HAGUE WATERMAX®

WATER CONDITIONING APPLIANCE



SERIES 96

OWNER'S MANUAL AND INSTALLATION GUIDE

VERSION 4.2

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15 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.

The warranty begins on the date of purchase, or 60 days from the date of manufacture if the date of purchase cannot be verified.

Coverage

This limited warranty covers the Hague Quality Water International 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 Warranty

Hague Quality Water International warrants that upon receipt from the owner of any Hague Media Tank, Brine Tank, or Main Control Valve found to be defective in material or workmanship, Hague will repair or replace the defective item, at no charge for that item, for 15 YEARS from date of installation. Media is not warranted. Media is not warranted. The warranty period for any replacement will run for the balance of the original warranty length. If industry standards, product improvements, or product obsolescence prohibit Hague from furnishing an identical model replacement and repair is not available, Hague reserves the right to provide a replacement product of comparable capacity and functionality; however, the owner will be charged for the additional value of the replacement, if applicable.

Hague Quality Water International further warrants that upon receipt from the owner of any other mechanical or electronic parts, and fine mesh polystyrene resin, which are found to be defective in material or workmanship, Hague will repair or replace the defective parts, at no charge for those parts for 5 YEARS from date of installation.

All defective parts must be returned, along with the equipment serial number and date of original installation, to Hague Quality Water International PREPAID, and replacement parts will be returned by Hague Quality Water International 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. Hague Quality Water International 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 sand, bacterial iron, algae, sulfur, 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, Hague Quality Water International 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:

Hague Quality Water International
1900 Prospect Court
Appleton, WI, 54914

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 in General Information at the front of this manual). No warranty coverage will be provided if the claimant is unable to provide proof of purchase upon request.

Product registration is available but not required to obtain any of the warranty coverage described herein. Please register your product at haguewater.com/warranty-registration. Scan the QR code to get started.

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General Information

Congratulations on choosing a superior Hague water treatment appliance! Soon you and your family will be enjoying clean, clear water. Use this guide to attain the maximum benefit from your appliance. As an owner, you may find the first few pages to be the most helpful in solving your needs. If you have trouble with the operation of your appliance, see *Troubleshooting* in the back of this manual or contact your independent Hague dealer.

Warning: This appliance must be applied to potable water only. It is recommended that an independent Hague dealer install and maintain this appliance.

Note: The manufacturer reserves the right to make specification and product changes without prior notice.

This manual is for installation, operation, and maintenance of the following water conditioning appliance model:

- 96MM*
- 96MMB1
- 96MMP1

* Tested by WQA

For Owner's Reference

Date of Installation: _____

Model Number: _____

Serial Number[1]: _____

Installer's Signature: _____

Dealership Name: _____

Dealership Address: _____

_____

Dealership Phone Number: _____

Hardness: _____

Iron: _____

pH: _____

Water Pressure: _____

Water Temp: _____

Warranty Registration Date[2]: _____

[1] The serial number is located on the left front support panel.

[2] Please register your product at **haguewater.com/warranty-registration** or scan the QR code below to get started. Fill out and keep the included warranty registration card for your records.

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Getting Maximum Efficiency From the Appliance

To achieve the maximum benefit and performance from this appliance, familiarize yourself with this manual and the appliance.

1. The salt level should always be at least 1/3 full. Refill the salt when the level drops below the water level in the brine cabinet. A resin cleaner can be used on a monthly basis. A clean pellet, solar, or cube-type salt is recommended. Do not use rock salt.
   Caution: Do not mix different types of salt.
2. You may use a salt substitute (such as potassium chloride) in place of water conditioner salt. A Hague dealer should be contacted before a switch is made to a salt substitute. If potassium chloride is used in place of salt, the technician must select the potassium option during the programming of the controller. See *Service Settings*.
   Caution: Do not use potassium chloride if there is iron and/or manganese in the water.
3. Should your electricity be off for any reason, check your controller for the correct time and reset as necessary. See *Customer Settings*.
4. Program the appliance to regenerate at a time when the water is not being used. If there is more than one appliance, allow two hours between each regeneration.
5. If dirt, sand, or large particles are present in the water supply, the appropriate Hague filter can eliminate this problem.
6. The appliance may be disinfected with 5.25% sodium hypochlorite, which is the active ingredient in household chlorine bleach. To disinfect the appliance, add 4.0 fluid ounces (120 mL) of chlorine bleach solution to the brine tank. The brine tank should have water in it. Start a manual regeneration.
   Warning: Do not mix bleach with commercial resin cleaners since a dangerous chemical reaction may occur.
7. Protect the appliance, including the drain line, from freezing.
8. The bypass valve (located on the main control valve) enables you to bypass the appliance if any work is being performed on the appliance, well pump, or plumbing. See *Bypass Valve*. Use Bypass mode also for watering plants or lawns with untreated water. To bypass, turn the blue knob counterclockwise until it hits the stop; turn it clockwise to restore service.
9. Before putting the appliance back in service after work has been performed, turn on the nearest cold water tap until water runs clear.
10. Adhere to all operational, maintenance, and placement requirements.
11. Inspect and clean the brine tank and air check/draw tube assembly annually or when sediment is present in the brine tank.
12. These appliances are certified for barium and radium 226/228 reduction according to NSF/ANSI Standard 44. Any bypass system must be completely in the Service position to ensure maximum barium and radium 226/228 reduction.

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Five-Button Controller

This appliance features a five-button controller with an LCD display. The controller can be used to view the appliance's status, perform regenerations, and change settings. An independent Hague dealer should set the Service Settings during installation of the appliance.

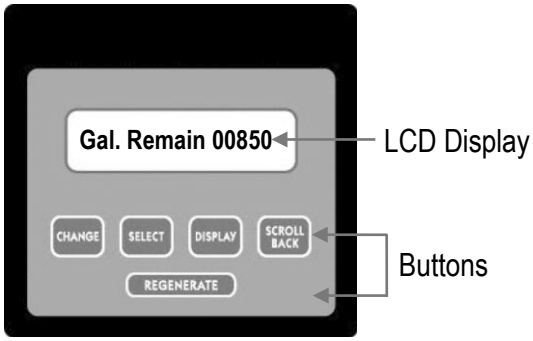


Figure 1: Five-Button Controller

Controller Part	Function
LCD Display	Shows the status of the controller; it is very important to know which mode the controller is in for proper operations.
Normal Operating Mode	Shows • The amount of soft water remaining until the next automatic regeneration (Each person in the household uses about 75 gallons [280 liters] per day) • The number of days until the next regeneration (Mode 1, Filter = No) • The flow rate in gallons (or liters) per minute (Filter = No) • Whether the appliance will regenerate tonight (If the Regenerate button has been pressed and released)
Service Settings Mode	Includes settings such as the language, mode, water hardness, and time of each regeneration step. Service Settings must be set before Customer Settings. Otherwise, some values may not be available. Service Settings Mode is intended for use by qualified service personnel.
Customer Setting Mode	Includes setting the time of day, the regeneration time, and the number of people in the household; depending on the service settings, this option may not be available.
Water Flowing Indicator	Indicates that water is flowing through the appliance; useful for checking for proper plumbing and leaks.
Recharge/ Regeneration Status	Shows regeneration cycle positions during regeneration.
Buttons	The Change, Select, Display, and Scroll Back buttons are used when changing Customer Settings and Service Settings.
Change	The Change button is used with the Select button to set the value of certain parameters. • When you press the Change 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.
Select	The Select button is used to move the cursor when setting parameters. 1. Press and release the Select 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 Select button again to reset the cursor to the extreme left position.

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Five-Button Controller, Cont.

Controller Part	Function
Buttons Cont.	The Change, Select, Display, and Scroll Back buttons are used when changing Customer Settings and Service Settings.
Display	The Display button is used to enter programming modes and also to save a value and display the next value to be changed. 1. To program Service Settings, press and hold both the Display button and the Select button for about five seconds while “Service Setting” is displayed. 2. To program Customer Settings, press and hold the Display button for about five seconds while “Customer Setting” is displayed.
Scroll Back	The Scroll Back 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.
Regenerate	The Regenerate button at the bottom of the controller is used when starting your water conditioning appliance, to start an immediate regeneration, or to restore capacity if you run out of salt.

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Customer Settings

Service Settings must be set before Customer Settings; Service Settings should be set during installation of the appliance.

To set Customer Settings, press and hold the Display button for about five seconds while "Customer Setting" displays. Release the button when "Set Time" displays. If the setting displayed is correct, press Display to move to the next setting.

Step 1 *Set Time of Day*

Display reads "Set Time" followed by the current time that is set; the cursor will be under the second hours digit.

To Change the Time of Day

A. Press Change repeatedly until the current hour is displayed.
B. Press Select to set the hour and move the cursor to the right.
C. Do the same to set the minutes. Select AM or PM. When the desired time is displayed, press Display to step to the next parameter.

Note: Whenever you experience an electrical outage, check your controller for the correct time. Make any necessary corrections.

Step 2 *Set Regeneration Time*

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

To Change the Regeneration Time

A. Follow the procedure outlined above for setting the time.
B. When the desired regeneration time is displayed, press Display.

Step 3 *Set Number of People*

Display reads "# People" followed by the current setting for the number of people in the household; the cursor will be under the tens digit.

To Change the Number of People

A. Press Change repeatedly until the desired value is displayed; values will cycle from 0 to 9.
B. Press Select and the cursor moves to the right.
C. When the desired number of people is displayed, press Display to exit the Customer Setting mode.

When you press the Display button at "# People," the values are saved, and the controller returns to Normal operating mode.

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Checklist Before Installation

Refer to this checklist before installation.

- ❒ **Water Quality**—If the water supply contains sand, sulfur, bacteria, iron bacteria, tannins, algae, oil, acid, or other unusual substances, consider pre-treating the 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.

  The appropriate Hague Water Filter can address these water shortcomings.

- ❒ **Iron**—A common problem found in many water supplies is iron. It is important to know what type of and how much iron is in the water supply.

Iron Type	Description
Ferrous Iron* (sometimes called clear water or dissolved iron)	Only type of iron that can be treated with a water softener
Ferric Iron	Insoluble and the particles can eventually foul a resin bed. It should be filtered out before the water reaches the softener
Organic Iron or Bacterial Iron	Attached to other organic compounds in the water. Additional treatment is needed to remove this type of iron
Colloidal Iron	Not dissolved, yet stays in suspension. A softener cannot remove this type of iron

***** If the water supply contains ferrous iron, a commercially available resin bed cleaner should be used every six months. Follow the instructions on the container.

- ❒ **Water Pressure**—Not less than 20 psi or greater than 80 psi (1.4–5.5 bar) constant. If water pressure exceeds 70 psi (4.8 bar), a pressure regulator is recommended.
  - **NOTE**: IAPMO Unified Plumbing Code limits water supply pressure to 80 psi maximum.
- ❒ **Water Supply Flow Rate**—A minimum of 2.4 gallons (9.1 liters) per minute or equal to the backwash flow rate of the particular model is recommended. 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° or greater than 120°F (4°–49°C).
- ❒ **Drain**—Drain the appliance to an appropriate drain, such as a floor drain or washer drain that will comply with all local and state 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.

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Precautions

Do

1. Comply with all state and local, building, plumbing, and electrical codes.
2. Install the appliance before the water heater.
3. Install the appliance after the pressure tank on well-water installations.
4. Install a pressure-reducing valve if the inlet pressure exceeds 70 psi (4.8 bar).
5. Examine the inlet line to ensure water will flow through it freely and that the inlet pipe size is sized correctly. For well water with iron, the recommended minimum inlet pipe size 3/4-inch I.D. and for municipal water the recommended minimum inlet pipe size is 1/2-inch I.D.
6. Install a gravity drain on the cabinets.
7. Secure the drain line on the appliance and at the drain outlet. See *Installation Steps and Start-Up Procedures*.
8. Allow a minimum of 8 to 10 feet (2.4 to 3.0 meters) 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 *Water Conditioner Specifications*.
3. Do not allow soldering torch heat to be transferred to valve components or plastic parts when using the optional copper adapters.
4. Do not overtighten 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.
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) lines together.
9. Do not use to treat water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the appliance.
10. Do not allow your appliance or drain line to freeze.

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

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Installation Steps and Start-Up Procedures

Step 1 *Prepare the Placement Area*

A. Make sure the placement area is clean.
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.
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. See *Bypass Valve.*
Caution: Do not plumb the appliance in backward.
F. Place the appliance in the desired location using Figure 2 as a guide. The diagram in Figure 2 applies to basement, slab, crawl space, 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 any additional filters, such as a carbon filter for well water, place the filter after any water conditioning appliance unless otherwise recommended.
Water Heaters: If less than 10 feet (3 meters) of pipe connects the water treatment appliance(s) to the water heater, install a check valve between the water treatment appliance and the water heater as close to the water heater as possible. Ensure that the water heater has an adequately rated temperature and pressure safety relief valve.
H. For outside installations, the appliance should be enclosed so it is protected from the weather.

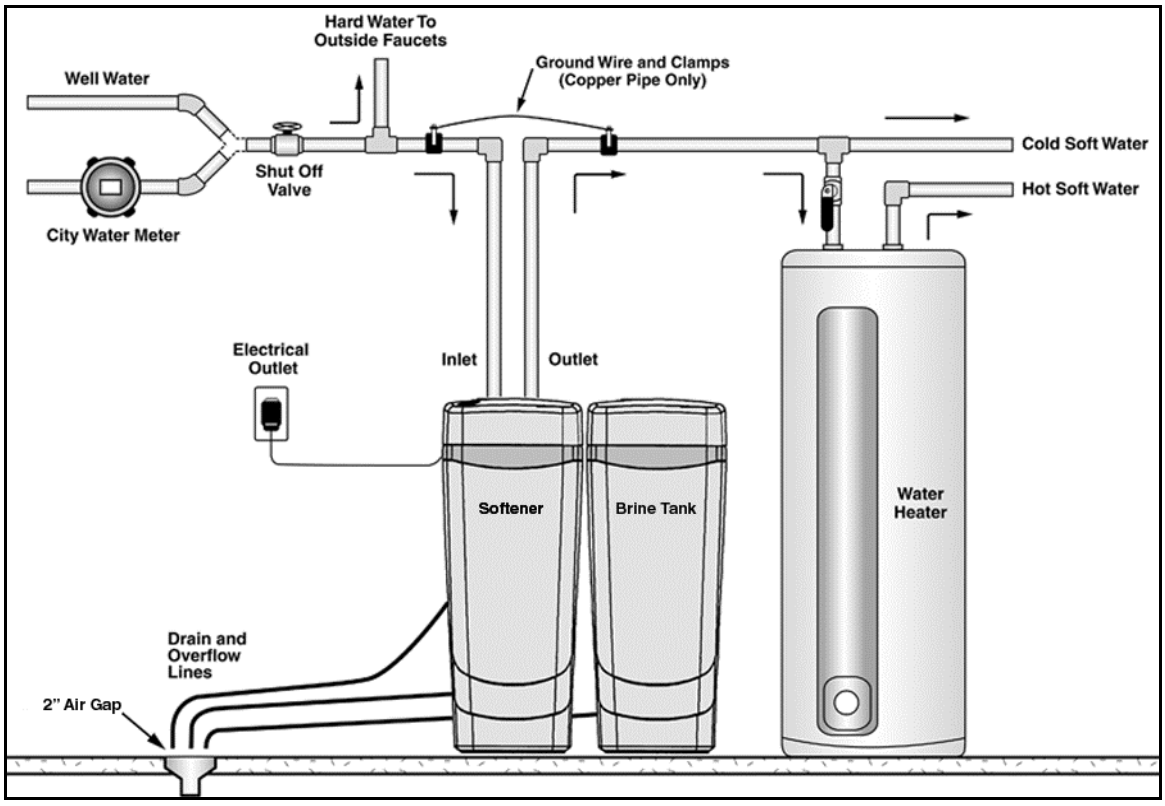


Figure 2: Appliance Placement

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Installation Steps and Start-Up Procedures, Cont.

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. Connect water lines in compliance with all state and local, building, plumbing, and electrical codes.

Step 4 *Connect the Brine Tank*

A. Connect the brine tank to the main control valve with the flexible 3/8-inch poly tube included with the appliance. Insert the plastic insert in the end of the brine tube. See **Error! Reference source not found.**.

Step 5 *Connect Gravity Overflow Connections*

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

A. Check that each overflow elbow is in the down position.
B. Connect 1/2-inch I.D. tubing (size cannot be reduced) between the overflow fitting and a floor drain, laundry tub, or other suitable waste receptor. This tubing is not supplied with the appliance. Ensure that the overflow line ends at a drain that is at least 3 inches (8 cm) lower than the bottom of the overflow fitting. Maintain a minimum 2-inch (5 cm) air gap between the overflow line and the flood level rim of the waste receptor to prevent back-siphoning. The gravity line cannot be run overhead.

Step 6 *Connect Drain Line*

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

A. Connect the drain line to the drain end cap with a minimum 1/2-inch I.D. tubing (not supplied). The size cannot be reduced.
   Note: If the drain line is 25 feet (7.6 meters) or longer, increase the drain line to 3/4-inch I.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.
B. Route the drain line to a floor drain, laundry tub, or other suitable waste receptor. Maintain the same 2-inch (5 cm) air gap as with the overflow line. 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 meters) from the discharge on the appliance as long as the water pressure in your system is 40 psi (2.8 bar) or more.

Step 7 *Flush Lines*

A. Place the appliance in the Bypass position.
B. Turn on the main water supply.
C. Open the nearest cold water faucet to flush the plumbing of any excess soldering flux, air, or any other foreign material.

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Installation Steps and Start-Up Procedures, Cont.

Step 8 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 to slowly fill the media tank.
   7. Open a cold water faucet to purge air out of the media tank.
   8. Close the faucet and recheck for leaks.

Step 9 Plug in the Transformer

A. Connect the transformer power cord to the back of the controller.
B. Plug the transformer into an appropriate outlet.
C. Ensure that the outlet selected is not operated by an On/Off switch.

Step 10 Set Up the Controller

A. Program the appliance controller. See *Setting and Using the Controller*.

Step 11 Add Water to the Brine Tank

A. Add water to the brine tank to a minimum of 2 inches (5 cm) above the grid plate. After the first regeneration, the appliance will automatically refill the correct amount of water into the brine tank.
B. Ensure that the bypass is in Service position.
C. Ensure that the salt dosage is set as recommended for the application.
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/draw tube sets (8–10 minutes).
E. Press the Regenerate button to advance to the Brine Refill position. Let the tank fill with the proper amount of water. The controller will then step the main control valve to the Home position.
   Note: This initial startup is the only time you will add water to the brine tank. Do not add water at any other time.

Step 12 Fill the Brine Tank With Salt

A. Fill the brine tank with salt. Use clean white pellet, cube-style, or solar salt. Do not mix pellet with solar salt.
   Note: Always keep the salt level above the water level. For convenience, completely fill the tank when refilling with salt.
B. After you add salt, including adding it after the tank has run out of salt, wait two hours for saturated brine before starting any regeneration.
   Caution: Use of potassium chloride when iron and/or manganese are present in the raw water supply is not recommended.

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Installation Steps and Start-Up Procedures, Cont.

Step 13 *Complete the Installation*

A. Ensure that the bypass is left in the Service position. See *Bypass Valve*.
B. Ensure the water supply is on.
C. Open the inlet valve and turn on the electricity to the water heater. For gas water heaters, return the gas cock to “On.”
D. Open a cold water tap and allow the appliance to flush for 20 minutes or until approximately 72 gallons (270 liters) have passed through the appliance. This procedure is required to meet NSF compliance. Verify the flow rate on the controller, which indicates water flow. See Figure 1.
E. Adjust the blending valve if it is being used. See *Blending Valve*.
F. Test the water at the test port to verify soft water.
G. Place the covers on both of the cabinets.

Bypass Valve

The bypass valve can isolate the appliance should the appliance malfunction or leak. It can also permit the use of untreated water for watering plants, shrubs, or lawns.

The bypass valve is attached to the main control valve. See Figure 3. To engage the bypass valve, locate the blue knob on top of the bypass valve. Turn the knob counterclockwise until it hits the stop. The appliance will be bypassed, and all water to the home is raw, untreated water. To prevent untreated water from entering the home, water should not be used inside the home when the appliance is in Bypass mode. Ensure that the appliance is returned to Service mode when the appliance is repaired or the use of untreated water is complete by turning the blue knob clockwise until it hits the stop.

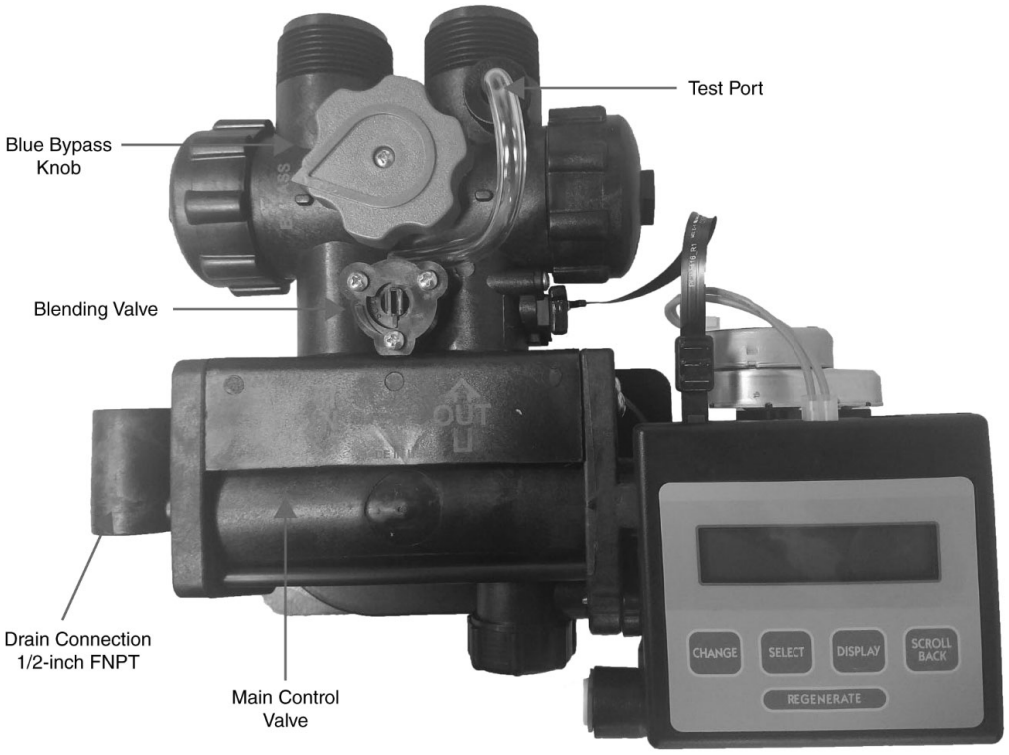


Figure 3: Bypass Valve

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Blending Valve

In some situations, the blending valve may be used to decrease water softness. 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. See Figure 3. 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 user can increase or decrease the setting according to their preference over a period of time.

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 the appliance is installed for barium and/or radium reduction, the blending valve must remain in the fully closed position at all times.

Setting and Using the Controller

The controller must be set up correctly for the appliance to perform properly.

Note: Ensure that the bottom of the controller is firmly locked onto the four tabs on the top of the drive end cap assembly. See Figure 6.

Regenerate Button

The Regenerate button is used when starting the water filtration appliance and to start an immediate regeneration. The Regenerate button can be used in three ways:

1. The Regenerate button can be used to put the appliance into an immediate regeneration.
   A. Press and hold the Regenerate button for about five seconds until the display changes from "Regenerate" to "Going to."
   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 Regenerate button can be used to quickly advance through all of the regeneration cycles to speed up the cycles, which is used when starting up or diagnosing the appliance only.
   A. To advance through the regeneration cycles, press and hold the Regenerate button for about five seconds until the display changes to "Going to."
   B. The cycle position will display (for example, Backwash 1).
   C. Each cycle can be advanced by pressing the Regenerate button. Always wait until the cycle position displays before advancing to the next cycle position.
3. Press and release the Regenerate button in Normal operating mode to schedule a regeneration tonight or toggle it off.

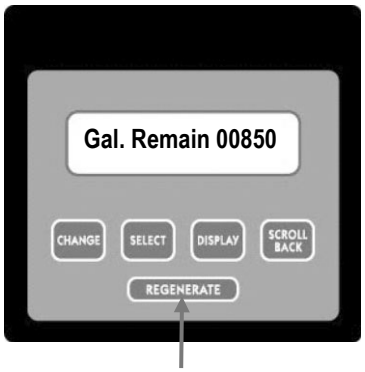


Figure 4: Regenerate Button

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Service Settings

To program Service settings on the controller, press and hold the Select and Display buttons while "Service Settings" is displayed until "Set Language ENG" is displayed. Programming Service Settings is similar to programming Customer Settings (see *Customer Settings* for programming details). The values that can be set are listed below. The values in the table are factory default settings only.

Note: The Service Settings must be set before the Customer Settings.

Display	Meaning	Possible Values	Comments
Set Language Eng	Set the language of the display	Set Language ENG Entrer Langue FRA Entre La Leng. ESP Sprache deutsch Scelta Lingua IT	
Units ENG	Units of measure	ENG or MET	
Soft. v. # 3.XX	Displays the current software version	Cannot be set	
Mode 2	Operating Mode: Timer (Mode 1) Demand Delayed (Mode 2)	1 or 2	See *Operating Modes*
Regen Freq. 01	How often regeneration occurs	1–12 days	Only displays when in Mode 1
Hard. Gr. 040	Hardness of the water that was tested	003 to 999 Grains (00000 to 99999 mg/L)	This is the actual hardness reading and is not compensated for iron and/or manganese
Iron ppm 00	Amount of iron in parts per million of the water that was tested	00 to 99 ppm (mg/L)	This value is used to calculate compensated hardness automatically
Mang. ppm 00	Amount of manganese in parts per million of incoming water	00 to 99 ppm (mg/L)	This value is used to calculate compensated hardness automatically
Salt = Sodium	Regenerant filling the brine tank	Sodium or Potassium	See *Warning*
Comp. Hard. 00040	Compensated hardness using the hardness, iron, and manganese settings	Cannot be set ppm or mg/L	The formula used is: Hardness + (4 x each ppm iron) + (4 x each ppm manganese) = compensated hardness
Capac. Gr. 24480	The desired softening capacity number	00000 to 99999 Grains (0000 to 9999 gm)	See *Water Conditioner Specifications* or *Modes 1 and 2 Setting Chart* for capacities based on salt usage
72–96 hr Regen Yes	A way to force regeneration at regularly scheduled intervals	No (or Yes, for iron)	See *72–96 Hour Regeneration*
Backwash 1 03.0	Number of minutes the first backwash cycle lasts	00.0 to 99.9	Set to the nearest tenth of a minute

Warning: When iron and/or manganese is present in the water supply, do not use potassium chloride as a regenerant. Iron and/or manganese bacteria may develop and foul the conditioning media and may void the warranty.

This table continues on the next page.

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Service Settings, Cont.

Display		Meaning	Possible Values	Comments
Brine/Rinse	30.0	Number of minutes the 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 lbs.	06.0	Amount of salt set to be used in each regeneration to achieve the capacity setting	00.0 to 99.9 lb (kg)	Set to the nearest tenth
Turbine Test	No	Used by qualified personnel for diagnostic purposes	No or Yes	Do not engage this feature
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 02:00 AM). After the regeneration, the value will be set to No
Filter?	No	Used by qualified service personnel depending on model of equipment	No or Yes	Do not engage unless instructed to do so
Turb. Detect	Yes	Controls alarm that detects the turbine sensor wire	No or Yes	Set to NO for backwash only filters

When you press the Display button at “Turb. Detect”, the values are saved and the controller returns to Normal operating mode.

Operating Modes

The appliance has two operating modes: Timer mode and Demand Delayed mode. Both modes are equipped with Capacity Guard®, which 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 day or up to every 12 days. The time of regeneration can be set.

Mode 2—Demand Delayed Mode

When the appliance is in 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.

72–96 Hour Regeneration

If this value is set to Yes, the appliance will be forced to regenerate every 72–96 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.

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Service Settings, Cont.

Setting Chart

This section provides guidance for using different service settings to achieve the desired capacity.

Series 96	96MM
Mode 1 and Mode 2	Yes
Regeneration Frequency	Mode 1 only
96 hour regeneration (if iron present—yes)[1]	Yes or No
#1 Salt Setting	
Backwash 1 (minutes)	01.0
Brine/Rinse (minutes)	19.5
Backwash 2 (minutes)	03.0
Capacity–grains @ salt–lb (grams @ salt–kg)	5,400 @ 1 (350 @ 0.5)
#2 Salt Setting	
Backwash 1 (minutes)	01.0
Brine/Rinse (minutes)	22.0
Backwash 2 (minutes)	03.0
Capacity–grains @ salt–lb (grams @ salt–kg)	13,700 @ 3 (888 @ 1.4)
#3 Salt Setting	
Backwash 1 (minutes)[2]	01.0
Brine/Rinse (minutes)	26.0
Backwash 2 (minutes)	03.0
Capacity–grains @ salt–lb (grams @ salt–kg)	23,700 @ 6 (1,540 @ 2.7)
#4 Salt Setting[3]	
Backwash 1 (minutes)[2]	01.0
Brine/Rinse (minutes)	30.0
Backwash 2 (minutes)	03.0
Capacity–grains @ salt–lb (grams @ salt–kg)	30,800 @ 9 (2,000 @ 4.1)

[1] If iron is present in water supply, use salt setting #3 or #4.
[2] If iron is present in the water supply, set Backwash 1 to the 7 minutes.
[3] Do not use this salt setting in California.

Salt Depths

Based on the water level measured from the bottom of the brine cabinet with grid plate, the following depths correlate to the amount of salt used per regeneration:

Modes 1 and 2	
Salt–lb (kg)	**Depth–in. (cm)**
1.0 (0.5)	5-3/4 (14.6)
3.0 (1.4)	8-7/8 (22.5)
6.0 (2.7)	11-7/8 (30.2)
9.0 (4.1)	15-3/8 (39.1)

To maintain peak performance of the appliance, inspect and clean the brine tank and air check/draw tube assembly annually or when sediment is present in the brine tank.

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Assembly and Parts

Cabinet and Cover Assemblies

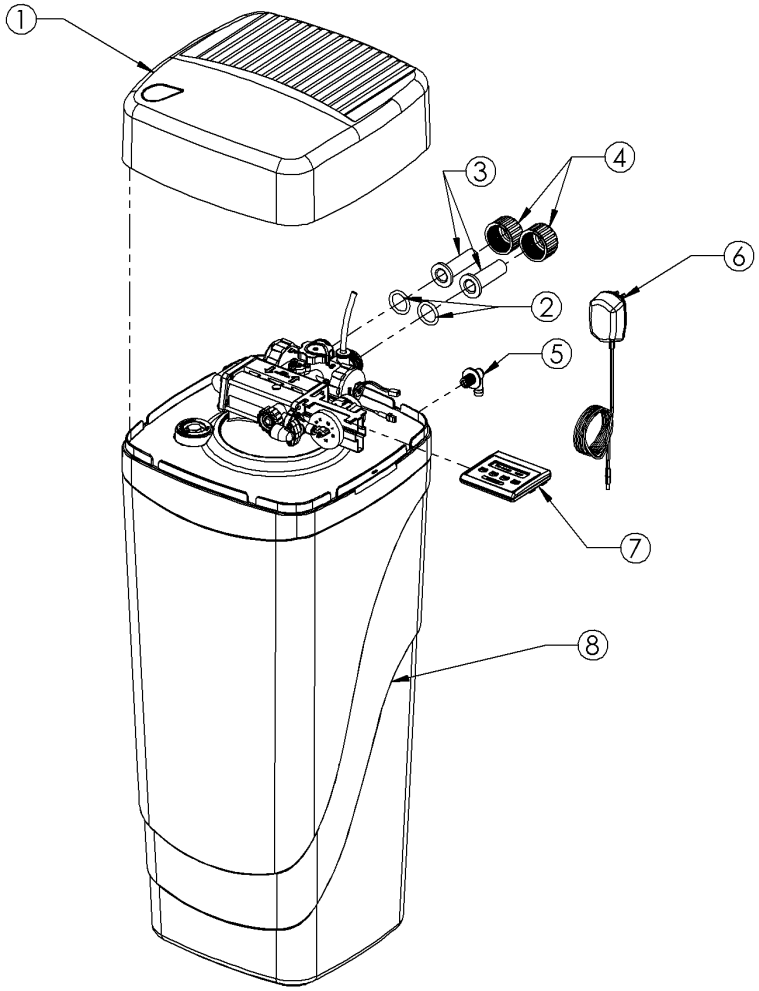


Figure 5: Cabinet and Cover Assemblies

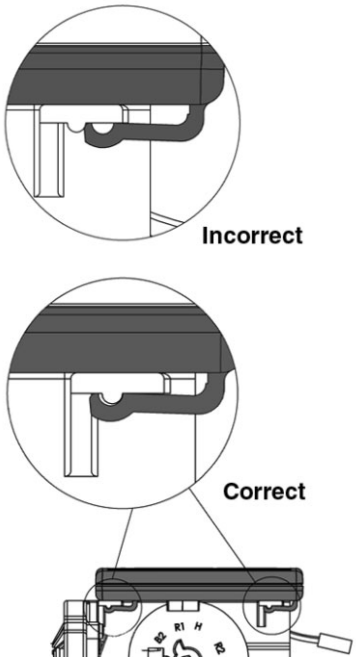


Figure 6: Controller Tab Lock Detail

	Current Part #	Description	Quantity
1	100241126	Media Cabinet Cover Assembly	1
2	100241873	O-Ring	2
3	100241817	1-inch CPVC CTS Adapter	2
	100241812	Copper Adapter (optional)	
	100241814	PVC Adapter (optional)	
	100241816	Copper Adapter, 1-inch (optional)	
4	100241810	Bypass Nut	2
5	100238195	Cabinet Overflow	1
6	100238182	12V Transformer/Power Cord	1
7	100241154	5 Button Control Assembly	1
8	100237938	Cabinet	1

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Assembly and Parts, Cont.

Brine Tank Assembly

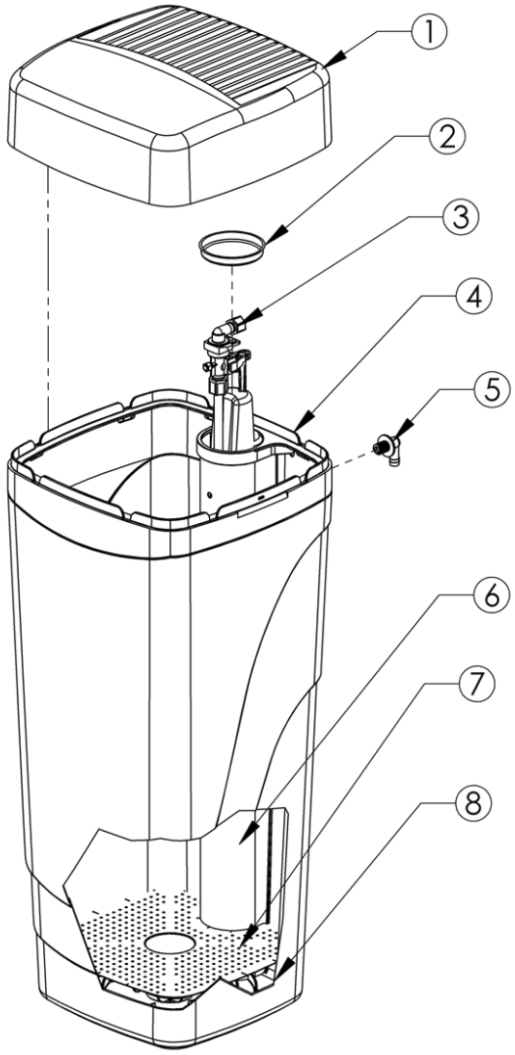


Figure 7: Brine Tank Assembly

	Current Part #	Description	Quantity
1	100237947	Brine Tank Cover	1
2	100245878	Brine Well Cap 3.5	1
3	100347036	Safety Shutoff Assembly - Welded (See Figure 15)	1
4	100237948	Support Panel (BT)	1
5	100238195	Cabinet Overflow	1
6	100237949	Brine Well	1
7	100237950	Grid Plate	1
8	100237938	Cabinet	1
-	100241085	Entire Assembly (all of the above parts)	-

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Assembly and Parts, Cont.

Cabinet and Assemblies

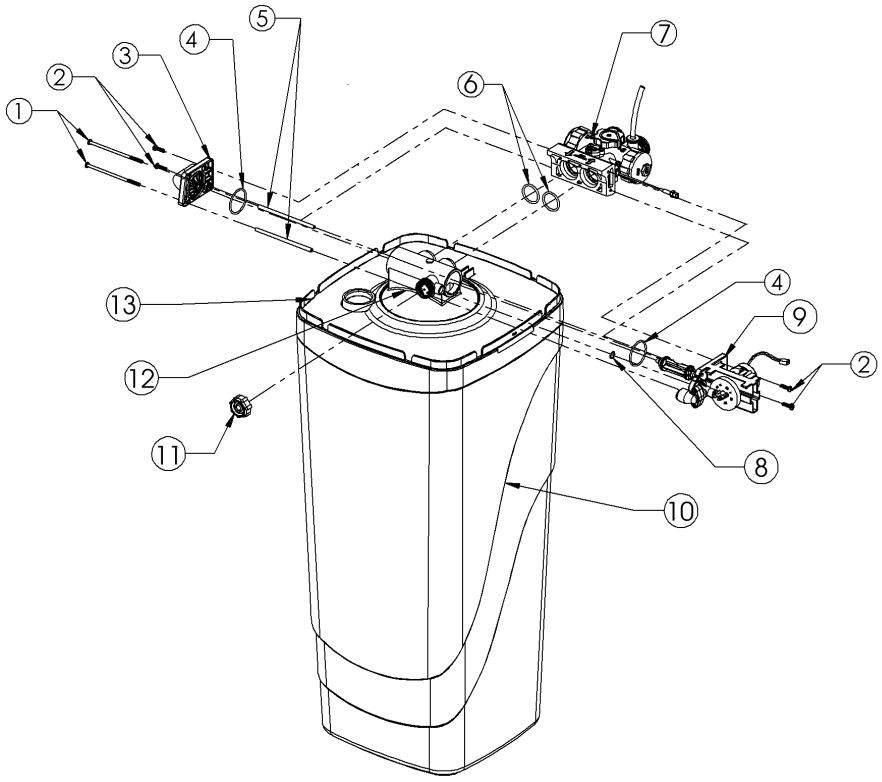


Figure 8: Cabinet and Assemblies

	Current Part #	Description	Quantity
1	100238198	Screw	2
2	100238199	Screw	4
3	100238228	Drain End Cap Assembly 96MM (See Figure 14)	1
	100241852	Drain End Cap Assembly 96MMB1 and 96MMP1	1
4	100241865	O-Ring	2
5	100242049	Sleeve	2
6	100242050	O-Ring	2
7	100241195	Bypass Valve Assembly (See Figure 11)	1
8	100241869	O-Ring	1
9	100242111	Drive End Cap Assembly (See Figure 12)	1
10	100237938	Cabinet	1
11	100238192	Injector Assembly (See Figure 9)	1
12	100242141	Media Tank	1
13	100237952	Support Panel	1

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Assembly and Parts, Cont.

Injector Assembly

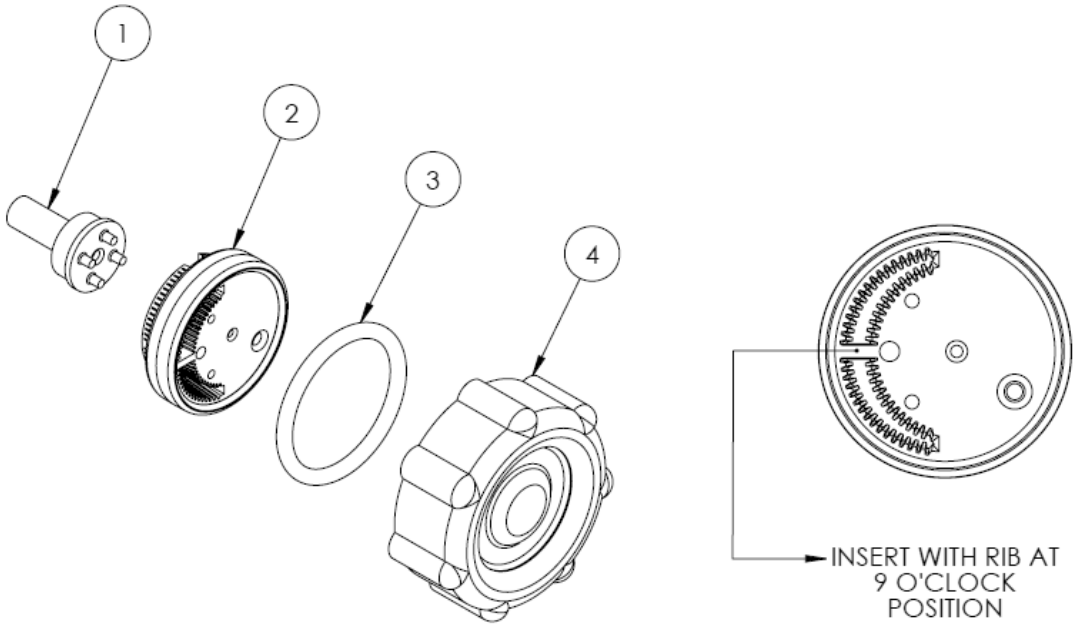


Figure 9: Injector Assembly

	Current Part #	Description	Quantity
1	100241946	Injector Throat	1
2	100237421	Injector Nozzle with Over-Mold Gasket	1
3	100242034	O-Ring	1
4	100037729	Hex Injector Cap	1
-	100238192	Entire Assembly (all of the above parts)	-

100241946 Injector Throat	In conjunction with the Injector Nozzle 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.
100237421 Injector Nozzle with Over-Mold Gasket	Together with the Throat creates the vacuum that draws the brine solution from the Brine Cabinet. The small hole in the Injector Nozzle is the one that creates the "injection-stream" that enters the Throat. It is important that this hole is round, undamaged, and clear of debris. 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. Flush screen with water to clean. The over-mold gasket seals between the Injector Nozzle and the Injector Cap.
100037729 Injector Cap	Holds the injector assembly together and seals the assembly to the main control valve.

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Assembly and Parts, Cont.

Fill Plug Assembly

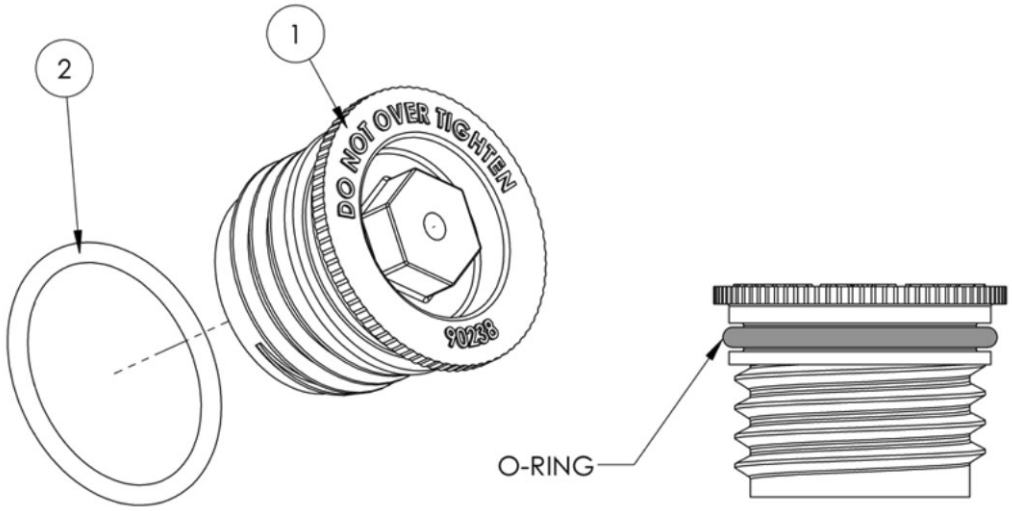


Figure 10: Fill Plug Assembly

	Current Part #	Description	Quantity
1	100241807	Fill Plug	1
2	100241870	Fill Plug O-Ring Seal	1
-	100241857	Entire Assembly (all of the above parts)	-

100241807 **Fill Plug**	The Fill Plug seals the media access ports in the Media Tank. Care should be taken that the O-Ring seal area is kept clean and free of debris. Also, the O-Ring should be in the proper location in the groove. Do not overtighten the Fill Plug when assembling. When the flange comes into contact with the Media Tank, stop tightening. A 3/4-inch socket is recommended for assembly.

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Assembly and Parts, Cont.

Bypass Valve Assembly

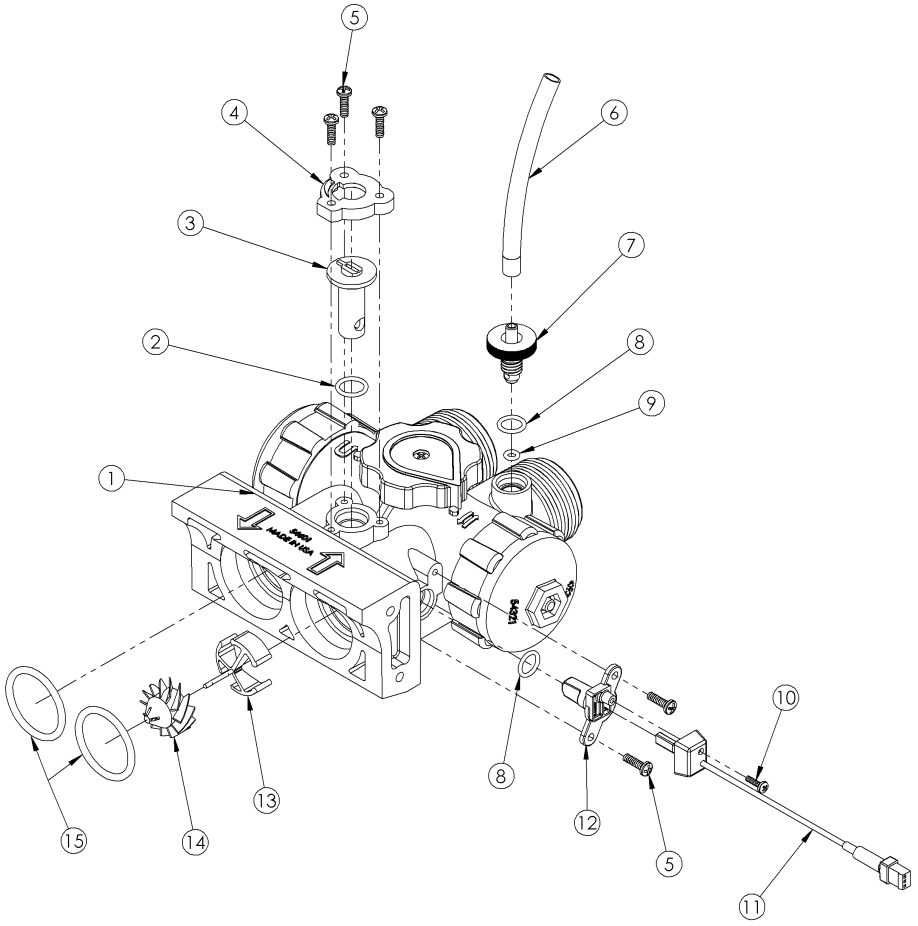


Figure 11: Bypass Valve Assembly

	Current Part #	Description	Quantity
1	100241195	Bypass Valve Assembly (also includes items 2-15)	1
2	100241868	O-Ring	1
3	100241804	Blending Dial	1
4	100241811	Cap - Blending Dial	1
5	100238196	Screw	5
6	100241863	Tubing 4.0-inch	1
7	100241805	Test Port Valve	1
8	100241869	O-Ring	2
9	100241820	O-Ring	1
10	100241861	Screw	1
11	100238200	Turbine Sensor Wire with Cap	1
12	100241189	Turbine Sensor Housing	1
13	100238202	Plastic Turbine Axle	1
14	100238201	Turbine Assembly	1
15	100242050	O-Ring	2

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Assembly and Parts, Cont.

Bypass Valve Assembly Cont.

100241811 Blending Dial Cap	The Cap should be held in place by the three 1/2-inch self-tapping screws and be in the proper orientation.
100241804 Blending Dial	The Dial permits the addition of "untreated water" into the soft water outlet. It is closed when pointing toward the main control valve and open when pointing toward the inlet side.
100241805 Test Port Valve	The Test Port Valve is used to draw water samples from the unit. When the Bypass Valve is in the Service position, the water tested should be soft, treated water. When the Bypass Valve is in Bypass position, the water treated is from the raw, incoming water supply. **Note: There are two types of seals on the Test Port. One seal is an O-Ring which seals off the threaded area when the Valve is opened. The other seal is a compression O-Ring seal between the Test Port Valve material and the Bypass Housing. If this seal is "overtightened," it can damage the O-Ring and cause a permanent leak.**
100238200 Turbine Sensor Wire with Cap	Picks up the magnetic field from the Turbine and relays it to the Controller. Care should be taken when putting the Sensor Wire into the Sensor Housing. The cap is then put in place and the self-tapping mounting screw is installed. A slot is provided in the cap for the wire to exit. The three-wire socket connector must be properly installed in the controller. Stops on the connector prevent improper (upside down) assembly. Do not force the connector past the stops.
100238202 Plastic Turbine Axle	Sits on a ridge in the main control valve side of the outlet stream of the Bypass Valve Assembly. Needs to fit around the Turbine Sensor Housing (93271) when assembled. If the Plastic Turbine Axle is not correctly seated, the Sensor Wire may not sense the Turbine magnet.
100238201 Turbine Assembly	The Turbine must have a 1/8-inch diameter Rare Earth magnet pressed into place adjacent to the axle opening. When assembled to the axle, the Turbine should spin freely. Do not use any lubricants. If the Turbine should become "jammed," clean and flush the Turbine and Bypass Valve.
100241195 Bypass Valve Assembly	Makes the connection between the plumbing and the appliance. The Bypass Valve Assembly allows water to bypass the appliance for service or when untreated water is desired. The recommended seal for the 1-1/4-inch male inlet-outlet threads is the plastic Bypass Nut (100241810), O-Ring (100241873), and 1-inch CPVC CTS Adapter (100241817). Make sure the O-Ring is between the Bypass Valve Assembly and the flange on the CPVC Adapter. The O-Ring seal areas at the main control valve inlet and outlet must be smooth, free of defects and debris, and lubricated with silicone grease before assembling. When attaching to the main control valve, put the O-Rings on the male bosses on the main control valve and push the Bypass Valve Assembly into place; if not, the O-Rings may be "pinched." If the O-Rings get pinched, replace with new ones. The Bypass Valve Assembly is pre-assembled and is not considered field-serviceable. If the Bypass Valve Assembly is damaged, it must be replaced with a new assembly.

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Assembly and Parts, Cont.

Drive End Cap Assembly

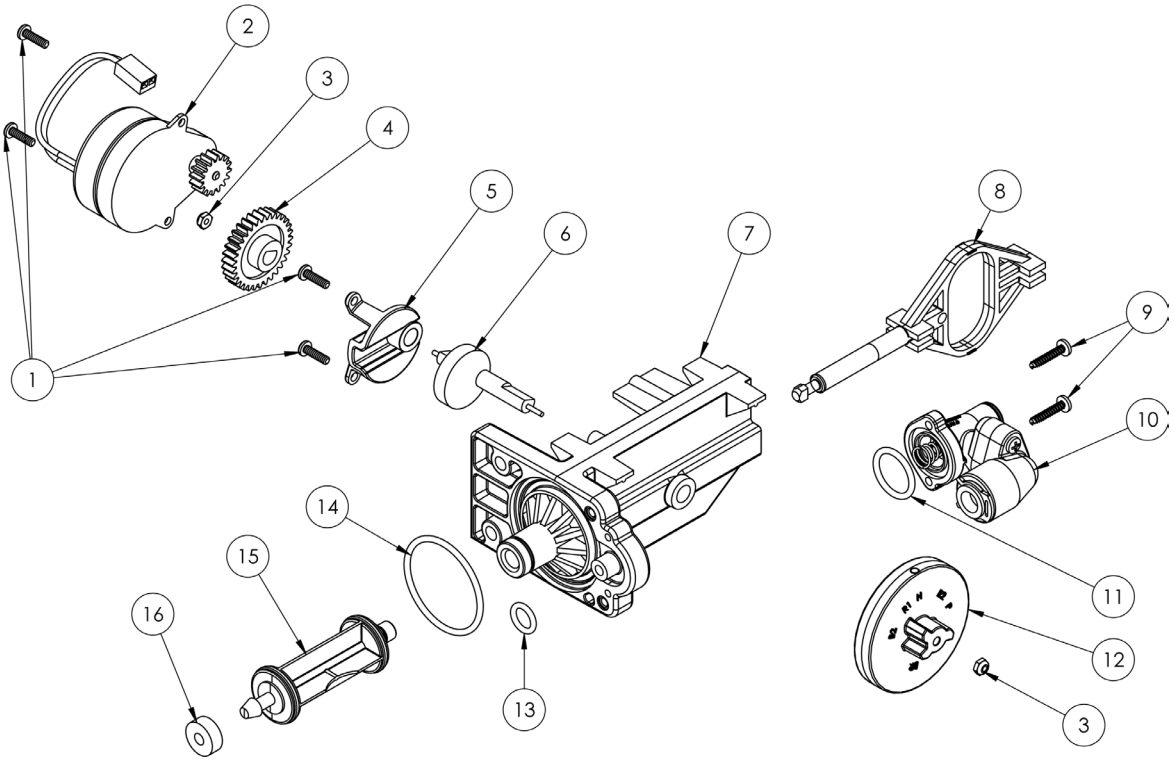


Figure 12: Drive End Cap Assembly

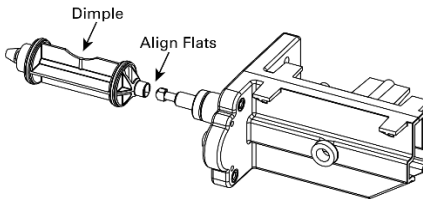
	Current Part #	Description	Quantity
1	100238196	Screw, self-tapping	4
2	100238181	Drive Motor	1
3	100238190	1/4-inch Hex Nut	2
4	100238188	Drive Gear	1
5	100037655	Piston Slide Cam Cover	1
6	100241940	Piston Slide Cam	1
7	100037805	Drive End Cap	1
8	100240958	Piston Slide	1
9	100238197	Screw, self-tapping	2
10	100242011	Brine Valve Housing Assembly	1
11	100252699	O-Ring	1
12	100238193	Magnet Disk Assembly	1
13	100037867	O-Ring (small)	1
14	100241865	O-Ring (large)	1
15	100238189	Drive Piston Assembly (includes 100252691 Drain Gasket)	1
16	100252691	Drain Gasket	1
-	100242111	Entire Assembly (all of the above parts except 1 and 2)	-

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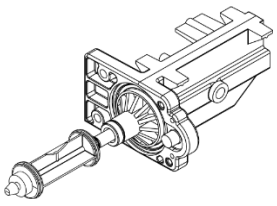
Assembly and Parts, Cont.

Drive End Cap Assembly Cont.

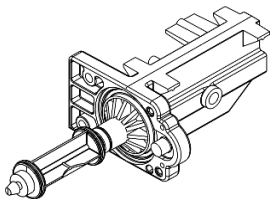
100238181 Drive Motor	The Motor is held in place by two 1/2-inch self-tapping screws. The screws should be "snug." The brass pinion gear on the Motor should engage the plastic Drive Gear. The wires should be securely fastened to the Control.
100238188 Drive Gear	The Drive Gear is assembled to the Slide Cam by means of a "keyed" opening which transfers the "torque" generated by the Motor to the rest of the drive system. If the drive system becomes jammed, this opening can become "rounded" causing the gear to turn, but not the Piston Slide Cam. If this occurs, clear the jam and replace the Drive Gear and Piston Slide Cam.
100037655 Piston Slide Cam Cover	The cover secures the Piston Slide Cam in place and acts as a bushing for the Cam Shaft.
100241940 Piston Slide Cam	This is the "heart" of the drive system. There is a threaded stainless steel shaft that runs through the main drive axle. The Drive Gear is attached at the short end and the Magnet Disc at the other end. The Slide Cam is assembled inside of the Piston Slide. This Cam Shaft should turn freely before the Motor is assembled.
100037805 Drive End Cap	Seals the two openings on the main control valve. The larger diameter opening is sealed with an O-Ring used as an 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. The smaller diameter seal is accomplished with an O-Ring used as a radial seal. The O-Ring should be placed on the male boss on the End Cap. When assembling the End Cap to the main control valve, care should be taken to make sure the small O-Ring is aligned with the opening in the main control valve and that the large O-Ring stays in the groove in the End Cap. If misaligned, the O-Rings can become pinched and leak.
100240958 Piston Slide	The Slide should move freely inside the End Cap Housing.
100242011 Brine Valve Housing Assembly	Attaches to the Drive End Cap with two 3/4-inch self-tapping screws and has one O-Ring seal. The O-Ring is used as axial or "face" seal. The O-Ring sits in a groove in the Brine Valve Housing. The groove and the face seal must be free of defects such as pits and scratches or debris.
100238189 Drive Piston Assembly	The Drive Piston attaches to the Piston Slide by placing the "slot" of the Piston onto the matching flat of the Slide. To remove Piston, rotate Piston 90° counterclockwise. To replace Piston, rotate 90° clockwise until you hear an audible "click." See reference drawings below.



Position Piston Assembly (100238189) Vertical



Slide Piston Assembly Onto Piston Slide. Push Toward End Cap to Stop.



Rotate The Piston Assembly 90 Degrees Clockwise Until You Hear An Audible Click As It Snaps Into Place

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Assembly and Parts, Cont.

Brine Valve Housing Assembly

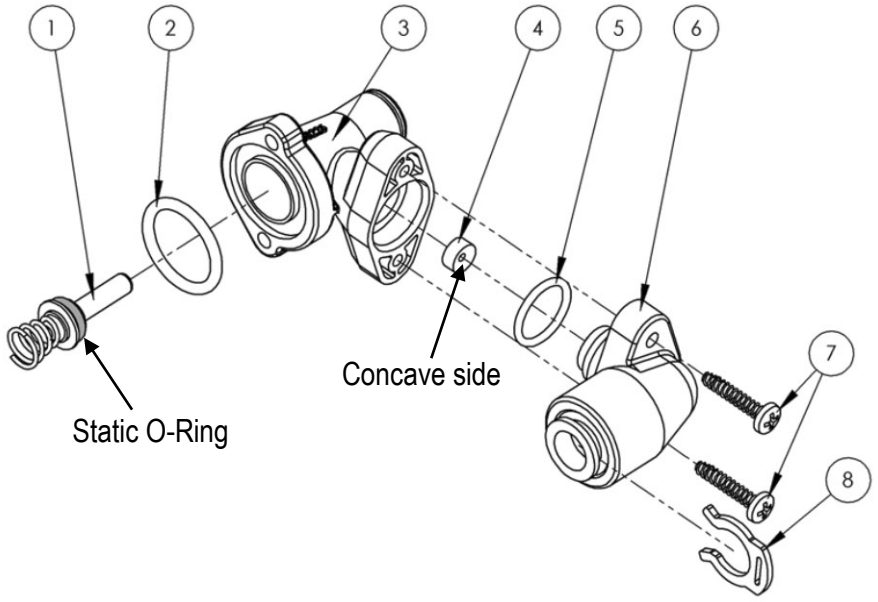


Figure 13: Brine Valve Housing Assembly

	Current Part #	Description	Quantity
1	100237712	Piston Assembly (includes O-Ring & Spring)	1
2	100241867	O-Ring	1
3	100237707	Housing	1
4	100241875	0.5 gpm (1.9 L/min) Flow Control	1
5	100242033	O-Ring	1
6	100241962	Housing End Cap	1
7	100238197	Screw, self-tapping	2
8	100236202	3/8-inch Locking Clip	1
-	100242011	Entire Assembly (all of the above parts)	-

100237712 Brine Piston	The Piston should have an O-Ring on the shaft side of the flange and a spring pressed onto a boss on the other side. The O-Ring should be free of defects such as cuts or debris on the shaft side.
100237707 Housing	Just inside the entrance hole for the Brine Piston is a concave seat area that must be free of defects such as nicks, indentations, or debris. This seat area ensures a leak-free seal for the static O-Ring on the Brine Piston. If any defects are detected by visual inspection, repair or replace as needed.
100241875 0.5 gpm (1.9 L/min) Flow Control	The Flow Button has two distinct and different sides. One is “flat”; the other is “concave.” The button should be centered in the housing opening with the four locator “ribs” with the concave side facing the Housing End Cap.
100241962 Housing End Cap	The Cap is held in place by two 3/4-inch self-tapping screws that engage the Housing flange. An O-Ring seals the Cap and Housing. Place the O-Ring onto the housing end cap, lubricate with silicone grease and then using a twisting action, insert the Cap into the housing. **Caution: The 3/8-inch locking clip must be installed to prevent air from being drawn into the appliance during brine rinse.**

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Assembly and Parts, Cont.

Drain End Cap Assembly

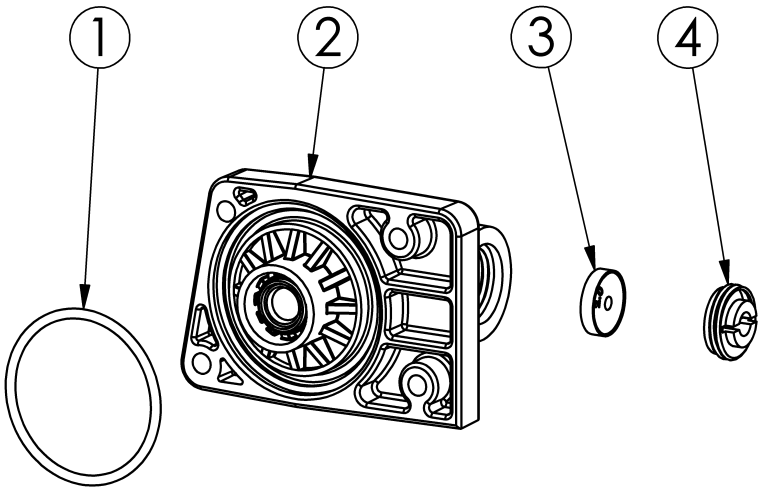


Figure 14: Drain End Cap Assembly

	Current Part #	Description	Quantity
1	100241865	O-Ring	1
2	100241822	Drain End Cap	1
3	See Table Below	Drain Line Flow Control	1
4	100241821	Retainer	1
	See Table Below	Entire Assembly (all the above parts)	1

100241822 Drain End Cap	The Drain End Cap seals the left opening on the main control valve. 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 main control valve, 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.
Drain Line Flow Control	The Drain Line Flow Control (DLFC) maintains a constant (plus or minus 10%) backwash flow rate at varying pressures. Care should be taken when replacing DLFCs 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 (radiused) side of the hole faces in toward the water flow. • 100242255 - 2.4* • 100242256 - 3.0* * Indicates the backwash flow rate in gpm.
100241821 Retainer	The Retainer holds the backwash Flow Control in place. One side is smooth and the other has a groove for a screwdriver. 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.
Drain End Cap Assembly	• 100238229 – 2.4 Drain End Cap Assy. • 100241852 – 3.0 Drain End Cap Assy.

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Assembly and Parts, Cont.

Safety Shutoff Assembly

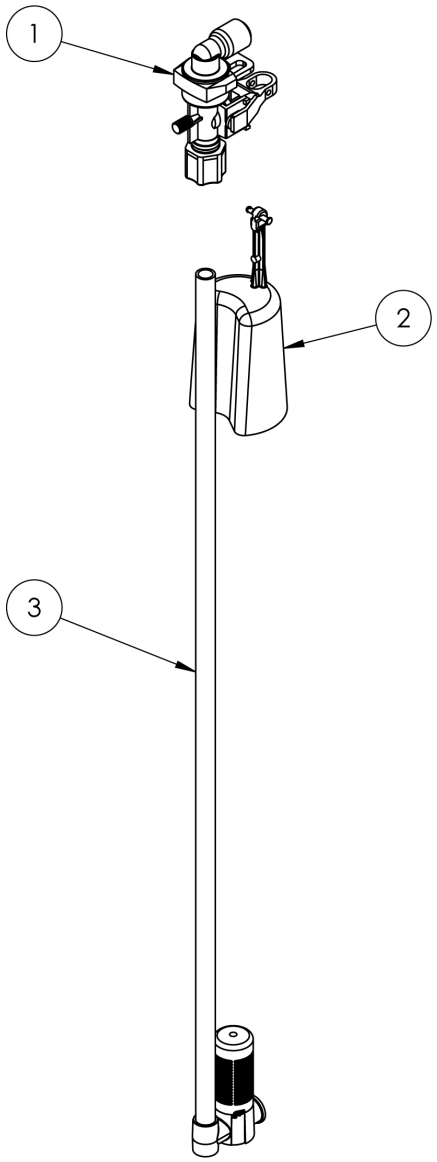


Figure 15: Safety Shutoff Assembly

	Current Part #	Description	Quantity
1	100240967	Safety Shutoff	1
2	100241669	Float	1
3	100338938	Air Check/Draw Tube	1
-	100347036	Entire Assembly (all the above parts)	-

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Troubleshooting

Problem	Possible Cause	Solution
No soft water after regeneration	No salt in brine cabinet	Add salt
	Sediment in brine cabinet has plugged the brine line and air check/draw tube	Remove the brine line and flush clean Remove the air check/draw tube and flush with clean water. Clean injector assembly. Clean any sediment from brine cabinet
	Flow control is plugged	Remove brine piston housing and clear debris from the flow control
	Drain line is pinched, frozen, or restricted	Straighten, thaw, or unclog the drain line
	Clogged injector assembly	Remove injector cap and clean nozzle and throat with a wooden toothpick. Replace throat if removed
	Salt bridge has formed due to high humidity or the wrong kind of salt	Test with a blunt object like a broom handle. Push the handle into the salt to dislodge the salt bridge, or use hot water around the inside perimeter to loosen salt
No soft water	The bypass valve is in the Bypass position	Place the bypass valve in the Service position
	Appliance is plumbed backward	Check that appliance is plumbed correctly
	Extended power outage	Reset the time of day
	Water hardness has increased	Re-test the water and re-enter a new setting number
	Not metering water	Flow should be indicated with water usage. If no flow, see below
	Blending dial is open	Make sure blending dial is closed
No flow is indicated when water is flowing	The bypass valve is in the Bypass position	Place the bypass valve in the Service position
	Appliance is plumbed backward	Check that appliance is plumbed correctly
	Sensor not receiving signal from magnet on turbine	Remove sensor from bypass housing. Test with magnet on either flat side of sensor. If flow is indicated, check turbine. If no flow, replace sensor
	Turbine is jammed	Remove bypass valve and clear debris from turbine
Flow indicated when water is not being used	The household plumbing system has a leak	Repair the leak
No read-out in display	Electric cord is unplugged	Plug in the transformer
	No electric power at outlet	Check power source. Make sure outlet is not controlled by a switch
	Defective transformer	Test with voltmeter for 12 VAC at control. If less than 10 VAC or greater than 14 VAC, replace the transformer
	Defective circuit board	With 12 VAC present at controller, replace the controller
	High ambient room temperature. If the temperature exceeds 120°F (49°C), the display will blank out. This does not affect the operation of the controller	No action necessary
Appliance stays in regeneration	Controller not attached properly	Make sure the controller is pushed all the way onto the drive end cap
	Defective magnet disk	Replace magnet disk
	Foreign object in main control valve	Remove foreign object(s) from the main control valve
	Broken valve assembly. Motor running	Repair the drive end cap

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Troubleshooting, Cont.

Problem	Possible Cause	Solution
Excess water in brine tank	Restricted, frozen, or pinched drain line	Remove restriction, thaw, or straighten drain line
	Plugged brine line, brine line flow control, or air check/draw tube	Clean flow control, air check/draw tube, and brine line. Clean any sediment from the brine cabinet
	Plugged injector assembly	Clean or replace injector. Replace throat if removed
Not regenerating in proper sequence	Magnet disk defective	Replace magnet disk
	Defective controller	Replace controller
Salty water	Plugged injector	Replace injector screen, nozzle, and throat
	Low water pressure	Maintain minimum pressure of 30 psi (2.1 bar)
	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, replace piston assembly

Efficiency Statements

Model 96MM efficiency rated according to NSF/ANSI 44. The stated efficiencies are valid only at the specified salt dosage and 8 gpm:

Model	Rated Efficiency	Salt Dosage	Capacity at That Dosage
96MM	5,400 grains/lb (350 grams @ 0.5 kg)	1.0 lb (0.5 kg)	5,400 grains (350 grams)

An Efficiency-rated water softener is a Demand-initiated regeneration softener that 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 3,350 grains of total hardness exchange per pound of salt (based on NaCl equivalency) (477 grams of total hardness exchange per kilogram of salt), and shall not deliver more salt than its listed rating.

Efficiency is measured by a laboratory test described in NSF/ANSI 44. The test represents the maximum possible efficiency that 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 contaminates that reduce the softeners' capacity.

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Water Conditioner Specifications

Series 96	96MM*
Max Compensated Hardness-gpg (g/L)*	90 (1.5)
Maximum ferrous iron reduction[1] (ppm)*	10
Minimum pH–standard units	7
Filtration-nominal rating–microns	20
Media Amount[2]-cu. ft. (L) and Type	1.0 (28) Fine Mesh Cation Resin
Backwash Rate @ min. water pressure maximum flow to drain-gpm (L/min)[3]	2.4 (9.1)
Backwash Rate @ min. water pressure maximum flow to drain (96MMB1 or 96MMP1 only)-gpm (L/min)[3]	3.0 (11.4)
Water Pressure–min–max psi (bar)[4]	20–80 (1.4/5.5)
Flow Rate @ 15 psi (1.0 bar) drop-as tested by Hague–gpm (L/min)[5]	10.7 (40.5)
Pressure Drop in psi (bar) @ Service Flow Rate of 8 gpm (30 L/min)	9.9 (0.7)
#1 Setting—Salt lb/grains (kg/grams) removed	1/5,400 (0.5/350)
#2 Setting—Salt lb/grains (kg/grams) removed	3/13,700 (1.4/888)
#3 Setting—Salt lb/grains (kg/grams) removed	6/23,700 (2.7/1,540)
#4 Setting—Salt lb/grains (kg/grams) removed	9/30,800 (4.1/2,000)
#1 Salt Setting—Total length of reg. min/gal (L)	25/20 (76)
#2 Salt Setting—Total length of reg. min/gal (L)	27.5/21 (79)
#3 Salt Setting—Total length of reg. min/gal (L)	31.5/23 (87)
#4 Salt Setting—Total length of reg. min/gal (L)	35.5/25 (95)
Minimum / Maximum water and ambient temperature–°F (°C)	40/120 (4/49)
Salt storage–lb (kg)	200 (91)
Height–in. (cm)	38 (97)
Footprint–in. (cm)	15 x 30 (38 x 76)
Electrical rating	115 V, 60 Cycle
Plumbing connections	3/4-inch or 1-inch male (MNPT)

For All Models:
Use clean white pellet, cube-style, or solar salt.
Drain Line (Minimum I.D.) 1/2-inch
Brine & Rinse total–0.75 gpm (2.8 L/min)
Brine Draw–0.25 gpm (0.9 L/min)
Rinse–0.5 gpm (1.9 L/min)

* Model 96MM is the only model tested and certified by WQA for barium and radium reduction as verified and substantiated by test data. All other models are not certified by WQA and make no health claims.

[1] Iron reduction to 0.3 ppm or less. Iron reduction claims limited to 5 ppm in the state of Wisconsin.

[2] When adding media in the field, check for proper settings. (See *Water Conditioner Specifications*, above.)

[3] Rate of flow must be verified at the end of 1/2-inch I.D. drain line.

[4] IAPMO Unified Plumbing Code limits water supply pressure to 80 psi maximum.

[5] For the purposes of plumbing appliance sizing, only the rated service flow rate and corresponding pressure loss may be used. Prolonged operation of a water softener at flow rates exceeding the tested service flow rate of 8 gpm (30 L/min) may compromise performance.

Reduction capabilities for specific contaminants verified by test data.

Name of Substance	USEPA Max. Contaminant Level	pH	Flow Rate	Pressure
Barium	2.0 mg/L	7.5 ± 0.5	10.0 gpm (38 L/min)	35 ± 5 psig (2.4 ± 0.3 bar)
Radium 226/228	5 pCi/L	7.5 ± 0.5	10.0 gpm (38 L/min)	35 ± 5 psig (2.4 ± 0.3 bar)

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Notes

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Notes

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Series 96 has these third-party listings:

Tested and certified by WQA according to CSA B483.1. 96MM is certified by WQA to NSF/ANSI 44 for Efficiency, Softening Performance and the reduction of Barium and Radium 226/228, as verified and substantiated by test data. Barium/Radium reduction occurs as long as the appliance is softening the water. Test product water hardness every 12 months to check for proper functioning.

DESIGNED, ENGINEERED AND ASSEMBLED IN THE U.S.A

Manufactured by A. O. Smith

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