiate a manual regeneration. The control will display an hourglass indicating that the motor and camshaft are turning. The control also displays the total regeneration time remaining. When the control reaches the repressurize cycle (C4), the hourglass is no longer displayed and the motor will turn off. Pressing the SET button will display the time remaining for the current cycle.
4. Press and release SET and UP simultaneously to advance to each cycle.

5. Advance the control to the Backwash cycle (C1). See Cycle Sequence Table.

Cycle Sequence Table

C#	Cycle Description	Time in Minutes
C0	Service	
C4*	Re-pressurize	3
C8	Brine Refill	Calculated
C0	Brine Make-up	120
C1	Backwash	14
C2	Brine Draw	Calculated
C3	Slow Rinse	Calculated
C4*	2 nd Re-pressurize	3
C5	Fast Rinse	6
C6	2 nd Backwash	1
C7	2 nd Fast Rinse	1
*Note: C4 re-pressurization does not have flow to drain.		

6. Fill the media tank with water.
 - A. While the controller is in the backwash (C1) cycle, open the water supply valve very slowly to approximately the 1/4 open position.



WARNING: If opened too rapidly or too far, media may be lost out of the tank into the valve or the plumbing. In the ¼ open position, you should hear air slowly escaping from the valve drain line.

- B. When all of the air has been purged from the media tank (water begins to flow steadily from the drain line), open the main supply valve all of the way. This will purge the final air from the tank.
 - C. Allow water to run to drain until the water runs clear from the drain line. This purges any refuse from the media bed.
 - D. Turn off the water supply and let the system stand for about five minutes. This will allow any air trapped to escape from the tank.
7. Add water to the regenerant tank (conditioner only).
 - A. With a bucket or hose, add enough water to the regenerant tank to have water visible.

Note: We recommend that you do not put regenerant into the tank until after the control valve has been put into operation. With no regenerant in the tank, it is much easier to view water flow and motion in the tank.

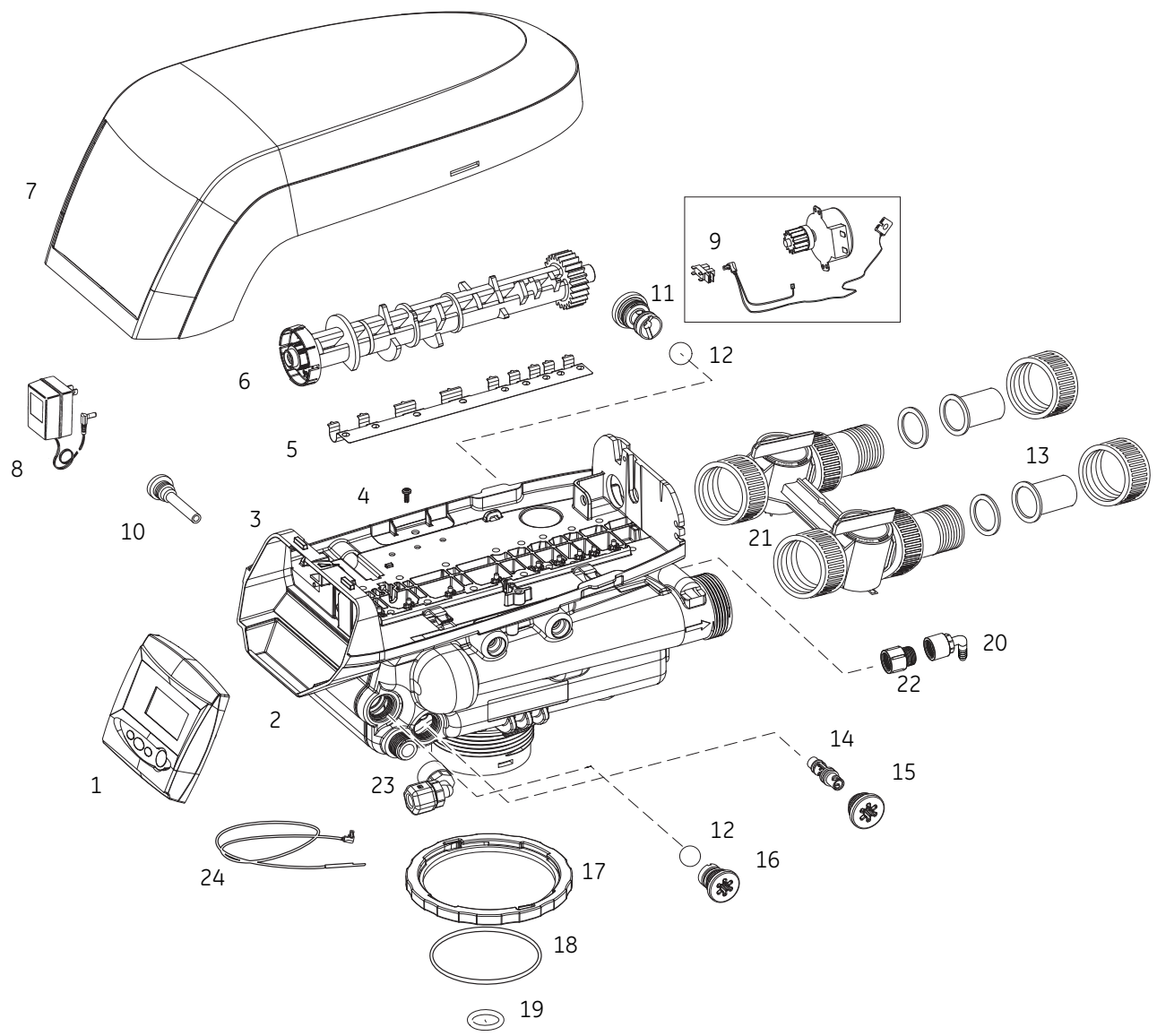
8. Press and hold the SET and UP button for 5 seconds to cancel regeneration, and cycle the control back to the service position.
9. Start another regeneration. Advance the controller to the brine refill position (C8) to prime the line between the regenerant tank and the valve (conditioner only).
 - A. Slowly open the main water supply valve again to the fully open position. Be sure not to open too rapidly, as that would push the media out of the media tank.

Note: As you advance through each cycle, there will be a slight delay before you can advance to the next cycle. There will be a pause after the brine draw and slow rinse cycles (system pause). This cycle allows the water/air pressure to equalize on each side of the valve discs.

- B. With the water supply completely open, when you arrive at the brine tank refill cycle, the controller will direct water down through the line and into the tank. Watch the bottom of the tank until all air bubbles have been purged from the line and the water level is rising.
 - C. Let the water flow down the line to the tank only until the rising water is visible.
 - D. Simultaneously press and release the SET and UP buttons to advance to the Brine Make-up cycle. After the Brine Make-up cycle is reached, press the SET and UP buttons to advance to the Brine Draw/Slow Rinse cycle.
10. Draw water from the regenerant tank.
 - A. With the controller in this position, check to see that the water in the regenerant tank is being drawn out of the tank. The water level in the tank should recede very slowly.
 - B. If the water in the regenerant tank does not recede, or goes up, refer to the Troubleshooting section.
11. If the water level is receding from the regenerant tank, wait for the tank check valve to stop the water flow. Press the SET and UP buttons to advance the controller back to the treated water position.
12. Finally, turn on a faucet plumbed after the water conditioner. Run the faucet until the water runs clear.

The Water Conditioning System is Now Fully Operational.

AvantaPure Valve Exploded View & Parts List

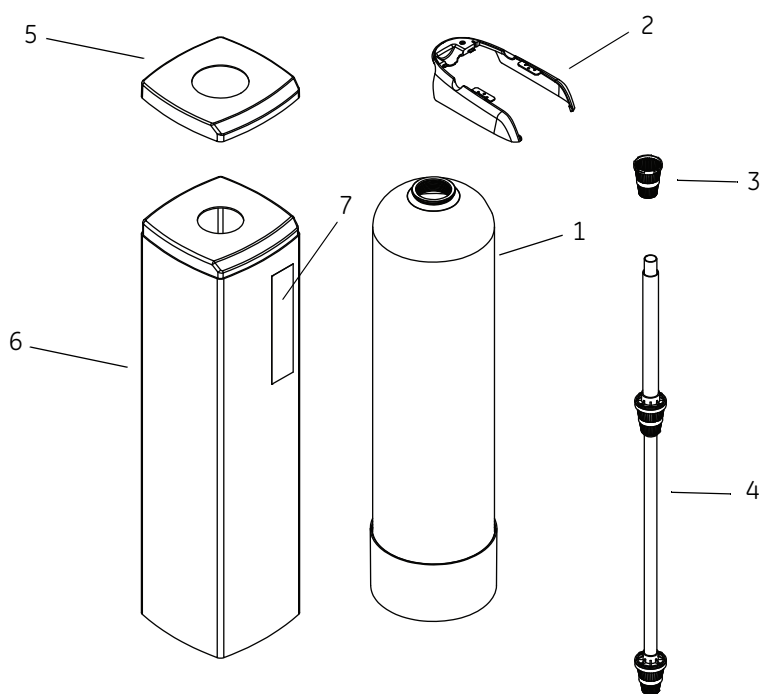


Item	Part Number	Description	Qty.	Item	Part Number	Description	Qty.
1	3001745	AvantaPure Control	1	12	1030502	Ball, Flow Restrictor	12
2	1244651	Valve Assembly w/o Flow Controls	1	13	Not Included	Adapter Kit, Multiple Options	1
3	1235338	Top Plate, Valve	1	14	1035734	"J" Injector, Lt Blue 10-inch tank	1
4	1234170	Screw, Top Plate	18	15	1000269	Injector Cap with O-Ring	1
5	1235339	Valve Disc Spring, Valve	1	16	1243510	Refill Ball & Cone Type Flow Controller	1
6	1235352	Cam Valve, Black, 263, 268	1	17	1035622	Tank Ring	1
	1237402	Cam Valve, Green, 269		18	1010154	O-Ring, Tank	1
7	4000584	Cover, AvantaPure Lt Gray, Indoor**	1	19	1010428	O-Ring, Riser Tube	1
*	4000585	Skirt,AvantaPure Lt Gray	1	20	1002449	Valve Drain Connection Fitting, Elbow, 3/4 NPT x 1/2 Hose (Tubing)	1
*	1240601	Cover, AvantaPure Lt Gray, Outdoor**	1	*	1041174	Valve Disc Kit	1
8	1000811	Transformer, 120 VAC, 60 Hz,, N. American Plug	1	21	1040930	1265 Bypass, Valve	1
9	3019221	Motor/Optical Cable/Sensor	1	22	1264271	10" Drain Line Flow Control	1
10	1000226	Screen/Cap Assembly w/O-Ring	1	23	4001129	Brine Fitting	1
11		Drain Control Assembly:		24	1235446	Flow Sensor Cable	1
	1000212	No. 10 (2.7 gpm; 10.2 Lpm)		*	1033444	Turbine Assembly	1

* Not Shown on Drawing

**Order Separately

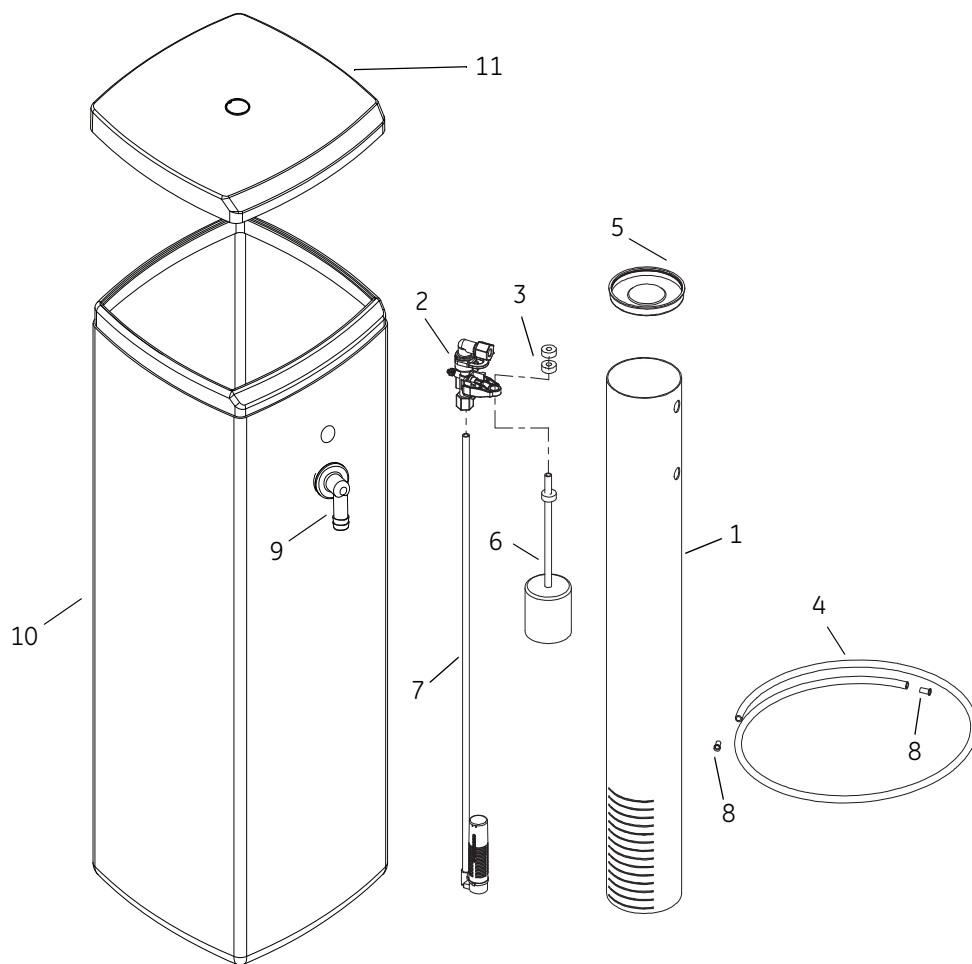
Resin Tank Assembly and Parts List



Item	Part Number	Description	Qty.
1	CH30491-01010101-30	Tank, 10 x 40, Universal Inlet, Natural Color, Composite Base	1
	CH30523-01010101-30	Tank 10 x 44, Universal Inlet, Natural Color, Composite Base	
	CH30579-01010101-30	Tank 10 x 54, Universal Inlet, Natural Color, Composite Base	
2	4000585	Shield, Decorative Performa Logix	1
3	1035682	Distributor, Basket, Upper 269	1
4	GL4001422	Distributor Tube Assy, ABS 40"	1
	GL4001423	Distributor Tube Assy, ABS 44"	
	GL4001424	Distributor Tube Assy, ABS 54"	
5	CH20902-2	Cover, Shroud, Lt. Gray, AvantaPure	1
6	GL4001456	Shroud, Resin Tank, 40", Lt. Gray Assy*	1
	GL4001457	Shroud, Resin Tank, 44", Lt. Gray Assy*	
	GL4001407	Shroud, Resin Tank, 54", Lt. Gray Assy*	
7	GL4001283	Overlay, Jacket, AvantaPure	1

*Assembly includes #7.

Brine Tank and Brine Well (CH15676) Assembly Exploded View & Parts List



Item	Part Number	Description	Qty.
1	CH15013-2	Brine Well w/Slots	1
2	CH15062	Safety Brine Valve	1
3	CH15070	Grommet	2
4	CH16371-60	Tubing, 3/8" x 60" Long	1
5	CH15024	Cap, Brine Well 4" Dia. (Caplug STP -4)	1
6	CH15064-1	Brine Float w/One Grommet (As Purchased)	1
7	CH15063-2	Air Check Assembly	1
8	BR10332	Tubing Insert, Brass	2
9	CH20774	Overflow Fitting Assembly	1
	CH15031-1	Overflow Elbow	1
	CH15031-2	Overflow Nut	1
	CH16331	Gasket	1
	CH20731-1	Polypro Washer	1
10	GL4001454	Brine Tank & Cover	1
11	GL4001453	Cover, Square AvantaPure	1
*	GL4001448	Label, WQA AvantaPure	1
*	GL40011447	Label, WQA AvantaPure, STD 61	1

* Not Shown

Troubleshooting

AvantaPure Controller Troubleshooting

Problem	Possible Cause	Solution
ERR 1 is displayed.	Program settings have been corrupted.	Press any key and reset model number.
ERR 3 is displayed.	Controller does not know the position of the camshaft. Camshaft should be rotating to find Home position.	Wait for two minutes for the controller to return to Home position. The hourglass should be flashing on the display indicating the motor is running.
	Camshaft is not turning during ERR 3 display.	<p>Check that motor is connected. Verify that motor wire harness is connected to motor and controller module.</p> <p>Verify that optical sensor is connected and in place.</p> <p>Verify that motor gear has engaged cam gear.</p> <p>If everything is connected, try replacing in this order:</p> <ul style="list-style-type: none"> —Wire harness —Motor —Optical sensor —Controller
	If camshaft is turning for more than five minutes to find Home position:	<p>Verify that optical sensor is in place and connected to wire.</p> <p>Verify that camshaft is connected appropriately.</p> <p>Verify that no dirt or rubbish is clogging any of the cam slots.</p> <p>If motor continues to rotate indefinitely, replace the following components in this order:</p> <ul style="list-style-type: none"> —Wire harness —Motor —Optical sensor —Controller
Time of Day incorrect.	Power failure occurred.	Press SET to reset the time display.

System Troubleshooting

Problem	Possible Cause	Solution
1. Brine tank overflow.	<ul style="list-style-type: none"> a. Uncontrolled brine refill flow rate. b. Air leak in brine line to air check. c. Drain control clogged with resin or other debris. 	<ul style="list-style-type: none"> a. Remove brine control to clean ball and seat. b. Check all connections in brine line for leaks. Refer to instructions. c. Clean drain control.
2. Flowing or dripping water at drain or brine line after regeneration.	<ul style="list-style-type: none"> a. Valve stem return spring weak. b. Debris is preventing valve disc from closing. 	<ul style="list-style-type: none"> a. Replace spring. (Contact dealer.) b. Remove debris.
3. Hard water leakage after regeneration.	<ul style="list-style-type: none"> a. Improper regeneration. b. Leaking of external bypass valve. c. O-ring around riser pipe damaged. d. Incorrect capacity. 	<ul style="list-style-type: none"> a. Repeat regeneration after making certain correct regenerant dosage was set. b. Replace bypass valve. (Contact dealer.) c. Replace O-ring. (Contact dealer.) d. Verify appropriate regenerant amount and system capacity. (Contact dealer.)
4. Control will not draw brine.	<ul style="list-style-type: none"> a. Low water pressure. b. Restricted drain line. c. Injector plugged. d. Injector defective. e. Valve disc 2 and/or 3 not closed. f. Air check valve prematurely closed. 	<ul style="list-style-type: none"> a. Make correct setting according to instructions. b. Remove restriction. c. Clean injector and screen. d. Replace injector and cap. (Contact dealer.) e. Remove foreign matter from disc and check disc for closing by pushing in on stem. Replace if needed. (Contact dealer.) f. Put control momentarily into brine refill. Replace or repair air check if needed. (Contact dealer.)
5. Control will not regenerate automatically.	<ul style="list-style-type: none"> a. AC adapter or motor not connected. b. Defective motor. 	<ul style="list-style-type: none"> a. Connect power. b. Replace motor. (Contact dealer.)
6. Control regenerates at wrong time of day.	<ul style="list-style-type: none"> a. Controller set incorrectly. 	<ul style="list-style-type: none"> a. Correct time setting according to instructions.
7. Valve will not draw brine.	<ul style="list-style-type: none"> a. Low water pressure. b. Restricted drain line. c. Injector plugged. d. Injector defective. e. Air check valve closes prematurely on brine pickup tube. 	<ul style="list-style-type: none"> a. Set pump to maintain 20 psi at softener. b. Change drain to remove restriction. c. Clean injector and screen. d. Replace injector. (Contact dealer.) e. Put control momentarily into brine/slow rinse. Replace or repair air check if needed. (Contact dealer.)
8. System using more or less salt than regenerant setting.	<ul style="list-style-type: none"> a. Foreign matter in valve causing incorrect flow rates. 	<ul style="list-style-type: none"> a. Remove brine control and flush out foreign matter. Advance control to brine/slow rinse, to clean valve (after so doing position control to "fast rinse" to remove regenerant from tank).

9. Intermittent or irregular regenerant draw.	<ul style="list-style-type: none"> a. Low water pressure. b. Defective injector. 	<ul style="list-style-type: none"> a. Set pump to maintain 20 psi at conditioner. b. Replace injector. (Contact dealer.)
10. No conditioned water after regeneration.	<ul style="list-style-type: none"> a. No regenerant in regenerant tank. b. Injector plugged. c. Air check valve closes prematurely. 	<ul style="list-style-type: none"> a. Add regenerant to regenerant tank. b. Clean injector and screen. c. Put control momentarily into brine/slow rinse. Replace or repair air check if needed. (Contact dealer.)
11. Backwashes or purges at excessively low or high rate.	<ul style="list-style-type: none"> a. Incorrect drain controller used. b. Foreign matter affecting valve operation. 	<ul style="list-style-type: none"> a. Replace with correct size controller. (Contact dealer.) b. Remove drain controller and clean ball and seat.
12. No water flow display when water is flowing.	<ul style="list-style-type: none"> a. Bypass valve in bypass. b. Meter probe disconnected or not fully connected to meter housing. c. Restricted meter turbine rotation due to foreign material in meter. 	<ul style="list-style-type: none"> a. Shift bypass valve to not-in-bypass position. b. Fully insert probe into meter housing. c. Remove meter housing, free up turbine and flush with clean water. Turbine should spin freely. If not, replace meter. (Contact dealer.)
13. Run out of conditioned water between regenerations.	<ul style="list-style-type: none"> a. Improper regeneration. b. Incorrect regenerant setting. c. Incorrect hardness or capacity settings. d. Water hardness has increased. e. Restricted meter turbine rotation due to foreign material in meter. 	<ul style="list-style-type: none"> a. Repeat regeneration, making certain that correct regenerant dosage is used. b. Set P6 to proper level. See salt setting chart. c. Set to correct values. See Programming section. d. Set hardness to new value. See Programming section. e. Remove meter housing, free up turbine and flush with clean water. Turbine should spin freely; if not, replace meter. (Contact dealer.)
14. Regenerant tank overflow.	<ul style="list-style-type: none"> a. Regenerant valve disc 1 being held open by foreign matter. b. Valve disc 2 not closed during regenerant draw causing brine refill. c. Air leak in regenerant line to air check. d. Improper drain control for injector. e. Drain control clogged with resin or other debris. 	<ul style="list-style-type: none"> a. Manually operate valve stem to flush away obstruction. b. Flush out foreign matter holding disc open by manually operating valve stem. c. Check all connections in regenerant line for leaks. Refer to instructions. d. Too small of a drain control with a larger injector will reduce draw rates. e. Clean drain control.

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