

# **HAGUE MAXIMIZER<sup>®</sup> 400**



## **Installation and Service Manual Version 1.0**

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# Owner's Reference

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To achieve the maximum benefit and performance from your appliance, familiarize yourself with this manual and your appliance. Keep it handy for a reference guide and service log.

**Warning:** This appliance must be applied to potable water only.

**Note:** Manufacturer reserves the right to make specification and product changes without prior notice.

## For Owner's Reference

Date of Installation: \_\_\_\_\_

Model Number: \_\_\_\_\_

Serial Number: \_\_\_\_\_

Hardness: \_\_\_\_\_

Iron: \_\_\_\_\_

pH: \_\_\_\_\_

TDS: \_\_\_\_\_

Water Pressure: \_\_\_\_\_

Water Temperature: \_\_\_\_\_

# Getting Maximum Efficiency From Your Appliance

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## ***Do Not Mix Different Types of Salt***

1. When the salt level drops below the water level in the brine cabinet fill the salt cabinet. You may use a resin cleaner on a monthly basis. A clean pellet, solar, or cube-type salt is recommended. You can also use block or brick salt. **Do not use rock salt.**
2. You may use a salt substitute (such as potassium chloride) in place of water conditioner salt. If you start with water conditioner salt, you can switch to a salt substitute at any time—or vice versa. If potassium chloride is used in place of salt, set your controller to salt type=potassium. Do not use potassium chloride if there is iron in your water.
3. Your appliance may be disinfected with 5.25% sodium hypochlorite, which is the active ingredient in household chlorine bleach. To disinfect your appliance, add 1.5 fluid ounces (0.04 litres) of chlorine bleach solution to the brine cabinet. The brine cabinet should have water in it to carry the solution into the appliance. Start a manual regeneration.
4. Should dirt, sand, or large particles be present in your water supply, it is important that you consult your water treatment specialist for filters that will eliminate this problem.
5. Protect your appliance, including the drain line, from freezing.
6. Bypass the appliance if any work is being performed on your appliance, well pump, or plumbing. When work is completed, turn on the nearest cold water tap until water runs clear before putting the appliance back in service. See *Installation Steps and Start-Up Procedures*.
7. For your appliance to perform to specifications, adhere to all operational, maintenance, and placement requirements.

## **Efficiency Statements:**

These units are efficiency rated according to NSF/ANSI 44. The stated efficiency is valid only at the specified salt dosage and 8 gallons (30 litres) per minute.

<b>Model</b>	<b>Rated Efficiency</b>	<b>Salt Dosage</b>	<b>Capacity at that Dosage</b>
400	4,900 grains/lb (697 grams/kg)	1 lb (0.45 kg)	4,900 grains (316 grams)

# Checklist Before Installation

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- Water Quality**—If your water supply contains sand, sulfur, bacteria, iron bacteria, tannins, algae, oil, acid, or other unusual substances, you may need to pretreat your water to remove these contaminants before the water supply enters the appliance, unless the appliance is represented as being capable of treating these contaminants in its specifications. Contact your water treatment specialist for assistance in obtaining appropriate pre-treatment to remove these contaminants before the water supply enters this appliance.
- Water Characteristics**—The conditioner requires a pH of 7 or above to function properly. An iron test to determine iron levels is also necessary. An Acid Neutralizing Filter may be necessary if pH levels are below 7.
- Water Hardness**—Double check the hardness of the water with the test strips provided to verify that your appliance is the right one for the job. If the result of your hardness test strip reaches the test maximum of 25 grains per gallon (427.5 ppm), mix 1 cup tap water (0.25 litres) with 1 cup (0.25 litres) distilled water. Then retest this mixture for hardness. Multiply your reading by 2 and use this setting number. If total hardness exceeds 35 grains (600 ppm) of hardness, do not install this unit and contact your water treatment specialist.
- Water Pressure**—Not less than 20 psi nor greater than 120 psi (1.4-8.4 bar) constant. If water pressure exceeds 90 psi (6.2 bar), a pressure regulator is recommended.
- Water Supply Flow Rate**—Recommended minimum of 2.4 gallons (9 litres) per minute. For the purposes of plumbing sizing, only the rated service flow rate and corresponding pressure loss may be used. Prolonged operation of a water conditioner at flow rates exceeding the tested service flow rate may compromise performance.
- Water Temperature**—Not less than 40° nor greater than 120°F (6°-49°C).
- Drain**—Drain the appliance to an appropriate drain, such as a floor drain or washer drain, that will comply with all local plumbing codes. To prevent back-siphoning, provide an adequate air gap or a siphon break. See *Installation Steps and Start-Up Procedures*.
- Electricity**—The transformer supplied is for a standard 115 volt, 60 cycle AC outlet for locations in North America or 220 volt, 50 cycle AC outlet for locations outside North America. The transformer supplied for Japan is 100 volt, 50/60 cycle AC.

**If you have any questions, contact your water treatment specialist.**

# Precautions

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## ***Do***

1. Comply with all local building, plumbing, and electrical codes.
2. Install before the water heater.
3. Install after the pressure tank on well-water installations.
4. Install a pressure-reducing valve if the inlet pressure exceeds 90 psi (6.2 bar).
5. Install a gravity drain on the cabinet.
6. Secure the drain line on the appliance and at the drain outlet. See *Installation Steps and Start-Up Procedures*.
7. Allow a minimum of 8 to 10 feet (2.4 to 3.1 metres) of 3/4-inch pipe from the outlet of the appliance to the inlet of the water heater.

## ***Do Not***

1. Do not install if checklist items are not satisfactory. See *Checklist Before Installation*.
2. Do not install if the incoming or outlet piping water temperature exceeds 120°F (49°C). See *Specifications*.
3. Do not allow soldering torch heat to be transferred to valve components or plastic parts.
4. Do not over tighten the plastic fittings.
5. Do not plumb the appliance against a wall that would prohibit access to plumbing. See *Installation Steps and Start-Up Procedures*.
6. Do not install the appliance backward. Follow the arrows on the inlet and outlet. See *Installation Steps and Start-Up Procedures*.
7. Do not plug the transformer into an outlet that is activated by an on/off switch.
8. Do not connect the drain and the overflow (gravity drain) together. See *Installation Steps and Start-Up Procedures*.
9. Do not use to treat water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.

**Note:** A bacteriostasis claim does not mean that these devices will make microbiologically unsafe water safe to consume or use.

# Installation Steps and Start-Up Procedures

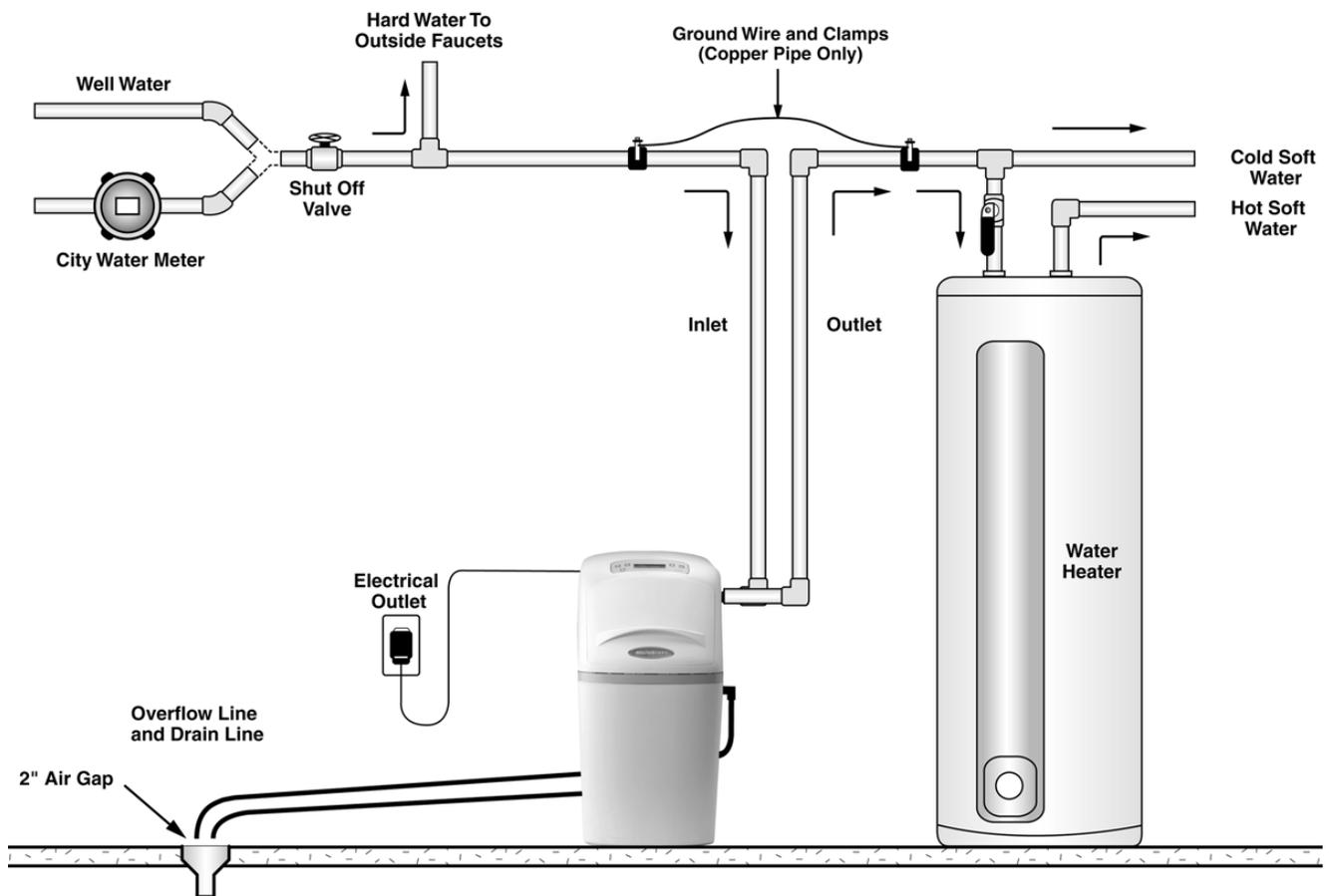
We recommend that you have your water treatment specialist install and maintain this appliance.

Each water treatment appliance comes with 8 feet (2.4 metres) of drain line.

## STEP 1

### *Prepare the Placement Area*

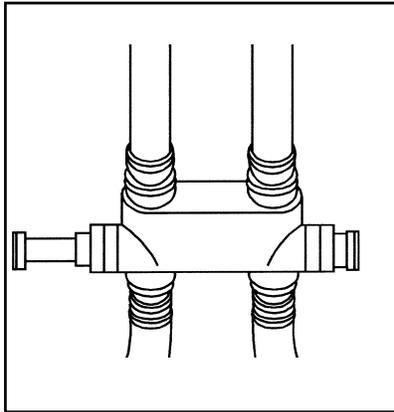
- A. Clean the placement area.
- B. Turn off the electricity and water supply to the water heater. For gas water heaters, turn the gas cock to "PILOT."
- C. Examine the inlet plumbing to ensure that the pipe is not plugged with lime, iron, or any other substance. Clean or replace plugged plumbing.



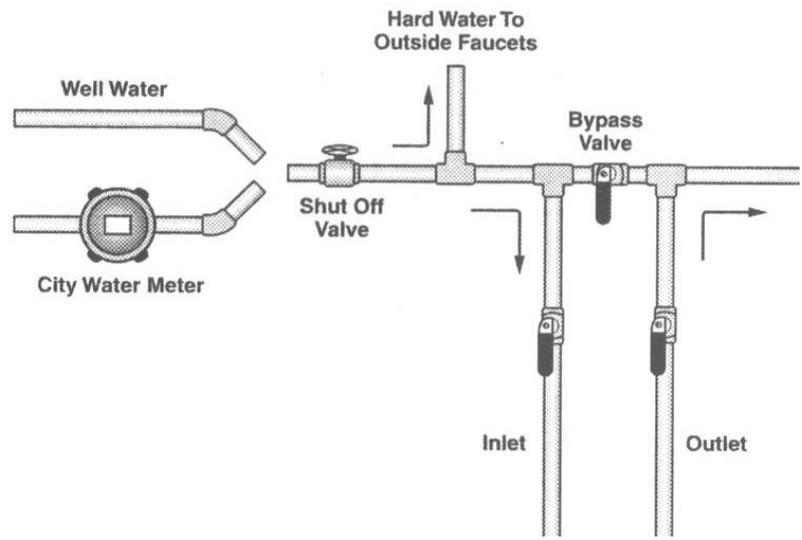
**Figure 1: Appliance Placement (With Optional Built-in Bypass)**

**Note:** Your appliance may come with an optional bypass that enables you to remove the appliance from service when necessary. Should your appliance NOT have the bypass, a bypass valve like Figure 2 may be available from your local hardware store or install three-way bypass plumbing similar to Figure 3.

# Installation Steps and Start-Up Procedures



**Figure 2: Example of a Commercially Available Bypass Valve**



**Figure 3: Three-Way Bypass Plumbing**

- D. Make sure the inlet/outlet and drain connections meet the applicable state and local codes.
- E. Check the arrows on the bypass valve to ensure that the water flows in the proper direction.

**Caution:** Do not plumb the appliance in backward.

- F. Place your appliance in the desired location using Figure 1 as a guide. The diagram applies to basement, slab, crawl space, under counter, and outside installations.
- G. For most installations, install the appliance after the pressure tank and any water filter appliance or water meter and before the water heater unless otherwise recommended. When installing a carbon filter for well water, place the filter after any water conditioning appliance unless otherwise recommended.

**Caution:** If less than 10 feet (3 metres) of pipe connects the water treatment appliance(s) to the water heater, then a check valve must be installed between the water treatment appliance and the water heater. Install the check valve as close to the water heater as possible. Ensure that the water heater has an adequately rated temperature and pressure safety relief valve.

# Installation Steps and Start-Up Procedures

## STEP 2 *Turn Off Water Supply*

- A. Turn off the water supply.
- B. Open the hot and cold water taps to depressurize the lines.

## STEP 3 *Connect Water Lines*

- A. Remove the valve cover.
  1. Open the salt port lid on the valve cover and slide it down.
  2. Place your fingertips on the bottom, inner edge of the valve cover. (You may need to use two hands).
  3. Squeeze the edge and pull the valve cover toward yourself until it clicks free. (See Figure 4.)
  4. Lift and remove the valve cover.
- B. **Qest fittings** (Supplied with appliance with built-in bypass).  
Qest connection fittings are provided with your appliance. Qest fittings provide a convenient easy-to-use three-piece assembly for 3/4-inch copper plumbing or 3/4-inch CTS CPVC plastic tubing.  
  
Ensure that the three components (1: collar, 2: metal retaining ring, and 3: nylon sleeve) are correctly installed in sequence on the pipe. See Figure 5.
- C. Attach the water lines to the appliance in compliance with all applicable building, plumbing, and electrical codes. See Figure 6. Do NOT over tighten the connections on the plastic threads.  
**Note:** See *Optional Plumbing Procedures* for information on copper fittings and joining plastic pipe.
- D. Check the arrows on the valve to ensure that the water flows in the proper direction.

**Caution:** Do NOT plumb your appliance in backward.



Figure 4: Remove Valve Cover



Figure 5: Qest Fitting Assembly



Figure 6: Connect Water Lines  
(Appliance shown with optional bypass.)

# Installation Steps and Start-Up Procedures

## STEP 4 **Connect Gravity Overflow Connection**

The overflow line drains away excess water should the tank fill with too much water or the appliance malfunctions.

- A. Connect 1/2-inch I.D. tubing (size CANNOT be reduced) to the gravity overflow connection. This tubing is not supplied with the appliance. Route the overflow line to a drain (or bucket) that is at least three inches lower than the bottom of the overflow connection. The gravity overflow line cannot be run overhead.

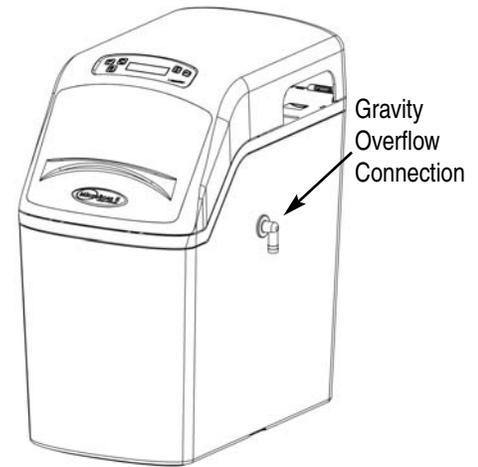


Figure 7: Gravity Overflow Connection

## STEP 5 **Connect Drain Line**

The drain line drains away the backwash water as part of the regeneration cycle.

- A. Connect the drain line to the drain end cap (as shown in Figure 8) with a minimum of 1/2-inch I.D. tubing (size CANNOT be reduced). This tubing is supplied with the appliance.
- B. Route the drain line to a floor drain, laundry tub, or other suitable waste receptor. Maintain a minimum 2-inch (50 mm) air gap between the drain line and the flood level rim of the waste receptor to prevent back-siphoning. This drain line should make the shortest run to the suitable drain.
- C. The drain line may be elevated up to 8 feet (2.4 m) from the discharge on the appliance as long as the water pressure in your system is 40 psi (2.8 bar) or more. If the drain line is 25 feet (7.6 m) or longer, increase the drain line to 3/4-inch I.D.
- D. The end of the drain line must be equal to or lower in height than the control valve.

**Caution: The drain line must not be kinked, crimped, or restricted in any way.**

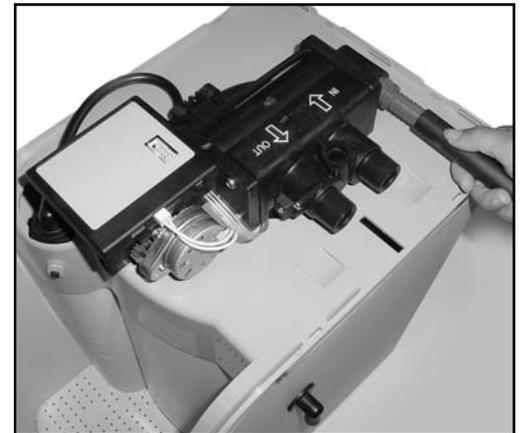


Figure 8: Connect Drain Line (Appliance shown with standard I/O.)



Figure 9: Bypass Position (Appliance shown with optional bypass.)

## STEP 6 **Flush Lines**

- A. Place the appliance in the bypass position and turn on the main water supply. (See Figure 9 or 10.)

# Installation Steps and Start-Up Procedures

## STEP 6

### ***Flush Lines (Cont.)***

- B. Open the nearest cold water faucet to flush the plumbing of any excess soldering flux, air, or any other foreign material.

## STEP 7

### ***Check for Leaks***

- A. Close all faucets.
- B. Check all lines and connections for leaks.
- If leaks are found
1. Turn off the main water supply.
  2. Open a cold water faucet to depressurize the lines.
  3. Close the faucet to eliminate any siphoning action.
  4. Repair all leaks.
  5. Turn on the water supply.
  6. Place the bypass in the “service” position slowly to fill the appliance. (See Figure 11 or 12.)
  7. Open a cold water faucet to purge air out of the appliance.
  8. Close the faucet and recheck for leaks.

## STEP 8

### ***Connect the Controller***

- A. Connect the transformer power cord to the back of the controller. (See Figure 13.) Do not plug the transformer into the wall yet.
- B. Make sure the transformer cord is fed through the same area as the drain and water lines.
- C. Insert the ribbon cable plug into the receptacle on the controller (See Figure 14.)
- D. Replace the valve cover.

**Note:** For future access, remove the valve cover carefully and disconnect the ribbon cable.

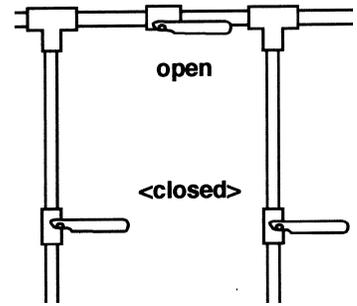


Figure 10: Bypass Position



Figure 11: Service Position  
(Appliance shown with optional bypass.)

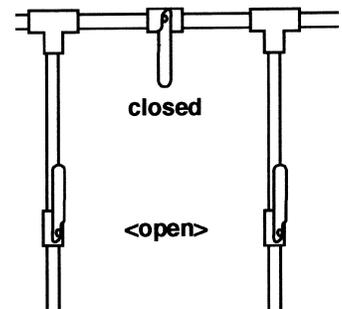


Figure 12: Service Position



Figure 13: Connect Transformer Power Cord



Figure 14: Connect the Ribbon Cable

# Installation Steps and Start-Up Procedures

## STEP 9 **Plug in the Transformer**

- A. Plug the transformer into an appropriate outlet.  
(See Figure 15.)
- B. Ensure that the outlet selected is NOT operated by an on/off switch.



Figure 15: Plugging in Transformer

## STEP 10 **Set Up the Controller**

- A. Program the appliance controller (See Figure 16.  
Also see *Setting and Using the Controller*).



Figure 16: Controller

## STEP 11 **Flush Appliance**

- A. Open a cold water tap and allow the appliance to flush for 10 minutes or until approximately 35 gallons (132 L) of water have passed through the appliance per NSF requirements.
- B. Verify water flow by checking the WaterMizer (flashing light.)

## STEP 12 **Add Water to the Brine Tank**

- A. Remove any packaging or installation materials.  
Do NOT remove the grid plate.
- B. Add 1.5 gallons (5.7 litres) of water to the brine cabinet.
- C. Ensure that the salt dosage is set as recommended for the application. After the first regeneration, the appliance will automatically refill the correct amount of water into the brine tank.
- D. Initiate a manual regeneration (See *Setting and Using the Controller*) and inspect for proper operation. Allow the appliance to draw all the water out of the brine cabinet until the air check sets.
- E. Press the (R) button to advance to the Brine Refill position (See *Setting and Using the Controller*). Let the tank fill with the proper amount of water. The controller will then step the valve to the Home position.

**Note:** This initial start up is the ONLY time you will add water to the brine tank. Do NOT add water at any other time.

# Installation Steps and Start-Up Procedures

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## STEP 13 *Fill the Brine Tank With Salt*

- A. If the grid plate is not sitting on its supports at the bottom of the brine tank, carefully reposition it.
- B. Fill the brine tank with salt. (See Figure 17.) Use clean, white pellet, solar, cube-type, block, or brick salt. Do not mix different types of salt.

**Note:** Always keep the salt level above the water level. For convenience, completely fill the brine tank when refilling with salt.

- C. Close the salt port lid.

**CAUTION:** Use of potassium chloride when iron and/or manganese is present in the raw water supply is not recommended.



Figure 17: Fill Brine Tank With Salt

## STEP 14 *Complete the Installation*

- A. Open the inlet valve and turn on the electricity to the water heater. For gas water heaters, return the gas cock to “ON.”
- B. Ensure that the bypass is left in the “service” position and the valve cover is on the appliance. (See Figure 11 or 12.)

# When and How To Use the Blending Valve

## ***Blending Valve Adjustment***

In some situations, a blending valve option (3/4-inch or 1-inch) may be desired. The amount of hardness blended back into the water line is determined by the hardness of the incoming water and the setting of the blending valve. Where extremely hard water is present, the blending valve may only need to be “cracked” open. Where the incoming water has relatively low levels of hardness, the blending valve will need to be opened further.

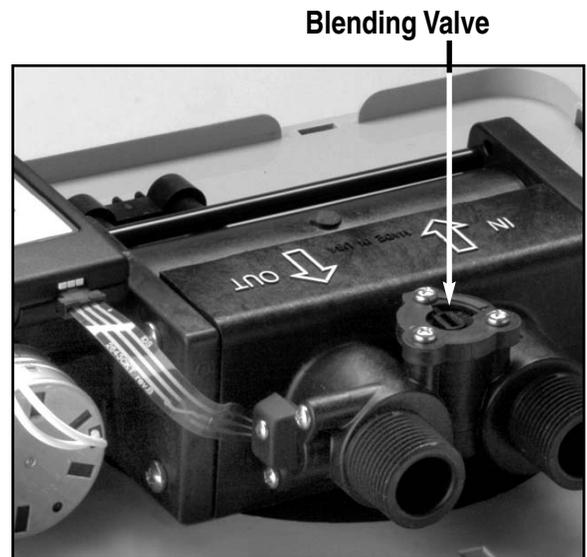
The blending valve is located between the input and output connections on the top of the bypass valve (Figure 18). It is adjusted by placing a flat blade screwdriver in the slot provided and turning clockwise to open. Total movement of the blending valve from full closed to full open is 1/4 revolution.

Precise setting of the blending valve will require “trial and error” testing. The initial setting should be conservative. Because of the blending valve's ease of access and adjustment, the end user can increase or decrease the setting according to their preference over a period of time.

## **Use of the Blending Valve**

Use of the blending valve is not recommended where objectionable concentrations of ferrous iron or sediment are present. Because the blending valve is mixing “raw” water with softened, any ferrous iron or sediment in the “raw” water will also be blended and reintroduced into the softened water line.

**Note:** If your system is installed for barium and/or radium reduction, the blending valve must remain in the fully closed position at all times.



**Figure 18 : Blending Valve**

# Optional Plumbing Procedures

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This section provides information on plumbing with copper fittings and with plastic pipe.

## ***Hard Plumbing the Bypass With Copper Fittings***

Do not use Qest fittings for hard plumbing the bypass connection with copper fittings. Instead, when preparing male threaded fittings of the bypass valve, use the following guidelines to avoid damage to the plastic pipe threads.

- A. Wrap the threads three times with 1/2-inch wide Teflon tape. Place each consecutive wrap on top of the previous wrap.
- B. Use Teflon paste on the first two male threads only to prevent tearing of the tape. The paste lubricates the tape and fills the small void areas that might exist between the threads. When the joint is complete, there will be a small bead of sealant at the fitting interface, which indicates a properly joined connection.
- C. Use a union with a threaded connection to facilitate repair of potential leaks in soldered joints.
- D. Prepare the copper tail assemblies in advance to enable them to cool prior to final assembly. Advance preparation and cooling will prevent heat damage to the plastic pipe threads of the adapter.
- E. Ensure that the copper tube is at least 4 inches (10 cm) long.
- F. Turn the fitting counter-clockwise until you feel the threads engage and then tighten to prevent cross threading. Do NOT over tighten the fittings.

**Caution: Do NOT allow heat from the torch to transfer to the plastic valve component, which could be damaged.**

## ***Plastic (PVC/CPVC) Pipe Joining Procedures***

To ensure reliable joint integrity when using solvent cement for PVC/CPVC plumbing, follow these recommendations:

- A. **Cutting**—The pipe must be cut square to allow for the proper interfacing of the pipe end and the fitting socket bottom. Use a wheel cutter, miter saw, or a ratchet shear for best results.
- B. **Deburring and Beveling**—Use a knife, plastic pipe deburring tool, or a file to remove burrs from the end of the pipe. Be sure to remove all burrs from the inside as well as the outside of the pipe. All pipe ends should be beveled to permit easier insertion of the pipe into the fitting. Failure to bevel the pipe end may cause a “wiping” effect in the fitting where the cement is forced to the end of the fitting socket. This creates a weak joint.
- C. **Test Dry Fit of the Joint**—Tapered fitting sockets are designed so that an interference fit should occur when the pipe is inserted about one-third to two-thirds of the way into the socket. Occasionally, when pipe and fitting dimensions are at the tolerance extremes, it will be possible to fully insert dry pipe to the bottom of the fitting socket. When this happens, a sufficient quantity of cement must be applied to the joint to fill the gap between the pipe and fitting.
- D. **Inspection, Cleaning, and Priming**—Inspect the inside of the pipe and fitting sockets and remove dirt, grease, or moisture with a clean dry cloth. If wiping fails to clean the surfaces, use a chemical cleaner. Check for possible damage such as splits or cracks and replace if necessary. Use purple primer to penetrate and soften the bonding surfaces of the PVC or CPVC pipe and fittings. Proceed without hesitation to the cementing procedure while the primed surfaces are still wet.

# Optional Plumbing Procedures

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## ***Plastic (PVC/CPVC) Pipe Joining Procedures (cont.)***

- E. **Application of Solvent Cement**—Apply the solvent cement evenly and quickly around the outside of the pipe while the primer is still wet. Apply a light coat of cement evenly around the inside of the fitting socket. Do not allow excess cement to “puddle” in the fitting. Apply a second coat of cement to the pipe end.
- F. **Joint Assembly**—Working quickly, insert the pipe into the fitting socket and give a one-quarter turn of the pipe or fitting while pushing toward the fitting stop. This action will evenly distribute the cement. Do NOT continue to rotate the pipe or fitting after the stop has been reached. Hold the joint tightly together for about 15 seconds to prevent the pipe from “creeping” out of the fitting. A good joint will have sufficient cement to make a small bead all the way around the outside of the fitting hub. The joint should not be disturbed immediately after the cementing procedure. Allow adequate time for the joint to cure properly. Exact drying time is hard to predict because of environmental variables. Follow the recommended joint curing times on the primer and cement container labels.

# Setting and Using the Controller

## Determine Hardness and pH

The first step is to determine the hardness and pH of your well or city water.

A. Use the hardness test strips if provided with your appliance or have a sample of your untreated water tested by a water testing laboratory or your water treatment specialist.

1. **Test Strips**—Follow the instructions on the test strips. If the color on your test strip is between two readings, use the higher number. This number gives the hardness in grains per gallon and parts per million (mg/L).
2. If the pH is below seven, contact your water treatment specialist.



Figure 19: Test Strips

## Display-Soft Water Remaining

After setting water hardness, the display on the controller typically shows the gallons (or litres) of soft water remaining until the next automatic regeneration. Typically, each person in the household uses about 75 gallons (284 L) per day.



Figure 20: Controller

## Display-Recharge/Regeneration Status

During regeneration the controller display shows regeneration cycle positions.

### (R) Button

The (R) button at the bottom-left of the controller can be used in two ways.

1. The (R) button can be used to put the appliance into an immediate regeneration.
  - a. Press and hold the (R) button for about five seconds until the display changes to “Going to 1”.
  - b. The appliance is in regeneration mode and will display the status of each cycle. After all regeneration cycles are complete, the display will return to normal operating mode.
2. The (R) button can be used to toggle through all of the regeneration cycles to speed up the cycles.
  - a. Speeding up the cycle is used only when starting up or diagnosing the appliance.
  - b. To quickly advance through the regeneration cycles, press and hold the (R) button for 5 seconds.
  - c. Wait for the cycle to begin. The controller will indicate “Going to”, then the cycle position will display (for example, Backwash 1).
  - d. Each cycle can be advanced by pressing the (R) button.
  - e. Always wait until the cycle position displays before advancing to the next cycle position.

### Out of Salt

Should your appliance run out of salt, you might not have soft water available.

- A. Open the salt port lid and add salt.
- B. Wait two hours, then press and hold the (R) button for 2 to 5 seconds.
- C. Regeneration is complete after approximately 12 to 18 minutes. After regeneration the appliance is returned to Service mode.

# Setting and Using the Controller

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In addition to the (R) Button, the controller has the following buttons that are used when programming Service Settings and Customer Settings.

## ***C Button***

The C, S, P, and ← (Scroll Back) buttons are used when changing Customer Settings and Service Settings.

The C button is used with the S button to set the value of certain parameters.

1. When you press the C button, the value under the cursor changes to the next available value, typically increasing by one until all values have been displayed and the process begins again.

## ***S Button***

The S button is used to move the cursor when setting parameters.

1. Press and release the S button to move the cursor one digit to the right of the parameter to be changed.
2. When the cursor is at the extreme right position, press the S button again to reset the cursor to the extreme left position.

## ***P Button***

The P button is used to enter programming modes and also to save a value and display the next value to be changed.

1. **To program Customer Settings**, press and hold the P button for about 5 five seconds while “CUSTOMER SETTING” is displayed.
2. **To program Service Settings**, press and hold both the P button and the S button while “SERVICE SETTING” is displayed.
3. **To reset the factory defaults**, press and hold both the P button and the ←(scroll back) button for about five seconds.

## ***← (Scroll Back) Button***

The ← button function is used to step back to a previous parameter setting. It is typically used to go back to correct a setting without the need to scroll forward through all settings.

# Service Settings

To program Service settings, press and hold both the P button and the S button while “SERVICE SETTINGS” is displayed until “Set Lang” is displayed. Programming Service Settings is similar to programming Customer Settings. The values that can be set are listed below along with available values and comments. (Metric values are shown in parentheses.)

**Note:** This section is recommended for qualified service personnel only. The appliance control must be set correctly for proper performance.

Display	Meaning	Possible Values	Comments
Set Language Eng	Set Language	Eng=English, Fra=French, Esp=Spanish	
Units Eng (Units MET)	Units of measure	Eng=Gallons (English) Met=Litres (metric)	
Soft v. #0X.XX	Displays the current software version	X.XX	For reference only
Mode 3	Operating (Regeneration) Mode	Timer Mode (Mode 1) Demand Delayed Mode (Mode 2) Demand Immediate Mode (Mode 3)	See <i>Operating Modes</i>
Hard. Gr. 018 (Hard. mg/L 00308)	Hardness grains of the water that was tested	03 to 999	This is the actual hardness reading and is not compensated for iron
Iron ppm 00 (Iron mg/L)	Amount of iron in parts per million of the water that was tested	00 to 99	This value is used to calculate a compensated hardness automatically
Mang. ppm 00 (Mang. mg/L 00)	Amount of manganese in parts per million of incoming water	00 to 99	This value is used to calculate a compensated hardness automatically
Salt=Sodium	Material filling the brine tank	Salt=Sodium, Salt=Potassium	See SALT WARNING that follows
Comp. Hard. 00018 (Comp. Hard. 00308)	Compensated Hardness	This parameter cannot be set. This is the compensated hardness using the hardness, iron, and manganese settings.	The formula used is: Hardness + (4 x each ppm iron) + (4 x each ppm manganese) = compensated hardness
Capac. Gr. 07300 (Capac. gm. 0473)	The desired capacity number.	00000 to 99999 (0000 to 9999)	
72-96 hr. Regen Yes	A way to force regeneration at regularly-scheduled intervals.	No (or Yes, for iron)	See 72-96 Hour Regeneration that follows
Backwash 1 00.1	Number of minutes the first backwash cycle lasts	00.0 to 99.9	Set to the nearest tenth of a minute
Brine/Rinse 09.0	Number of minutes the first brine and slow rinse cycle lasts	00.0 to 99.9	Set to the nearest tenth of a minute
Backwash 2 02.0	Number of minutes the second backwash cycle lasts	00.0 to 99.9	Set to the nearest tenth of a minute
Salt lb. 02.0 (Salt kg 00.9)	Amount of salt set to be used in each regeneration to achieve the capacity setting	00.0 to 99.9	Set to the nearest tenth
Turbine Test No	Used by qualified personnel for diagnostic purposes	No (or Yes—See <i>Warning</i> )	<b>WARNING: Do NOT set this to Yes.</b>
Reg Tonight No	Sets the appliance to regenerate tonight	No or Yes	If set to Yes, it will force a regeneration at the next set regeneration time (such as 02:00AM). After the regeneration, the value will be set to No.

# Service Settings

---

**SALT WARNING:** When iron and/or manganese are present in the water supply, it is not advisable to use potassium chloride as a regenerate. Iron and/or manganese bacteria may develop and foul the conditioning media and may void the warranty. If no iron or manganese is present in your water and you choose to use potassium chloride, change the displayed value to potassium.

When you press the P button at “Reg Tonight”, all valves are saved and the controller returns to Normal operating mode.

## ***Salt Settings***

Salt Setting	1 lb (0.45kg)	2 lb (0.91kg)	3 lb (1.36kg)
Backwash 1 (minutes)	0.1	0.1	0.1
Brine/Rinse (minutes)	9	12	15
Backwash 2 (minutes)	2	2	2

## ***Operating Modes***

The appliance has three operating modes: Timer mode, Demand Delayed mode, and Demand Immediate mode. All three modes are equipped with Capacity Guard®. The feature ensures that a supply of conditioned water will be available even with excessive water usage.

### **Mode 1—Timer Mode**

When the appliance is in timer mode, it will regenerate based on the frequency that is set, for example every two days or up to every 12 days. The time of regeneration can be set.

### **Mode 2—Demand Delayed Mode**

When the appliance is in the Patented Savematic demand delayed mode, it will regenerate based on the actual water usage and the total capacity of the appliance. The time that the regeneration takes place can be set, for example 2:00 AM. Should the total capacity be depleted before the set regeneration time, a forced regeneration will occur.

### **Mode 3—Demand Immediate Mode**

When the appliance is in demand immediate mode, it will regenerate based on water usage alone. Regeneration will occur when the capacity limit is reached.

### **72-96 Hour Regeneration**

If this value is set to Yes, the appliance will be forced to regenerate every 96 hours unless a regeneration based on water usage occurs within the time interval. The value should always be set to Yes if iron is present in the water.

# Customer Settings

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To program Customer Settings, press and hold the P button for about 5 seconds while “CUSTOMER SETTINGS” is displayed. Release the P button when Set Time is displayed.

## ***Set Time of Day***

The display reads “Set Time” followed by the current time that is set. The cursor will be under the second hours digit.

If the time displayed is correct, press P.

## **To Change the Time of Day**

1. Press the C button repeatedly until the current hour is displayed. Make sure the time is correct with regard to AM or PM.
2. Press S and the cursor moves to the right. Press the C button repeatedly until the current tens minute is displayed.
3. Press S and the cursor moves to the right. Press the C button repeatedly until the current minute is displayed.
4. When the desired time is displayed, press P. The Reg. Time is displayed.

## ***Set Regeneration Time***

The display reads “Reg. Time” followed by the current regeneration time that is set. Usually you want to set a regeneration time when water will not be used. The cursor will be under the second hours digit.

If the regeneration time displayed is correct, press P.

## **To Change the Regeneration Time**

1. Follow the procedure outlined above for setting the time.

When the desired regeneration time is displayed, press P. The number of people is displayed.

## ***Set Number of People (Mode 2 only)***

The display reads “# People” followed by the current setting for the number of people in the household. The cursor will be under the tens digit.

If the number of people is correct, press P.

## **To Change the Number of People**

1. Press the C button repeatedly until the desired value is displayed. Values will cycle from 0 to 9.
2. Press S and the cursor moves to the right. Press the C button repeatedly until the desired value is displayed. Values will cycle from 0 to 9.
3. When the desired number of people are displayed, press P. The value is saved and the controller returns to Normal operating mode.

**Programming Customer Settings Is Now Complete**

# Assembly and Parts

## Cabinet and Cover Assemblies

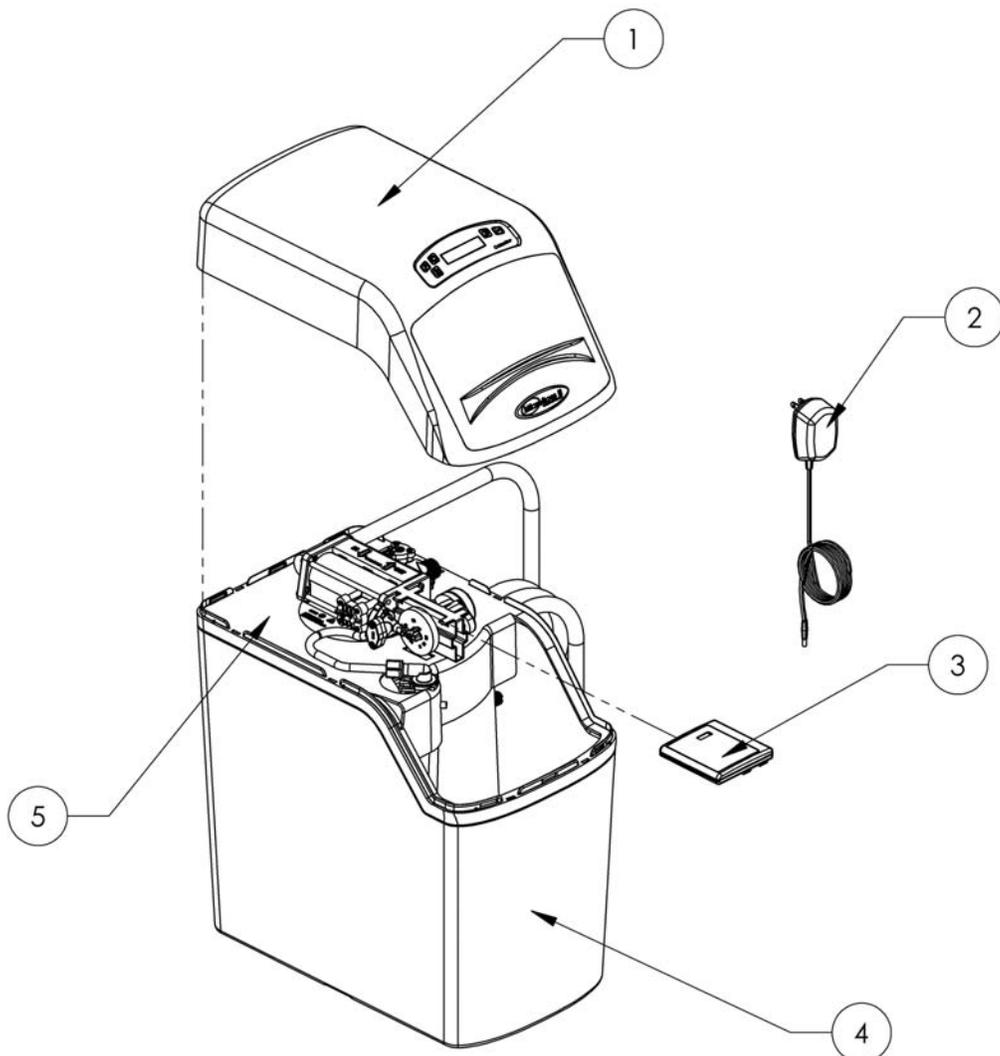


Figure 21: Cabinet/Cover/Salt Port Lid Assemblies

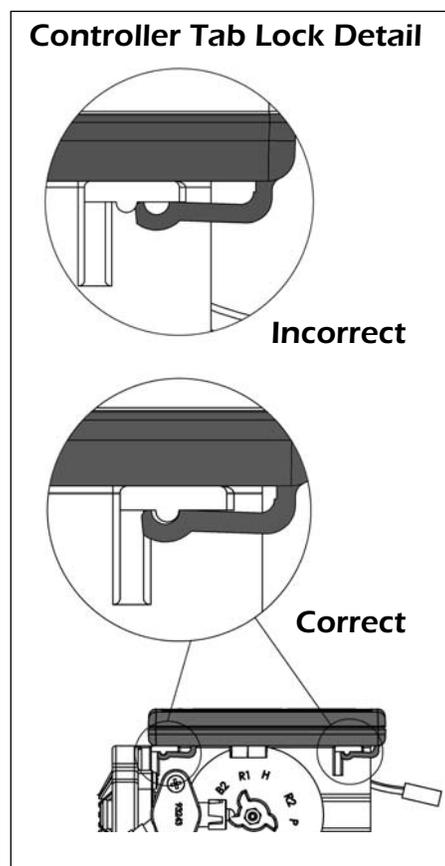


Figure 22: Controller Tab Lock Detail

	PART#	DESCRIPTION	QUANTITY
1	56300	Valve Cover Assembly	1
2	93245	US Transformer 115V	1
	C0915	Europe Transformer 220V	1
	C0915-UK	UK Transformer 220V	1
	C0916	Japan Transformer 100V	1
3	56022	Computer Control Assembly	1
4	56004	Cabinet	1
5	56006	Support Panel	1

# Assembly and Parts

## Cabinet and Assemblies

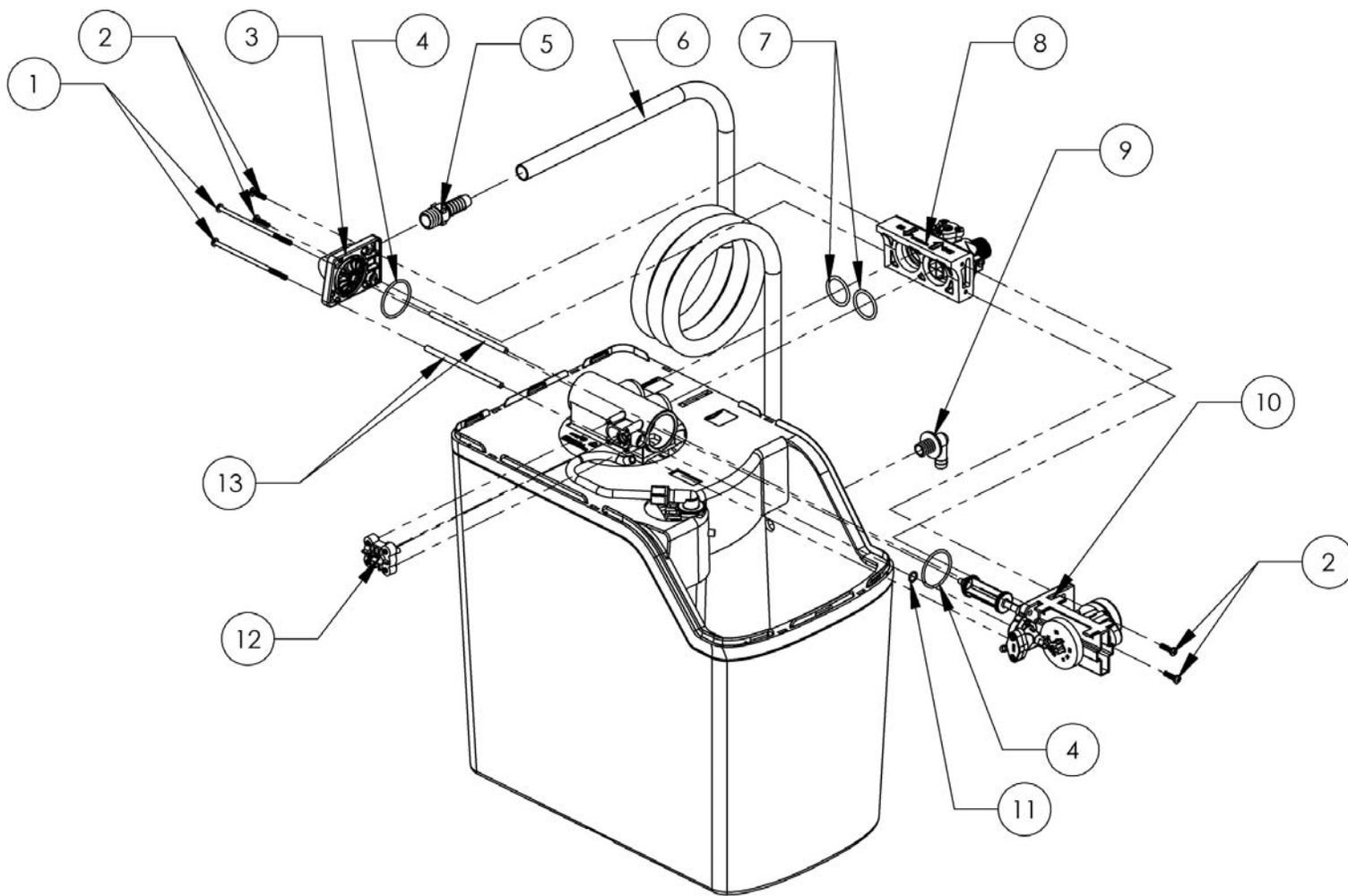


Figure 23: Cabinet and Assemblies

PART#	DESCRIPTION	QUANTITY
1 93809	Screw	2
2 93870	Screw	4
3 90614-3-0	Drain end cap	1
4 93808	O-Ring	2
5 V185	Drain fitting, 1/2" (12.7 mm)	1
6 93842	Drain hose, 8' (2.4 m)	1
7 93838	O-Ring	2
8 54512	Bypass assembly	1
9 C0700A	Cabinet overflow	1
10 56504	Drive end cap assembly	1
11 90828	O-Ring	1
12 93501	Injector assembly	1
13 93835	Sleeve	2

# Assembly and Parts

## 3/4" I/O Adapter Assembly with Blending Valve (Standard)

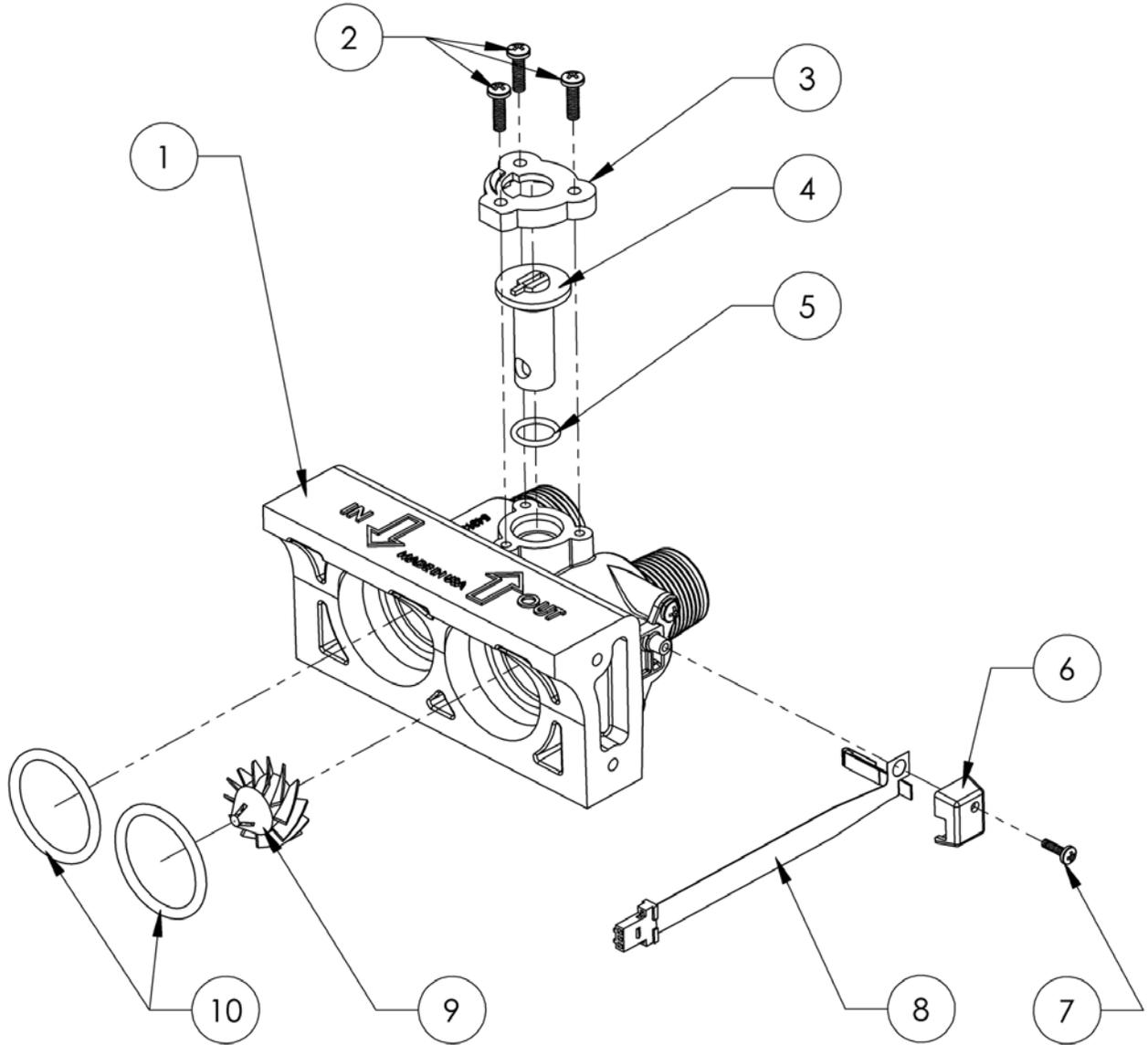


Figure 24: 3/4" I/O Adapter Assembly with Blending Valve

	PART#	DESCRIPTION	QUANTITY
1	93521	3/4" I/O Assembly	1
2	90802	Screw	3
3	90252	Blending Dial Cap	1
4	90222	Blending Dial	1
5	90827	O-Ring	1
6	90232	Turbine Sensor Cap	1
7	90809	Sensor Cap Screw	1
8	93858	Turbine Sensor Assembly	1
9	90522	Turbine Assembly	1
10	93838	O-Ring	2

# Assembly and Parts

## 1" I/O Adapter Assembly with Blending Valve (Optional)

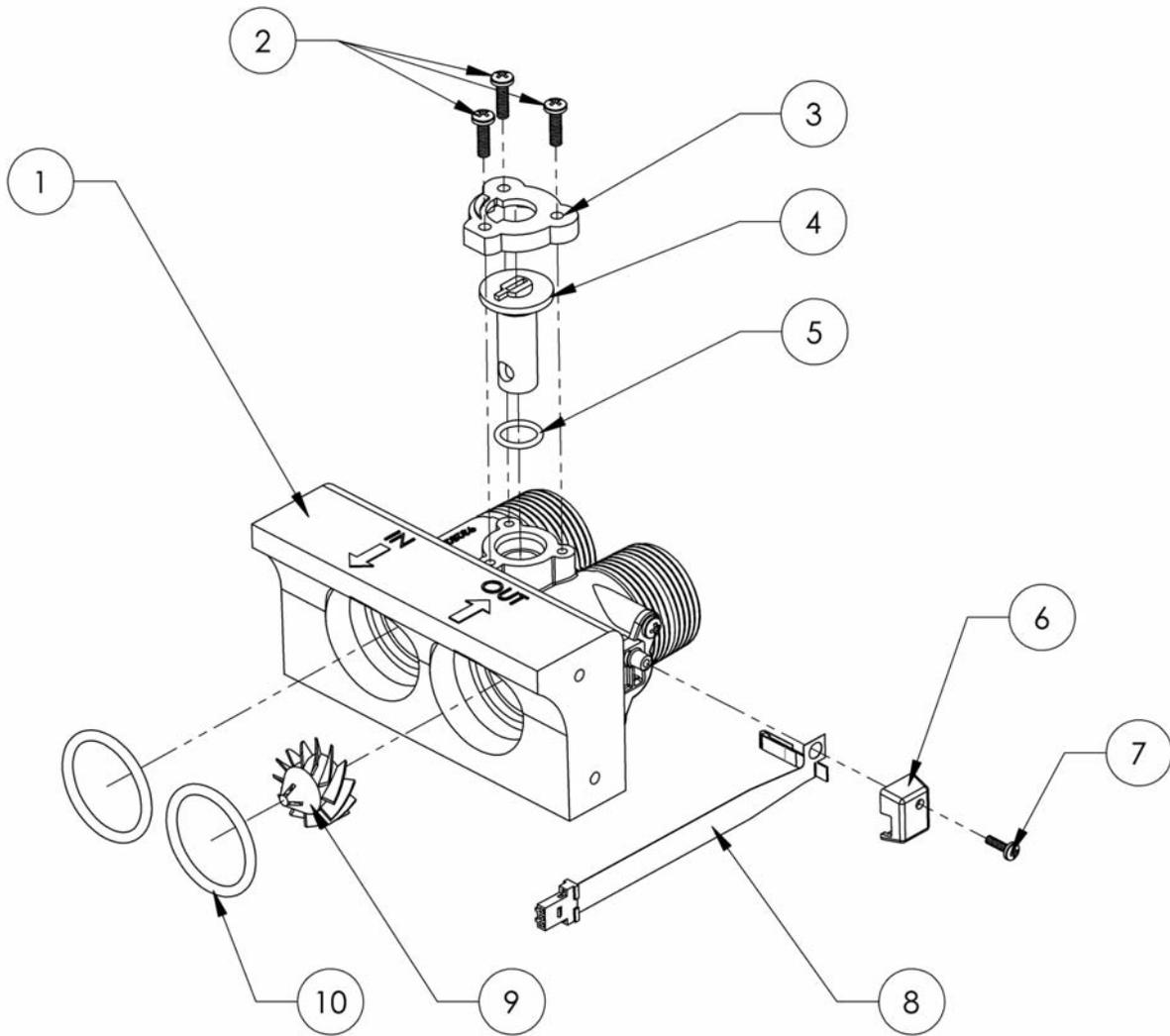


Figure 25: 1" I/O Adapter Assembly with Blending Valve

	<b>PART#</b>	<b>DESCRIPTION</b>	<b>QUANTITY</b>
1	93252	1" I/O Adapter Assembly	1
2	90802	Screw	3
3	90252	Blending Dial Cap	1
4	90222	Blending Dial	1
5	90827	O-Ring	1
6	90232	Turbine Sensor Cap	1
7	90809	Sensor Cap Screw	1
8	93858	Turbine Sensor Assembly	1
9	90522	Turbine Assembly	1
10	93838	O-Ring	2

# Assembly and Parts

## Bypass Assembly (Optional)

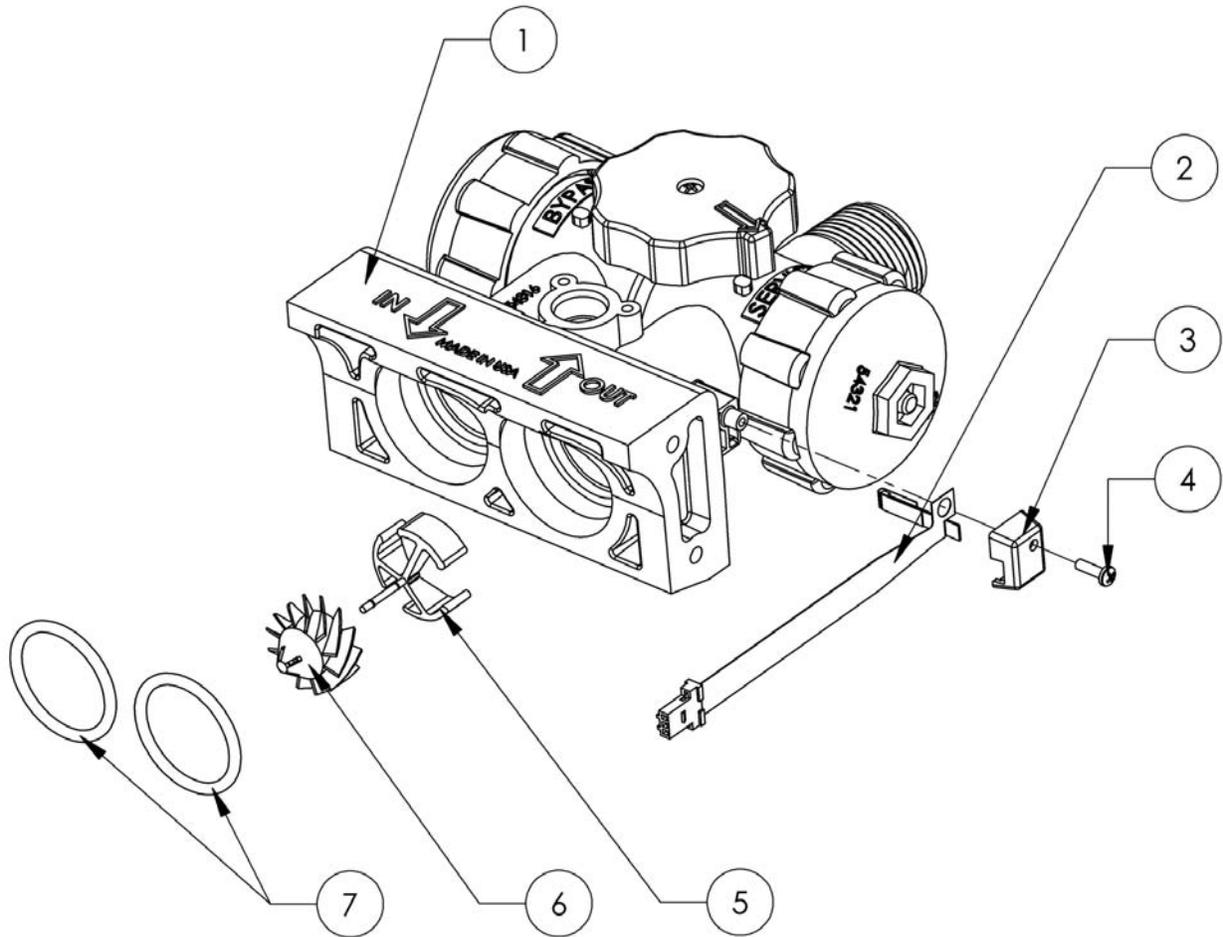


Figure 26: Bypass Assembly

	<b>PART#</b>	<b>DESCRIPTION</b>	<b>QUANTITY</b>
1	93521	3/4" I/O Assembly	1
2	93858	Turbine Sensor Assembly	1
3	90232	Turbine Sensor Cap	1
4	90809	Sensor Cap Screw	1
5	54320	Plastic Turbine Axle	1
6	90522	Turbine Assembly	1
7	93838	O-Ring	2
	54512	Entire Assembly (all of the above parts)	

# Assembly and Parts

## Drive End Cap Assembly

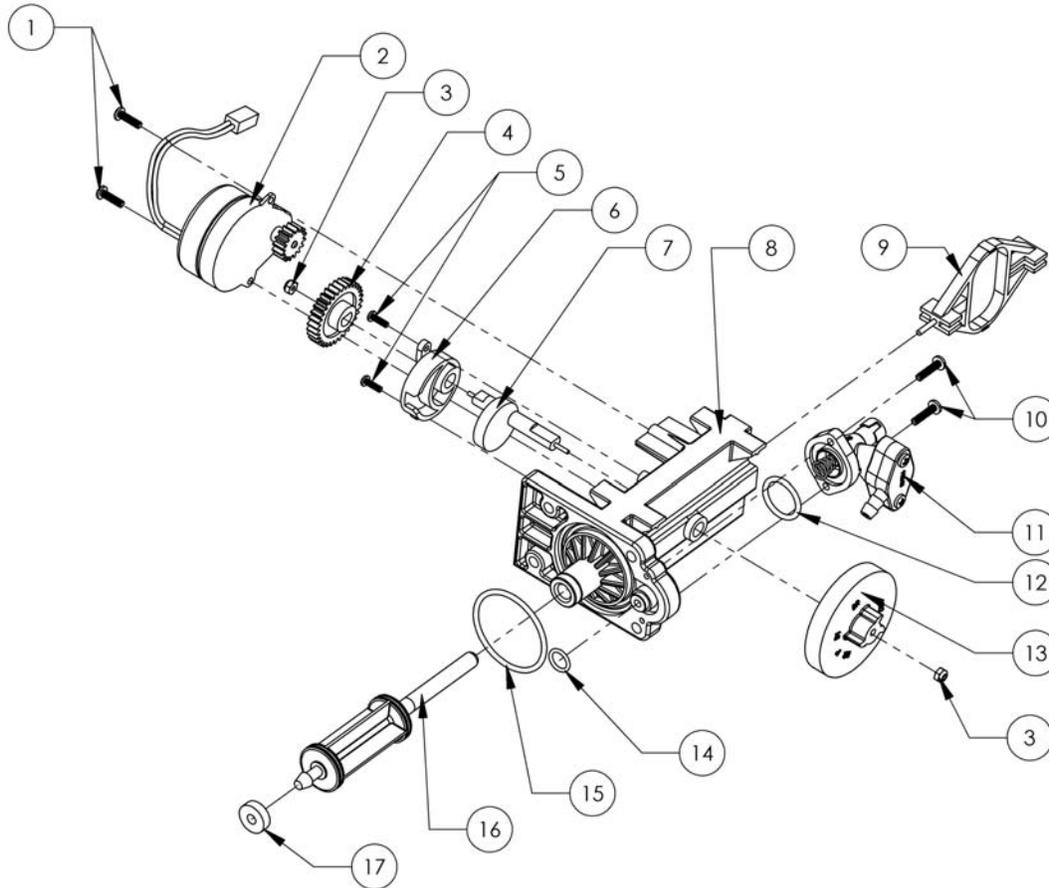


Figure 27: Drive End Cap Assembly

	PART#	DESCRIPTION	QUANTITY
1	90802	Screw	2
2	90217	Drive Motor	1
3	93891	1/4" Hex Nut	2
4	93238	Drive Gear	1
5	90809	Screw	2
6	93219	Piston Slide Cam Cover	1
7	93217	Piston Slide Cam	1
8	93583	Drive End Cap	1
9	93216	Piston Slide	1
10	90818	Screw	2
11	93601	Brine Valve Assembly	1
12	90821	O-Ring	1
13	54502	Magnet Disk	1
14	90828	O-Ring	1
15	93808	O-Ring	1
16	93522-A	Drive Piston Assembly	1
17	93839	Drain Gasket	1
	56504	Drive End Cap Assembly (all of the above except 1, 2, and 13)	

# Assembly and Parts

## Injector Assembly

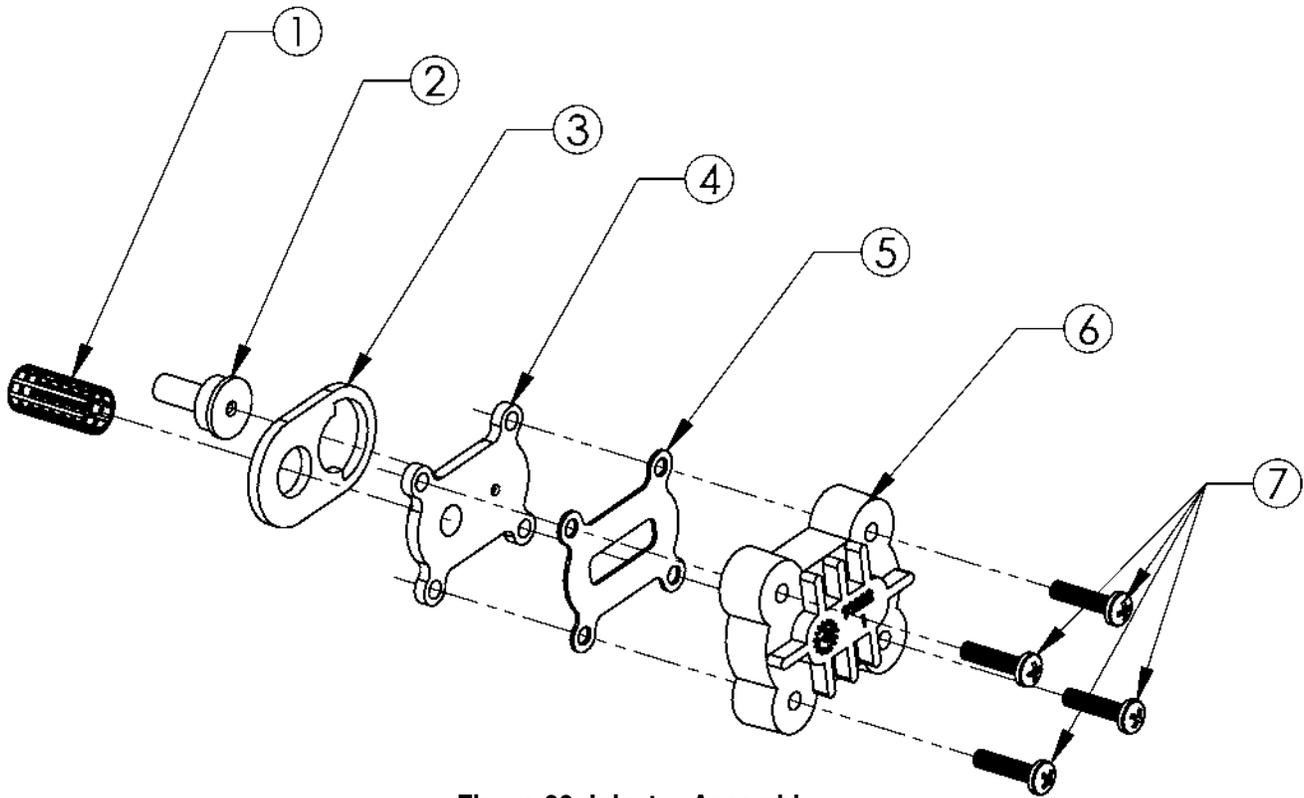


Figure 28: Injector Assembly

	<b>PART#</b>	<b>DESCRIPTION</b>	<b>QUANTITY</b>
1	93810	Injector Screen	1
2	93223	Injector Throat	1
3	93220	Injector Seal (Thick)	1
4	93221	Injector Nozzle	1
5	93232	Top Injector Seal (Thin)	1
6	93222	Injector Cap	1
7	90807	Screw	4
	93501	Entire Assembly (all of the above parts)	

# Assembly and Parts

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## ***Injector Assembly Details***

**93223 Injector Throat:** In conjunction with the Injector Nozzle, Part # 93221, it creates the vacuum that draws the brine solution from the brine cabinet. The center hole should be clear of debris, round and undamaged. The Throat should be pressed flush into the opening in the valve. If the Throat is removed, it must be replaced with a new one.

**93220 Thick Injector Seal:** Seals between the Injector Nozzle and the Main Valve Body. The gasket has a definite hole pattern that has to match-up with the Nozzle and Main Valve Body opening. The gasket seals at its outer edges and between the inlet screen and nozzle opening. These areas must be free of defects such as tears or pits and be free of debris.

**93221 Injector Nozzle:** Together with the Throat, 93223, creates the vacuum that draws the brine solution from the Brine Cabinet. There are two openings in the Nozzle plate. The small hole, flush on both sides, is the one that creates the “injection-stream” that enters the Throat. It is important that this hole is clear of debris, round and undamaged. If this hole becomes “clogged”, do not use anything such as metal objects to clear this opening. Damage may occur. Use a clean cloth and flush with water. If necessary, a wooden toothpick may be used. When assembling to the Valve, the Nozzle hole should line up with the Throat.

**93232 Thin Injector Seal:** Seals between the Injector Nozzle and Injector Cap. The gasket must be free of defects such as tears or cuts and be free of debris.

**93222 Injector Cap:** Holds the injector assembly together and seals the assembly to the Main Valve Body. The four machine screws should be tightened evenly and “snug”.

**93810 Injector Screen:** Acts as pre-filter to keep debris from entering the Injector Nozzle and Throat. Attaches to the cylinder on the Nozzle plate and spherical “bump” inside the Valve Body. Some compression of the screen may occur during assembly. The opening in the screen must be clear to ensure proper flow to the Injector assembly.

# Assembly and Parts

## Brine Valve Housing Assembly

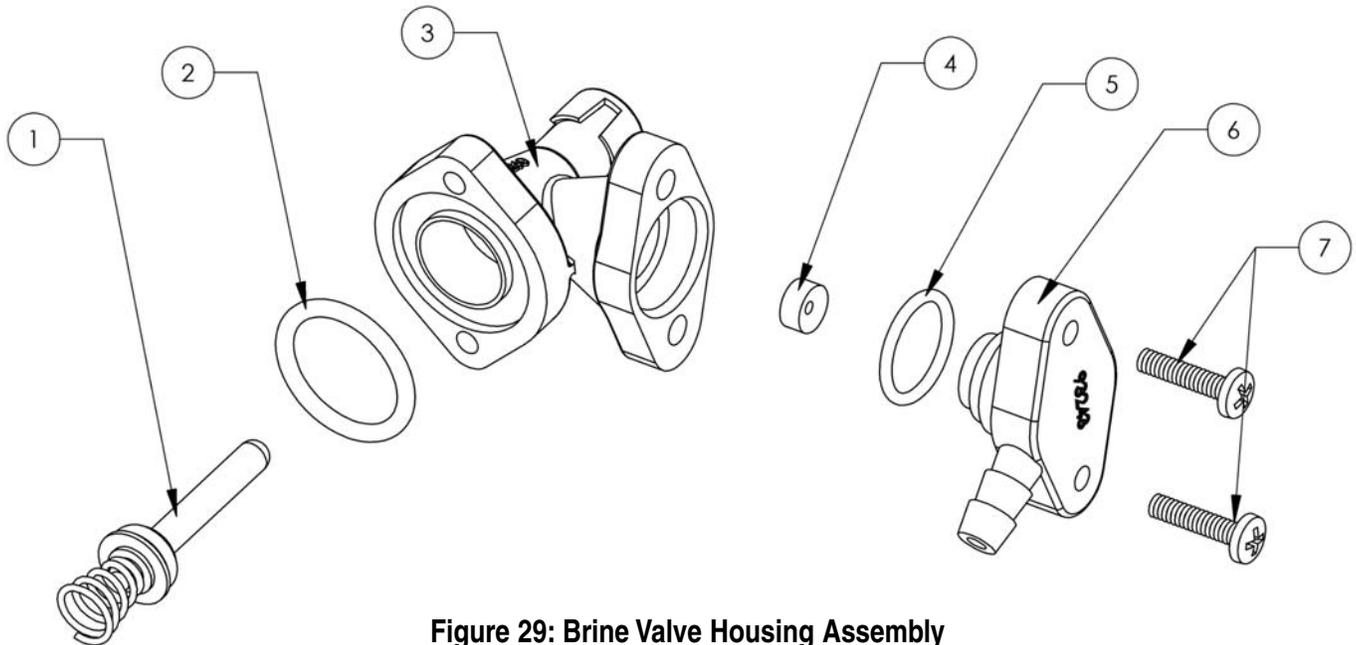


Figure 29: Brine Valve Housing Assembly

PART#	DESCRIPTION	QUANTITY
1 93620	Piston Assembly (includes O-Ring & Spring)	1
2 90821	O-Ring	1
3 93260	Housing	1
4 90843	0.5 gpm Flow Control	1
5 93805	O-Ring	1
6 93243	Housing Cap	1
7 90807	Screw	2
93601	Entire Assembly (all of the above parts)	

# Assembly and Parts

## Safety Shutoff Assembly

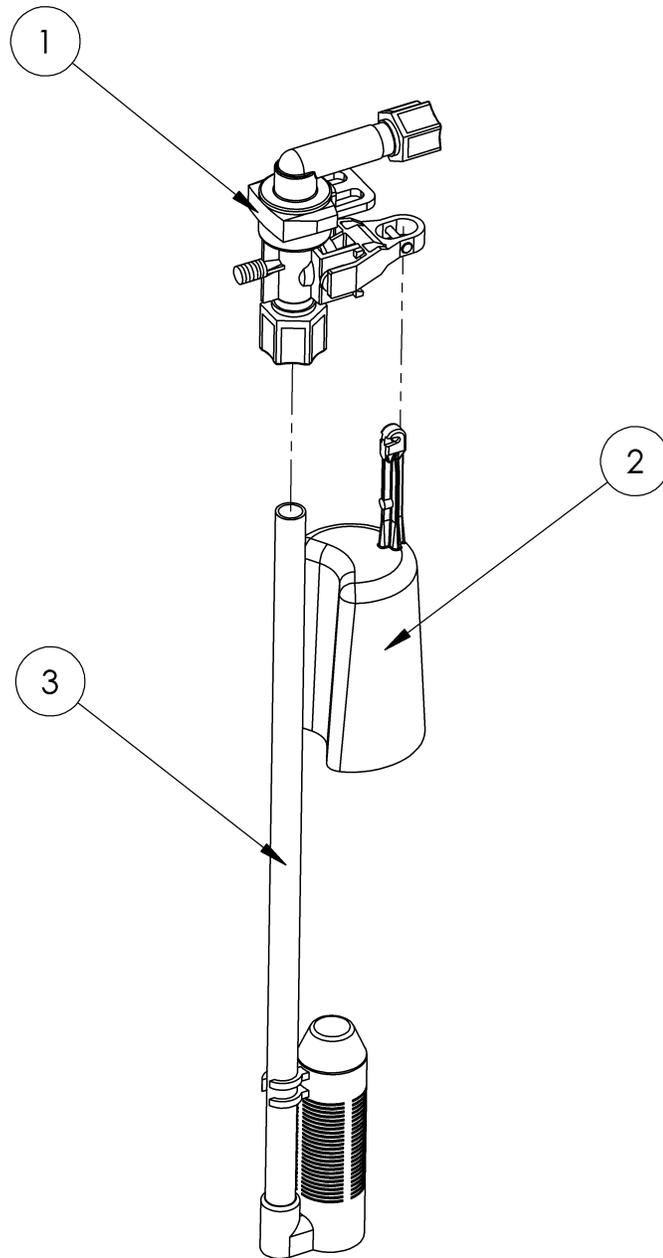
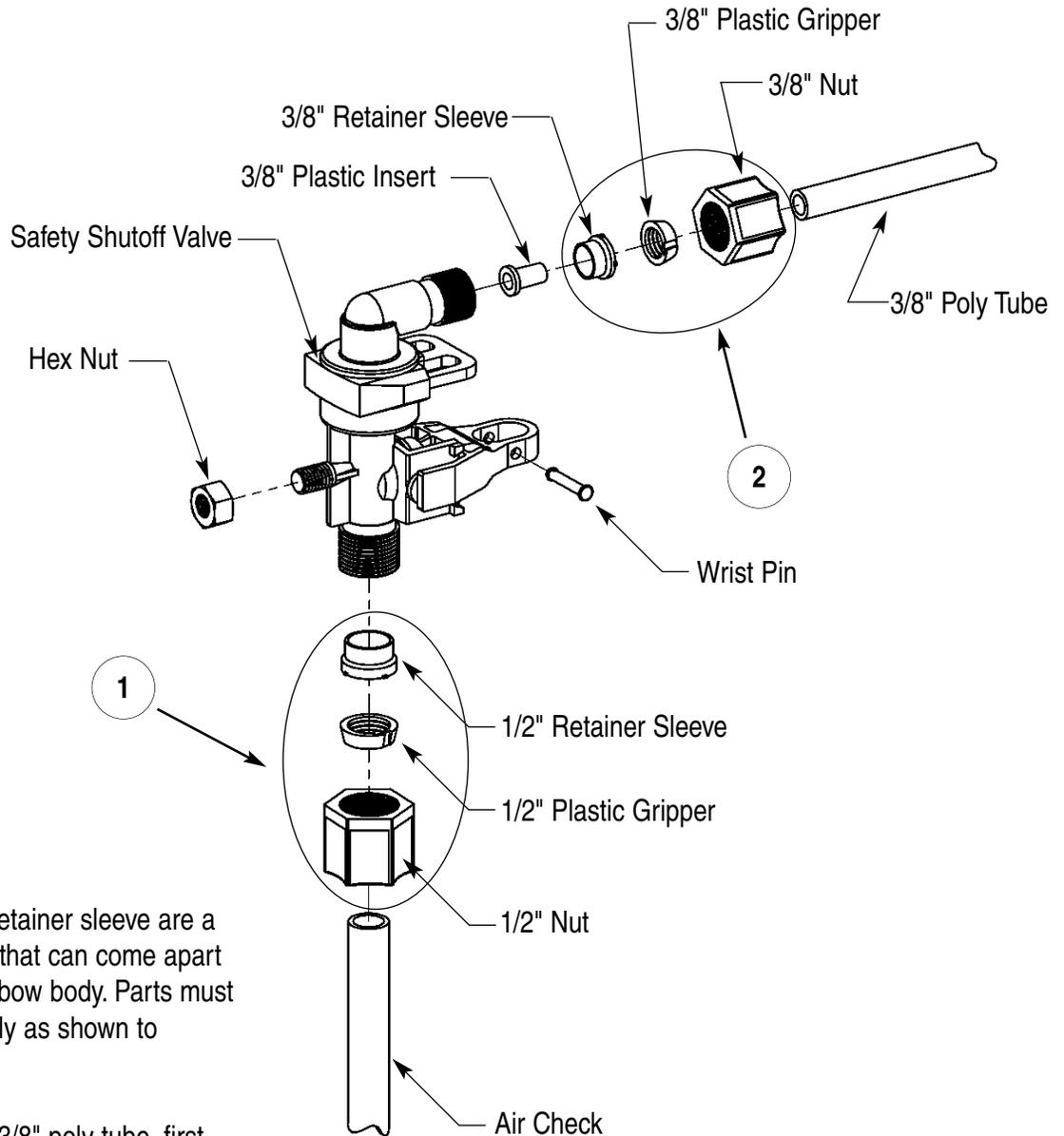


Figure 30: Safety Shutoff Assembly

	<b>PARTS#</b>	<b>DESCRIPTION</b>	<b>QUANTITY</b>
1	54226	Safety Shutoff	1
2	56018	Float	1
3	56200	Air Check	1
	56024	Entire Assembly (all of the above parts)	

# Assembly and Parts

## Safety Shutoff Valve Elbow Installation



The nut, gripper and retainer sleeve are a three-piece assembly that can come apart if removed from the elbow body. Parts must be reassembled exactly as shown to function properly.

When connecting the 3/8" poly tube, first assemble the nut, gripper, and retainer sleeve on the tubing. Then insert the plastic insert. Screw the nut on the elbow body. With a wrench, tighten the nut securely to create a water-tight connection.

**Figure 31: Safety Shutoff Valve Elbow Installation**

	<b>PART#</b>	<b>DESCRIPTION</b>	<b>QUANTITY</b>
1	54112	1/2" Compression Assembly	1
2	54138	3/8" Compression Assembly	1

# Assembly and Parts

## Drain End Cap Assembly

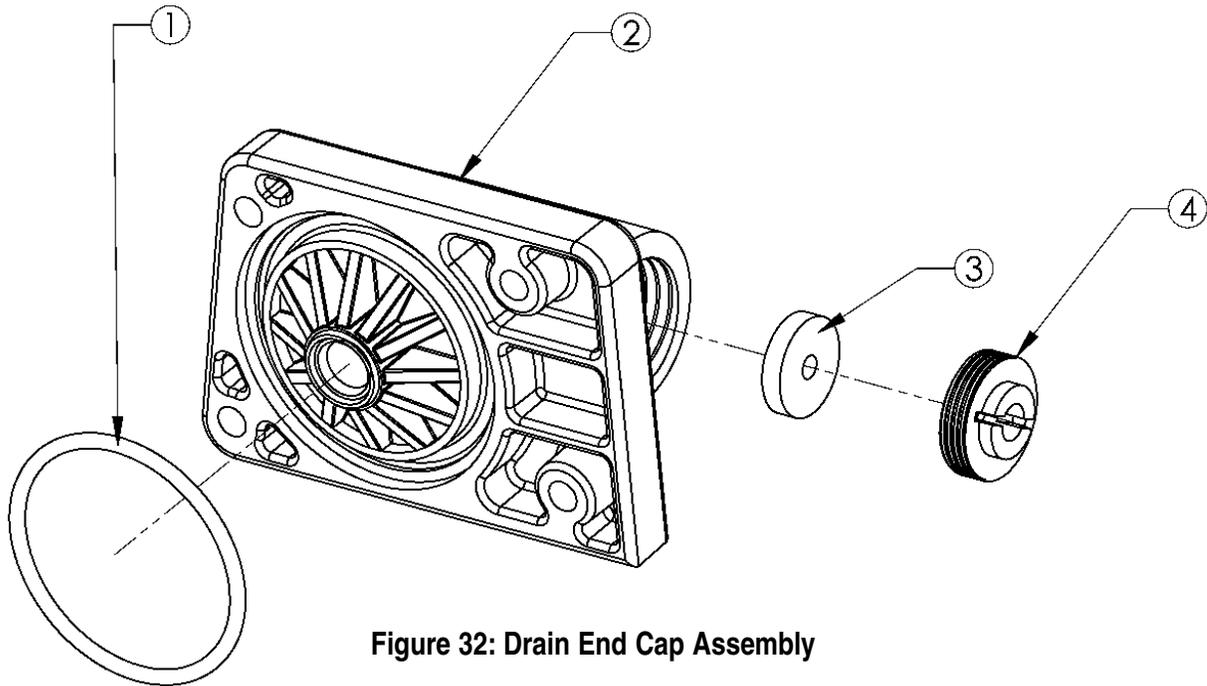


Figure 32: Drain End Cap Assembly

	PART#	DESCRIPTION	QUANTITY
1	93808	O-Ring	1
2	90268	Drain End Cap	1
3	H2086-XX*	Drain Line Flow Control	1
4	90267	Retainer	1
	90614-XX*	Entire Assembly (all the above parts)	

**90268 Drain End Cap:** The Drain End Cap (2) seals the left opening on the Main Valve Body. The opening is sealed with an O-ring used as axial or “face” seal. The O-ring sits in a groove in the End Cap. This groove must be free of defects such as pits or scratches and also free of debris. When assembling the End Cap to the Valve Body, care should be taken to make sure that the O-ring stays in the groove in the End Cap. If misaligned, the O-ring can become pinched and leak.

**H2086 Drain Line Flow Control:** The Drain Line Flow Control (D.L.F.C.) (3) maintains a constant (plus or minus 10%) backwash flow rate at varying pressures. Care should be taken when replacing FCs to ensure that the correct rate is being used for a particular model. Refer to *Specifications*. When assembling the flow control, ensure that the rounded side of the hole faces in toward the water flow.

H2086 - 2.4\*

H2086 - 3.0\*

**90267 Retainer:** The Retainer (4) holds the backwash Flow Control in place. One side is smooth and the other has a groove for a screw driver. When assembling the retainer to the Drain End Cap, the retainer should be “screwed” in until it stops. If the retainer is not fully engaged, the Flow Control may not function properly.

\*Must specify drain line flow control size. XX Indicates the back wash flow rate in gpm. Example: 90614-2.4

# Assembly and Parts

## Barbed Drain End Cap Assembly

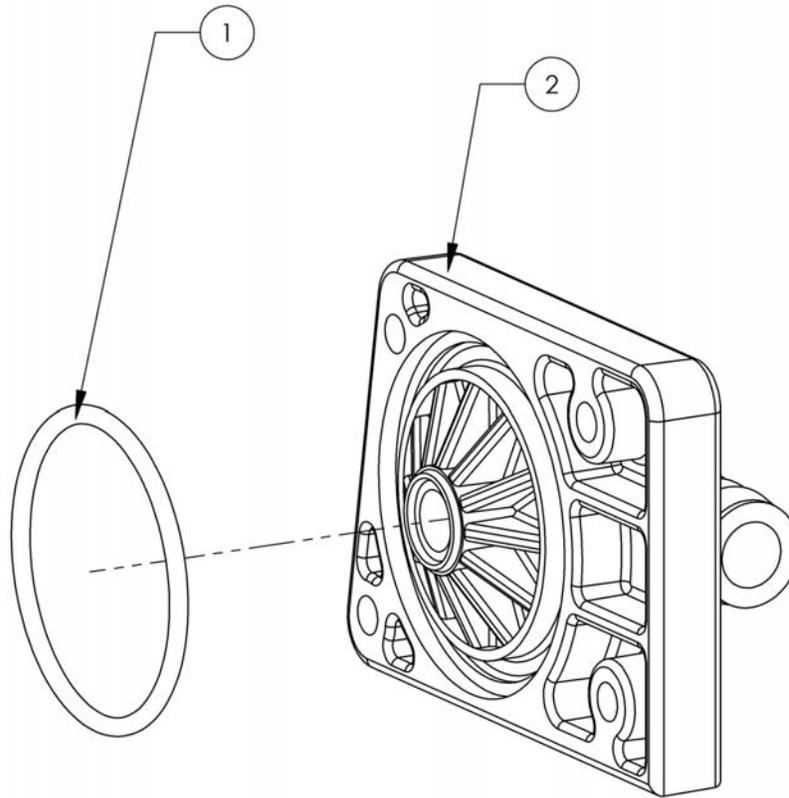


Figure 33: Barbed Drain End Cap Assembly

	PART#	DESCRIPTION	QUANTITY
1	93808	O-Ring	1
2	93231-2.0	Barbed Drain End Cap	1
	93524	Entire Assembly (all of the above parts)	

**93524 Barbed Drain End Cap Assembly:** The Barbed Drain End Cap (2) seals the left opening on the Main Valve Body. The opening is sealed with an O-ring (1) used as axial or “face” seal. The O-ring sits in a groove in the End Cap. This groove must be free of defects such as pits or scratches and also free of debris. When assembling the End Cap to the Valve Body, care should be taken to make sure that the O-ring stays in the groove in the End Cap. If misaligned, the O-ring can become pinched and leak.

# Troubleshooting

Problem	Cause	Solution
No soft water after regeneration.	No salt in brine cabinet.	Fill the brine cabinet with salt. (See <i>Setting and Using the Controller</i> .)
	Sediment in brine tank has plugged the brine line and air check.	Remove air check draw tube and flush with clean water. Clean injector assembly. Clean any sediment from brine cabinet.
	Drain line is pinched, frozen, or restricted.	Straighten, thaw, or unclog the drain line.
	Clogged injector assembly. (See <i>Injector Assembly in Assembly and Parts</i> .)	Remove injector cap and clean nozzle and throat with a wooden toothpick. Replace throat if removed.
	Salt bridge has formed.	High humidity or the wrong kind of salt can create a salt bridge. This is a crust that forms an empty space between the water and salt. To test, use a blunt object like a broom handle. Push the handle into the salt to dislodge the salt bridge.
No soft water.	The bypass valve is in the bypass position. (See <i>Flush Lines in Installation Steps and Start-Up Procedures</i> .)	Place the bypass valve in the service position.
	Appliance is plumbed backwards.	Check that appliance is plumbed correctly.
	Extended power outage.	Initiate manual regeneration. Reset Time of day if set to Time Mode (1) or Demand Delayed Mode (2).
	Water hardness has increased.	Re-test the water and re-enter a new setting number. (See <i>Start-Up Procedures</i> .)
	Not metering water.	Check WaterMizer indicator. Indicator should flash with water usage. If no indicator, see below.
WaterMizer indicator does not flash when water is flowing.	The bypass valve is in the bypass position. (See <i>Flush Lines in Installation Steps</i> .)	Place the bypass valve in the service position.
	Appliance is plumbed backwards.	Check that appliance is plumbed correctly.
	Sensor not receiving signal from magnet on turbine. (See <i>Bypass Assembly in Assembly and Parts</i> .)	Remove sensor from bypass housing. Test by placing magnet on the sensor chip. If indicator flashes, replace the turbine. If not, replace the sensor.
WaterMizer indicator flashes when water is not being used.	There is a leak in your household plumbing system.	Repair the leak.
Appliance stays in regeneration. Cycle numbers remain flashing.	Controller not attached properly.	Make sure the controller is pushed all the way onto the drive end cap.
	Foreign object in valve body.	Remove foreign objects from the valve body.
	Broken valve assembly. Motor running. (See <i>Drive End Cap Assembly in Assembly and Parts</i> .)	Repair the drive end cap.

# Troubleshooting

Problem	Cause	Solution
Read-out lights do not glow.	Transformer/power cord is unplugged.	Plug in the transformer/power cord.
	No electric power at outlet.	Check power source. Make sure outlet is not controlled by a switch.
	Defective transformer. (See <i>Start-Up Procedures</i> .)	Test with volt meter for 12 VAC at control. If 0 VAC, replace the transformer.
	Display board is not plugged into the controller.	Connect display board to controller with ribbon cable.
	Defective circuit board. (See <i>Start-Up Procedures</i> .)	With 12 VAC present at controller, replace the controller.
Excess water in brine tank.	High ambient room temperature. If the temperature exceeds 120°F, the display will blank out. This does not affect the operation of the controller.	No action necessary.
	Restricted, frozen, or pinched drain line.	Remove restriction, thaw, or straighten drain line.
	Plugged brine line, brine line flow control, or air check. (See the <i>Safety Shutoff Assembly in Assembly and Parts</i> .)	Clean flow control, air check, and brine line. Clean any sediment from the brine cabinet.
	Plugged injector assembly. (See the <i>Injector Assembly in Assembly and Parts</i> .)	Clean or replace injector. Replace throat if removed.
Not regenerating in proper sequence.	Sticking brine refill valve.	Remove valve. Lubricate piston with silicone grease and reassemble.
	Magnet disk defective.	Replace magnet disk.
Salty water.	Defective controller.	Replace controller.
	Plugged injector.	Clean injector screen, nozzle and throat.
	Low water pressure.	Maintain minimum pressure of 20 psi (1.38 bar) (See <i>Specifications</i> ).
	Drain line or flow control is restricted.	Remove restriction.
	Brine line restricted or crimped.	Remove restriction, replace if crimped.
	Excessive amount of water in brine cabinet.	Verify correct water level relative to salt setting. Check brine line and fittings for loose connections.
	Insufficient rinse time.	Check mode setting chart for proper brine rinse time. Adjust time, if necessary.
	Intermittent pressure drop from feed source.	Install check valve on the inlet water line to the appliance. (Check local plumbing codes first.)
Brine valve drips water back to brine tank.	Clean brine valve housing, lubricate piston assembly. (See <i>Brine Valve Housing Assembly in Assembly and Parts</i> .)	

# Specifications

## **Maximizer 400**

Maximum compensated hardness—grains/gallon (mg/L)	35 (600)
Minimum pH (standard units)	7
Media type and amounts	Built-in, whole house self-cleaning filter. Filters dirt and sediment down to 20 micron. Super Fine Mesh Resin 0.4 ft <sup>3</sup> (0.01 m <sup>3</sup> )
*Salt usage (used per regeneration) / Capacity	1 lb / 4,900 grains (0.45 kg / 316 grams)
*Salt usage (used per regeneration) / Capacity	2 lb / 8,600 grains (0.9 kg / 555 grams)
*Salt usage (used per regeneration) / Capacity	3 lb / 10,700 grains (1.36 kg / 690 grams)
Minimum / Maximum water and ambient temperature	40° / 120°F (4.4° / 48.9°C)
Mineral tank size [in. (cm)]	9 (22.9) I.D. X 16 (40.6)
Pressure drop @ service flow rate of 13 gpm (49.2 Lpm)	29 psi (2 bar)
Pressure drop @ service flow rate of 12 gpm (45.4 Lpm)	25 psi (1.7 bar)
Pressure drop @ service flow rate of 8.2 gpm (31 Lpm)	15 psi (1 bar)
Pressure drop @ service flow rate of 4 gpm (15.1 Lpm)	4.5 psi (0.3 bar)
Maximum flow rate to drain during regeneration (backwash)	2.4 gpm (9.1 Lpm)
Water Pressure (minimum)	20 psi (1.4 bar)
Water Pressure (maximum)	120 psi (8.3 bar)
Minimum water flow required	2.4 gpm (9.1 Lpm)
Controller type	5 Button
Regeneration time [1 lb (0.45 kg) salt setting]	12 minutes
Regeneration time [2 lb (0.91 kg) salt setting]	15 minutes
Regeneration time [3 lb (1.36 kg) salt setting]	18 minutes
Water used/regeneration [1 lb (0.45 kg) salt setting]	9.6 gallons (36.4 litres)
Water used/regeneration [2 lb (0.91 kg) salt setting]	11.5 gallons (43.5 litres)
Water used/regeneration [3 lb (1.36 kg) salt setting]	13.3 gallons (50.4 litres)
Frequency of regeneration	Demand or Timer
Salt Storage (pellet salt)	30 lb (13.6 kg)
Height	21.5 in. (54.6 cm)
Footprint	11.5 in. (29.2 cm) x 18.5 in. (47 cm)
Electrical Rating	115 VAC, 60 Hz / 220 VAC, 50 Hz
Plumbing Connections	3/4 in. or 1 in. male
Shipping Weight - Approximate	55 lb (25 kg)

\* Use clean, white pellet, solar, cube-type, block, or brick salt.

# 10 Year Limited Warranty

## To Whom Warranty Is Extended

This warranty is issued to the original owner at the original location site and is not transferable to other sites or to subsequent owners of the system.

TO PLACE THE EQUIPMENT UNDER WARRANTY, THE WARRANTY REGISTRATION CARD MUST BE COMPLETED AND RETURNED BY THE ORIGINAL OWNER TO **Maximizer 400** WITHIN 30 DAYS OF INSTALLATION.

## Coverage

This limited warranty covers the **Maximizer 400** system delivered to the original owner at the original location when the system is purchased for personal, family, or household use. It is intended to cover defects occurring in workmanship or materials or both.

## Warrantor's Performance and Length of Limited Warranty

**Maximizer 400** warrants that upon receipt from the original owner of any mechanical or electronic part which is found to be defective in materials or workmanship, **Maximizer 400** will repair or replace the defective item for 3 years from date of original installation. Media is not warranted.

**Maximizer 400** further warrants that upon receipt from the original owner of any **Maximizer 400** media tank/valve body, brine cabinet, found to be defective in material or workmanship, **Maximizer 400** will repair or replace the defective item for 10 years from date of original installation.

All defective parts must be returned, along with the equipment serial number and date of original installation, to **Maximizer 400** PREPAID, and replacement parts will be returned by **Maximizer 400** to the original owner FREIGHT COLLECT.

## Further Exclusions and Limitations on Warranty

THERE ARE NO WARRANTIES OTHER THAN THOSE DESCRIBED IN THIS WARRANTY INSTRUMENT.

This warranty does not cover any service call or labor costs incurred with respect to the removal and replacement of any defective part or parts. **Maximizer 400** will not be liable for, nor will it pay service call or labor charges incurred or expended with respect to this warranty.

In the event the water supply being processed through this product contains bacterial iron, algae, sulphur, tannins, organic matter, or other unusual substances, then, unless the system is represented as being capable of handling these substances in the system specifications, other special treatment of the water supply must be used to remove these substances before they enter this product. Otherwise, **Maximizer 400** shall have no obligations under this warranty.

This warranty does not cover damage to a part or parts of the system from causes such as fire, accidents, freezing, or unreasonable use, abuse, or neglect by the owner.

This warranty does not cover damage to a part or parts of the system resulting from improper installation. All plumbing and electrical connections should be made in accordance with all local codes and the installation instructions provided with the system. The warranty does not cover damage resulting from use with inadequate or defective plumbing; inadequate or defective water supply or pressure; inadequate or defective house wiring; improper voltage, electrical service, or electrical connections; or violation of applicable building, plumbing, or electrical codes laws, ordinances, or regulations.

**THIS WARRANTY DOES NOT COVER INCIDENTAL, CONSEQUENTIAL, OR SECONDARY DAMAGES.**

**ANY IMPLIED WARRANTIES ON THE PRODUCT DESCRIBED IN THIS WARRANTY WILL NOT BE EFFECTIVE AFTER THE EXPIRATION OF THIS WARRANTY. NO DEALER, AGENT, REPRESENTATIVE OR OTHER PERSON IS AUTHORIZED TO EXTEND OR EXPAND THIS LIMITED WARRANTY.**

Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

## Claims Procedures

Any defects covered by this warranty should be promptly reported to:

**Maximizer 400**  
4343 South Hamilton Road  
Groveport, Ohio 43125

When writing about the defects, please provide the original owner's name, telephone number, and original address, serial number and model number of the product, and date of purchase. (This information should be listed at the front of this manual.) **Maximizer 400** reserves the right to replace defective parts with exact duplicates or their equivalent.

# Notes

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