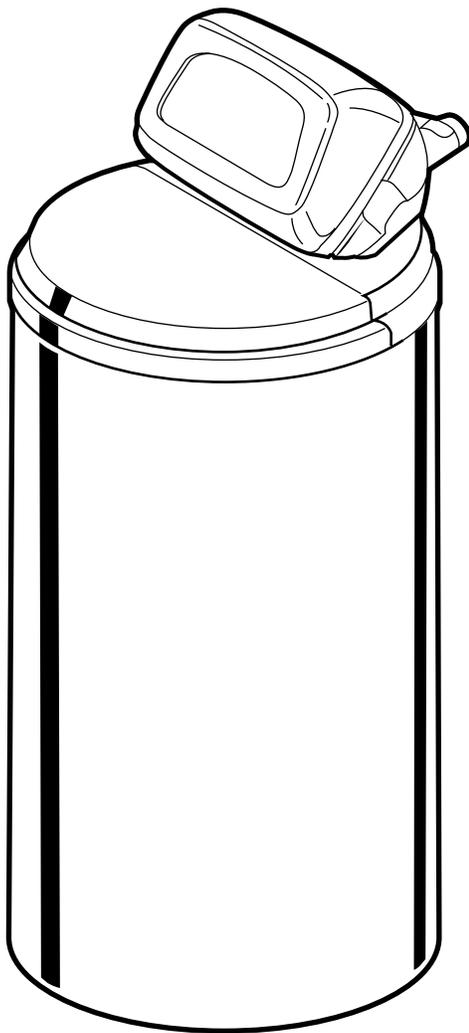




*GE Appliances*

# *Water Softening System*



*Installation and  
Owner's Manual*  
GXSS17Z01



**GE Answer Center® 800.626.2000**

**Part No. 215C1044P003-1** Pub. No. 49-50007-1 8-98 CG  
7196674

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# Congratulations!

## You are Now Part of the GE Family.

Welcome to the GE family. We're proud of our quality products and we are committed to providing dependable service. You'll see it in this easy-to-use Owner's Manual and you'll hear it in the friendly voices of our customer service department.

Best of all, you'll experience these values each time you use the water system. That's important, because your new system will be part of your family for many years. And we hope you will be part of ours for a long time to come.

We thank you for buying GE. We appreciate your purchase, and hope you will continue to rely on us whenever you need quality appliances for your home.



### IMPORTANT!

Fill out and return the Consumer Product Registration Card that is packed with this product. If you cannot find it, please send in the duplicate card printed in the back of this manual.



### FOR YOUR RECORDS

**Write the model and serial numbers here:**

# \_\_\_\_\_  
# \_\_\_\_\_

You can find them on the sump bracket.

**Staple sales slip or cancelled check here.**

Proof of the original purchase date is needed to obtain service under the warranty.



### READ THIS MANUAL

Inside you will find many helpful hints on how to use and maintain your water system properly. Just a little preventive care on your part can save you a great deal of time and money over the life of your system. A video has been included with the product containing important use and care instructions.

You'll find many answers to common problems in the *Before You Call For Service* section. If you review our chart of *Troubleshooting Tips* first, you may not need to call for service at all.



### IF YOU NEED SERVICE

If you do need service, you can relax knowing help is only a phone call away. A list of toll-free customer service numbers is included in the back section.

# IMPORTANT SAFETY INFORMATION. READ ALL INSTRUCTIONS BEFORE USING.

**⚠ WARNING!** For your safety, the information in this manual must be followed to minimize the risk of electric shock, property damage or personal injury.



## SAFETY PRECAUTIONS

- Check and comply with your state and local codes. You must follow these guidelines.
- Use care when handling the water softening system. Do not turn upside down, drop, drag, or set on sharp protrusions.
- Water softening systems using sodium chloride (salt) for regeneration add sodium to the water. *Persons on sodium restricted diets should consider the added sodium as part of their overall intake. Potassium chloride can be used as an alternative to sodium chloride.*
- The water softening system works on 24 volt-60 Hz electrical power only. *Be sure to use only the included transformer.*
- Keep the salt hole cover in place on the softener unless servicing the unit or refilling with salt.
- ▲ **WARNING:** Do not use with water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.



## PROPER INSTALLATION

*This water softening system must be properly installed and located in accordance with the Installation Instructions before it is used.*

- Install or store where it will not be exposed to temperatures below freezing or exposed to any type of weather. Water freezing in the system will break it. Do not attempt to treat water over 100°F.
- **Do not** install in direct sunlight. Excessive sun heat may cause distortion or other damage to non-metallic parts.
- Properly ground to conform with all governing codes and ordinances.
- Use only *lead-free solder and flux* for all sweat-solder connections, as required by state and federal codes.
- Maximum allowable inlet water pressure is 125 psi. If daytime pressure is over 80 psi, nighttime pressure may exceed the maximum. Use a pressure reducing valve to reduce the flow if necessary.
- ▲ **WARNING:** Discard all unused parts and packaging material after installation. Small parts remaining after the installation could be a choke hazard.



*Read and follow this Safety Information carefully.*

## SAVE THESE INSTRUCTIONS

## Installation instructions.

---

 **CAUTION:** Certain plumbing skills are needed for installation. If you are unsure about any part of the installation of this product, consult a professional plumber.

### Unpacking and Inspection

The softener is shipped in one master carton. The softener is completely assembled at the factory, except as required at installation.

Be sure to check the entire softener for any shipping damage or parts loss. Also note damage to the shipping cartons. Contact the transportation company for all damage and loss claims. The manufacturer is not responsible for damages in transit.

Small parts, needed to install the softener, are on a skin-packed cardboard piece. To avoid loss of the small parts, keep them on the skin-pack until you are ready to use them.

---

### Important Installation Recommendations

Read entire manual. Failure to follow all guidelines and rules could cause personal injury or property damage.

- Before you begin installation, read these Installation Instructions completely. Then, obtain all the materials and tools you will need to make the installation. Failure to properly install the softener voids the warranty.
- Check local codes. The installation must conform to them.
- Use only lead-free solder and flux for all sweat-solder connections, as required by state and federal codes.
- Connect the softener to the main water supply pipe *before* or *ahead of the* water heater. **DO NOT RUN HOT WATER THROUGH THE SOFTENER.** Temperature of water passing through the softener must be less than 120° F.
- Use care when handling the softener. Do not turn upside down, drop, drag, or set on sharp protrusions.
- Maximum allowable inlet water pressure is 125 psi. If daytime pressure is over 80 psi, nighttime pressure may exceed the maximum. Use a pressure reducing valve if necessary. (Adding a pressure reducing valve may reduce the flow.)
- The softener works on 24 volt-60 Hz electrical power only. Be sure to use the included transformer. Be sure the electric outlet and transformer are in an inside location to protect from wet weather.
- See *Where to Install the Softener* section for more details.

 **WARNING:** Do not use with water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system. The water should be tested periodically to verify that the system is performing satisfactorily.

Small parts remaining after the installation could be a choke hazard. Discard safely.

---

### Plan How You Will Install the Softener

You must first decide how to run in and out pipes to the softener. Look at the house main water pipe at the point where you will connect the softener. Is the pipe soldered copper, glued plastic, or threaded galvanized? What is the pipe size?



**WARNING:** Use only lead-free solder and flux to prevent lead poisoning.

See *Typical Installation Illustration*, Fig.1. Use this as a guide when planning your particular installation. **Be sure to direct the incoming hard water supply to the softener valve inlet fitting.** The valve is marked **IN** and **OUT**. See below to help you prepare.

**NOTE:** The state of Massachusetts requires a licensed plumber to perform the installation.

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### Where to Install the Softener

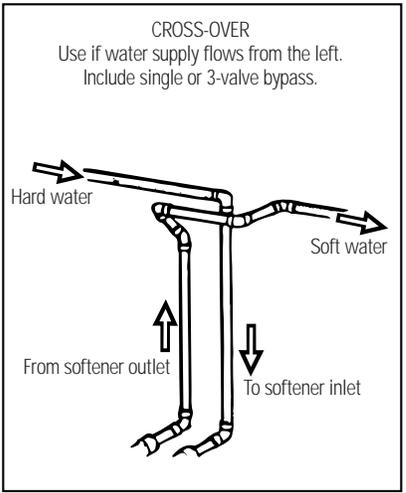
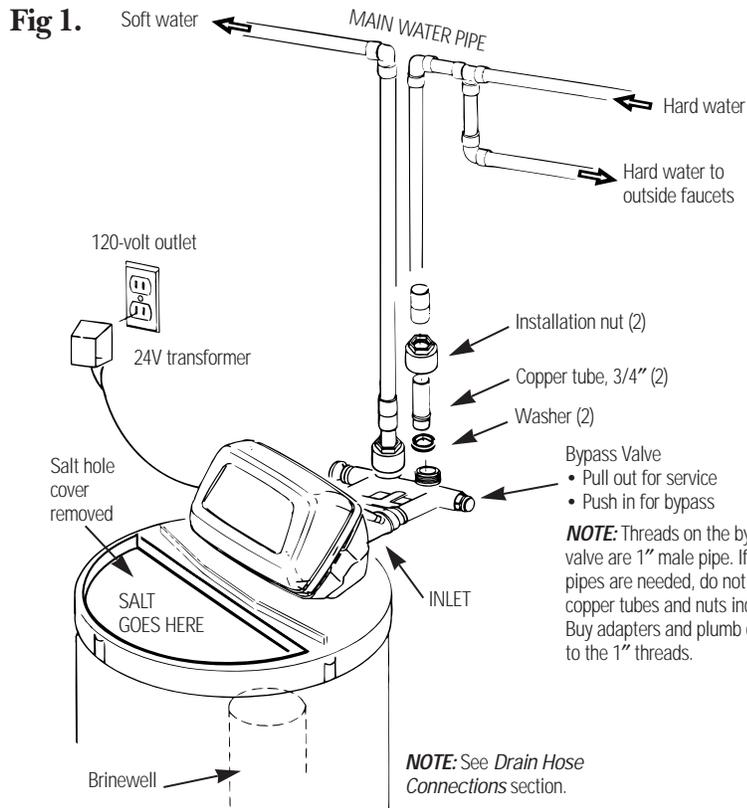
- Place the softener as close as possible to a sewer drain, or other acceptable drain point or standpipe.
  - It is recommended to keep outside faucets on hard water to save soft water and salt.
  - Do not install the softener in a place where it could freeze. **Freeze damage is not covered by the warranty.**
  - Do not install the softener where it would block access to the water heater or access to the main water shutoff.
  - Put the softener in a place where water damage is least likely to occur if a leak develops. The manufacturer will not repair or pay for water damage.
  - A 120 volt electric outlet is needed to plug in the included transformer. The softener has a 10 foot power cable. If the outlet is remote (up to 100 feet), use 18 gauge wire to connect. **Be sure the electric outlet and transformer are in an inside location, to protect from wet weather.** Be sure the outlet is unswitched to prevent accidental shutoff.
  - If installing in an outside location, you must take the steps necessary to assure the softener, installation plumbing, wiring, etc., are as well protected from the elements (sunlight, rain, wind, heat, cold), contamination, vandalism, etc., as when installed indoors.
  - **Keep the softener out of direct sunlight.** The sun's heat may distort non-metallic parts and may damage the electronics.
- 

### Tools and Materials Required for Installation

- In and out pipes to the softener must be at least 3/4" size. Some local codes require a minimum of 1" pipe size. To plumb with 1" pipes, buy adapters to fit the 1" pipe threads on the bypass valve (see Fig. 1 and Fig. 2).
- Use copper, brass or galvanized pipe and fittings. Some codes may also allow CPVC plastic pipes.
- Use the included bypass valve to install the softener. The bypass valve allows you to turn off water to the softener for servicing, but still have water in the house pipes.
- Drain hose is needed for valve and salt tank drains. A 20' length of drain tubing is included. If a longer length is needed, it can be ordered from GE Parts at 800.626.2002.
- If a rigid valve drain is needed to comply with plumbing codes, you can buy the parts needed (Fig. 4A) to connect a 1/2" copper tubing or plastic pipe drain.
- Clean nugget or pellet water softener salt is needed to fill the brine tank, see *Step 9* in the *Step-by-Step Installation Instructions*.

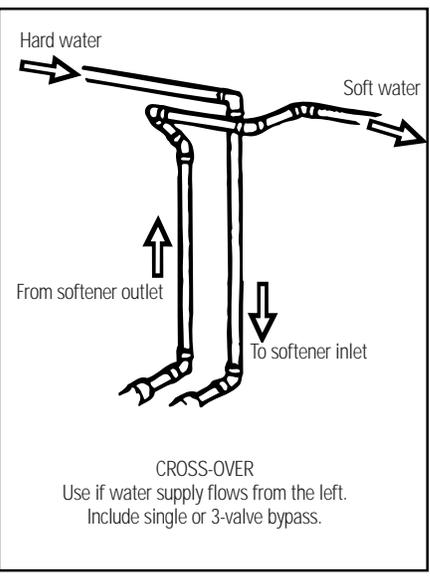
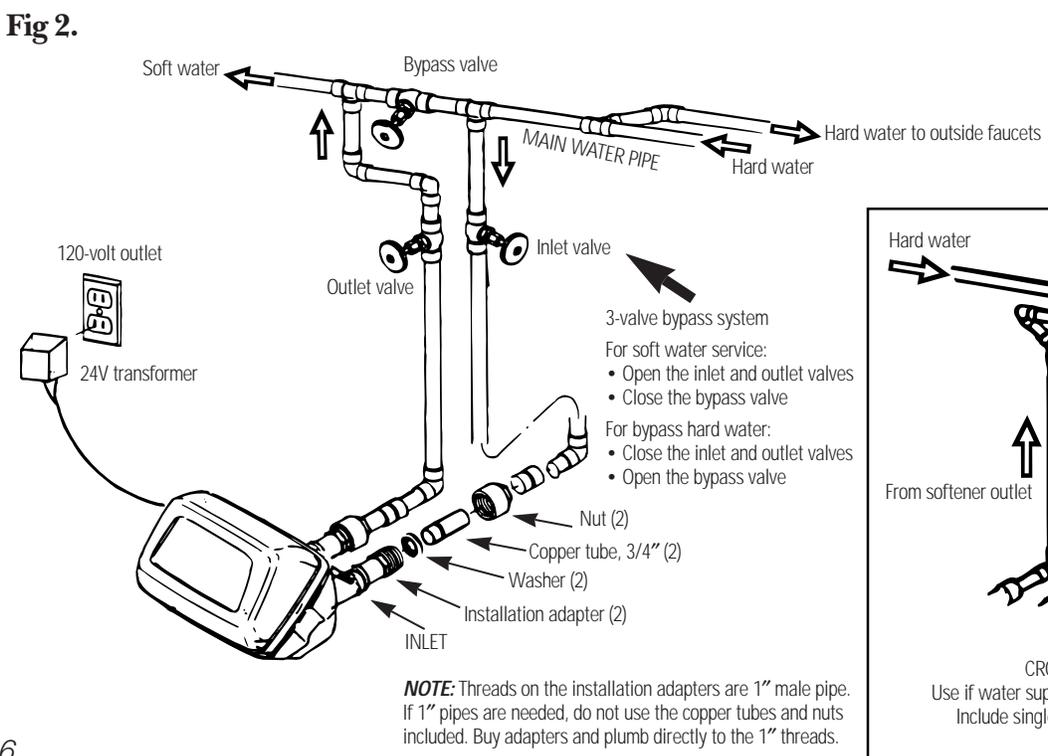
# Installation instructions.

## Typical Installation Illustration



## Optional 3-Valve Bypass Installation Illustration

Adapters for this installation are not supplied with the softener. To order these adapters, call GE Parts 800.626.2000.



# Step-by-step installation instructions.

Turn off the water supply to pipes to be cut and drain the house water pipes. Open both hot and cold faucets.

## 1 Install bypass valve:

- Push the bypass valve (lubricate o-ring seals with silicone grease) into both ports of the valve as shown in Fig. 3A.
- Snap the 2 large plastic clips in place, from the top, down as shown in Fig. 3A and Fig. 3B. Be sure they snap into place. Pull on the bypass valve to make sure it is held securely in place.

## 2 Move the softener assembly into installation position:

- Be sure the installation surface is level and smooth. Sharp objects under the tank may puncture it. If needed, place the tank on a section of 3/4" thick (minimum) plywood. Then, place shims under the plywood as needed to level the softener.

## 3 Plumb IN and OUT pipes to and from softener:

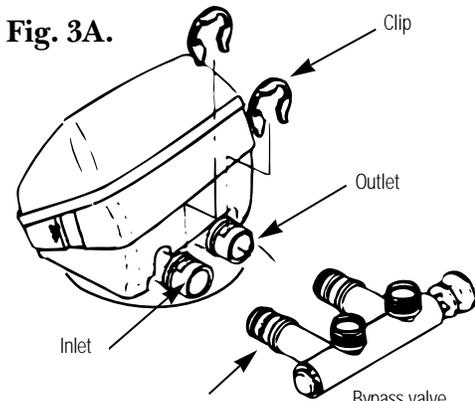
**CAUTION:** Observe all of the following cautions as you connect inlet and outlet plumbing.

- Turn off the water heater.
- Be sure incoming hard water supply is directed to the softener valve inlet port. If house water flow is from the left, use a plumbing cross-over as shown in Fig. 1.
- If making a soldered copper installation, **do all sweat soldering before connecting pipes to the bypass valve.** Torch heat will damage plastic parts.
- When turning threaded pipe fittings onto plastic fittings, **use care not to cross-thread.**
- Use pipe joint compound on all external pipe threads.
- Support inlet and outlet plumbing in some manner (use pipe hangers) to keep the weight off of the valve fittings.

## 4 Install the brine tank overflow fittings:

- Insert the rubber grommet into the 3/4" diameter hole in the brine tank sidewall as shown in Fig. 5.
- Push the end of the hose adapter elbow into the grommet as shown in Fig. 5.

Fig. 3A.



O-ring seal goes into the outer groove only. The clip snaps into the inner groove (see below).

Bypass valve

**NOTE:** Threads on the valve are 1" male pipe. If 1" pipe is needed, buy adapters and plumb to the 1" threads.

Fig. 3B.

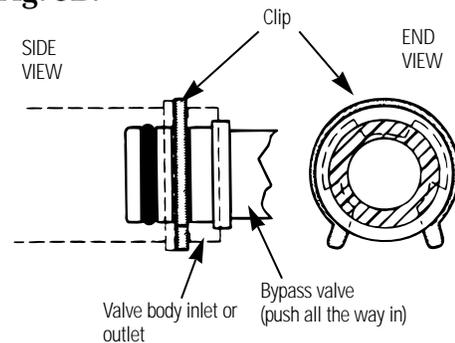


Fig. 3C.

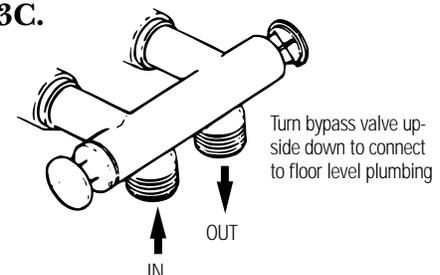
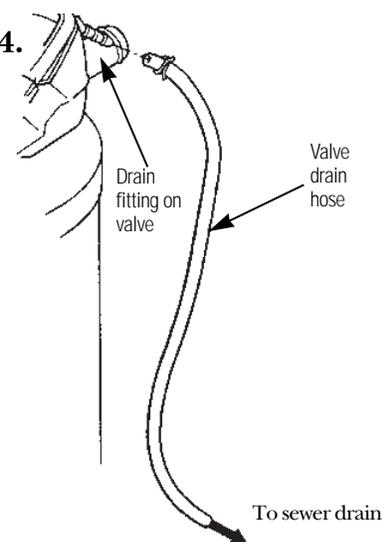


Fig. 4.



## Step-by-step installation instructions.

### 5 Connect and run the valve drain hose:

- Use the provided drain hose (20' length included) to attach to the valve drain fitting. To keep water pressure from blowing the hose off, use a hose clamp to secure in place.
- Locate the other end of the hose at a suitable drain point (floor drain, sump, laundry tub, etc.) that terminates at the sewer. **Check and comply with local codes.**

**IMPORTANT:** If more drain hose is needed, it should be ordered from GE Parts at 800.626.2002. **The water softener will not work if water cannot exit this hose during regenerations.**

- Tie or wire the hose in place at the drain point. High water pressure will cause it to whip during the back-wash and fast rinse cycles of regeneration. **Also provide an air gap of at least 1-1/2" between the end of the hose and the drain point.** An air gap prevents possible siphoning of sewer water into the softener, if the sewer should back-up.
- If raising the drain hose overhead is required to get to the drain point, **do not raise higher than 8" above the floor.** Elevating the hose may cause a back-pressure that could reduce brine draw during regenerations.

### 5A Connect a rigid valve drain tube:

- To adapt a copper drain tube to the softener, use a hacksaw to cut the barbed end from the drain fitting as shown in Fig. 4A. Rotate the drain fitting so the cutting blade clears the valve housing to prevent damage to valve. Buy a compression fitting (1/4" female pipe thread x 1/2" O.D. tube) and needed tubing from your local hardware store.

### 6 Connect and run the cabinet (brine tank) overflow hose

- Attach a length of hose (use remaining hose from Step 5) to the drain elbow installed in Step 4. Use a hose clamp to hold it in place.
- Locate the other end of the hose at the drain point. **DO NOT ELEVATE** this hose higher than the elbow on the brine tank. **DO NOT TEE** this hose to the valve drain hose.

**NOTE:** This drain is for safety only. If the cabinet (brine tank) should over-fill with water, the excess is carried to the drain.

### 7 Install grounding clamps and wire:

**⚠ DANGER:** Failure to properly attach ground wire could result in electrical shock.

- If plumbing is metal, to **maintain electrical ground continuity** in the house cold water piping, install the included ground clamps as shown in Fig. 6. Be sure the pipes are clean under the clamps to assure good contact.

### 8 Flush pipes, expel air from softener, and test your installation for water leaks:

**⚠ CAUTION:** To avoid water or air pressure damage to softener inner parts, be sure to do the following steps in exact order.

- Fully open 2 cold soft water faucets nearby the softener.
- Place bypass valve in bypass position by pushing the stem inward.
- Fully open the house main water pipe shutoff valve. Observe a steady flow from both faucets opened in Step A above.

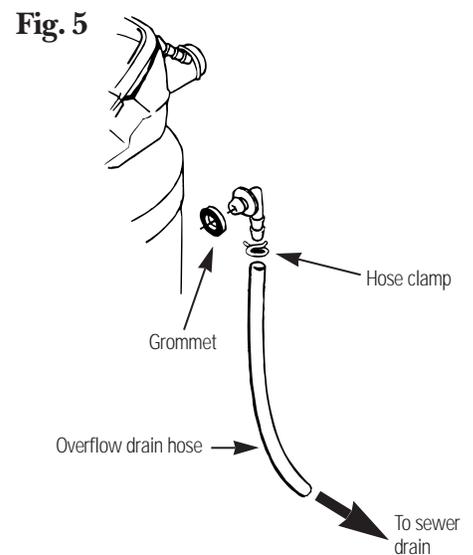
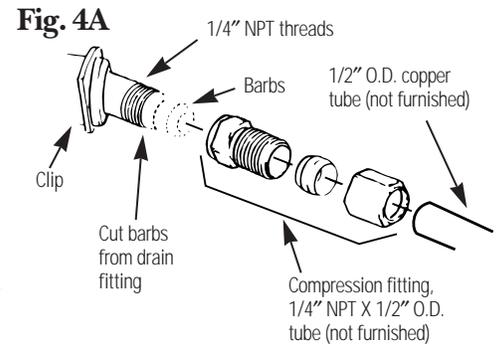
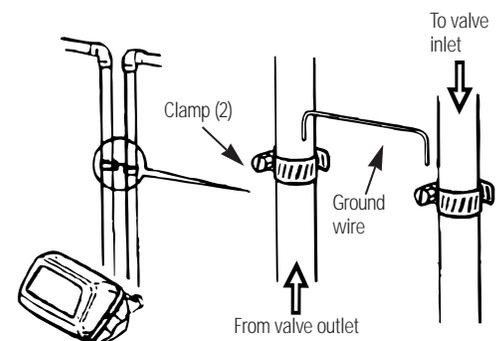


Fig. 6



**D.** Place bypass valve in the service position **EXACTLY** as follows. **KEEP SOFT WATER FAUCETS OPEN.**

**SLOWLY** pull or slide the valve stem toward service, pausing several times to allow the softener to pressurize slowly. This initial flow of water may be rusty colored. This is normal and will disappear quickly.

**E.** After about 3 minutes, open a **HOT** water faucet for 1 minute, or until all air is expelled, then close.

**F.** Close all water faucets.

**G.** Check your plumbing work for leaks and fix right away if any are found. Be sure to observe previous caution notes.

**H.** Turn on the gas or electric supply to the water heater. Light the pilot, if applicable.

**I.** Sanitize the softener.

Care is taken at the factory to keep your softener clean and sanitary. Materials used to make the softener will not infect or contaminate your water supply and will not cause bacteria to form or grow. However, during shipping, storage, installing and operating, bacteria could get into the softener. For is reason, sanitizing as follows is suggested when installing.

- Lift the salt hole cover and use a pail or hose to fill the salt storage tank with at least 3 gallons of water.
- Remove the brinewell cover, see Fig. 7 and pour about 3/4 ounce of common 5.25% household bleach (Clorox, Linco, BoPeep, White Sail, Eagle, etc.) in the softener brinewell.
- Press the **TOUCH/HOLD** button and hold for 3 seconds to start a recharge. This first recharge does several things: fills the salt tank to the water level needed, gets all the air out of the resin tank, makes the resin bed ready for service. See the *Recharging* section.

**NOTE:** This recharge takes about 2 hours.

#### Add water and salt to the brine tank:

- Remove the cabinet (brine tank) cover. Add about 3 gallons of water into the tank. Do not add into the brinewell.
- Fill tank with **NUGGET, PELLET** or coarse **SOLAR** water softener salt with a purity of 99.5% or higher. Do not use rock, block, granulated, or ice cream-making salts. Salt storage capacity is approximately 200 lbs. for model GXSS17. Keep the salt hole cover in place on the softener unless servicing the unit or refilling with salt.

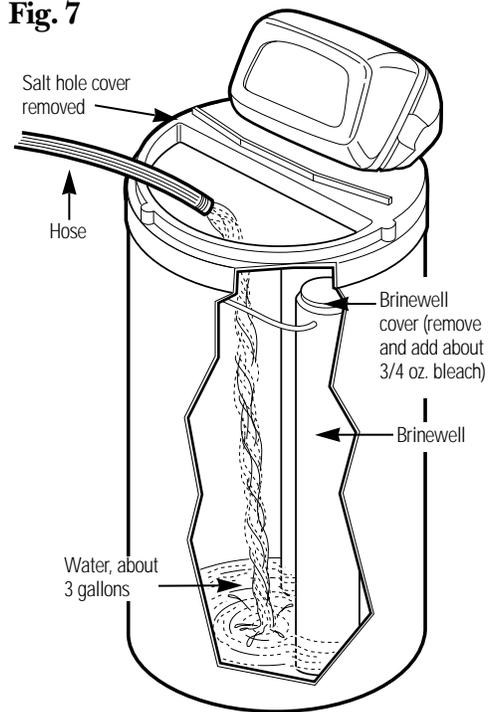
**NOTE:** If the softener is installed in a humid basement or other damp area, it is better to fill the tank with less salt, more frequently. Eighty to 100 lbs. of salt will last for several months, depending on water hardness and family size.

#### Connect to electrical power:

- If transformer wiring is not visible at the back of the control head, remove control cover. **DO NOT PULL ON OR DISCONNECT WIRING.** Locate the long wire with U shaped connectors on one end. Route this wire through the rear of the control housing. Replace the control cover.
- Fasten the 2 power cable lugs (U shaped connectors) to the 2 screws on the transformer, and tighten the screws. Then, plug the transformer into the electrical outlet.

#### Program the CONTROL.

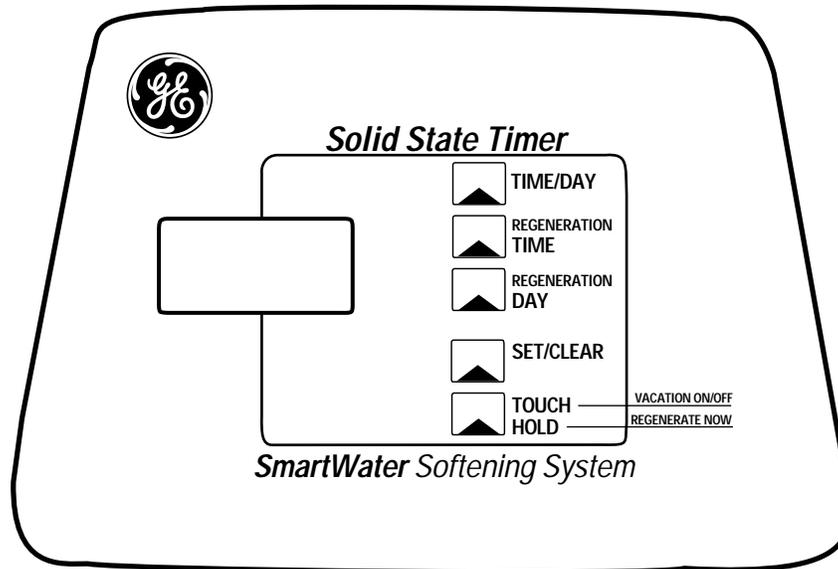
**Fig. 7**



## Step-by-step installation instructions.

### Program the Timer

Fig. 8



### Set the timer:

When the transformer is plugged into electrical outlet, 12:00AM, SUnDay will begin to flash in the time display. Set the time of day and present day of week as follows:

#### A. Set the time of day:

- 1 Press the **TIME/DAY** button once and the hour display will begin to flash.
- 2 Press the **SET/CLEAR** button until the present hour of the day shows in the display. Be sure **AM** for morning hours, or **PM** for afternoon and evening hours shows.

**NOTE:** Press **SET/CLEAR** button and quickly release to move the hour display ahead 1 at a time to the correct hour. Or, hold the **SET/CLEAR** button to move the display ahead 2 hours each second, to the correct hour.

- 3 Press the **TIME/DAY** button once to steady the hour display, and minutes begin to flash. Repeat *Step A. 2* to set the correct minutes.
- 4 Press the **TIME/DAY** button again to steady the minute display (day will begin flashing). Fig. 9 shows the timer set at 3:30 PM.

#### B. Set the present day of the week:

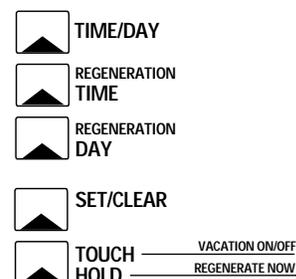
- 1 Press the **SET/CLEAR** button to set the present day of the week in the display.

**NOTE:** Press **SET/CLEAR** button and quickly release to move the day display 1 at a time. Or hold the **SET/CLEAR** button to move the day display ahead 2 days each second.

- 2 Press the **TIME/DAY** button again to steady the entire display. Fig. 9 shows the timer set at **TUesday**.

**No other settings are needed** after installing your water softener. The softener is factory set to regenerate every Monday, Wednesday and Saturday (beginning at 2:00 AM). For most families, this gives enough soft water for their needs. However, if you want the softener to regenerate at a different time, or on different days, or to set for the most efficiency, see *About the Water Softener System* section.

Fig. 9 **EXAMPLE:** This drawing shows the present time of day at 3:30 PM, and the present day on **TUesday**.

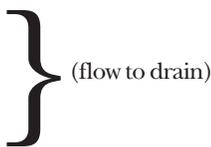


**Specifications/Dimensions**

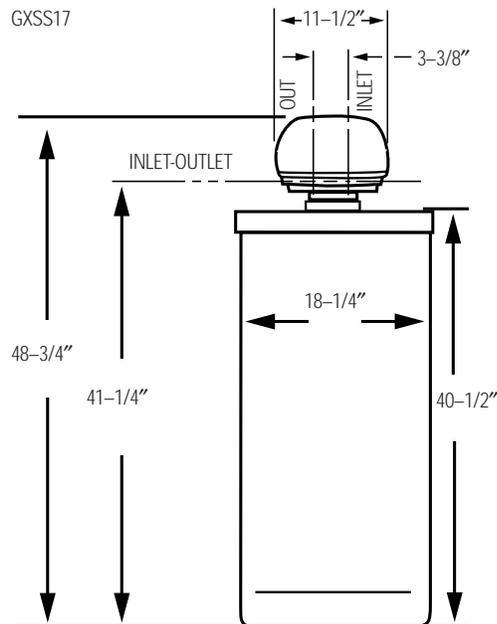
See rating decal, located on the Softener  
GXSS17Z

**Rated Capacity**

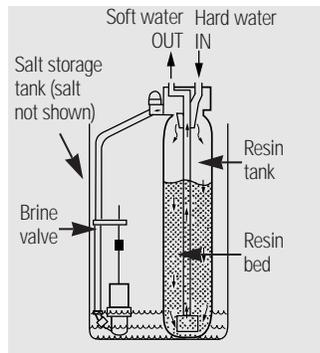
Amount of high capacity resin (lbs/cu. ft)	31.2/.6
Resin tank nominal size (in., dia. x height)	8 x 40
Service flow rate (gpm)	8
Water supply maximum hardness (gpg) ⑤	50
Water supply maximum clear water iron (ppm) ⑤	3
Water pressure limits (min.-max. psi)	20-125
Pressure drop at rated service flow (psig)	15
Water temperature maximum (°F)	120
Water supply minimum flow rate (gpm)	3
Regeneration cycle flow rates (gpm)	
Fill (flow to brine tank)	.3
Brining	.19
Brine Rinse	.12
Backwash	1.8
Fast Rinse	1.8



⑤ Determined by water analysis from a qualified water testing laboratory.



## About the water softener system.



### Service

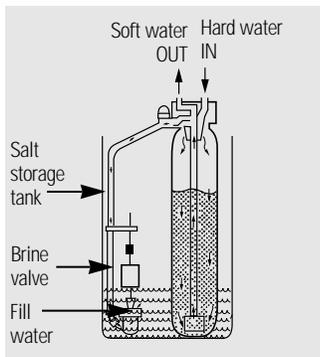
When the water softening system is providing soft water, it is called “Service.” During service, hard water flows from the house main water pipe into the water softening system. Inside the water softening system resin tank is a bed made up of thousands of tiny, plastic resin beads. As hard water passes through the bed, each bead attracts and holds the hard minerals. This is called ion-exchanging. It is much like a magnet attracting and holding metals. Water without hard minerals (soft water) flows from the water softening system and to the house pipes.

After a period of time, the resin beads become coated with hard minerals and they have to be cleaned. This cleaning is called regeneration, or recharge. Regeneration is started at 2:00 AM (factory setting) by the water softening system control, and consists of five stages or cycles. These are **FILL**, **BRINING**, **BRINE RINSE**, **BACKWASH** and **FAST RINSE**.

### Automatic Hard Water Bypass During Regeneration

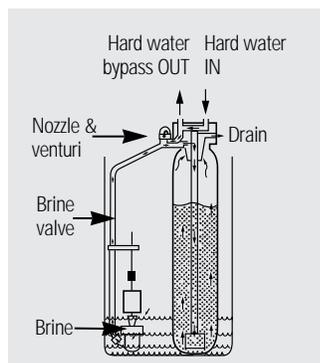
For emergency needs, hard water is available to the home during the regeneration cycles.

**However, you should avoid using HOT water because the water heater will fill with the hard water.**



### Fill

Salt dissolved in water is called brine. Brine is needed to clean the hard minerals from resin beads. To make the brine, water flows into the salt storage area during the fill stage as shown.



### Brining

During brining, brine travels from the salt storage area into the resin tank. Brine is the cleaning agent needed to remove hard minerals from the resin beads. The hard minerals and brine are discharged to the drain.

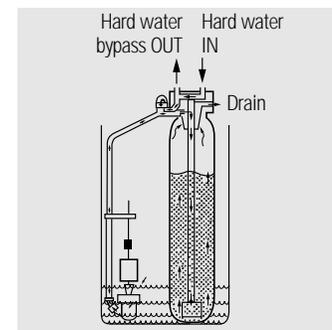
The nozzle and venturi create a suction to move the brine, maintaining a very slow rate to get the best resin cleaning with the least salt.

### Brine Rinse

After a pre-measured amount of brine is used, the brine valve closes. Water continues to flow in the same path as during brining, except for the discontinued brine flow. Hard minerals and brine flush from the resin tank to the drain.

### Backwash

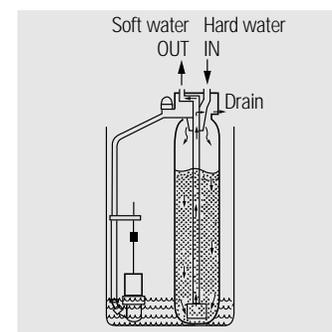
During backwash, water travels **up** through the resin tank at a fast flow rate, flushing accumulated iron, dirt, and sediments from the resin bed and to drain.



### Fast Rinse

Backwash is followed by a fast flow of water **down** through the resin tank. The fast flow flushes brine from the bottom of tank, and packs the resin bed.

After fast rinse, the water softening system returns to soft water service.



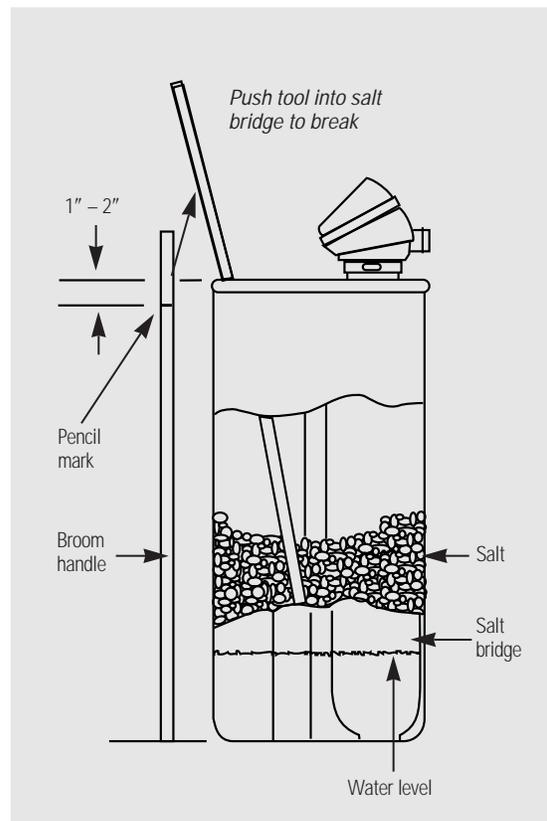
### **Breaking a Salt Bridge**

Sometimes, a hard crust or salt bridge forms in the salt storage area. It is usually caused by high humidity or the wrong kind of salt. When the salt bridges, an empty space forms between the water and salt. Then salt will not dissolve in the water to make brine.

If the brine tank is full of salt, it is hard to tell if you have a salt bridge. Salt is loose on top, but the bridge is under it. The following is the best way to check for a salt bridge.

Salt should be loose all the way to the bottom of the tank. Take a broom handle or like tool, and carefully push it down into the salt, working it up and down. If the tool strikes a hard object (be sure it's not the bottom or sides of the tank), it's most likely a salt bridge. Carefully break the bridge with the tool. **Do not** pound on the walls of the tank.

If the wrong kind of salt made the bridge, take it out. Then fill the tank with nugget or pellet salt only. In humid areas, it is best to fill with less salt, more often.



## About the water softener system.

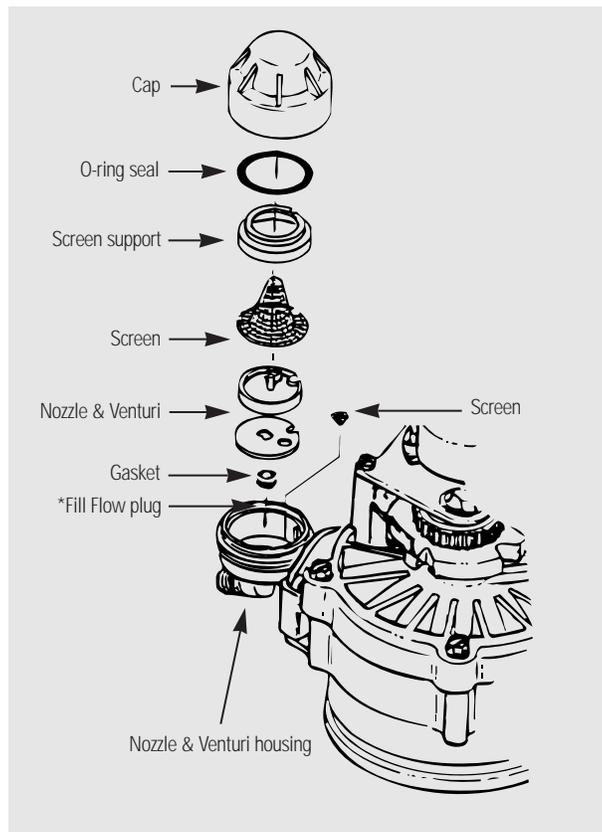
### Cleaning the Nozzle and Venturi Assembly

A clean nozzle and venturi is needed for the water softening system to work properly. This small unit makes the suction to move brine from the salt storage area to the resin tank during regeneration. If it becomes plugged with sand, dirt, etc., the water softening system will not work and you will get hard water.

To get to the nozzle and venturi, remove the water softening system top cover. Be sure the water softening system is in service cycle (no water pressure at nozzle and venturi). Then, while holding the nozzle and venturi housing with one hand, remove the cap. Lift out the screen support and screen, then the nozzle and venturi. Wash and rinse the parts in warm water until clean. If needed, use a small brush to remove iron or dirt. Also check and clean the gasket.

**NOTE:** Some models have a small flow plug located in the nozzle and venturi, and/or a small cone shaped screen in the housing. Be sure to check and clean these parts, if your model is so equipped.

Carefully replace all parts in the correct order. Lightly lubricate the o-ring seal with clean silicone grease or petroleum jelly and place in position. **Install and tighten the cap, by hand only. Do not over-tighten the cap or housing.**



**IMPORTANT:** Be sure small holes in the gasket are centered directly over the small holes in the nozzle and venturi housing.

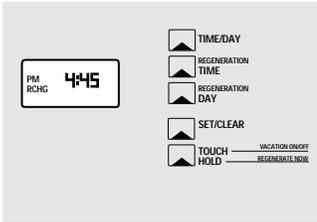
\*Install with numbered side up, concave side down.

## About the face plate timer features.

### Recharging

If you have guests visiting, or other times when you use more water than usual, you could begin to run out of soft water. If the softener is not scheduled to regenerate for another day or two, you would get hard water until then. If this happens, or you think it might happen, press and hold in the **TOUCH HOLD** button for three seconds until **RCHG** shows. **RCHG** will flash in the display during the regeneration, which lasts under two hours.

**NOTE:** Avoid using **HOT** water while the softener regenerates, because bypass hard water will refill the water heater, see the *Automatic Bypass* section.



### Going on Vacation?

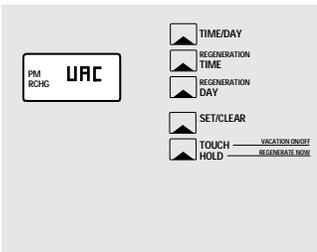
The day you leave on vacation, or for a long absence, press (do not hold) the **TOUCH HOLD** button **VAC** begins to flash in the display. The timer will keep time, but the softener will not regenerate.

**NOTE:** While on vacation, the softener will go through a regeneration if the **RECHARGE NOW** feature is used.

To shut off the water supply to the softener, use the plumbing bypass valve.

When you return, press the **VACATION** button again to return the softener to service and also returning the softener to the correct time of day in the display.

**⚠ WARNING:** Remember to do this or the softener will not regenerate and you will soon have hard water.



### Error Code

An error code could appear in the face plate display if a problem occurs in the softener electronics. If you see an error code instead of the present time of day, see the *Trouble Shooting Tips* section or call the GE Answer Center 800.626.2000 for service.



### What to do When a Power Outage Occurs.

If electrical power to the timer goes off, the memory built into the timer circuitry keeps all settings for six hours (minimum) or more. The display is blank and softener will not regenerate.

*When electrical power comes on... one of two things will happen.*

The present time of day will show, meaning the timer memory has kept all settings.

**NOTE:** If the softener was in a regeneration when the power was lost, it will now finish the cycle.

**OR**

The display will show a flashing time. The timer memory did not keep the time settings and they must be reset. See the *Program the Timer* section.

**NOTE:** When the power comes on, the flashing display returns to a time of 12:00 AM Sunday, then begins to keep time again. If you do not reset all time settings, the softener will regenerate three days each week. However, regeneration will most likely be on the wrong days and at the wrong time.

If the softener was in a regeneration when the power went off, the valve will return to service position without finishing the regeneration cycle.

*If your water tastes salty:*

—use **RECHARGE NOW** to start another regeneration. See the *Recharging* section.

—open one or more soft water faucets and allow to run until the salt taste is gone.

## About regenerating the system.

It is not hard to fine-tune your softener, but it does take a few minutes of your time to do it right.

Read the following carefully.

To have soft water all the time, the softener must regenerate, or recharge a certain number of times in each seven day period. How many times to regenerate (set the timer) depends on three things:

- 1 The number of people in your home tells you how much water is used.
- 2 The grains per gallon (GPG) hardness of your water supply.

**NOTE:** If your water supply contains iron, compensate for it by adding to the water hardness number. For example, assume your water is 15 gpg hard and contains 2 ppm iron. Add 5 to the hardness number for each 1 ppm of iron thus, making the example water hardness number 25.

$$2 \text{ ppm iron} \times 5 = 10 \quad \begin{array}{r} 15 \text{ gpg hardness} \\ +10 \\ \hline 25 \text{ HARDNESS NUMBER} \end{array}$$

(times)

- 3 How much salt used in each regeneration is determined by the length of the fill cycle. See the *Regeneration Chart* section.

### Setting the Timer for Days and Fill Minutes of Regeneration

**NOTE:** The timer is factory set for Monday, Wednesday and Saturday with regenerations starting at 2:00 AM. Fill time is factory set for 16 minutes.

- 1 Set days and time of regeneration or recharge.

**Step 1**—Press the **REGENERATION TIME** button once to display the factory set regeneration days and starting time (flashing). To change the regeneration start time, do **Step 2** following this. Otherwise go to **Step 3**.

**NOTE:** See *Automatic Bypass* section, when choosing a regeneration starting time other than 2:00 AM.

**Step 2**—Press the **SET/CLEAR** button until the desired regeneration starting time shows in the display.

**NOTE:** Press **SET/CLEAR** and quickly release to move the display ahead 1 hour at a time. Or, hold the **SET/CLEAR** button to move display ahead 2 hours each second.

**Step 3**—Press the **REGENERATION DAY** button and **Sunday** begins to flash.

—If you do want regenerations on Sunday, see the *Regeneration Chart*, press the **SET/CLEAR** button to display **ON**.

—If you do **NOT** want regenerations on Sunday, press **SET/CLEAR** button to display **OFF**.

**Step 4**—Press **REGENERATION DAY** button again to display a flashing **Monday** and **ON** (factory set recharge). Use the **SET/CLEAR** button to change display from **ON** to **OFF** or from **OFF** to **ON**.

**Step 5**—Press **RECHARGE DAY** button to display a flashing **Tuesday**, **Wednesday**, etc., each time using the **SET/CLEAR** button to display either **ON** or **OFF** as needed.

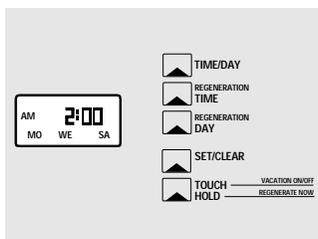
- 2 Set the Fill Cycle Minutes

**Step 1**—Press and hold the **REGENERATION TIME** button until **FILL** shows in the display, then release button. After a few seconds, the fill cycle minutes (factory setting...16) will flash.

**Step 2**—Press the **SET/CLEAR** button to set the minutes of fill cycle needed, as shown in the *Regeneration Chart* section.

**NOTE:** You may get hard water between regenerations if you set the timer for fewer fill minutes than the *Regeneration Chart* shows you to set. A higher setting than needed will waste salt.

**NOTE:** Press **SET/CLEAR** and quickly release to move the display ahead 1 minute at a time. Or, hold the **SET/CLEAR** button to move the display ahead 2 minutes each second. *The display begins over at 0 after passing 59.*



Write in your results here.

1. M T W T H F S S U  
—circle suggested days—

Suggested days to regenerate

2. —Fill Cycle minutes needed

**Step 3**—Press **TIME/DAY** button to return the present time and day display.

To set the present time of day and day of week see *Program the Timer* section.

*If you need help to program the timer, all the GE Answer Center 800.626.2000.*

### Regeneration Chart

This makes it easy for you to pick the best regeneration and fill time setting to use.

**Step 1**—Go down the side of the chart to the number of persons in your family, or the number of people in the house using water.

**Step 2**—Across the top of the chart, find the column listing the grains per gallon hardness of your water, or hardness number for iron water.

**Step 3**—Read across and down the chart to find the point where *Steps 1* and *2* meet. At this point, suggested days to regenerate, and fill cycle minutes needed are shown.

# in household	Water Hardness—Grains Per Gallon									
	Up to 5	6 to 10	11 to 15	16 to 20	21 to 25	26 to 30	31 to 35	36 to 40	41 to 45	46 to 50
1	M 2 min.	M 2 min.	M 2 min.	M 2 min.	M 3 min.	M 3 min.	M 4 min.	M 5 min.	M TH 2 min.	M TH 6 min.
2	M 2 min.	M 2 min.	M 3 min.	M 5 min.	M TH 6 min.	M TH 3 min.	M W S 2 min.	M W S 3 min.	M W S 3 min.	M T TH F S 2 min.
3	M 2 min.	M 3 min.	M TH 2 min.	M TH 3 min.	M W S 3 min.	M W S 3 min.	M W S 3 min.	M T TH S 3 min.	M T TH F S SU 2 min.	M T TH F S 3 min.
4	M 2 min.	M 5 min.	M TH 3 min.	M W S 3 min.	M T TH F S 2 min.	M T TH S 3 min.	M T TH F S SU 2 min.	Every Day 2 min.	M T TH F S SU 3 min.	Every Day 3 min.
5	M 3 min.	M TH 3 min.	M W S 3 min.	M T TH F S 2 min.	M T TH F S SU 2 min.	M T TH F S 3 min.	M T TH F S SU 3 min.	Every Day 3 min.	Every Day 4 min.	Every Day 4 min.
6	M 3 min.	M TH 3 min.	M W S 3 min.	M W S 2 min.	M T TH S 3 min.	M T TH F S SU 3 min.	Every Day 3 min.	Every Day 4 min.	Every Day 5 min.	Every Day 7 min.
7	M 4 min.	M W S 2 min.	M W S 3 min.	M T TH F S SU 2 min.	M T TH F S SU 3 min.	Every Day 3 min.	Every Day 4 min.	Every Day 5 min.	Every Day 8 min.	
8	M 5 min.	M W S 3 min.	M T TH S 3 min.	Every Day 2 min.	Every Day 3 min.	Every Day 4 min.	Every Day 5 min.	Every Day 8 min.		
9	M TH 2 min.	M W S 3 min.	M T TH F S SU 2 min.	M T TH F S SU 3 min.	Every Day 4 min.	Every Day 5 min.	Every Day 8 min.			
10	M TH 3 min.	M T TH F S 2 min.	M T TH F S 3 min.	Every Day 3 min.	Every Day 4 min.	Every Day 7 min.				

Days to Regenerate:

M=Monday, T=Tuesday, W=Wednesday, TH=Thursday, F=Friday, S=Saturday, SU=Sunday  
(factory set for Monday, Wednesday and Saturday)

Min.= length of fill cycle needed (factory set for 8 minutes)

### Pounds of Salt Used Each Regeneration

Salt usage	1.8 pounds	2.7 pounds	3.6 pounds	4.5 pounds	5.4 pounds	6.3 pounds	7.2 pounds	8.1 pounds	9.0 pounds
Time	2 minutes	3 minutes	4 minutes	5 minutes	6 minutes	7 minutes	8 minutes	9 minutes	10 minutes

Minutes of Fill is at 0.3 GPM

## Before you call for service...



*Troubleshooting Tips*  
Save time and money! Review the chart on this page first and you may not need to call for service.

<i>Problem</i>	<i>Possible Causes</i>	<i>What To Do</i>
<i>No soft water</i>	No salt in the storage tank.	• Refill with salt. See the <i>Step-by-Step Installation Instructions</i> . Use the <b>TOUCH HOLD</b> button to start a regeneration. See the <i>About the Face Plate Timer</i> section.
	Transformer unplugged at the wall outlet, or power cable disconnected.	• Check for loss of power and correct. Reset the times, then use the <b>TOUCH HOLD</b> button to start a regeneration. See the <i>About the Face Plate Timer</i> section.
	Fuse blown, circuit breaker tripped, or circuit switched off.	• Replace the fuse, reset the circuit breaker, or switch breaker on. Reset the times and then use the <b>TOUCH HOLD</b> button to start a regeneration. See the <i>About the Face Plate Timer</i> section.
	Timer in the vacation (VAC) position.	• See <b>VACATION</b> feature to return the softener to service. See the <i>About the Face Plate Timer</i> section.
	No regenerations set on the timer.	• Select and program a schedule. See the <i>About the Water Softener System</i> section. Use the <b>TOUCH HOLD</b> button to start a regeneration. See the <i>About the Face Plate Timer</i> section.
	Manual bypass valve(s) in bypass position.	• Move stem in single bypass valve to <b>SERVICE</b> .
	Salt in storage tank bridged.	• See the <i>Breaking a Salt Bridge</i> section.
	Dirty, plugged or damaged nozzle & venturi.	• Take apart and clean or replace damaged parts. See <i>Cleaning the Nozzle and Venturi Assembly</i> section.
	Valve drain hose plugged.	• Hose must not have kinks, sharp bends or any water flow breakage. See the <i>Step-by-Step Installation Instructions</i> .
	Low or high system water pressure (Low pressure may disrupt brine draw during recharge. High pressures may cause inner valve parts failure.)	• If pressure is low, increase to a minimum of 20 psi. Add a pressure reducing valve, in the supply pipe to the softener, if day time pressure is over 100 psi.
<i>Water hard sometimes</i>	Too few regenerations.	• See the <i>Regeneration Chart</i> , for the correct setting.
	More water being used.	• See the <i>Regeneration Chart</i> , for the correct setting.
	Hot water used when softener is regenerating.	• Avoid using hot water as the water heater refills with hard water. See the <i>Automatic Bypass</i> section.
	Possible increase in water hardness.	• Call GE Answer Center 800.626.2000 for a new water analysis.
	Leaking faucet or toilet valve.	• A small leak will waste hundreds of gallons of water in a few days. Fix all plumbing leaks and always fully close faucets.

## GE Service Protection Plus™

GE, a name recognized worldwide for quality and dependability, offers you Service Protection Plus™—comprehensive protection on all your appliances—**No Matter What Brand!**

**Benefits Include:**

- Backed by GE
- All brands covered
- Unlimited service calls
- All parts and labor costs included
- No out-of-pocket expenses
- No hidden deductibles
- One 800 number to call

***We'll Cover Any Appliance.  
Anywhere. Anytime.\****

You will be completely satisfied with our service protection or you may request your money back on the remaining value of your contract. No questions asked. It's that simple.

Protect your refrigerator, dishwasher, washer and dryer, range, TV, VCR and much more—**any brand!** Plus there's no extra charge for emergency service and low monthly financing is available. Even icemaker coverage and food spoilage protection is offered. You can rest easy knowing that all your valuable household products are protected against expensive repairs.

Place your confidence in GE and call us in the U.S. toll-free at **800-626-2224** for more information.

\*All brands covered, up to 20 years old, in the continental U.S.

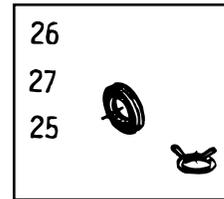
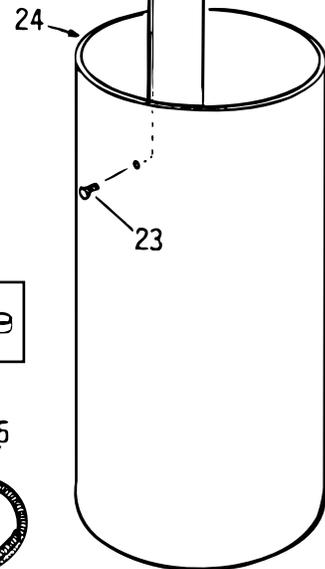
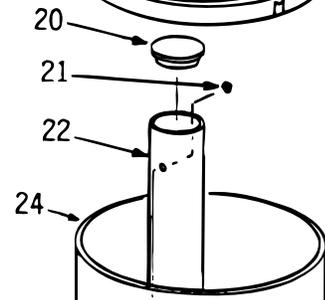
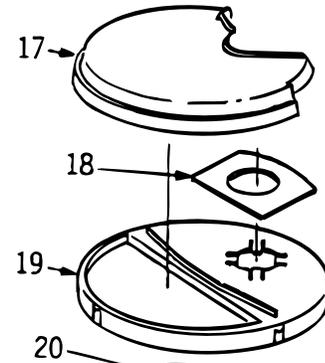
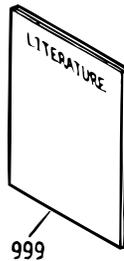
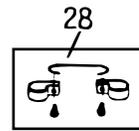
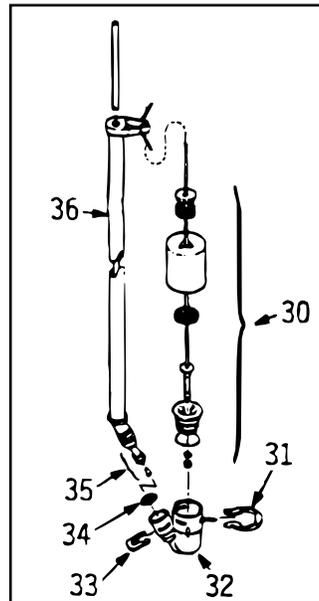
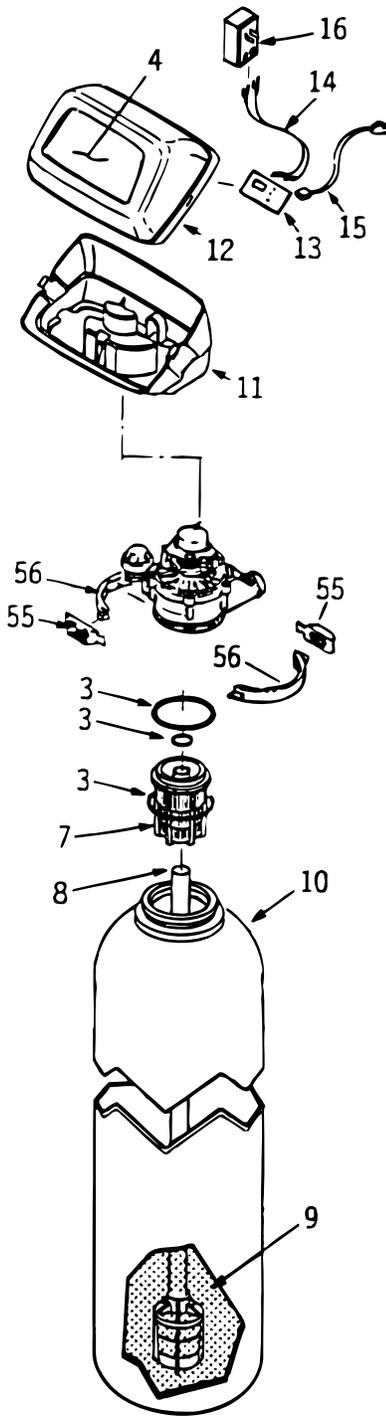
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Please place in envelope and mail to:

***General Electric Company***  
**Warranty Registration Department**  
**P.O. Box 34070**  
**Louisville, KY 40232-4070**



# Parts list.



Safety Instructions

Installation Instructions

Operating Instructions

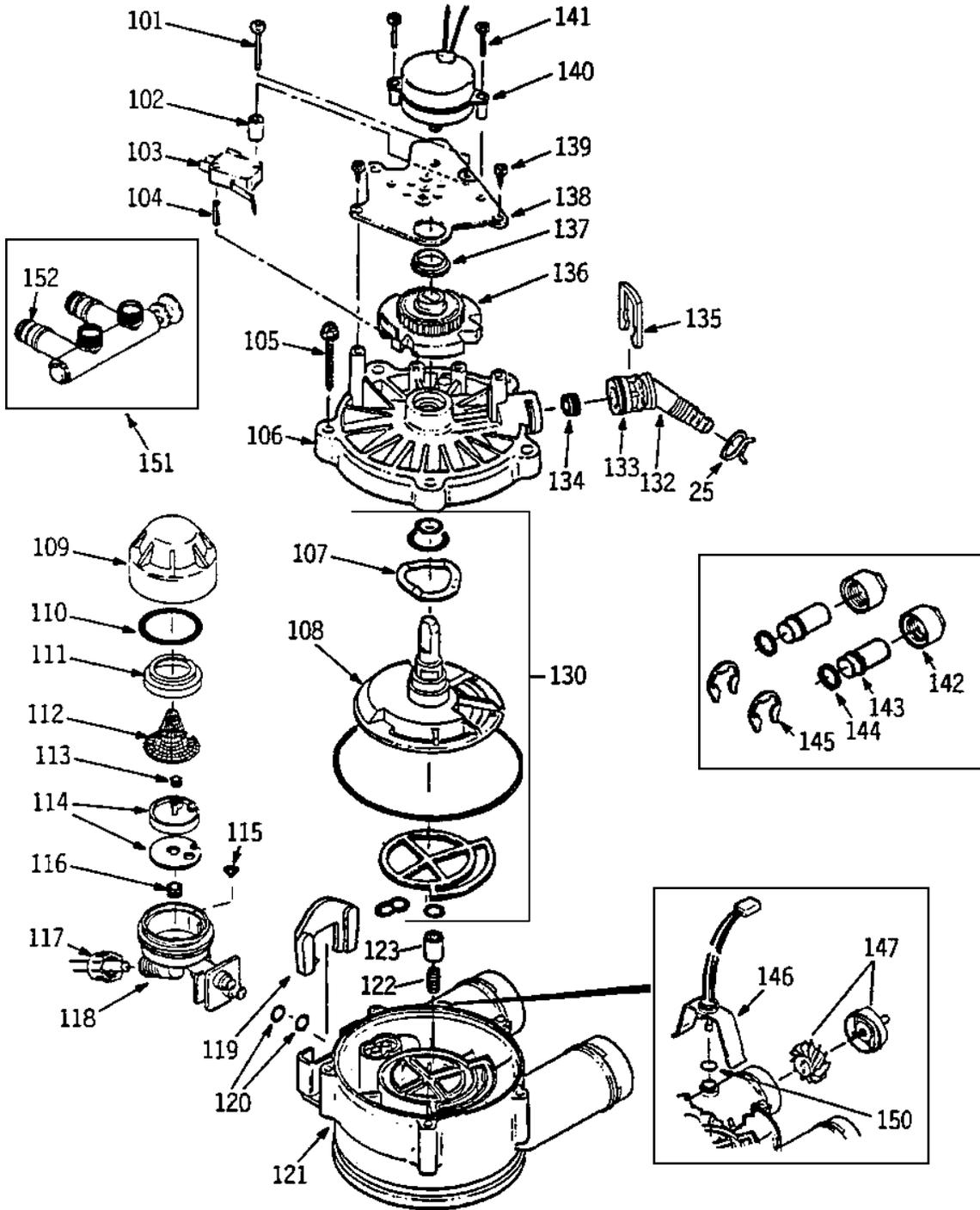
Troubleshooting Tips

Customer Service

**Parts catalog.**

REF. NO.	PART NO.	PART DESCRIPTION	
0003	WS35X10001	O-RING SEAL KIT	1
0004		DECAL	1
0005	WS07X10004	HOSE DRAIN, 20 FT.	1
0007	WS14X10002	DISTRIBUTOR TOP	1
0008	WS14X10001	DISTRIBUTOR BOTTOM	1
0009	WS01X10002	RESIN - 1 CU. FT.	1
0010	WS32X10001	TANK RESIN	1
0011	WS31X10001	COVER BOTTOM	1
0012	WS31X10002	COVER CONTROL	
0013		CONTROL	1
0014	WS19X10003	HARNES WIRE	1
0015	WS06X10003	POWER CORD	1
0016	WS26X10001	TRANSFORMER	1
0017	WS31X10010	COVER SALT HOLE	1
0018	WS33X10001	SEAL VAPOR BARRIER	1
0019	WS33X10002	RIM	1
	WS31X10003	COVER BRINEWELL	1
0021	WS02X10009	WING NUT, 1/4" - 20	1
0022	WS32X10002	TANK BRINEWELL, ROUND	1
0023	WS02X10011	SCREW, 1/4" - 20 NYLON	1
0024	WS32X10003	TANK BRINE, ROUND	1
0025	WS18X10003	CLAMP HOSE	1
0026	WS22X10016	ADAPTER HOSE	1
0027	WS22X10017	GROMMET	1
0028	WS35X10002	GROUND CLAMP KIT	1
0029	WS15X10005	BRINE VALVE ASM.	1
0030	WS35X10003	FLOAT, STEM & GUIDE ASM.	1
0031	WS03X10006	CLIP	1
0032	WS15X10006	VALVE BODY, BRINE	1
0033	WS03X10007	CLIP	1
0034	WS03X10008	SCREEN	1
0035	WS07X10002	TUBING ASM.	1
0036	WS07X10003	TUBE BRINE	1
0055	WS28X10003	RETAINER CLAMP	2
0056	WS28X10004	CLAMP	2
0999	49-50007	PM MANUAL INSTALLATION/ USE & CARE	

# Parts list.



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**Parts catalog.**

REF. NO.	PART NO.	PART DESCRIPTION	
0025	WS18X10003	CLAMP HOSE	1
0101	WS02X10012	SCREW, #4 - 24 X 1-1/8"	1
0102	WS02X10013	SPACER	1
0103	WS21X10003	SWITCH	1
0104	WS03X10009	PIN EXPANSION	1
0105	WS02X10014	SCREW, #10 - 14 X 2"	5
0106	WS31X10006	COVER VALVE	1
0107	WS03X10010	WASHER WAVE	1
0108	WS26X10002	ROTOR & DISC	1
0109	WS19X10004	CAP	1
0110	WS03X10011	SEAL O-RING 1.1" X 1.4"	1
0111	WS19X10005	SUPPORT SCREEN	1
0112	WS03X10013	SCREEN	1
0113	WS22X10020	FLOW PLUG, .1 GPM	1
0114	WS08X10005	GASKET, NOZZLE/VENT	1
0115	WS03X10015	CONE SCREEN	1
0116	WS22X10021	PLUG, FILL FLOW, .3 GPM	1
0117	WS03X10017	NUT FERRULE	1
0118	WS15X10009	NOZZLE/VENTURI ASM.	1
0119	WS03X10018	RETAINER	1
0120	WS03X10019	SEAL O-RING 1/4" X 3/8"	2
0121	WS15X10010	BODY VALVE	1
0122	WS03X10020	SPRING	1
0123	WS22X10022	PLUG, DRAIN SALT	1
0130	WS35X10005	SEAL KIT	1
0132	WS22X10023	ADAPTER DRAIN HOSE	1
0133	WS03X10021	O-RING 5/8" X 13/16"	1
0134	WS03X10022	PLUG FLOW, RINSE CONTROL	1
0135	WS03X10023	CLIP	1
0136	WS26X10003	CAM & GEAR	1
0137	WS26X10004	BEARING	1
0138	WS26X10005	PLATE MOTOR	1
0139	WS02X10015	SCREW, #6 - 20 X 3/8"	2
0140	WS26X10006	MOTOR ASM.	1
0141	WS02X10016	SCREW, #6 - 20 X 7/8"	2
0142	WS60X10001	NUT INSTALLATION	2
0143	WS60X10002	TUBE INSTALLATION	2
0144	WS60X10003	WASHER	2
0145	WS60X10004	CLIP	2
0146	WS28X10005	HOUSING SENSOR	1
0147	WS19X10006	TURBINE & SUPPORT ASM.	1
0150	WS03X10024	SEAL, O-RING	1
0151	WS15X10012	VALVE BYPASS ASM.	1
0152	WS03X10025	SEAL, O-RING	2

<i>Safety Instructions</i>	<i>Installation Instructions</i>	<i>Operating Instructions</i>	<i>Troubleshooting Tips</i>	<i>Customer Service</i>
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<b><i>Customer Service</i></b>	<b><i>Troubleshooting Tips</i></b>	<b><i>Operating Instructions</i></b>	<b><i>Installation Instructions</i></b>	<b><i>Safety Instructions</i></b>
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***Notes***

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# GE Water Softening System Warranty



All warranty service provided by our Factory Service Centers, or an authorized Customer Care® technician. For service, call 800-GE-CARES.

For The Period Of:	GE Will Replace, At No Charge To You:
<b>One Year</b> From the date of the original purchase	<b>Any part</b> of the Water Softening System which fails due to a defect in materials or workmanship. During this <b>full one-year warranty</b> , GE will also provide, <b>free of charge</b> , all labor and in-home service to replace the defective part.
<b>Three Years</b> From the date of the original purchase	<b>The electronic monitor</b> , if it fails due to a defect in materials or workmanship. During this <b>three-year limited warranty</b> , you will be responsible for any labor or in-home service costs.
<b>Ten Years</b> From the date of the original purchase	<b>A replacement cabinet (brine tank) or resin tank</b> , if either fails due to a defect in materials or workmanship. During this <b>ten-year limited warranty</b> , you will be responsible for any labor or in-home service costs.

## What GE Will Not Cover:

- Service trips to your home to teach you how to use the product.
- Improper installation.
- Failure of the product if it is abused, misused, or used for other than the intended purpose or used commercially.
- Filters, membranes or batteries.
- Replacement of house fuses or resetting of circuit breakers.
- Damage to the product caused by accident, fire, floods or acts of God.
- Incidental or consequential damage to personal property caused by possible defects with this appliance.

This warranty is extended to the original purchaser and any succeeding owner for products purchased for home use within the USA. In Alaska, the warranty excludes the cost of shipping or service calls to your home.

Some states do not allow the exclusion or limitation of incidental or consequential damages. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. To know what your legal rights are, consult your local or state consumer affairs office or your state's Attorney General.

Warrantor: General Electric Company, Louisville, KY 40225

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## Service Telephone Numbers.



### GE Answer Center® 800.626.2000

The GE Answer Center® is open 24 hours a day, 7 days a week.



### In-Home Repair Service 800-GE-CARES (800-432-2737)

Expert GE repair service is only a phone call away.



### Special Needs Service 800.626.2000

#### 800-TDD-GEAC (800-833-4322)

GE offers, free of charge, a brochure to assist in planning a barrier-free kitchen for persons with limited mobility.



### Service Contracts 800-626-2224

Purchase a GE service contract while your warranty is still in effect and you'll receive a substantial discount. GE Consumer Service will still be there after your warranty expires.



### Parts and Accessories 800-626-2002

Individuals qualified to service their own appliances can have parts or accessories sent directly to their homes (VISA, MasterCard and Discover cards are accepted).

**Instructions contained in this manual cover procedures to be performed by any user. Other servicing generally should be referred to qualified service personnel. Caution must be exercised, since improper servicing may cause unsafe operation.**



### Service Satisfaction

If you are not satisfied with the service you receive from GE:

**First**, contact the people who serviced your appliance.

**Next**, if you are still not pleased, write all the details—including your phone number—to:

Manager, Consumer Relations  
 GE Appliances  
 Appliance Park  
 Louisville, KY 40225

**Finally**, if your problem is still not resolved, write:

Major Appliance Consumer Action Program  
 20 North Wacker Drive  
 Chicago, IL 60606