

**SEARS**

**OWNERS  
MANUAL**

**MODEL NOS.**

625.3485003  
EXTRA CAPACITY 50

625.347703  
625.3487003  
HIGH CAPACITY 70

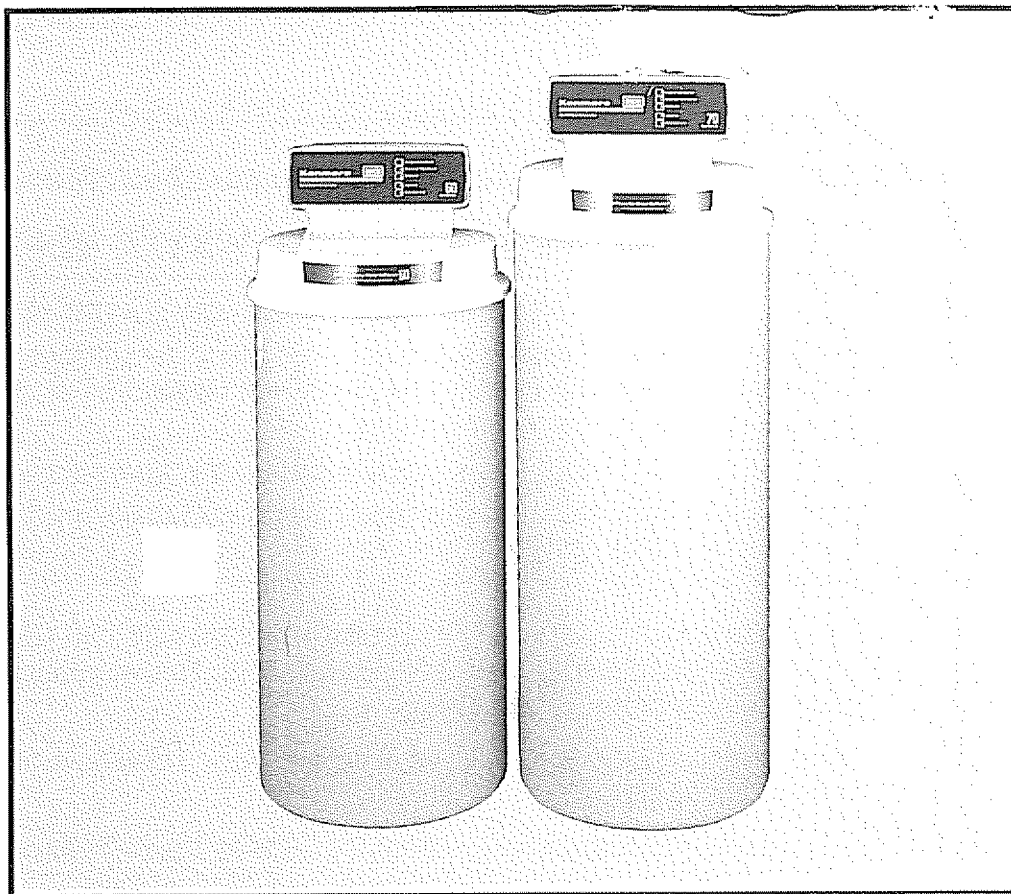
**CAUTION**

Read All Safety  
Guides Before  
You Start to  
Install Your  
Softener

**AVOID UNNEEDED  
SERVICE CALLS...**

Read the HELPFUL HINTS  
CHECKLIST on page 24.  
The programming guides on  
the underside of the Salt  
Storage Tank Cover are also  
helpful.

**SAVE THIS MANUAL**



**Kenmore**  
**WATER SOFTENER**

- HOW TO INSTALL —
- HOW IT WORKS —
- CARE OF —
- SPECIFICATIONS —
- REPAIR PARTS —

---

Sears, Roebuck and Co., Chicago, Ill. 60684 U.S.A.

---

# WARRANTY

## SEARS RESIDENTIAL WATER SOFTENER

### FULL ONE YEAR WARRANTY ON WATER SOFTENER

For one year from the date of purchase, when this water softener is installed and maintained in accordance with our instructions, Sears will repair, free of charge, defects in material or workmanship in this water softener.

### FULL TEN YEAR WARRANTY AGAINST LEAKS

For ten years from the date of purchase, Sears will furnish and install a new current model water softener tank or salt storage drum, free of charge, if either the tank or drum develop a leak.

TO OBTAIN WARRANTY SERVICE, SIMPLY CONTACT THE NEAREST SEARS SERVICE CENTER THROUGHOUT THE UNITED STATES. This warranty applies only while this product is in use in the United States.

This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

Sears, Roebuck and Co., Dept. 731-CR-W, Sears Tower, Chicago, IL 60684

If you want your water softener professionally installed, talk to your Sears Salesman. He will arrange for a prompt, quality installation by Sears Authorized Installers.

### SEARS INSTALLATION POLICY

All installation labor arranged by Sears shall be performed in a neat, workmanlike manner in accordance with generally accepted trade practices. Further, all installations shall comply with all local laws, codes, regulations and ordinances. Customer shall also be protected, during installation, by insurance relating to Property Damage, Workman's Compensation and Public Liability.

### SEARS INSTALLATION WARRANTY

In addition to any warranty extended to you on the Sears merchandise involved, which warranty becomes effective the date the merchandise is installed, should the workmanship of any Sears arranged installation prove faulty within one year, Sears will, upon notice from you, cause such faults to be corrected at no additional cost to you.

# TABLE OF CONTENTS

		<b>PAGE NO.</b>
<b><u>SECTION 1</u></b>	Unpacking The Softener .....	4
	<b>Safety Guides</b> .....	4
<b><u>SECTION 2</u></b>	Before You Start To Install Your Softener .....	5-9
	Water System Tests .....	5
	Where To Install The Softener .....	6
	Plan <u>How</u> You Will Install The Softener .....	6-9
	Tools, Pipe, Fittings and Other Materials Needed .....	7-9
<b><u>SECTION 3</u></b>	Step By Step Guides To Install Your Softener .....	10-15
	Install Inlet-Outlet Adaptors, or Sears Plastic Bypass Valve .....	10
	Install Sears Brass Bypass Valve, or 3-Valve Shutoff .....	11
	Connect In and Out Pipes To Softener .....	12
	Fasten Drain Hoses To Softener .....	12-13
	Check Your Plumbing Work For Leaks .....	14
	Connect Softener To Electrical Power .....	15
	<b>Check List of Step By Step Installing Guides</b> .....	15
<b><u>SECTION 4</u></b>	<b>Softener Start-Up</b> .....	16-17
	Setting The Timer .....	16
	Filling The Storage Tank With Salt .....	17
<b><u>SECTION 5</u></b>	How Your Water Softener Works .....	18-21
	RECHARGE NOW and VACATION Face Plate Controls .....	18
	Service and Regeneration, or Recharge .....	19-20
	Automatic Bypass .....	21
<b><u>SECTION 6</u></b>	Care of Your Softener .....	21-24
	Checking The Salt Storage Level .....	21
	Breaking a Salt Bridge .....	21
	Cleaning The Outer Covers .....	22
	Cleaning The Nozzle and Venturi .....	22
	Cleaning Iron From The Resin Bed .....	23
	Protect Softener From Freezing .....	23
	<b>Check List Before You Call For Service</b> .....	24
<b><u>SECTION 7</u></b>	Other Things To Know .....	25-30
	How To "Fine-Tune" Your Softener .....	25-27
	Dimensions and Specifications .....	28
	Sweat Soldering Tips .....	29
	Wiring Connection Diagram .....	30
<b><u>SECTION 8</u></b>	Repair Parts .....	32-35
	How To Order Repair Parts .....	Back Cover

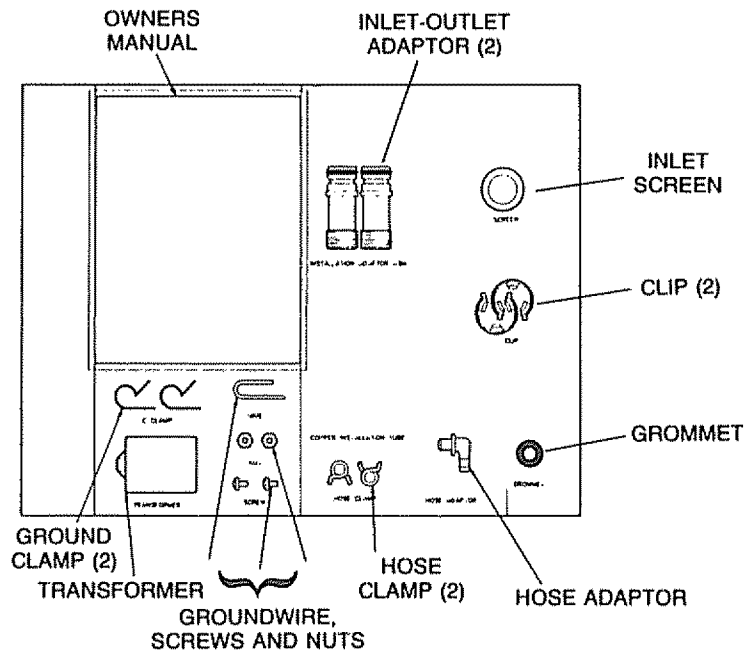
## SECTION 1

## UNPACKING, SAFETY GUIDES

**UNPACKING** – This owners manual was on a cardboard packing piece. On the same cardboard piece are all the small parts you will need to install the softener (not including plumbing pipe and fittings). So you don't lose any parts, keep them on the cardboard until you are ready to use them. Remove all other cardboard pieces, foam packings, tape, etc., from the softener and discard.

Check the softener for shipping damage. If you find damage, call your Sears store for help.

Use care when handling the softener. DO NOT turn upside-down. DO NOT drop, or set on sharp objects that will make a hole in the bottom.



## SAFETY GUIDES

▲ Read all steps, guides and rules carefully before installing and using your new water softener. Follow all steps exactly to correctly install. Failure to follow them could cause personal injury or property damage. Reading this book will also help you to get all of the benefits from your water softener.

▲ Your water softener will remove hardness minerals and "clear water" iron from water, up to the limits shown on page 28. It will not remove other types of iron, acids, tastes and odors, etc. It will not purify polluted water or make it safe to drink.

▲ Check with your local public works department for plumbing, electric and sanitation codes. You must follow their guides as you install your softener.

▲ Use only LEAD-FREE SOLDER AND FLUX, as required by Federal and State codes, when installing soldered copper plumbing.

▲ Protect the softener and piping from freezing. Damage from freezing voids the softener warranty. See page 23.

PLEASE READ AND COMPLY WITH THE FOLLOWING GUIDES TO PREVENT DAMAGE TO THE SOFTENER OR OTHER PROPERTY, PERSONAL INJURY, OR POSSIBLE FATAL SHOCK.

▲ THIS SOFTENER WORKS ON 24 VOLTS ONLY. BE SURE TO USE THE TRANSFORMER INCLUDED, AND PLUG IT INTO A 120V OUTLET.

▲ Be sure the electric outlet for the softener is grounded the right way.

▲ Unplug the transformer right away if the power cable should become damaged or frayed. Make repairs before plugging back into the power outlet.

▲ Always unplug the softener from electrical power before removing outer valve covers.

When you see this sign in the book, ▲ something could be damaged, or someone hurt, if the guide is not followed exactly.

## SECTION 2

## BEFORE YOU START TO INSTALL

### HELPFUL INFORMATION

If you know little about plumbing skills, we suggest you get a book on the subject. There are many good books for do-it-yourselfers on the

basics of plumbing. You can get a low cost book from Sears Plumbing and Heating departments that will help you. Some basic sweat soldering tips are on page 29 of this manual.

### WATER SYSTEM TESTS

**HAS YOUR WATER SUPPLY HAD A CHEMICAL ANALYSIS?** Sears has many kinds of water treating units (see page 6) to correct different water problems. To know the kind and size of unit you need, you must first know what elements are in your house water supply. A chemical analysis shows the type and amounts of elements in water. If your water needs analysis, call or write your nearest Sears store for help.

**CHECK YOUR WATER PRESSURE** — For your softener to work right, a water pressure of no lower than 20 pounds per square inch (psi) is needed in the house water pipes. The highest pressure allowed in the water pipes is 120 psi. If pressure is over 120 psi, buy and install a pressure reducing valve in the water inlet pipe to the softener. **NOTE:** If water pressure during the day is 100 psi or more, pressure during the night may go over 120 psi.

If you have a well water system, look at the pressure gauge to find the water pressure. Call your local water department if you have city water.

They will tell you what the water pressure is where you live

**CHECK YOUR WATER FLOW RATE** — A water flow of at least 3 gallons per minute is needed. A lower flow will keep your softener from working as well as it should. To make an easy check of your flow rate, do the following. You will need a 1 gallon container (can, jar, pail, etc.).

1. Fully open 2 cold water faucets close to the point water enters the house.
2. With both faucets open, fill the gallon container at 1 faucet while looking at a watch or clock to see how many seconds it takes.
3. Empty the container and go to the second faucet (be sure BOTH faucets are still on). Fill the gallon container at the second faucet and see how many seconds it takes.
4. Turn off both faucets. Now add the number of seconds it took to fill the container at both faucets.
5. A total of 80 seconds, or less, means the system flow rate is good.

### FACTS AND FIGURES TO KEEP

Fill in the blanks below and keep this book in a safe place so you always have these facts.

Water Softener Model No. † \_\_\_\_\_

Iron Content \_\_\_\_\_ Parts Per Million

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

\*pH \_\_\_\_\_ Taste And/Or Odor \_\_\_\_\_

Date Installed \_\_\_\_\_

Water Pressure \_\_\_\_\_ Pounds/Square Inch

Water Hardness \_\_\_\_\_ Grains Per Gallon

Water Flow Rate \_\_\_\_\_ Gallons Per Minute

**SODIUM INFORMATION:** Water softeners using sodium chloride for regeneration add sodium to the water. Persons who are on sodium restricted diets should consider the added sodium as part of their overall sodium intake.

For example, if your water supply is 15 grains hard, you would have to drink 3 quarts of softened water

to consume 335 milligrams of sodium. That is equivalent to eating 2½ slices of white bread.

Persons who are concerned about their drinking water should consider a Sears Drinking Water System that will remove or reduce in excess of 90% of the sodium and other drinking water contaminants.

## SECTION 2

## BEFORE YOU START TO INSTALL

### WHERE TO INSTALL THE SOFTENER

Think of the following points as you choose a place to put your softener. (See FIG. 1).

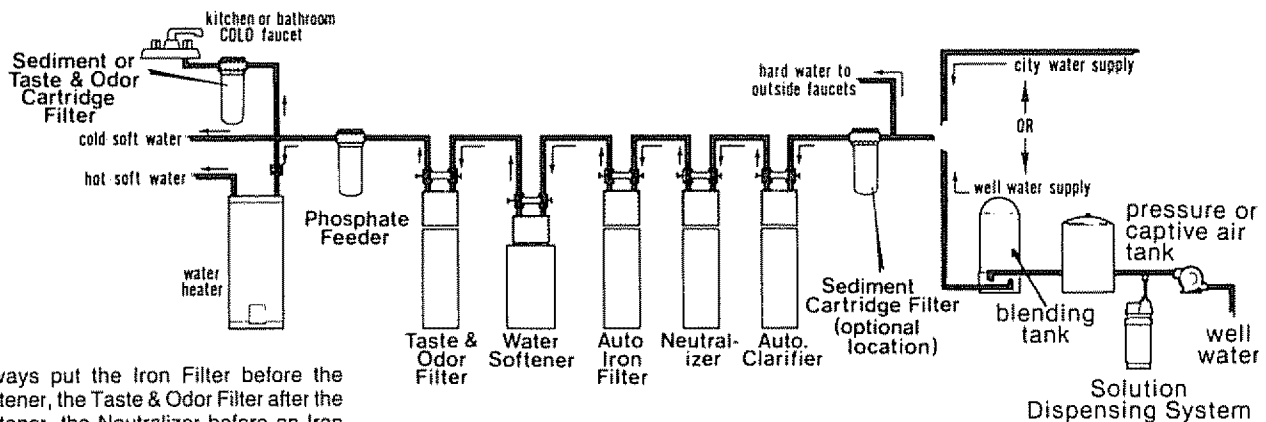
- Place as close as possible to the pressure tank (well water) or water meter (city water).
- Place as close as possible to a water drain such as a floor drain, laundry tub, sump or standpipe.
- ▲ • Connect to the house main water pipe **BEFORE THE WATER HEATER**. Temperature of water going through the softener must not be more than 120 F (49 C).
- Keep outside faucets on hard water to save soft water and salt.
- ▲ • **DO NOT** install in a place where the softener could freeze. Freeze damage voids the warranty

by Sears, Roebuck and Co. (See page 23).

- ▲ • Put the softener in a place water damage is least likely to occur if it develops a leak. Sears or the manufacturer will not repair or pay for water damage.
- ▲ • A 120V electric outlet, to plug the transformer into, is needed within 10 feet of the softener (the softener has a 10 foot power cable). Be sure the outlet and transformer are in an inside place, to protect from wet weather.
- ▲ • When installing in an outside location, you must take the steps necessary to assure the softener, installation plumbing, and wiring, are as well protected from the elements, contamination, vandalism, etc., as when installed indoors.
- ▲ • Keep the softener out of direct sunlight. The sun's heat can melt plastic parts.

### FIG. 1 THE PROPER ORDER TO INSTALL WATER TREATING EQUIPMENT

(Shows sequence\* of equipment only – seldom, if ever, would all items be needed)



\*Always put the Iron Filter before the softener, the Taste & Odor Filter after the softener, the Neutralizer before an Iron Filter, etc., as shown

### PLAN HOW TO INSTALL YOUR SOFTENER

You must first decide how to run in and out pipes to the softener. Look at your house main water pipe at the point you will connect the softener. Is the pipe soldered copper, glued plastic, or threaded galvanized or brass? What is the pipe size? What kind of pipe and fittings is it easiest for you to work with, and what

tools do you have?

Now look at the common plans for in and out piping on pages 8 and 9. Select the drawing best for you and use it as a guide to plan what materials you will need. As you plan your in and out piping, keep in mind the following check list. Then get all the materials you will need before you start.

## SECTION 2

## BEFORE YOU START TO INSTALL

### TOOLS, PIPE, FITTINGS AND OTHER MATERIALS YOU WILL NEED

- ✓ In and out pipes to the softener must be at least 3/4 in. size. Some local codes may tell you to use no less than 1 in. pipe size (See Note on page 8 or 9).
- ✓ Use copper, brass, or galvanized pipe and fittings. Some codes may also allow CPVC plastic pipe.
- ✓ Copper and galvanized pipe corrode fast when connected together. Use pipe and fittings of the same material.
- ✓ You can buy adaptors to go from a copper or threaded main water pipe to CPVC in and out pipe.
- ✓ Sears has kits and bypass valves you can buy to help make installing your softener easier. See pages 8 and 9.
- ✓ ALWAYS install a bypass valve or valves. Either use 3 shut-off valves, or 1 of Sears special valves. Bypass valves let you turn off water to the softener, but still have water in the house pipes.
- ✓ Drain hose (7/16 in. inside diameter) is needed for valve and salt tank drains. See steps 9 and

10 on pages 12 and 13. You can buy flexible hose at most Sears stores or through Sears catalog.

If a rigid valve drain is needed to comply with plumbing codes, you can buy the parts needed (See page 13) to change the softener to a 1/2 in. copper tubing drain.

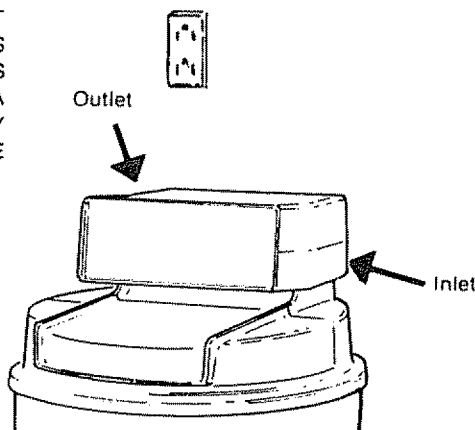
- ✓ TOOLS NEEDED: — Common and cross point (Phillips) screw drivers, slip-joint pliers and a tape measure or rule. ALSO . . .

. . . for SOLDERED COPPER — tubing cutter, propane torch, LEAD-FREE solder, paste flux, emery cloth, sandpaper or steel wool.

. . . for THREADED PIPE — hacksaw or pipe cutter, pipe wrenches, pipe threading tool, pipe joint compound approved for use on potable water.

. . . for CPVC PLASTIC — hacksaw, adjustable wrench, solvent cement approved for use on potable water, primer.

DRAW THE PLANS FOR YOUR IN AND OUT PIPING HERE. BE SURE TO FOLLOW GUIDES LISTED ABOVE. INCLUDE ALL PIPE, FITTINGS AND ACCESSORIES YOU WILL USE. MAKE A LIST OF ALL MATERIALS YOU NEED AND BUY THEM BEFORE YOU BEGIN TO INSTALL THE SOFTENER



YOUR HOUSE MAIN WATER PIPE\*

LEFT

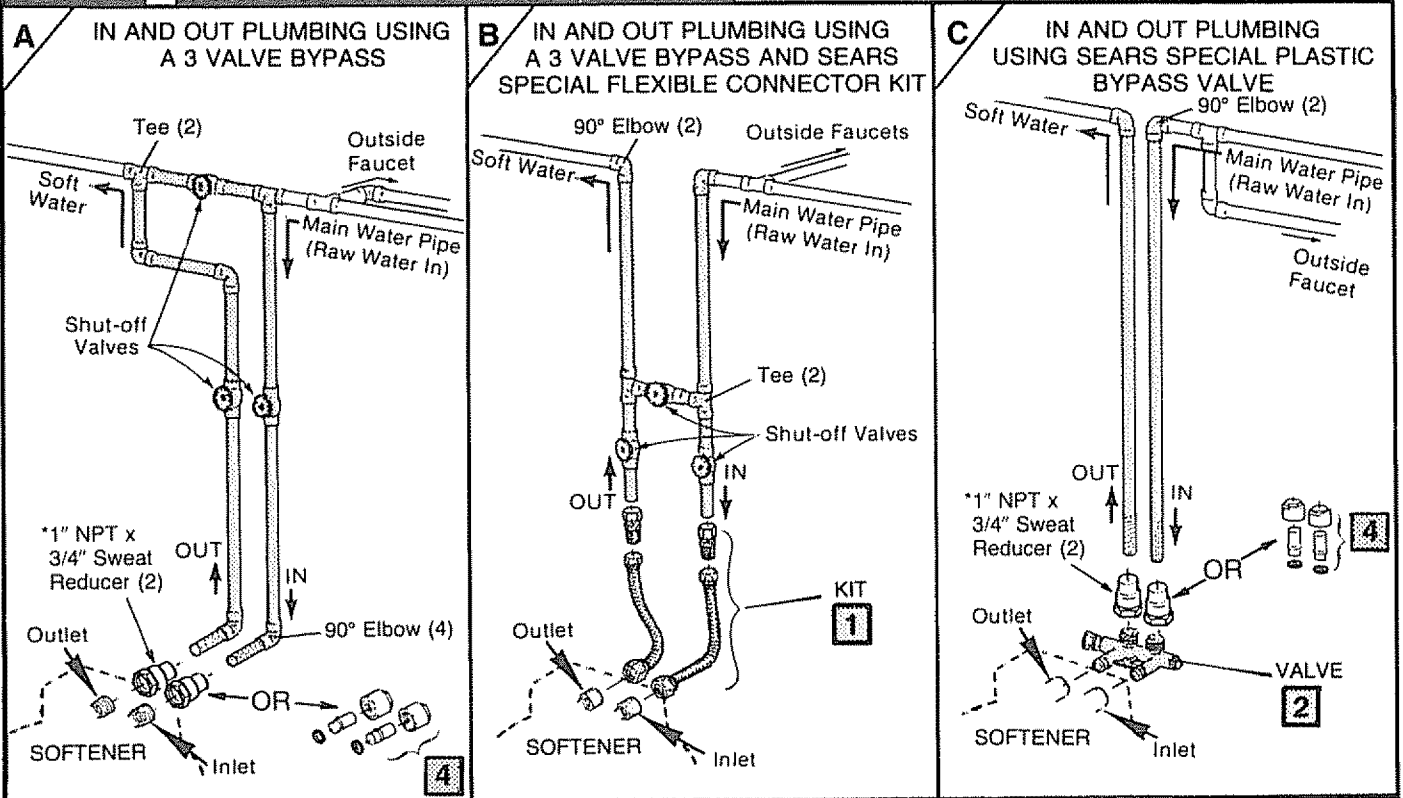
RIGHT

\*IN WHAT DIRECTION DOES THE WATER FLOW? BE SURE TO PLAN IN AND OUT PIPING SO WATER FLOW IS TO THE SOFTENER INLET. PLAN A CROSSOVER (FIG 2 OR 3) IF FLOW IS FROM LEFT TO RIGHT

# SECTION 2

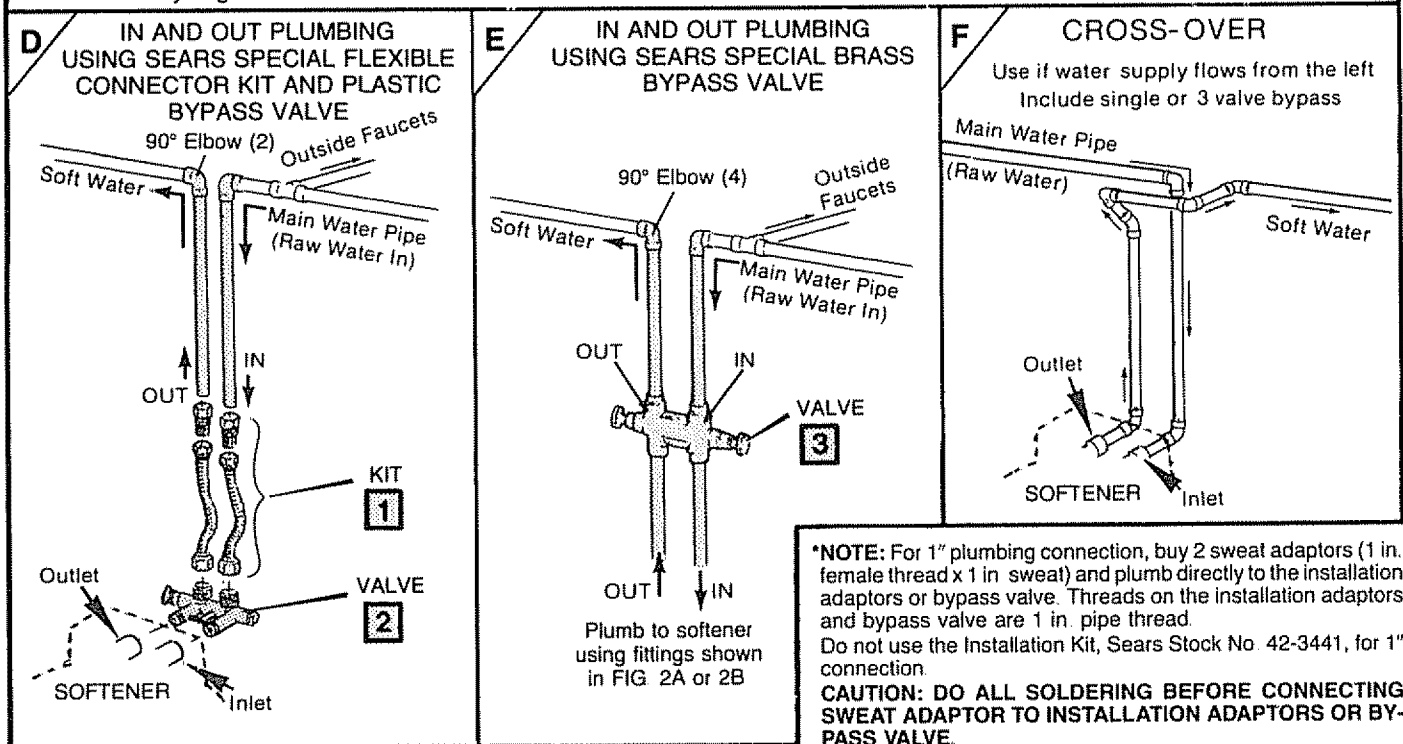
# PLANS FOR IN AND OUT PIPES TO SOFTENER

**FIG. 2 SOLDERED COPPER (or CPVC)**



**SEARS KITS AND VALVES TO MAKE INSTALLING YOUR SOFTENER EASIER**

- 1** FLEXIBLE CONNECTORS  
Sears Item No. 42-3440  
Allows easy hook up even if pipes are not exactly aligned.
  - 2** BYPASS VALVE (Plastic)  
Sears Item No. 42-3437
  - 3** BYPASS VALVE (Brass)  
Sears Item No. 42-3436
  - 4** INSTALLATION KIT  
Sears Item No. 42-3441
- One, easy working valve takes the place of 3 separate valves.



**\*NOTE:** For 1" plumbing connection, buy 2 sweat adaptors (1 in. female thread x 1 in. sweat) and plumb directly to the installation adaptors or bypass valve. Threads on the installation adaptors and bypass valve are 1 in. pipe thread. Do not use the Installation Kit, Sears Stock No. 42-3441, for 1" connection.

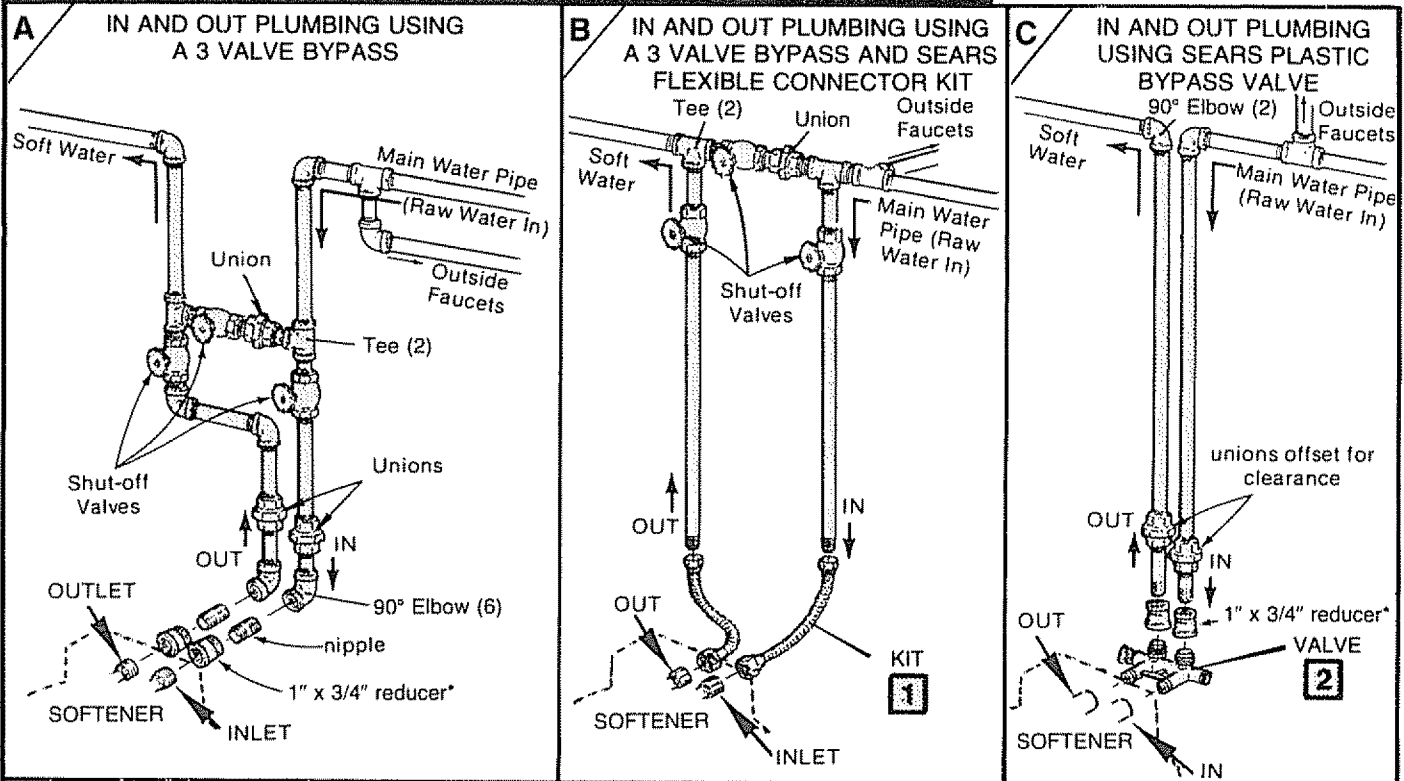
**CAUTION:** DO ALL SOLDERING BEFORE CONNECTING SWEAT ADAPTOR TO INSTALLATION ADAPTOR OR BYPASS VALVE.



# SECTION 2

# PLANS FOR IN AND OUT PIPES TO SOFTENER

**FIG. 3** **THREADED PIPE — GALVANIZED OR BRASS**



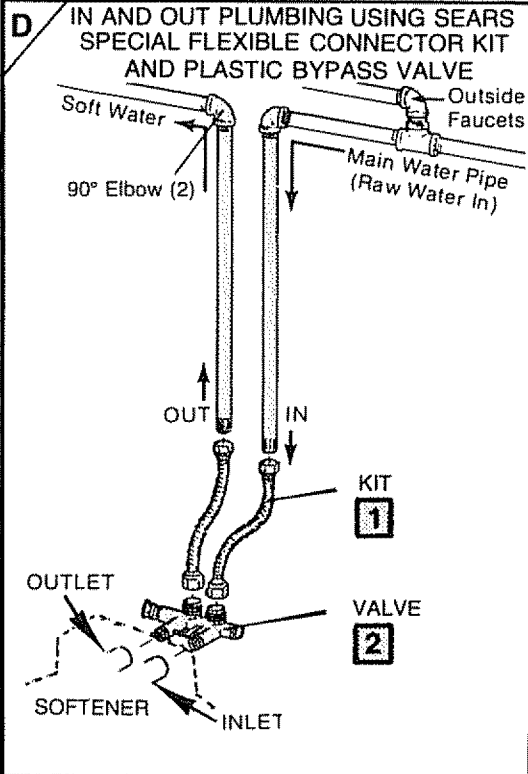
**SEARS KITS AND VALVES TO MAKE INSTALLING YOUR SOFTENER EASIER**

**1** FLEXIBLE CONNECTORS  
Item No. 65/42-3440

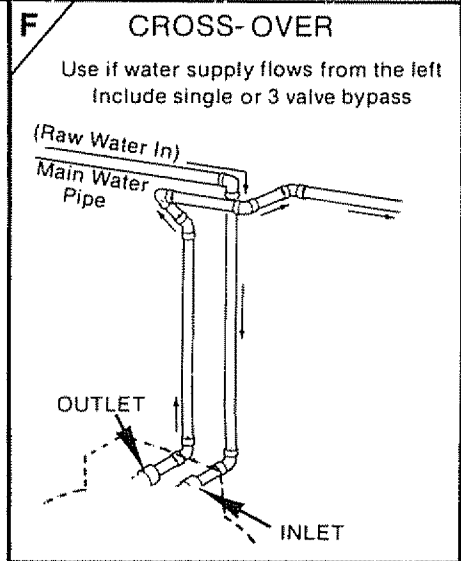
Allows easy hook up, even if pipes are not exactly aligned.

**2** BYPASS VALVE (Plastic)  
Sears Item No. 65/42-3437

One, easy working valve takes the place of 3 separate valves.



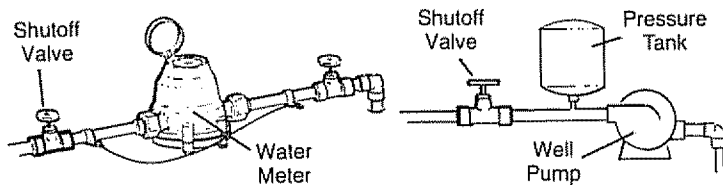
\*NOTE: For 1 in. plumbing connection, use a 1 in. threaded straight connector.



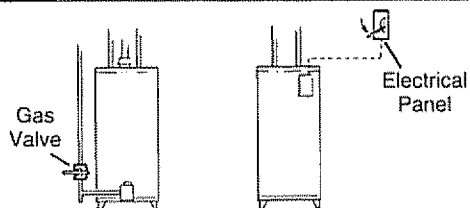
## SECTION 3

## STEP BY STEP GUIDES TO INSTALL

- ▲ **1.** Close the shut-off valve on the house main water pipe, near the water meter or pressure tank, to turn off the water.



- ▲ **2.** Shut off the gas or electric supply to the water heater.



- ▲ **3.** Open the highest and lowest water faucets in your house to let water drain from the pipes. Close faucets after water has drained.

- 4.** If not already done, remove all cardboard or plastic packing pieces from inside the softener. Set the cardboard liner (with parts for installing fastened to it) where you can easily see it, and get to parts as you need them.

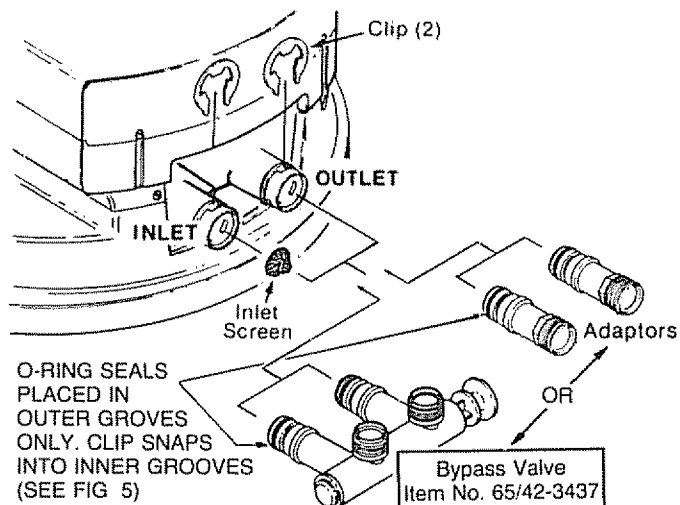
- 5. INSTALL THE INLET SCREEN, AND THE INLET AND OUTLET ADAPTORS OR SEARS BYPASS VALVE, ITEM NO. 65/42-3437.**

NOTE: If you will install the bypass valve (use following steps a and c), the adaptors are not used. If you do not install the bypass valve, you must use the adaptors (use following steps a and b).

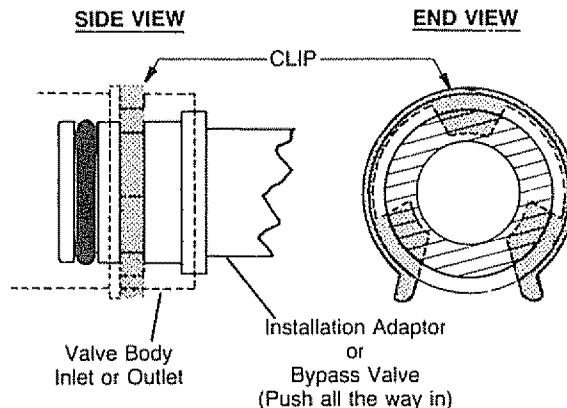
- a.** **INLET SCREEN** — The inlet screen (FIG. 4) is on the cardboard liner with the other small parts. This screen, put in the softener valve inlet, stops dirt and other sediments from getting inside the softener. To install it, put it into the valve inlet with the pointed end facing outward, toward incoming water.

- b.** **INLET AND OUTLET ADAPTORS** (Adaptors and clips are on the cardboard liner.) - Push the adaptors into the valve inlet and outlet ports (FIG. 4) as far as they will go (FIG 5). Both adaptors are the same and fit either valve port. **SNAP THE 2 LARGE HOLDING CLIPS INTO PLACE, FROM THE TOP DOWN AS SHOWN. BE SURE THEY SNAP FIRMLY INTO PLACE, SO THE ADAPTORS WILL NOT PULL OUT. . GO TO STEP 6.**

**FIG. 4** INSTALLING INLET SCREEN AND INLET - OUTLET ADAPTORS BYPASS VALVE



**FIG. 5**



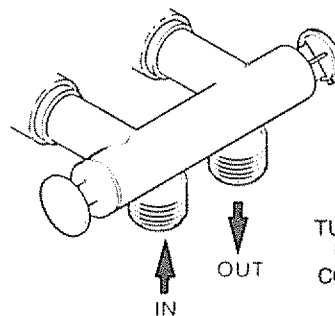
## SECTION 3

## STEP BY STEP GUIDES TO INSTALL

- C. BYPASS VALVE, ITEM NO. 65/42-3437** – If not already done, put a light coating of silicone grease or Vaseline on the bypass valve o-rings.

Push the bypass valve into the softener valve as far as it will go (FIG. 4, 5 and 6). **SNAP THE 2 LARGE HOLDING CLIPS INTO PLACE, FROM THE TOP DOWN AS SHOWN. BE SURE THEY SNAP FIRMLY IN PLACE, SO THE BYPASS VALVE WILL NOT PULL OUT. GO TO STEP 7.**

**FIG. 6** BYPASS VALVE TURNED DOWNWARD



TURN BYPASS VALVE UPSIDE DOWN TO CONNECT TO FLOOR LEVEL PLUMBING

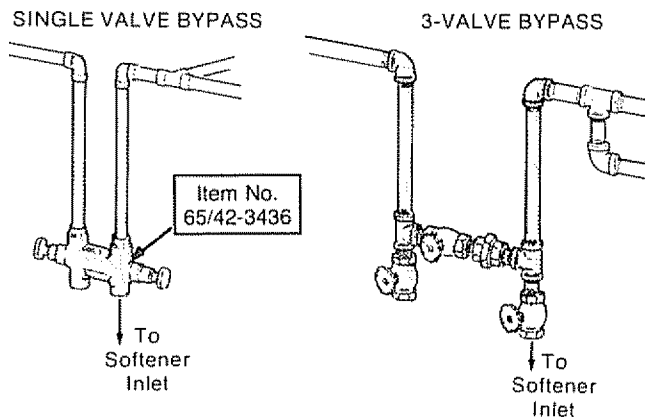
- 6. INSTALLING 3 VALVE BYPASS, OR SEARS BYPASS VALVE, ITEM NO. 65/42-3436, AND PIPES (FIG. 7).**

- a.** Cut the house main water pipe where you will connect the softener. Loosely put together pipe, fittings, and the 3 valves or Sears special bypass valve. Place valve(s) within easy reach.

**IMPORTANT:** WHEN LOOKING AT THE FRONT OF THE SOFTENER, THE INLET IS ON THE RIGHT SIDE. IF WATER IN YOUR HOUSE MAIN WATER PIPE RUNS FROM LEFT TO RIGHT, BE SURE TO USE A "CROSS-OVER" AS SHOWN IN FIG. 2F OR 3F, PAGES 8 AND 9.

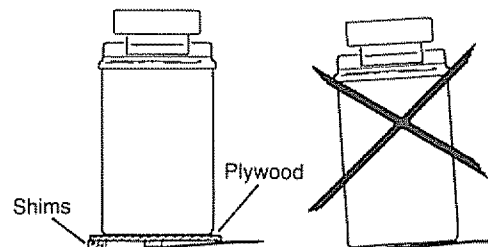
- b.** If all pipe, fittings and valves fit together good, tighten all threaded joints (use pipe dope on outside threads), or solder following tips on page 29.

**FIG. 7** BYPASS VALVES



### 7. MOVE SOFTENER INTO PLACE

7. Move the softener into place. Be sure the surface it sits on is level and smooth. If needed, put a piece of 3/4" plywood, at least 18" square, under the tank. Then put a spacer under the plywood to level the softener. **DO NOT PUT SHIMS OR SPACERS DIRECTLY UNDER THE TANK, WITHOUT THE PLYWOOD.** THE WEIGHT OF THE SOFTENER, WHEN FULL OF SALT AND WATER, MAY CAUSE THE TANK TO PUNCTURE OR BREAK AT THE SHIM OR SPACER.



## SECTION 3

## STEP BY STEP GUIDES TO INSTALL

- 8. CONNECT THE SOFTENER** (Refer to your plan drawing on page 7, and to page 8 or 9.) Read the IMPORTANT note in step 6. Then, measure, cut (thread if needed) and put all pipe and fittings together up to the main water pipe, or to the bypass valve(s) you installed in Step 6.

### NOTES:

- Include adaptors, reducers, union fittings, \*flexible connectors, installation kit, etc., as needed.
- Cut pipe lengths exact for correct aligning, and to prevent stress on the softener valve.
- Use pipe joint compound or Teflon tape on outside pipe threads.
- When all piping fits together...
  - ...solder all sweat fittings following tips on page 29.
  - ...prime and cement all CPVC joints.
  - ...tighten all threaded joints.

### CAUTIONS:

- ▲ NEVER SOLDER FITTINGS WHILE CONNECTED TO NON-METALLIC PARTS. WAIT UNTIL SOLDERED PIPE HAS COOLED BEFORE CONNECTION (SEE FIG. 8).

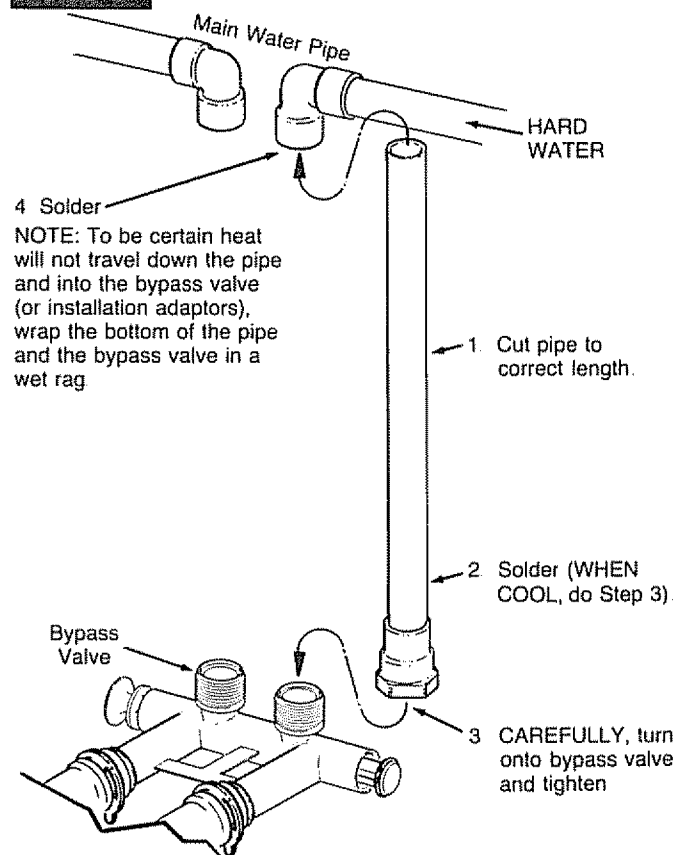
\*Flexible connectors are not allowed in all areas. CHECK YOUR LOCAL CODES.

- 9. CONNECT THE VALVE DRAIN HOSE**
- Take a length of 7/16" inside diameter (I.D.) drain hose and attach 1 end to the drain fitting (FIG. 9). Use a hose clamp to hold it in place. Put the other end of the hose over a floor drain, into a laundry tub, sump, standpipe, or other suitable drain. CHECK YOUR LOCAL CODES.

### IMPORTANT NOTES: (see FIG. 9)

- ▲ Leave an air gap of about 1-1/2" between the end of the hose and the drain. This gap is needed so you don't get a back-flow of sewer water into the softener. DO NOT put the end of the hose into the drain or connect without the air gap.
- ▲ Place and support the hose so it does not kink or have sharp bends. Tie or wire the hose in place so water pressure will not make it "whip". Do not pinch the hose shut. THE SOFTENER WILL NOT WORK IF THIS DRAIN HOSE IS PINCHED, PLUGGED OR CLOSED IN ANY WAY.
- ▲ Keep the hose lower than the drain fitting. (In some homes, to get to a drain you must raise the hose and run it over-head. If you need an over-head drain, do not raise the hose more than 8' above the floor. A copper drain tube is best to use. . . see page 13.)

**FIG. 8** TYPICAL SOLDERING CONNECTION

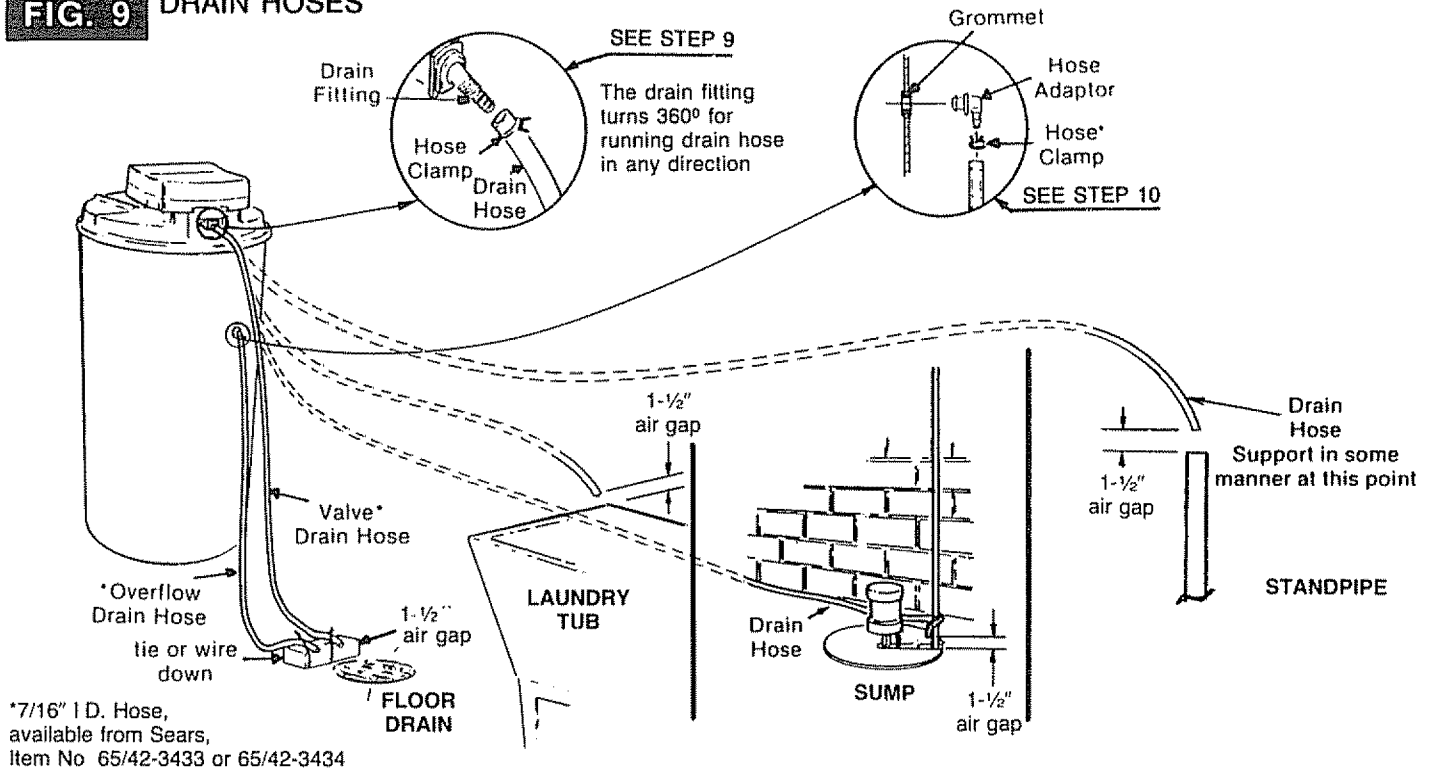


- ▲ CAUTION: BE VERY CAREFUL WHEN PUTTING PIPE FITTINGS ONTO THE PLASTIC THREADS OF THE SOFTENER ADAPTORS, OR THE BYPASS VALVE. DO NOT CROSSTHREAD. DO NOT OVERTIGHTEN.

## SECTION 3

## STEP BY STEP GUIDES TO INSTALL

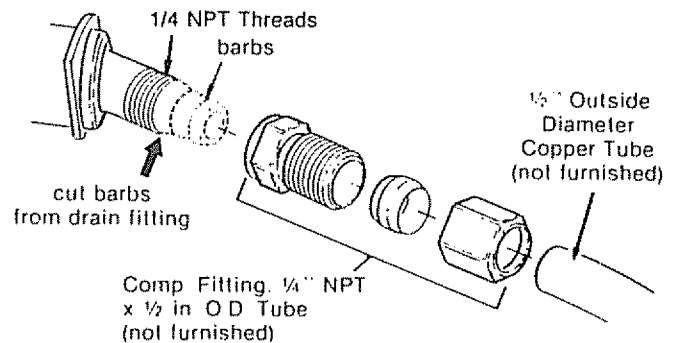
**FIG. 9** DRAIN HOSES



**COPPER DRAIN TUBE:** The plumbing codes where you live may say that you must use a copper valve drain tube. A copper tube is also best to use for an over-head drain. Use a copper drain tube if the softener is installed outside, or in the sunlight. Heat from the sun makes many kinds of rubber or plastic hose to soften and close up.

To adapt a copper drain tube to the softener, use a hacksaw to cut the barbed end from the drain fitting as FIG. 10 shows. Buy a compression fitting (1/4 in. female pipe threads x 1/2 in. O.D. tube) and tube from Sears, or your local hardware store.

**FIG. 10** COPPER DRAIN TUBE



### 10. CONNECT A SALT TANK OVERFLOW HOSE

- Take the rubber grommet, hose adaptor and hose clamp (FIG. 9) that are on the small parts cardboard liner.
- Push the grommet into the hole in the salt tank wall so half is inside and half is outside.
- Push the bigger end of the hose adaptor into the grommet.
- Push one end of a length of 7/16" I.D. hose on- to the hose adaptor, using the hose clamp to

hold it in place. Put the other end of the hose over the floor drain.

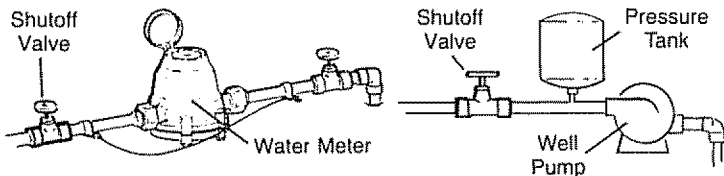
#### IMPORTANT NOTES:

- The salt tank overflow is for safety only. If the salt tank should overflow with water, the overflow hose carries it to the drain.
- Over-fill water must run downward through the hose. Do not raise the hose higher than the grommet and hose adaptor (FIG. 9).
- DO NOT connect to the valve drain hose you installed in step 9. A separate hose is needed for both drains.

**11. TESTING YOUR PLUMBING WORK FOR WATER LEAKS.**

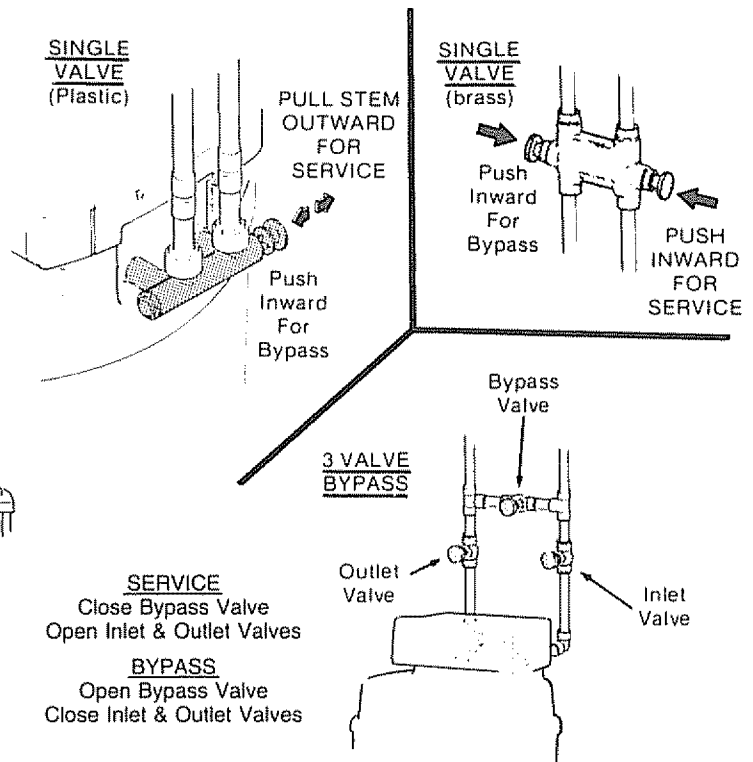
Look at the picture in FIG. 12 showing your kind of bypass valve(s). On a single valve, slide the stem into SERVICE. On a 3-valve system, open the inlet and outlet valves and close the bypass valve.

- a. OPEN A HOT AND COLD WATER FAUCET TO LET AIR OUT OF THE SOFTENER AND HOUSE PIPES.
- b. Fully open the shut-off valve in the house main water pipe to turn on the water.



- c. After water from the faucets runs smoothly, with no more air bubbles, close them.
- d. Check your plumbing work for leaks and fix right away if any are found. READ THE CAUTION NOTES IN STEP 8 PAGE 12.

**FIG. 12** BYPASS VALVES

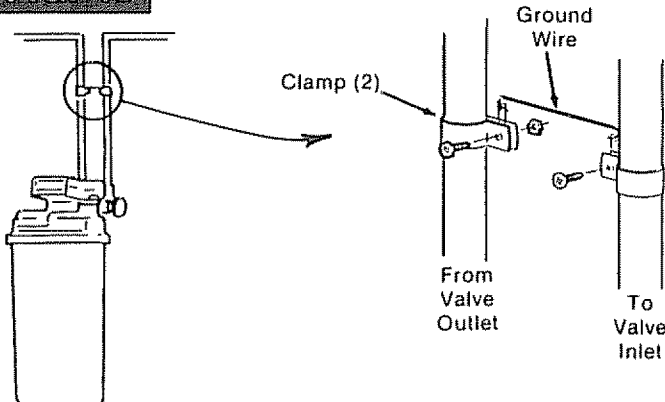


**12. INSTALL GROUNDING WIRE BETWEEN THE SOFTENER IN AND OUT PIPES**

The house cold water pipe (iron or copper) is often used to ground all electric outlets in the home. Outlets are grounded to protect you from shock when you touch any electric appliance plugged into the outlet. If you didn't install a 3-valve bypass, or a brass single bypass valve (FIG. 12), the cold water pipe ground is broken.

To restore the ground, take the clamps (2), screws (2), nuts (2) and ground wire that are on the card-

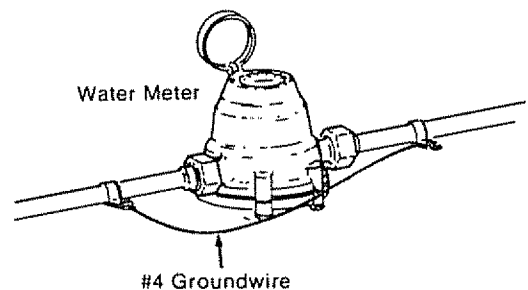
**FIG. 13** COLD WATER PIPE GROUND



board liner. Install across the iron or copper in and out pipes as shown in FIG. 13. Be sure good contact is made between the pipe and the clamps. Fasten the ground wire tightly between the clamps.

**IMPORTANT:** Be sure the cold water pipe has direct metal to metal contact all the way to the ground. Plastic, rubber or other electrically insulating parts such as hoses, fittings, washers or gaskets can break the direct metal to metal contact. Also check the water meter (city water) or the well pump. Install #4 copper jumper wires, clamped tightly on both ends, across insulated parts (FIG. 14).

**FIG. 14** WATER METER JUMPER WIRE



## SECTION 3

## STEP BY STEP GUIDES TO INSTALL

### 13. ELECTRIC POWER OUTLET FOR YOUR SOFTENER

The softener works on 24 volt, 60 Hz electric power. The included transformer changes standard 120 volt AC house power to 24 volts. You must plug the transformer into a 120 volt outlet only. Be sure the outlet is always "live" so someone cannot turn it off by

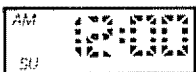
mistake.

**NOTE:** The included transformer is made for inside use only. Be sure the electrical outlet you plug the transformer into is inside, to protect from weather (see page 6).

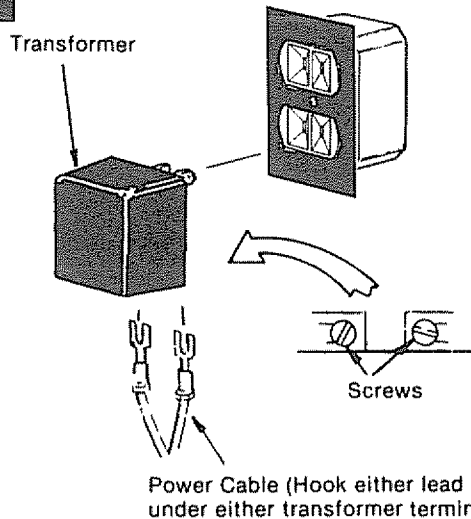
### 14. FASTEN THE POWER CABLE AND PLUG IN THE TRANSFORMER

Looking at FIG. 16, fasten the 2 power cable lugs (1 under each screw) to the transformer as shown. Tighten both screws. Then plug the transformer into the electrical outlet.

When the transformer is plugged in, 12:00 AM Sunday will begin flashing in the face plate display.



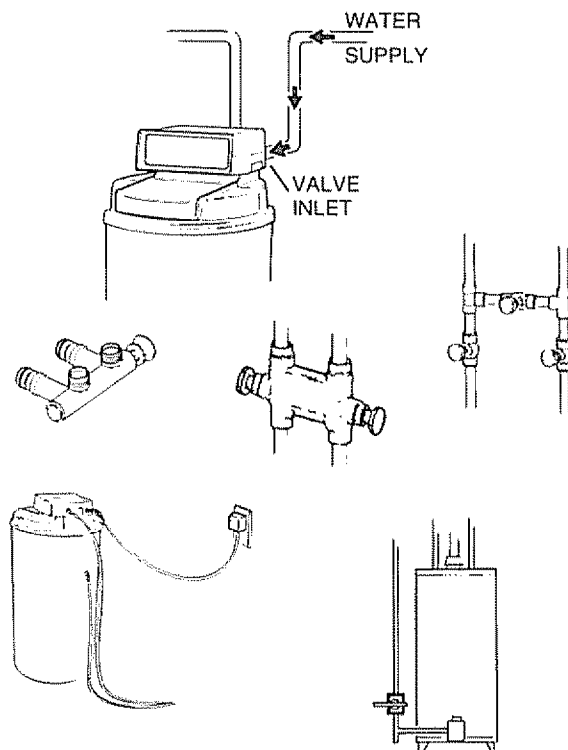
**FIG. 16** CONNECTING TRANSFORMER



### 16. CHECK LIST OF STEP BY STEP GUIDES

To be sure you have done all the steps to install the softener, read the following list:

- ✓ Is the house water flow going INTO the softener valve INLET? Trace piping to be sure. (steps 6 and 8)
- ✓ Is the plumbing bypass valve (or 3 valves) set for SERVICE? (step 11)
- ✓ Is the valve drain hose connected the right way, and without sharp bends or kinks that could stop or reduce water flow? (step 9)
- ✓ Is the softener power cable connected to the transformer. . .and is the transformer plugged into an inside, 120V-60Hz electrical outlet? (step 13 and 14)
- ✓ Did you restart the water heater? (step 15)



AFTER CHECKING ALL OF THE ABOVE, GO TO SECTION 4, "SOFTENER START-UP" TO FILL THE STORAGE TANK WITH SALT AND WATER, AND TO SET THE TIMER.

## SECTION 3

## WATER SOFTENER START-UP

### SANITIZING THE WATER SOFTENER

1. Care is taken at the factory to keep your water 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 water softener. For this reason, sanitizing as follows is suggested<sup>®</sup> when installing.

1. Use a pail or hose to fill the salt storage tank with 3 gallons of water.

2. Pour about 3/4 ounce of common 5.25% household bleach (Clorox, Linco, Bo Peep, White Sail, Eagle, etc.) into the brinewell, FIG. 17.

3. Look at the faceplate and press the HOLD-RECHARGE NOW button [5], holding in until RCHG begins to flash in the faceplate display, starting a recharge. This first recharge, or regeneration<sup>®</sup>, does several things.

- a. It draws the bleach into and through the water softener, to sanitize it.
- b. It fills the salt tank to the needed water level.
- c. It gets all the air out of the resin tank.
- d. It makes the resin bed (page 19) ready for service.

- ① Recommended by the Water Quality Association. On some water supplies, the water softener may need periodic disinfecting.
- ② RECHARGE and REGENERATION means the same.

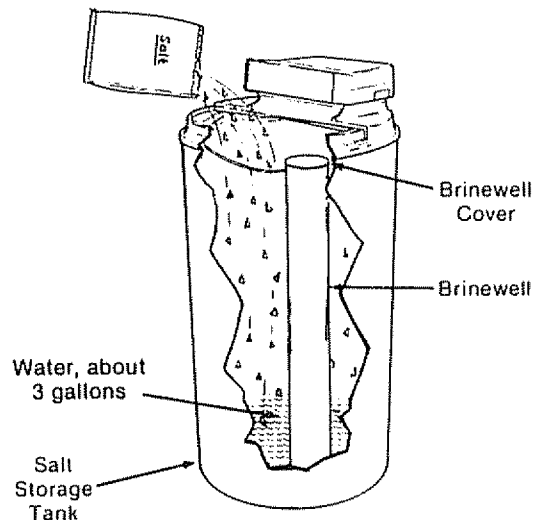
### SET THE TIMER

2. After the transformer is plugged into the electrical outlet (step 14, pg. 15), 12:00 AM, SUN-day began to flash in the time display. Set the **time of day** and present **day of week** as follows.

#### A. SET TIME OF DAY

1. Press the PRESENT TIME AND DAY button [1] once. The hour display continues to flash.
2. Press the SET/CLEAR button [4] 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.

**FIG. 17** ADD WATER AND FILL STORAGE TANK WITH SALT



The regeneration takes about 2 hours. After that, soft water goes into the house pipes. Then you can drain hard water from the water heater. Open a hot water faucet until the water runs cold, then close faucet. The tank refills with soft water. (It will take a few days before your hot water is fully soft if you do not drain the heater.)

NOTE: Press SET/CLEAR 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.

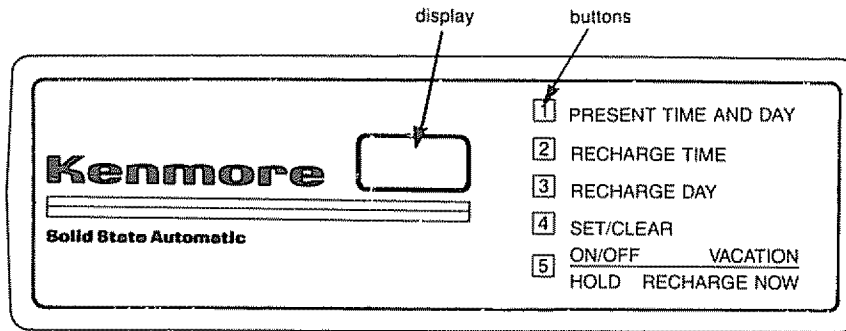
3. Press button [1] once to steady the hour display, and minutes begin to flash. Repeat step A2 to set the correct minutes.
4. Press button [1] again to steady the minute display (day will begin flashing). Figure 19 shows the timer set at 3:30 PM. See step B to set the present day.



## SECTION 4

## WATER SOFTENER START-UP

FIG. 18



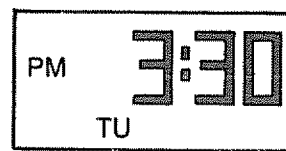
### B. SET PRESENT DAY OF WEEK

1. Press the SET/CLEAR button [4] to set the present day of the week in the display.

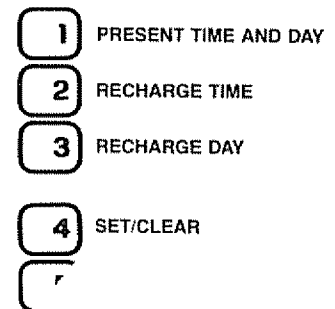
NOTE: Press SET/CLEAR and quickly release to move the day display 1 at a time. Or, hold the SET/CLEAR button to move the day display ahead 2 days each second.

2. Press the PRESENT TIME AND DAY button [1] again to steady the entire display. Figure 19 shows the timer set at Tuesday.

FIG. 19



EXAMPLE: This drawing shows the present time of day at 3:30 PM, and the present day on 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 "Fine-Tuning Your Water Softener," page 25.

NOTE: SEE PAGE 18 FOR OTHER TIMER CONTROLS AND FEATURES.

- 3. FILL THE STORAGE TANK WITH SALT**  
Fill the tank with NUGGET or PELLET water softener salt. DO NOT use rock salts, (See page 21 and NOTE below). Before filling, BE SURE THE BRINEWELL COVER IS IN PLACE. DO NOT fill over the slot in the brinewell. Replace the salt storage tank cover after filling. Salt capacities are... 625.3485003 – 170 lbs. ...625.347703 and 625.3487003 – 230 lbs.

**NOTE: WATER SOFTENING SALT WITH IRON REMOVING ADDITIVES** – Some salts have an additive to help the softener handle iron in the water supply. Although this additive may help to keep the softener resin clean, it may also release corrosive fumes that will weaken and shorten the life of some softener parts.

## SECTION 5

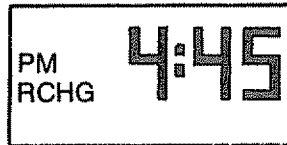
## HOW YOUR WATER SOFTENER WORKS

### OTHER TIMER CONTROL BUTTONS AND FEATURES

**RECHARGE NOW** – 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 2, you would get hard water until then. If this happens, or you think it might happen, press and hold in the HOLD-RECHARGE NOW button [5] for 3 seconds until **RCHG** shows. **RCHG** will flash in the display during the regeneration, which lasts for 2 hours.

**NOTE:** Avoid using **HOT** water while the softener regenerates because bypass hard water will refill the water heater (see "Automatic Bypass," page 21.)

FIG. 20



- 1 PRESENT TIME
- 2 RECHARGE TIME
- 3 RECHARGE DAY
- 4 SET/CLEAR
- 5 ON/OFF VACATION  
HOLD RECHARGE NOW

**VACATION** – The day you leave on vacation, or other long absence, press (DO NOT HOLD IN) the ON/OFF-VACATION button [5]. **VAC** begins to flash in the display (FIG. 21). The timer will keep time, but the softener will not regenerate to waste water and salt.

**NOTE:** While in **VACATION**, the softener will go through a regeneration if the **RECHARGE NOW** feature is used (see above).

**NOTE:** To shut off the water supply to the softener, use the plumbing bypass valve(s)...FIG. 12, page 14.

**When you return**, press the **VACATION** button again to return the softener to service, and the correct time of day in the display. **Remember to do this or the softener will not regenerate and you will soon have hard water.**

FIG. 21



- 1 PRESENT TIME
- 2 RECHARGE TIME
- 3 RECHARGE DAY
- 4 SET/CLEAR
- 5 ON/OFF VACATION  
HOLD RECHARGE NOW

**TIMER "POWER-OUTAGE MEMORY"** — If electrical power to the timer goes off, the "memory" built into timer circuitry keeps **all** settings for 6 hours (minimum) or more. The display is blank and the softener will not regenerate. When electrical power comes on, 1 of 2 things will happen.

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

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

2. The display will show a time, but it will be

flashing. The timer memory did **not** keep the time settings and they must be reset. (page 17)

**The flashing display is to remind you to reset the timer.**

#### NOTES:

When 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 3 days each week. However, regeneration will most likely be

continued, next page

## SECTION 5

## HOW YOUR WATER SOFTENER WORKS

continued –

on the wrong days and at the wrong time.

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

water tastes salty. . .

. . . use RECHARGE NOW (see page 18) to start another regeneration, or. . .

. . . open 1 or more soft water faucets and allow to run until the salt taste is gone.

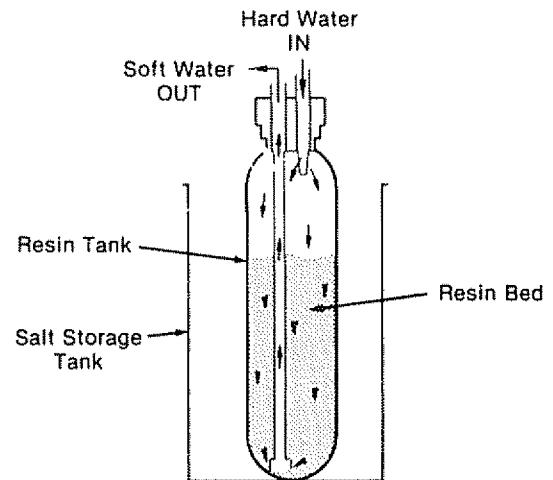
### SOFT WATER SERVICE, AND RECHARGE, OR REGENERATION

#### SERVICE

When the softener is giving you soft water, it is called "Service". During service, hard water comes from the house main water pipe into the softener. Inside the softener resin tank is a bed made up of thousands of tiny, plastic resin beads (FIG. 22). As hard water passes through the bed, each bead attracts and holds the hardness minerals. This is called ion-exchanging. It is much like a magnet attracting and holding metals. Water without the hardness minerals (soft water) flows out of the softener and into the house soft water pipes.

After a period of time, the resin beads become coated with hardness minerals and they have to be cleaned. This cleaning is called recharge, or regeneration.

**FIG. 22** WATER FLOW THROUGH THE SOFTENER IN SERVICE



#### RECHARGE OR REGENERATION

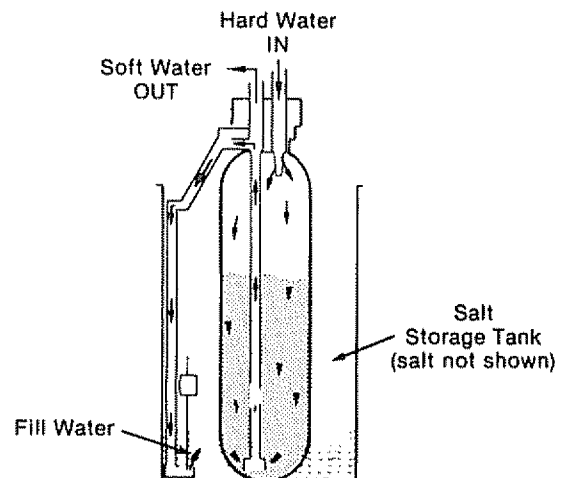
Regeneration is started at about 2:00 a.m. (factory setting) by the timer. It takes place in 5 stages or cycles. These are:

- 1 FILL
- 2 BRINING
- 3 BRINE RINSE
- 4 BACKWASH
- 5 FAST RINSE

**1 FILL:** Salt, dissolved in water, is called brine. Brine is needed to clean the hardness minerals from the resin beads. To make the brine, soft water flows into the salt storage area during the fill cycle as shown in FIG. 23.

The length of the fill cycle is 16 minutes, unless another time is set when "Fine-Tuning", pages 25-27.

**FIG. 23** WATER FLOW THROUGH THE SOFTENER IN FILL



## SECTION 5

## HOW YOUR WATER SOFTENER WORKS

**2** BRINING: During brining, the brine is taken from the salt storage tank and put into the resin tank. Brine makes the resin beads let go of the hardness minerals and they are carried to the drain. How much brine is needed to clean the resin depends on 2 things—

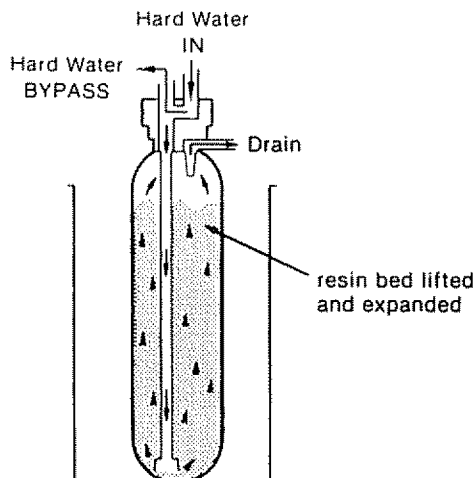
- The amount of resin in the softener.
- How fast the brine goes through the bed.

The nozzle and venturi (FIG. 24) makes the suction to take brine from the salt tank and put it into the resin tank. It keeps the brine flow down to a very slow rate to get the best resin cleaning with the least salt.

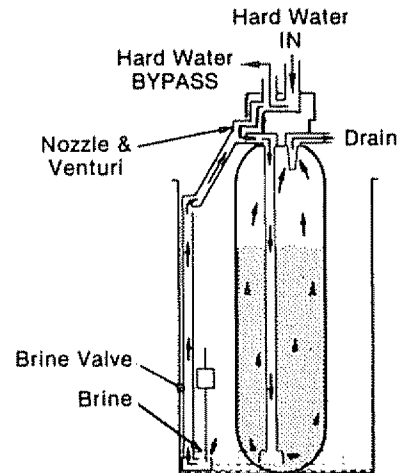
**3** BRINE RINSE: After all of the brine goes into the resin tank, the brine valve closes. Water keeps flowing the same way it did during brining except the brine flow has stopped. Hardness minerals and brine flush from the resin tank to the drain. Brining and brine rinse together are about 80 minutes.

**4** BACKWASH: During backwash, water flows UP through the resin tank (FIG. 25) at a fast rate to flush iron minerals, dirt and sediments from the bed and to the drain. The bed lifts and expands for good cleaning. The backwash cycle is about 12 minutes long.

**FIG. 25** WATER FLOW THROUGH THE SOFTENER IN BACKWASH



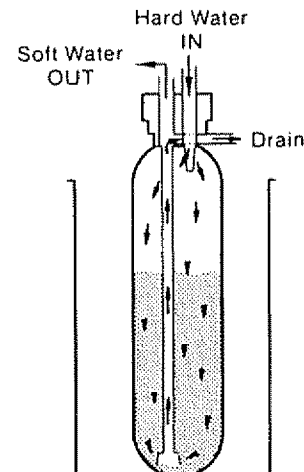
**FIG. 24** WATER FLOW THROUGH THE SOFTENER IN BRINING AND BRINE RINSE



**5** FAST RINSE: Backwash is followed by a fast flow of water down through the resin tank. The fast flow packs the resin bed and gets it ready for return to service (FIG. 26). This cycle is about 4 minutes long.

After fast rinse, the softener returns to service. Hard water goes into the resin tank where the resin bed again takes out the hardness minerals. Soft water goes to the house soft water pipes.

**FIG. 26** WATER FLOW THROUGH THE SOFTENER IN FAST RINSE



## SECTION 5

## HOW YOUR WATER SOFTENER WORKS

### AUTOMATIC BYPASS

During the brining, brine rinse and backwash cycles of regeneration, HARD water goes through the softener valve and to the house pipes. If a faucet is turned on, hard water is there for your needs. However, you should not use HOT water, if possible, because the water heater will refill with hard water.

The softener regenerates from 2:00 AM (factory setting) to about 4:00 AM, a time when not much water is used.

Depending on your working hours, you may choose to select a different regeneration starting time. To make this change see instructions for setting the time of regeneration on page 25.

## SECTION 6

## CARE OF YOUR SOFTENER

### CHECKING THE SALT STORAGE LEVEL AND REFILLING

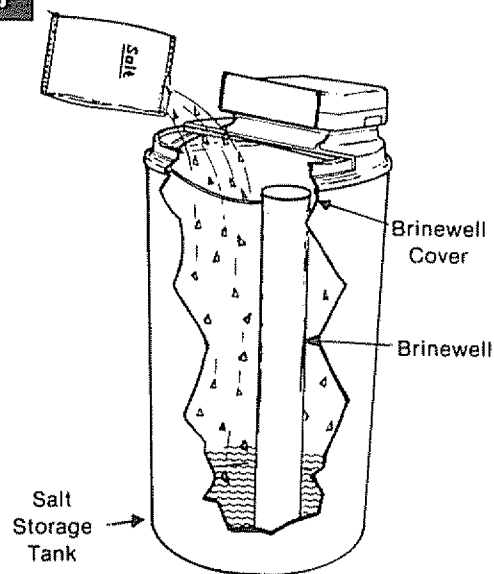
Brine (salt dissolved in water) is needed for each and every regeneration. The water for making brine is metered into the salt storage tank by the softener. However, you must keep the tank filled with salt.

**WHEN TO REFILL WITH SALT:** Check the salt level a few weeks after you install the softener and every week after that. Refill when the storage tank is about half full. Never let the softener use all the salt before refilling. Without salt, you will soon have hard water.

Use nugget or pellet water softener salt only. Do not use rock salts. They have dirt and sediments that will make the softener stop working (also see page 17). **BE SURE THE BRINEWELL COVER IS IN PLACE.**

**NOTE: WATER SOFTENING SALT WITH IRON REMOVING ADDITIVES** — Some salts have an additive to help the softener handle iron in the water supply. Although this ad-

FIG. 27



ditive may help to keep the softener resin clean, it may also release corrosive fumes that will weaken and shorten the life of some softener parts.

### BREAKING A SALT BRIDGE

Sometimes, a hard crust or salt bridge forms in the salt storage tank. 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 (melt) in the water to make brine. Without brine, the resin bed does not

regenerate and you will have hard water.

If the storage 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

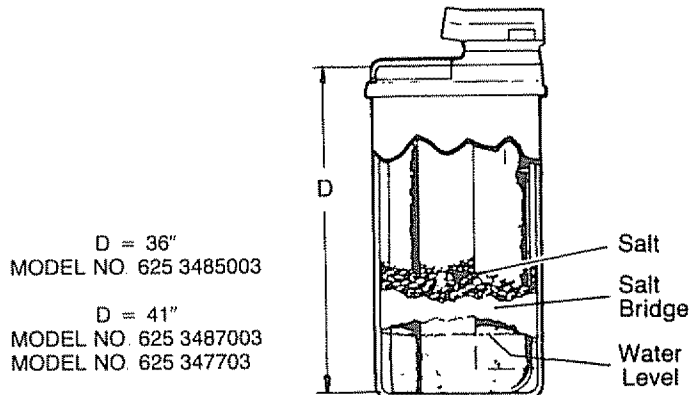
## SECTION 6

## CARE OF YOUR SOFTENER

tank. Your salt storage tank is the dimension "D" inches from the bottom to the top rim (FIG. 28). Take a broom handle, or like tool, and make a pencil mark the dimension "D" inches from one end. Carefully push it straight down into the salt. If a hard object is felt before the pencil mark gets to the top of the tank, it's most likely a salt bridge. Carefully push in-  
▲ to the bridge in a few places to break it. **DO NOT TRY TO BREAK THE SALT BRIDGE BY POUNDING ON THE OUTSIDE OF THE SALT TANK. YOU MAY DAMAGE IT.**

If the wrong kind of salt made the bridge, take it out. Then fill the tank with nugget or pellet salt only.

**FIG. 28** A SALT BRIDGE



### CLEANING THE COVERS

To keep your new Sears water softener looking nice, apply a coat of paste wax and repeat once a year.

When dusty, wipe it with a damp cloth to keep it sparkling.

▲ Never use cleaners having ammonia or abrasives. They may scratch and dull the surface.

### CLEANING THE NOZZLE & VENTURI

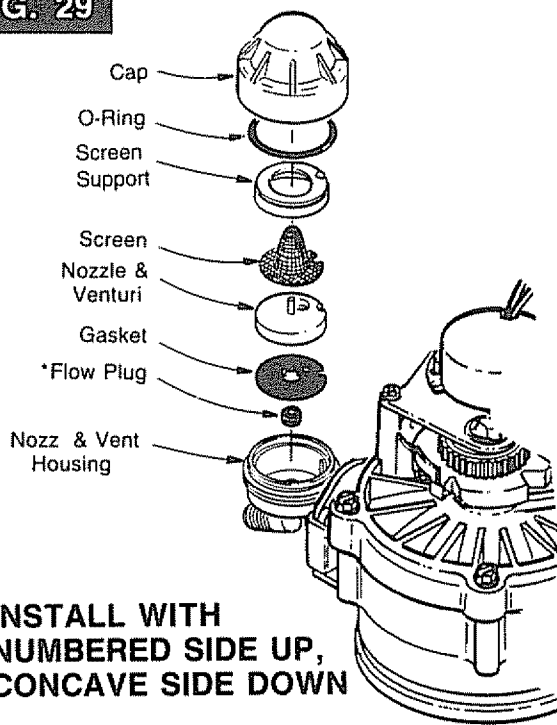
A clean nozzle and venturi (FIG. 29) is a must for the softener to work right. This small unit moves brine from the salt storage tank to the resin tank during regeneration. If it becomes plugged with sand, silt, dirt, etc., the softener will not work and you will get hard water.

To get to the nozzle and venturi, remove the softener top cover. Be sure the softener is in service cycle (no water pressure at nozzle and venturi), then turn off the cap from the nozzle and venturi housing. **DO NOT LOSE THE LARGE O-RING SEAL.** 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 and flow plug if dirty.

Carefully replace all parts in the correct order. Lubricate the o-ring seal with silicone grease or Vaseline and place in position. Install and tighten the cap, **BY HAND ONLY. DO NOT OVERTIGHTEN AND BREAK THE CAP OR HOUSING.**

If you have to clean the nozzle & venturi quite often, you may decide to install a Sears sediment cartridge filter (See FIG. 1, page 6). This filter takes dirt and sediments out of the water.

**FIG. 29**



## SECTION 6

## CARE OF YOUR SOFTENER

### GETTING IRON OUT OF THE SOFTENER

Your water softener takes hardness minerals (calcium and magnesium) out of the water. Also, it can control "clear water" iron up to the following maximums.

Model No. 625.3485003 - 2 parts per million (ppm)  
Model No. 625.3487003 }  
Model No. 625.347703 } 3 parts per million (ppm)

With clear water iron, water from a faucet is clear when first put into a glass. After 15 to 30 minutes, the water begins to cloud or turn rust colored. A water softener WILL NOT remove any iron if the water is cloudy or rusty as it comes from the faucet (called

red water iron). To take red water iron out of water, or over the 2 or 3 ppm maximum of clear water iron, an iron filter or other equipment is needed. Your local Sears store has trained people to help you with iron water problems.

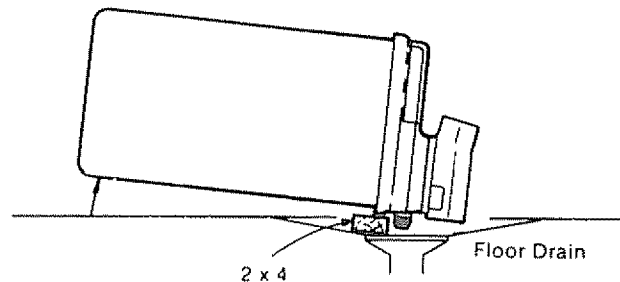
If your water supply has clear water iron, even though less than the 2 or 3 ppm, regular resin bed cleaning is needed. Sears has resin bed cleaner, Item No. 65/42-34425 for this. Clean the bed at least every 6 months. If iron shows up in the soft water before 6 months, clean more often. Printed instructions are on the resin bed cleaner bottle.

### KEEP THE SOFTENER FROM FREEZING

If the softener is installed where it could freeze (summer cabin, lake home, etc.), you must drain all water from it to stop possible freeze damage. To drain the softener —

1. Close the shut-off valve on the house main water pipe, near the water meter or pressure tank.
2. Open a faucet in the soft water pipes to vent pressure in the softener.
3. Looking at FIG. 12 on page 14, move the stem in a single bypass valve to bypass. Close the inlet and outlet valve in a 3-valve bypass system, and open the bypass valve.  
  
(If you want water in the house pipes again, reopen the shut-off valve on the main water pipe).
4. Unplug the transformer at the wall outlet. Take off both drain hoses.
5. Carefully remove the large holding clips at the softener inlet and outlet (see Step 5b and 5c, pages 10 and 11). Separate the softener from the adaptors or bypass valve.
6. Take off the salt tank and brinewell covers. Disconnect the brine valve tubing at the nozzle & venturi housing and lift the brine valve out of the brinewell. Tip the brine valve upside down to drain out water.

**FIG. 30** DRAIN WATER FROM THE SOFTENER



7. Looking at FIG. 30, lay a piece of 2 inch thick board near the floor drain. Move the softener close to the drain. **SLOWLY** and **CAREFULLY** tip it over until the rim rests on the wood block with the inlet and outlet over the drain. **DO NOT ALLOW THE SOFTENER'S WEIGHT TO REST UPON THE INLET AND OUTLET FITTINGS OR THEY WILL BREAK.**
8. Tip the bottom of the softener up a few inches and hold until all water has drained. Leave the softener laying like this until you are ready to use it. Plug the inlet and outlet with rags to keep dirt, bugs, etc. out.

## BEFORE YOU CALL FOR SERVICE

## HELPFUL HINTS CHECKLIST . . . TO HELP YOU SAVE MONEY

If your water softener fails to work, make the following easy checks. Often, you will find what's wrong yourself and you won't have to call and wait for service. If, after making the checks, your softener still does not work right, call your Sears Service Department.

## NO SOFT WATER

**1 NO SALT IN THE STORAGE TANK** — Refill with salt (See page 21). Use the RECHARGE NOW button to start a regeneration (see page 18).

**2 TRANSFORMER UNPLUGGED AT THE WALL OUTLET, OR POWER CABLE DISCONNECTED** — Check for loss of power and correct. Reset the times, then use the RECHARGE NOW button to start a regeneration (see page 18).

**3 FUSE BLOWN, CIRCUIT BREAKER POPPED, OR CIRCUIT SWITCHED OFF** — Replace fuse, reset circuit breaker, or switch circuit on. Reset times and use the RECHARGE NOW button to start a regeneration.

NOTE: SEE "TIMER POWER-OUTAGE MEMORY", PAGE 18.

**4 TIMER IN THE VACATION (VAC) POSITION** — See VACATION feature to return the softener to service (page 18).

**5 NO REGENERATIONS SET ON THE TIMER** — See pages 25, 26 and 27 to select and program a schedule. Use the RECHARGE NOW button to start an immediate regeneration.

**6 MANUAL BYPASS VALVE(S) IN BYPASS POSITION** — See FIG. 12, page 14, Move stem in single bypass valve to SERVICE. In a 3-valve bypass, open the inlet and outlet valves, close the bypass valve.

**7 SALT IN STORAGE TANK BRIDGED** — Refer to page 21 to break.

**8 DIRTY, PLUGGED OR DAMAGED NOZZLE & VENTURI** — Take apart and clean (See page 22) or replace damaged parts.

**9 VALVE DRAIN HOSE PLUGGED** — Hose must not have kinks, sharp bends, or any water flow blockage. (See page 12)

WATER SOFT SOMETIMES,  
HARD SOMETIMES

**A REGENERATIONS TOO FEW** — Refer to pages 25, 26 and 27 to find correct setting.

**B MORE WATER BEING USED** — See pages 25, 26 and 27 for correct regeneration and setting.

**C HOT WATER USED WHEN SOFTENER IS REGENERATING** — Avoid using hot water as the water heater refills with hard water. (See "Automatic Bypass" on page 21).

**D POSSIBLE INCREASE IN WATER HARDNESS** — Ask your Sears retail or catalog store for a new water analysis.

**E 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.



## SECTION 7

## OTHER THINGS TO KNOW

### HOW TO "FINE-TUNE" YOUR SOFTENER

It is not hard to fine-tune your softener, but it does take a few minutes of your time to do it right. You may save up to 500 pounds or more of salt each year with proper tuning. Read the following carefully.

To have soft water all the time, the softener must regenerate, or recharge a certain number of times in each 7 day period. How many times to regenerate (set on the timer) depends on 3 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 — listed on your water analysis report . . . see page 5.
3. How much salt is used each regeneration - determined by the length of the fill cycle . . . see page 27.

**REGENERATION TABLES:** The tables (page 26) make it easy for you to pick the best regeneration and fill time setting to use.

**Step 1** — Go down the side of the table for your model, 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 table, find the column listing the grains per gallon hardness of your water.

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

WRITE IN YOUR RESULTS HERE.

1.  M T W TH F S SU  Suggested days to  
-circle suggested days- regenerate
2. \_\_\_\_\_ Fill Cycle minutes needed

### TO SET THE TIMER FOR DAYS OF REGENERATION, AND FILL MINUTES, DO THE FOLLOWING.

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

#### 1. SET DAYS AND TIME OF REGENERATION, OR RECHARGE

- a.** Press the RECHARGE TIME button [2] once, to display the factory set regeneration days and starting time (flashing). To change the regeneration start time, do step b following. Otherwise go to step c.

FIG. 31



- 1 PRESENT TIME AND
- 2 RECHARGE TIME
- 3 RECHARGE DAY

**NOTE:** Read "Automatic Bypass" page 21, when choosing a regeneration starting time other than 2:00 AM.

- b.** Press the SET/CLEAR button [4] 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 the display ahead 2 hours each second.

- c.** Press the RECHARGE DAY button [3] and Sunday begins to flash.

. . . If you want regenerations on Sunday (from regeneration table), press the SET/CLEAR button [4] to display **ON**.

. . . If you do not want Sunday regenerations, press SET/CLEAR button [4] to display **OFF**.

- d.** Press the RECHARGE DAY button [3] again to display a flashing Monday and **ON** (factory set

continued, page 27

# SECTION 7

# REGENERATION TABLES

	EXTRA CAPACITY 50, MODEL NO. 625.3485003										HIGH CAPACITY 70, MODEL NOS. 625.347703 & 625.3487003											
	WATER HARDNESS - GRAINS PER GALLON										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	Up to 10	11 to 15	16 to 20	21 to 25	26 to 30	31 to 35	36 to 40	41 to 50	51 to 60	61 to 70		
1 PERSON IN THE HOUSEHOLD	M	M	M	M	M	M	M	M	M TH	M TH	M	M	M	M	M	M	M	M	M	M	M TH	1 PERSON IN THE HOUSEHOLD
	11	11	11	11	11	11	11	13	16	11	11	10	10	10	10	10	11	14	17	20	10	
2 PERSONS IN THE HOUSEHOLD	M	M	M	M	M TH	M TH	M TH	M TH	M W S	M W S	M	M	M	M	M TH	M TH	M TH	M W S	M T TH S	M T TH S	2 PERSONS IN THE HOUSEHOLD	
	11	11	11	16	11	11	13	16	11	12	10	10	14	20	10	11	14	11	10	10		
3 PERSONS IN THE HOUSEHOLD	M	M	M TH	M TH	M TH	M W S	M W S	M T TH S	M T TH S	M T TH F S	M	M	M TH	M TH	M W S	M W S	M T TH S	M T TH S	M T TH F S	M T TH F S	3 PERSONS IN THE HOUSEHOLD	
	11	11	11	11	15	11	13	11	12	11	10	17	10	13	10	11	10	13	12	11		
4 PERSONS IN THE HOUSEHOLD	M	M	M TH	M TH	M W S	M T TH S	M T TH S	M T TH F S	M T TH F S	M T TH F S	M	M TH	M TH	M W S	M T TH S	M T TH S	M T TH F S	M T TH F S	EVERY DAY	EVERY DAY	4 PERSONS IN THE HOUSEHOLD	
	11	16	11	16	12	11	13	11	11	11	15	11	15	11	10	11	10	11	11	14		
5 PERSONS IN THE HOUSEHOLD	M	M TH	M TH	M W S	M T TH S	M T TH F S	M T TH F S	M T TH F S	EVERY DAY	EVERY DAY	M	M TH	M W S	M T TH S	M T TH S	M T TH F S	M T TH F S	EVERY DAY	EVERY DAY	EVERY DAY	5 PERSONS IN THE HOUSEHOLD	
	11	11	15	12	11	11	13	12	11	13	10	14	11	10	13	11	11	12	16	20		
6 PERSONS IN THE HOUSEHOLD	M	M TH	M W S	M T TH S	M T TH F S	EVERY DAY	EVERY DAY	EVERY DAY	EVERY DAY	M TH	M W S	M T TH S	M T TH S	M T TH F S	M T TH F S	EVERY DAY	EVERY DAY	EVERY DAY	6 PERSONS IN THE HOUSEHOLD			
	11	11	11	11	11	11	11	12	15	18	10	10	10	13	12	11	11	16	22			
7 PERSONS IN THE HOUSEHOLD	M	M TH	M W S	M T TH S	M T TH F S	EVERY DAY	EVERY DAY	EVERY DAY	M TH	M W S	M T TH S	M T TH F S	M T TH F S	EVERY DAY	EVERY DAY	EVERY DAY	7 PERSONS IN THE HOUSEHOLD					
	13	13	13	13	13	11	13	16	11	11	11	11	11	11	14	20						
8 PERSONS IN THE HOUSEHOLD	M	M TH	M T TH S	M T TH F S	EVERY DAY	EVERY DAY	M TH	M T TH S	M T TH F S	EVERY DAY	EVERY DAY	EVERY DAY	8 PERSONS IN THE HOUSEHOLD									
	16	16	11	11	12	14	16	15	10	10	11	11	14	17								
9 PERSONS IN THE HOUSEHOLD	M TH	M W S	M T TH S	M T TH F S	EVERY DAY	EVERY DAY	EVERY DAY	M W S	M T TH S	M T TH F S	EVERY DAY	EVERY DAY	EVERY DAY	EVERY DAY	9 PERSONS IN THE HOUSEHOLD							
	11	11	12	11	11	15	20	10	11	12	10	13	17	22								
10 PERSONS IN THE HOUSEHOLD	M TH	M W S	M T TH F S	M T TH F S	EVERY DAY	EVERY DAY	M W S	M T TH S	M T TH F S	EVERY DAY	EVERY DAY	EVERY DAY	10 PERSONS IN THE HOUSEHOLD									
	11	12	11	12	13	18	11	13	11	12	16	20										

**LEGEND:** M T W TH F S SU — DAYS TO REGENERATE: M = Monday, T = Tuesday, W = Wednesday  
 TH = Thursday, F = Friday, S = Saturday, SU = Sunday  
 (factory set for Monday, Wednesday and Saturday)

12 ← MINUTE-LENGTH OF FILL CYCLE NEEDED  
 (factory set for 16 minutes)

NOTE: SEE TABLE ON PAGE 27 FOR SALT USED EACH REGENERATION.

continued from page 25

recharge). As you did in step c, use the SET/CLEAR button **4** to change the display from ON to OFF, or from OFF to ON.

- e. Press RECHARGE DAY button **3** to display a flashing TUESday, WEDnesday, etc., each time

using the SET/CLEAR button **4** to display either ON or OFF as needed.

After recharge is either set or cancelled for SATurday, press the PRESENT TIME AND DAY button **1** once again to return the present time and day display.

## 2. SET THE FILL CYCLE MINUTES

- a. Press and hold the RECHARGE TIME button **2** until FILL shows in the display, then release button **2**. After a few seconds, the fill cycle minutes (factory setting . . .16) will flash.
- b. Press the SET/CLEAR button **4** to set the minutes of fill cycle needed, as shown in the regeneration table.

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.

- c. Press PRESENT TIME AND DAY button **1** to return the present time and day display.

NOTE: TO SET THE PRESENT TIME OF DAY, AND DAY OF WEEK, SEE PAGE 17.

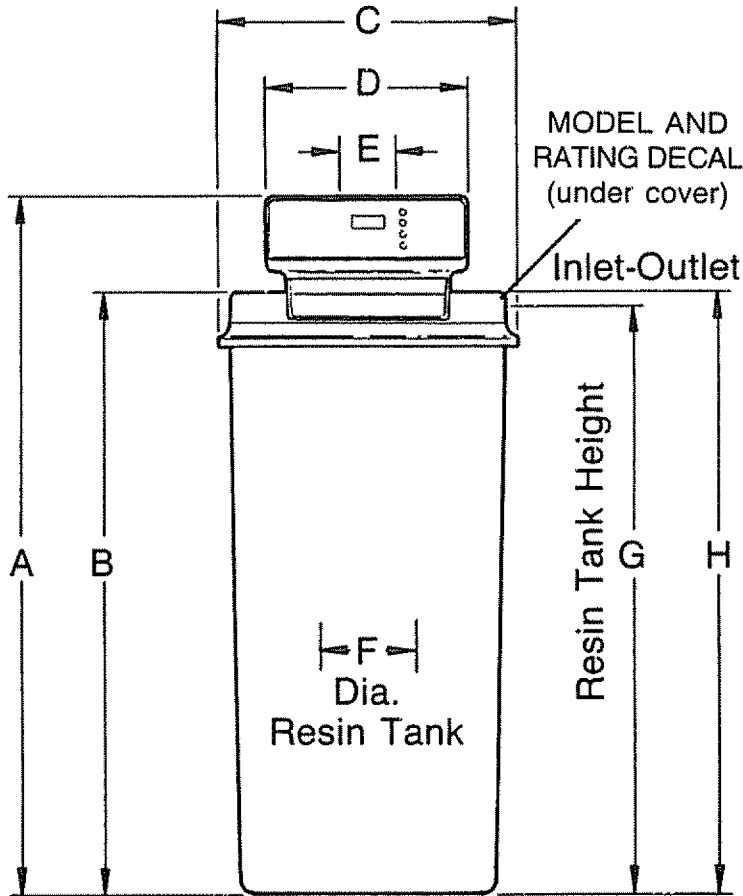
### POUNDS OF SALT USED EACH REGENERATION

<u>MINUTE-LENGTH OF FILL CYCLE</u>	=	<u>POUNDS SALT USED</u>
10		2.9
11		3.2
12		3.5
13		3.8
14		4.1
15		4.4
16		4.6
17		4.9
19		5.5
20		5.8
25		7.2

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

# SECTION 7

# OTHER THINGS TO KNOW



## DIMENSIONS

Dimension	EX. CAPACITY 50 MODEL NO. 625.3485003		HIGH CAPACITY 70 MODEL NOS. 625.347703 & 625.3487003	
	in.	cm.	in.	cm.
<b>A</b>	42½	108	47½	119.7
<b>B</b>	36½	92.7	41½	105.4
<b>C</b>	17½	44.5	17½	44.5
<b>D</b>	12¾	32.4	12¾	32.4
<b>E*</b>	3 3/8	8.6	3 3/8	8.6
<b>F</b>	8	20.3	8	20.3
<b>G</b>	35	88.9	40	101.6
<b>H</b>	36½	92.7	41½	105.4

\*from center of inlet to center of outlet

## SPECIFICATIONS

**SOFTENER RATED CAPACITY (Grains)**  
@ Pounds of Salt

**SERVICE FLOW RATE (Gallons Per Minute)**  
not over 15 pounds per square inch (psi)  
pressure loss

### REGENERATION FLOW RATES

FILL (Gal. Per Min. Flow to Storage Tank)  
BRINING  
BRINE RINSE } (Gallon Per Minute  
BACKWASH } Flow to Drain)  
FAST RINSE

**TYPE OF ION EXCHANGE MATERIAL (RESIN)**

**AMOUNT OF RESIN (Cubic Feet)**

**TYPE OF SALT NEEDED**

**ALTERNATE TYPE OF SALT**

**MAXIMUM WATER HARDNESS (Grains Per Gallon)**

**MAXIMUM "CLEAR WATER" IRON (Parts Per Million)**

**MODEL NO.**  
**625.3485003**

**MODEL NOS.**  
**625.3487003/625.347703**

18,600 @ 5.5 (2.5 Kg)  
16,600 @ 4.5 (2.0 Kg)  
13,900 @ 3.3 (1.5 Kg)

23,500 @ 7.0 (3.2 Kg)  
20,500 @ 5.4 (2.5 Kg)  
16,500 @ 3.8 (1.7 Kg)  
14,000 @ 2.8 (1.4 Kg)

8.0 (30.3 Liters)

8.0 (30.3 Liters)

.1 (.4 liters)  
.16 (.6 liters)  
.11 (.4 liters)  
1.8 (6.8 liters)  
1.8 (6.8 liters)

.1 (.4 liters)  
.16 (.6 liters)  
.11 (.4 liters)  
1.8 (6.8 liters)  
1.8 (6.8 liters)

High Capacity Resin

.60 (.017 cu. m)

.75 (.022 cu. m)

Nugget or Pellet

Pure, evaporated, compacted water softener salt

50

70

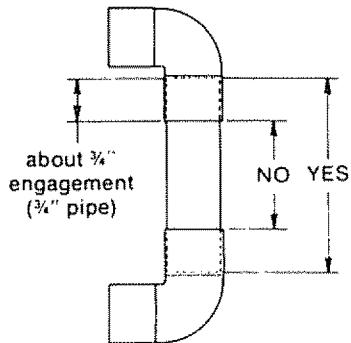
2.0

3.0

NOTE: The above flow rates obtained testing at 35 psi inlet pressure.

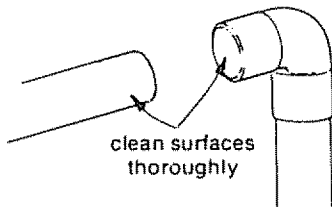
**SWEAT SOLDERING TIPS**

**MEASURING PIPE LENGTHS:** Always be sure to include the length of pipe that goes inside the fitting. On 3/4 in. pipe, this length is about 3/4 in.



**CUTTING PIPE:** Turn the pipe cutter back and forth around the outside of the pipe. Tighten the pipe cutter slowly with each turn until all the way through the pipe. To keep from crushing or distorting the pipe, do not tighten the cutter too much at a time. File burrs from cut ends.

**CLEAN PIPE AND FITTING SOLDERING SURFACES:** With emery cloth, fine sandpaper or steel wool, clean the end of the pipe and inside of the fitting. Clean surfaces until they shine. Do not grind off too much material, making the fit too loose.



**CHECK THE FIT:** Push the pipe into the fitting as far as it will go. Use some force to slip together, but do not hammer or pound. If too tight, clean surfaces until fit is good.

**PUT ON PASTE FLUX:** Freely apply paste flux on both cleaned surfaces. Place pipe into the fitting and turn to spread the paste around.

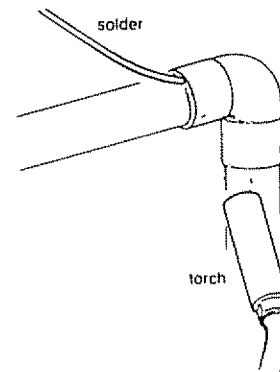
**BEFORE SOLDERING, READ THESE SAFETY GUIDES. (ALSO SEE SAFETY GUIDES, PAGE 4).**

- ▲ Keep torch flame away from walls, the water softener, and other materials that will burn.
- ▲ Do not touch newly soldered pipe with your hands.

Wrap nearby, already soldered joints with a wet cloth so solder does not melt.

Let soldered joints cool slowly. Sudden cooling can crack or weaken the solder.

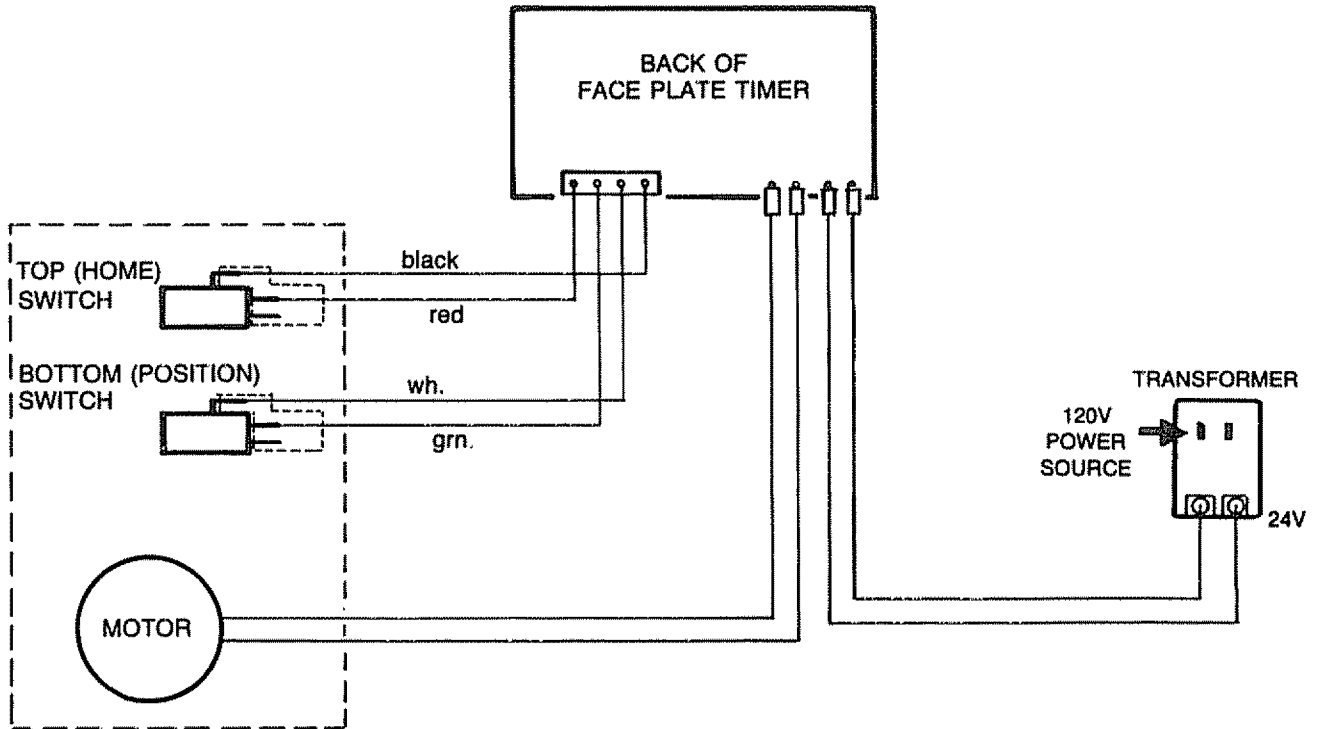
**SOLDERING:** Light the torch and set to a moderate flame. Move the flame over and around the joint to heat pipe and fitting. In a short time, touch the end of the solder wire to the lip of the fitting. **DO NOT PLACE SOLDER IN THE FLAME.** The solder will melt and draw into the connection when the pipe and fitting are at the right temperature. Run the solder around the lip until the joint is full. Do not overfill as solder will run into and harden inside the fitting. Being careful not to touch the pipe with your hands, make a quick swipe around the joint with a cloth to take off excess solder.



For a good sweat solder joint, the pipe and fitting must not have any water inside them. Water, when heated by the torch, weakens the solder and often the joint will leak. If you can not keep the inside of the pipe dry, wad up a piece of bread into a ball. After putting paste flux on both the pipe and fitting, place the bread wad into the pipe and poke in several inches. Put the pipe and fitting together and solder. The bread absorbs moisture while you are soldering. When the water is turned on, the bread dissolves and is flushed out an open faucet.

**LEAKING CONNECTIONS:** You can try to reheat and resolder a leaking joint, but it's usually best to start over. Turn off the water, reheat and take the pipe and fitting apart. Take off all old solder, cleaning down to the copper surface. Apply new paste flux and solder again.

WIRING SCHEMATIC



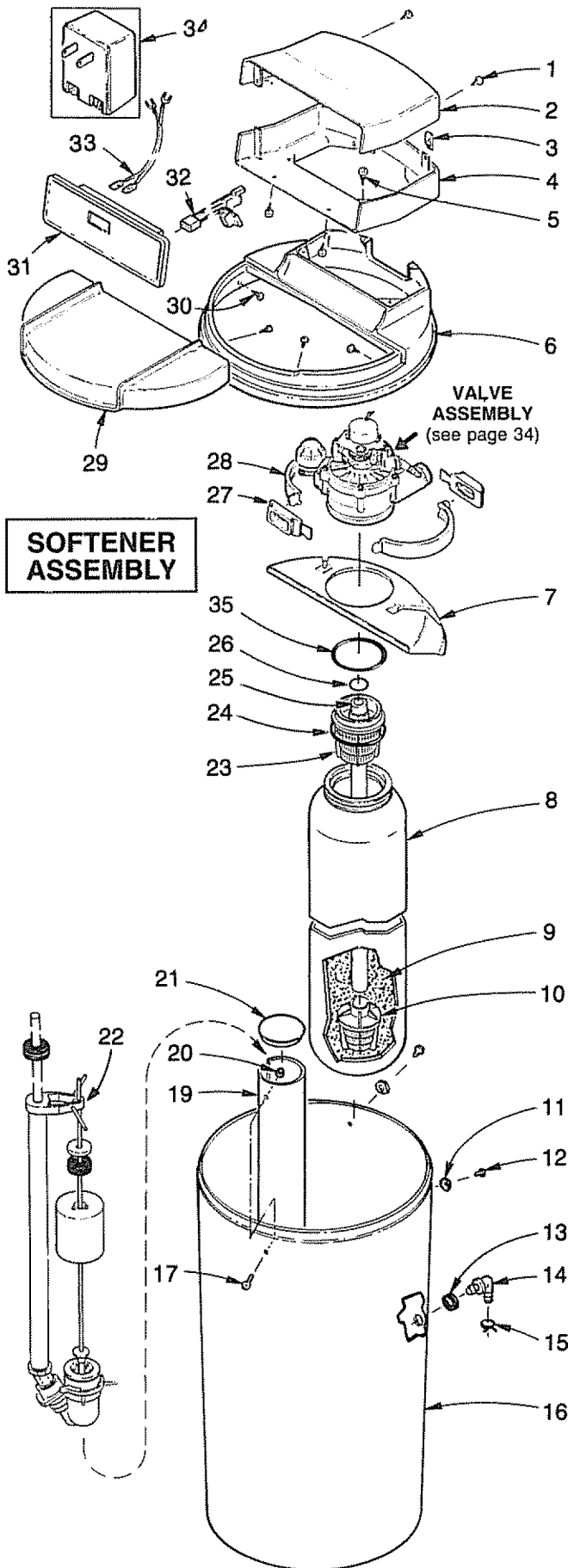


# SECTION 8

# REPAIR PARTS... SEARS WATER SOFTENER

MODEL NOS.

625.3485003 625.347703 625.3487003



KEY NO.	PART NUMBER	DESCRIPTION
1	900562	Screw, #6 x 9/16 (4 req.)
2	7089568	Top Cover
3	900596	Speed Nut (4 req.)
4	7082605	Bottom Cover
5	449613	Screw, #8-32 x 1/2 (4 req.)
6	7093389	Rim
7	7082891	Harness
8		Resin Tank (Incl. Key No. 9)
	7092147	Model No. 625.3485003
	7092155	Model No. 625.3487003, .347703
9		Resin
	505644	Model No. 625.3485003
	501744	Model No. 625.3487003, .347703
10	7066497	Bottom Distributor
11	7108825	Washer (2 req.)
12	9006048	Screw, .25-10 x 3/4 (4 req.)
13	9003500	Grommet •
14	1103200	Hose Adapter •
15	900431	Hose Clamp •
16		Salt Storage Tank
	7092121	Model No. 625.3485003
	7092139	Model No. 625.3487003, .347703
17	900712	Screw, #6-32 x 7/16
18	—	
19		Brinewell
	7109871	Model No. 625.3485003
	7100819	Model No. 625.3487003, .347703
20	900706	Nut, #6-32
21	500283	Brinewell Cover
22	7091353	Brine Valve Assembly
23	7077870	Top Distributor
24	7096183	O-Ring, 2-3/4 x 3
25	7105047	Repl. Distributor (Incl. Key No. 10)
26	900039	O-Ring, 1-1/16 x 1-1/4
27	7088033	Clamp Retainer (2 req.)
28	7088041	Clamp Section (2 req.)
29	7092171	Cover, Salt Storage
♦	7089762	Decal, Model 625.3485003
♦	7089770	Decal, Model 625.3487003, .347703
30	9006045	Screw, #6-18x5/8 (4 req.)
31		Face Plate (Timer)
	7100495	Model No. 625.3485003
	7100500	Model No. 625.3487003, .347703
32	7084306	Wire Harness (switches)
33	7084330	Power Cord (transformer)
34	7095373	Transformer, 24V-10VA •
35	7079092	O-Ring, 2-7/8 x 3-1/4
♦	7109457	Owners Manual (F642-1791) •

♦ not illustrated • Included in small parts skin pack - see page 35

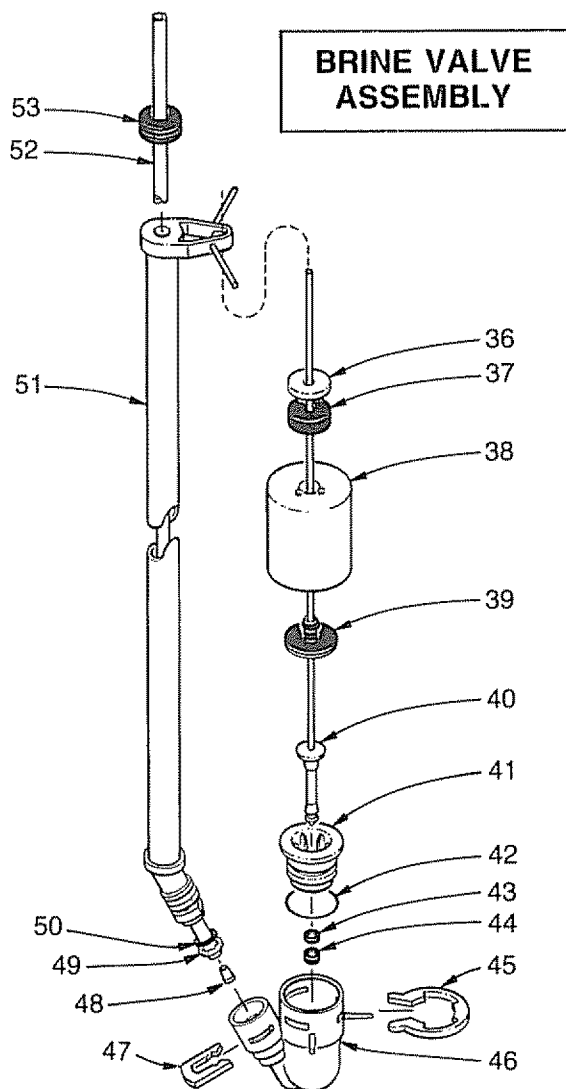


# SECTION 8

# REPAIR PARTS . . . SEARS WATER SOFTENER

MODEL NOS.

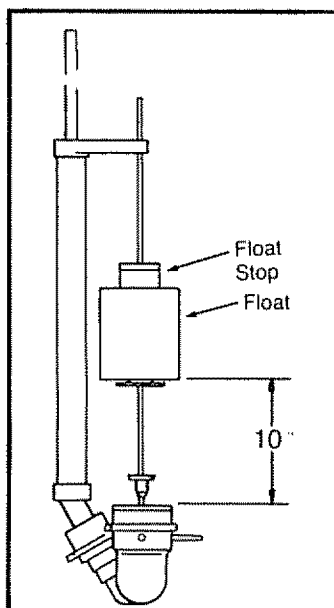
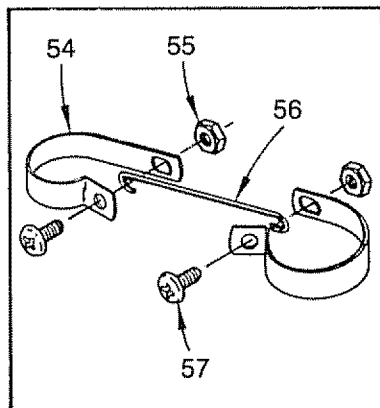
625.3485003 625.347703 625.3487003



KEY NO.	PART NUMBER	DESCRIPTION
36	505957	Lead Washer
37	513860	Float Stop
38	7092317	Float
39	516947	Float Seal
40	7093216	Float Rod & Stem
41	7092278	Guide Cap
42	900535	O-Ring, 15/16 x 1-3/16
43	516211	Seal
44	516924	Retainer, Bottom Seal
45	1205500	Clip
46	7092252	Brine Valve Body
47	7080653	Clip
48	7094979	Insert
49	7092294	Retaining Ring
50	7092286	O-Ring, 5/16 x 9/16
51	7095470	Brine Tube
52	7089267	Tubing
53	7094995	Grommet
54	900373	"C" Clamp (2 req.) •
55	120375	Nut (2 req.) •
56	500726	Ground Wire •
57	160505	Screw, 1/4-20 (2 req.) •

• parts included in small parts skin pack...see page 35.

INLET - OUTLET  
GROUNDING CLAMPS



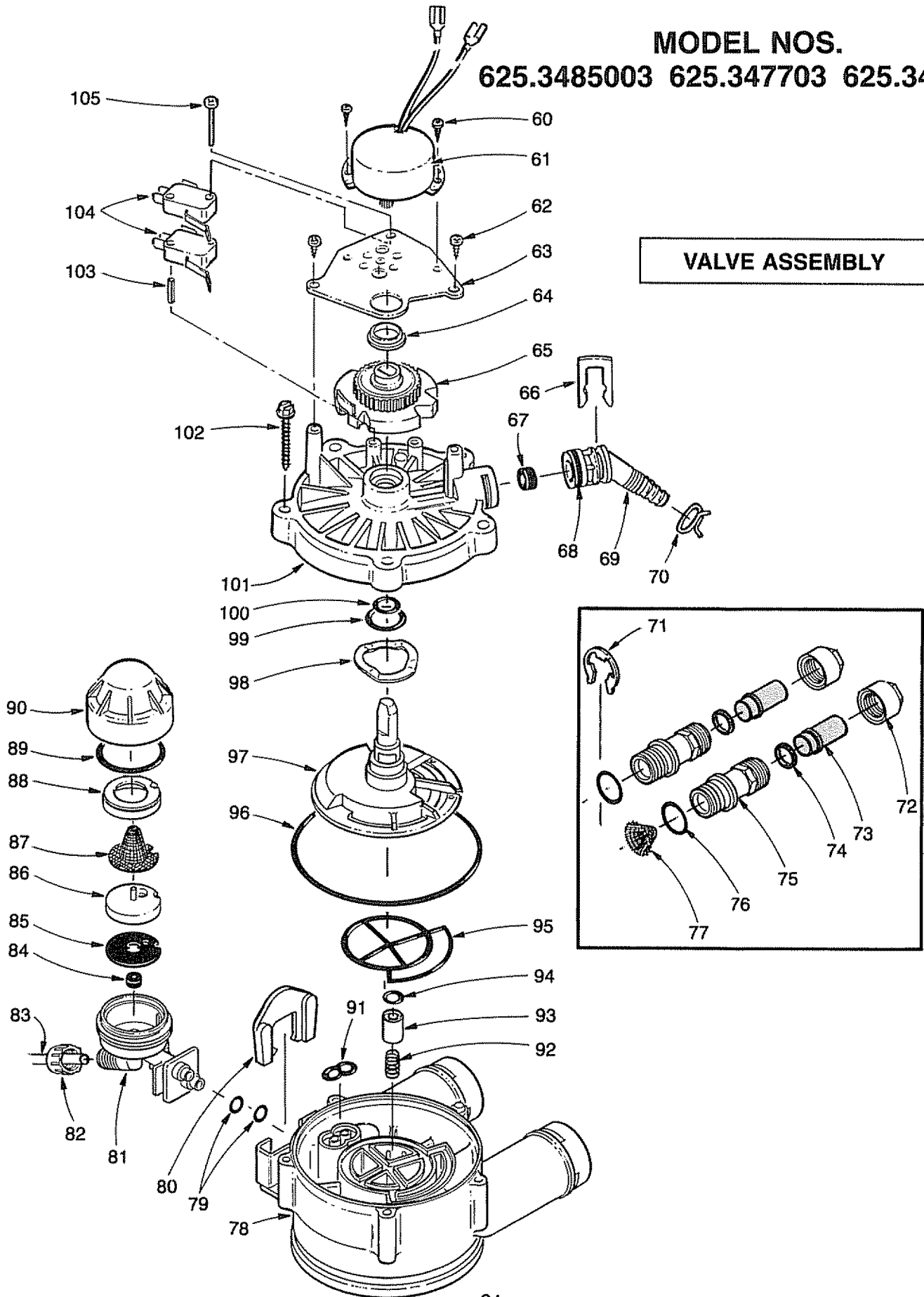
# SECTION 8

# REPAIR PARTS . . . SEARS WATER SOFTENER

MODEL NOS.

625.3485003 625.347703 625.3487003

## VALVE ASSEMBLY



**SECTION 8****REPAIR PARTS . . . SEARS WATER SOFTENER**

**MODEL NOS.**  
**625.3485003    625.347703    625.3487003**

**VALVE ASSEMBLY**  
**PARTS LIST**

KEY NO.	PART NUMBER	DESCRIPTION
60	900120	Screw, #6-18 x 3/8 (2 req.)
61	7070462	Motor
62	900857	Screw, #6-20 x 3/8 (2 req.)
63	7064974	Motor Plate
64	503288	Bearing
65	7066439	Cam and Gear
66	7080653	Clip (Drain)
67	501228	Flow Plug
68	900041	O-Ring, 5/8 x 13/16
69	7024160	Drain Hose Adaptor
70	900431	Hose Clamp ●
71	1205500	Clip (2 req.) ●
72	507369	Installation Nut (2 req.) □
73	507615	Installation Tube (2 req.) □
74	900570	Washer (2 req.) □
75	507371	Installation Adaptor (2 req.) ●
76	900535	O-Ring, 15/16 x 1-3/16 (2 req.) ●
77	900568	Screen (inlet) ●
78	7082053	Valve Body
79	900064	O-Ring, 1/4 x 3/8 (2 req.)
80	7081201	Retainer (Nozzle & Venturi)
81	7081104	Nozzle & Venturi Housing
82	1202600	Nut - Ferrule
83	7089267	Tubing
84	521829	Flow Plug, .1 gpm
85	7082582	Gasket

□ parts not included with softener –  
available from Sears, Stock No. 42-3441

KEY NO.	PART NUMBER	DESCRIPTION
86	7085166	Nozzle and Venturi (Aspirator)
87	7090705	Screen
88	7089893	Screen support
89	7039068	O-Ring, 1-3/16 x 1-3/8
90	7081188	Cap
91	7081764	Seal (Nozzle & Venturi)
92	1219600	Spring
93	7092642	Plug (Drain Seal)
94	7092634	O-Ring 3/8 x 9/16
95	7081756	Rotor Seal
96	9001006	O-Ring, 3-3/8 x 3-5/8
97	7103964	Rotor & Disc
98	7082087	Wave Washer
99	7064372	O-Ring, 3/4 x 15/16
100	7064380	O-Ring, 7/16 x 5/8
101	7085263	Valve Cover
102	7074123	Screw, #10-14 x 2 (5 req.)
103	7077472	Expansion Pin
104	7030713	Switch (2 req.)
105	7070412	Screw, #4-24 x 1-1/8
◆	7085239	Nozzle & Venturi Assem. (Incl. Key Nos. 81, and 84 through 90)
◆	7109300	Small Parts Skin Pack. (Incl. all parts marked, ● pg. 32, 33, 35)
◆	7092163	Seal Kit (Incl. Key Nos. 91, 94, 95, 96, 99 and 100)

◆ not illustrated

**SEARS**

**OWNERS  
MANUAL**

**SERVICE**

**MODEL NOS.**

625.3485003  
EXTRA CAPACITY 50

625.347703  
625.3487003  
HIGH CAPACITY 70

**HOW TO ORDER  
REPAIR PARTS**

**TELL SEARS YOU  
WANT IT INSTALLED  
THEN RELAX**

**Kenmore**

**WATER SOFTENER**

Now that you have purchased your water softener, should a need ever exist for repair parts or service, simply contact any Sears Service Center. Be sure to provide all pertinent facts when you call or visit.

The model number of your water softener is found on the rating decal. This decal is on the storage tank rim, under the cover plate.

WHEN ORDERING REPAIR PARTS, ALWAYS GIVE THE FOLLOWING INFORMATION:

- |                |                    |
|----------------|--------------------|
| - PART NUMBER  | - PART DESCRIPTION |
| - MODEL NUMBER | - NAME OF ITEM     |

All parts listed may be ordered from any Sears Service Center.

If the parts you need are not stocked locally, your order will be electronically transmitted to a Sears Repair Parts Distribution center for handling.

When Sears arranges the installation, you can be sure the job is done right. We will arrange for professional workmanship . . . and we'll take care of the entire project. What's more, during installation you get insured protection . . . against property damage and also against accidents to workmen. All you have to do is talk to your Sears salesperson or call your nearest Sears store today for detailed information.

---

Sears, Roebuck and Co., Chicago, Ill. 60684 U.S.A.

---