PLEASE NOTE: On page seven of this manual you will find important maintenance procedures for the continued proper operation of your unit. These MUST be performed regularly for your guarantee to remain valid.
How Your EM Water Softener Works

Hard water enters your home through the main supply line, enters the softener and passes down through a resin mineral bed which softens the water. An ion exchange process takes place in which the resin beads capture and hold calcium and magnesium, the hardness minerals, while the water takes on sodium ions. The soft water then flows into your household water line.

In normal operation, the Time of Day display will alternate being viewed with the Volume Remaining display. This display will be in gallons. As treated water is used, the Volume Remaining display will count down from a maximum value to zero or (---). Once this occurs, a regeneration cycle will then be initiated at the Set Regeneration Time. Water flow through the valve is indicated by the Flow Dot that will flash in direct relationship to flow rate.

Example

833 Gallons of Treated Water Remaining

Service Program Flow P.M.
· 833· 833

0 Gallons of Treated Water Remaining

Service Program Flow P.M.
· · · · ·

In regeneration the control will display a special Regeneration Display. In this display, the control will show the current regeneration step number the valve is advancing to or has reached and the time remaining in that step. The step number displayed will flash until the valve has completed driving to this regeneration step position. Once all regeneration steps have been completed, the valve will return to Service and resume normal operation.

Example

Less than 6 minutes remain in Regen Step #1

Service Program Flow P.M.
· · · · · 1--5

Pushing the Extra Cycle Button during a regeneration cycle will immediately advance the valve to the next cycle step position and resume normal step timing.

Control Operation During Programming

The control will only enter the Program Mode with the valve in Service. While in the Program Mode, the control will continue to operate normally, monitoring water usage and keeping all displays up to date. Control programming is stored in memory permanently, eliminating the need for battery back-up power.
Control Operation During a Power Failure

During a power failure, all control displays and programming will be stored for use upon power re-application. The control will retain these values for years, if necessary, without loss. The control will be fully inoperative and any calls for regeneration will be delayed. The control will, upon power re-application, resume normal operation from the point where it was interrupted. An indication that a power outage has occurred will be an inaccurate Time of Day display.

Installation Instructions

CAUTION: If the ground from the electrical panel or breaker box to the water meter or underground copper pipe is tied to the copper water lines and these lines are cut during installation of the Noryl bypass valve and/or poly pipe, an approved grounding strap must be used between the two lines that have been cut in order to maintain continuity. The length of the grounding strap will depend upon the number of units being installed and/or the amount of copper pipe being replaced with poly. See Figure 1.

In all cases where metal pipe was originally used and is later interrupted by poly pipe or the Noryl bypass valve, as in Figure 1 or by physical separation as in Figure 2, to maintain proper metallic pipe bonding, an approved ground clamp c/w not less than #6 copper conductor must be used for continuity.

Check your local electrical code for the correct clamp and cable size.

1. Determine the best location for your water softener, bearing in mind the location of your water supply lines, drain line and 110/120 volt AC electrical outlet. Subjecting the softener to freezing or temperatures above 49°C (120°F) will void the warranty.

Media Installation (When Necessary)

- Remove the valve from the mineral tank.
- Temporarily plug the open end of the riser tube to ensure that no resin or gravel falls down into the distribution.
- Fill mineral tank one quarter full of water to protect distribution during gravel installation.
- Slowly and carefully add the gravel support bed and the softener media leveling each layer as it is placed into the tank.
- Unplug the riser tube, carefully position the valve over it and turn the valve into the threads in the fiberglass tank, tightening securely into tank. Note: Ensure that the internal O-ring in the valve fits securely over the riser tube. Silicone grease (#13691) or other food grade lubricant may be applied to the O-ring to ease installation of the riser tube. DO NOT use petroleum based lubricants as they will cause swelling of 0-rings and seals.
- The softener is now charged with softening resin.
- It is recommended that the softener tank now be completely filled with water (SLOWLY) to soak the resin before startup. This will allow the media to absorb water as well as help displace any trapped air. This will reduce the chance of backwashing resin out during startup.

2. Water to supply outside faucets used to water lawns and gardens should not be softened. A new water line is often required to be connected to supply hard water to the inlet of the water softener and to the outside faucets. Cut the water line between where it enters the house, before any lines that branch off to feed water heater or other fixtures in the house, and as near the desired location of the water softener as possible. Install a tee fitting on the feed end of the cut pipe and an elbow fitting on the other end. Install piping from the tee of the water softener and from the elbow to the outlet to the softener. To sever the water lines which branch off to feed any outside faucets, cut the branch lines approximately two inches from the fitting on the main water line. Install an elbow on the end of the pipe nearest the outside faucet and a cap on the end connected to the existing water line. Install piping from the tee on the inlet line to the water softener to the elbow installed on the pipe to the outside faucet. Following this procedure will result in all lines in the house, with the exception of the outside faucets, but including the water heater and therefore the hot water lines, being supplied with soft water.
3. On cabinet models, lift off the control valve cover and the salt cover to expose the control valve. The electronic control module in the control valve cover remains connected to the control valve by means of the wiring harness. Familiarize yourself with the location of the inlet, outlet and drain on the control valve. Be very careful not to get the controls wet.

4. Attach the bypass valve to the control valve. Connect the inlet and outlet of the water softener to the plumbing in the house. The control valve must not be submitted to temperatures above 71°C (160°F). When sweat fittings are used, to avoid damaging the control valve, solder the threaded copper adapters to the copper pipe and then using Teflon tape screw the assembly into the bypass valve. **CAUTION** - do not use pipe thread compound as it may attack the material in the valve body.

5. Using teflon tape, screw the 1/2” hose barb into the drain port in the valve. Attach 1/2” drain hose to the hose barb and tighten securely with a hose clamp. Run the drain line to a floor drain or a laundry drain using an airgap or other acceptable method to prevent cross-connection between your potable water system and your sewage system. Complete any necessary plumbing.

6. On twin tank units, pull the 3/8” brine line through the hole in the back of the brine tank. Connect the brine line to the fitting on the side of the valve using the nut and ferrule. Tighten snugly.

7. Make sure the bypass valve is in the service position.

8. Plug the 24 volt transformer into a 120 VAC 60 Hz outlet. The valve has 4 positions 1) Brine / slow rinse 2) Backwash 3) Rapid Rinse (not used in this configuration)4) Brine Refill. When the valve is in the Service position, the extra cycle button (far left button as shown on Figure 4) must be pressed and held for 5 seconds to advance the valve into Position “1” Brine / slow rinse (1...59). Press the extra cycle button again to advance the valve into Position “2” - Backwash (2...9). Slowly turn on the water supply and allow the unit to backwash until the air purges out of the tank and clears the system.

9. Press the extra cycle button and wait for the valve to advance to position 4 - Brine Fill and allow the brine tank to fill until there is 6” of water in the brine tank.

10. Press the extra cycle button to advance the valve to Service position. Press and hold manual cycle button again for 5 seconds to advance the valve to Position 1 - Brine / slow rinse. Verify that there is brine being drawn from the tank. If not, repeat step 9 through 10 or see Cleaning the Injector Assembly on Page 7 of this manual.

11. Press the extra cycle button to advance the valve to position “2” Backwash position and then press the extra cycle button again to advance the valve to Position 4 - Brine fill. Additional water can be added manually at this time to achieve this level, however, the valve needs to be in the brine fill position to allow all air to be purged from the pressure regulator and injector set.

12. Press the extra cycle button to advance the valve to the Service position.

13. Put 40 kgs of crystal water softener salt in the brine tank. The unit will automatically fill to correct level when it regenerates.

14. Before replacing the control valve cover and salt cover on cabinet models, ensure the wiring harness is securely plugged into the circuit in the electronic control module. The unit will regenerate automatically as needed.

**Optional Sanitization Procedure:** We recommend that all new water conditioners be disinfected as part of the startup. Sanitization is achieved by the application of chlorine in the regeneration cycle of the conditioner. A liquid solution of 5.25% sodium hypochlorite (commonly referred to as household bleach) is recommended as a suitable disinfectant. Use only unscented products. For every cubic foot of resin in the softener, pour approximately two (2) tablespoons of sodium hypochlorite into the brine well tube. The brine tank refill in Step 12 should add the correct amount of water to the brine tank. If not, the water can be added manually now. Press and hold the EXTRA CYCLE button to begin a manual regeneration. Press the EXTRA CYCLE button again to advance the valve to the Brine/Rinse position. Allow softener to complete the Brine/Rinse cycle, then let the manual regeneration continue until the brine tank is refilled again with the correct amount of water.

**ALL STATE AND LOCAL GOVERNMENT CODES GOVERNING INSTALLATIONS OF THESE DEVICES MUST BE OBSERVED.**
Operating Instructions

The valve has been pre-programmed with factory settings as follows:

**US Format** ........................................{U--1} US Gallons
**Regeneration Type** ..........................{7--3} Meter Delayed
**Regeneration Time** ..........................{2:00} A.M. Indicator On

**Regeneration Day Override** ..........{A--Off}

**Regeneration Cycle Step Programming**
1. Brine Rinse ....................................60 minutes
2. Backwash ......................................10 minutes
3. Rapid Rinse ...................................0 minutes
4. Brine Refill ...................................
   - 6 minutes - .75 cu.ft.
   - 8 minutes - 1.0 cu.ft.
   - 10 minutes - 1.25 cu.ft.
   - 8 minutes - 2.0 cu.ft.
   - 12 minutes - 3.0 cu.ft.

**Flow Meter Size** ...............................{F133} 3/4” turbine flow meter assembly
**Line Frequency** ...............................{LF60} 60 Hz line frequency

**Set Time of Day**
Refer to Figure 4. Push either the UP or DOWN keys to adjust the time of day by one digit. Press and hold either UP or DOWN key to adjust time of day by several digits.

**Enter Control Programming Mode**

NOTE: Use the formula in STEP 2 to calculate the proper capacity setting for your softener OR consult the Quick Reference charts on the following page.

1. Push and hold for 5 seconds both the UP and DOWN keys to enter Programming Mode.

2. The first option display to appear is the Treated Water Capacity. To calculate the Treated Water Capacity, use the following formula:

   \[
   \text{Unit Capacity in Grains (see Performance - Page 1)} \div \text{water hardness (gpg)} = \text{______ gallons}
   \]
   
   \[
   \text{______ gallons} - (75 \text{ gallons x number of people in the household}) = \text{____ Treated Water Capacity to be set.}
   \]

**Example:**
23,000 grain capacity unit, 20 gpg water hardness, 4 people in household

   \[
   23,000 \text{ grains} \div 20 \text{ gpg} = 1,150 \text{ gallons}
   \]
   
   \[
   1,150 \text{ gallons} - (75 \text{ gallons x 4}) = 850 \text{ gallons}
   \]

   **Set Treated Water Capacity to 850 gallons**

3. Push the Extra Cycle button to advance to the second option setting. The setting that appears is the Regeneration Time. Use the UP or DOWN keys to set the desired time of day for regeneration. The default setting is 2:00 A.M.

4. Push the Extra Cycle button. The third option setting display that appears is Regeneration Day Override. Use the UP or DOWN keys to set the maximum days before a regeneration cycle must occur. The default is {A--Off}. **This is an option only, please do not adjust before consulting an authorized dealer.**

5. The Control Programming is now complete. Push the Extra Cycle button. This will exit the control from the Programming Mode and resume to normal operation.
**Instructions:** To use this chart, line up the actual number of people living in the residence in the left column with the total hardness in grains per USGallon across the top to arrive at the gallon setting.

If the water to the home is tested to have a hardness in between the numbers in the chart, then use the next highest hardness value.

**Notes:** Chart is based on a 3 day sizing method shown on previous page of this manual. If application falls outside the parameters of this chart, then use the formula on the previous page of this manual to calculate the proper gallon setting.

### DC20EM and DT20EM

<table>
<thead>
<tr>
<th># of People Living in the Residence</th>
<th>Total Hardness (grains / USGallon)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>1650 1075 788 615 500 418 356 308 270 239 213 190</td>
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<tr>
<td>15</td>
<td>1575 1000 713 540 425 343 281 233 195 164 138 115</td>
</tr>
<tr>
<td>20</td>
<td>1500 925 638 465 350 268 206 158 120</td>
</tr>
<tr>
<td>30</td>
<td>1425 850 563 390 275 193 131</td>
</tr>
<tr>
<td>40</td>
<td>1350 775 488 315 200 118</td>
</tr>
<tr>
<td>50</td>
<td>1275 700 413 240 125</td>
</tr>
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</table>

**Softener may be undersized. Consider a larger capacity model.**

### DC30EM and DT30EM

<table>
<thead>
<tr>
<th># of People Living in the Residence</th>
<th>Total Hardness (grains / USGallon)</th>
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<tbody>
<tr>
<td>10</td>
<td>2225 1458 1075 845 692 582 500 436 385 343 308 279 254 232</td>
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<tr>
<td>15</td>
<td>2150 1383 1000 770 617 507 425 361 310 268 233 204 179 157</td>
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<tr>
<td>20</td>
<td>2075 1308 925 695 542 432 350 286 235 193 158 129 104</td>
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<tr>
<td>30</td>
<td>2000 1233 850 620 467 357 275 211 160 118</td>
</tr>
<tr>
<td>40</td>
<td>1925 1158 775 545 392 282 200 136</td>
</tr>
<tr>
<td>50</td>
<td>1850 1083 700 470 317 207 125</td>
</tr>
<tr>
<td>60</td>
<td>1775 1008 625 395 242 132</td>
</tr>
<tr>
<td>70</td>
<td>1700 933 550 320 167</td>
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<tr>
<td>80</td>
<td>1625 858 475 245</td>
</tr>
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</table>

**Softener may be undersized. Consider a larger capacity model.**

### DT40EM

<table>
<thead>
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<th>Total Hardness (grains / USGallon)</th>
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<tr>
<td>10</td>
<td>2800 1842 1363 1070 883 748 644 564 500 448 404 367 336 306</td>
</tr>
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<td>15</td>
<td>2725 1767 1288 1000 808 671 569 489 425 373 329 292 261 233</td>
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<td>20</td>
<td>2650 1692 1213 925 733 596 494 414 350 298 254 217 186 158</td>
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<tr>
<td>30</td>
<td>2575 1617 1138 850 658 521 419 339 275 223 179 142 111</td>
</tr>
<tr>
<td>40</td>
<td>2500 1542 1063 775 583 446 344 264 200 148 104</td>
</tr>
<tr>
<td>50</td>
<td>2425 1467 988 700 508 371 269 189 125</td>
</tr>
<tr>
<td>60</td>
<td>2350 1392 913 625 433 296 194 114</td>
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<tr>
<td>70</td>
<td>2275 1317 838 550 358 221 119</td>
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<tr>
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<td>2200 1242 763 475 283 146</td>
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<tr>
<td>90</td>
<td>2125 1167 688 400 208</td>
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</table>

**Softener may be undersized. Consider a larger capacity model.**

### DT60EM

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<th>Total Hardness (grains / USGallon)</th>
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<td>4450 2917 2150 1690 1383 1164 1000 872 770 668 567 463</td>
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<td>4375 2842 2075 1615 1308 1089 925 797 695 611 542 483 432 388</td>
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<td>4300 2767 2000 1540 1233 1014 850 722 620 536 467 408 357 313</td>
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<td>40</td>
<td>4225 2692 1925 1465 1158 939 775 647 545 461 392 333 282 238</td>
</tr>
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<td>50</td>
<td>4150 2617 1850 1390 1083 884 700 572 470 386 317 258 207 163</td>
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<tr>
<td>60</td>
<td>4075 2542 1775 1315 1008 819 625 497 395 311 242 182 132</td>
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<tr>
<td>70</td>
<td>4000 2467 1700 1240 933 714 550 422 320 228 167 128</td>
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<tr>
<td>80</td>
<td>3925 2392 1625 1165 858 639 475 347 245</td>
</tr>
<tr>
<td>90</td>
<td>3850 2317 1550 1090 783 564 400 272 170</td>
</tr>
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### DT90EM

<table>
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<th>Total Hardness (grains / USGallon)</th>
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<td>6825 4525 3375 2685 2225 1896 1650 1458 1305 1160 1075 967 911 845</td>
</tr>
<tr>
<td>15</td>
<td>6750 4350 3100 2610 2150 1821 1575 1383 1230 1105 1000 912 836 770</td>
</tr>
<tr>
<td>20</td>
<td>6675 4375 3235 2675 2205 1846 1560 1308 1155 1030 925 837 761 695</td>
</tr>
<tr>
<td>30</td>
<td>6600 4300 3150 2640 2100 1761 1425 1233 1080 955 850 762 686 620</td>
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<td>40</td>
<td>6525 4225 3075 2385 1925 1596 1350 1158 1005 880 775 687 611 545</td>
</tr>
<tr>
<td>50</td>
<td>6450 4150 3000 2310 1850 1521 1275 1083 930 805 700 612 536 470</td>
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<tr>
<td>60</td>
<td>6375 4075 2925 2235 1775 1446 1200 1038 855 730 625 537 461 395</td>
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<td>6300 4000 2850 2190 1755 1371 1125 933 780 665 550 462 386 320</td>
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<td>6225 3925 2775 2105 1625 1296 1050 858 705 580 475 387 311 245</td>
</tr>
<tr>
<td>90</td>
<td>6150 3850 2700 2010 1550 1221 975 783 630 505 400 312 236 170</td>
</tr>
</tbody>
</table>
Automatic Bypass
The regeneration cycle lasts approximately 2-1/2 hours after which soft water service will be restored. During regeneration, hard water is automatically bypassed for use in the household. Hot water should be used as little as possible during this time to prevent hard water from filling the water heater. This is why the automatic regeneration is set for sometime during the night and manual regenerations should be performed when little or no water will be used in the household.

Safety Float
The brine tank is equipped with a safety float which prevents your brine tank from overfilling as a result of a malfunction such as a power failure.

Water Pressure
Your softener is designed to be operated under normal water pressures from 20 psi to 120 psi.

New Sounds
You may notice new sounds as your water softener operates. During this time, you may hear water running intermittently to the drain.

Manual Bypass (Figure 5)
In case of an emergency such as an overflowing brine tank, you can isolate your water softener from the water supply using the bypass valve located at the back of the control.

In normal operation the bypass is open with the ON/OFF knobs in line with the INLET and OUTLET pipes. To isolate the softener, simply rotate the knobs clockwise (as indicated by the word BYPASS and arrow) until they lock.

You can use your water related fixtures and appliances as the water supply is bypassing the softener. However, the water you use will be hard.

To resume soft water service, open the bypass valve by rotating the knobs counter-clockwise.
Maintenance

Adding Salt
Use only crystal water softener salt. Check the salt level monthly. It is important to maintain the salt level above the water level. To add salt, simply lift the salt lid and add the salt directly into the brine tank. Be sure the brine well cover is on and fill only to the height of the brine well.

Bridging (Figure 6)
Humidity or the wrong type of salt may create a cavity between the water and the salt. This action, known as “bridging”, prevents the brine solution from being made, leading to your water supply being hard.

If you suspect salt bridging, carefully pound on the outside of the plastic brine tank or pour some warm water over the salt to break up the bridge. This should always be followed up by allowing the unit to use up any remaining salt and then thoroughly cleaning out the brine tank.

Allow four hours to produce a brine solution, then manually regenerate the softener.

Care of Your Softener
To retain the attractive appearance of your new water softener, clean occasionally with mild soap solution. Do not use abrasive cleaners, ammonia or solvents. Never subject your softener to freezing or to temperatures above 49°C (120°F).

Cleaning the Injector Assembly (Figure 7)
Sediment, salt and silt will restrict or clog the injector. A clean water supply and pure salt will prevent this from happening.

The injector assembly is located on the left side of the control valve. This assembly is easy to clean.

Shut off the water supply to your softener and reduce the pressure by opening a cold soft water faucet. Using a screwdriver, remove the two screws holding the injector cover to the control valve body. Carefully remove the assembly and disassemble as shown in Figure 7. The injector orifice is removed from the valve body by carefully turning it out with a screwdriver. Remove the injector throat the same way. Carefully flush all parts including the screen. Use a mild acid such as vinegar or Pro-Rust Out to clean the small holes in the orifice and throat. Reassemble using the reverse procedure.

NOTE: The injector cover contains a factory set pressure regulator. Do not attempt to adjust this regulator.

Resin Cleaner
An approved resin cleaner MUST be used on a regular basis if your water supply contains iron. The amount of resin cleaner and frequency of use is determined by the quantity of iron in your water (consult your local representative or follow the directions on the resin cleaner package).
## Trouble Shooting Guide

### 1. Conditioner DELIVERS HARD WATER
- **A.** Bypass valve is open
  - **A.** Close bypass valve
- **B.** No salt in brine tank
  - **B.** Add salt to brine tank and maintain salt level above water level
- **C.** Injector or screen plugged
  - **C.** Replace injectors and screen
- **D.** Insufficient water flowing into brine tank
  - **D.** Check brine tank fill time and clean brine line flow tank control if plugged
- **E.** Hot water tank hardness
  - **E.** Repeated flushing of the hot water tank is required
- **F.** Leak at distributor tube
  - **F.** Make sure distributor tube is not cracked. Check O ring and tube pilot
- **G.** Internal valve leak
  - **G.** Replace seals and spacers and/or piston
- **H.** Flow meter jammed
  - **H.** Remove obstruction from flow meter
- **I.** Flow meter cable disconnected or not plugged into meter cap
  - **I.** Check meter cable connection to timer and meter cap
- **J.** Improper programming
  - **J.** Reprogram the control to the proper regeneration type, inlet water hardness, capacity or flow meter size.

### 2. Conditioner FAILS TO REGENERATE
- **A.** Electrical service to unit has been interrupted
  - **A.** Assure permanent electrical service (check fuse, plug, chain or switch)
- **B.** Timer is not operating properly
  - **B.** Replace timer
- **C.** Defective valve drive motor
  - **C.** Replace drive motor
- **D.** Improper programming
  - **D.** Check programming and reset as needed

### 3. Unit USES TOO MUCH SALT
- **A.** Improper salt setting
  - **A.** Check salt usage and salt setting
- **B.** Excessive water in brine tank
  - **B.** See #7
- **C.** Improper programming
  - **C.** Check programming and reset as needed

### 4. LOSS OF WATER PRESSURE
- **A.** Iron build-up in line to water conditioner
  - **A.** Clean line to water conditioner
- **B.** Iron build-up in water conditioner
  - **B.** Clean control and add resin cleaner to resin bed. Increase frequency of regeneration
- **C.** Inlet of control plugged due to foreign material broken loose from pipes by recent work done on plumbing system
  - **C.** Remove piston and clean control

### 5. LOSS OF RESIN THROUGH DRAIN LINE
- **A.** Air in water system
  - **A.** Assure that well system has proper air eliminator control. Check for dry well condition
- **B.** Drain line flow control is too large
  - **B.** Ensure drain line flow control is sized

### 6. IRON IN CONDITIONED WATER
- **A.** Fouled resin bed
  - **A.** Check backwash, brine draw and brine tank fill. Increase frequency of regeneration. Increase backwash time
- **B.** Iron content exceeds recommended parameters
  - **B.** Add iron removal filter system

### 7. EXCESSIVE WATER IN BRINE TANK
- **A.** Plugged drain line flow control
  - **A.** Clean flow control
- **B.** Brine valve failure
  - **B.** Replace brine valve
- **C.** Improper programming
  - **C.** Check programming and reset as needed

### 8. SALT WATER IN SERVICE LINE
- **A.** Plugged injector system
  - **A.** Clean injector and replace screen
- **B.** Timer not operating properly
  - **B.** Replace timer
- **C.** Foreign material in brine valve
  - **C.** Clean or replace brine valve
- **D.** Foreign material in brine tank flow control
  - **D.** Clean brine line flow control
- **E.** Low water pressure
  - **E.** Raise water pressure
- **F.** Improper programming
  - **F.** Check programming and reset as needed

### 9. CONDITIONER FAILS TO DRAW BRINE
- **A.** Drain line flow control is plugged
  - **A.** Clean drain line flow control
- **B.** Injector is plugged
  - **B.** Clean or replace injectors
- **C.** Injector screen is plugged
  - **C.** Replace screen
- **D.** Line pressure is too low
  - **D.** Increase line pressure (line pressure must be at least 20 psi at all times)
- **E.** Internal control leak
  - **E.** Change seals and spacers and/or piston assembly
- **F.** Improper programming
  - **F.** Check programming and reset as needed
- **G.** Timer not operating properly
  - **G.** Replace timer

### 10. CONTROL CYCLES CONTINUOUSLY
- **A.** Timer not operating properly
  - **A.** Replace timer
- **B.** Faulty microswitches and/or harness
  - **B.** Replace faulty microswitch or harness
- **C.** Faulty cycle cam operation
  - **C.** Replace cycle cam or reinstall

### 11. DRAIN FLOWS CONTINUOUSLY
- **A.** Foreign material in control
  - **A.** Remove piston assembly and inspect bore. Remove foreign material and check
- **B.** Internal control leak
  - **B.** Replace seals and/or piston assembly
- **C.** Control valve jammed in brine or backwash position
  - **C.** Replace piston and seals and spacers
- **D.** Timer motor stopped or jammed teeth
  - **D.** Replace timer motor and check all gears for missing teeth
- **E.** Timer not operating properly
  - **E.** Replace timer
Guarantee

WaterGroup Companies Inc. guarantees that your new water conditioner is built of quality material and workmanship. When properly installed and maintained, it will give years of trouble free service.

Seven Year Complete Parts Guarantee:
WaterGroup Companies Inc. will replace any part which fails within 84 months from date of manufacture, as indicated by the serial number provided the failure is due to a defect in material or workmanship. The only exception shall be when proof of purchase or installation is provided and then the warranty period shall be from the date thereof.

Lifetime Guarantee on Mineral Tanks and Brine Tanks:
WaterGroup Companies Inc. will provide a replacement mineral tank or brine tank to any original equipment purchaser in possession of a tank that fails within his/her lifetime, provided that the water conditioner is at all times operated in accordance with specifications and not subject to freezing.

General Provisions:
WaterGroup Companies Inc. assumes no responsibility for consequential damage, labor or expense incurred as a result of a defect or for failure to meet the terms of these guarantees because of circumstances beyond its control.

WaterGroup