

# How to Use This Manual

Congratulations on your decision to place your confidence in a superior Hague water treatment appliance.

Recognized nationwide for built-in quality, dependability, and ease of service, this appliance represents state-of-the-art in home water treatment.

We urge you to read this information carefully and review it again at any time you notice a change in your water or appliance. Later in the manual, there is a Troubleshooting section. If you are unable to fix a problem, simply call your Hague dealer for expert service.

This manual provides a reference for operation and maintenance of the following WaterMax water conditioning appliance models: **63MAQ, 63BEQ, 63MXQ, 63MDQ, 62AMQ, 62APQ, 62AKQ and 62AJQ.** Additionally, a WaterMax application chart is included for the following filter models: **61AAN, 61AAE-BWO, 61AAR-BWO, 6AAS-BWO and 61AAF-BWO.** If you do not see your specific model listed here, your dealer has customized your WaterMax to solve additional water conditioning problems that you may have and will be happy to explain any additional special features.

Please familiarize yourself with the contents of this manual so that you understand what is required of you to ensure reliable performance of your new **WaterMax** appliance.

Your **Hague WaterMax** water conditioning appliance is designed to be permanently plumbed to the water supply of your home. The model you have purchased should be appropriate for your local municipal or well water conditions. Operational, maintenance and replacement requirements are essential for this product to perform to specifications as advertised.

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

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

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

Date Limited Warranty Form Returned: \_\_\_\_\_

# How To Get The Maximum Efficiency From Your Appliance

1. Maintain salt level at least 1/3 full; use solar salt or pellets and purchase a clean grade of salt. Use one or the other; do not mix pellet and solar salt. **If potassium chloride is used in place of nugget or pellet salt, you must select the potassium option during the programming of the controller (see pg. 8-12). We do not recommend using Potassium Chloride if there is iron and/or manganese in your water.**

2. Allow the appliance to regenerate at a time when the water is not being used. If you have more than one appliance, allow two hours between each regeneration.

3. Protect your **60 Series**, including the drain line, from freezing.

4. Should dirt, sand, or large particles be present in your water supply, it is important that you consult your Hague dealer for filters that will eliminate this problem.

5. Bypass the appliance(s) if well, plumbing, or pump work is required, and turn on outside tap until water runs clear before putting the appliance back in service.

Your **60 Series** appliance may be disinfected with 5.25% sodium hypochlorite, which is the active ingredient in household bleach. To disinfect your appliance, add 4.0 fluid ounces of sodium hypochlorite solution to the brine well of the brine tank (the brine tank should have water in it to permit the solution to be carried into the appliance). Start a manual regeneration.

**OPERATIONAL, MAINTENANCE, AND REPLACEMENT REQUIREMENTS ARE ESSENTIAL FOR THE PRODUCT TO PERFORM TO SPECIFICATIONS.**

NOTES: \_\_\_\_\_

# Checklist Before Installation

- 1. Water Pressure** - Not less than 20 nor greater than 120 psi (1.4 - 8.4 bar) constant. (See Engineering Specifications, page 13.)
- 2. Water Temperature** - Not less than 40° nor greater than 120°F (6° - 49° C). (See Engineering Specifications, page 13.)
- 3. Minimum Service Flow Rate Available To The Appliance** - 3 gpm or equal to the backwash flow rate of your particular model. (See Engineering Specifications, page 13.) For filter installation, refer to page 16 to confirm the backwash rates of the specific model.
- 4. Drain** - Drain the appliance to a floor drain, washer drain, or other suitable waste receptor. To prevent back-siphoning, the installer must provide an adequate air gap or a siphon break. See figure 1.
- 5. Electricity** - The transformer supplied is a standard 115 volt, A.C.
- 6. Water Quality** - If your water supply contains sand, sulfur, bacteria, iron bacteria, manganese bacteria, tannins, algae, oil, acid, salt, or other unusual substances, additional support equipment must be installed ahead of the WaterMax appliance unless otherwise indicated on the Engineering Specifications, page 13.

**NOTES:** \_\_\_\_\_

# Do's And Don'ts

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## **SOME DO'S**

1. Do install after the pressure tank on well water installations.
2. Do comply with all local building, plumbing and electrical codes.
3. Do install pressure-reducing valve if inlet pressure exceeds 90 psi.
4. Do install gravity drain on cabinets.
5. Do secure drain line on appliance and at drain outlet.

## **SOME DON'TS**

1. Do not install if checklist items are not satisfactory.
2. Do not install if incoming or outlet piping water temperature exceeds 120° Fahrenheit (49° C) . Please see specifications on page 13.
3. Do not allow soldering torch heat to be transferred to valve components or plastic parts.
4. Do not overtighten plastic fittings.
5. Do not place appliance right up against a wall which would deny access to plumbing.
6. Do not install the appliance backwards. Follow arrows on inlet/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) together.

**NOTES:** \_\_\_\_\_

# When & How- To Use The Bypass Valve

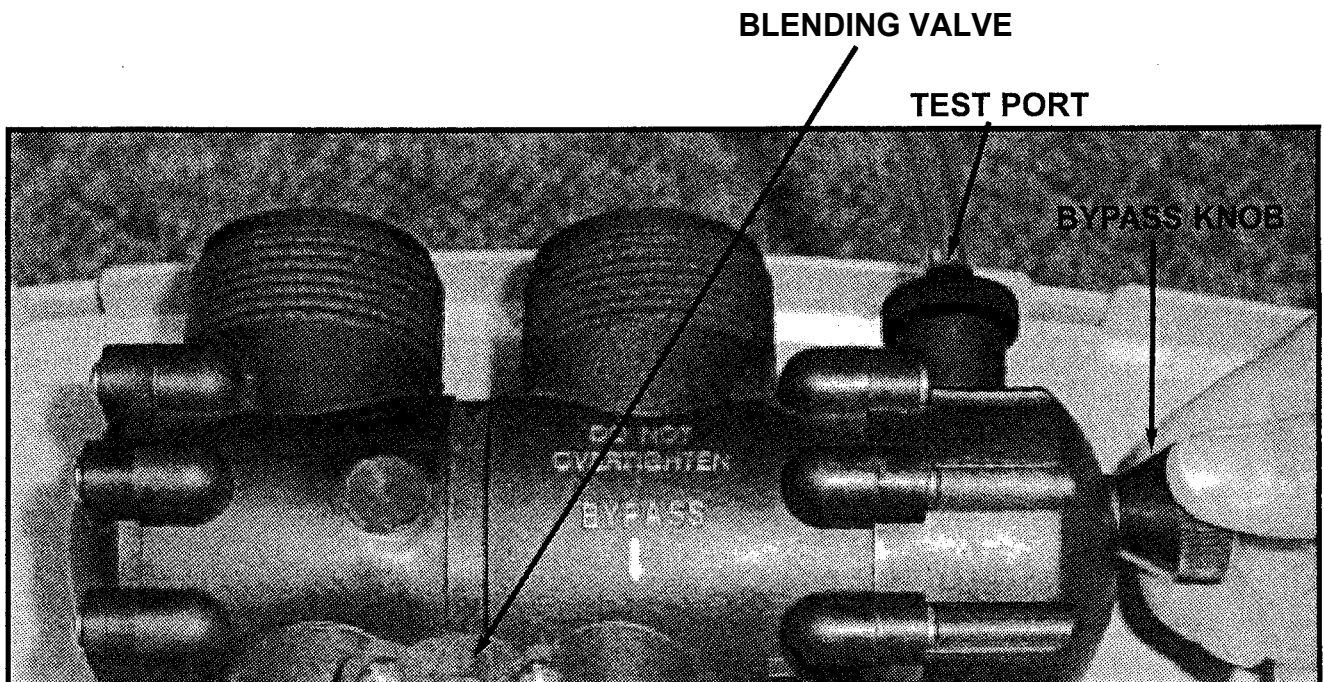
The bypass valve is intended to provide isolation of the **WaterMax** appliance in the event of a system malfunction, leak, or if the use of untreated water for watering plants, shrubs, or lawns is not available otherwise.

Facing your appliance from the front, the bypass is located on the main control valve (See ' below.) To engage the bypass, locate the cone-shaped knob on the right hand side, behind the controller. Turn the knob counter-clockwise until it stops. Now the appliance is bypassed and all water to the home is raw, untreated water.

To prevent untreated water from entering the home, do not use water while watering your landscape. When watering is finished, return the appliance to service by turning the knob clock-wise until it stops.

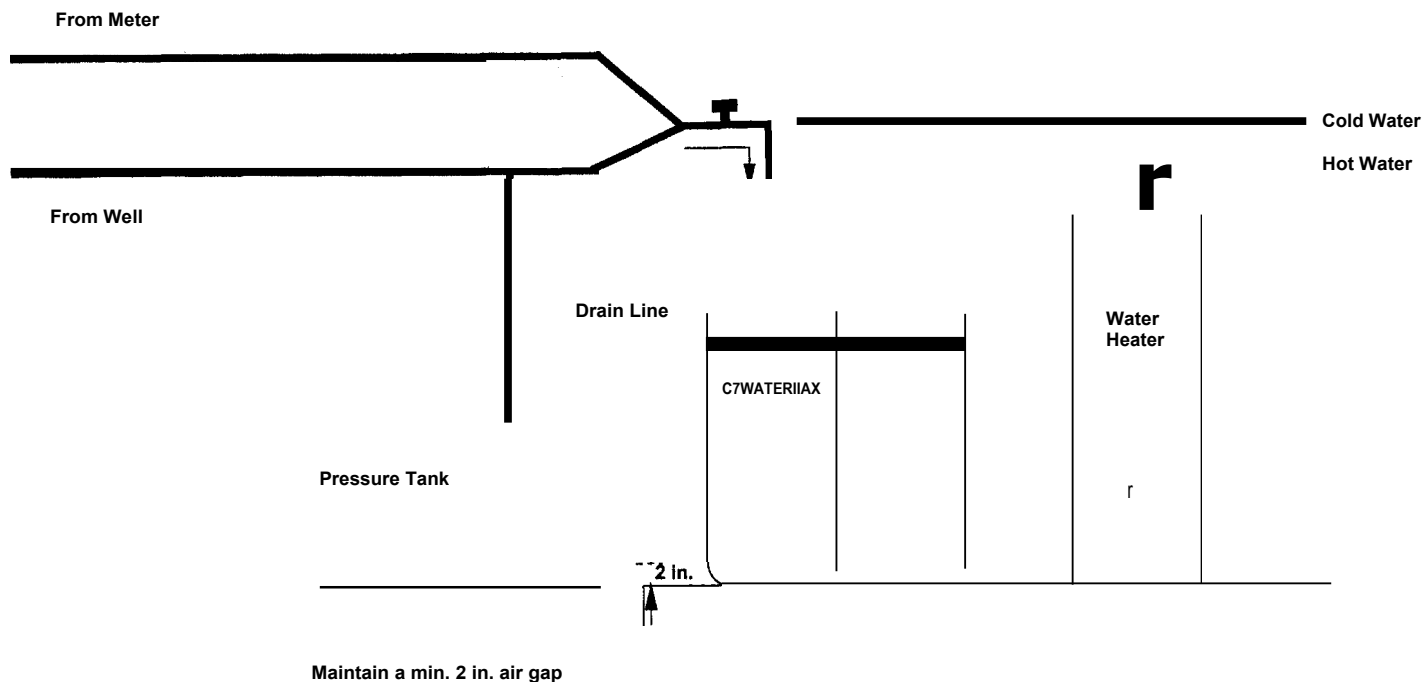
## Blending Valve Adjustment

In some situations, a blending valve 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. 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.



# Installation Guide 8z Start-up Procedure

Figure 1



Use this diagram as a location and installation guide for your **60 Series** water conditioner.

To simplify installation and servicing, your **WaterMax** appliance includes a bypass valve required by the uniform plumbing code. A bypass system also provides access to untreated water when required (i.e. for lawn and gardening purposes.) See page 5.

**Installation tip:** if the installation includes backfeeding the water heater for soft water service, a minimum of 10 feet of pipe is recommended between the outlet of the appliance and the inlet of the water heater. This reduces the potential for hot water backup into the **WaterMax**. (Check the local plumbing code for compliance.)

# Installation Guide & Start-up Procedure

1. Place the 60 Series in the desired location. Turn off the electricity and/or water supply to the water heater. Make sure the inlet, outlet and drain connections meet the applicable local codes. Check the arrows on the bypass valve to be sure the water flows in the proper direction. **CAUTION: Do not plumb the appliance in backwards.**
  2. The drain hose must be a minimum of 1/2" I.D. tubing and should make the shortest run to a suitable drain.
  3. Connect the salt tank to the valve head with the flexible 3/8" plastic tube included with the system. Be sure to insert the plastic insert in the end of the brine tube. (See figure 13, page 34.) Thread the Overflow fitting into the outside of the cabinets and tighten until snug. Connect the Overflow Line to the brine tank. If the brine tank is filled with too much water, or if there is a malfunction, an overflow line will direct excess water to the drain.  
Connect 1/2" I.D. tubing (not supplied) between the overflow fitting and a suitable waste receptor. Maintain a minimum of 2" (50mm) air gap between the drain line and the flood level rim of the waste receptor to prevent back siphoning. This is a gravity drain. The overflow line must end at a drain that is at least 3" lower than the bottom of the overflow fitting.
  4. Attach the drain line. Route the drain line to a floor drain, laundry tub or other suitable waste receptor. Maintain a minimum of 2" (50mm) air gap between the drain line and the flood level rim of the waste receptor to prevent back siphoning.
  5. Place the appliance in the bypass position and turn on the main water supply. Open the nearest cold water faucet to flush the plumbing of any excess soldering flux, air, or any other foreign material.
  6. Close the faucet and check for leaks. If leaks are found, turn off the main water supply and open the nearest cold water faucet to depressurize the lines. Close the faucet to eliminate siphoning action. Repair leaks. Place the bypass in the "service" position. Slowly open the main water supply valve and fill the WaterMax. Then open the nearest cold water faucet to purge air out of the appliance. Close the faucet.
  7. Connect the transformer power cord to the back of the controller.
  8. Plug in the transformer.
  9. Program the Appliance Control. See pages 8-12.
  10. Add water to the brine tank. Fill to a minimum of 2" above the grid plate. Make sure 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.
  11. Initiate a manual regeneration and inspect for proper operation. Allow the appliance to draw all the water out of the brine cabinet until the air check sets. Then advance to the Brine Refill position by using the Regenerate button. Let the tank fill with the proper amount of water. The controller will then step the valve to the Home position.
  12. Fill the brine tank with salt.\* **Note:** Do not mix pellet with solar salt.
  13. Open the inlet valve and turn on the electricity to the water heater. To complete the installation, open a cold water tap and allow the appliance to flush for 20 minutes or until approximately 72 gallons have passed through the appliance. Verify the flow rate on the controller, indicating water flow. (See figure 2.)
  14. Make sure the bypass is left in the "service" position. Test the water at the test port to verify soft water. (See pg. 5).
  15. Place covers on both cabinets.
- \*CAUTION:** we do not recommend using potassium chloride when iron and/or manganese is present in the raw water supply (see pg. 2).

# Setting And Using The Appliance Control

Figure 2

## SERVICE SETTINGS

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

**FUNCTION:** Used to enter SERVICE SETTINGS mode. All three OPERATING MODES can be selected and all operating parameters can be set for each OPERATING MODE when this button is activated.

Press and hold (approximately 3 seconds) until display changes to "Set language???". Use the NEXT button to step through parameters that can be set.

## REGENERATE

**FUNCTION:** Multi-purpose. 1.) Used to put the appliance into an immediate regeneration. Press and hold (approximately 5 seconds) until display changes to "Going to 1". The appliance is now in regeneration and will return to "Gal. Remain" after completion of all cycles. 2.) Used to "speed up" or toggle through all the regeneration cycles.

## CUSTOMER SETTINGS/NEXT

This section is recommended for qualified service personnel only. Must be set correctly for proper performance.

**FUNCTION:** Multi-purpose. 1.) Used to enter CUSTOMER SETTINGS mode. 2.) Used to "step" through parameters that can be set in CUSTOMER & SERVICE SETTINGS modes. Press and release to accomplish various functions.

## SELECT DIGIT

**FUNCTION:** Used to control cursor movement when in CUSTOMER & SERVICE SETTINGS modes. Used in conjunction with CHANGE DIGIT button. Press and release the Select Digit button to move cursor one digit to the right of parameter that can be set. When cursor is at extreme right position, press again to reset cursor to extreme left position.

## CHANGE DIGIT

**FUNCTION:** Used to change values of parameters that can be set. Used in conjunction with SELECT DIGIT button. Press and release the Select Digit button to move cursor one digit to the right of parameter that can be set. When cursor is at extreme right position, press again to reset cursor to extreme left position.

## SCROLL BACK

**FUNCTION:** Used to toggle back to the previous parameter setting in the event of a mistake in programming. This feature eliminates the need to toggle through the entire program to correct an input error.

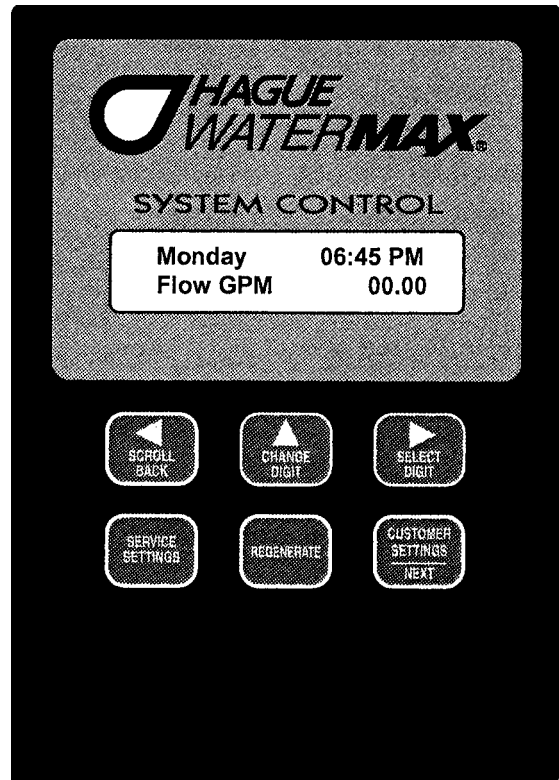
## CONTROL PANEL DISPLAY:

### LCD DISPLAY

**FUNCTION:** Shows status of control; NORMAL OPERATING mode, SERVICE SETTINGS mode or CUSTOMER SETTING mode. It is very important to know which mode the control is in for proper operation.

### WATER FLOWING INDICATOR

**FUNCTION:** Shown in the LCD display, it indicates that water is flowing through the WaterMax. Flow rate is displayed in gallons per minute. This is useful for checking for proper plumbing and leaks.





# Setting And Using The Appliance Control (cont.)

## Description Of The Three WaterMax Operating Modes

**CAUTION:** Be sure the controller is firmly "locked" onto the drive end cap assembly." The four tabs on top of the drive end cap will allow the clips on the bottom of the controller case to lock onto the end cap tabs. (See detail diagram on page 20; fig. 3.)

### MODE 1

**TIMER MODE:** Will regenerate based on frequency. Example: every 2 days or as specified up to 12 days.

Time of regeneration can be set. To regenerate on a specific day or days of the week, set frequency to 00 for WEEKDAY MODE. The display will show: Reg. Days, MTWTF S. To select the day(s), simply use the select and change buttons to eliminate the days not to regenerate. Example: S W F.

### MODE 2

**PATENTED SAVEMATIC - DEMAND DELAYED:** Is based on actual water usage and total capacity of the appliance. Will only regenerate using the amount of salt needed to maintain capacity. Time of regeneration can be set. If total capacity is depleted before set regeneration time, a forced regeneration will occur. Appliance will regenerate again that night and then go back to the normal setting.

### MODE 3

**DEMAND IMMEDIATE:** Will regenerate based on water usage alone. Regeneration will occur when the capacity limit is reached. Time of regeneration cannot be set.

**THE FOLLOWING EXAMPLE** takes you through the steps involved for setting the WaterMax SYSTEM CONTROL. If you follow these steps, you will set a WaterMax 62 AMQ for OPERATING MODE 2, DEMAND DELAYED operation. All three OPERATING MODES use similar procedures. Push the SERVICE SETTINGS button to enter SERVICE SETTINGS mode. The display will show: **Set Language ENG** This parameter is used to set the language that is displayed in the CUSTOMER SETTINGS mode: ENG - English, FRA- French, ESP - Spanish, DEU - German, ITA- Italian.

**1.00** Push the CHANGE DIGIT button until the correct language is displayed. In this example, set to: Set Language ENG.

**2.00** Push the NEXT button to step to the next parameter. The display will show: **Units ENG**

**2.00a** Push the CHANGE DIGIT button to toggle English/metric units of measure. For this example, set to: Units ENG.

**3.00** Push the NEXT button to step to the next parameter. The display will show: **History NO** This parameter is used to enter the History file. The History file is used as a record of water readings for future reference. (3.00 - 3.14 is an electronic notepad only and does not affect the operation of the appliance.)

**3.00a** Push the CHANGE DIGIT button to toggle between Yes or No. Setting to "Yes" will enter the History file and setting to "No" will bypass the History file. In this example, set to: **History Yes**

**3.01.** Push the NEXT button and the display will show **Soft. V# 1.01 (Hist)**. This is information only and cannot be reset. Push the NEXT button to step to the next parameter. The display will show: **Inst. Date 000000 (Hist)** This parameter is to be set to the installation date of the appliance. There are six digits. The first two are the month. The next two are the day and the final two are the year. This is the first entry in the History file.

**3.01a** Push and release the CHANGE DIGIT button until the value above the cursor is equal to the number of the desired Month setting.

**3.01b** Continue using the SELECT and CHANGE buttons until the desired date is displayed. Example: July 24, 2002 = **072402 (Hist)**

**3.02** Push the NEXT button to step to the next parameter. The display will show: **# People 000 (Hist)** This parameter is used to record the number of people in the household and should match the "# People" setting in the CUSTOMER SETTINGS file.

**3.02a** Push the SELECT and CHANGE buttons until the desired number of people in the household is reached. In this example, set to: **# People 004 (Hist)**

**3.03** Push the NEXT button to step to the next parameter. The display will show: **Hard. Or. 000 (Hist)** This parameter is used to record the tested Hardness of the water.

**3.03a** Push the SELECT and CHANGE buttons until the desired hardness number is reached. In this example, set to: **Hard. Or. 025 (Hist)**

# Setting And Using The Appliance Control (cont.)

- 3.04 Push the NEXT button to step to the next Parameter. The display will show: **Iron ppm 000 (Hist)**  
This parameter is used to record the tested iron content of the water.
- 3.04a Push the the SELECT and CHANGE buttons until the desired iron number is reached.  
In this example, **set to: Iron ppm 002 (Hist)**
- 3.05 Push the NEXT button to step to the next Parameter. The display will show: **Mang. ppm 000 (Hist)**  
This parameter is used to record the tested Manganese content of the water.
- 3.05a Push the SELECT and CHANGE buttons until the desired manganese number is reached.  
In this example, set to: **Mang. ppm 000 (Hist)**
- 3.06 Push the NEXT button to step to the next Parameter. The display will show: **Chlor. ppm 000 (Hist)**  
This parameter is used to record the tested chlorine content of the water.
- 3.06a Push the SELECT and CHANGE buttons until the desired chlorine number is reached.  
In this example, set to: **Chlor. ppm 000 (Hist)**
- 3.07 Push the NEXT button to step to the next Parameter. The display will show: **Sulfur ppm 000 (Hist)**  
This parameter is used to record the tested sulfur content of the water.
- 3.07a Push the SELECT and CHANGE buttons until the desired sulfur number is reached.  
In this example, set to: **Sulfur ppm 000 (Hist)**
- 3.08 Push the NEXT button to step to the next parameter. The display will show: **pH 00.0 (Hist)**  
This parameter is used to record the tested pH of the water.
- 3.08a Push the SELECT and CHANGE buttons until the desired pH number is reached. In this example,  
set to: **pH 07.0 (Hist)**
- 3.09 Push the NEXT button to step to the next parameter. The display will show: **Iron Bact YES (Hist)**  
This parameter is used to record the presence of iron bacteria in the water.
- 3.09a Push the SELECT and CHANGE buttons until the desired word is reached. In this example,  
set to: **Iron Bact. NO (Hist)**
- 3.10 Push the NEXT button to step to the next parameter. The display will show: **Tot. Regens. 00000 (Hist)**  
This parameter is used to record the total number of regenerations the appliance has gone through and cannot be reset.
- Push the NEXT button to step to the next parameter. The display will show: **Tot. Gal. 00000000 (Hist)**  
This parameter is used to record the total number of gallons of water that has passed through the appliance and cannot be reset.
- Push the NEXT button to step to the next parameter. The display will show: **Model # 00AAA (Hist)**  
This parameter is used to record the model number of the appliance.
- 3.12a Push the SELECT and CHANGE buttons until the desired model number is reached.  
In this example, set to: **Model # 62AMQ (Hist)**
- Push the NEXT button to the next parameter. The display will show: **Save History YES**  
This parameter, if set to YES, will save the current information you have just entered. If set to NO, it will leave the History file as previously defined.
- 3.14. Push the CHANGE DIGIT button to toggle between Yes or No. In this example, set to: **Save History YES**
- 4.00 Push the NEXT button to step to the next parameter. The display will show: **Tot. Regens. 00000**  
This parameter displays the number of regenerations the appliance has gone through since the last time the SERVICE SETTINGS mode was entered. This parameter is reset to 00000 after exiting the SERVICE SETTINGS mode. Push the NEXT button to step to the next parameter. The display will show: **Tot. Gal. 00000000**  
This parameter displays the Total Gallons the appliance has gone through since the last time the SERVICE SETTINGS mode was entered. This parameter is reset to 00000000 after exiting the SERVICE SETTINGS mode.
- 5.00 Push the NEXT button to step to the next parameter. The display will show: **Mode 2** The "Mode #" is the number of the OPERATING MODE for which the system control is set.
- 5.00a Push the CHANGE DIGIT button to change the value of "Mode #" until it reads 2 (for this example.)

# Setting And Using The Appliance Control (cont.)

- 6.00 Push the NEXT button to step to the next parameter. The display will show: **Hard. Gr. 040** The 040 is the hardness number of the water tested. This number is to be the actual hardness reading and is not compensated for iron.
- 6.00a Push and release the SELECT DIGIT button until the cursor ( ) is positioned in the display as follows: **Hard. Gr. Q40**. The cursor is now under the "ten" position.
- 6.00b Continue pushing the SELECT and CHANGE buttons until the desired hardness number is displayed.  
**Example: Hard. Gr. 025**
- 7.00 Push the NEXT button to step to the next parameter. The display will show: **Iron ppm 00**  
This parameter is used to calculate a compensated hardness automatically.
- 7.00a Push the SELECT and CHANGE buttons until the desired iron number is displayed.  
Example: **Iron ppm 02**
- 8.00 Push the NEXT button to step to the next parameter. The display will show: **Mang. ppm 00**
- 8.00a Push the SELECT and CHANGE buttons until the desired manganese number is displayed.  
Example: **Mang. ppm Q0**
- 8.00b Push the NEXT button to step to the next parameter. The display will show: **SALT = Sodium.**  
**WARNING!** When iron and/or manganese is present in the water supply, we do not recommend using potassium chloride as a regenerant. Iron and/or manganese bacteria may develop and foul the conditioning media and may void the warranty.
- 8.00c Push the SELECT and CHANGE buttons until the desired regenerant is selected. EXAMPLE: Salt = Sodium.
- 9.00 Push the NEXT button to step to the next parameter. The display will show: **Comp. Hard. 00033**  
This parameter is the calculated compensated hardness using the hardness, iron and manganese settings. The formula is (4 x each ppm iron) + (4 x each ppm manganese) + hardness = compensated hardness. This is not a parameter that can be set. The display should now read: **Comp. Hard. 00033**
- 10.00 Push the NEXT button to step to the next parameter. The display will show: **Capty. Gr. 28730**  
This parameter is used to set the softening capacity of the appliance. (See WaterMax engineering specifications or setting charts for capacities based on salt usage.)
- 10.00a Push the SELECT and CHANGE buttons until the desired capacity number is displayed.  
In this example, set to: **Capac. Gr. 28730**
- 11.00 Push the NEXT button to step to the next parameter. The display will show: **72-96hr Regen Yes**  
This parameter, if set to "Yes", is used to force the appliance to regenerate every 96 hours if regularly scheduled regenerations based on water usage do not occur in 96 hours or less intervals. This should always be "yes" if iron is present in the water.
- 11.00a Push CHANGE button to toggle parameter value from "No" to "Yes". In this example, set to: **96hr Regen Yes**
- 12.00 Push the NEXT button to step to the next parameter. The display will show: Distill/RO **Yes**  
Set this parameter to "Yes" if a distiller or reverse osmosis system is plumbed to use soft water from the WaterMax.
- 12.00a Push the CHANGE button to toggle parameter value from "No" to "Yes". In this example, set to: Distill/RO **Yes**
- 13.0 Push the NEXT button to step to the next parameter. The display will show: **Backwash 1 Q1.0**  
(See WaterMax setting chart.) The "01.0" is the time, in minutes to the nearest tenth, for which the first backwash cycle can be set.
- 13.00a Push the SELECT and CHANGE buttons until the desired backwash time is displayed.  
In this example, set to: **Backwash 1 07.0**

# Setting And Using The Appliance Control (cont.)

- 14.00** Push the NEXT button to step to the next parameter. The display will show: **Brine/Rinse 30.0**  
The "30.0" is the time, in minutes to the nearest tenth, for which the first brine and slow rinse cycles can be set.
- 14.00a** Push the SELECT and CHANGE buttons until the desired combined brine and slow rinse cycle time is displayed.  
In this example, set to: **Brine/Rinse 30.0**
- 15.00** Push the NEXT button to step to the next parameter. The display will show: **Backwash 2 05.0**  
The "05.0" is the time, in minutes to the nearest tenth, for which the second backwash can be set.
- 15.00a** Push the SELECT and CHANGE buttons until the desired backwash time is displayed.  
In this example, set to: **Backwash 2 02.0**
- 16.00** Push the NEXT button to step to the next parameter. The display will show: **Salt lbs. 06.2**  
This parameter sets the amount of salt to be used to achieve the capacity setting. Remember, in OPERATING MODE 2, WaterMax only uses as much salt as is needed to maintain the capacity setting.
- 16.00a** Push the SELECT and CHANGE buttons until the desired salt setting is displayed.  
In this example, set to: **Salt lbs 06.2**
- 17.00** Push the NEXT button to step to the next parameter. The display will show: Turbine **Test NO**  
This feature should only be used by qualified service personnel. It is intended to be used for diagnostic purposes only. **WARNING! Do not engage this feature.**
- 17.00a** Push the SELECT and CHANGE buttons until the correct value is displayed.  
In this example, set to: **Turbine Test NO**
- 18.00** Push the NEXT button to step to the next parameter. The display will show: **Reg. Tonight NO**  
This parameter, if set to YES, will force a regeneration at the next set regeneration time (i.e. 02.00.) After the regeneration, the parameter will automatically reset to "No."
- 18.00a** Push the CHANGE DIGIT button to toggle between Yes or No. In this example, set to: **Reg. Tonight YES**
- 19.00** Push the NEXT button to step to the next parameter. The display will show:  
**Gal. Remain 000871**
- This is the normal operation display for OPERATING MODE 2. The 00871 represents the number of gallons of softening capacity between regenerations. This completes the SERVICE SETTINGS mode.  
Even though the SERVICE SETTING mode has been completed, the WaterMax is not ready for service until the CUSTOMER SETTINGS mode is completed. The following example takes you through the steps required for setting the parameters of the CUSTOMER SETTINGS mode for OPERATING MODE 2.
- 1.00** Push and hold the Customer Settings/Next button to enter CUSTOMER SETTINGS mode. The display will show:  
**Set Time 00:00 AM** This parameter is to be set to the current time of day.
- 1.00a** Push the SELECT and CHANGE buttons until the desired time is displayed.  
In this example, set time to: Example: 11:00 AM or 05:00 PM.
- 2.00** Push the NEXT button to step to the next parameter. The display will show: **Reg Time 02:00 AM**  
This parameter is to be set for the desired time a normally scheduled regeneration is to occur.
- 2.00a** Push the SELECT and CHANGE buttons until the desired time is displayed.  
In this example, set to: Reg. Time 02:00. (02:00 is 2:00am)
- 3.00** Push the NEXT button to step to the next parameter. The display will show: **# People 04**
- 3.00a** Push the CHANGE button until the correct number of people in the household is displayed.
- 4.00** Push the NEXT button to step to the next parameter. The display will show: SET DAY.
- 4.00a** Push the CHANGE button until the correct day of the week is displayed.
- 5.00** Push the NEXT button to save the parameter settings and exit the CUSTOMER SETTINGS mode.  
The display will show: **Gal Remain 00871**

If you followed the above directions correctly, your WaterMax Systems Control is ready for OPERATING MODE 2 service.

# F4,1 Engineering Specifications

<b>60 SERIES</b>	<b>63MAQ</b>	<b>63BEQ*</b>	<b>63MXQ</b>	<b>63MDQ</b>	<b>62AMQ</b>	<b>**62APQ***</b>	<b>62AKQ</b>	<b>62AJQ****</b>
Tannin (ppm)	0	0	0	0-2	0	0	0	0
Sulfur (ppm) - SulfurStat	0	0	0	0	0	0-5**	0	0
Iron (ppm) - ferrous - clear water •	0	0	12	0	12	2-12**	15	5
Maximum Compensated Hardness	90	90	110	90 <sup>tt</sup>	90	90	90	60
Maximum Chlorine (ppm)	1	3	0	0	0	0	0	0
Minimum pH	NA	NA	7	7	7	7	7	6.3
Filtration - nominal rating (microns)	20	25	20	20	20	20	20	20
#1 Salt - 5850 grains per lb of salt (lbs./capacity)	1/5,850	1/5,850	1.6/9,360	NA	1/5,850	NA	NA	NA
#2 Salt - 5163 grains per lb of salt (lbs./capacity)	2.7/13,890	2.7/13,890	4.2/21,680	NA	2.7/13,890	NA	NA	2.7/13,890
#3 Salt - 4679 grains per lb of salt (lbs./capacity)	6.2/28,730	6.2/28,730	9.6/44,840	8.5/28,730	6.2/28,730	6.2/28,730	6.2/28,730	6.2/28,730
#4 Salt - 3828 grains per lb of salt (lbs./capacity)	9.3/35,300	9.3/35,300	14.4/55,090	10.7/35,300	9.3/35,300	9.3/35,300	9.3/35,300	9.3/35,300
Media Amount Compartment #1	1.5 lbs.	2.0 lbs.	1.5 lbs.	1.5 lbs.	NA	NA	NA	NA
Media Amount Compartment #2	Empty	.4 cu.ft.	.6 cu.ft.	.3 cu.ft.	6 lbs.	27 lbs.	.4 cuft.	.4 cu.ft.
Media Amount Compartment #3	1.06 cu.ft.	1.06 cu.ft.	1.06 cu.ft.	1.06 cu.ft.	1.06 cuft.	1.06 cu.ft.	1.06 cuft.	1.06 cu.ft.
Drain Line Flow Control (gpm)@ min. water pressure	2.41'	3t	2.4t	2.4t	5t	Empty****t	7t	7t
Brine Line Flow Control Refill (gpm)	.5	.5	.5	.5	.5	.5	.5	.5
Water Pressure (min-max psi)	20-120	20-120	20-120	20-120	20-120	30-120	30-120	30-120
Flow Rate @ 25 psi drop	19.5	19.5	17	17	23	19.6	19.6	20.5
Flow Rate @ 15 psi drop#	11	13	10.5	10.5	11.2	10.6	10.6	12.5
Pressure Drop @ Flow Rate Of 4 gpm	6.5 psi	8.5 psi	8.5 psi	8.5 psi	3.2 psi	6 psi	6 psi	7 psi
(#1 Salt setting) total length of reg. Min / gal	12/13.5	12/16	12/13.5	NA	12/24	NA	NA	NA
(#2 Salt setting) total length of reg. Min / gal	18/16.5	18/19	26/20.5	NA	18/27	NA	NA	23/70
(#3 Salt setting) total length of reg. Min / gal	38/26.5	38/29.5	58/36.5	47/31	38/37	44/80	44/80	44/80
(#4 Salt setting) total length of reg. Min / gal	56/35.5	56/38	74/44.5	64/39.5	58/56	61/89	61/89	61/89
Shipping weight (lbs.)	135	152	168	152	140	167	160	180
Bacteriostatic - KDF® Process Media - Listed With The U.S. EPA As A Bacteriostatic Device. U.S. EPA #54369-OH-001	YES	YES	YES	YES	YES	YES	YES	YES

Valve Inlet/Outlet 1"  
 Drain Line (Minimum ID.) ¾"  
 Water Temperature (Min-Max) 40-120 °F  
 Height (inches) 38-1/4"  
 Floor Space (inches) 15" x 30"  
 Salt storage capacity: 200 lbs, 90kg  
 Brine & Rinse total: .65 gpm  
 Brine Draw: .25 gpm  
 Rinse: .4 gpm  
 Electrical rating: 115V, 60 cycle.  
 Iron Reduction To .3 ppm Or Less.

When Adding Media In The Field, Check For Proper Settings  
 (See Specifications, Above.)

Regeneration Every 96 Hours Is Required When Iron Is  
 Present In The Raw Water Supply. Use Salt Setting #3 Or #4.

\*Municipally Supplied Chlorinated Water Only.

\*\*Must Have A Minimum of 2 ppm Iron and a Minimum  
 of 200 ppm TDS.

\*\*\*This model Has No Backwash Flow Control Button Or  
 Retainer. Must Have A Minimum Of 7 gpm @ 30 psi  
 Available For Proper Backwash.

\*\*\*\*Calcite Will Add Additional Hardness To Water Before  
 Softening.

tRate Of Flow Must Be Verified At The End Of ¾" ID  
 Drain Line.

ttAny Hardness Over 10 gpg Will Increase The Chance  
 Of Calcium Carbonate Precipitation. As The  
 Hardness Increases So Does The Chance Of This  
 Precipitation. Must Use Citric Acid To Regenerate  
 Along With Salt.

# Mode I Setting Chart

<b>60 SERIES</b>	<b>63MAQ</b>	<b>63BEQ*</b>	<b>63MXQ</b>	<b>63MDQ</b>	<b>62AMQ</b>	<b>62APQ**</b> <b>***</b>	<b>62AKQ</b>	<b>62AJQ****</b>
Mode1	YES	YES	YES	YES	YES	YES	YES	YES
Regeneration Frequency	As required	As required	As required	1 or 2	As required	1 or 2	1 or 2	1 or 2
96 hour regeneration (if iron present – yes)	--	--	YES	--	YES	YES	YES	YES

## #1 SALT SETTING

Backwash 1 (minutes)	1	1	1	—	2 •	--	—	—
Brine rinse (minutes)	7	7	7	—	7	--	---	---
Backwash 2 (minutes)	3	3	3		2	---	--	---
Capacity t. salt lbs.	<b>5,850</b> 1 lb.	<b>5,850</b> 1 lb.	<b>9,360</b> 1.6 lb.	—	<b>5,850</b> 1 lb.	--	--	—

## #2 SALT SETTING

Backwash 1 (minutes)	1	1	1 <b>s</b>	-	2	—	--	7 <b>s</b>
Brine rinse (minutes)	12	12	19		12	---	--	12
Backwash 2 (minutes)	3	3	3		2	---	--	2
Capacity 0. salt lbs.	<b>13,890</b> 2.7 lbs.	<b>13,890</b> 2.7 lbs.	<b>21,680</b> 4.2 lbs.		<b>13,890</b> 2.7 lbs.	—	--	<b>13,890</b> 2.7 lbs.

## #3 SALT SETTING

Backwash 1 (minutes)	1	1	<b>1tt</b>	1	<b>2tt</b>	7	7	7
Brine rinse (minutes)	30	<b>30</b>	47	<b>38</b>	<b>30</b>	<b>30</b>	<b>30</b>	<b>30</b>
Backwash 2 (minutes)	3	3	3	3	2	2	2	2
Capacity 0. salt lbs.	28,730 <b>6.2</b> lbs.	28,730 6.2 lbs.	<b>44,840</b> <b>9.6</b> lbs.	28,730 <b>8.5</b> lbs.	28,730 <b>6.2</b> lbs.	28,730 <b>6.2</b> lbs.	28,730 <b>6.2</b> lbs.	28,730 6.2 lbs.

## #4 SALT SETTING

Backwash 1 (minutes)	1	1	<b>1tt</b>	1	<b>4tt</b>	7	7	7
Brine rinse (minutes)	<b>45</b>	<b>45</b>	<b>60</b>	<b>52</b>	<b>45</b>	<b>45</b>	<b>45</b>	<b>45</b>
Backwash 2 (minutes)	3	3	3	3	2	2	2	2
Capacity LDsalt lbs.	35,000 9.3 lbs.	35,000 <b>9.3</b> lbs.	55,090 14.4 lbs.	35,000 10.7 lbs.	35,000 <b>9.3</b> lbs.	35,000 <b>9.3</b> lbs.	35,000 <b>9.3</b> lbs.	35,000 <b>9.3</b> lbs.

\*Municipally supplied chlorinated water only.

\*\*Must have a minimum of 2 ppm iron and a minimum of 200 ppm TDS. See Engineering Specifications.

\*\*\*Unit has no backwash flow control button or retainer. Must have a minimum of 7 gpm@30 psi available for proper backwash.

\*\*\*\*Calcite will add additional hardness to water before softening.

'If iron is present in water supply, use salt setting #3 or #4.

ttlf iron is present in the water supply, set #1 backwash to 7 minutes.

# Mode II Setting Chart

60 SERIES	63MAQ	63BEQ	63MXQ	63MDQ	62AMQ	62APQ	62AKQ	62AJQ
Mode 2	YES	YES	YES	NO	YES	NO	NO	YES
Capacity	As required	As required	As required	--	As required	--	--	As required
96 hour regeneration (If Iron present – yes)	YES OR NO	YES OR NO	YES OR NO		YES OR NO	--	--	YES OR NO

## #1 SALT SETTING

Backwash 1 (minutes)	1	1	1 •	--	2 •	--	--	--
Brine rinse (minutes)	7	7	7	--	7	--	--	--
Backwash 2 (minutes)	3	3	3	--	2	--	--	--
Capacity fa. salt lbs.	5,850 1 lb.	5,850 1 lb.	9,360 1.6 lb.	--	5,850 1 lb.	--	--	--

## #2 SALT SETTING

Backwash 1 (minutes)	1	1	1 •	--	2 •	--	--	7 •
Brine rinse (minutes)	12	12	19	--	12	--	--	12
Backwash 2 (minutes)	3	3	3	--	2	--	--	2
Capacity salt lbs.	13,890 2.7 lbs.	13,890 2.7 lbs.	21,680 4.2 lbs.	--	13,890 2.7 lbs.	--	--	13,890 2.7 lbs.

## #3 SALT SETTING

Backwash 1 (minutes)	1	1	1tt	--	2tt	--	--	7
Brine rinse (minutes)	30	30	47	--	30	--	--	30
Backwash 2 (minutes)	3	3	3	--	2	--	--	2
Capacity ( salt lbs.	28,730 6.2 lbs.	28,730 6.2 lbs.	44,840 9.6 lbs.	--	28,730 6.2 lbs.	--	--	28,730 lbs.

## #4 SALT SETTING

Backwash 1 (minutes)	1	1	1t t	--	4tt	--	--	7
Brine rinse (minutes)	45	45	60	--	45	--	--	45
Backwash 2 (minutes)	3	3	3	--	2	--	--	2
Capacity aa salt lbs.	35,300 9.3 lbs.	35,300 9.3 lbs.	55,090 14.4 lbs.	--	35,300 9.3 lbs.	--	--	35,300 9.3 lbs.

\*Municipally supplied chlorinated water only.

\*\*NA, see Mode 1 Setting Chart.

\*\*\*Unit has no backwash flow control button or retainer. Must have a minimum of 7 gpm@30 psi available for proper backwash.

\*\*\*\*Calcite will add additional hardness to water before softening.

\*If iron is present in water supply, use salt setting #3 or #4.

ttf iron is present in the water supply, set #1 backwash to 7 minutes.

# WaterMax Filters

<b>WaterMax Filters Application Chart</b>	<b>61 AAN</b>	<b>61 AAE -BWO</b>	<b>61 AAR -BWO</b>	<b>61 AAS -BWO</b>	<b>61 AAF -BWO</b>
Capacity (ppm)	10,000	N/A	N/A	N/A	N/A
Sulphur H <sub>2</sub> S (2 ppm)	5	N/A	N/A	N/A	N/A
Iron (ppm)	20	N/A	N/A	N/A	N/A
Minimum pH	7	N/A	N/A	5 <sup>1</sup>	N/A
Media type	Manganese Greensand	Activated Carbon	Filter Ag	Calcite/Corsex	multi-Grade
Media amount (cu. ft.)	1.25	1	1.25	1.25	1
Cont. flow rate (gpm)	6	6	6	6	6
Peak flow rate (gpm)	10	10	10	10	12
Backwash rate (gpm)	7	5	5	7	7
Brine line flow control (gpm)	.5	N/A	N/A	N/A	N/A
Water pressure	30-120	30-120	30-120	30-120	30-120
Mode settings	1	1	1	1	1
Backwash #1 (min)	5	7	7	7	7
Brine/rinse (min)	45	0	0	0	0
Backwash #2 (min)	3	0	0	0	0
Salt (lbs. 3 b. a lt setting = 4oz. KMnO <sub>4</sub> <sup>2</sup> )	3	0	0	0	0
Regenerant used	4 oz. KMnO <sub>4</sub>	N/A	N/A	N/A	N/A
Flow rate at 25 PSI drop	16.7 GPM	21.4 GPM	21.5 GPM	20.4 GPM	19.4 GPM
Flow rate at 15 PSI drop	10.5 GPM	15.9 GPM	15.9 GPM	15.2 GPM	15.1 GPM
<b>Recommended service flow<sup>3</sup> @ pressure drop</b>	<b>4.5 GPM @ 4.7 PSI</b>	<b>3.6 GPM @ 1.1 PSI</b>	<b>4.5 GPM @ 1.5 PSI</b>	<b>4.5 GPM @ 1.8 PSI</b>	<b>3.6 GPM @ 1.5 PSI</b>
	Removes iron and iron <b>algae</b> . <b>Also removes</b> up to 5 ppm Hydrogen Sulfide with the presence of 2 ppm iron. Regenerate every 6 days for iron; as needed for Hydrogen Sulfide (sulfur),	Removes tastes, odors and will reduce most man-made pollutants. Backwash <b>every 3 days</b> or <b>as needed</b> .  <b>WARNING! Must not be backwashed for 24 hours after installation.</b>	Removes suspended matter (turbidity) from water down to the 20-40 micron range. Backwash every 3 days or <b>as needed</b> .	Will <b>raise the pH of most low pH water. The mineral media must be replenished periodically to maintain optimum bed depth for effective correction. Backwash every 2 days to prevent solidification of</b>	Removes suspended matter (turbidity) from water down to nominal 20 microns. Backwash <b>every 3 days</b> or <b>as needed</b> .

- 1 The 61AAS-BWO will raise the pH of most, but not all low pH water. Some water requires chemical injection using a chemical feed pump.
- 2 CAUTION: follow the instructions on the KMnO<sub>4</sub> container.
- 3 For optimum water quality, do not exceed recommended service flow rate for filter media type.



# Troubleshooting

Problem	Cause	Solution
No soft water after regeneration.	No salt in brine tank.	Add salt.
	Sediment in brine tank has plugged the brine line and/or air check. (See Fig. 4.)	Remove the brine line and flush clean. Clean air check. Clean brine tank.
	Refill flow control is plugged. (See Fig. 9.)	Remove brine piston housing and clear debris from the flow control.
	Drain line is pinched, frozen or restricted. (See Fig. 1.)	Straighten, thaw or unclog the drain line.
	Clogged injector assembly. (See Fig. 6.)	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 plumbing bypass valve is in the the bypass position (See pg. 5.)	Place bypass valve in the service position.
	Appliance is plumbed in backwards. (See Fig. 1.)	Check that appliance is plumbed properly.
	Extended power outage.	Reset time. (See Customer Settings.)
	Water hardness has increased.	Reset water and reset hardness. (See Installation Record.)
	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 the bypass position (See pg. 5.)	Place bypass in the service position.
	Appliance is plumbed backward. (See Fig. 1.)	Check that appliance is plumbed properly.
	Sensor not receiving signal from magnet. (See Fig. 7.)	Remove sensor from bypass housing. Test with magnet on each flat side of sensor. One side should indicate flow. the other will not. If flow is indicated, check turbine. If no flow, replace sensor.
	Turbine is jammed. (See Fig. 7.)	Remove bypass valve and clear debris from turbine.

# Troubleshooting

Problem	Cause	Solution
Flow indicator blinks when water is not being used. (Fig. 2)	There is a leak in your household plumbing system.	Repair the leak.
No read-out in display.	Electric cord is unplugged.	Plug in transformer. (Fig. 1.)
	No electric power at outlet.	Check power source. Make sure outlet is not controlled by a switch.
	Defective transformer (fig. 3).	Test with volt meter for 12 VAC at control. If less than 10 VAC or greater than 14 VAC, replace transformer.
	Defective circuit board.	With 12 V AC present at control, replace computer control.
Appliance stays in regeneration. Cycle display remains "going to"	High ambient temperature. If temperature exceeds 120°F, display will blank out. This does not affect the operation of the controller.	See Engineering Specifications, page 13.
	Defective magnet disk.	Replace magnet disk. (See Fig. 8)
	Foreign object in valve body.	Remove foreign objects from valve body. (See Fig. 5)
Excess water in brine tank.	Broken valve assembly. Motor running. Magnet disk not turning.	Repair drive end cap. (See Fig. 8)
	Restricted, frozen or pinched drain line. (See Fig. 1)	Remove restriction, thaw or straighten drain line..
	Plugged brine line, brine line flow control or air check (See Fig. 9)	Clean flow control, air check and brine line. (See Fig. 12)
	Plugged injector assembly. (See Fig. 6)	Clean or replace injector assembly. Replace throat if removed.
Not regenerating in proper sequence.	Sticking brine refill valve. (See Fig. 9)	Remove brine valve. Lubricate piston with silicone grease and reassemble.
	Defective magnet disk.	Replace magnet disk. (See Fig. 8)
	Defective controller.	Replace controller. (See Fig. 3)

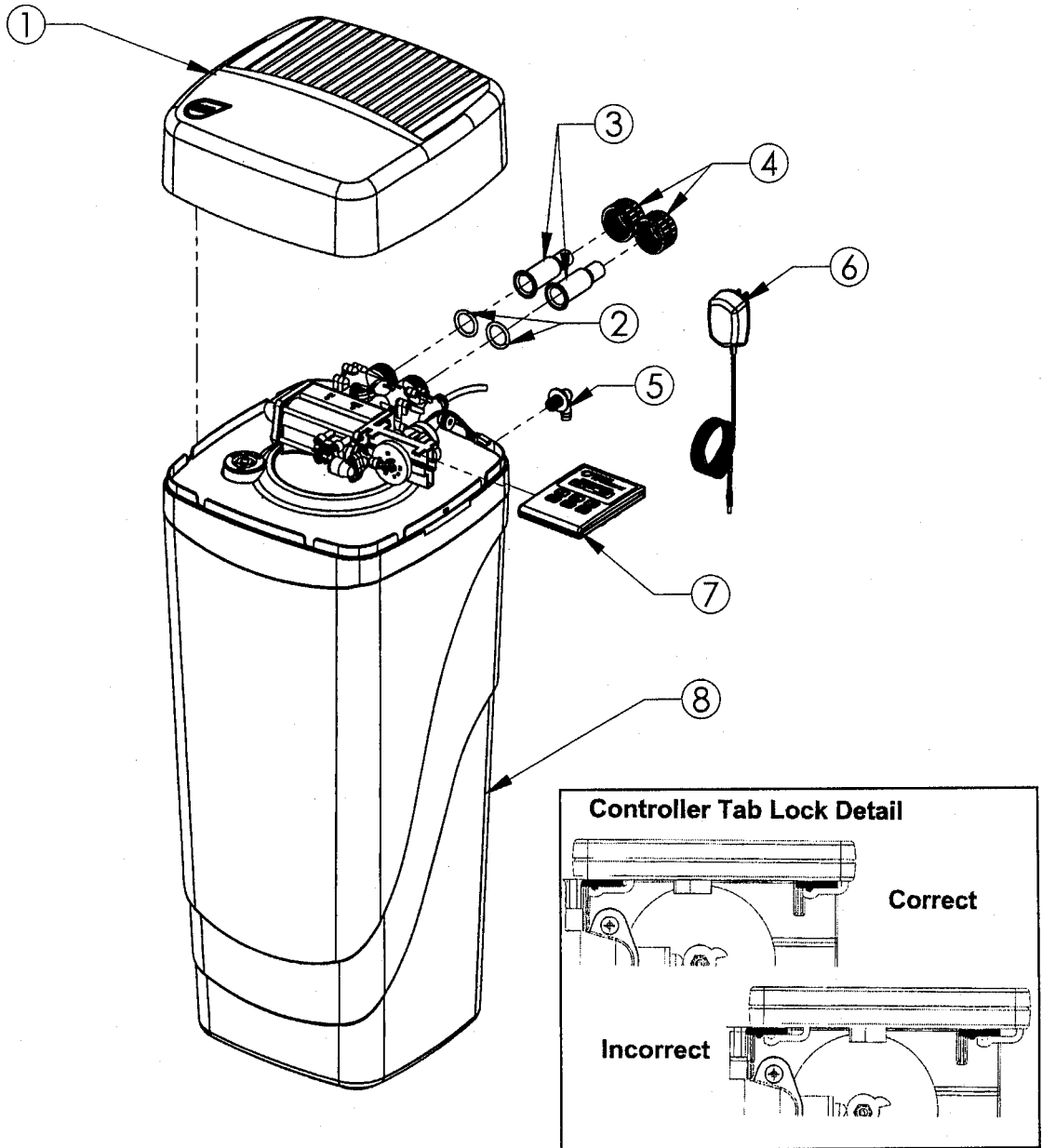
# Troubleshooting

Problem	Cause	Solution
Salty water	Plugged injector.	Clean injector screen, nozzle and throat (See Fig. 6)
	Low water pressure.	Maintain minimum pressure of 30 psi (See Engineering Specs.)
	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 (See Brine Cabinet Data, page 36.)
	Insufficient rinse time.	Check mode setting chart (pg. 14-15) 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.)

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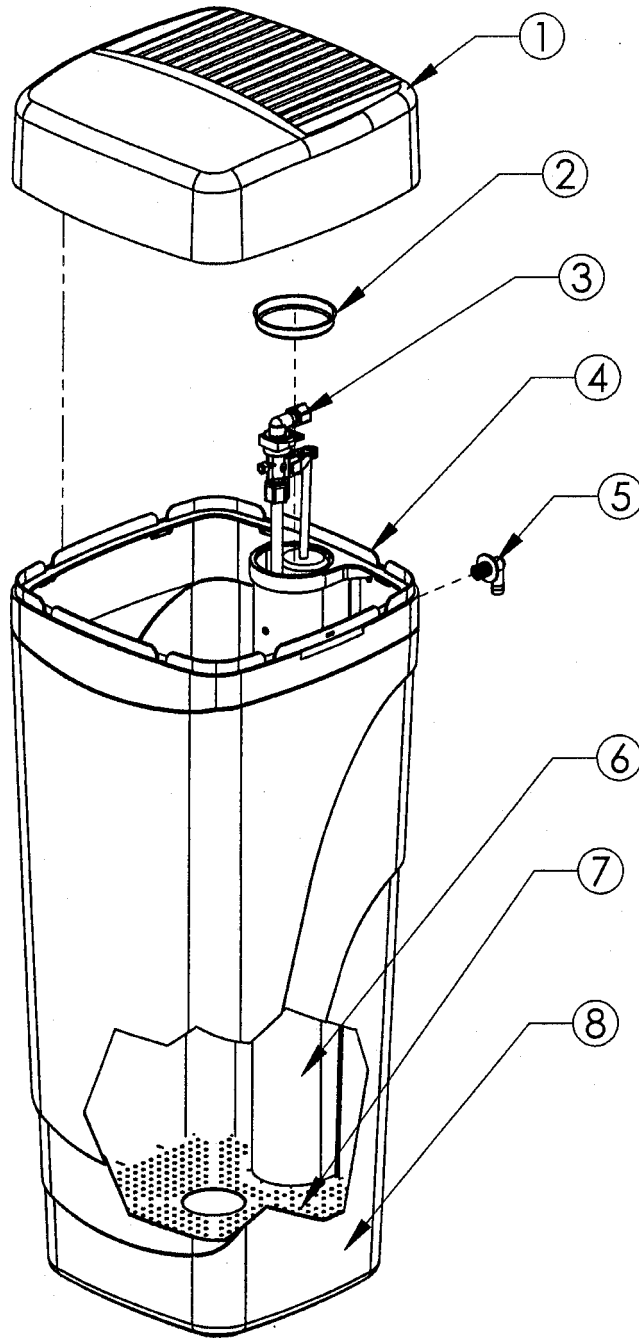
## NOTES:

# Parts – Figure 3-HOOK-UP/COVER ASSEMBLY



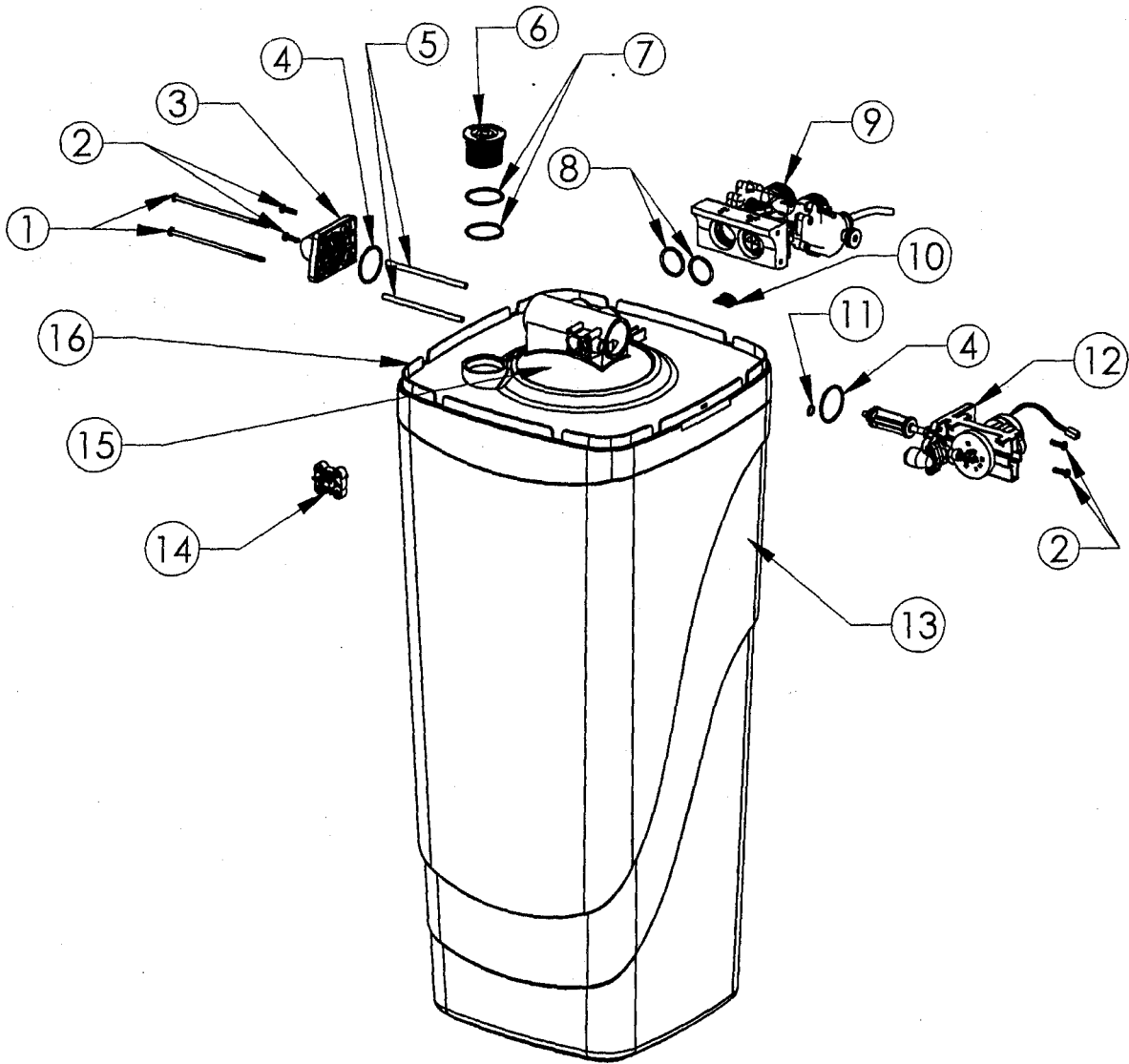
ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	54501	Media Cabinet Cover Assembly
2	2	90837	Bypass Nut Gasket
3	2	90254	Copper Adapter
	2	90256	PVC Adapter (optional)
4	2	90251	Bypass Nut
5	1	C0700A	Cabinet Overflow
6	1	93245	12V Transformer/Power Cord
7	1	54500	6 Button Control Assembly
8	1	54003	Cabinet

# Parts — Figure 4-BRINE TANK ASSEMBLY



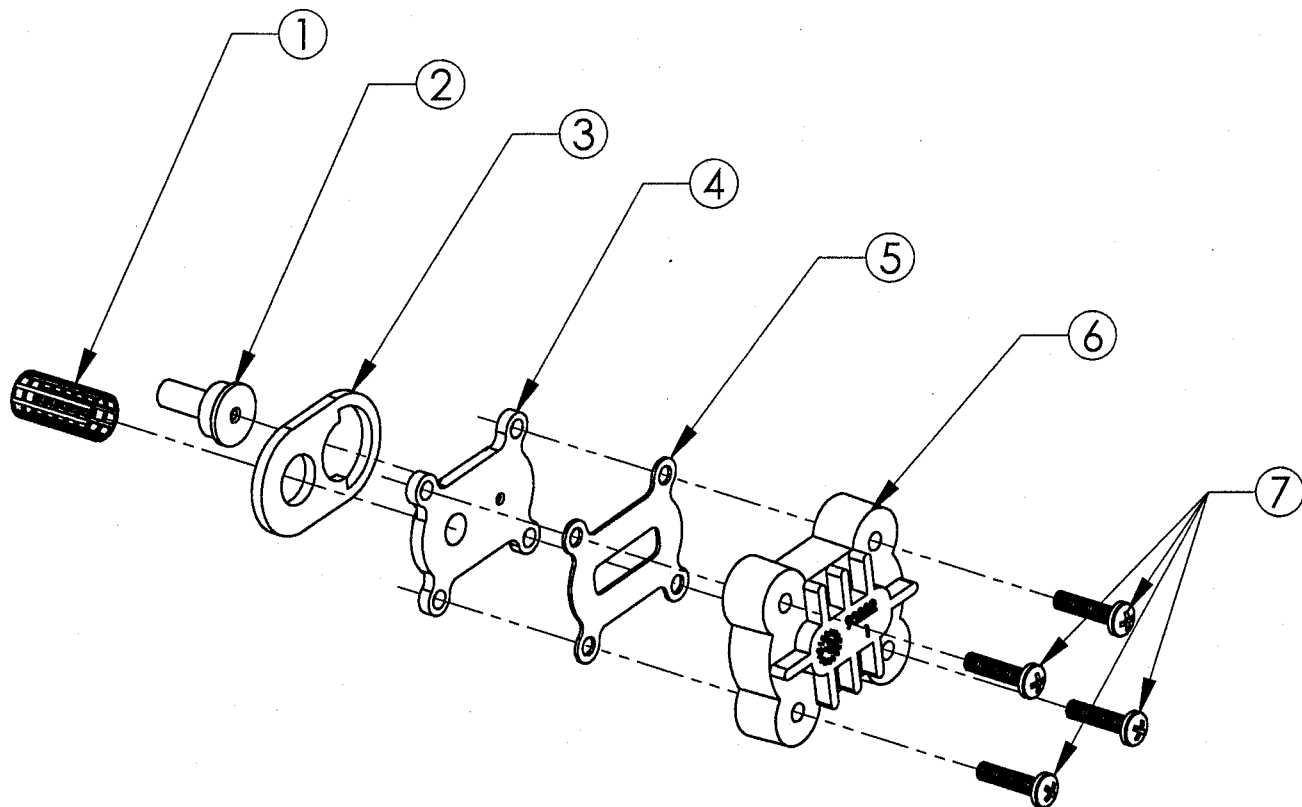
PART#	DESCRIPTION	QUANTITY
1 54006	Brine Tank Cover	
2 90103	Brine Well Cap	
3 54525	Safety Shutoff Assembly	1
4 54007	Support Panel (BT)	
5 CO700A	Cabinet Overflow	
6 54008	Brine Well	
7 54009	Grid Plate	1
8 54003	Cabinet	
54509	Brine Tank Assembly	

# Parts — Figure 5-Tank/Cabinet Assembly



PART#	DESCRIPTION	QUANTITY
1 93809	Screw	2
2 93870	Screw	4
3 90614	Drian End Cap Assembly	1
4 93808	O-Ring	2
5 93835	Sleeve	2
6 90238	Resin Tank Fill Plug	1
7 90819	Fill Plug O-Ring	2
8 93838	O-Ring	2
9 90615	Bypass Assembly	1
10 93833	Cord Clip	1
11 90828	O-Ring	1
12 95301T-JG	Drive End Cap Assembly	1
95302T-BWO	Drive End Cap Assembly, Backwash Only	
13 54003	Cabinet	1
14 93501	Injector Assembly	1
15 54508	Resin Tank (3 Compartment)	1
54514	Resin Tank (2 Compartment) Center & Bottom Screen	1
54516	Media Tank (1 Compartment) Bottom Screen	1
16 54005	Support Panel	1

# Parts — Figure 6-Injector Assembly



ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	93810	Injector Screen
2	1	93223	Injector Throat
3	1	93220	Injector Seal (Thick)
4	1	93221	Injector Nozzle
5	1	93232	Top Injector Seal (Thin)
6	1	93222	Injector Cap
7	4	90807	Screw

## Parts – Injector Assembly

**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 very 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 wood toothpick may be used. When assembling to the Valve, the Nozzle hole should line up with the Throat.

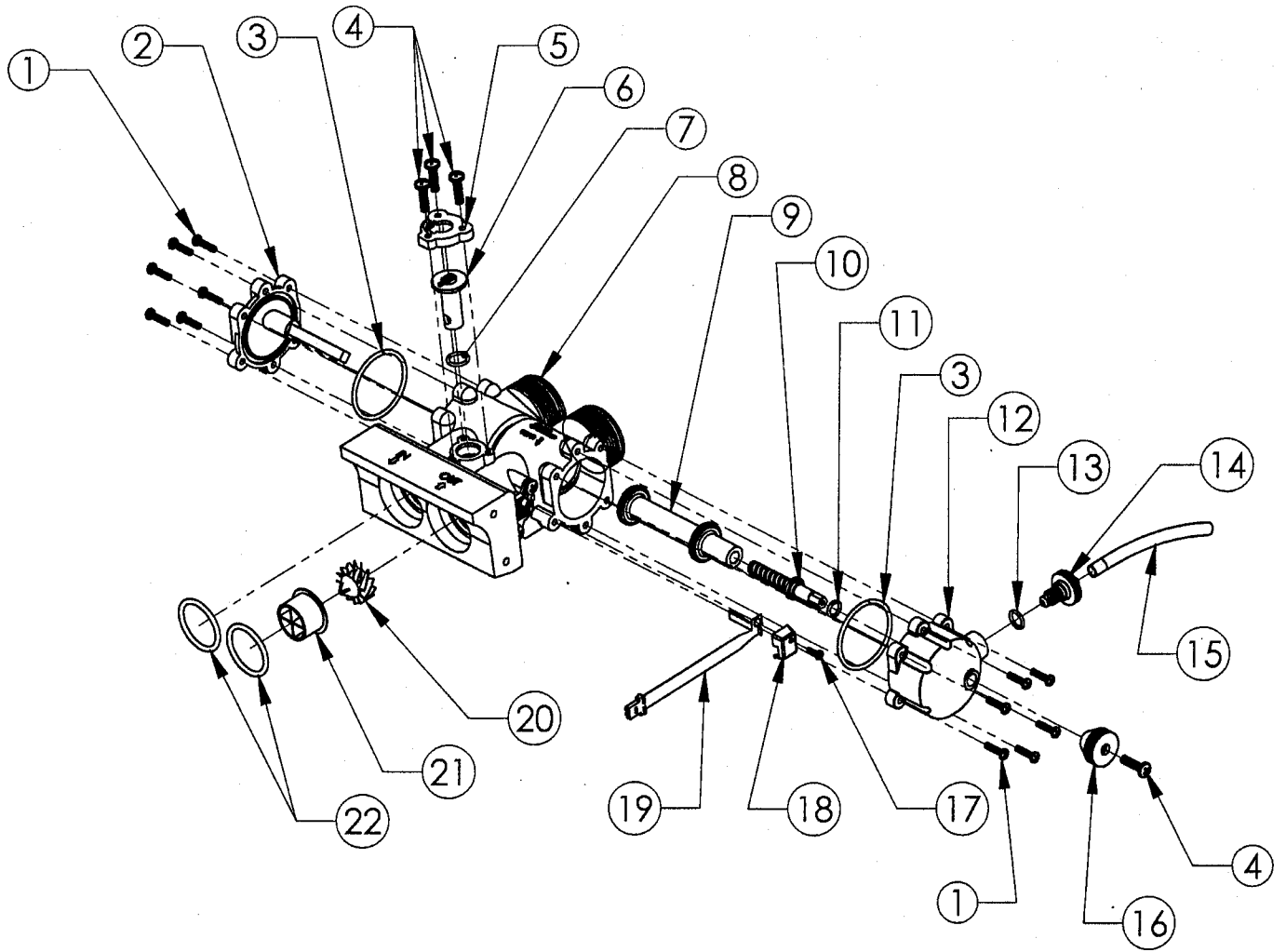
**93232 Thin Injector Seal:** Seals between the Injector Nozzle and Injector Cap. The gasket must be free of defects such as tears or cuts and be free of debris.

**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.



# Parts Figure 7 -Bypass Assembly



ITEM NO.	QTY.	PART NO.	DESCRIPTION	ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	12	90807	Screw	12	1	90263	Bypass Endcap - right
2	1	90262	Bypass Endcap - left	13	2	90828	O-Ring
3	2	93808	O-Ring	14	1	90226	Test Port Valve
4	6	90802	Screw	15	1	90812	Tubing 4.0"
5	1	90252	Cap - Blending Dial	16	1	90221	Bypass Piston Knob
6	1	90222	Blendind Dial	17	1	90809	Screw
7	1	90827	O-Ring	18	1	90232	Turbine Sensor Cap
8	1	90246	Bypass Housing	19*	1	93858	Turbin Sensor Assembly
9	1	90616	Bypass Piston Assembly	20 *	1	90522	Turbine Assembly
10	1	90218	Bypass Piston Drive Shaft	21 *	1	93229	Flow Director
11	1	90803	O-Ring	22	2	93838	O-Ring

\* Not available on WaterMax Filters

# Parts — Bypass Assembly

**90246 Bypass Housing:** Makes the connection between the plumbing and Main Valve Body. Also, contains the "Hard Water" Blending Valve and Bypass Piston. The recommended seal for the 1 1/8" male inlet-outlet threads is the plastic Hook-up Nut (90251), O-ring (90837), and Copper Adapter (90254). Make sure the O-ring is between the Housing and Copper Adapter. The O-ring seal areas at the Main Valve Body inlet and outlet must be smooth and free of defects and debris, and lubricated with silicone grease before assembling. When attaching to the Main Valve Body, put the O-rings on the male bosses on the Valve Body and push the Bypass into place; if not, the O-rings may be "pinched". If the O-rings are pinched, replace with new ones. The Bypass is pre-assembled with the Sensor housing and turbine axle. These are not field serviceable and if damaged, must be replaced with a new assembly. The Bypass Piston bore is to be smooth and, at the recessed areas, have a smooth transition (no sharp corners) to the seat areas.

**90262 Bypass End Cap - Left:** Seals the left Piston opening on the Housing (90246). The 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. When assembling the End Cap to the Housing, 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. Also, on the End Cap is the Piston Axle, a 1/2" square shaft that acts as a guide / slide and anti-turning mechanism for the Bypass Piston.

**90263 Bypass End Cap - Right:** Seals the right Piston opening on the Housing (90246). The 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. When assembling the End Cap to the Housing, 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. Also, on the End Cap is the guide / bushing for the Bypass Piston Drive Shaft. There is an O-ring seal at the opening for the Drive Shaft. This seal area must be free of defects such as pits or scratches and also free of debris.

**90218 Bypass Piston Drive Shaft:** The Drive Shaft has an acme thread which is used to move the Piston from "bypass" to "service" position. When operating the Bypass, to achieve either "service" or "bypass", it is only necessary to turn the Handle (90221) until the Piston (90616) stops. Additional pressure (torque) will not improve the seal. As a matter-of-fact, once the Piston reaches the stop at either position, it can be backed off up to one half turn of the handle and still achieve a seal.

**90616 Bypass Piston Assembly:** The white Teflon Hydro-slide O-ring covers should be free of defects such as indentations and cuts. The Piston should move freely into and out of the Bypass Housing without damaging the Hydro-slides. If the Hydro-slides catch, tear or crimp, the Housing should be replaced. Note: Some compression will occur when the Hydro-slides pass through the seal areas.

**93858 Turbine Sensor Assembly:** Picks up the magnetic field from the Turbine and relays it to the Controller. The three wire assembly connecting the "black wafer" Hall Effect Sensor to the Controller board must not be severely bent (folded over,) cut, or broken. Care should be taken when putting the Sensor into the Sensor Housing. The "spring" flap below the Sensor must be gently bent over (on top of) the Sensor, and then the Sensor slides all the way into the Sensor Housing. The round hole of the Sensor mounting tab is then placed down over the mounting screw boss. The cap is then put in place and the mounting screw is installed. A slot is provided in the cap for the wire way 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.

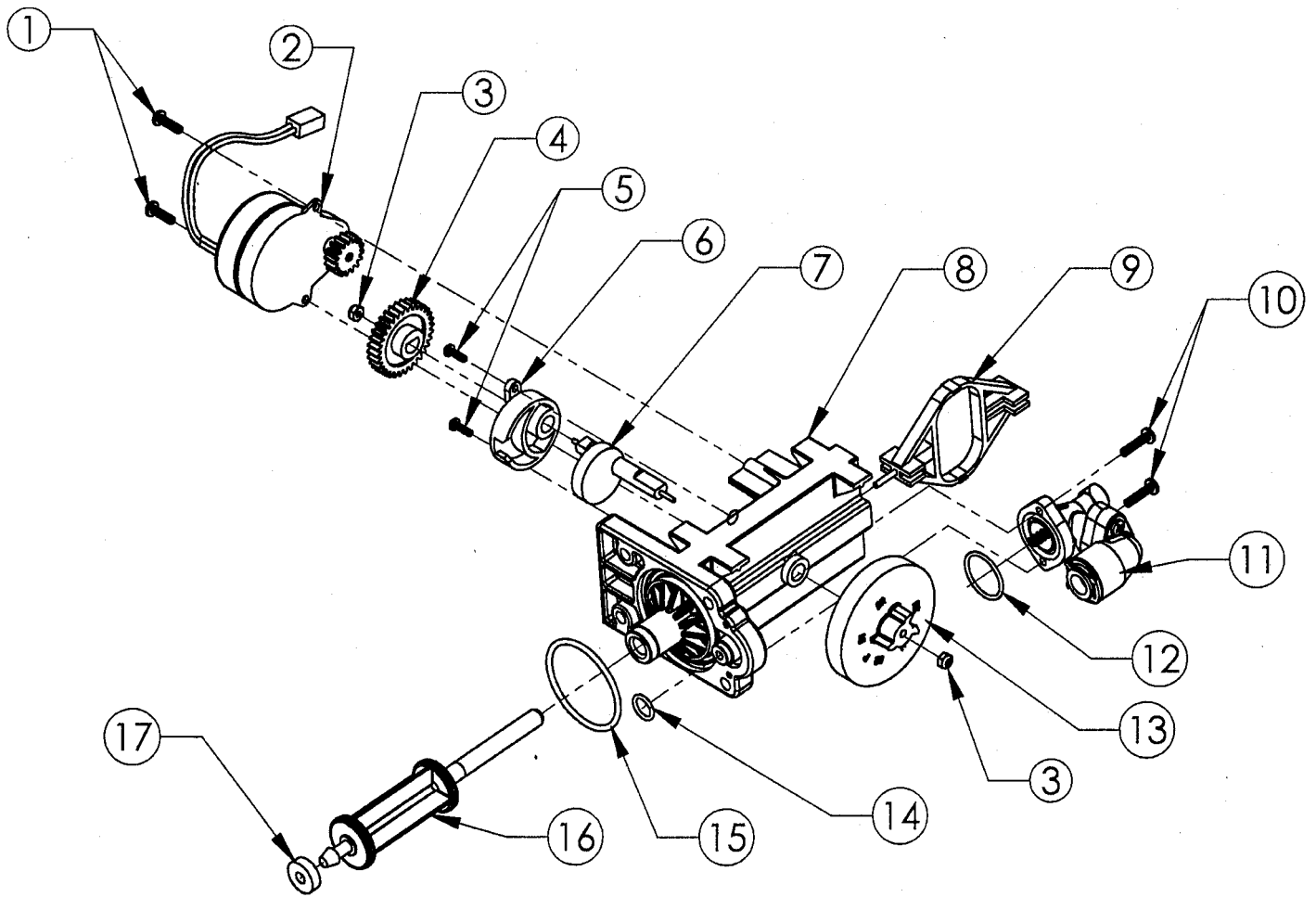
**90522 Turbine Assembly:** The turbine must have a 1/8" diameter Rare Earth magnet pressed into place adjacent to the axle opening. When assembled to the axle, the Turbine should spin freely. Do not use any lubricants. If the Turbine should become "jammed", clean and flush the Turbine and Bypass Valve.

**90252 Blending Dial Cap:** The Cap should be held in place by the three 1/2" screws and be in the proper orientation.

**90222 Blending Valve:** The dial permits the addition of "hard water" into the soft water outlet. It is closed when pointing toward the Main Valve Body and open when pointing toward the inlet side.

**90226 Test Port Valve:** The Test Port Valve is used to draw water samples for testing of treated water. Note: The Bypass must be in the "service" position to get an accurate sample. 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 seal between the Test Port Valve material and the Right End Cap material. If this seal is "overtightened", it can damage the sealing area on the End Cap causing a permanent leak.

# Parts — Figure 8-Drive End Cap Assembly



ITEM NO.	QTY.	PART NO.	DESCRIPTION	ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	2	90802	Screw	10	2	90818	Screw
2	1	90217	Drive Motor	11	1	93601-JG	Brine Valve Housing Assembly
3	2	93891	1/4" Hex Nut	12	1	90821	O-Ring
4	1	93238	Drive Gear	13	1	54502	Magnet Disk Assembly
5	2	90809	Screw	14	1	90828	O-Ring
6	1	93219	Piston Slide Cam Cover	15	1	93808	O-Ring
7	1	93217	Piston Slide Cam	16	1	95522-A	Drive Piston Assembly
8	1	93583	Drive End Cap	17	1	93839	Drain Gasket
9	1	93216	Piston Slide				

## Parts – Drive End Cap Assembly

**93583 Drive End Cap:** Seals the two openings on the Main Valve Body. 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 Valve Body, care should be taken to make sure the small O-ring is aligned with the opening in the Valve Body and that the large O-ring stays in the groove in the End Cap. If misaligned, the O-rings can become pinched and leak.

**90217 Drive Motor:** The Motor is held in place by two  $\frac{1}{2}$ " 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 Controller.

**93216 Piston Slide:** The Slide should move freely inside the End Cap Housing. The stainless steel threaded stud should be pointing toward the Valve Body.

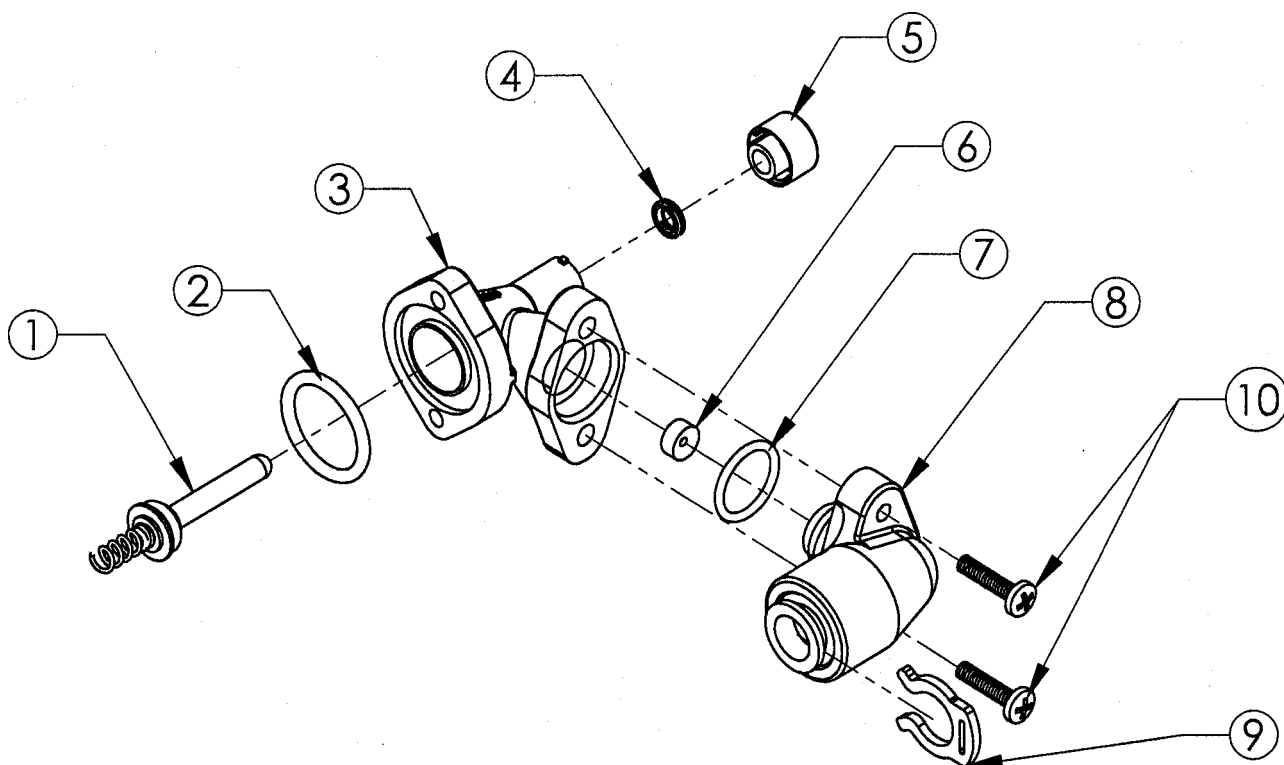
**93217 Piston Slide Cam:** This is the "heart" of the drive system. There is a threaded stainless steel shaft that runs through the main drive axle. The Drive Gear is attached at the short end and the Magnet Disc at the other end. The Slide Cam is assembled inside of the Piston Slide (93216). This Cam Shaft should turn freely before the Motor is assembled.

**93219 Piston Slide Cam Cover:** The cover secures the Piston Slide Cam (93217) in place and acts as a bushing for the Cam Shaft.

**93238 Drive Gear:** The Olive 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 (93217).

**93601-JG Brine Valve Assembly:** Attaches to the Drive End Cap with two  $\frac{3}{8}$ " thread cutting screws and has one O-ring seal. When assembling, the O-ring should be placed on the Drive End Cap boss and be lubricated with silicone grease. A twisting action should be applied along with pressure until the O-ring seats.

Parts — Figure 9 - Brine Valve Housing Assembly



ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	93620	Piston Assembly (includes O-ring & Spring)
2	1	90821	O-Ring
3	1	93260	Housing
4	1	93878	Quad Ring
5	1	93254	Quad Ring Retainer
6	1	90843	.5 gpm Flow Control
7	1	93805	O-Ring
8	1	93243-JG	Housing Cap Assembly (John Guest)
9	1	200199	3/8" Locking Clip
10	2	90818	Screw

## Parts – Brine Valve Housing Assembly

**93260 Housing:** Should have a Quad-ring for the Piston seal. The Quad-ring (4) is held in place by the quad ring retainer (5). The brine valve housing has four retaining lugs that secure the quad ring retainer. Just inside the entrance hole for the Brine Piston (1) is a concave seat area that must be free of defects such as nicks, indentations or debris. If any defects are detected by visual inspection, repair or replace as needed.

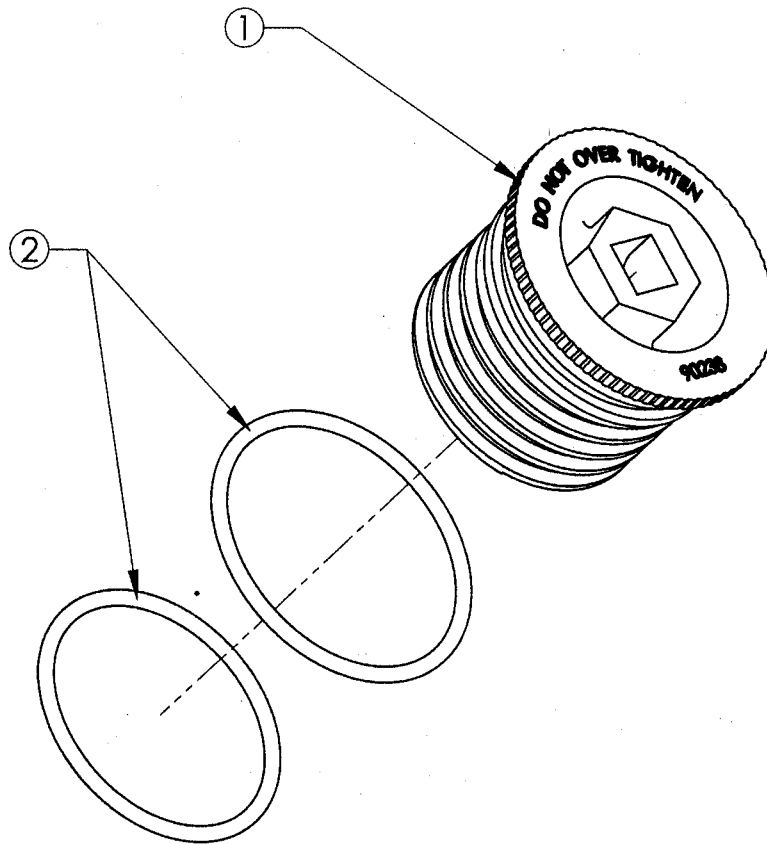
To replace the Quad-ring, it will be necessary to remove the brine valve housing assembly from the drive end cap (after by-passing and depressurizing the conditioning appliance). Push the piston assembly (1) out of the housing. To remove the quad ring retainer (5) push in and turn "clockwise" to unlock the retainer. CAUTION! Do not attempt to remove the retainer with the piston assembly in place. This will damage the housing and/or the retainer. Push the piston back into the housing to dislodge the old quad-ring (4) and discard it. Remove the piston, insert the new Quad-ring and lock the retainer onto the housing by pushing in and turning "counter-clockwise" to secure the Quad-ring. Replace the piston assembly and attach the brine valve assembly to the drive end cap and restore service to the conditioning appliance.

**93243-JG Housing Cap:** The Cap is held in place by two 5/8" machine screws that engage the Housing flange. An O-ring seals the Cap and Housing. Place the O-ring into the housing opening, lubricate with silicone grease and then using a twisting action, pressure insert the Cap. CAUTION: The 3/8" locking ring (8) must be installed to prevent air from being drawn into the appliance during brine rinse.

**90843 .5 gpm 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 Cap.

**93620 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. The Piston is Teflon coated brass and should be free of scratches. The Piston should move freely in the housing; silicone lubrication is not recommended on the Piston shaft.

# Parts — Figure 10 - Fill Plug Assembly



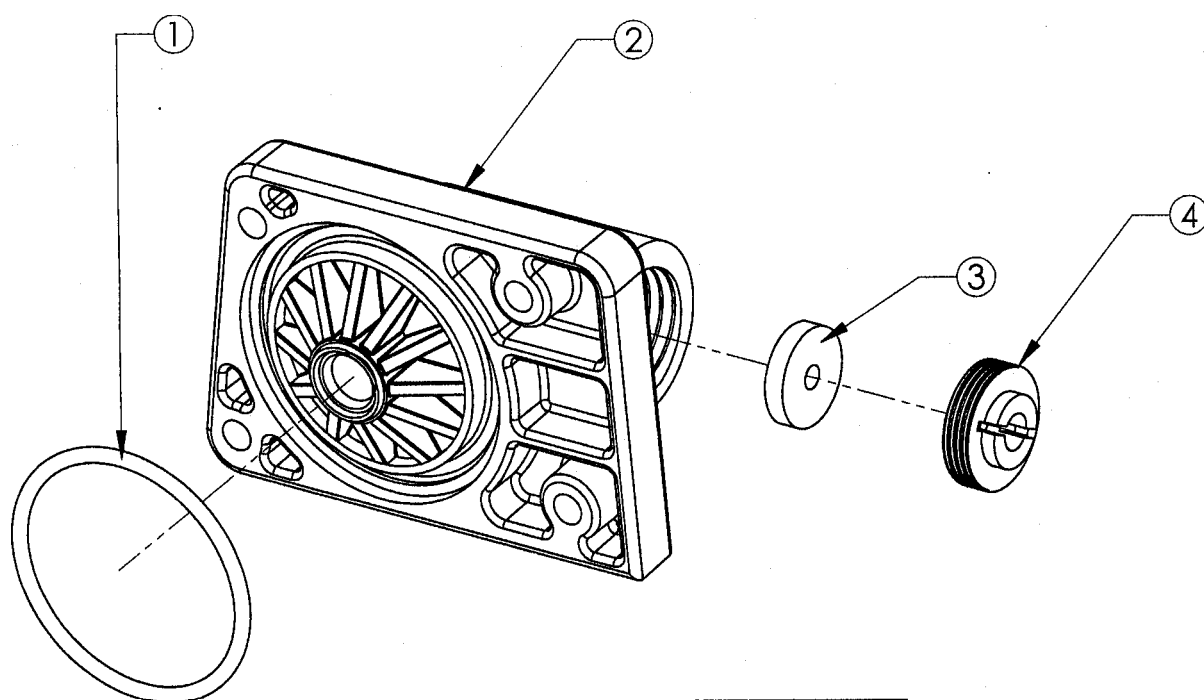
ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	90238	Fill Plug
2	2	90819	O-Ring

**(1) 90238 Fill Plug:** The Fill Plug seals the media access ports in the Media Tank. Care should be taken that the O-ring seal areas are kept clean and free of debris. Also, both O-rings should be in the proper locations, one under the flange and one in the groove. Do not overtighten the Fill Plug when assembling. When the flange comes into contact with the Media Tank, stop tightening. A  $\frac{3}{8}$ " socket is recommended for assembly.

**(2) 90819 Fill Plug O-ring**

**(3) 90618 Fill Plug Assembly** (contains all of the above parts)

# Parts - Figure 11 - Drain End Cap Assembly



ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	93808	O-Ring
2	1	90268	Drain End Cap
3	1	H2086-3.0	Drain Line Flow Control
4	1	90267	Retainer

**(1) 90268 Drain End Cap:** 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.

**(2) H2086 Drain Line Flow Control Button:** The Drain Line Flow Control Button (D.L.F.C.) maintains a constant (plus or minus 10%) backwash flow rate at varying pressures. Care should be taken when replacing FCB's to insure that the correct rate is being used for a particular model. Refer to Engineering Specifications, pg. 13. The flow control button should be assembled with the lettering facing the retainer.

H2086 - 2.4\*

H2086 - 3.0\*

H2086 - 5.0\*

H2086 - 7.0\*

**(3) 90267 Retainer:** The Retainer holds the backwash Flow Control Button 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.

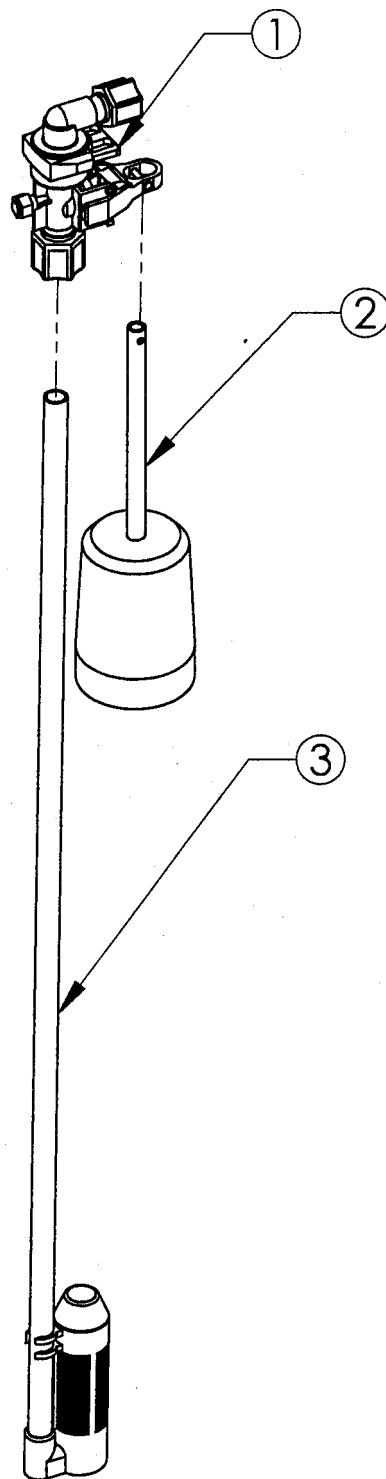
**(4) 93808 End Cap O-ring**

**90614 Drain End Cap Assembly** (contains all of the above items)

\*The numbers shown after the Drain Line Flow Control Button Part # indicate the back wash flow rate in gpm.

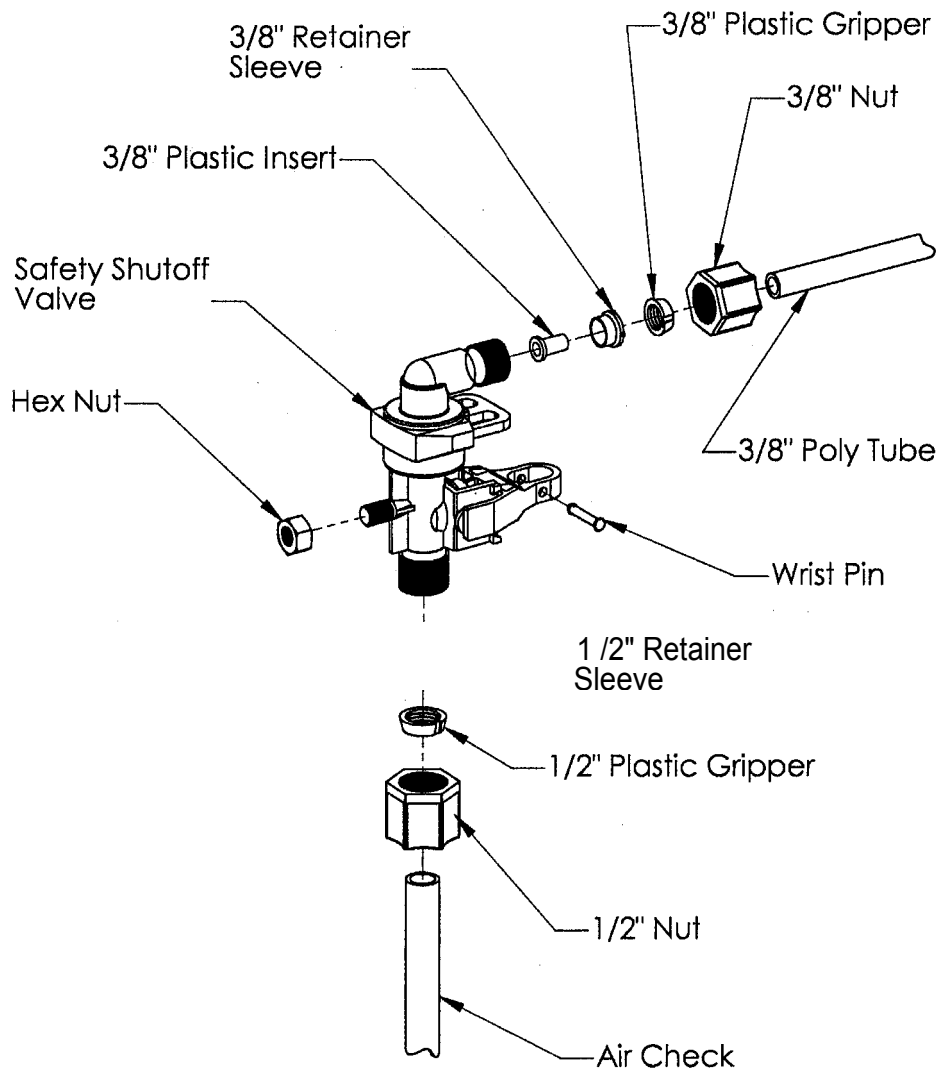


# Parts - Figure 12 - Safety Shutoff



ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	54226	Safety Shutoff
2	1	54227	Float
3	1	54225	Air Check

# Parts — Figure 13 - Brine Valve Elbow Installation



The nut, gripper and retainer sleeve are a 3 piece assembly that can come apart if removed from the elbow body. Parts must be re-assembled exactly as shown to function properly.

When connecting the 3/8" polytube, it is first necessary to assemble the nut, gripper and retainer sleeve on the tubing before inserting the plastic insert. Screw the nut on the elbow body. With a wrench tighten nut securely to create a pressure tight connection.

# 25 Year Limited Warranty

TO PLACE THIS EQUIPMENT UNDER WARRANTY, THE WARRANTY REGISTRATION CARD MUST BE COMPLETED AND RETURNED BY THE ORIGINAL OWNER TO HAGUE QUALITY WATER INTERNATIONAL WITHIN 30 DAYS OF INSTALLATION.

## Coverage

This warranty covers the Hague WaterMax® System delivered to the original owner 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, Valve Body, or the fine mesh polystyrene resin found to be defective in material or workmanship, Hague will repair or replace the defective item, at no charge for that item, for 25 YEARS from date of installation.

Hague Quality Water International further warrants that upon receipt from the owner of any other mechanical or electronic parts, 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 3 YEARS from date of installation; and thereafter will repair or replace the defective parts only upon receipt of payment by the owner of the defective parts only upon receipt of payment by the owner of the following percentages of the then current list prices for the parts:

If more than 3 years from date of installation but not more than 4 years 50%	If more than 7 years from date of installation but not more than 8 years 70%
If more than 4 years from date of installation but not more than 5 years 55%	If more than 8 years from date of installation but not more than 9 years 75%
If more than 5 years from date of installation but not more than 6 years 60%	If more than 9 years from date of installation but not more than 10 years 80%
If more than 6 years from date of installation but not more than 7 years 65%	If more than 10 years from date of installation 100%

All defective parts must be returned, along with the equipment serial number and date of original installation, to an authorized Hague dealer of Hague Quality Water International PREPAID, and replacement parts will be returned by Hague to the owner FREIGHT COLLECT.

**Further Exclusions and Limitations on Warranty:**  
**This warranty is null and void unless the Hague System was purchased from an independent Hague dealer. 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 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.**

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 Procedure

Any defects covered by this warranty should be promptly reported to Hague Quality Water International at 4343 South Hamilton Road, Groveport, Ohio 43125. In writing about the defects, please provide the original owner's name, telephone number, and original address; serial number and model number of the product; date of purchase; and name of dealer from whom purchased. Hague Quality Water International reserves the right to replace defective parts with exact duplicates or their equivalent.

## For Owner's Reference

Model No. \_\_\_\_\_ Equipment Serial No. \_\_\_\_\_

Installation Date \_\_\_\_\_ Installer's Signature \_\_\_\_\_

Independent Dealer \_\_\_\_\_

# Brine Cabinet Data

Based on the water level measured from the bottom of the WATERMAX brine cabinet WITH GRID PLATE, the following depths correlate to the amount of salt used per regeneration:

DEPTH (inches)	SALT (lbs.)
6	.74
7	1.5
8	2.2
9	3.0
10	3.7
11	4.4
12	5.2
13	5.9
14	6.6
15	7.4
16	8.1
17	8.8
18	9.6
19	10.3
20	11.0
21	11.8
22	12.5
23	13.3
24	14.4

PLEASE STUDY THE ABOVE CHART TO CONFIRM THIS INFORMATION.

## WaterMax Brine Cabinet Statistics

No Salt	With Salt
1" = .791 gallons	1" = .264 gallons
1" = 2.2148 lbs. Salt	1" = .738 lbs. Salt
1 lb. = .451" water level	1 lb. = 1.353" water level

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