

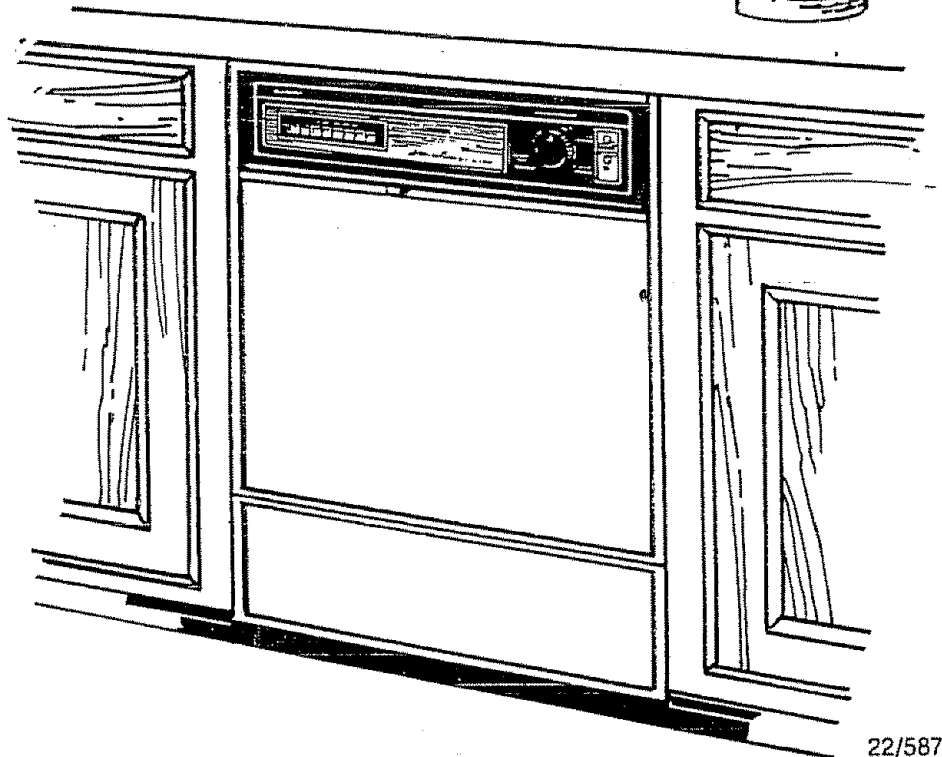
SEARS

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Do-It-Yourself REPAIR MANUAL for Kenmore® AUTOMATIC DISHWASHERS

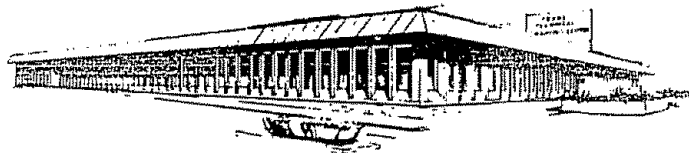
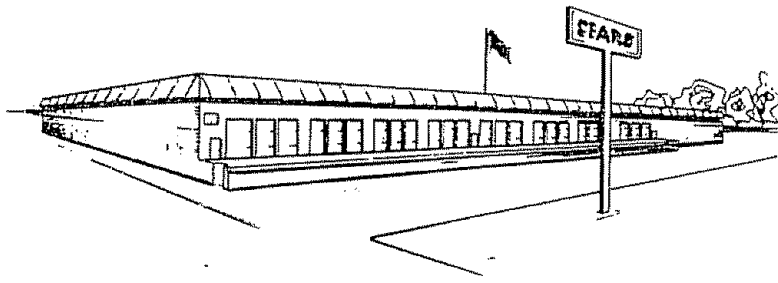
Easy-to-follow step-by-step repair
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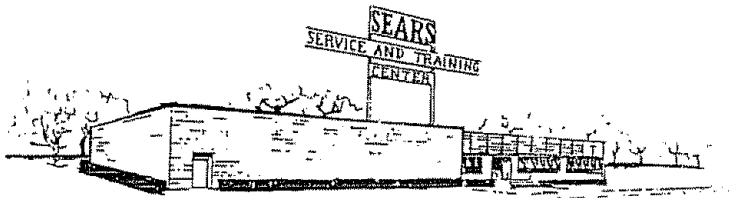
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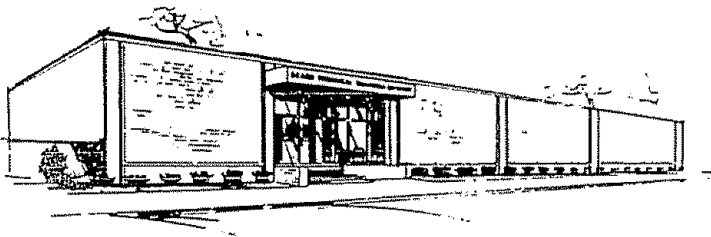
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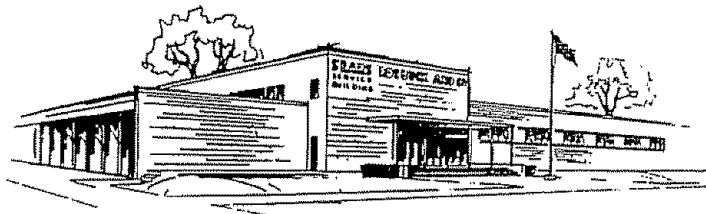
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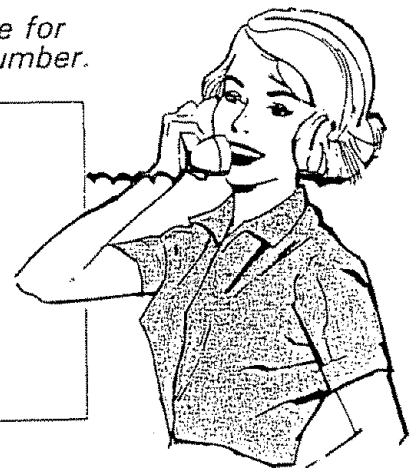


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INTRODUCTION

This service manual is designed to provide you with a basic knowledge of the operation of your Kenmore Dishwasher.

It was not designed to cover a specific model, but covers, in detail, the repair of most components used on any model. The production of a service manual for each individual model is not practical because of the excessive duplication that would result.

Thorough study of this manual will provide a good working knowledge of the components that may be used within a Kenmore Dishwasher. Application of this knowledge to a specific dishwasher should make repair relatively simple.

Included in this manual are installation instructions and service procedures.

The importance of proper installation of any appliance cannot be overstressed. Our experience indicates that incorrect installation is a major cause of unsatisfactory product performance.

CAUTION – PLEASE NOTE

Sears, Roebuck and Co. assumes no responsibility for any repairs made on our products by anyone other than our own Service Technicians.

Replacement of the dishwasher tub should be performed only by a qualified technician. It is recommended that you contact your nearest Service Department for this service.

As a safety precaution, ALWAYS disconnect electrical power from the dishwasher before attempting to make any repairs.

A. WATER, DETERGENT AND THE AUTOMATIC DISHWASHER

Water

Water is a *primary* ingredient in *determining* automatic *dishwashing* results. The minerals in water, when in sufficient quantity, will cause spotting, filming and the possible discoloration of some metals. The minerals which account for the greatest difficulty are calcium and magnesium. These minerals determine the hardness of the water.

The definition of hard water varies somewhat. However, most authorities agree with the following scale:

- 0 to 4 grains hardness per gallon - soft water
- 4 to 8 grains hardness per gallon - medium water
- 8 to 12 grains hardness per gallon - hard water
- over 12 grains hardness per gallon - very hard water

Automatic dishwashing results are *visibly* affected when calcium and magnesium are present in a concentration of eight grains per gallon or more. As their concentration increases, the problems of spotting and filming can increase proportionately.

When spotting and filming are caused by hard water conditions, they will normally be evident on glassware and tableware (silverware) within a short period of time. Over a longer period of time, hard water film can build up on the racks, walls, spray mechanism and heating element of the dishwasher itself. The development of hard water film on the dishwasher may cause additional problems and reduce the efficiency of the dishwasher due to the build-up of the lime deposits on the pump area, drain hoses, etc.

If water supplied to the dishwasher is less than 10 grains hard, spotting and filming can be controlled satisfactorily by the amount of detergent used, in a properly functioning dishwasher.

When correct amounts of detergent are used for the prevailing water conditions, the water softening ingredients will also dissolve calcium and magnesium which have deposited on dishware surfaces in preceding dishwashing cycles.

In *medium and hard water* conditions, the amount of detergent used should be increased. We recommend *filling the detergent cups* under these conditions. In some very hard water conditions, it may also be advisable to place additional detergent in the dishwasher for the main wash cycle.

When the total hardness of the water exceeds 12 grains per gallon, it may be advisable to install a water conditioning unit to remove the calcium and magnesium from the water, in order to insure continuous excellent automatic dishwashing results. Also keep in mind that when a customer already has a water softener that it may not be functioning correctly or it may not be able to handle the capacity needed for the size of the household.

REMOVAL AND CONTROL OF HARD WATER FILM

A 5% or 6% acidic solution, such as vinegar, will remove hard water film and may be used to determine its presence on glassware. Place a small amount of vinegar in a bowl and allow filmed glassware to soak in the vinegar for 3 to 10 minutes. Remove from vinegar, rinse and blot dry. If the film present was due to hard water, it will have been removed.

The following "home" method may be used to remove hard water film from glassware and the dishwasher: Allow dishwasher to fill for the main wash cycle; place two cups vinegar in the water and allow machine to *complete* the entire cycle. *Do not place metalware, plasticware, silverware, cutlery, or detergent in dishwasher when performing this film stripping process.*

The Automatic Dishwasher

The automatic dishwasher is blamed for many problems over which it exercises no control. A properly functioning dishwasher, properly loaded, using the recommended amount of a good dishwasher detergent and having the specified water charge will do an excellent job of cleaning.

Some of the problems that do arise and are caused by conditions other than functional characteristics of the dishwasher are as follows:

- 1 Sudsing - You are familiar with the mountains of suds that result from using the wrong detergent in an automatic washer. A similar problem in an automatic dishwasher can be caused by using improper detergents, using solid jet dry, a leaking wetting agent dispenser or excessively low or high water temperature. A complaint of poor cleaning of dishware may accompany this problem. Sudsing leaks in a dishwasher will usually occur at the door gasket or the blower housing. On hard to find leaks, suspect sudsing and check the following:

Use a fresh detergent *made especially for automatic dishwashing*. Such detergents are labeled on each container for automatic or electric *dishwashing*. When in doubt, consult the Owner's Manual; it contains the recommended detergents, or use recognizable major brands.

Water temperature recommended on most detergent packages is 140°. If water temperature is extremely low (120°) or extremely high (180°), then sudsing will surely occur. For best results from detergent and wetting agent liquid, water temperature should be between 140° - 150°F. Solid jet dry should be avoided except if you should choose to place the jet dry in dishwasher for the final rinse only.

Hand pre-washing of dishware with Joy or other such dishwashing liquids or soaps prior to loading can cause excessive sudsing since this liquid may not be thoroughly rinsed away and, when agitated in the dishwasher, can cause sudsing.

A malfunctioning of the wetting agent dispenser mechanism which would allow excessive amounts of liquid jet dry to be released in the rinse or wash may also cause excessive sudsing. Each injection of wetting agent liquid should be approximately 8cc.

- 2 Etching - Etching of glassware is the result of soft glass and an alkaline compound. The surface of the glass has actually been destroyed and no amount of rubbing can restore the glassware to its original state.

A quick check for etching can be made by scratching the surface of the glass with a pin. If the "stain" or "spottling" (white film) can be removed, the condition is an undesirable film but not etching.

Permanent etching of glassware can in no way be caused by the operation of the dishwasher. The dishwasher can only be a contributor to the problem if it is not properly circulating the water charge.

Make sure the dishwasher is operating normally and there is an adequate supply (volume) of water to insure a good fill each time. Check to be certain the water is circulating and the detergent is fresh.

There are several factors which cause or contribute to permanent (etching) staining.

1. *Extremely hot water.*
2. Excessive use of detergent for water condition.
3. The *water is soft* (0 to 4 grains hard, either naturally or thru a softener)
4. Composition [*mineral makeup*] of water.
5. Composition of the glasses themselves.

Softened water is more detrimental than naturally soft water. We do not imply that the water softener be removed. There may be a definite need for a softener.

We can effectively control only two of the above factors; *water temperature and amount of detergent.*

We recommend when etching is encountered that water temperature be set no higher than 140°; and a reduction in the amount of detergent used, *consistent with good dishwashing results*. One tablespoon per detergent cup may be adequate.

This may not completely eliminate etching, but it will help to slow down the process of etching of glassware.

3. Dishwashing Problems and Answers

| PROBLEM | POSSIBLE CAUSE & SOLUTION |
|--------------------------------------|--|
| Dishes Not Clean | Water temperature is too low. It should be from 140°F. to 150°F. (60°C to 66°C). Not enough water in the dishwasher. Using old, lumpy detergent. Improper loading. Items may be placed in the wrong position. A knife or a slender handle may have prevented spray arm turning. |
| Spotting | Caused by mineral deposits from hard or soft water left by evaporation. Use a wetting agent such as Jet Dry. Store dishwasher detergent in a cool, dry place. |
| Filming | Water is too hard. Use more detergent. If hardness is greater than 12 grains, you may need to install a water softener. Usually hard water film can be removed by soaking a glass in a half and half solution of vinegar and water. ^o If this proves effective, load the filmed glasses and dishes into the dishwasher. Operate on LIGHT WASH cycle. Stop the machine after it has filled for the wash phase of the cycle and pour in two cups of vinegar. Close the door and let the machine complete the cycle. ^o Some commercial products such as Glass Magic may be available in your area. |
| Etching | Etching appears as a film and is impossible to remove. It can be retarded by using smaller amounts of detergent. Thorough rinsing is important; so load your dishwasher properly. Do not overload it. Dishwasher water temperature should be at 140°F. (60°C). |
| Silverware Stained or Pitted | Can be caused by direct contact with detergent or prolonged contact with acid or salty foods. Do not let detergent drop on silverware. Rinse tableware promptly if it has been exposed to staining foods. |
| Bronze Tarnish on Silverware | Silverplate has worn off, exposing base metal. Silver polish can remove tarnish but replating is necessary for permanent solution. |
| Black Marks on Dinnerware | Can be caused by metal objects rubbing the plate. Remove the marks by soaking the plate in a mild bleach solution. After this, wash the plate in a normal dishwasher cycle. |
| Aluminum Discoloration | Minerals in your water supply and high water temperature in combination with some detergents can darken aluminum. |
| Brown Stains (Rust) on Dishes or Tub | Too much iron in your water. You may need iron removal equipment installed. |
| Dishes Not Dry | The water is too cool. It should be at least 140°F. (60°C) at the dishwasher. Improper loading. Load dishes so the water can run off. On machines without forced air drying, try opening the door slightly at the beginning of the dry cycle. Unload after about an hour. Select "Hot Dry". Use of wetting agent for those dishwashers equipped with automatic dispensers helps water to sheet off faster. |
| Dishes Chipping | Improper loading. Load glassware and dishes between the supports so they are stable and cannot bump each other. |
| Dishwasher Odor | Soiled dishes held too long in dishwasher. Use RINSE & HOLD cycle for dishes that will be washed later. |
| Noise | Some hard object (bottle cap, measuring spoons, etc.) may have fallen into the bottom of the tub. Clean the pump. |
| Water in Tub Bottom | A small amount of water will remain in the bottom of the tub after each cycle. |

CLEANING MINERAL DEPOSITS FROM PORCELAIN SURFACES

The following procedure is safe if the instructions are carefully followed

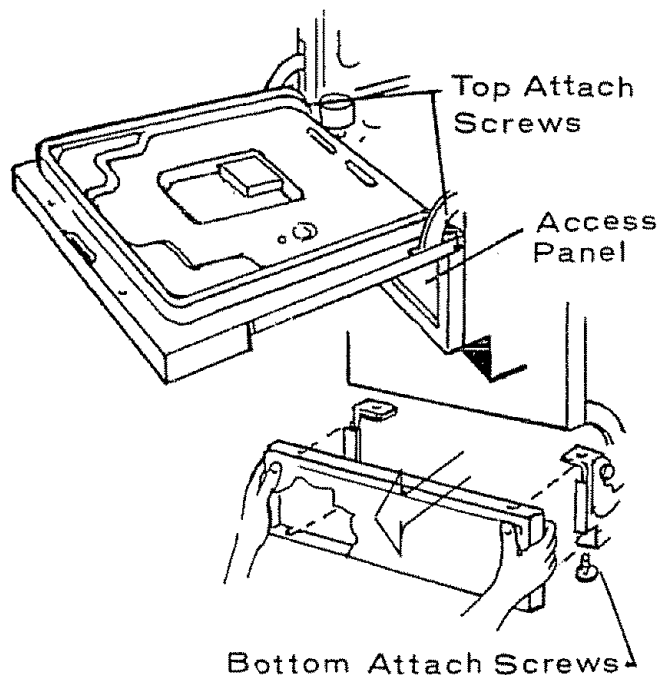
Many complaints of porcelain deterioration have been traced to a surface discoloration due to the presence of iron, manganese or calcium in the water supply. In areas having a high mineral content in the water, particularly iron, discoloration or stains can usually be removed by the following method:

- 1 Use water softener Resin Cleaner. This compound is available from Sears Plumbing and Heating Department.
- 2 Pour 8 ounces of the compound into the bottom of the tub.
- 3 Fill the 2nd wash detergent cup with dishwasher detergent and close the cup.
- 4 Select a normal cycle - must have 2 washes and 4 rinses.
- 5 Allow the dishwasher to complete all washes and rinses. It is not necessary to complete the dry cycle.
- 6 DO NOT place dinnerware or silverware in the dishwasher during the cleaning operation.

CAUTION:

Because of the obnoxious odor of the cleaner in solution - Do Not open the dishwasher door until the completion of the last rinse.

How To Remove The Access Panel



Loosen the two bottom attach screws in the access panel.
Open dishwasher door.
Remove the two top attach screws.
Close door. Access panel can now be removed by pulling straight off.

B. INSTALLATION

Portable Dishwasher

Hot Water Connections – Portable Dishwasher

1. Attach the AERATOR ADAPTOR furnished with the dishwasher to the sink faucet.
2. Check the power outlet.
 - A. Will it take the three-prong plug on the power cord?
 - B. Is the outlet grounded?

CHECKING POWER OUTLET

The dishwasher will operate on regular house current. Do not use any other appliance on the same circuit. Use a circuit with at least a 15 Ampere, but not more than a 20 Ampere fuse. The dishwasher power cord is a three prong type and must be plugged into a three hole grounded outlet. The dishwasher **MUST BE GROUNDED** for safe operation. Do not, under any circumstances, remove the power supply cord ground prong.

Under Counter Dishwasher Drain, Water, and Electric Supply

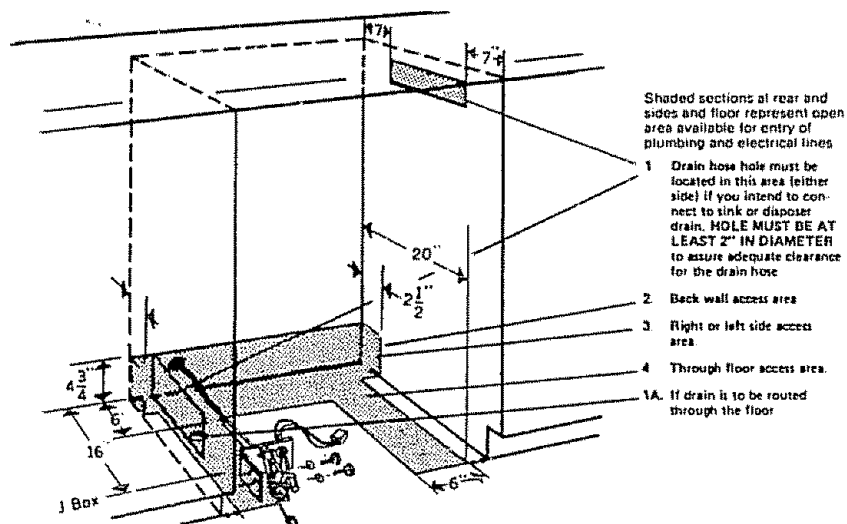


FIGURE 1

Copper tubing must have a minimum I.D. of 3/8 inch. Sears has a waterline kit which includes all the fittings and instructions you need for most installations.

How much water volume is needed? A minimum flow of 8 quarts of hot water is required in 60 seconds – Check this at your kitchen faucet tap with the aerator removed.

IMPORTANT:

Provide a separate circuit with fuse or circuit breaker rated for at least 15 Amps but not more than 20 Amps.

IMPORTANT:

This Appliance Must Be Permanently Grounded In Accordance With The National Electrical Code and Local Codes and Ordinances.

When installing the dishwasher:

1. Connect (in junction box) incoming black lead to dishwasher black lead; and incoming white lead to dishwasher white lead.

2 Attach grounding wire to green grounding screw

CAUTION:

The joining of aluminum building wire to stranded copper wire leads on the dishwasher involves special problems. It should be done only by qualified personnel using material recognized by U/L (or CSA) as suitable.

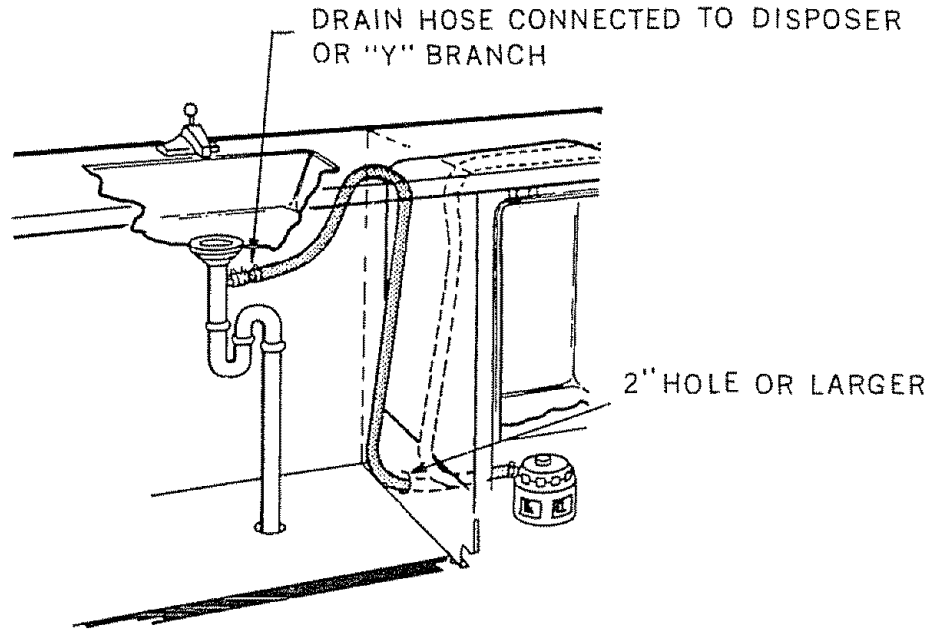
DRAIN. Improperly installed drain hoses can kink and result in poor washability or failure of the dishwasher to drain. Do not use the drain hose supplied with the dishwasher for the water supply line. It is not a reinforced hose and will burst under water line pressure.

NOTE:

A properly operating dishwasher will have approximately 2 cups of clean water remaining in the tub at the completion of the cycle.

CAUTION:

Be sure to remove plug from disposer inlet before attaching drain hose.



SINK AT LEFT
FIGURE 2

IMPORTANT:

After positioning under the counter, the front leveling legs should be raised slightly higher than the rear legs.

DRAIN HOSE CONNECTION TO SINK DRAIN

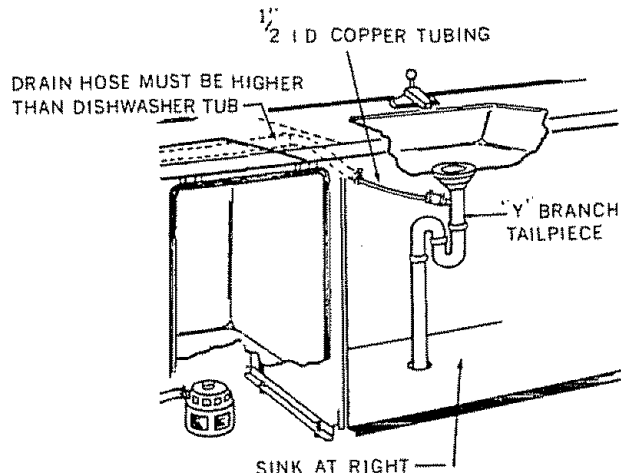


FIGURE 3

Sears "Y" Branch Tailpiece and Connector Kit No. 7296 makes this connection easy. It includes all necessary fittings and complete instructions.

DRAIN HOSE CONNECTION THROUGH FLOOR

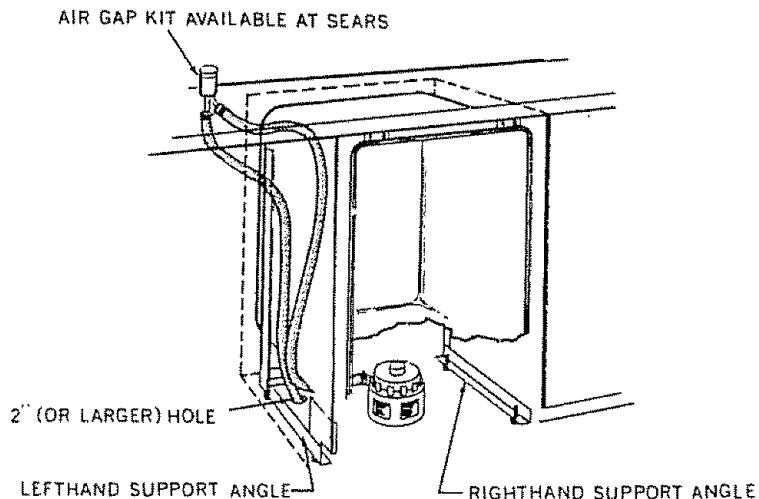


FIGURE 4

If the dishwasher drain hose is routed through the floor to a separate trap, the trap must be vented to prevent siphoning. To provide proper venting, install an Air Gap Kit (available at Sears) in the countertop. Route drain hose up to the inlet side of the Air Gap. Continue drain line from outlet side of Air Gap down through floor to separate trap.

Models Equipped With Installation Module

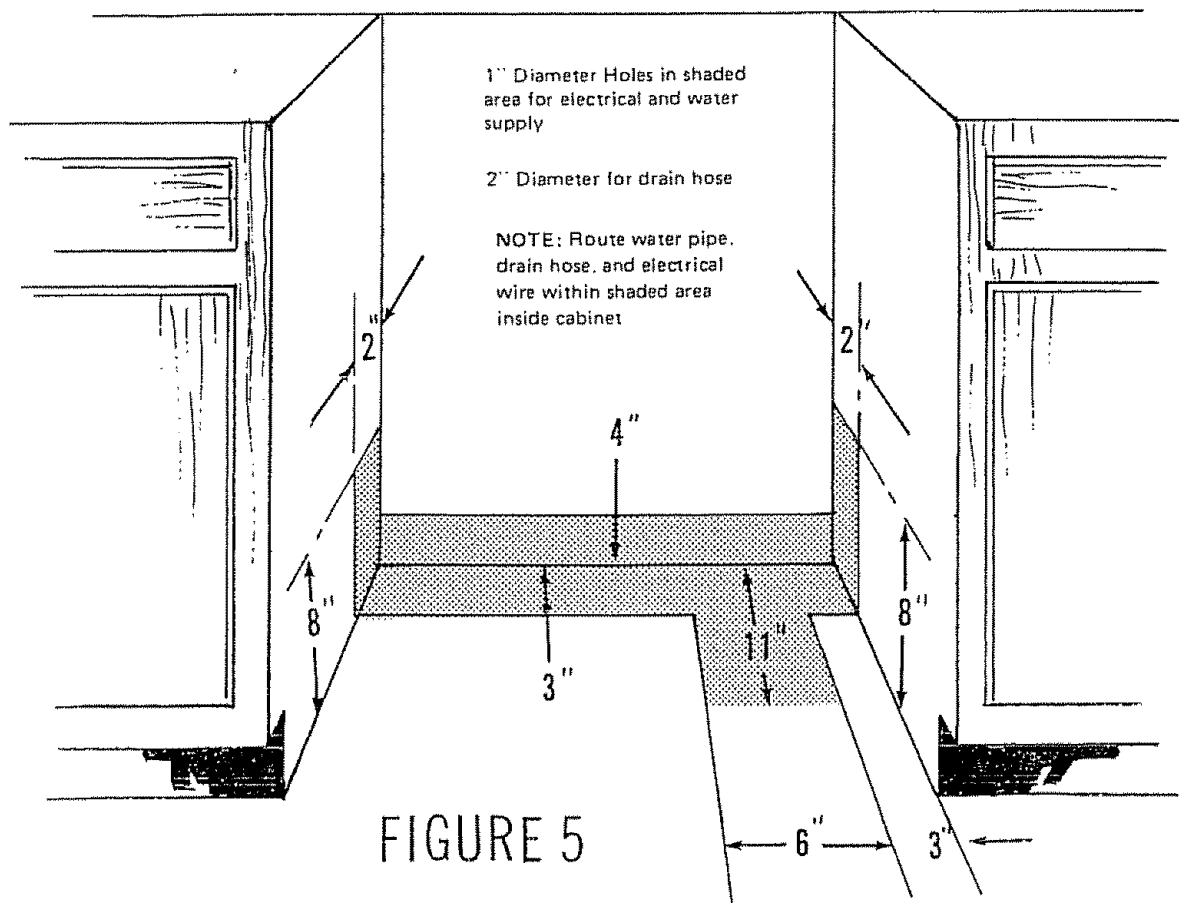
PLANNING

Determine the routing for the water supply, electrical wiring and drain line before proceeding with the actual installation so that space conflicts do not occur

Important - Do not route plumbing or wiring in front of the motor or dishwasher support channels

CUTTING ACCESS HOLES

Access holes in the cabinet sides or floor should be located within the zones shown in Figure 5. The hole for the drain line should be 2" diameter minimum. The two holes for the electrical and plumbing lines should be 1" diameter minimum. Keep the electrical and plumbing lines separated.



INLET VALVE JUNCTION BOX ASSEMBLY

Locate the valve and junction box assembly as shown in Figure 6 using the template supplied. Attach the assembly to the floor through the two holes near the junction box. (If unable to attach the assembly to the floor, locate according to the template, connect water and electrical as described below, then connect the assembly to the side base of the machine with the bracket provided after the machine is in the cabinet.)

WARNING: IT IS ESSENTIAL THAT THE ASSEMBLY BE LOCATED CORRECTLY TO MAINTAIN ELECTRICAL CLEARANCES AND PREVENT DAMAGE DURING DISHWASHER INSTALLATION.

ELECTRICAL

All wiring must be in accordance with electrical codes. The dishwasher operates on 115 volt, 60 cycle power. Provide a separate circuit with a fuse or circuit breaker rated for at least 15 amps but not more than 20 amps.

GROUNDING INSTRUCTIONS

This appliance must be connected to a grounded metal, permanent, wiring system; or an equipment grounding conductor must be run with the circuit conductors and connected to the equipment-grounding terminal. A green ground screw terminal is provided in the junction box. Connecting the circuit conductor ground, along with the molded receptacle green pigtail, automatically grounds the dishwasher.

Install the wiring, routing it within the zones shown in Figure 5. Do not run it across in front of the motor. Connect the circuit black to the machine black, and circuit white to the machine white, using wire nuts. If house wiring is aluminum, a UL or CSA listed antioxidant compound must be used with listed aluminum-to-copper connectors. Connect the circuit conductor ground wire under the green ground screw. Refer to Figure 6. Replace the junction box cover.

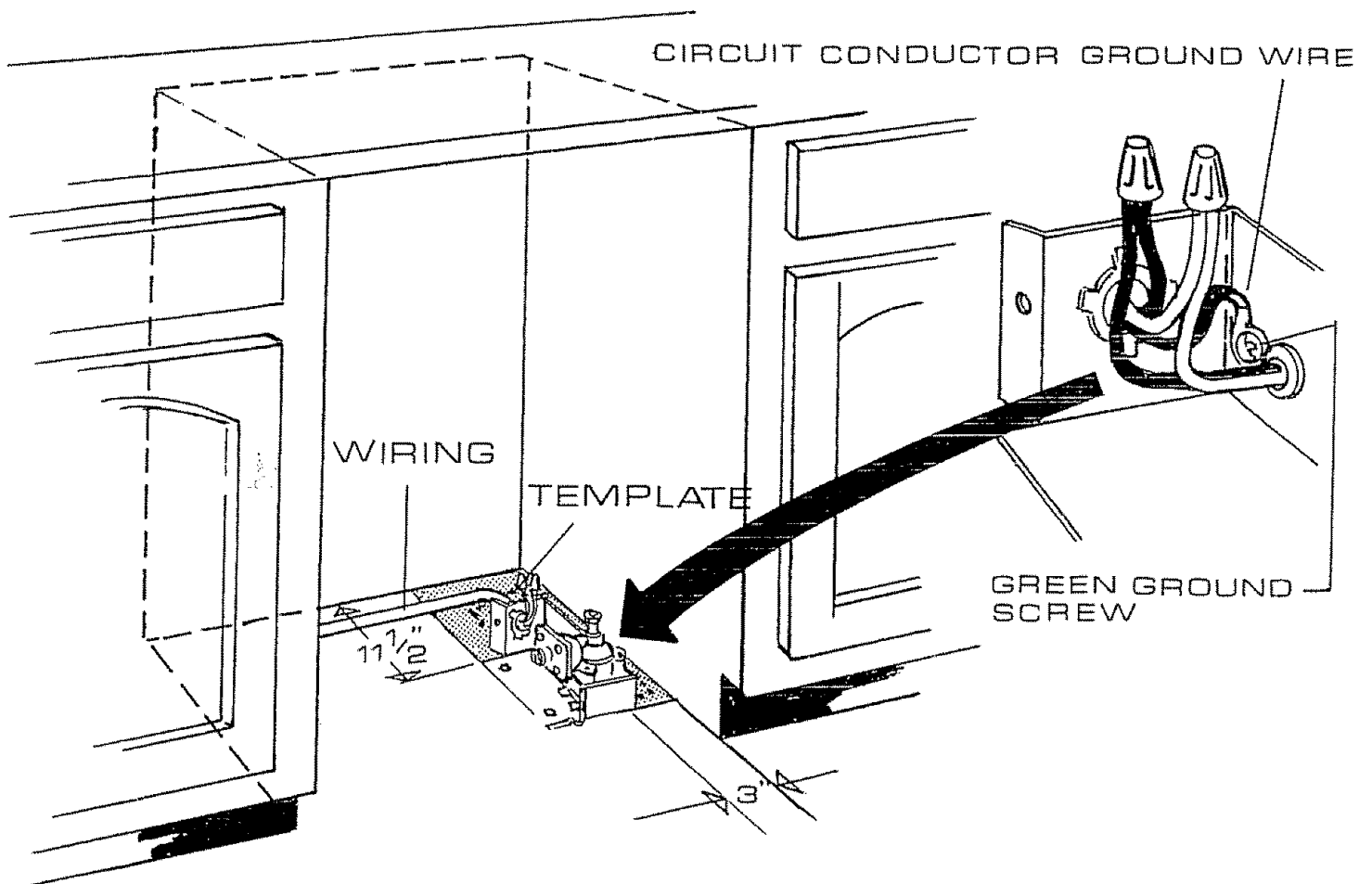


FIGURE 6

WATER SUPPLY

Plumbing must comply with local codes. It is recommended that a shut-off valve be installed in the line from the supply to the dishwasher. The water supply must be able to supply a minimum of 9 quarts in one minute. Route the line, as shown in Figure 7 (Refer to Figure 5 for permissible routing areas). Do not run it across in front of the motor. Piping must not be kinked. The connection to the valve is made with a 3/8" male pipe thread right angle adapter. Assemble the adapter to the valve, using pipe compound or teflon tape, with a wrench on the adapter and a wrench over the metal bracket enclosing the fitting on the valve. If solder connections are used, use care to see that valve is not overheated. **CAUTION!** Overheating will damage the valve. Clean all foreign material from the pipe and threads before making final connections.

IMPORTANT:

TURN ON THE WATER SUPPLY AND CHECK ALL PLUMBING AND DISHWASHER CONNECTIONS FOR WATER LEAKS.

WARNING!

Do not leave line pressure to the water valve in freezing temperatures during construction, remodeling, etc. Do not use the drain hose supplied with the dishwasher for the water supply line. It is not a reinforced hose and will burst under water line pressure.

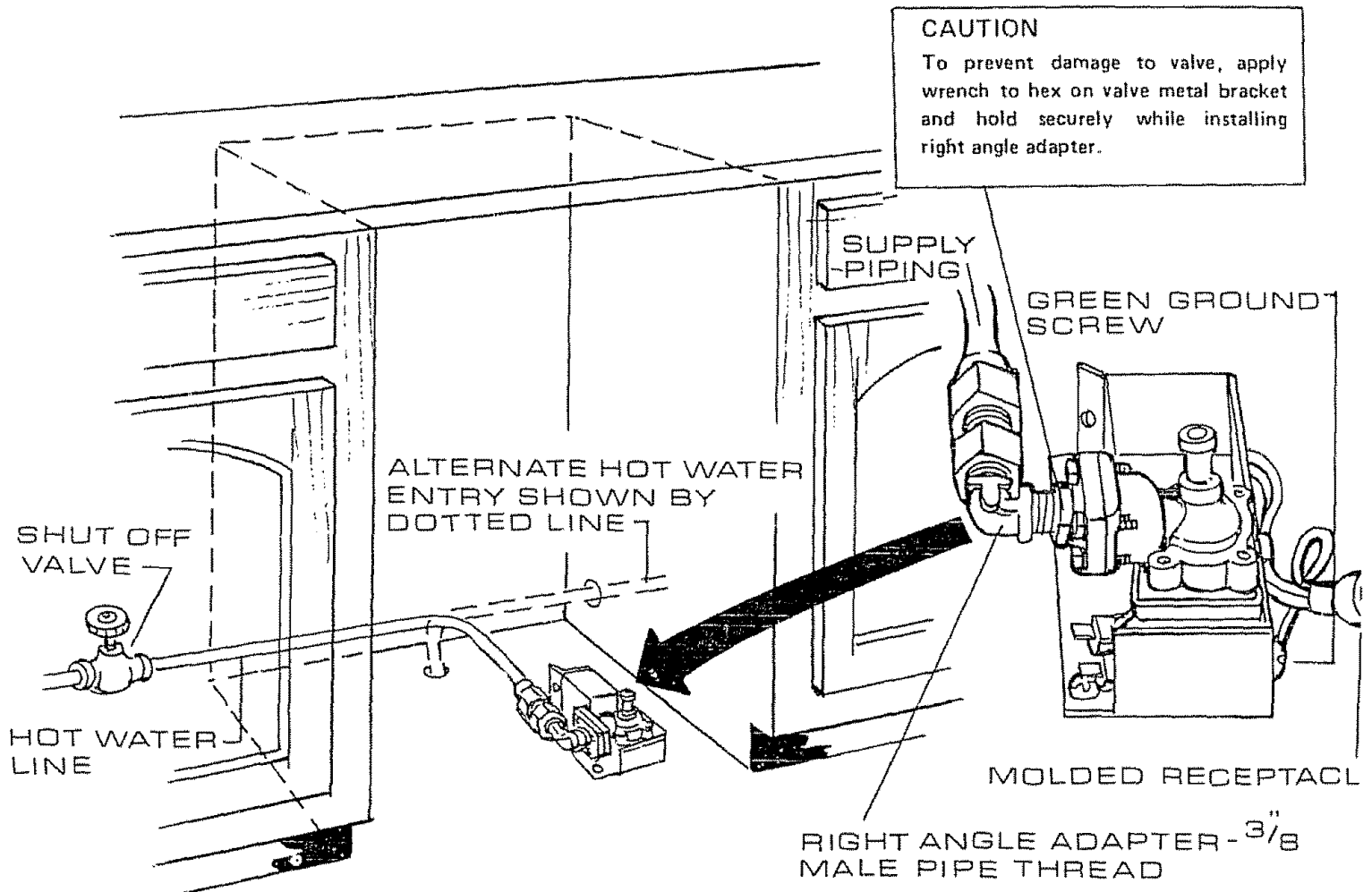


FIGURE 7

DRAIN

Referring to Figures 8 and 9, install the drain connection parts (Y branch tail-piece, disposer adapter, air gap, etc.) in the location selected. Install the drain hose corner support in the corner of the cabinet next to the dishwasher directly above the 2" access hole. The top of the support should be 30" above the kitchen floor (24" above cabinet floor).

IMPORTANT:

THE DRAIN LOOP MUST BE FIXED AT A MINIMUM HEIGHT OF 32 INCHES BY USE OF A SUITABLE CLAMP OR SUPPORT, ONE TYPE OF WHICH IS SHOWN BELOW.

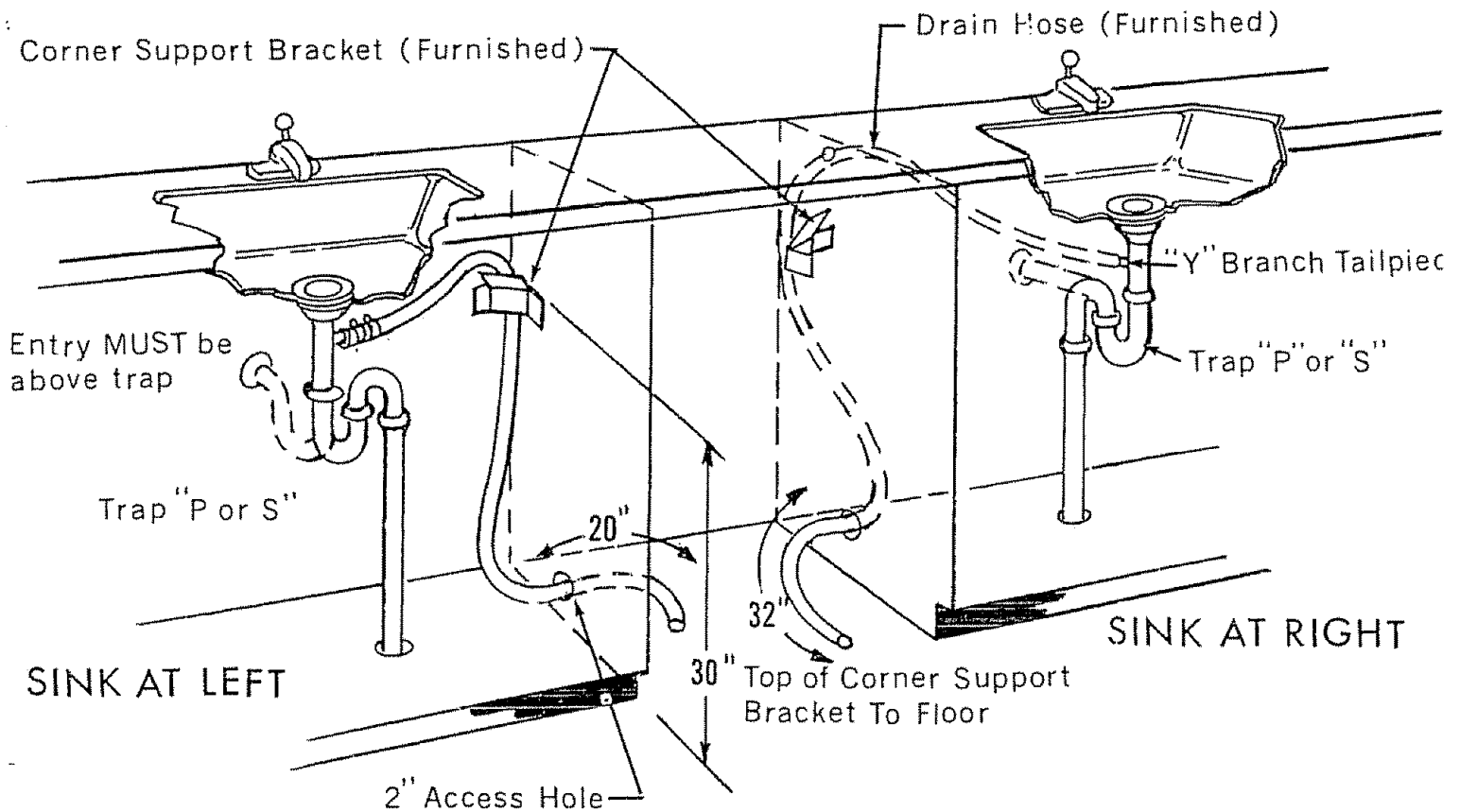


FIGURE 8

Route the hose from the dishwasher cabinet through the 2" access hole, then behind the corner support to the drain and connect. Be sure all bends are smooth and the hose is adequately supported. The free end of the hose should extend into the dishwasher cabinet 20" if the hole is on the left side, and 32" if the hole is on the right side. Cut the hose to length, being sure cut is square.

- Air Gap Kit (Available at Sears)
- 1 Required by some local plumbing codes when connecting to a disposer
 - 2 Required when connecting to a separate trap beneath the floor

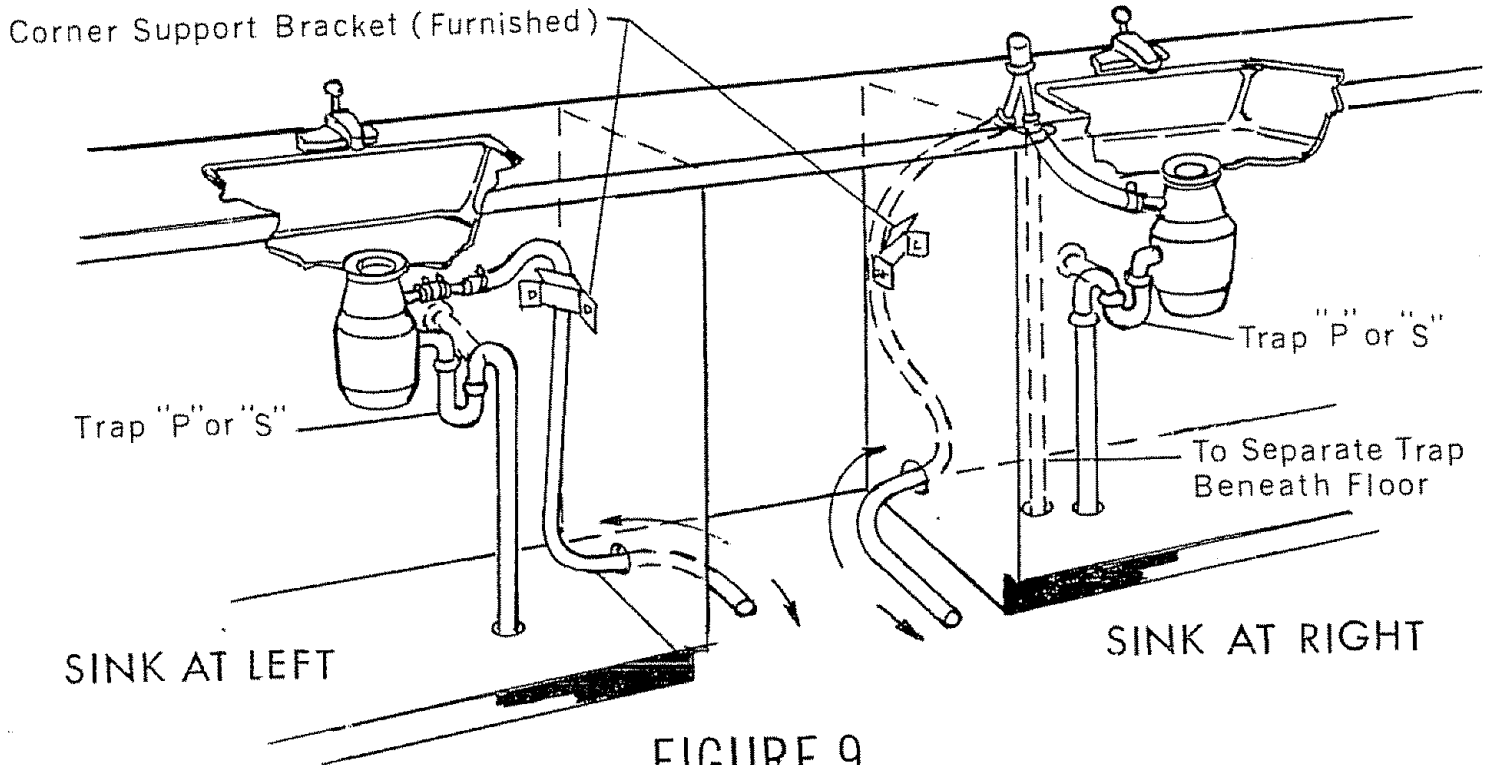


FIGURE 9

HOW TO POSITION, ALIGN, AND LEVEL, YOUR DISHWASHER

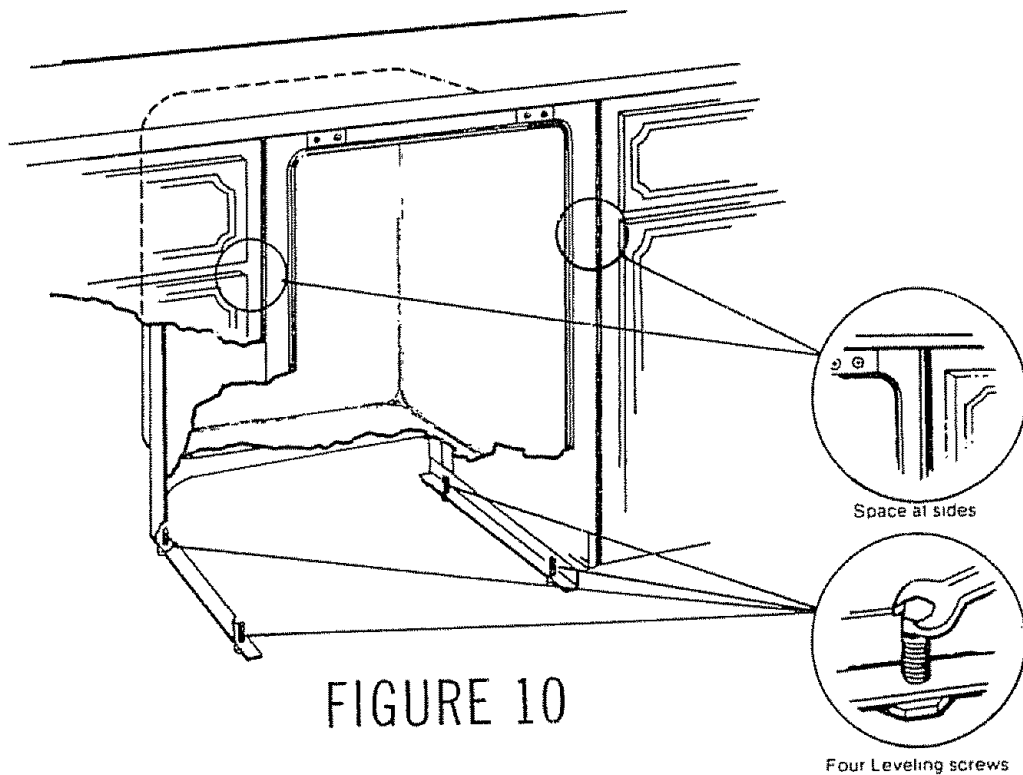


FIGURE 10

Move your dishwasher, as necessary, to:

1. Align the front of the dishwasher, as close as possible, with the front of the cabinets.
2. Make the space between the dishwasher and the adjoining cabinets the same on each side and the same width top to bottom. Use the stubby screwdriver or 7/32" socket to adjust the leveling screws. They must be set firmly against the floor.

TWO WAYS TO ANCHOR YOUR DISHWASHER

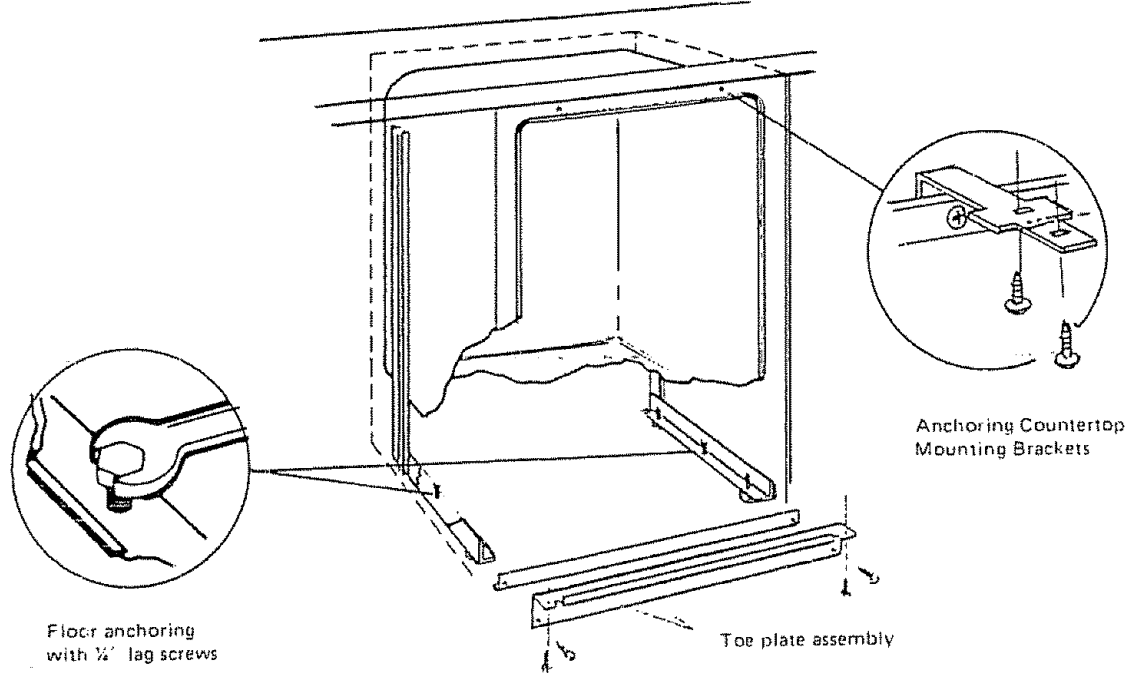


FIGURE 11

You **MUST** anchor your dishwasher to keep it from tilting when the door is opened or closed.

Countertop Anchoring:

1. If the countertop mounting bracket flange is longer than you need, mark it, remove it, and saw off the unneeded part.
2. Adjust leveling screws, if necessary, so that the mounting brackets touch the underside of countertop.
3. Screw the mounting bracket firmly to the countertop.
4. Open and close the dishwasher door. There should be no interference or scratching as it moves.

Floor Anchoring: Difficult procedure. Use only where the countertop bracket cannot be used.

1. Use 1/4" lag screws through the holes provided as illustrated.
2. Use expansion fasteners if the floor is concrete. After the anchoring is completed, replace the toe plate assembly. You will notice that the vertical height of the toe plate is adjustable to fit neatly against your floor or floor covering.

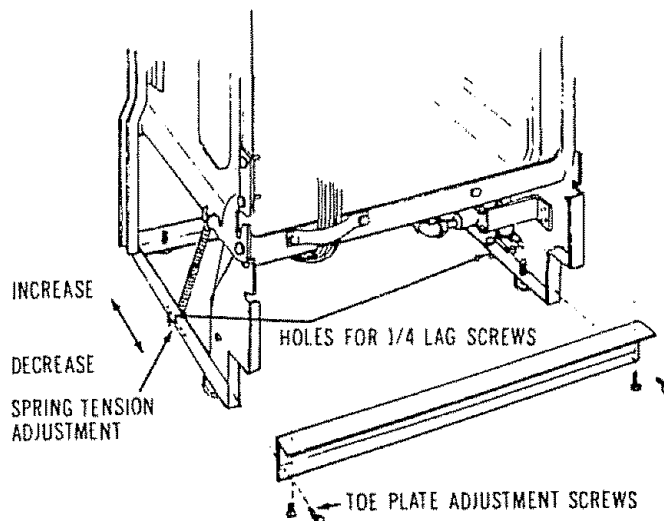


FIGURE 12

C. WASH SYSTEM

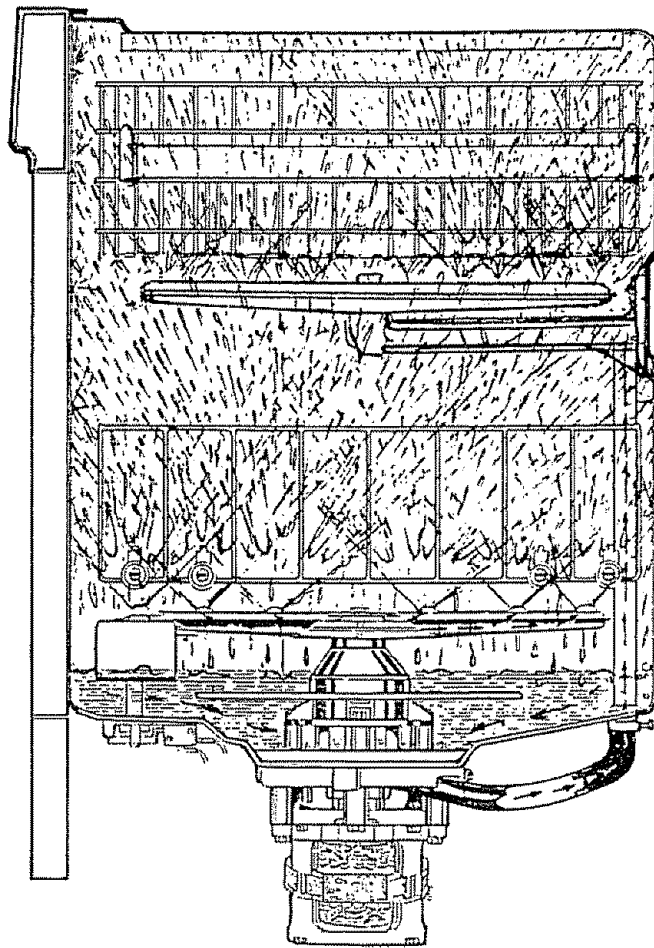


FIGURE 13

Two Level Wash Feature

A separate spray tube or rotating spray arm assures excellent washability in the upper rack, and another rotating spray arm thoroughly washes all dishes in the lower rack. This arrangement permits complete flexibility of loading without concern of blocking the water pattern to either rack. See Figure 13.

1 Water Charge (See Figure 14)

Water enters the dishwasher through the solenoid operated water inlet valve.

The valve is energized through the timer. Water will enter the machine for approximately one minute. (All dishwashers are time filled.) Some models fill for 90 seconds. Also some models have 45 second water charges built into water miser and normal wash cycles. Refer to tech sheet in console.

NOTE:

The float switch controls the amount of water entering the dishwasher. The fill is also time controlled. If the timer fails to advance or the water pressure is extremely high, the float switch will open the circuit to the water inlet valve thus preventing a flood. If the float sticks or does not cut power to the valve, the timer acts as a safety to turn power off after the allotted fill time. The float and timer switch will *not* protect against a mechanical failure of the valve.

To satisfactorily clean dishes, the 24" dishwasher must have a water charge of 8 to 11 quarts. The 18" models require 6.5 to 8 quarts. If poor washability is experienced, be certain to check for the correct water charge.

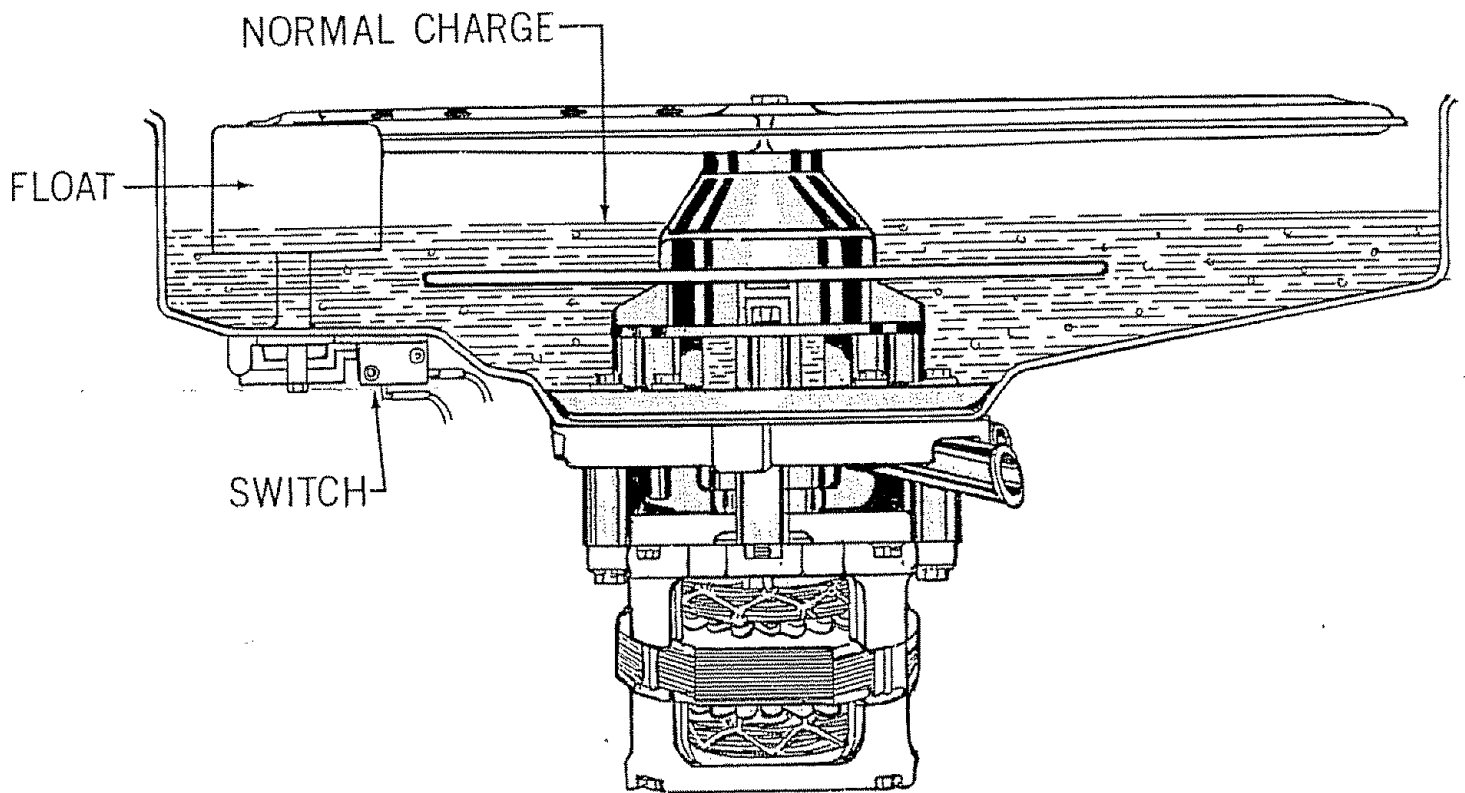


FIGURE 14

2 Testing Water Charge Level

To check for proper water level, pour the minimum charge of 8 quarts of water into the tub and make a reference mark with a grease pencil or crayon at the edge of the waterline. Then pour in an additional $1\frac{1}{2}$ quarts of water to make the maximum charge, and make another reference line at the edge of the water line. Set the timer to a portion of the operating cycle for "drain" and allow the drain pump to pump out the water. Allow the time to advance into a "fill" period of the operating cycle and allow the normal amount of water to fill the tub. After the water inlet valve has shut off, compare the edge of the water line with the reference marks made above. The water charge must be between the two lines. Remove the marks after completing this test. The water level should cover the heating element.

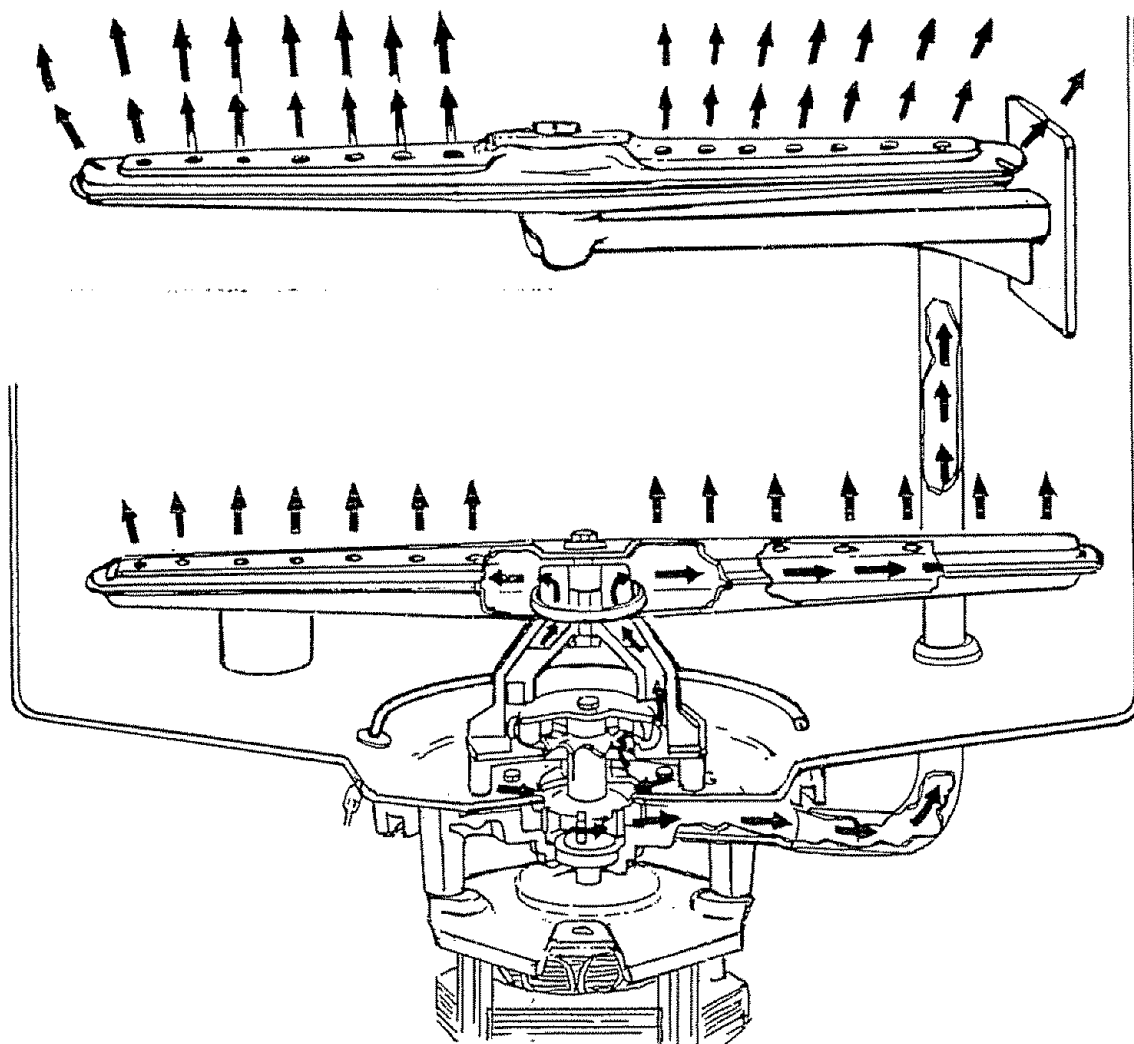


FIGURE 15

3. *Spray Arm Assembly*

The spray arm is mounted to the upper pump housing. Water from the sump is pumped through the upper pump housing where it is directed to the spray arm. The water is discharged from ports in the spray arm as shown in Figure 15.

The velocity of the water discharged from the ports and the angle of the port opening causes the spray arm to rotate. The rotation of the spray arm assures the distribution of water to all corners of the tub.

A stuck or split spray arm can cause leaks or poor washability. On complaints of this type, inspect the spray arm closely for a possible split seam. Be sure the spray arm turns freely on the pump housing. If binding is encountered, it will be necessary to replace the pump housing or spray arm, or both.

4. *Spray Tube*

The spray tube or middle spray arm directs water to the upper rack to assure complete washing and rinsing of all plates and glassware. Water is pumped from the sump, by the lower impeller, through a hose connected to the spray tube or middle spray arm.

On models having the upper *roto rack*, be certain the racks turns freely. Unsatisfactory washing of the items in the upper rack will result if the rack binds, is prevented from rotating by a tall item in the lower rack, or water is not being discharged from the spray tube.

Periodic cleaning of the spray tube is recommended. One method is shown in Figure 16. The loosened particles may be flushed from the tube by operating the dishwasher in a wash cycle with the cap removed.

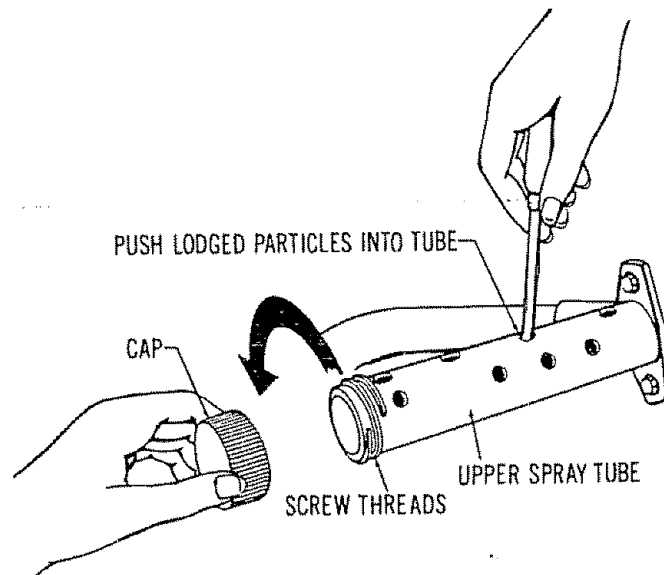


FIGURE 16

Three Level Wash System

The upper or third level wash system used in certain models is intended to give increased wash efficiency for articles in the upper rack. See Figure 17. A & B.

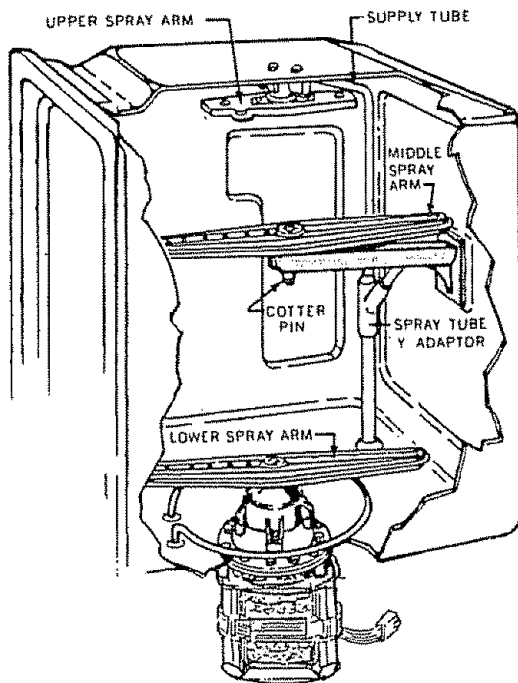


FIGURE 17A

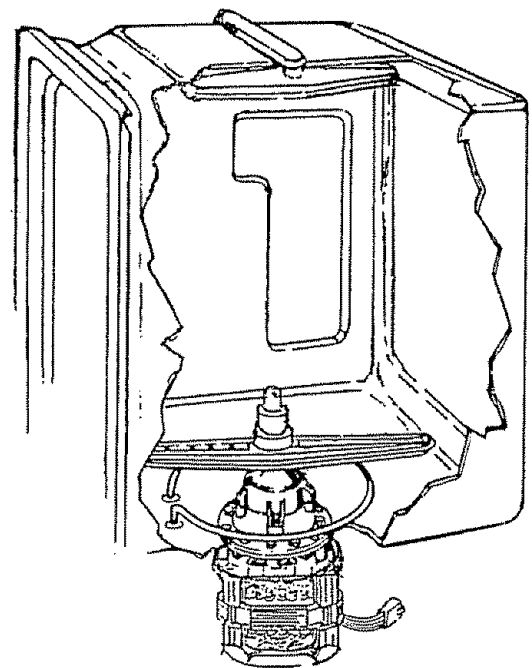


FIGURE 17B

The water for the system in 17A is bled off from the middle wash system by means of a "Y" adaptor in the main supply tube and a branching "L" shaped supply tube from that point to the top center of the tub. In 17B the top spray arm is supplied directly from the pump by means of an external supply tube. The tower in the center of the lower spray arm telescopes upward washing the underside of the upper rack. To remove the tower unscrew the lower section of the tower counterclockwise

A Removal of Middle Spray Arm

- 1 Remove stainless steel cotter pin in lower end of plastic spray arm spindle underneath the black plastic supply arm
- 2 The spray arm and spindle can now be lifted off the supply arm

B Removal of Upper Spray Arm Only

- 1 From below, in tub, remove two screws which hold spray arm and bearing assembly to plastic distributor (See Figure 18)
- 2 The assembly will then drop loose. If it is desired to remove the arm from the bearing assembly, the two screws that hold them together are now accessible

NOTE

In Mid-1980 the design of the third spray arm was changed. The spray arm is removed by removing the center mounting screw. [See Figure 19]

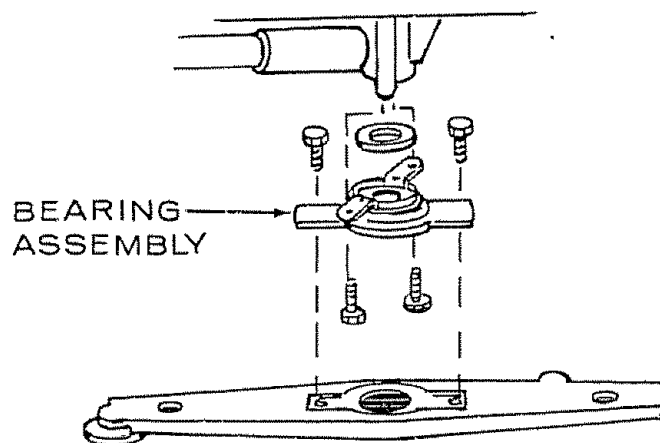


FIGURE 18

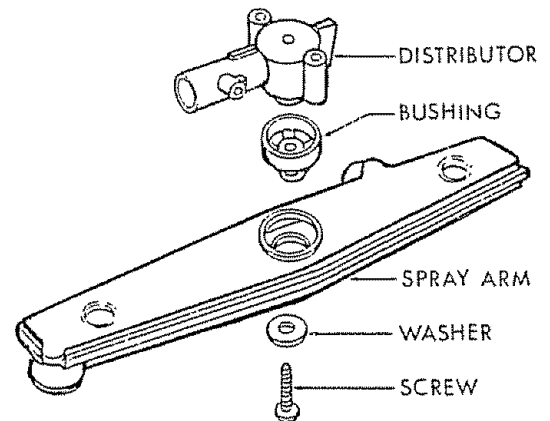


FIGURE 19

Two Level – Compact Models

The top spray arm water supply system on all 18" (compact) dishwashers is completely *external* of the wash chamber. A hose from the back side of the pump housing runs behind the back center of the wash chamber (tub) up to the delivery tube.

To remove: (See Figure 20)

1. Disconnect power supply to dishwasher.
2. Loosen and remove clamp attaching delivery hose to pump housing. **NOTE:** Water remaining in hose and pump should be caught in a bowl.
3. Remove four (4) screws that attach the delivery tube to the tub assembly.
4. Remove hose by pulling slowly through the opening in rear of tub.

Reverse procedure to reinstall and check for leaks and kinks.

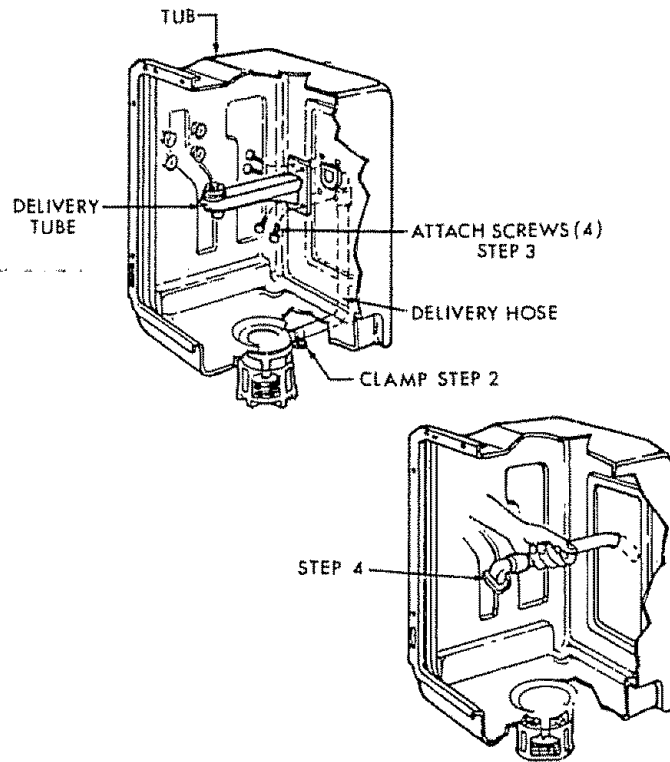


FIGURE 20

Water Inlet Valve

The water inlet valve is solenoid operated and when energized permits a constant controlled flow of water to enter the dishwasher tub. The valve is designed to operate over a pressure range of 20 pounds per square inch minimum to 120 pounds per square inch maximum. *The frequency and length of time the valve is operating is controlled by the timer.* Water inlet valves differ only in amount of water they deliver (flow rate) which is governed by the aperture size in the flow washer. See Figure 21. Some models may have a three orifice flow washer.

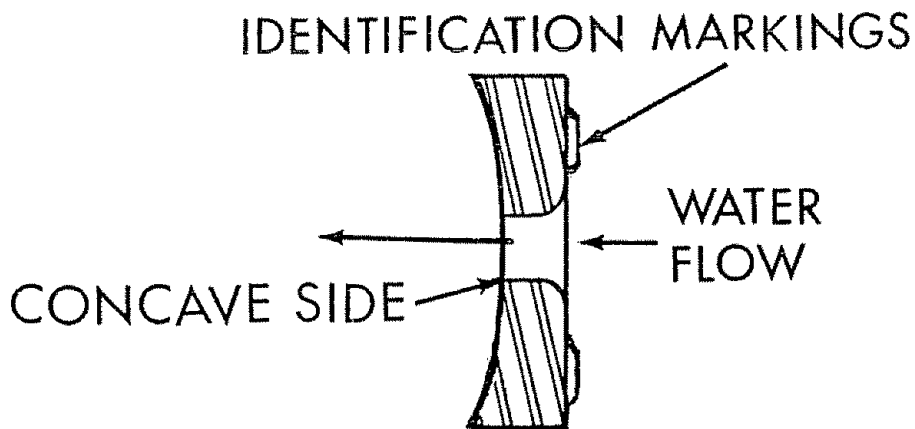
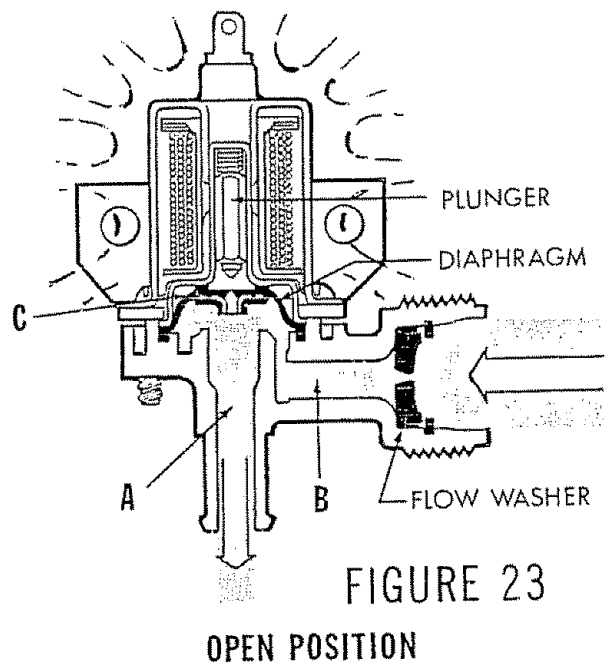
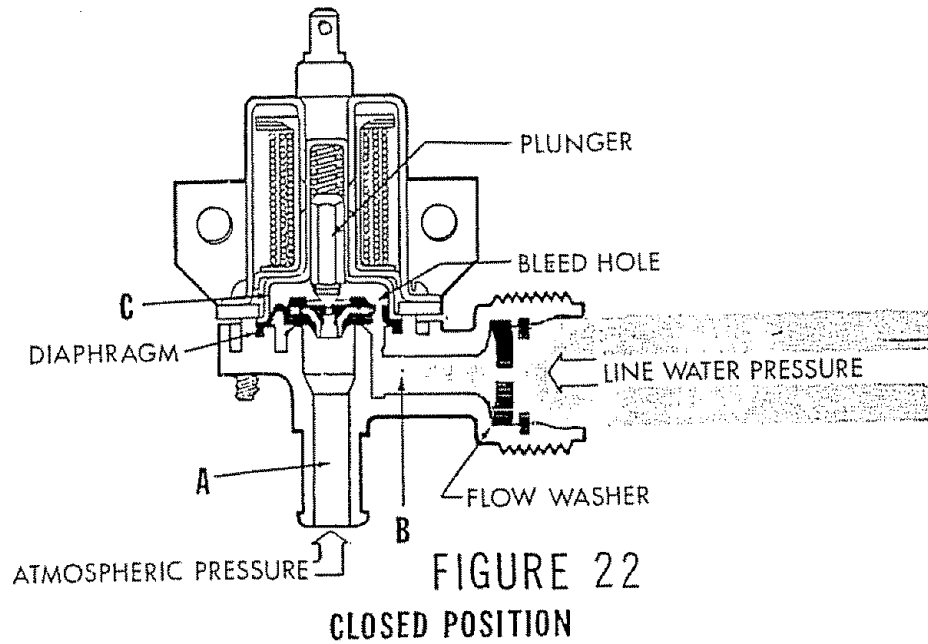


FIGURE 21

A. Operation

Figure 22 shows a cross section of the water inlet valve in its closed position and Figure 23 shows it in its open position. The water pressure at B and C has equalized because the bleed hole opening permits water to flow from B to C. Pressure at A is atmospheric (Figure 22)

The valve remains closed because the higher water line pressure at C is greater than the atmospheric pressure at A. When the solenoid coil is energized by the timer, the plunger is withdrawn from the diaphragm opening. Water in compartment C will then escape through the diaphragm opening causing the pressure in the compartment to fall to almost atmospheric pressure. The higher water line pressure at B forces the diaphragm away from its seat, opening the valve. Water then flows through the screen under the diaphragm and out the valve.



When the solenoid releases the plunger, the hole in the center of the diaphragm is sealed. Water then flows through the bleed hold in the diaphragm until the pressure in compartment C rises to water line pressure. Since the area of the diaphragm at water line pressure in compartment C is greater than the area at water line pressure in compartment B, the diaphragm is forced closed. The pressure at A is always lower than full line pressure because water passing through the valve is escaping to the open air.

B Testing

To test operation of water inlet valve, place the leads of a volt meter across the terminals of the solenoid in any fill phase of the operating cycle where the water inlet valve should be energized. If the meter indicates line voltage, water should flow into the tub. If water does not flow into the tub, either the water inlet valve is defective or the water supply is inadequate. Make certain the hot water faucet is fully on. If the water supply is not at fault, the water inlet valve is defective.

C Servicing

To Clean Operating Parts of the Valve:

1. Remove valve bracket from tub or installation module.
2. Remove 4 screws holding solenoid, valve body and bracket together.
3. Remove the plunger housing, spring and plunger.
4. Check the parts for defects, dirt particles or for formation of lime.
5. Check to make sure the tiny bleed holes in the diaphragm are not clogged. See Figure 24. Clean bleed holes, if necessary, using a pin or needle.

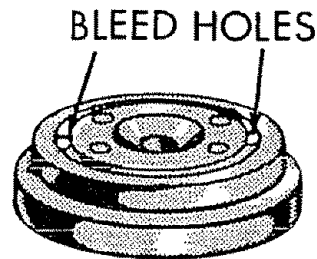


FIGURE 24

6. Clean the screen mesh of any rust particles. Use running water to remove any large particles; then, complete the job by blowing screen clear. The screen mesh must be absolutely clean and free of any damage.
7. Check flow washer for wear or damage. When reinstalling the flow washer, position it in the valve so that the markings on the washer face the incoming flow of water.

NOTE:

The Timer Controls the Operation of the Water Inlet Valve and therefore, the amount of water entering the machine. The Valve should be energized for 45 to 90 seconds depending on model and cycle selected. The float switch will shut the water off at the proper level. The Timer controls the water charge on short fills and acts as a safety on full water charges.

Water Inlet Valve Kit

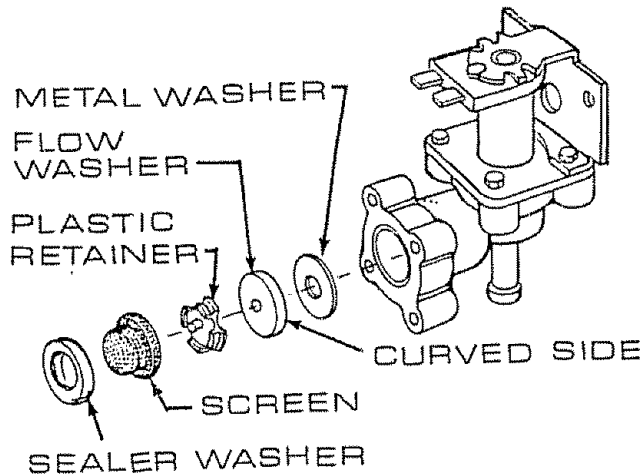
Undercounter 808668
Portable 808667

- KITS INCLUDE:
- 1 water valve
 - 1 metal washer
 - 4 flow washers
 - 1 plastic retainer
 - 1 screen
 - 2 terminal insulators
 - 1 sealer washer (undercounter only)

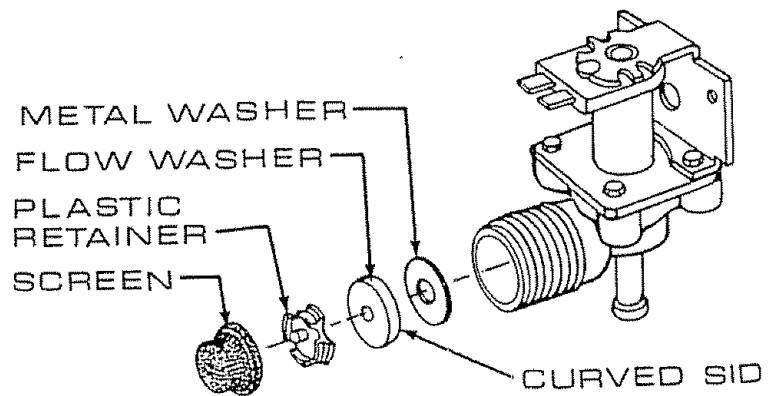
This kit is used for several applications. Use the flow washer in this kit which will provide the correct flow rate for your dishwasher.

Install parts in the order illustrated.

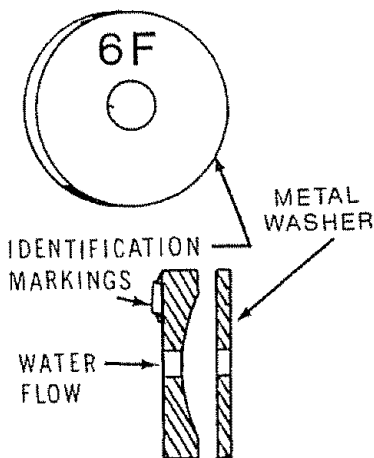
UNDERCOUNTER



PORTABLE



1. Remove plug from valve, discard. Remove any foreign particles from valve.
2. Install flat metal washer.
3. Choose correct flow washer from the chart. There are identification markings on the flat side of the flow washer. Install the flow washer with identification markings facing you. Curved side should be against the flat metal washer.



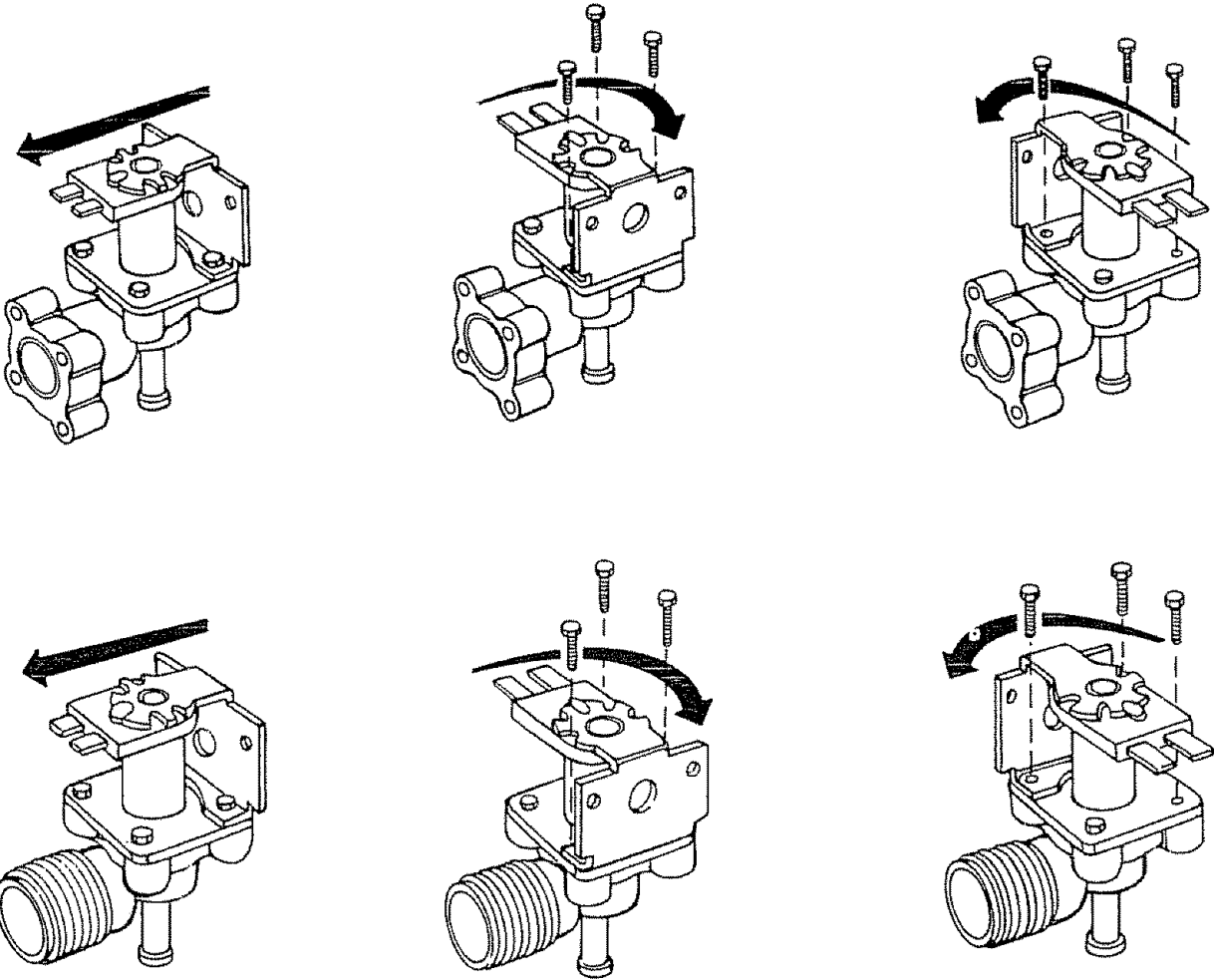
| | DISHWASHER WIDTH | | FILL TIME | | ORIGINAL VALVE | | | | | |
|--------------------------|------------------|-----|-----------|--------------------|----------------|-------|--------|----------|-----|------|
| | 24" | 18" | 60 sec. | 90 sec. 45 sec* | White | Green | Yellow | Lt. Blue | Red | Blue |
| 4E 2.0-2.5 gal/min | × | | × | | × | | | | × | × |
| 5E 1.75 ± 10% | | × | × | | | | × | | | |
| 6F 1.6 ± 10% | × | | | × | | × | | | | |
| 6H 1.2 ± 10% | | × | | × | | | | × | | |

NOTE: Do not rely on original valve color only. Compare dishwasher fill time and dishwasher width to make sure the correct flow washer is used.

*Some models with 90 sec. fill time use an abbreviated water fill (45 sec.) on certain cycles.

If the valve on the dishwasher is pink, it is a replacement valve. Use the same flow washer as in the valve. Refer to dishwasher width vs. fill time to make sure it is the correct flow washer.

4. Install plastic retainer into valve with center protrusion facing you. Push until it snaps into the groove cut into the body of the valve.
5. Press screen into valve, being careful not to crush or change the shape of the screen. This is important to keep dirt particles out of the valve that will cause it to malfunction.
6. The solenoid and bracket on this valve may have to be rotated in relation to the valve body to match the original valve as illustrated. You need only to take three of the four screws out to rotate the solenoid and bracket.



7. Install the sealing washer on undercounter valves.
8. Mount the valve to the bracket or frame of the dishwasher.
9. Recheck selection of flow washer by operating dishwasher through the fill phase. Make sure fill time is correct for the flow washer you have selected.

Side Water Inlet, Steam Trap and Venting

The side water inlet shown in Figure 25A provides an effective steam trap at all times and eliminates vapor escape during any phase of the dishwashing operation. The vapor is blocked from escaping by the water trapped in the bottom of the side water inlet.

The side water inlet assembly fits into a bracket on the side of the tub. The plastic nut secures the assembly to the tub. Removal of the nut from inside the tub allows the inlet unit to be easily removed from the bottom of the dishwasher.

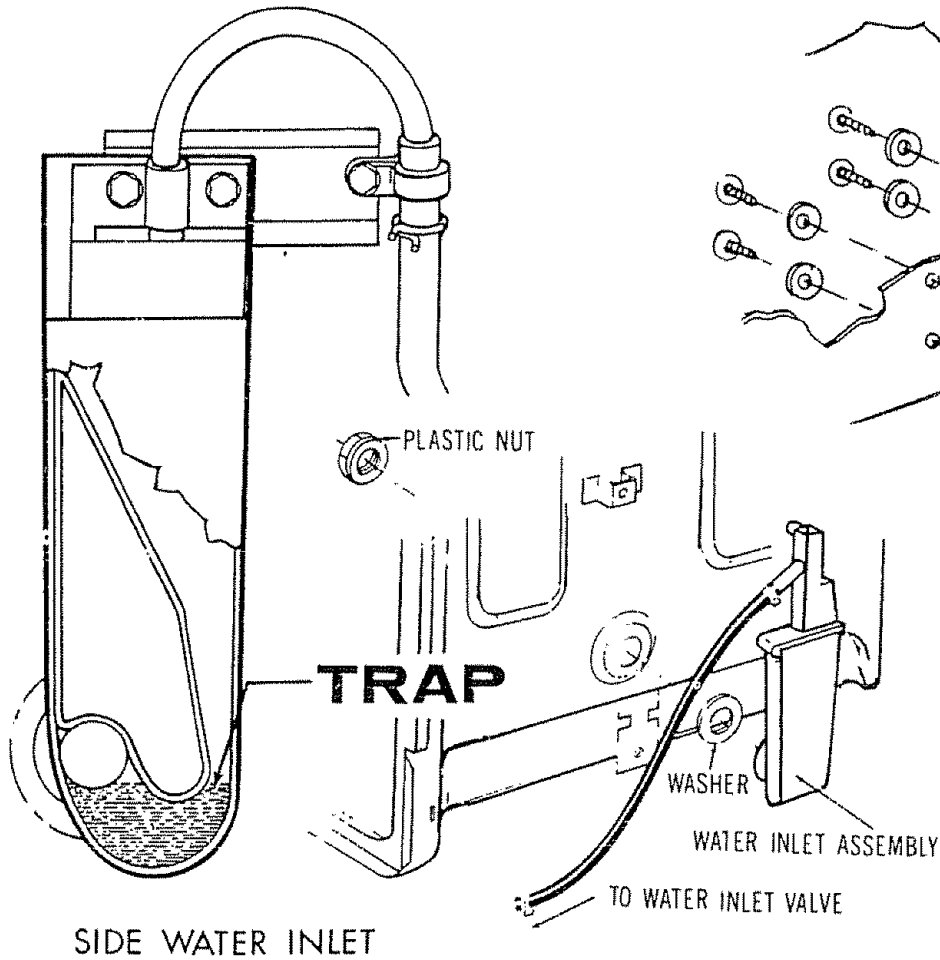


FIGURE 25A

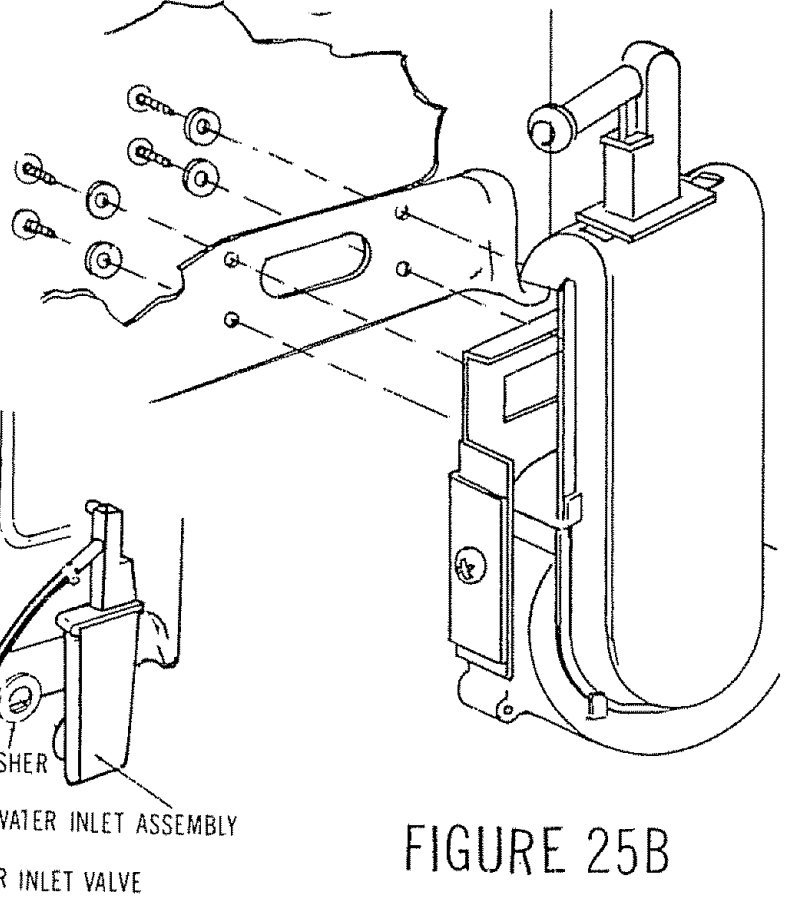


FIGURE 25B

The water inlet assembly shown in Figure 25B combines the fill and blower opening in the tub. On models without forced air drying, the lower portion of the housing and blower motor is not installed.

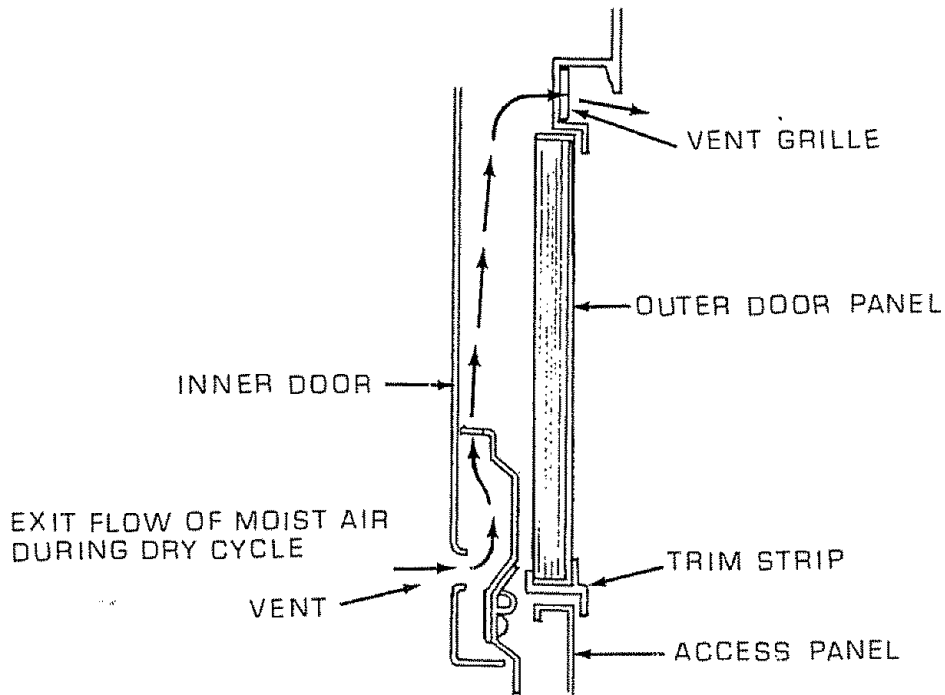
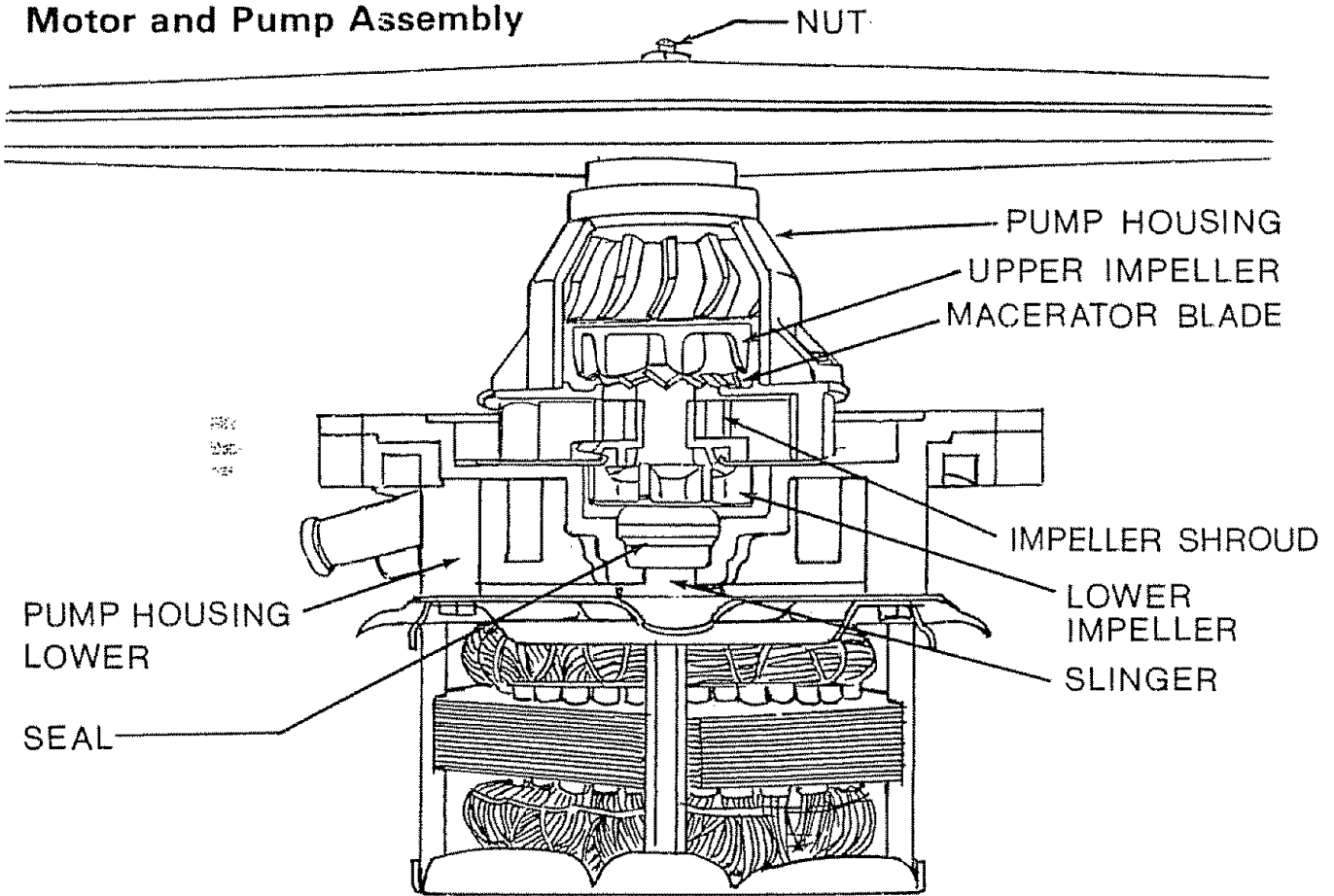


FIGURE 26

Venting takes place between the door and access panel as shown in Figure 26. (Exception; Forced Air Models described in the section of this manual which covers the drying system.)

Motor and Pump Assembly



MOTOR AND PUMP ASSEMBLY (ASSEMBLED)

FIGURE 27

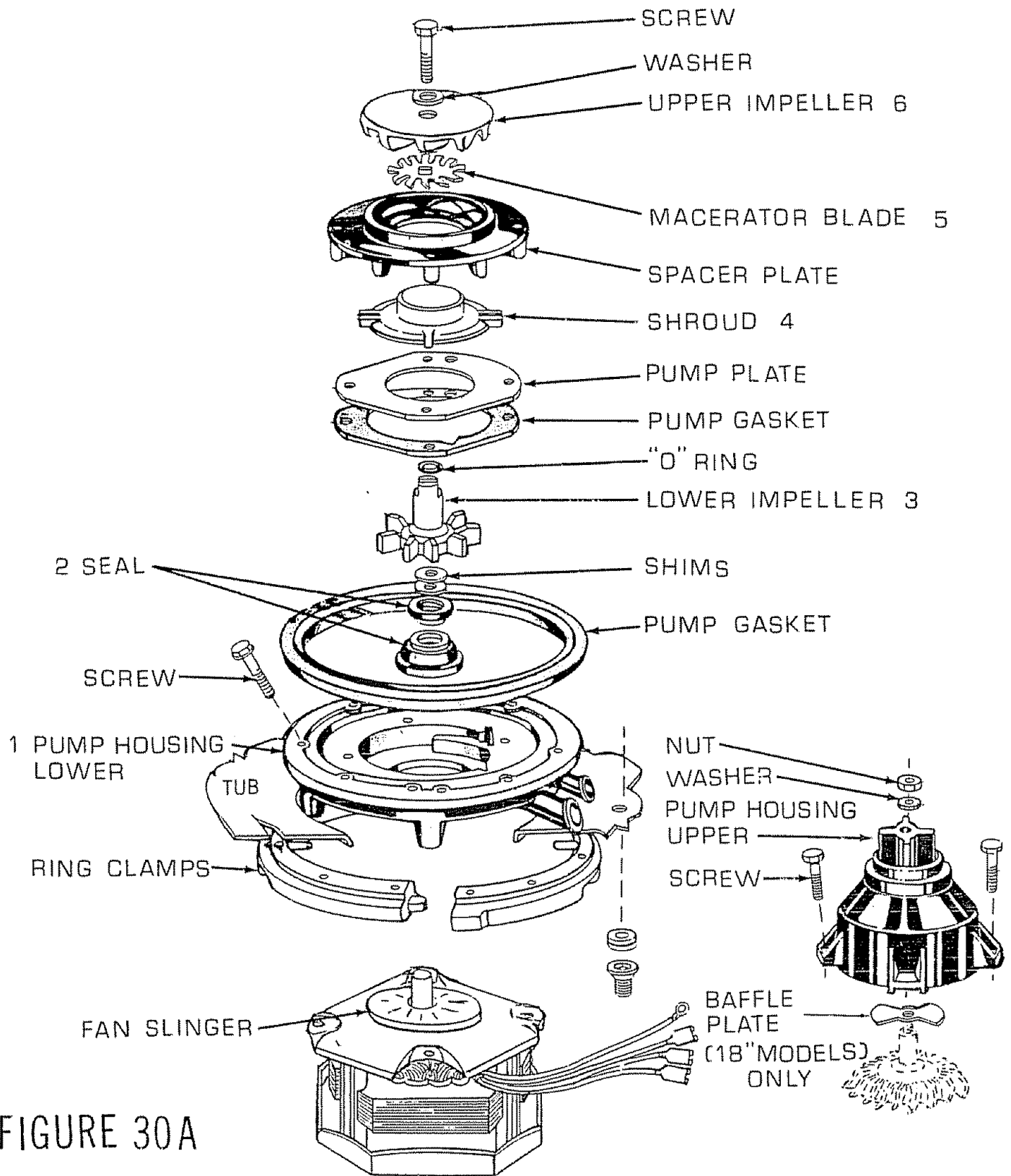


FIGURE 30A

B. *Pump Assembly*

The pump assembly consists of the following components (Refer to Figure 30A)

1. Pump housing or casting which consists of an upper and lower part. It attaches directly to the main motor and the tub.

The upper housing directs water from the upper impeller into the spray arm

2. *Shaft Seal*— Provides a water tight seal which prevents water from leaking from the pump housing at the motor shaft. The seal consists of two parts. The rubber mounted carbon seal is seated into the pump housing and the rubber mounted ceramic seal fits into the lower impeller.

A Main Motor and Relay

Most of the dishwashers use 3450 RPM, 120V 60 Hz reversible type motor to drive the pump impellers

These motors utilize an external start relay and have two start or phase windings, a main or run winding and a built-in overload protector

Direction of rotation of the armature or rotor is determined by the start winding selected through the timer switch contacts See Figure 28

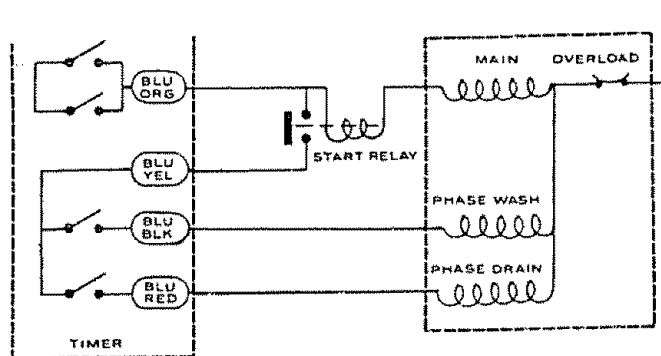
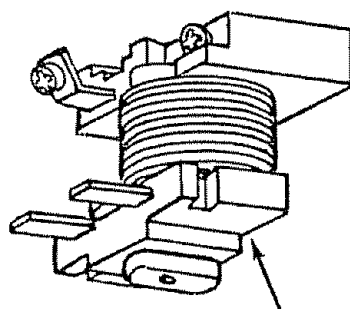


FIGURE 28

The relay is normally open with its coil connected in series with the main winding of the motor, and its switch contacts connected in series with the motor start winding (Since the relay is a gravity type device, it must be mounted in an upright position) See Figure 29.



BOTTOM OF RELAY
FIGURE 29

When voltage is applied to the motor, as during the wash, rinse and drain periods of the dishwashing cycle, the momentary high current to the main winding energizes the relay solenoid. The solenoid plunger is lifted, closing the switch contacts. The start winding is energized through the timer and relay contacts and the motor armature begins to rotate. As the motor approaches normal running speed, the current in the main winding, and in the solenoid diminishes. When the current through the start relay drops below 10 amps the weight of the plunger overcomes the weakening magnetic force of the solenoid coil and "drops out," disconnecting the motor start winding

3. *Lower Impeller*– Circulates the water from the pump housing through the spray tube, or middle and upper arms, during the wash and rinse cycle.

When the motor reverses for the drain cycle, the lower impeller forces the water through the discharge port to pump the water from the machine.

4. *Pump Plate and Shroud*– On dishwashers manufactured since 1969, a shroud was added to the pump plate, to further protect the pump assembly from foreign objects.
5. *Blade or Macerator*– Pulverizes food particles and thus enables them to pass through the pump system without obstructing the water flow. This eliminates the need for pre-rinsing and a filter screen.
6. *Upper Impeller*– Circulates water through the upper pump housing and into the spray arm.
7. *Spray Arm, Nut and Washer*– The velocity of the water discharged from the spray arm ports and the angle of the port opening causes the spray arm to rotate at approximately 25 to 45 R.P.M. The rotation of the spray arm is essential for proper washing action.

When servicing the pump assembly, always check the spray arm for proper operation. It must turn freely on the pump housing. If binding is evident, check the following: (Refer to Figure 15)

1. Check the mounting holes in the arm for roundness. If evidence of distortion is present, replace the spray arm.
2. Check for possible binding on the pump housing. Plastics occasionally have a tendency to swell or "grow." If binding is encountered, replace the upper pump housing.
3. Check to be sure the nut is properly installed to the spray arm. An improperly installed nut will lock the spray arm to the pump housing.
4. Check for a split spray arm. A split seam will reduce the efficiency of the arm and may cause a leak at the door seal or blower housing.

C 2 Level Tower Pump System

This pump system utilizes a lower pump housing with the recirculating port closed off. For this reason the lower impeller has a ring or collar fitted around it to reduce the head pressure in the drain line during wash/rinse phases. The 3-level tower system uses the same pump housing as the 2 and 3 level spray arm systems as illustrated in Figure 30A.

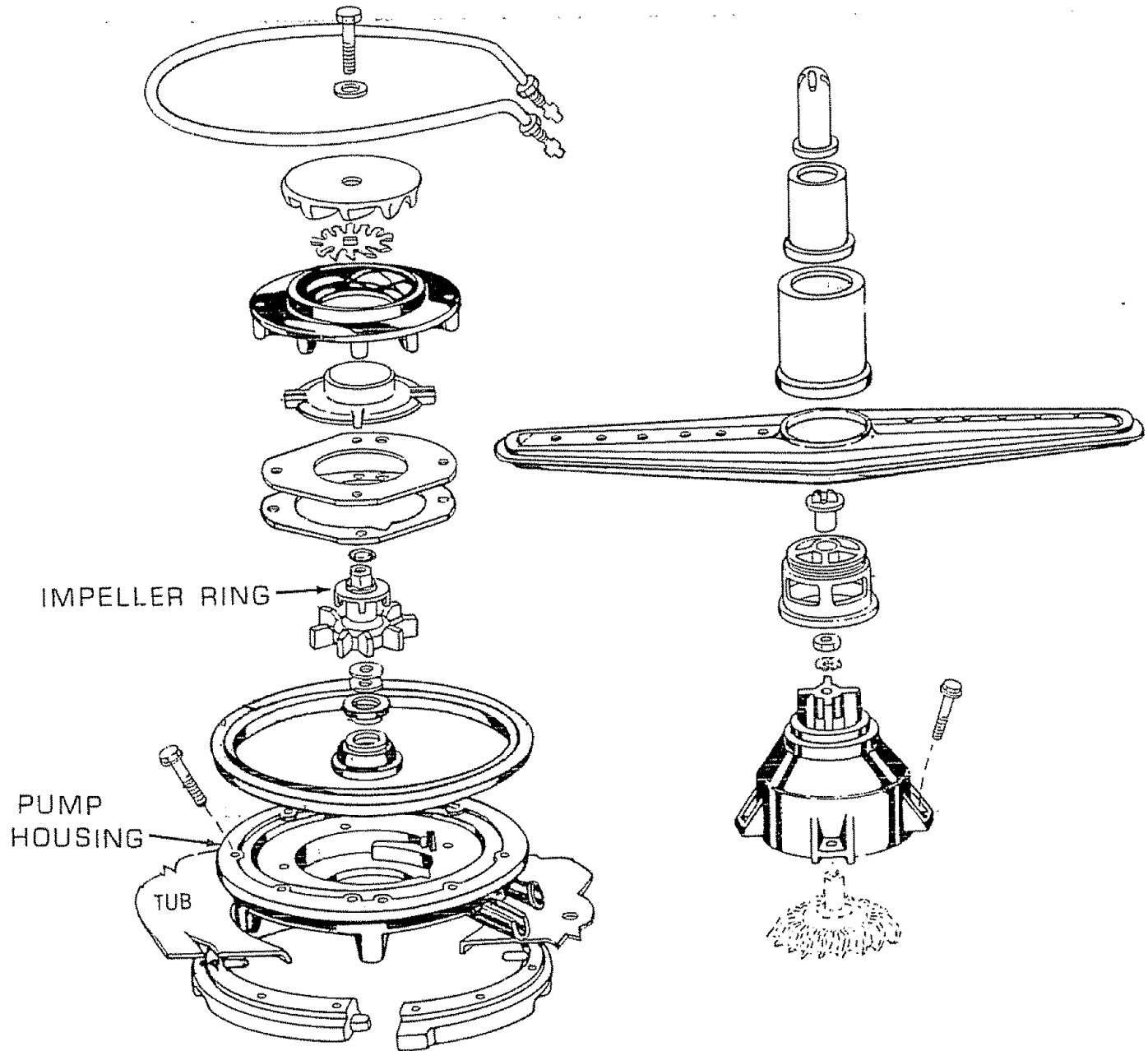


FIGURE 30B

Testing the Motor and Relay

Start the dishwasher at the beginning of a cycle, and allow the unit to electrically advance through the first fill. The motor should start in a counter-clock-wise direction (ccw).

D Motor Main or Run Winding Check

CAUTION:

Disconnect the power to the machine while connecting the voltmeter in the circuit.

- 1 Connect a voltmeter in the motor run winding circuit as outlined in Figure 31, position "A." If your motor has a connector block, meter must have a probe that can be inserted into the block

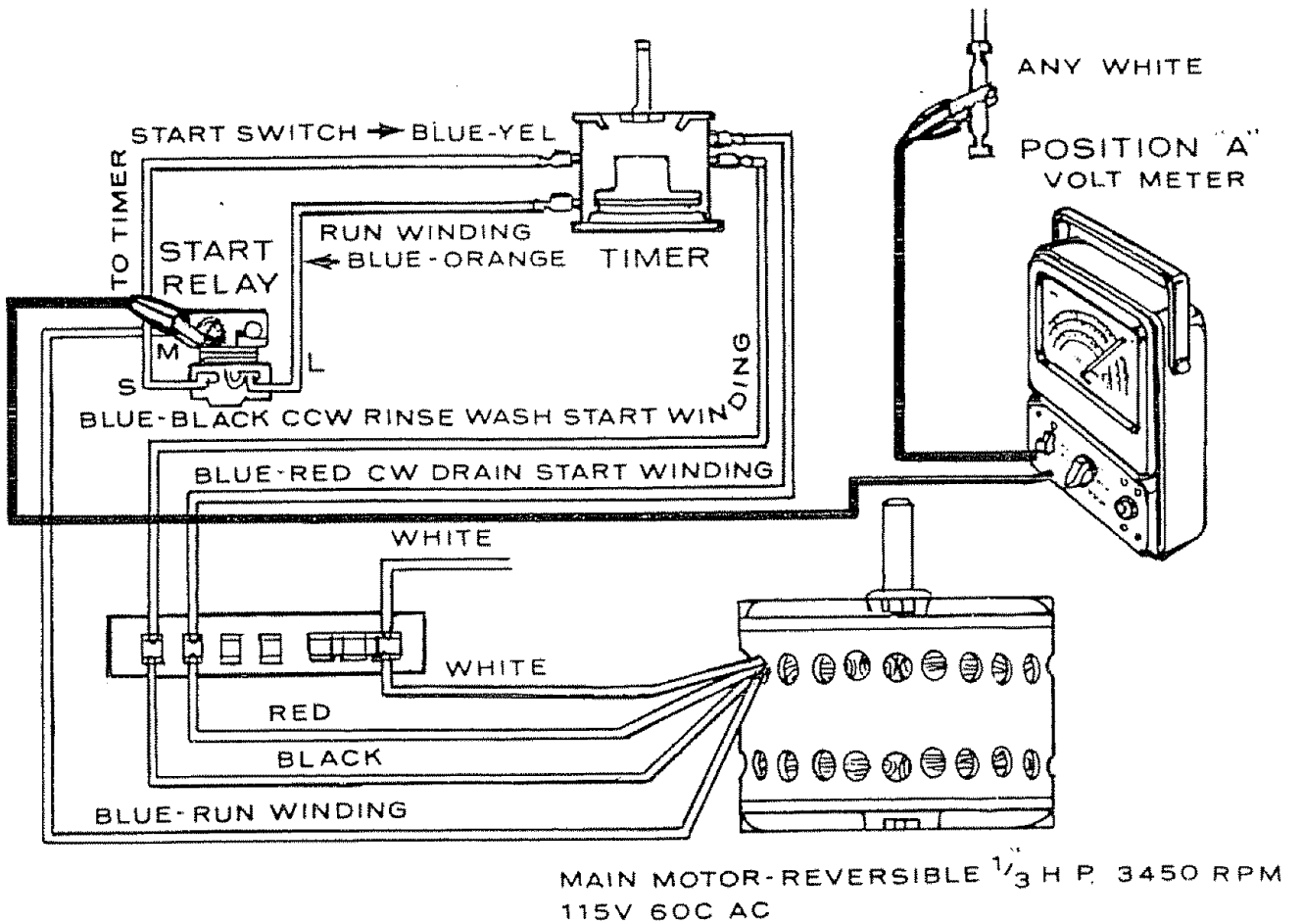
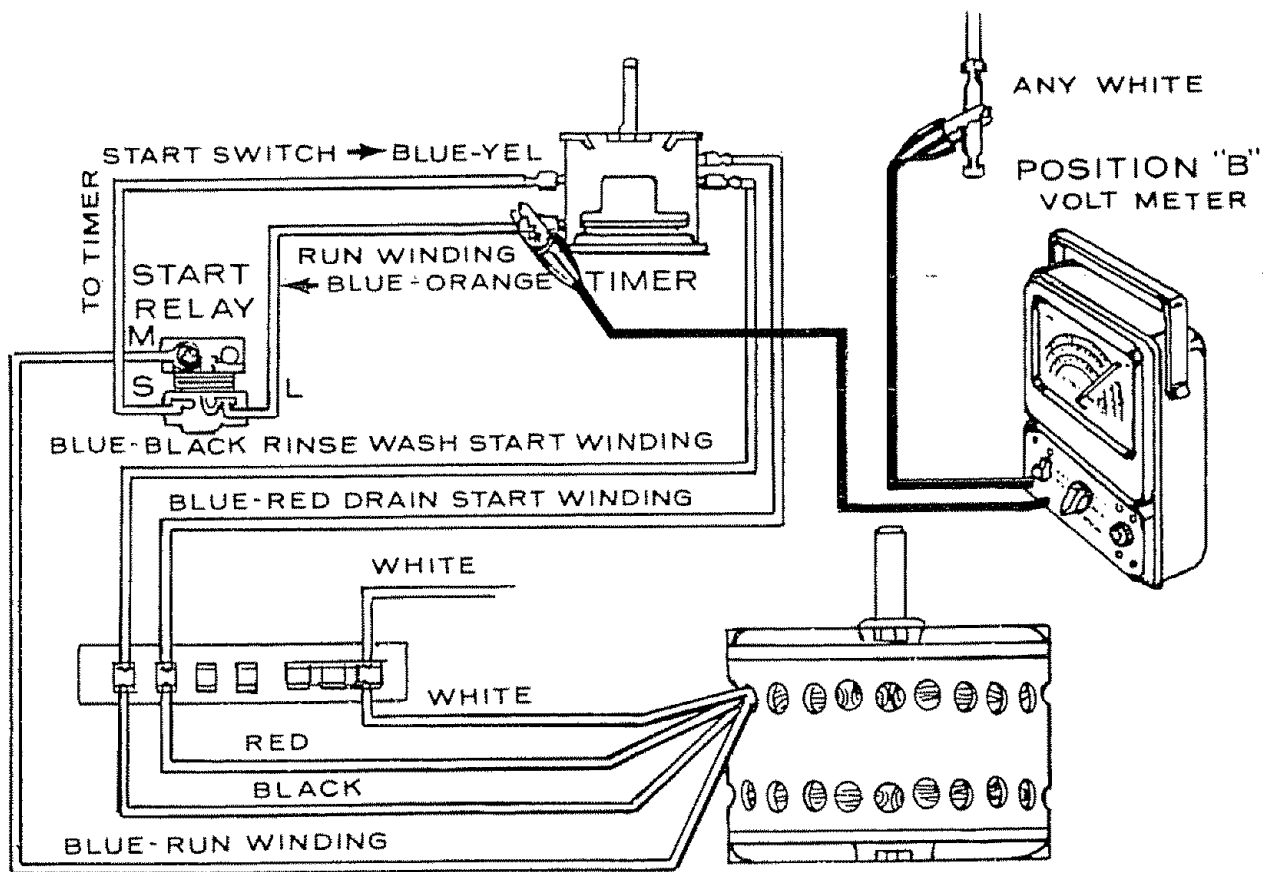


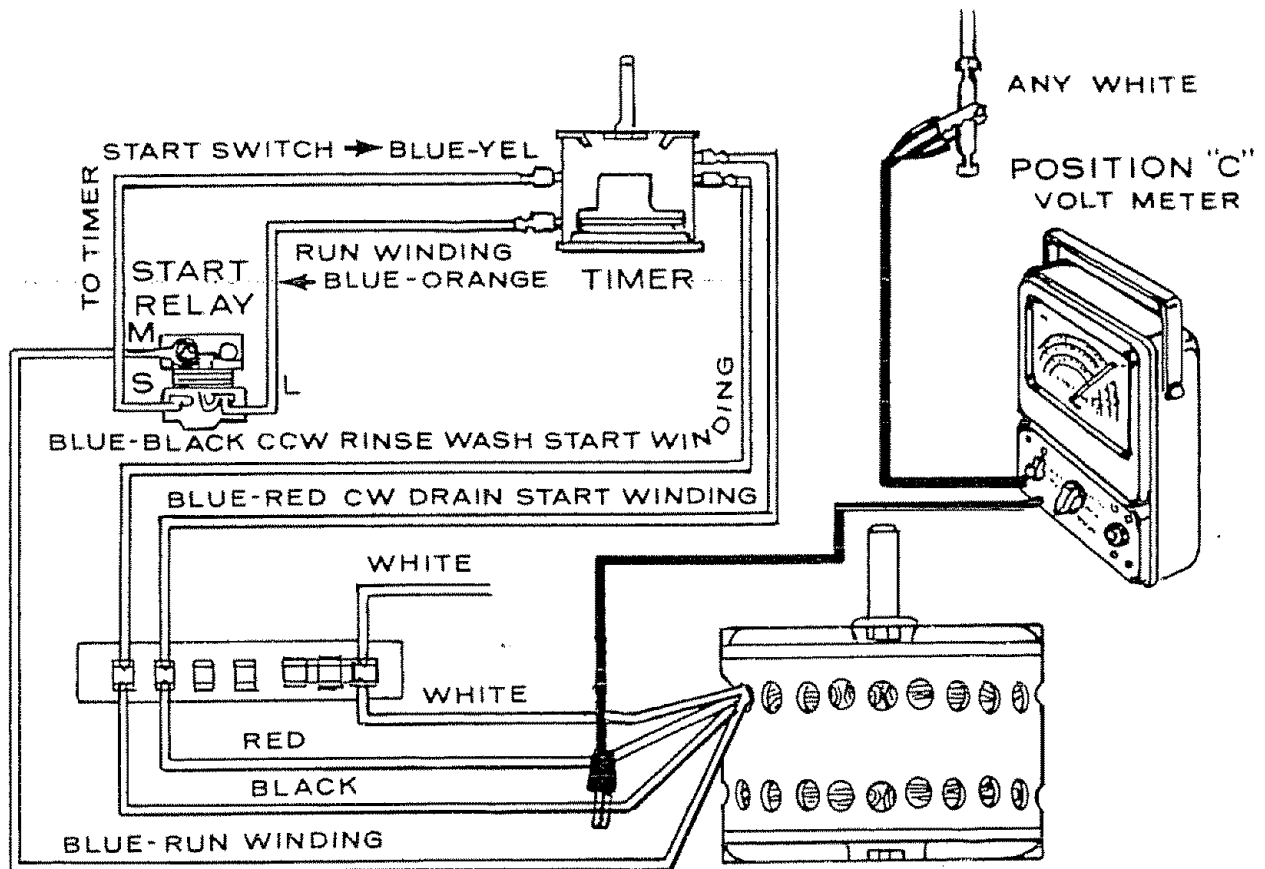
FIGURE 31



MAIN MOTOR-REVERSIBLE $\frac{1}{3}$ H.P. 3450 RPM
115V 60HZ AC

FIGURE 32

2. Restart the dishwasher. Voltage at Position "A" indicates voltage to motor-run winding. If the motor does not "hum," (attempt to start) the run winding is probably open. A continuity check (power off and coupler separated) between the blue and white motor lead should indicate low resistance. If an open circuit is indicated, replace the motor.
3. If no voltage at "A," (Figure 31), then check for voltage at the output side of timer as shown in Figure 32 Position "B."
4. Continuous voltage at BLU-ORG terminal indicates that timer switch is OK, and the trouble is in the start relay, wiring, or wiring connections.
5. If there is no voltage at the BLU-ORG terminal check for voltage at the input side of timer. (Refer to wiring diagram for the correct timer terminal.) If power is found at the input terminal then the *timer* is at fault. If voltage is not present at input terminal, then problem is somewhere in circuit ahead of timer. Trace circuit for cause and make the necessary repairs.



MAIN MOTOR-REVERSIBLE $\frac{1}{3}$ H.P. 3450 RPM
115V 60HZ AC

FIGURE 33

E. *Motor Start Circuit (Wash and Rinse Cycle)*

1. Check the voltage as shown in Figure 33 Position "C."

NOTE:

Momentary voltage will be noted at the instant voltage is applied to motor run winding.

2. If no voltage is noted at Position "C" at the instant voltage is applied to motor run winding and a slight humming noise is heard from the motor; turn the dishwasher off, and remove Blue-Yellow lead wire from terminal "S" on the start relay. Move the lead on the voltmeter from the white wire to the blue-yellow lead that you removed from relay. Make a continuity check of this circuit. An open circuit indicates a defective timer or an open wire in this circuit. If this circuit is "good," the relay is defective.
3. If voltage is continuous at Position "C" for 2 to 3 seconds, then turn the dishwasher off and remove the blue-yellow lead from the start relay. Check continuity between terminal "S" and "L" on the relay. A reading indicates stuck contact and the relay must be replaced. When this condition is encountered, the motor will run for 8 to 10 seconds before the overload protector opens the motor circuit.
4. If voltage is present at Position "C," and the motor hums but will not start, the start winding is open and the motor must be replaced.

F. *Motor Start Circuit (Drain Cycle)*

To check the drain start circuit, advance the timer to the drain cycle and repeat the procedure described for the wash start circuit with exceptions noted below:

1. Connect the meter leads to the red motor lead and any white.
2. Timer contacts for the drain phase are BLU-YELLOW to BLU-RED.

Figure 34 is a diagram of the motor circuit. Note that the drain or wash start winding is energized through separate timer contacts. Therefore, failure of the motor to start in either the drain or wash cycle may be caused by a defective timer and not a defective motor.

NOTE:

When checking an electrical circuit, always exercise extreme caution, and refer to the wiring diagram if available.

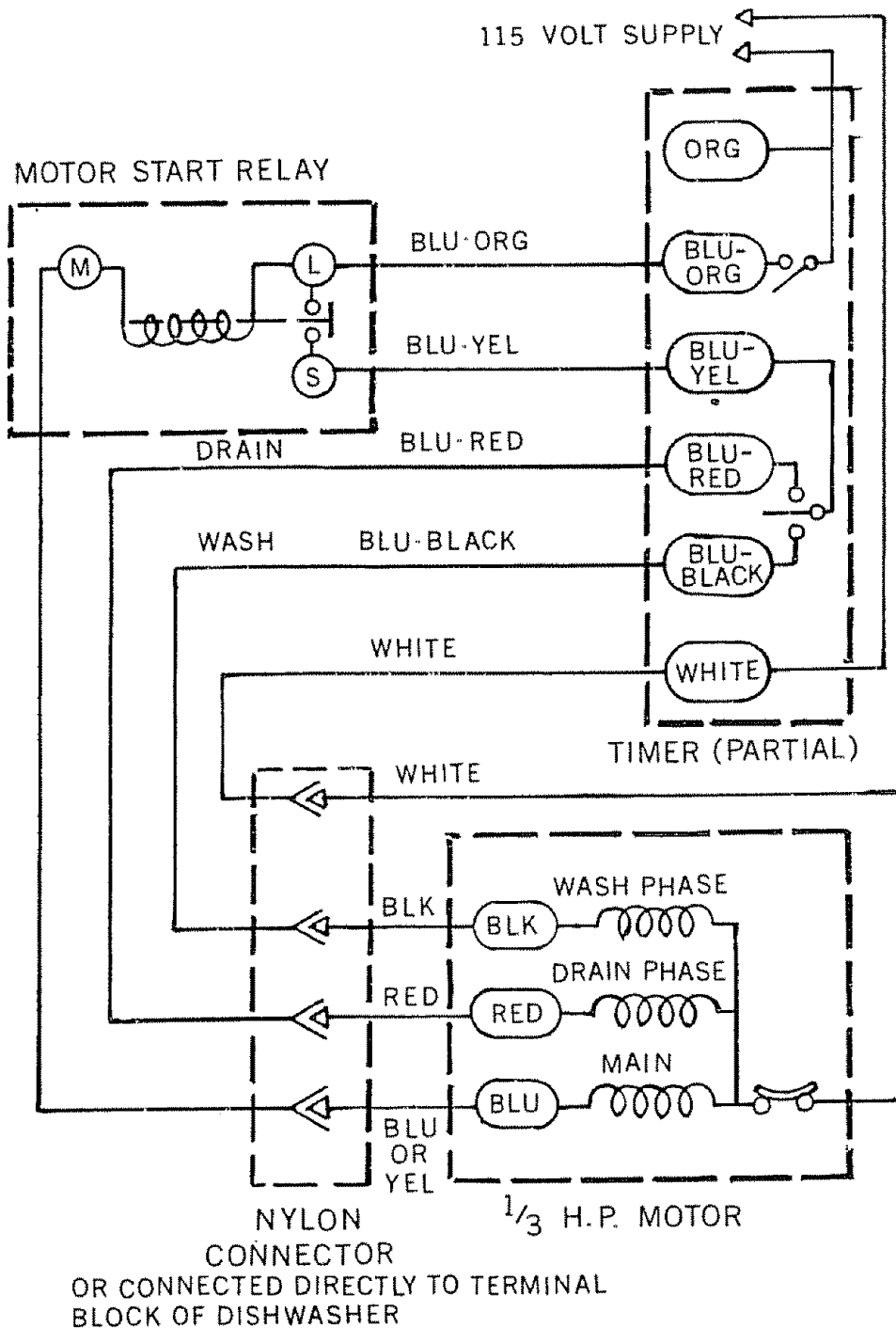


FIGURE 34

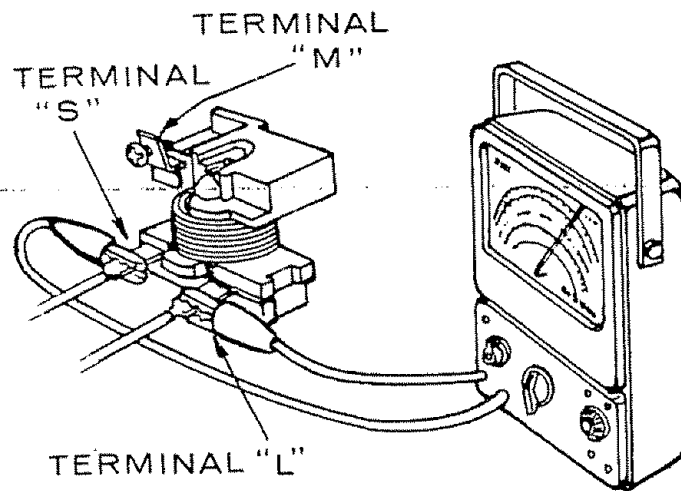


FIGURE 35

- G. After the Main Motor has been tested and proven good, the motor relay may be checked as follows:
1. Connect the machine to electrical power.
 2. Advance the timer to the beginning of a wash or drain cycle.
 3. Set your voltmeter to the 250V, AC scale and connect the leads to terminals "S" and "L" of the starting relay (Figure 35). Apply power to the machine. If the motor hums and voltage is indicated on the meter, the relay contacts are not closing and the relay must be replaced. If the motor does not hum, disconnect the power and make a continuity check of the relay coil (terminals L to M) before checking the leads and timer.

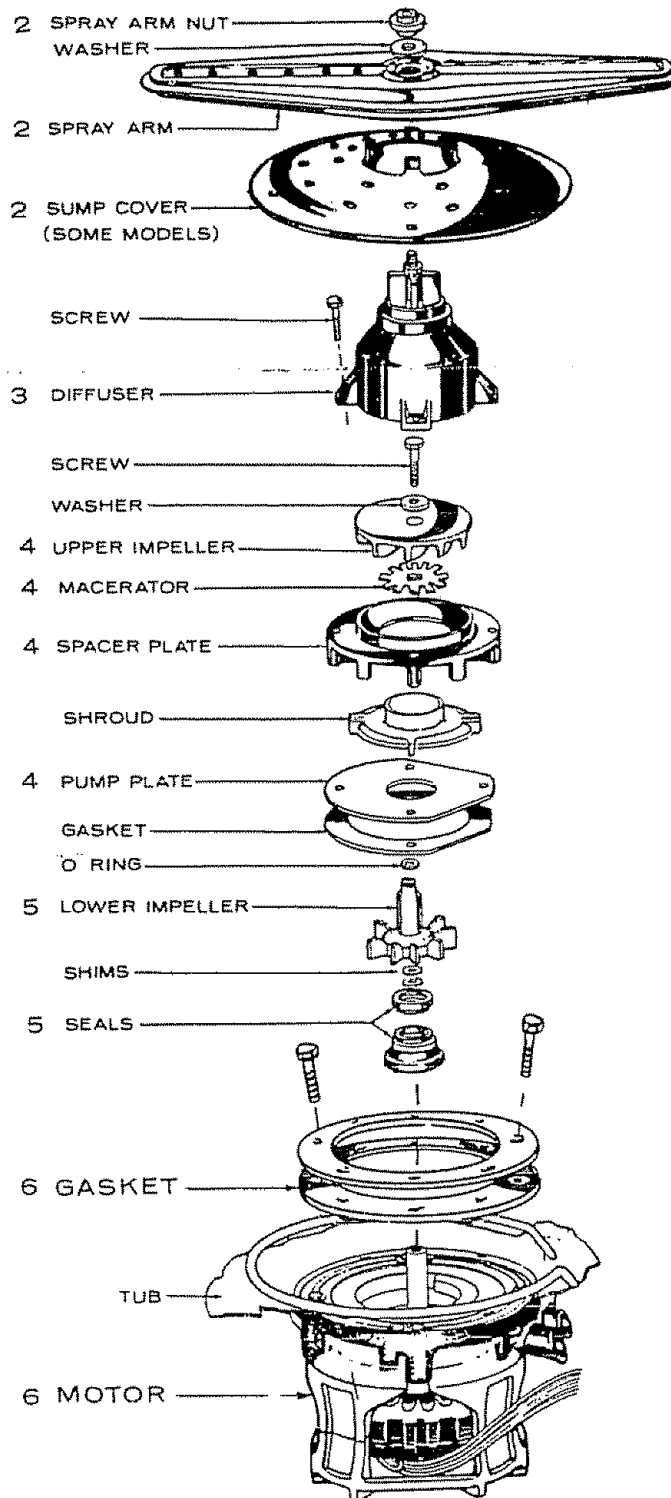


FIGURE 36

H. *Motor Replacement* (If you have a dishwasher manufactured in 1978 or later, refer to the procedure on Page 40)
To replace the main motor, it is necessary to remove the motor and circulating pump assembly from the dishwasher. Follow the procedure as outlined and refer to Figure 36.

IMPORTANT:

Do not attempt any repairs on the machine without first disconnecting the dishwasher from electrical power.

- 1 Disconnect wires, circulating hose and drain hoses from the pump casting.
2. Remove spray arm nut, washer, spray arm, and sump cover if used. (2)

- 3 Remove upper pump housing (diffuser) (3)
- 4 Remove upper impeller, macerator blade, spacer plate, and pump plate (4)
- 5 Remove lower impeller and seals (5)
- 6 Detach motor and pump housing assembly cover, and gaskets from tub (8 screws) (6)
- 7 Remove pump housing from motor (4 thru-bolts at base of motor or 4 short bolts at top of bell housing) and mark position of pump housing in relation to motor
- 8 Install housing in same position on replacement motor. *IMPORTANT! The motor shaft must be accurately centered in the pump housing for proper operation of the pump. To assure precise centering, use Service Tool 803923 as illustrated in Figure 37, before tightening thru bolts* (Available through Sears Parts Department.)
- 9 After the pump housing has been secured to replacement motor, it is necessary to determine the correct number of shim washers to be used between the lower impeller and the motor shaft. *Shims are required to insure correct mating pressure of the water seals.* To determine the number of shims required, hold shim gauge (furnished with kit) firmly on surface of pump housing as shown in Figure 37 (Note: Shim gauge should not be on top of gasket)

The shim washers are 1/32 inch thick. Fill the space between the motor shaft and shim gauge with the shims.

CAUTION:

Do not over shim by allowing the gauge to raise above the pump housing surface.

CENTER MOTOR SHAFT WITH PUMP HOUSING
WITH SERVICE TOOL 803923

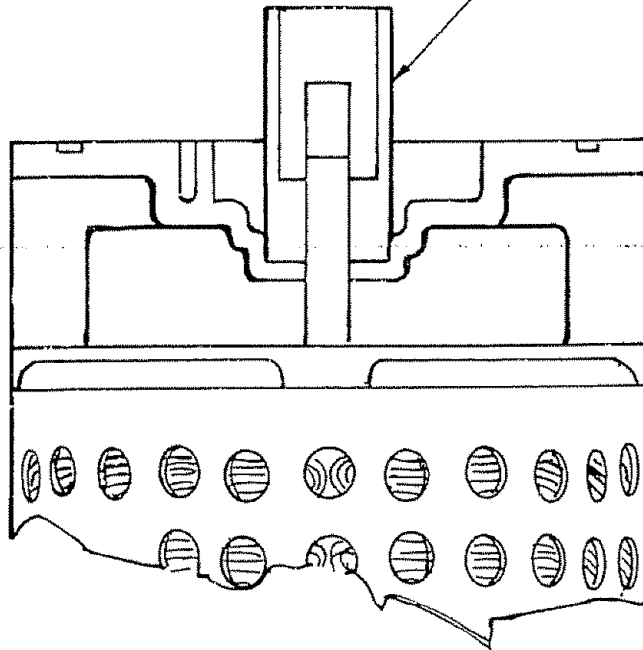


FIGURE 37

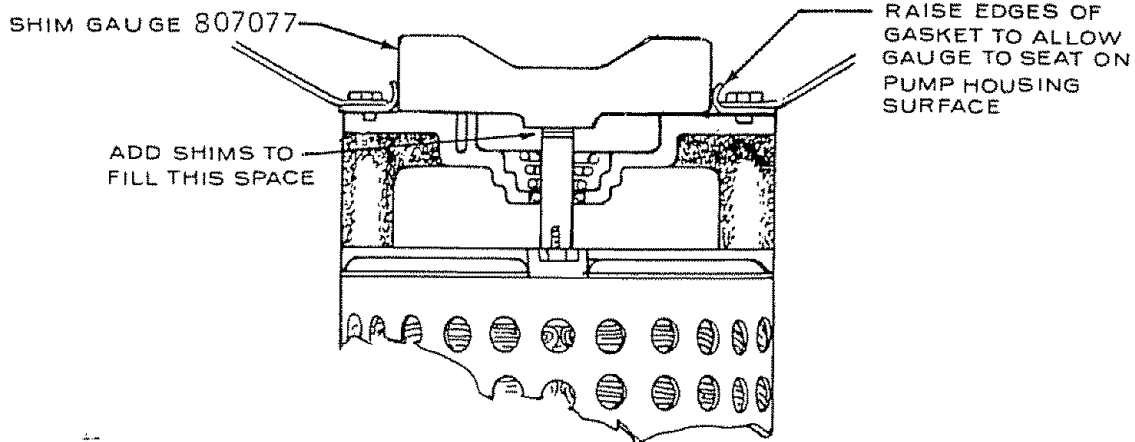


FIGURE 38

- 10 Before replacing the required shims and lower impeller on the motor shaft, carefully examine the mating surfaces of the lower impeller shaft seal (white ceramic) and the pump housing seal (black carbon). These surfaces should be perfectly smooth and polished in appearance. If either appears scratched, pitted or damaged in any fashion, the seal must be replaced otherwise a leak may occur.

Clean seal cavity thoroughly. Install the lower seal. Use service tool 803923.

11. Fasten motor pump housing assembly to tub. Be sure casting is clean and a new gasket is used.
12. Re-assemble remaining pump components in reverse order of removal.

IMPORTANT:

Be sure the relay furnished in the kit is used with the replacement motor, otherwise, serious damage to the motor can result! Carefully review the instructions packed with the motor.

J. Motor Installation

1. Place motor on floor in proper position beneath mounting hole in tub (See Figure 39) (Pump housing and gasket attached to motor)
2. Insert 2 guide pins* through mounting holes in tub and into corresponding attach screw holes in pump housing

*Guide pins are made by cutting 2 pieces of heavy gauge wire about 6" long. They are not required. However, they do simplify installation.

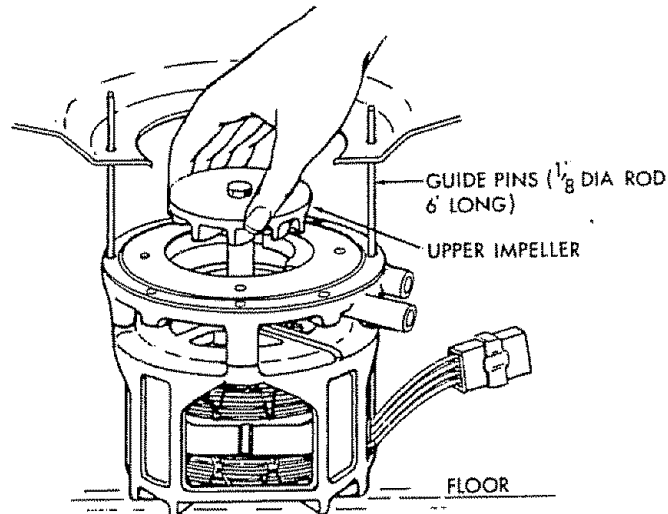


FIGURE 39

3. *Temporarily* attach upper impeller to motor shaft with screw.
4. Place gasket and cover ring over guide pins in position inside tub.
5. Grasp impeller and lift motor straight up into position beneath tub. (See Figure 39)
6. Holding motor in position, install two of the attach screws directly across from each other.
7. Remove guide pins and upper impeller and complete installation of all attach screws.

K. Removing Pump and Motor Assembly (Manufactured in 1978 or Later)

The motor and pump assembly has been redesigned to allow removal through the inside of the tub. It is important that the following procedure be used to remove and replace this assembly.

1. Shut off electrical power to the dishwasher.
2. Remove access panel and toe plate.
3. Disconnect hoses from pump housing ports.
4. Disconnect motor electrical leads from terminal block and relay.
5. Remove the lower rack and lower spray arm.
6. Remove 6 pump mounting screws. (Some housings may have 10 screws)
7. Separate halves of clamping ring from pump housing (access compartment). See Figure 40
8. Pump and motor assembly can now be lifted out from inside the tub.

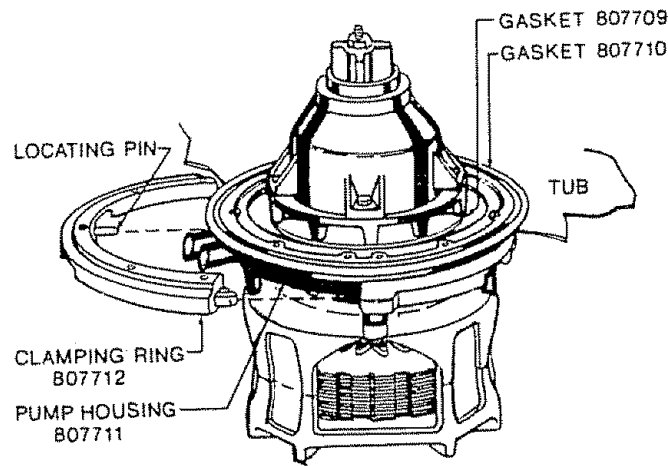


FIGURE 40

L. *Replacing Pump and Motor Assembly (Manufactured in 1978 or Later)*

1. Replace 807710 gasket. *DO NOT* try to re-use original gasket. Be sure ridges on gasket face downward.
2. Place pump and motor assembly in mounting hole in tub bottom. Be sure ports on pump housing are adjacent to connecting ends of drain and recirculating hoses.
3. Join together the two halves of the clamping ring on the pump housing. Make sure the locating pins in the clamping ring halves are inserted in the holes in the pump housing. The joined ring will stay in position on the pump housing when it is properly assembled.
4. Install the pump mounting screws. *IMPORTANT: Install one screw on each side of the ring FIRST.* See Figure 41
5. Attach hoses to pump housing ports. Secure clamps with clamp screw on underside of hose
6. Connect motor leads disconnected in Step #4 in "Removing Pump and Motor Assembly."
7. Replace lower spray arm, lower rack, toe plate, and access panel

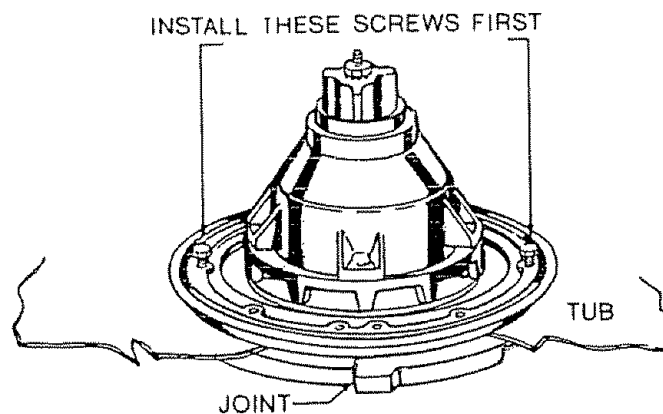


FIGURE 41

Hoses and Couplers

A. Front Opening Portables

Proper routing of hoses for Front Opening Portables is shown in Figure 42. Tub removal is not required to perform the following operations.

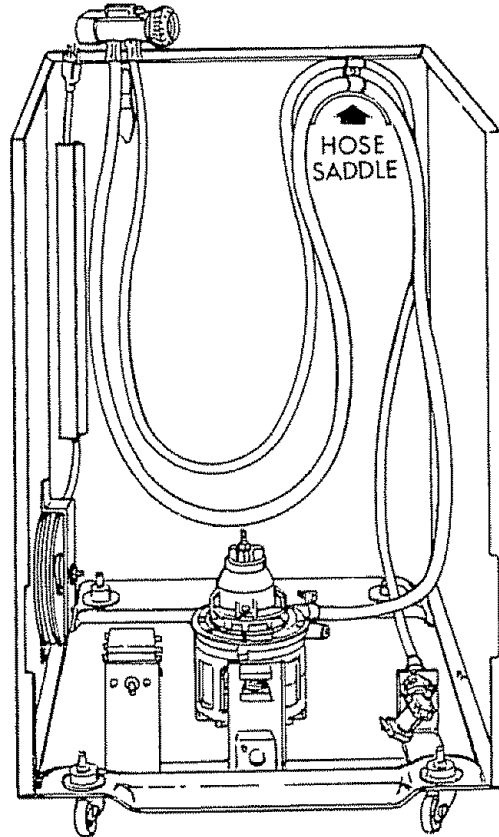


FIGURE 42

NOTE: Tub is removed only to show location and routing of hoses

To replace the Fill Hose:

1. Lay unit on its back.
2. Disconnect inlet hose at inlet valve.
3. Stand upright, remove top.
4. Detach saddle hose clamp.
5. Pull inlet hose up and out of cabinet.
6. Disconnect inlet hose from coupler.

Reinstall new inlet hose in reverse of the above – Be certain routing is proper and that there are no twists or kinks in the hose. Check hose connections for leaks and test movement of hose in and out of cabinet.

NOTE:

On some models, both the fill hose and drain hose are permanently attached to the coupler.

To replace the Drain Hose:

1. It is best to leave unit in upright position and remove access panel.
2. Disconnect drain hose from pump casting – **CAUTION** – be prepared to catch approximately one (1) quart of water from pump housing and hose.
3. Disconnect fill hose at inlet (still standing upright).
4. Remove top assembly.

5. Remove hose saddle.
6. Remove hoses.
7. Detach inlet hose and reattach it to a new coupler and drain hose assembly

Reinstall coupler and hose assembly in reverse order. Be certain routing is proper with no twists or kinks in hoses. Check connections for leaks and test movement of hoses in and out of cabinet.

Adjustment of Hose Length:

The length of the hose when fully extended is approximately 4'6" to 5'. Should this appear short or an additional inch or two be needed, you could take up any slack that may be available in the routing (Figure 42). Be certain however, that you do not kink or otherwise restrict the hoses.

B. Hose and Coupler Assembly (18" compact model)

Replacement of fill hose, drain hose and coupler. (See Figure 43).

1. Disconnect power supply.
2. Remove top assembly.
3. Remove hose and power cord pocket.
4. Remove saddle bracket.
5. Tilt dishwasher and disconnect hoses from valve and pump housing.

During re-assembly, reverse procedure and place saddle clamp approximately 50 inches from the coupler end of the new assembly on the *drain* hose and approximately 48 inches on fill hose.

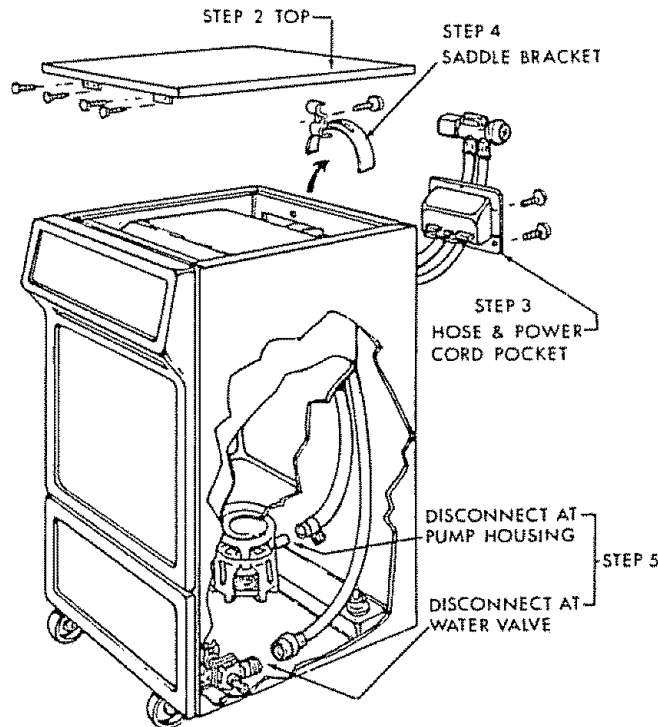


FIGURE 43

C *Faucet Coupler*

The fill and drain hoses of a portable dishwasher terminate in a faucet coupler. Most couplers are equipped with bleed valves to enable the operator to relieve the water pressure in the fill hose by depressing the valve button. This prevents splashing when the coupler is disconnected.

D *Coupler Repair*

Because of the high cost of replacing complete couplers and coupler/hose assemblies, couplers should be repaired whenever possible. See Figure 44 and 45 for exploded views of 2 faucet couplers and pressure relief valves used in Sears dishwashers.

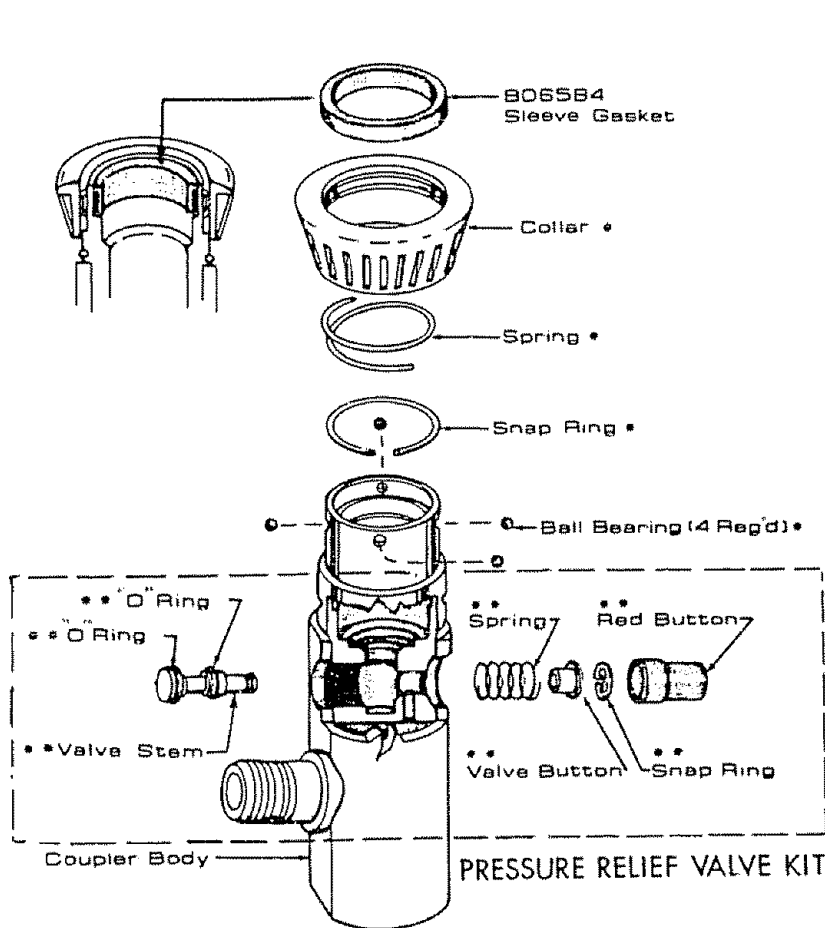


FIGURE 44

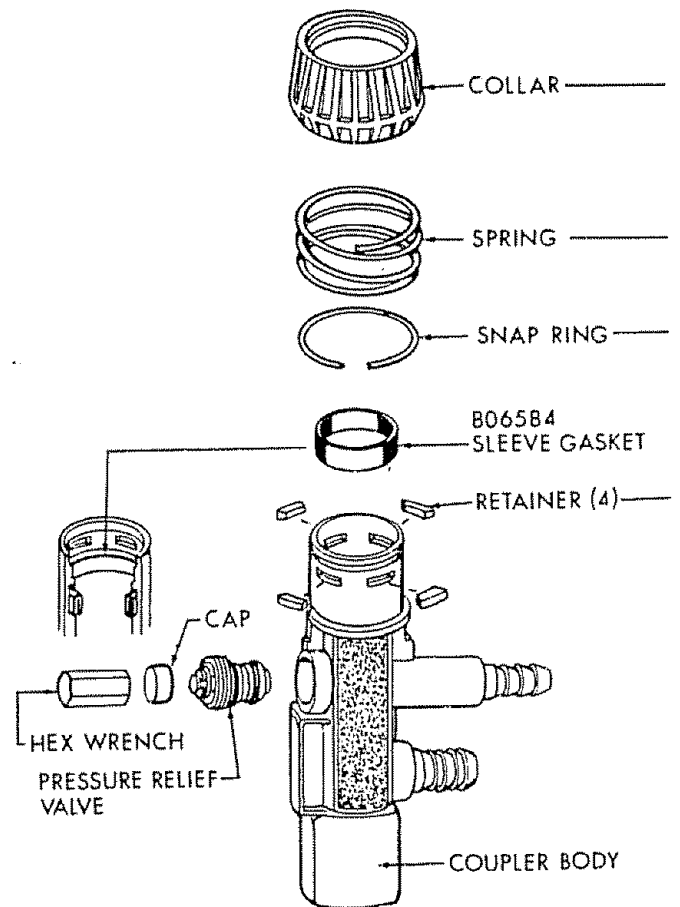


FIGURE 45

The coupler body has a very long life. In general, it is aging and wear that causes the sleeve (internal) gasket, collar and pressure relief to fail.

If the collar is worn, the spring is weak or broken, or ball bearings are missing, order a Collar Repair Kit from Sears Repair Parts Department. Have your model number available when purchasing repair parts.

If the pressure relief valve is not sealing (leaking thru bleed hole) obtain a Pressure Relief Kit from Sears. You must have your model number in order to obtain the correct kit. The 2 pressure relief valves used in Sears dishwashers are shown in Figures 44 and 45.

If water is coming up around the faucet snap adapter, replace Sleeve Gasket 806584.

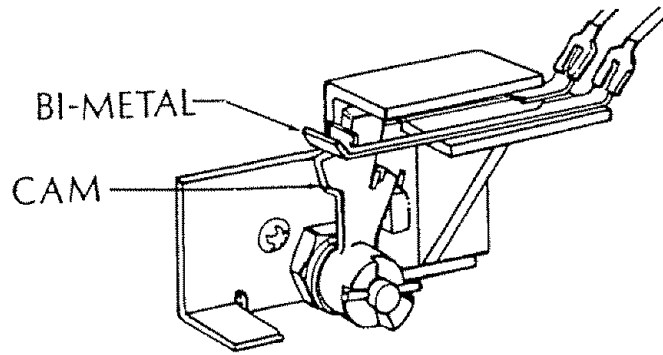


FIGURE 46

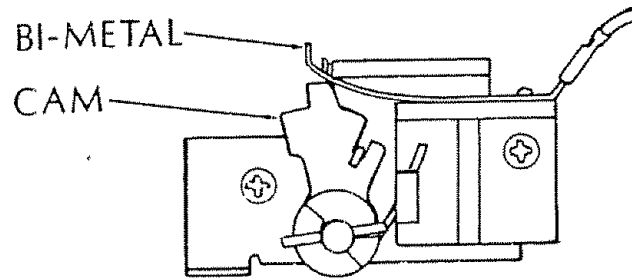


FIGURE 47

Dispensers

A. Detergent Dispenser – Bi-Metal Operated

The Bi-Metal trigger used to release the detergent cup locking cam is made of two different metals which are bonded together. The expansion rates of these metals are considerably different. The trigger bends when heated and releases the locking cam. (See Figures 46 and 47.)

The Bi-Metal trigger is a low voltage device. It is placed in series with the dishwasher heating element. Current flowing through the heating element is directed by the timer through the trigger mechanism either during or immediately after the fill period for the second wash. The current heats the trigger and the cam is released.

Several different circuits have been used with these devices. Always refer to the wiring diagram for the model you are servicing. In all cases, power is taken from a timer terminal to one terminal of the Bi-Metal. The other Bi-Metal terminal is connected to the red heater lead, usually at the timer. The timer switch that normally supplies the heater power must be open while detergent cup operation takes place.

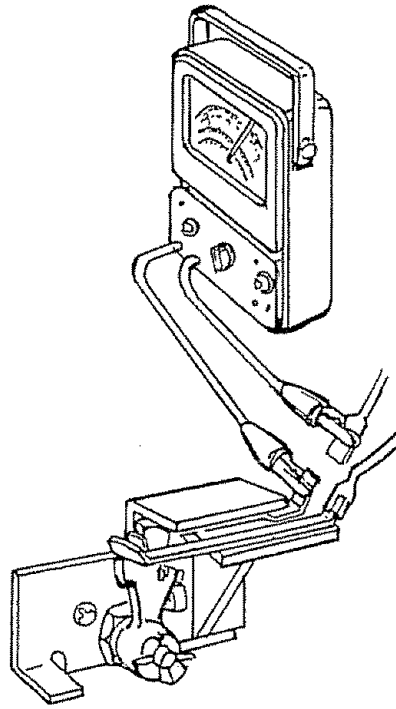


FIGURE 48

Connecting a voltmeter in series with the Bi-Metal as shown in Figure 48 will permit a quick check of the circuit. If the circuit is good, line voltage will be indicated when the timer is advanced to the Detergent Dispenser Increment with the dishwasher connected to a power source. The Bi-Metal will not heat with the voltmeter connected, due to the high resistance of the meter.

Failure of the Bi-Metal to operate can usually be traced to a poor connection, faulty contact or an open lead. The Bi-Metal itself is a highly reliable component. If the circuitry is found to be satisfactory, the latching surfaces of the cam and trigger should be checked for roughness.

CAUTION: Do not apply line voltage across the Bi-Metal, as this would destroy it.

The Bi-Metal leaf is an integral part of the electric circuit. If it becomes necessary to touch the leaf for any reason, turn off the power to the dishwasher. Although the Bi-Metal is a low voltage component, it is possible to have a 120 volt potential from the Bi-Metal to ground when the Bi-Metal circuit is open.

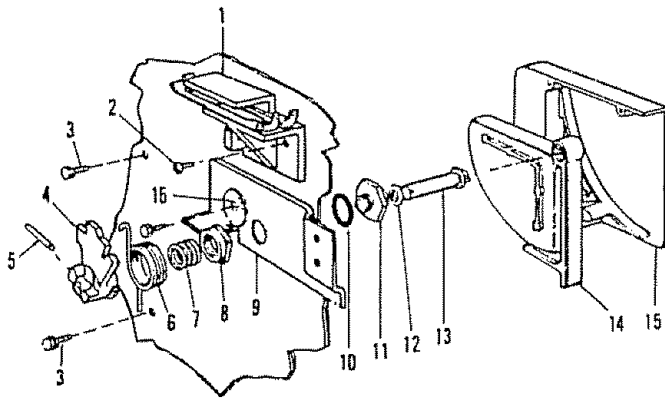


FIGURE 49

| Ref. No. | Description |
|----------|------------------------|
| 1. | Bi-Metal Trigger |
| 2. | Screw |
| 3. | Screw |
| 4. | Cam |
| 5. | Roll Pin-Cam |
| 6. | Spring-Cam |
| 7. | Spring-Cam-Compression |
| 8. | Nut |
| 9. | Bracket-Actuator |
| 10. | Washer |
| 11. | Bushing |
| 12. | "O" Ring |
| 13. | Shaft |
| 14. | Cup-Detergent |
| 15. | Cover-Cup |
| 16. | "O" Ring |

D. *Wetting Agent Dispenser – Bi-Metal Operated*

A completely redesigned supply tank and a Bi-Metal release mechanism are features of this wetting agent dispenser. Elimination of the solenoid reduces the operating noise level of the dispenser.

The door must be fully opened for a few seconds to allow the wetting agent liquid to fill up in a scoop. (Figure 50),

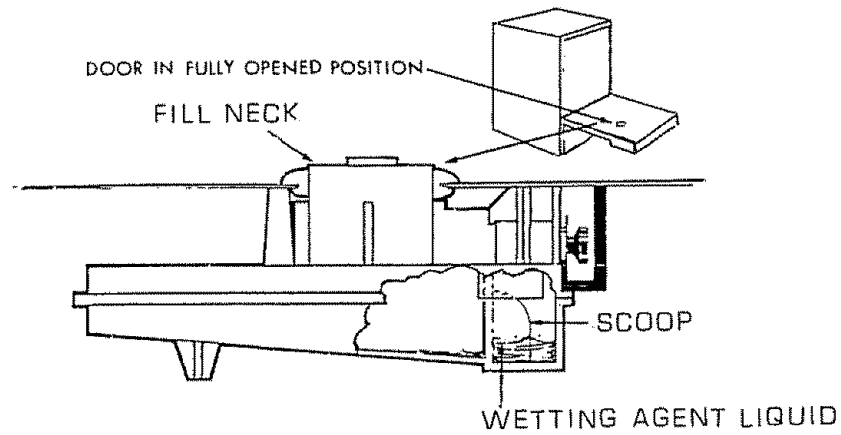


FIGURE 50

When the door is closed the wetting agent liquid in the scoop then fills the area at the bottom portion of the inner valve stopper and any extra liquid drains back into the supply tank. (Figure 51).

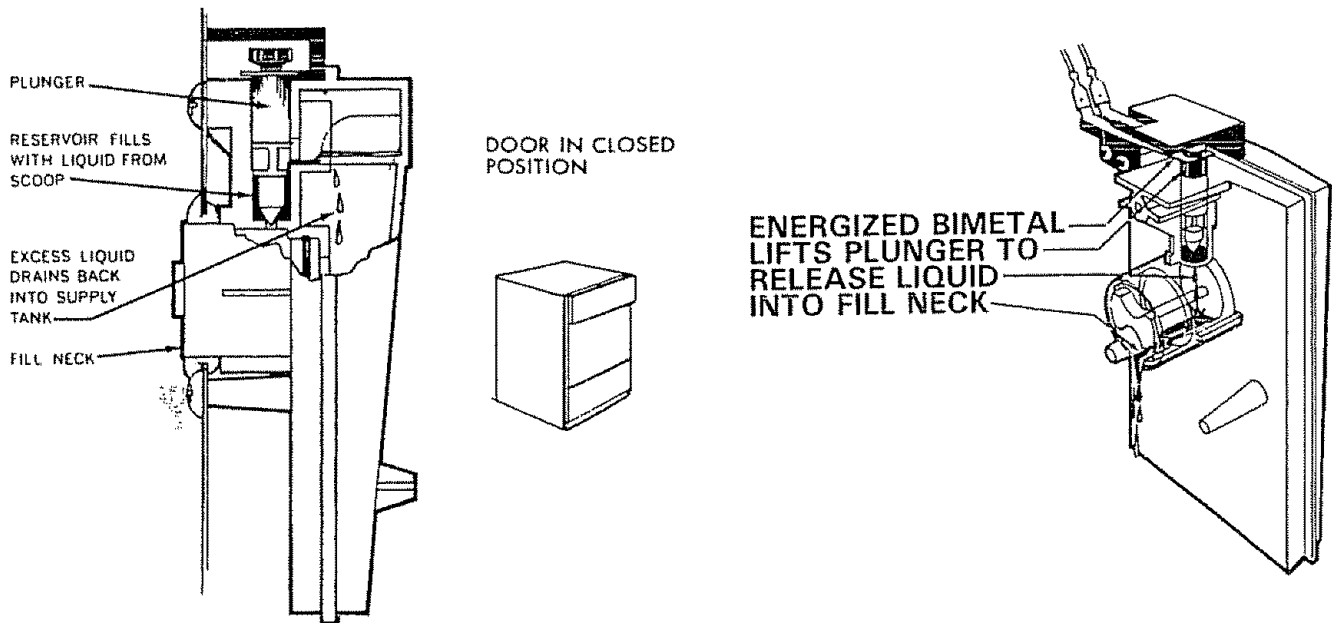


FIGURE 51

FIGURE 52

This controlled amount of wetting agent liquid at the lower section of the stopper is released into the fill neck during the water fill of the 4th (last) rinse only. (Figure 52)

To check for proper operation, with wetting agent liquid in the supply tank, start the dishwasher in the normal manner, then manually advance the timer to the fill of the last rinse. The Bi-Metal should lift the stopper either during or shortly after this fill. The wetting agent will then flow from the valve area out to fill neck for mixing with the rinse water.

Failure of the Bi-Metal to lift can usually be traced to an interruption of its circuit path, which includes the heating element. The rinse injector Bi-Metal is very similar to that for the detergent cup, and it is checked in the same manner. A voltmeter may be used in series with the Bi-Metal (see Figure 53) to check for an open circuit condition. Reference should be made to the proper schematic wiring diagram to locate such a condition.

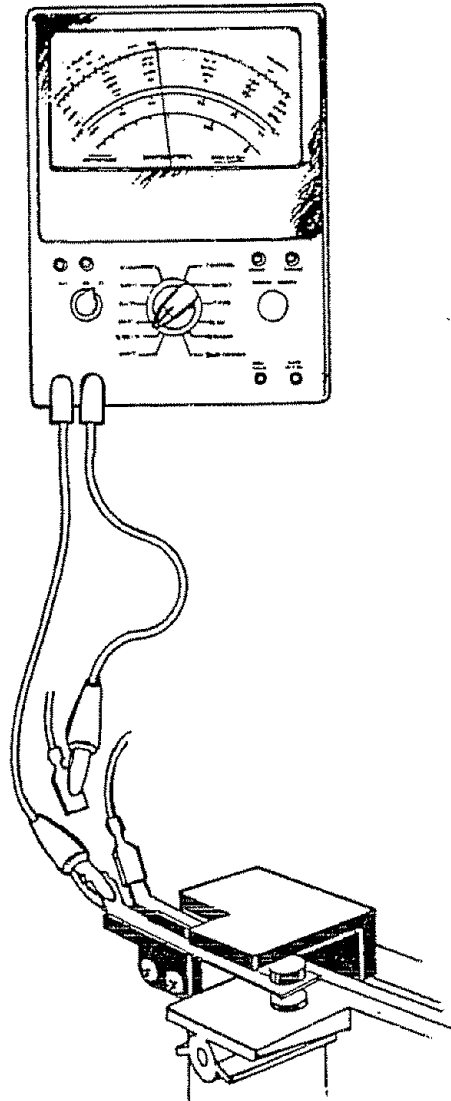


FIGURE 53

CAUTION:

Do not apply line voltage across the Bi-Metal as this would destroy it. A voltmeter across the Bi-Metal terminal will indicate approximately one volt if operation is correct but a poor connection at the Bi-Metal terminal could show line voltage.

Leaking Wetting Agent Dispenser – Bi-Metal Type

Overfilling the wetting agent dispenser can cause the liquid to be forced past the plunger when the plug is replaced. This liquid will run down the door between the door and outer panel and may drip to the floor. Make sure that the door of the dishwasher does not open past the horizontal position. This may cause the wetting agent to leak out. This can be corrected by raising the front levelers slightly on undercounter models.

Timers

A Timer Operation

D. ELECTRICAL CONTROLS

The timer is the central control point of the electrical components. All timers used on Kenmore Dishwashers are similar in operation and design. The only difference is in complexity due to the variation in function and features of the various models.

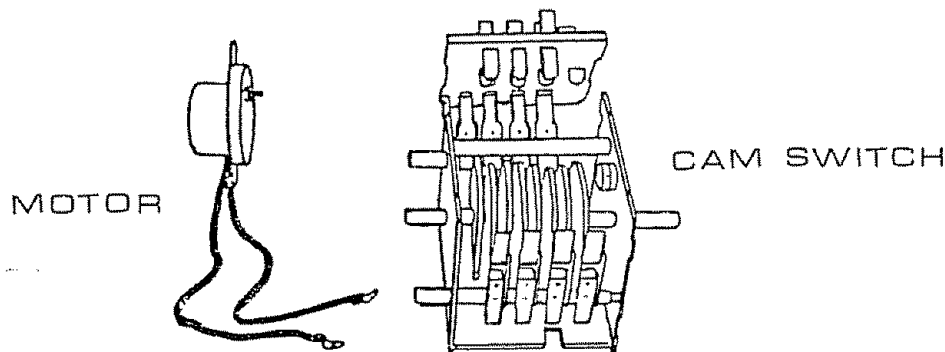


FIGURE 54

All electromechanical timers consists of two basic components; a motor, and cam switches, assembled into one unit. (Figure 54). To fully understand the function and relationship of these two components to one another, it is necessary to examine each component in more detail.

Timer motors may vary slightly in appearance, but each functions in the same manner. It is a synchronous-type motor, similar to those used in electric clocks, with a small pinion which drives a cam through a gear arrangement.

The cam switches are enclosed in a case to protect them from damage and contamination by foreign particles which may cause a malfunction. The number of switch contacts and cams varies with the number of functions the dishwasher performs.

The particular shape of the cam varies with the number of switch contacts it controls and the length of time each switch contact is closed. Figure 55 shows a very simple cam that controls one switch contact, which is closed for two increments of the timer cycle. Let's assume that this cam is designed for a timer that has an advancement of six degrees (6°) every sixty seconds. The cut-out portion of this cam, therefore, is twelve degrees, and the cam switch contacts are closed for only two minutes during the complete cycle.

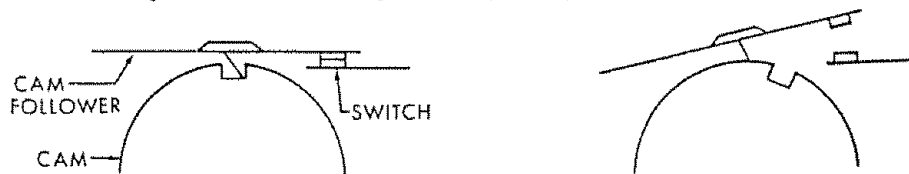


FIGURE 55

A single metal strip, called a cam follower, (Figure 55) is anchored to each cam switch arm and as the cam turns, this metal strip follows the contour of the outer circumference of the cam, thus causing the cam switch arm to make and break contact at the proper time

In Figure 56 we see a more complicated cam. This cam was designed to control one or possibly two switch arms that have dual contacts. You will note that this cam has raised, cut-out, and neutral portions. The raised portions force the cam switch arm against the outer contact and the cut out portions allow the cam switch arm to make contact with its inner contact. Both contacts are open when the cam follower is on the neutral section of the cam.

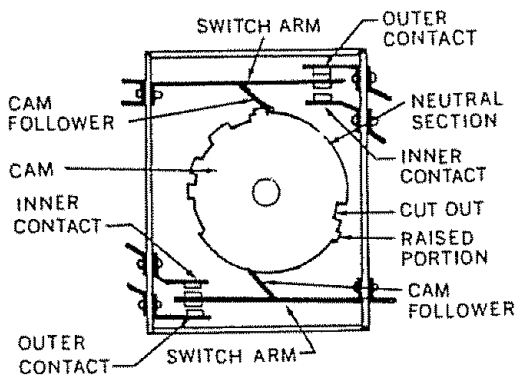


FIGURE 56

Selector Switches

A selector switch on an automatic dishwasher gives the customer the option of choosing the type of wash best suited to the dish load and type of soil. Some economy models have this selection built into the timer. The most common type of cycle selector, however, employs a push button switch which bypasses unwanted portions of a cycle.

The pushbutton switch mechanism, although appearing complex because of its many terminals, can be rather simple to trouble shoot. Always refer to the Cycle Selection Switch Functions Chart which is printed with the wiring diagram and follow the procedure outlined in the following example.

A Checking The 5-Button Switch

1. Disconnect dishwasher from electrical power.
2. Detach control panel from inner door panel.
3. Disconnect leads from the switch and connect leads of ohmmeter to terminals on the switch as they are designated in the "Cycle Selection Switch Functions" chart. (Figure 57). For example, begin with the first column under "Cycle Selection Switch Functions." Connect one ohmmeter lead to the "1" terminal and the other lead to the "3" terminal. Press each of the four buttons and compare ohmmeter reading with chart. If chart shows switch "OPEN" (O) no continuity should register on ohmmeter when button is pressed. If "CLOSED" (C) continuity should register on ohmmeter when button is pressed.

Follow this checking procedure through all cycle switch positions, being certain the ohmmeter leads are connected to the proper terminals. Failure of switch to register as shown on the chart indicates a defective switch and it must be replaced. (Figure 57)

NOTE:

Some selector switch terminals are identified by colors instead of digits.

CYCLE SELECTION SWITCH FUNCTION

| SWITCH SELECTION | 3 | 3 | 4 |
|------------------|----|----|----|
| | TO | TO | TO |
| | 1 | 2 | 5 |
| Rinse'n Hold | C | O | C |
| Light Wash | O | C | C |
| Normal Wash | C | C | C |
| Power Sani-Wash | C | C | O |

O OPEN
C CLOSED

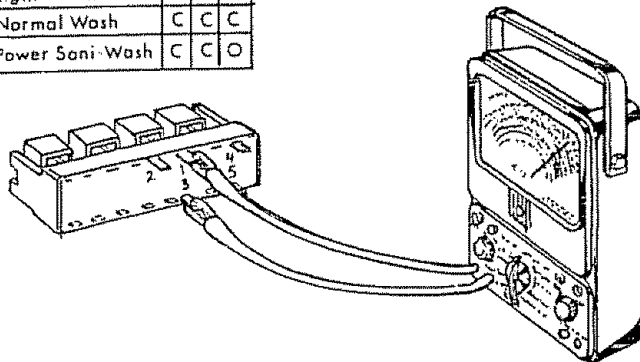


FIGURE 57

Since failure of the machine to function properly can result from failure of one of several components, be certain the above checks are accurately performed before labeling a selector switch "defective."

Thermostats and Temperature Indicators

A. *Sani-Wash or High Temperature Wash/Rinse Thermostat*

Most dishwashers are equipped with a thermostat to provide for guaranteed hot water in the 2nd Wash and/or Final Rinse when a Sani-Wash or high temperature wash is selected. Unless the water temperature is high enough to satisfy the thermostat, the thermostat stops the timer until the heater in the machine raises the water temperature enough to satisfy the thermostat.

If the water temperature in the tub is below the thermostat setting the switch remains open and the timer motor does not run, prolonging the rinse cycle until the water temperature rises to the thermostat setting. When this temperature is reached, the bimetal strip within the thermostat deflects and closes the contacts (closing the circuit to the timer motor) and the timer resumes operation to complete the dishwashing cycle. See Figure 58.

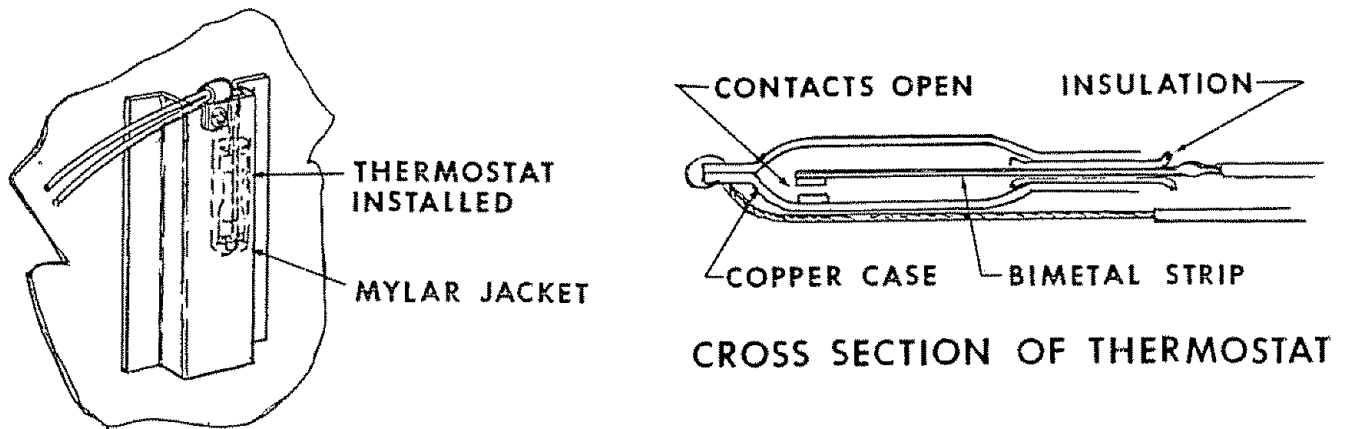


FIGURE 58

The heater in the machine will raise the water temperature approximately one degree per minute. Thus, if the water is 135 degrees at the start of the Second Wash or Fourth Rinse and the thermostat is calibrated to 150 degrees, the timer will stop for approximately 15 minutes in the Second Wash or Fourth Rinse (or both) while the water is being heated. During the time that the thermostat is calling for heat, there is no power to the timer motor although the wash system continues to function.

Depending on the model dishwasher, the thermostat may be calibrated at 140° to 150°. Some Lady Kenmore models contained 2 thermostats; one which is a round disk type, and the other which is of a tubular design. The disk type is calibrated for 150°, and the tubular type is calibrated for 120°.

B. *Checking Thermostat Operation*

If the second wash or final rinse cycle is not delayed (when a Sani-Cycle has been selected), despite a temperature of less than 130° F in the tub:

1. Check for incorrect wiring (use schematic).
2. Check for a defective thermostat. Contacts should be open when cold.
3. Check for short in thermostat circuit.
4. Check for too low a calibration of the thermostat. Thermostat calibration may be determined by measuring the temperature of the water expelled from the machine following a thermostatic delay.

If the second wash or final rinse phase is prolonged for an excessive amount of time, causing the water to become hotter than necessary:

1. Check for too high calibration. (Follow same procedure as outlined on the previous page.)
2. Check the thermostat circuit for correct wiring.
3. Check to see that power is applied to one terminal of thermostat by the timer at the proper time.
4. Check the heating element.

If 1 and 2 are satisfactory, a faulty thermostat is indicated and should be replaced.

CAUTION:

Care should be taken when installing a replacement thermostat so as not to place any strain or pressure on the body of the thermostat. Note that the thermostat is held in position by a clamp on the wire leads.

Some Kenmore Dishwashers, both portable and built-in, are equipped with sensing devices to indicate to the user the temperature of the water within the machine. The water temperature will fall within the ranges of "Cool," "Normal," or "Sani" and will be indicated by lights on the console as shown in Figure 59.

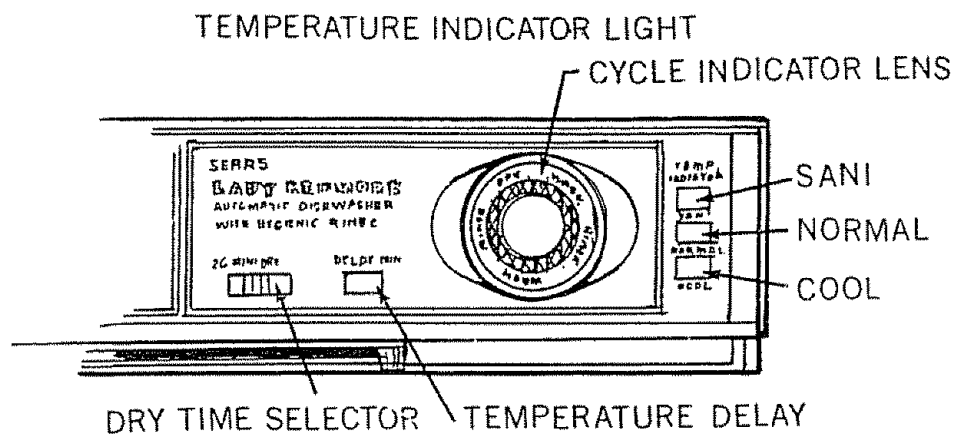


FIGURE 59

The "cool" thermostat (Figure 60) is a single pole single throw temperature controlled switch. The "sani" thermostat (Figure 61) is a single pole double throw switch.

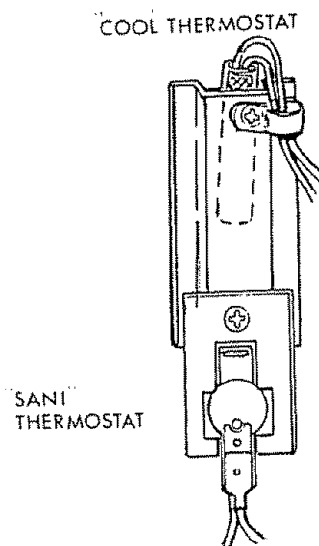


FIGURE 60

Since the thermostats are subjected to varying conditions within the home, it is extremely important that they be secured firmly against the door or tub of the dishwasher in order to accurately sense the internal temperature

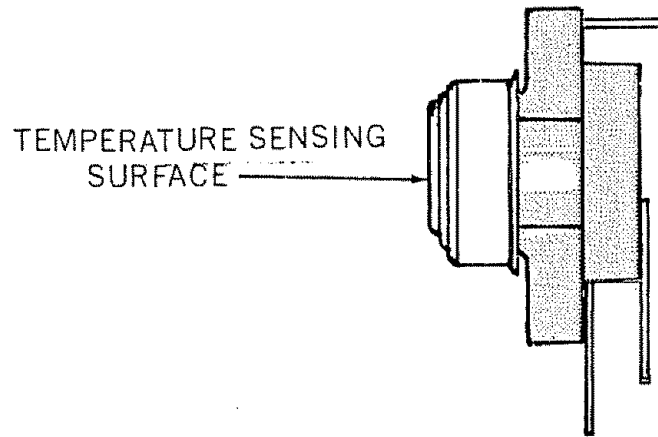


FIGURE 61

The purpose of the lights is to indicate to the user of the dishwasher whether the hot water supplied to the machine is hot enough to produce good dishwashing results. The "Cool" light will remain on until the water temperature in the dishwasher reaches 140° at which time the light switches from "Cool" to "Normal."

Dishwashing detergents state that temperatures delivered to the inlet valve must be at least 140 degrees. This minimum temperature is required because of the severe drop in water temperature as water enters a cold steel tub and the fact that it must "heat up" the tub interior and its contents before it can be expected to maintain the inlet water temperature

For example; if water at the tap measures 140 degrees upon entrance into a cold dishwasher, this water temperature will drop to approximately 115 degrees or less depending on the size of the load and the kind of dishware in the load. See Figure 62. As you can readily see, this would give only minimal warm water in the first wash to activate the detergent. The hotter the water is on the first fill, the quicker you will heat the tub and contents, and the better you will maintain the heat.

Long water runs, hot water pipes that pass through concrete slabs and crawl spaces will tend to cool the water between fills. Undercounter units that have an outside wall across the side or back tend to keep the tub cool. Therefore, always make yourself aware of all the conditions that can affect water temperature in your home.

Also remember that any test involving thermostats and sensing devices must be done with all panel and components in place throughout the testing.

Water Heat Option 130°/ 140°

Some models produced beginning in 1982 have a water heat option controlled by a 130°/140° tubular type thermostat. These models delay in the 2nd rinse, 2nd wash, and final rinse if the thermostat is not satisfied.

Hot Rinse Option 150°

Some models have a hot rinse option in the final rinse. This functions exactly like the sani-temp option of 150° in the final rinse. The hot rinse option is controlled through a 150° tubular thermostat.

High Limit Thermostat 180°

Models produced after 1982 have a 180° high limit thermostat. This is a tubular type; it is normally closed. It breaks the circuit to the heater when the temperature rating is reached. On some models this thermostat may be replaced by a thermal fuse rated at 100°C. This is located in the thermostat bracket on the door liner.

WATER TEMPERATURE OPERATING CHARACTERISTICS

INLET WATER TEMP-140°F

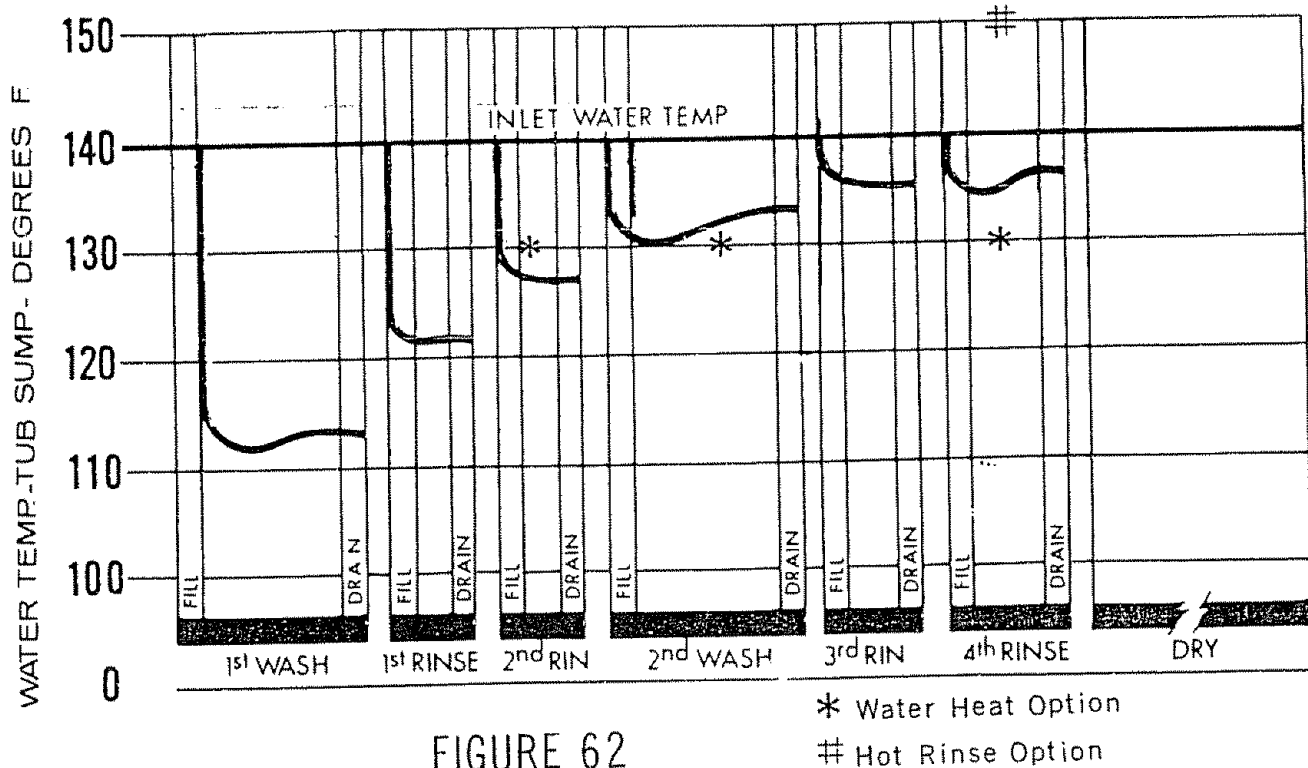


FIGURE 62

In Figure 62, inlet water temperature is at 140 degrees constant. Operation with 140 degree inlet water temperature, is adequate and will do a *good* job of washing dishes. Notice how water heat and hot rinse options will function with 140° inlet temperature

C Sani-Wash Delay Circuit

Figure 63A shows the circuit at the fourth rinse when the Sani-Wash cycle has been selected and the water temperature is below the indicated Sani temperature (150 degrees). The switch to the timer motor has opened; therefore, the timer cannot advance. The temperature delay light will be energized through the Sani-Wash switch and the coil of the motor. (Current flow through the coils will be insufficient to cause the motor to run.)

During this delay period, the water continues to circulate and rinse the dishes while the heating element gradually raises the temperature of the water. When the "Sani" temperature is reached, the double throw thermostat closes its contact one to two, the delay light goes out, the "sani" indicator light glows, and the timer motor is energized through contact 1 and 2 of the thermostat for one minute, after which the timer motor switch again closes. The timer motor remains energized for the remainder of the rinse and dry cycle.

For models without temperature indicator lights, the sani delay function operates in the same manner, however, the thermostat is a single pole, single throw switch.

SANITIZE DELAY LIGHT CIRCUIT POWER SANI WASH CYCLE SELECTOR

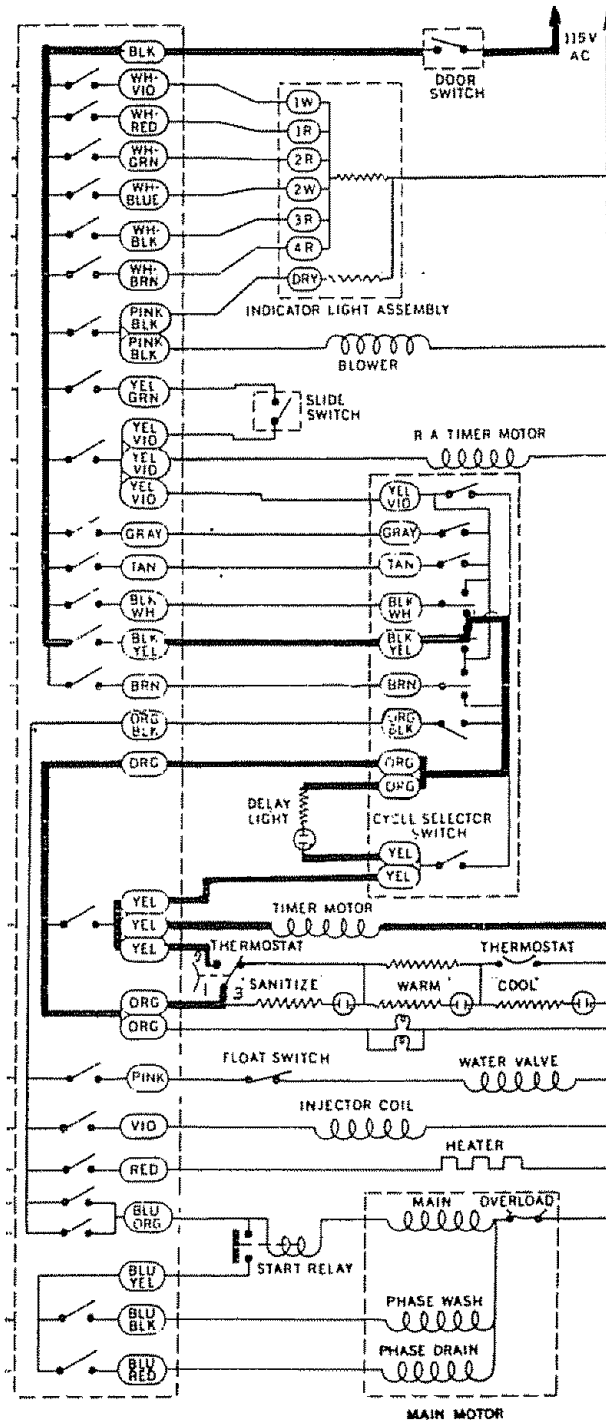


FIGURE 63A

D. Water heat and hot rinse circuits

In figure 63B the water heat circuit is shown with the solid line. The dashed line indicates the delay light circuit. The dotted line is an alternate circuit with the hot rinse option off. When the water heat thermostat is closed, the timer continues to advance, and the delay light goes out.

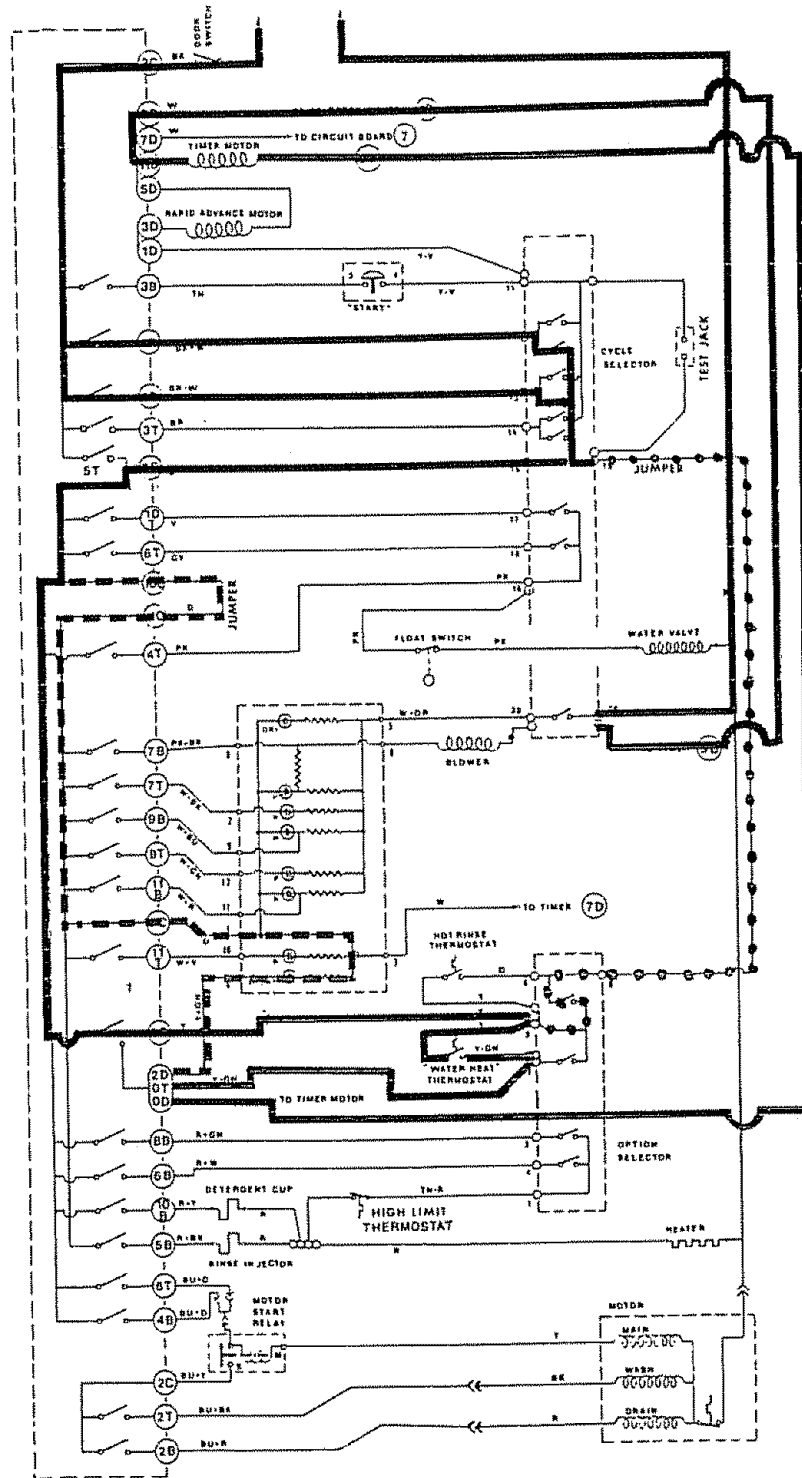


FIGURE 63B

In figure 63C the hot rinse circuit is shown by a solid line. The dashed line indicates the delay light circuit. The delay light glows and the timer is stalled until the hot rinse thermostat closes

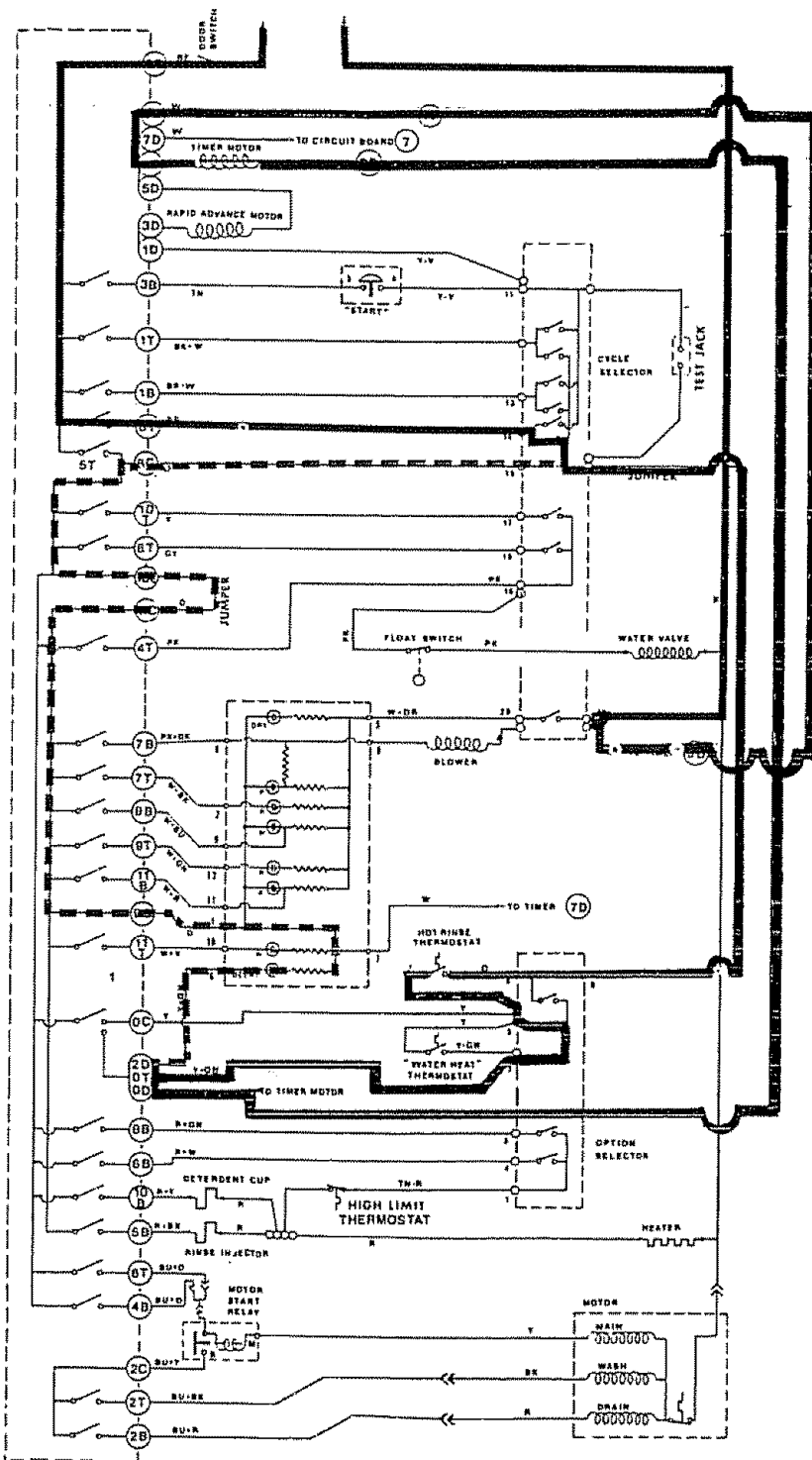


FIGURE 63C

Figure 63D illustrates the circuits involved when both water heat and hot rinse are selected. The delay in the final rinse is controlled in this case by the higher rated thermostat, hot rinse

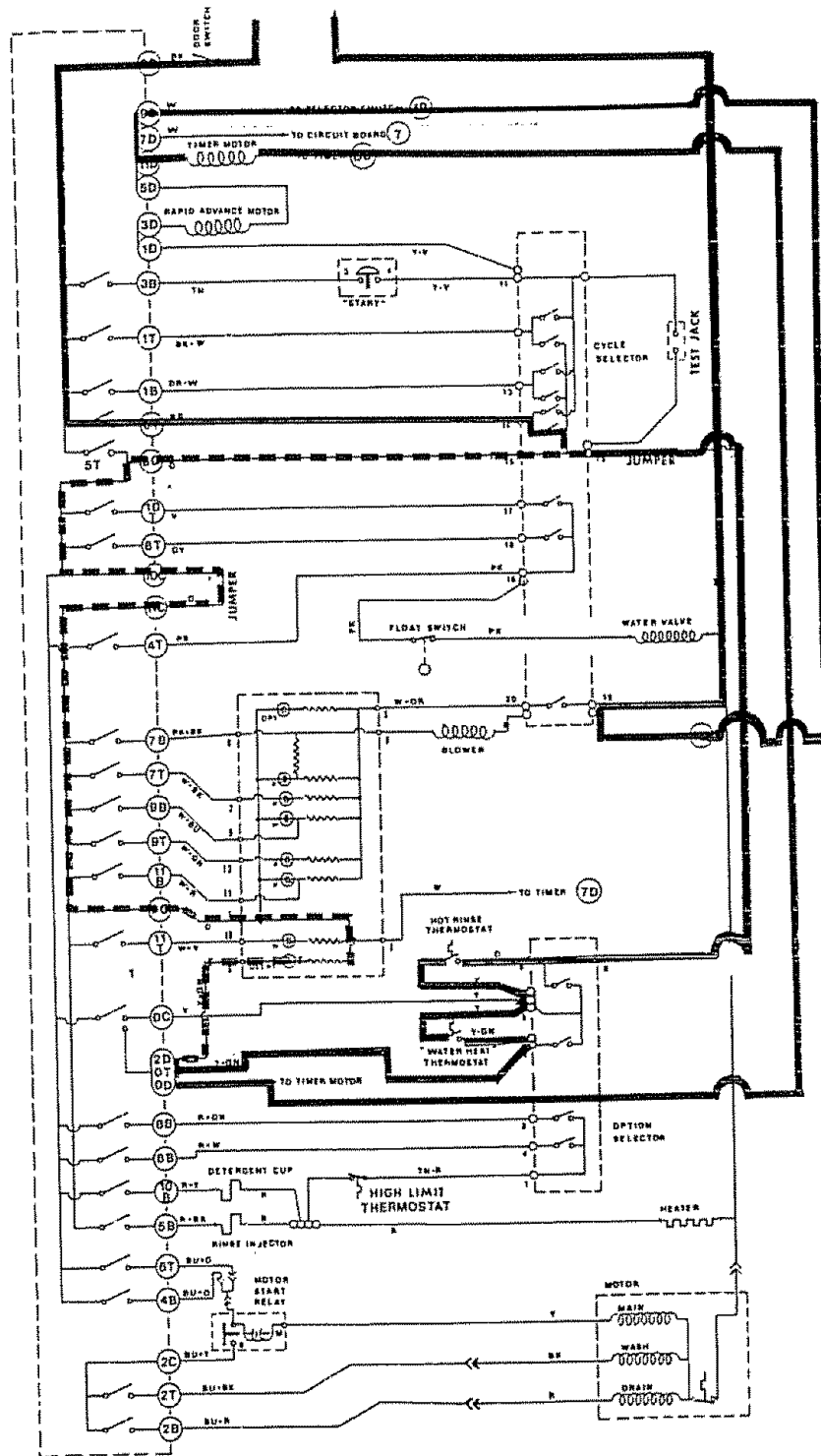


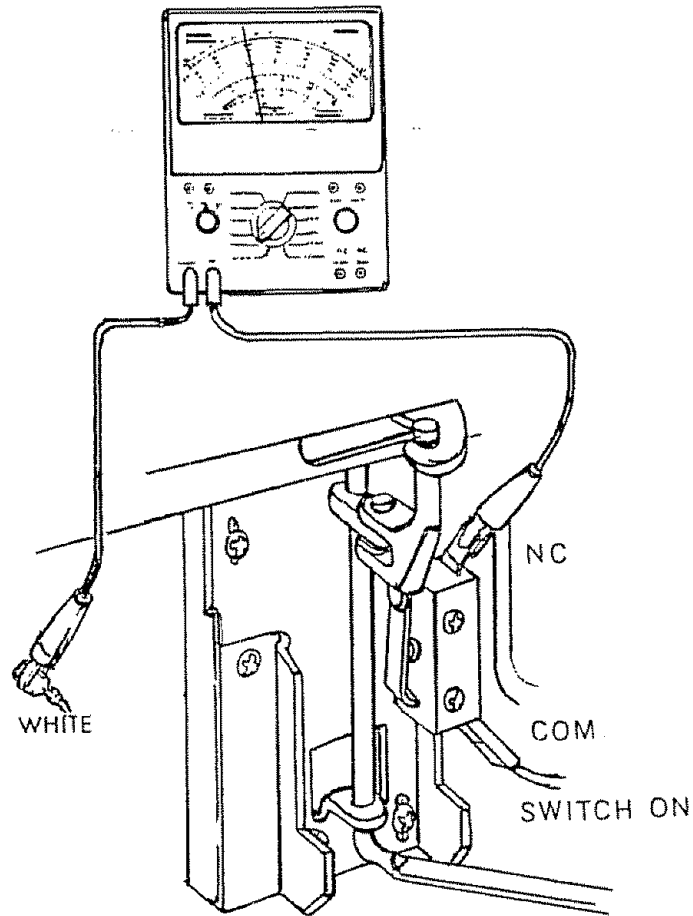
FIGURE 63D

Door and Float Switches

A. Door Latches and Switches

Door switches are safety devices which prevent the dishwasher from operating while the door is open. The switch is the first component in the circuit. All other components are in series with the door switch and all machine functions cease when the door is opened.

The door switch is actuated by the latch mechanism. See Figure 64 and 65. A voltage check of the switch using a volt-ohm meter will quickly isolate a defective component.



Closed Position

FIGURE 64

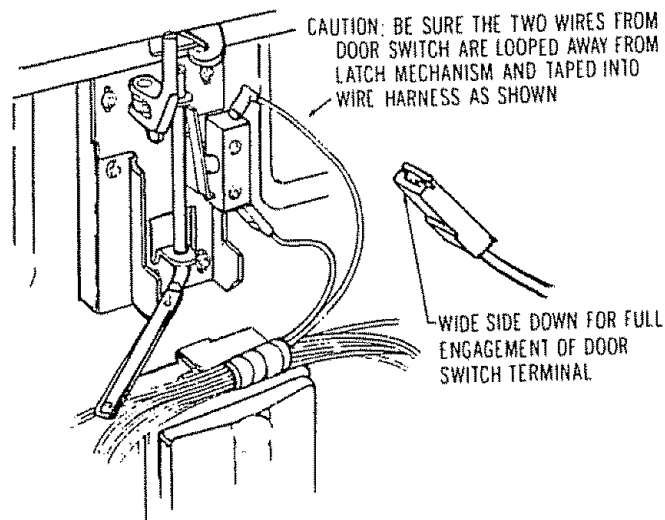


FIGURE 65

B. Float Switches

The float switch is wired in the circuit between the timer and the water inlet valve. The purpose of the float switch is to prevent an overflow in the event the drain system should fail or the timer should stick in the fill position allowing too much water to enter the tub. It will not prevent an overflow should the water inlet valve develop a mechanical defect.

The switch is operated by a float located in the tub (Figure 66) which rises with the water level. At a predetermined level, before an overflow can occur, the float opens the switch contacts and breaks the circuit to the water inlet valve.

The switch is a normally open micro switch which is held closed by the weight of the float.

The float switch may be checked by placing the leads from an ohmmeter across the switch terminals. Raising and lowering the float should cause the switch contacts to close or open the circuit.

NOTE:

Almost every dishwasher on the market has a timed fill period. Some have a pressure switch for overflow protection, others have a float switch. Normally an inlet valve should remain open for 45 to 90 seconds. There are, however, instances where a machine will fill so rapidly (because of high water pressure) that the overflow switch will cut off the inlet valve to prevent an overflow. This will result in a pause between fill valve cut off and the start of the wash or rinse cycle. This is normal and no adjustment should be made.

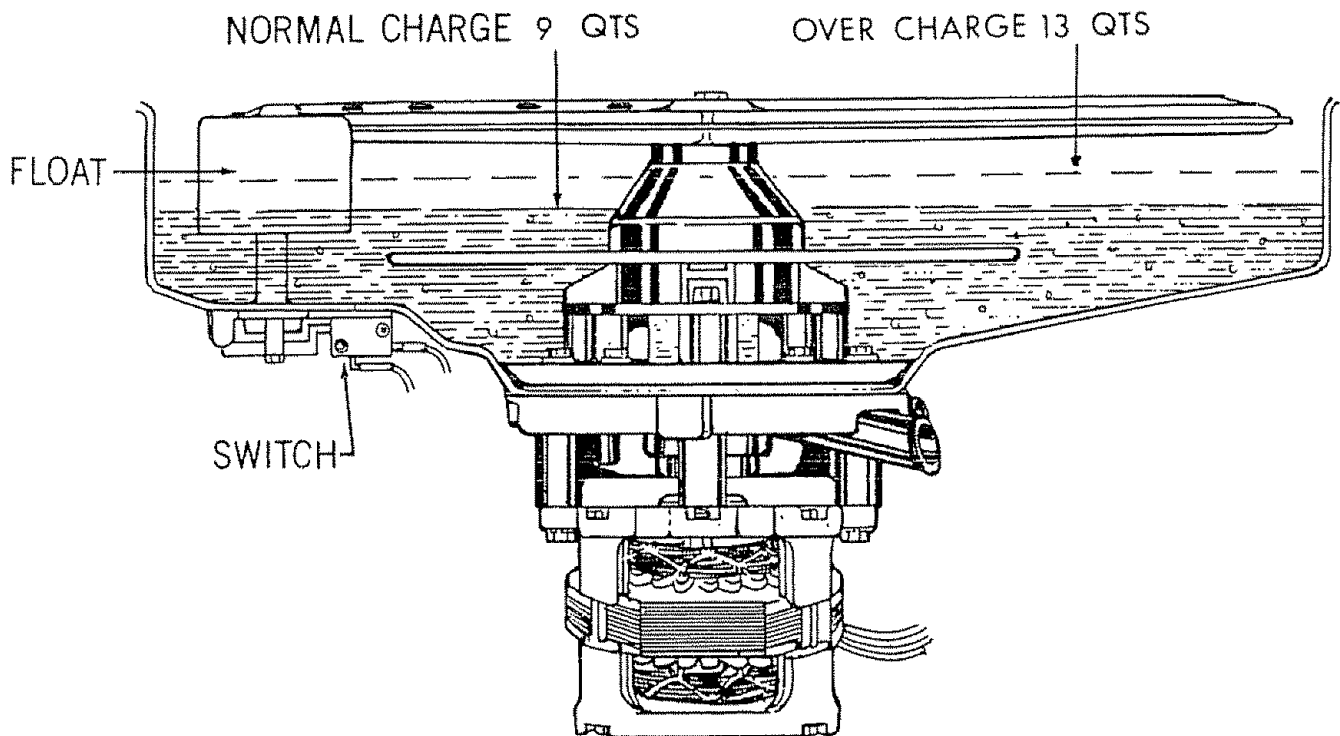


FIGURE 66

E. WIRING DIAGRAMS AND ESTER LINE (CYCLE) CHARTS

To properly diagnose electrical problems associated with your dishwasher, it is important for you to understand the wiring diagram and esterline chart which is located on the tech sheet inside the machine console. These diagrams vary from model to model depending on the particular machines features, but a basic knowledge of one diagram will enable you to understand other diagrams

The wiring diagram, as shown in Figure 67, is a typical line schematic which shows all the electrical circuits involved. Most dishwasher wiring diagrams have arrows or the symbols BK and W at the top of the diagram. This represents the connection to electrical power. The line marked W extends down the right side of the diagram and is known as the neutral side of the electrical system. Note that this line connects directly to one side of each electrical component of the dishwasher without any controlling switch.

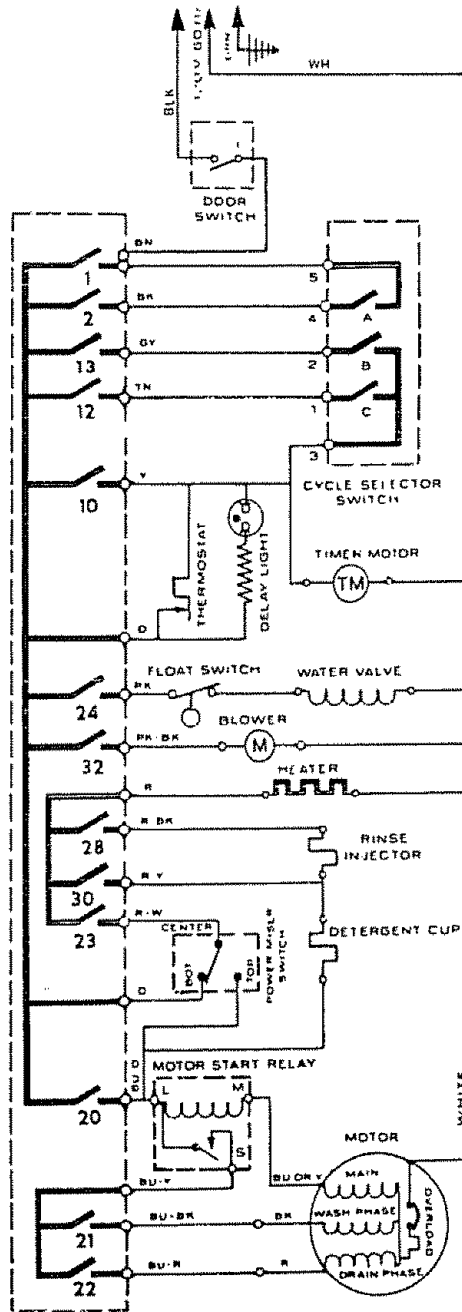


FIGURE 67

The line shown as BK extends to the left and is known as the "hot side" of the electrical system. It provides a circuit to the door switch and ultimately to all electrically operated components through the timer switches. You will note that dashed lines enclose the timer, cycle selector, and door switches. This is to indicate that these switches are inside the component structure.

Ester Line Charts

To use the wiring diagram in diagnosis, it is very important that you understand the Ester line charts. This chart, as shown in Figure 68, is used to determine when and for how long a particular circuit or circuits are energized. The heavy shaded bars represent the period of time the internal switches of the timer are closed.

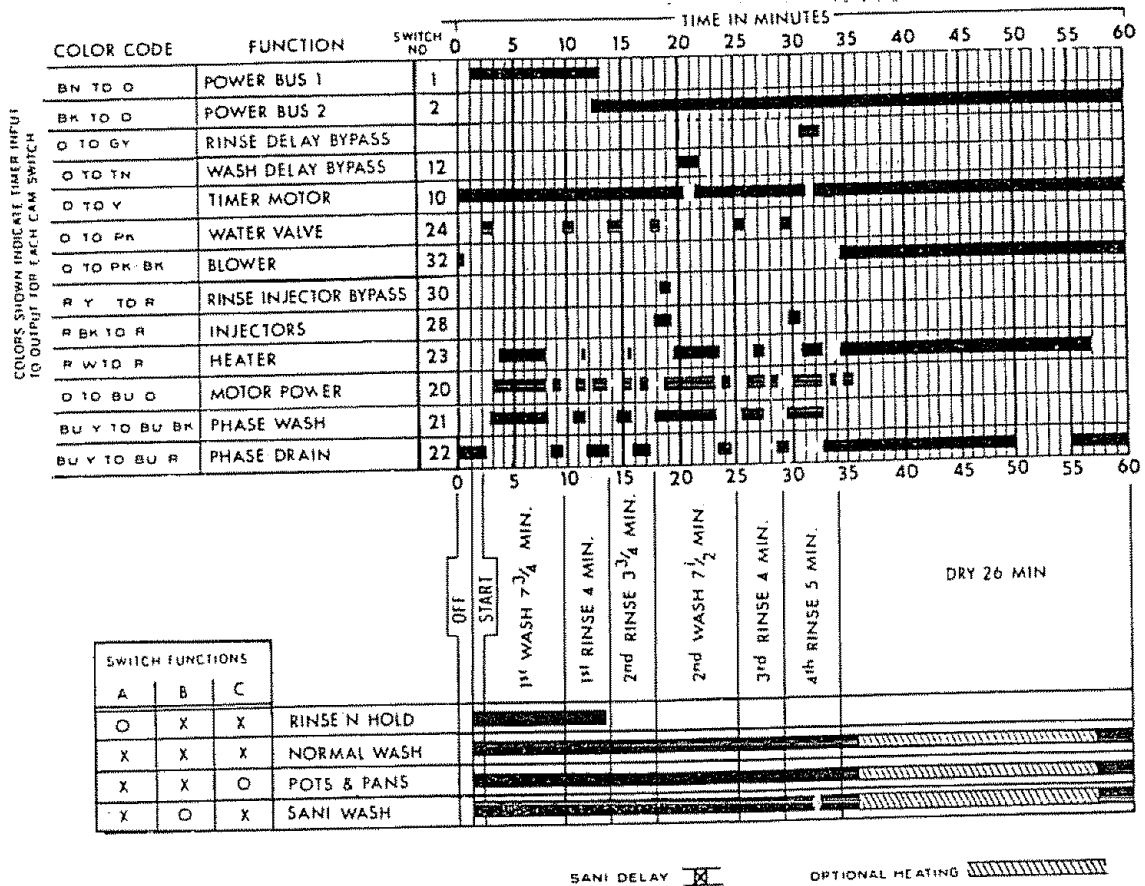


FIGURE 68

Most circuits pass through the selector switch. The switch functions are shown at the lower left corner of the esterline chart. A power loss at the input side of the timer may be caused by a defective selector switch.

Input and output terminals of the timer are easily determined by referring to the order of timer terminal markings at the Ester line charts' left side. The input color listed first, and the output color listed last. To completely understand the relationship between the wiring diagram and esterline chart, refer to the following example and Figures 69 and 70.

Example

Begin at the fill phase of the cycle when a normal wash has been selected. The following timer switch contacts are now closed (Refer to Figure 69)

- Power Bus 1 – Switch 1
- Timer Motor – Switch 10
- Water Valve – Switch 24

FILL PHASE -
NORMAL CYCLE

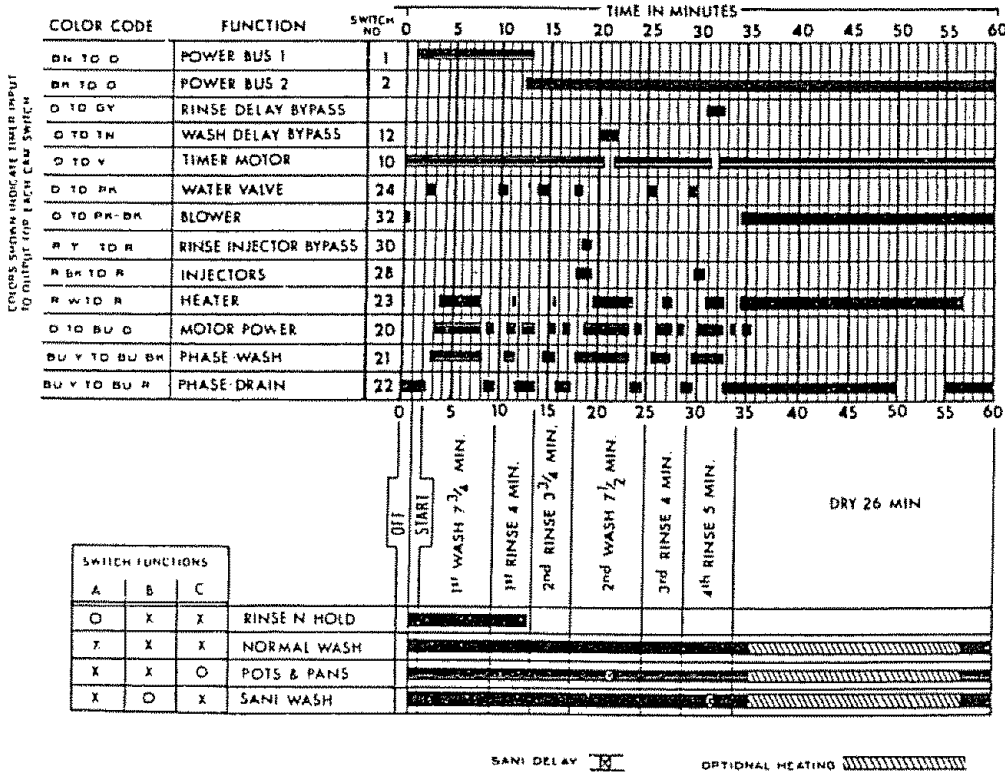
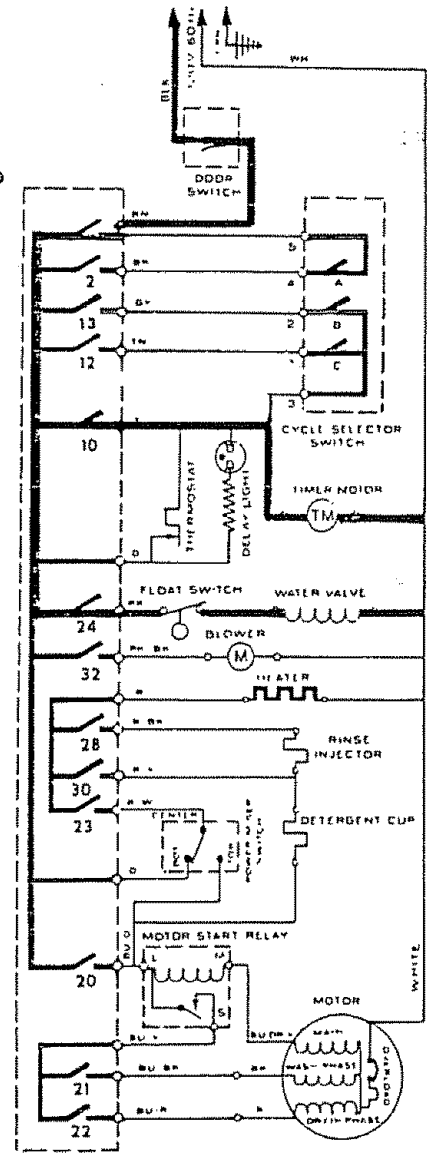


FIGURE 69



Note that the switch numbers on the Ester line chart correspond to switch numbers on the wiring diagram.

At the end of the fill phase, the water valve opens as shown by the Ester line chart, and the timer contacts listed below are now closed (Refer to Figure 70)

- Power Bus 1 – Switch 1
- Timer Motor – Switch 10
- Motor Power – Switch 20
- Phase Wash – Switch 21
- Heater – Switch 23

The machine is now in its first wash. The switch on the motor start relay closes and then opens after the motor reaches its operating speed. As you progress from left to right across the Ester line chart, it is easy to determine which timer contacts are closed at any point in the cycle. This information can then be related to the wiring diagram.

Studying and learning has no value until it is applied. It is necessary to follow a step-by-step procedure to diagnose a machine malfunction.

For example, let us assume we have selected a "Normal Wash" and the dishwasher will not fill. A rule is to always check the easy and obvious first.

1. Is there power to the machine? Be sure the proper connection has been made to the electrical supply. Also check for a tripped circuit breaker or blown fuse.
2. Make sure the water supply to the machine is turned on.
3. Check to be certain the door latch is closed.
4. Check to be certain the timer dial has been advanced to the point where the indicator light comes on. A short delay will be present before the machine begins to fill.
5. Check the float to be sure it is not stuck. It must move freely.

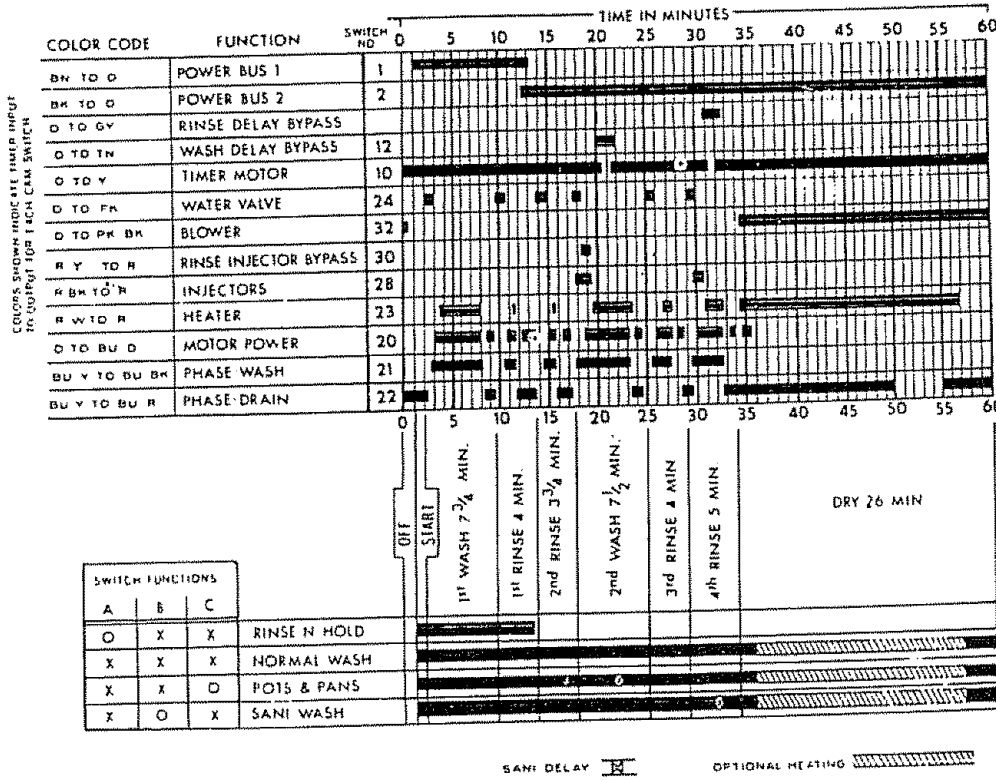
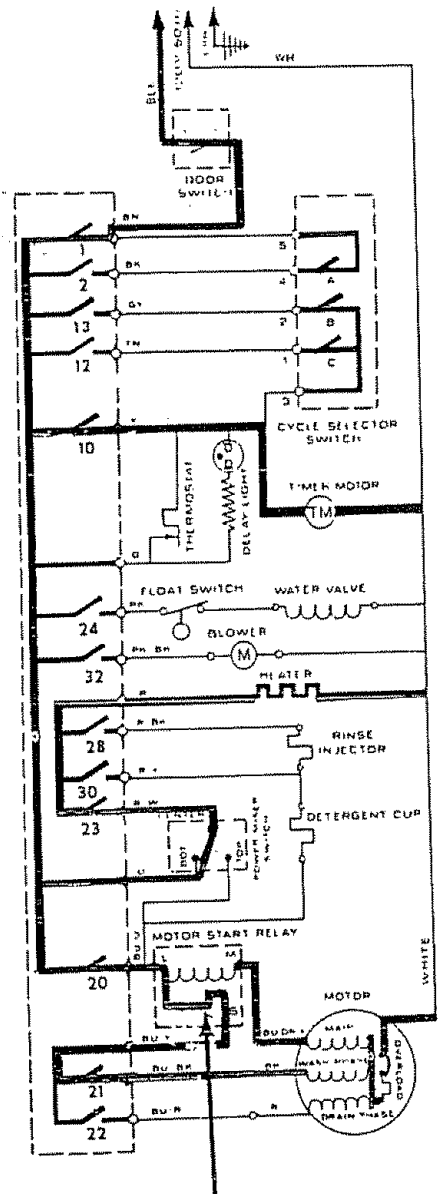


FIGURE 70

FIRST WASH NORMAL CYCLE



RELAY SWITCH OPENS AFTER MOTOR STARTS

Voltage Checks

CAUTION

When making voltage checks, remember that the machine is connected to a live power source. Use extreme caution to not physically touch any bare contacts or wiring terminals when making voltage checks.

When all the previous steps for normal operation have been checked and the machine still does not fill, turn to the wiring diagram and Ester line chart which is usually packed in the machine console. Using a voltmeter set on a scale that will measure at least 120 volts AC, connect one lead to a white (common) terminal and the other lead to point = 1 indicated in Figure 71. With the timer set to a fill portion of the cycle, and the door switch closed, 120 volts AC should be present. A slight humming sound should also be present which indicates that the water valve solenoid is energized. If these two conditions are present, check for blockage or a stuck plunger within the fill valve. Clean or replace the valve as necessary.

If 120 volts AC is not present, move the lead to point = 2 shown on Figure 71. No voltage at this point would indicate a broken or disconnected wire, or a defective timer. If 120 Volts AC is present, the float switch is defective or the wire between the float switch and water valve is defective.

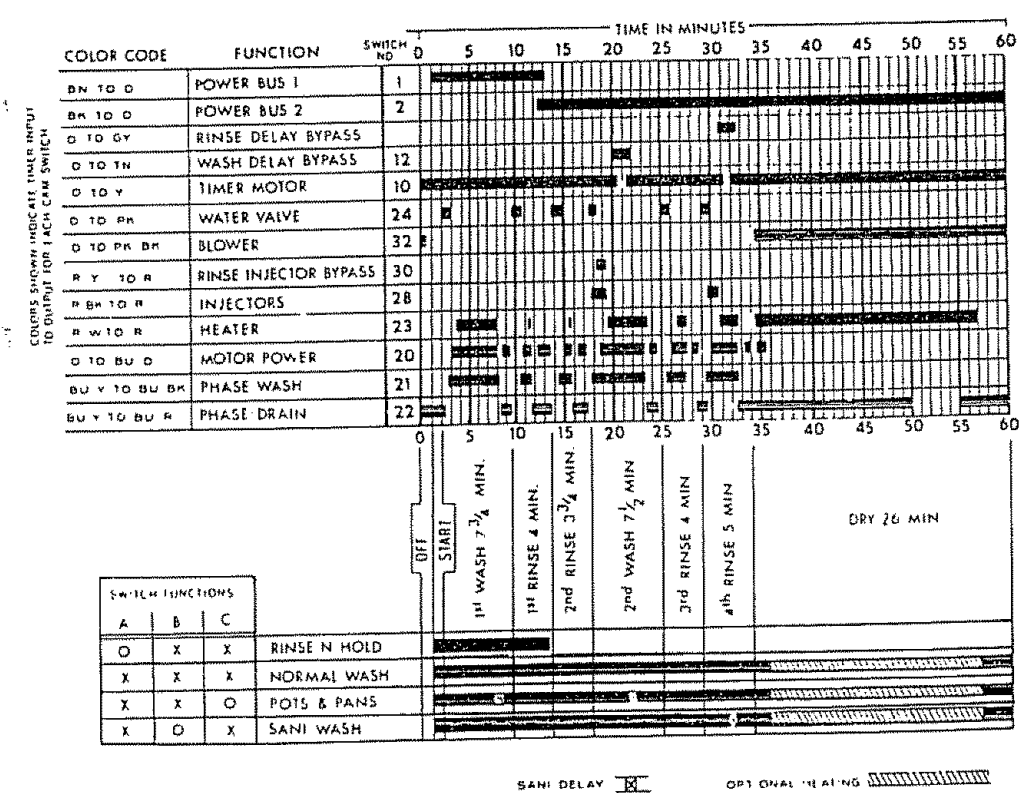
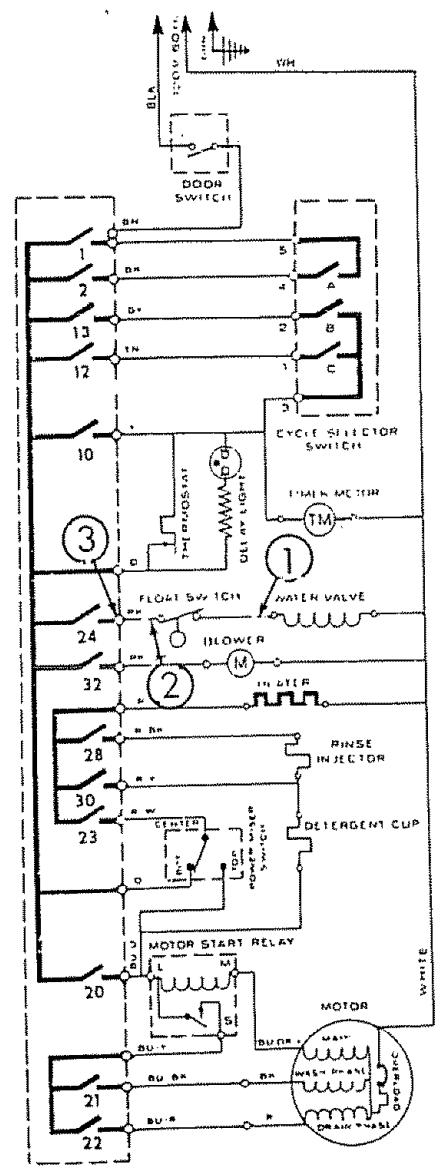


FIGURE 71



To determine if the timer is defective, attach the voltmeter lead to point #3 shown in Figure 71 leaving the other voltmeter lead attached to the white or common terminal. 120 Volts AC present at this point indicates that the timer is not defective. No voltage at this point would indicate a defective timer. *NOTE:* Always be certain the timer is set to the portion of the cycle in question when making voltage checks. Some segments of the cycle have a short duration and can be missed.

Continuity Check

An alternate method of checking the timer is to disconnect the machine from the power source and make a continuity check. This continuity check of timer switches may be made by disconnecting the lead from the timer terminals in question, and connecting the leads from your ohmmeter across the timer switch.

For example, if the motor will not start in the wash cycle, disconnect power from the machine and remove the wire from the timer's BU-BK terminal (Figure 71). Connect one ohmmeter lead to BU-BK and the other to BU-Y. With the timer knob rotated to the wash phase of the cycle, the ohmmeter should register continuity or no resistance. If the timer switch is defective the meter will indicate an open circuit or infinite resistance.

All timer switches may be checked in the same manner by referring to the Ester line chart and wiring diagram, and connecting the ohmmeter leads to the correct combination of terminals. *NOTE:* Correct interpretation of the meter reading is important. A continuity check of a switch should indicate no resistance. A resistance reading of other than zero or infinity could be the result of damaged or burnt contacts which would reduce power to the component. Do not make a continuity check with an ohmmeter when the machine is connected to a live electrical circuit. Damage to the meter will result.

Other electrical components in the dishwasher may be checked in the same manner. Some resistance will be noted when checking motors, coils and heating elements.

F. MECHANICAL SYSTEM

Door Assemblies

The door should never require adjustment. Misalignment between the door and cabinet on built-in machines is usually a result of improper positioning of the attach brackets to the counter top. Reposition the brackets to align the door to the tub.

A slight adjustment to increase or decrease gasket pressure between the door and tub may be made by removing or installing shims behind the door strike. (Caution - Addition of shims on a new dishwasher to make latching easier may result in a leak after the gasket has taken a "set".) Bending of the door latch usually results from attempting to latch the door before it is fully closed.

Spring tension is set at the factory for the standard dishwasher door. Too much tension will not allow the door to remain in the fully opened position. Too little tension will cause the door to fall open when the latch is released. Spring tension may require adjustment if a wood or metal inserts are added or removed in the door. See Figure 72.

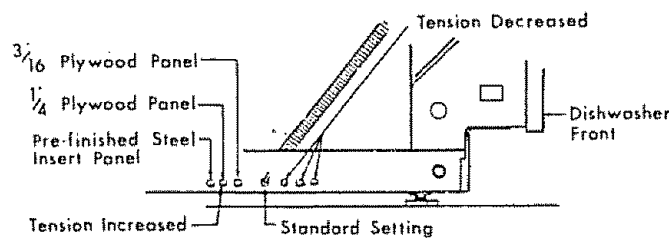


FIGURE 72

A. One Piece Outer Door Control Panel

On some dishwashers the outer door panel and control panel have been combined to form one common part that is removable from the inner door without need for disconnecting wires. This leaves the dishwasher entirely operable.

To gain entry to the area behind this piece housing the timer, selector switch, injectors, door switch, thermostat, etc., proceed as follows and refer to Figure 73:

1. Disconnect power supply to dishwasher.
2. Remove the latch knob attachment screw.
3. Lower (open) the complete door assembly and remove the six (6) screws attaching the outer door control panel to the inner porcelain door. (NOTE: This step should be done, using clamps or a "knee brace" to retain the panel during screw removal.)
4. Allow the complete door assembly to close slowly.
5. Remove the outer panel and rotate it from the left to the right 180° in the upright position.
6. Place the outer panel on floor adjacent to the dishwasher in the upright position.
7. Check wire connections on all components.
8. Proceed with testing and repair.
9. Reverse procedure for replacement.

NOTE:

If the removal of the access panel is likely, it should be done prior to outer panel removal.

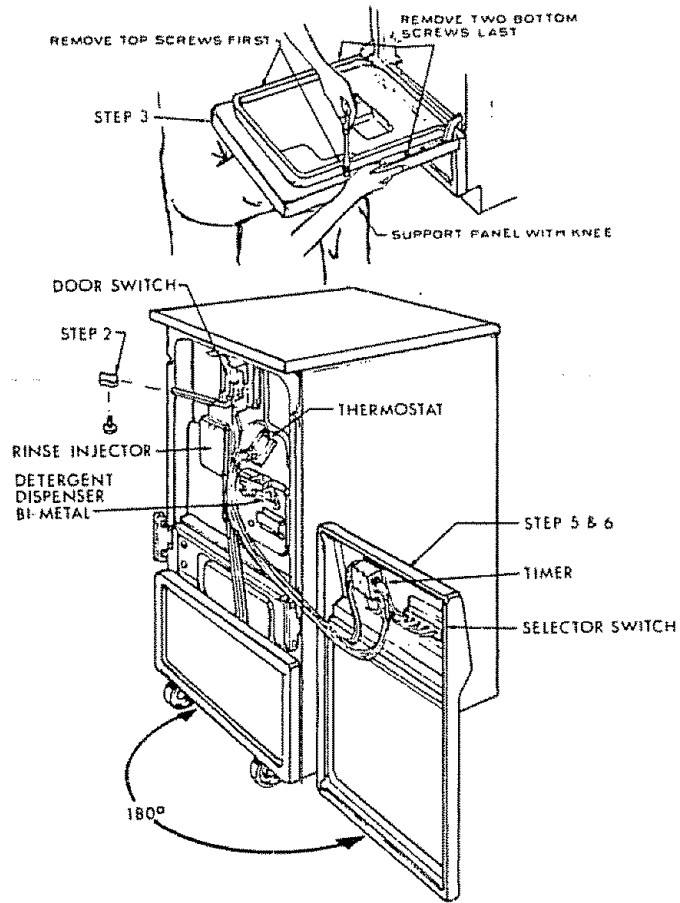


FIGURE 73

B. *Two Piece Outer Door Control Panel*

The 2-piece outer door has a control panel which is separate from the remainder of the door. Removal of lower panel is accomplished in somewhat the same manner as the one-piece door panel. The control panel which houses the timer and selector switches may be serviced by opening the door and removing the screws which hold it in place (Figure 74). When removing either panel, be sure to remove only those screws which hold that panel.

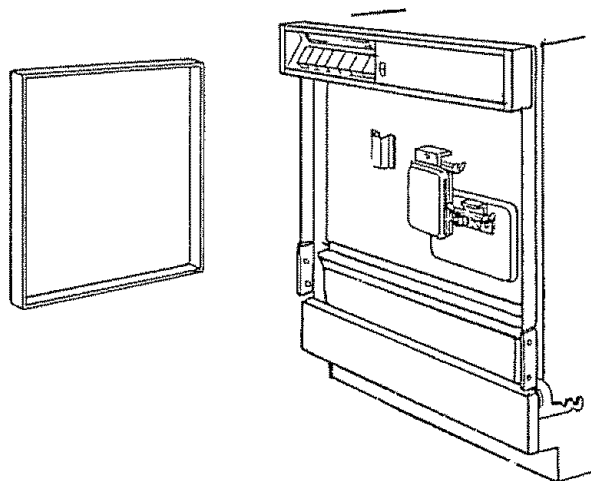


FIGURE 74

C. *Anti-Tilt Assembly 18" Portable Models*

A new anti-tilt device was designed for the 18" dishwasher to prevent overturning with 50 pounds supported on an open door.

To remove; refer to Figure 75

1. Disconnect power supply.
2. Place dishwasher on its back.
3. Remove spring attaching anti-tilt arm to the rear caster bracket.
4. Remove cable from anti-tilt arm.
5. Remove screws attaching foot and shim to the frame assembly.
6. Reverse procedure for replacement.

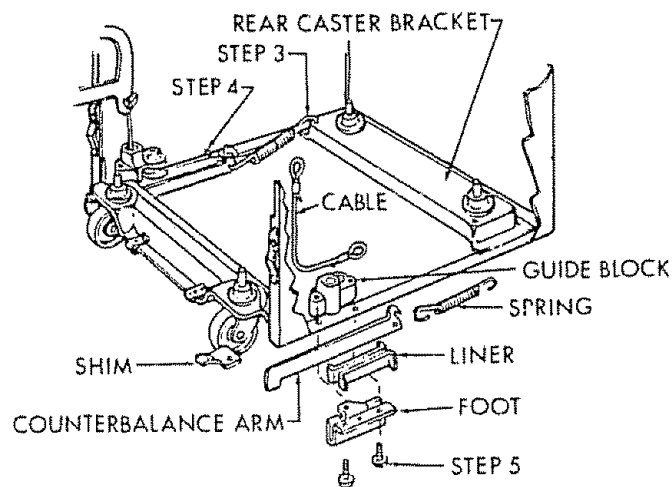


FIGURE 75

D. *"C" Arm Replacement 18" Dishwashers*

1. Remove spring and cable from "C" arm (Figure 76)
2. Remove two (2) screws that hold "C" arm to inner door.
3. Remove bottom two (2) screws holding hinge bracket assembly to wrapper.
4. Remove plastic "C" arm guide.
5. Remove "C" arm pin from hole in hinge bracket assembly.
6. Push "C" arm through the notched area of the tub flange
7. Reverse procedure to replace

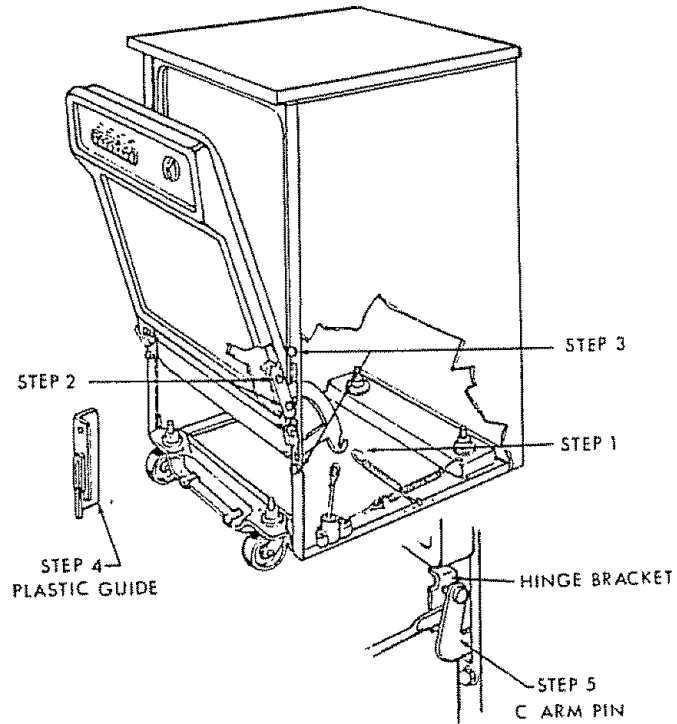


FIGURE 76

Racks

To remove the upper rack only, remove the end caps at the front of the slides by straightening the metal tabs holding the end caps in place. Refer to Figure 77.

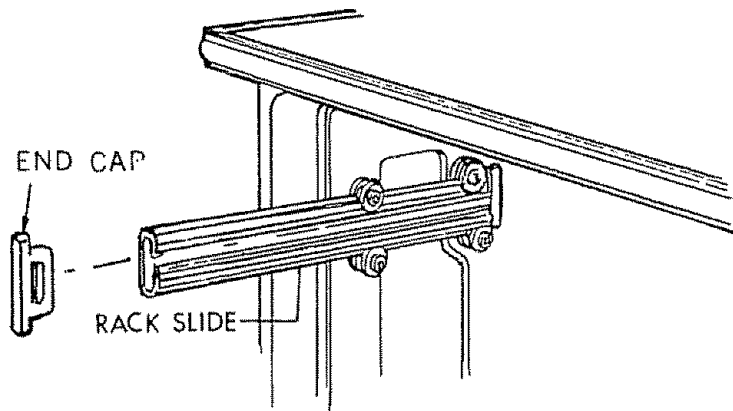


FIGURE 77

To remove the upper racks and slides (square slide out type) proceed as follows.

- 1 Detach upper front and lower rear roller on each side. (Figure 78)
2. Remove racks by raising rack and slides until slides will pass the new rollers. (Figure 79)

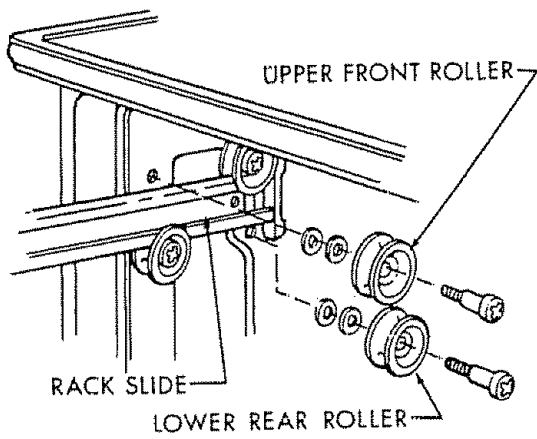


FIGURE 78

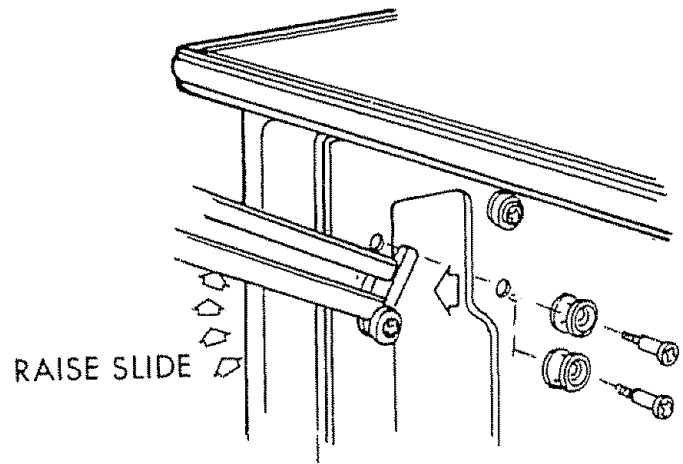


FIGURE 79

Tub Gaskets

The tub gasket is a one-piece gasket as shown in Figure 80. The tub gasket is fastened with stainless steel clips. The illustrations, figures 81 thru 83 show how these clips are removed and replaced on sides and top. A gasket junction wire and one or two clips secure the gasket at the bottom dam.

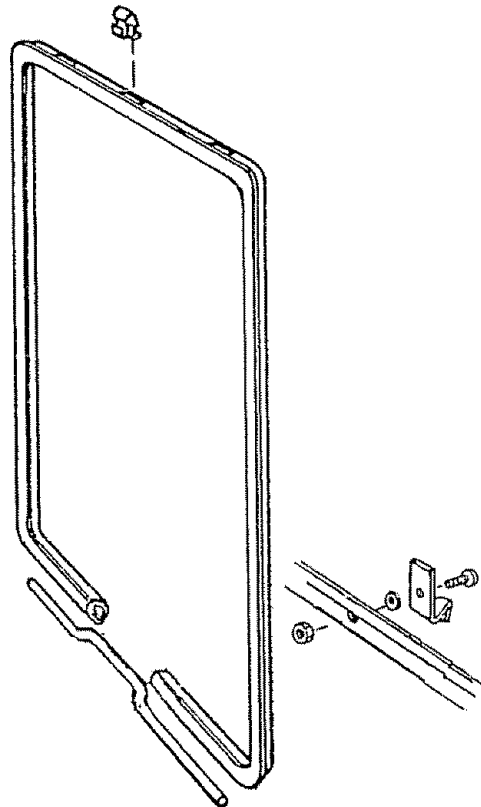


FIGURE 80

The following instructions apply to removal and replacement of the dishwasher tub gasket.

- 1 To remove gasket, insert a small thin screwdriver blade under flange of the gasket attach clip and press outward. See Figure 81

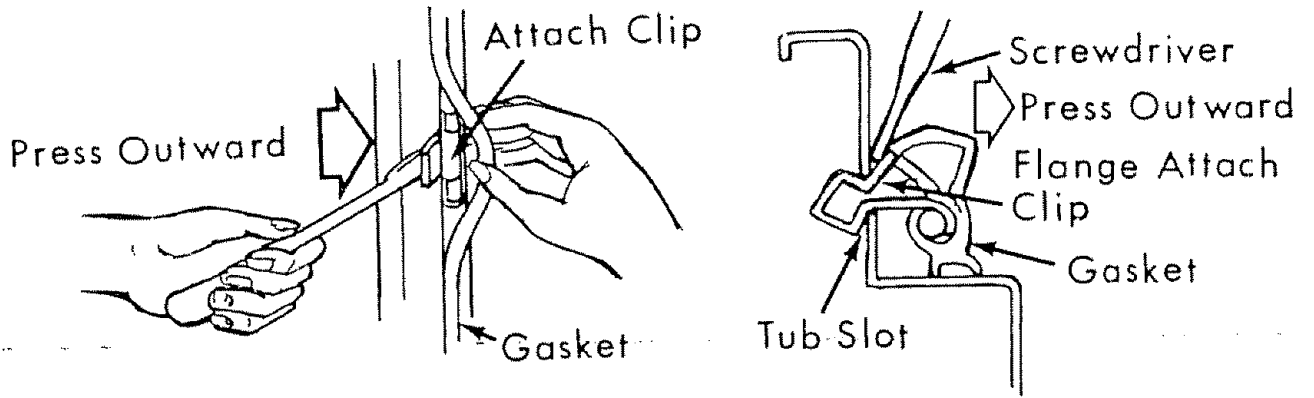


FIGURE 81

2. Attach clips can be positioned in replacement gasket and pressed back into tub slot. See Figure 82

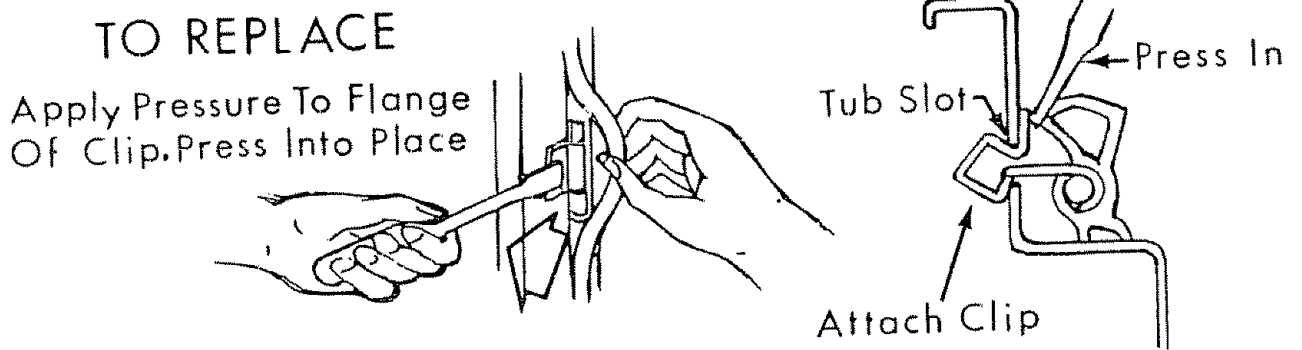


FIGURE 82

3. The replacement gasket must have both bottom front corners positioned tightly against curved surface of tub (A-Figure 83) and held in this position with the two stainless retainer clips located at bottom front of tub (B-Figure 83). Later models have only 1 stainless clip which holds the "U" shaped portion of the junction rod.

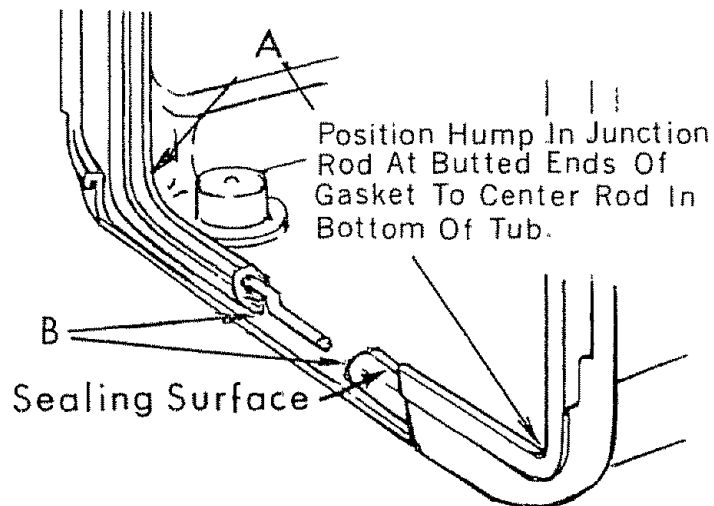


FIGURE 83

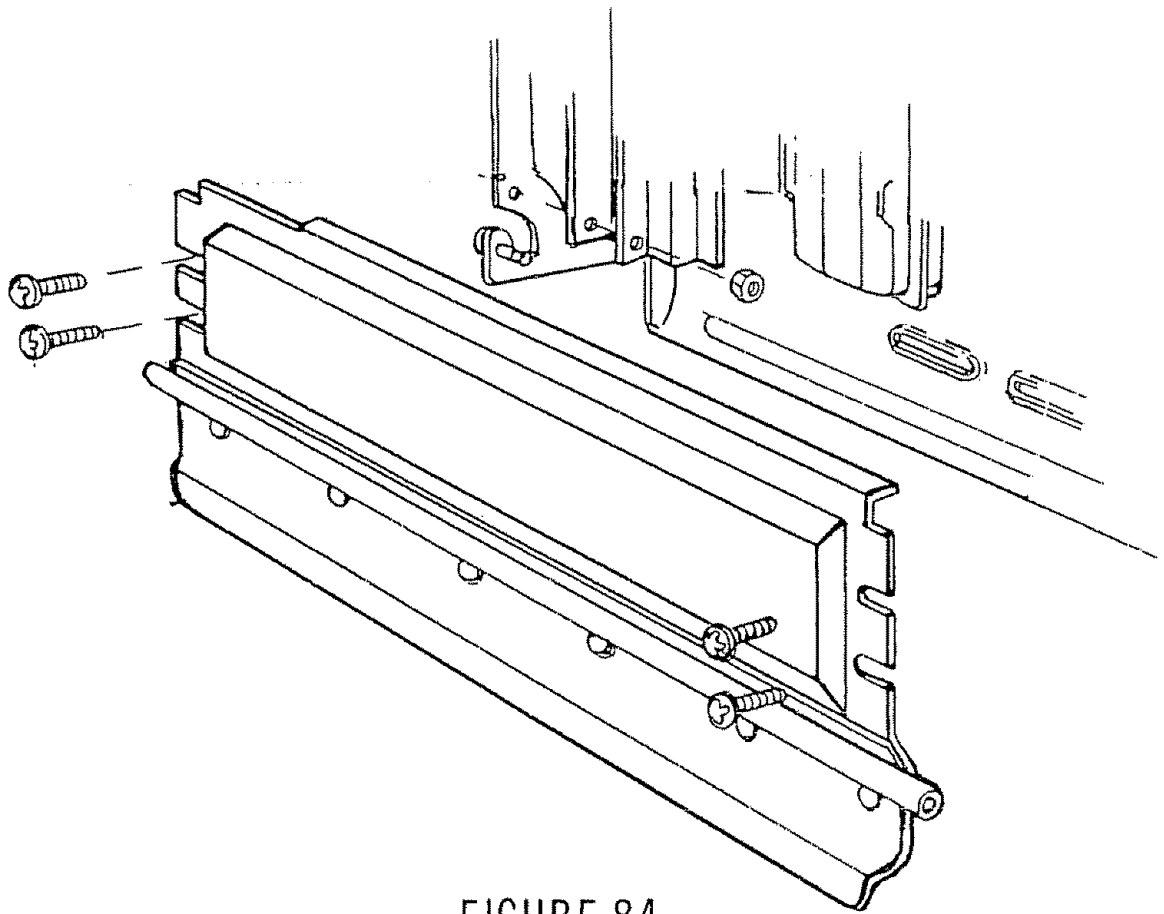


FIGURE 84

- 4 A revised vent baffle was introduced in 1981. This vent baffle has a white vinyl gasket along the bottom edge. There is no adjustment on this vent baffle. The tub gasket has a longer cut-out section in the bottom with this vent baffle. Most models use this tub gasket/vent baffle kit for service replacement.

Cord Reel

The power cord reel bracket is attached to the side of the cabinet or to the bottom channel. See Figure 85 for a detailed view of this mechanism.

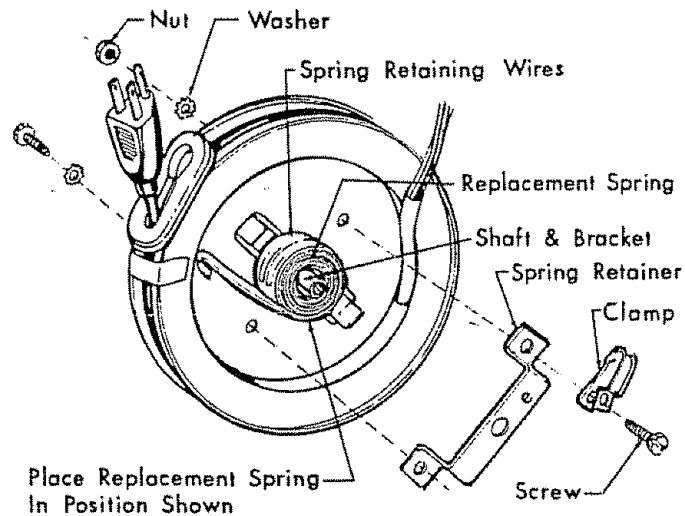


FIGURE 85

A. Power Cord and/or Reel Replacement for Front Opening Portables (SOME MODELS)

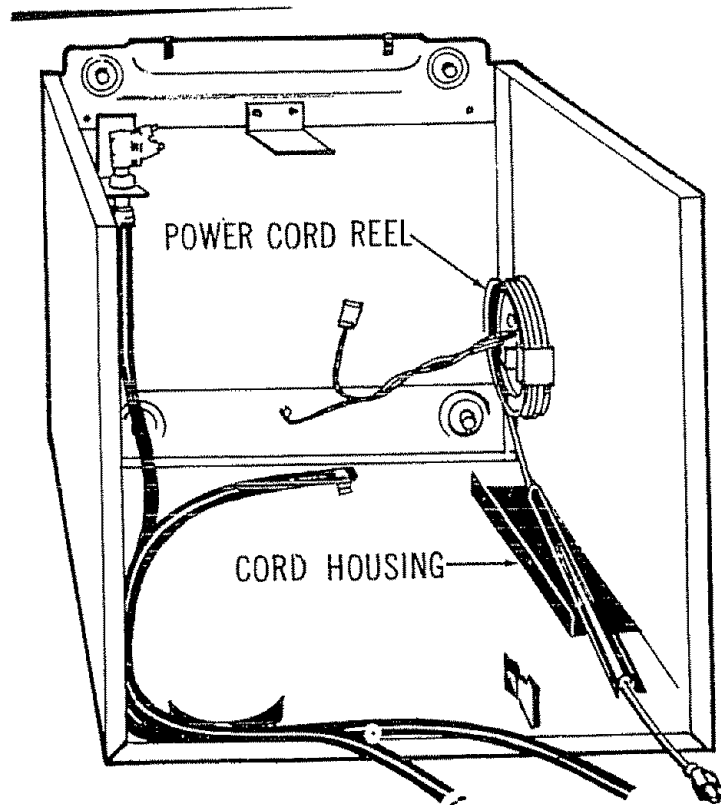


FIGURE 86

NOTE: Tub Is Removed Only To Show Location Of Power Cord Reel And Cord Housing.

1. Remove the entire top assembly only and set aside.
2. Remove top screws that secure housing and hose guard to cabinet. See Figure 86. Lift both pieces up and out from between tub and cabinet. Allow cord to retract or fall to bottom. Lay dishwasher on its back.

- 3 Remove power cord reel attach screws exposed on left side of cabinet
- 4 Install the replacement power cord reel. Wind the reel and cord clockwise to achieve the amount of reel wind-up needed. Coil spring should recoil the power cord completely when the cord is fully extended. Temporarily secure the power cord plug to the back side of cabinet and reassemble cord housing and hose guard. (Hose guard must be reinstalled.)
- 5 Replace the top assembly

Casters

A. Caster Replacement Portable Dishwashers

Use the following procedure to repair a damaged caster socket. Obtain a caster repair kit from your Sears Service Department.

- 1 Drill out the four projection welds that anchor the caster sleeve (See Figure 87). A light tap on the closed end of the sleeve will dislodge the entire sleeve assembly. It is necessary to remove this sleeve so that the new caster will rest flush on the support cross piece.
- 2 Insert the caster and fasten securely with the nut.

CAUTION:

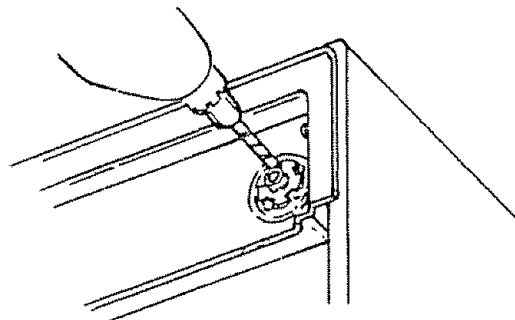
Do not remove the "hat" shaped portion on the frame. This "hat" will give added stability and strength to the caster.

By using this method of replacement, you will need to replace only the caster in the damaged socket.

This procedure can be followed on most dishwashers. Very old units with small diameter wheels require replacement of all four (4) casters.

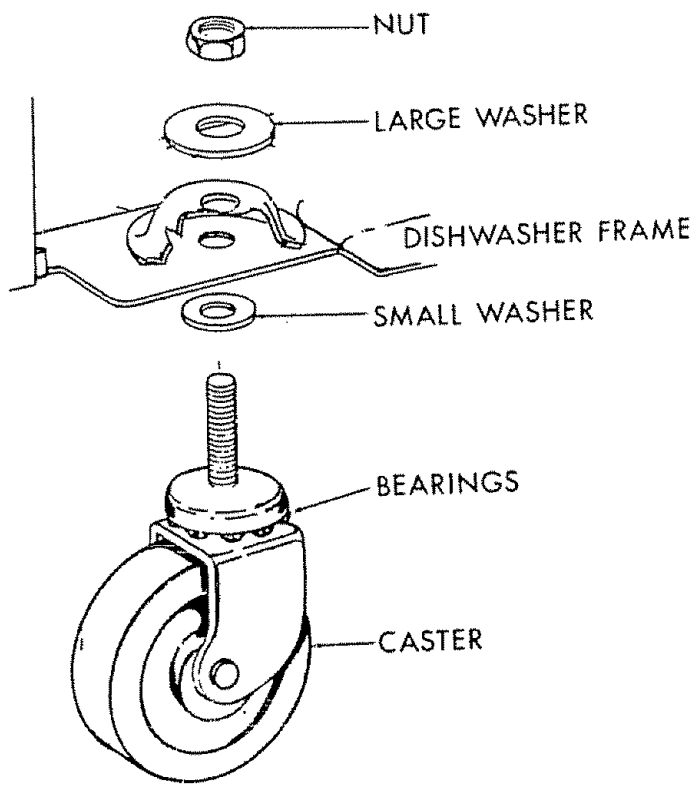
NOTE:

Do not attempt to replace casters by merely inserting the new caster in the old sleeve. This is not proper and will cause the machine to be out of level. Casters marking the floor can usually be traced to a damaged or jammed caster assembly. This causes the caster to slide rather than roll across the floor.



DRILL THRU 4 INDENTED WELD SPOTS ON CASTER BRACKET & REMOVE SOCKET & WASHER (1/4" DRILL)

FIGURE 87



CASTER ASSEMBLY
FIGURE 88

Tubs

Replacement of a tub requires a complete disassembly of the dishwasher. If a tub replacement is necessary, we recommend having it done by a qualified service technician.

G. DRYING SYSTEM

Convection Method

In the convection method of drying, the air near the energized heating element (hot dry option only) becomes hot and rises. The cooler air falls to the bottom of the tub where it is heated and rises. As the rising warm air passes over the wet dinnerware, it is cooled and falls once again to the bottom of the tub. A natural convection current is thus established. See Figure 89.

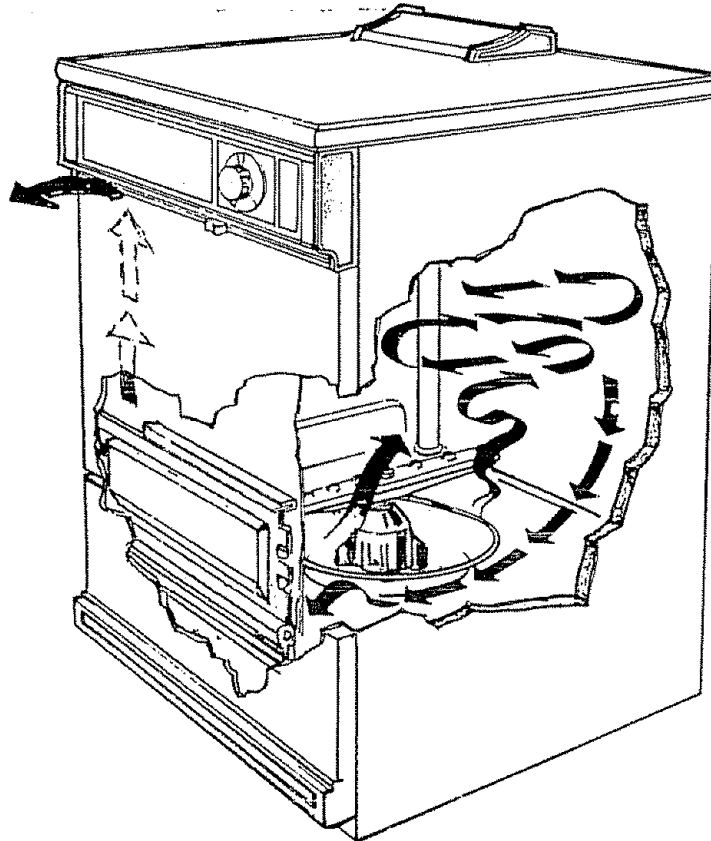


FIGURE 89

Some of the moist, hot air will escape from the dishwasher through the vents. This air is replaced by cooler, drier air and the drying process continues.

If the "Cool Dry" option is selected with the convection method, improved drying results can be obtained if the door is unlatched after the final drain phase. Allow the dishes to cool before removing them from the dishwasher.

If the dishwasher is cycled in the evening and is left closed overnight, moisture may recondense on the dishes. Leaving the door open for a few minutes will dissipate this moisture.

Forced Air Method

Some dishwashers are equipped with a blower. The blower assembly is located at the right rear bottom of the tub, (Figure 90) and circulates ambient air through the tub cavity during the dry cycle. This circulated air is drawn in through the vent in the door panel, across the dinnerware and into the blower housing where it is mixed with cool dry air before it is exhausted beneath the machine. Some machines are equipped with a "Hot Dry"/"Cool Dry" or power miser switch. If "Hot Dry" is selected, the heating element is energized during all or part of the drying period.

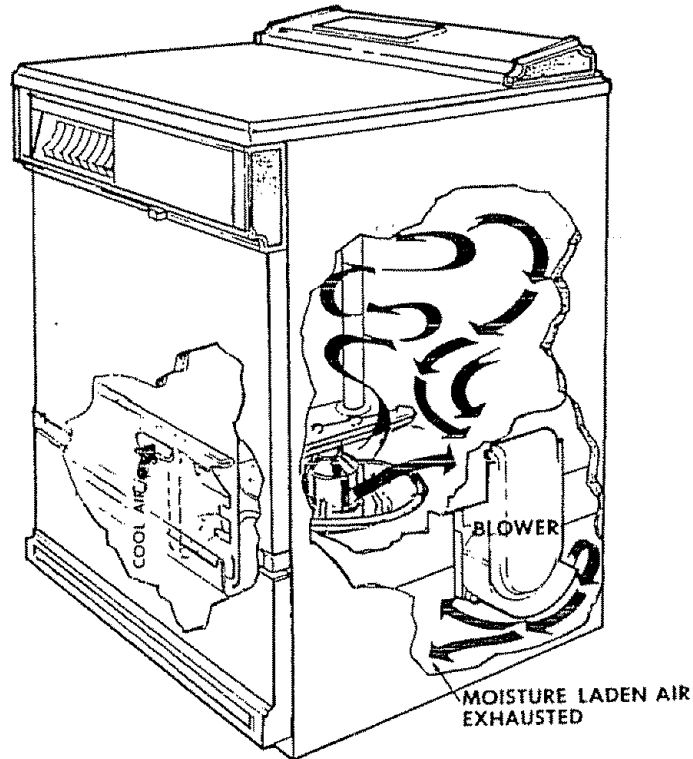
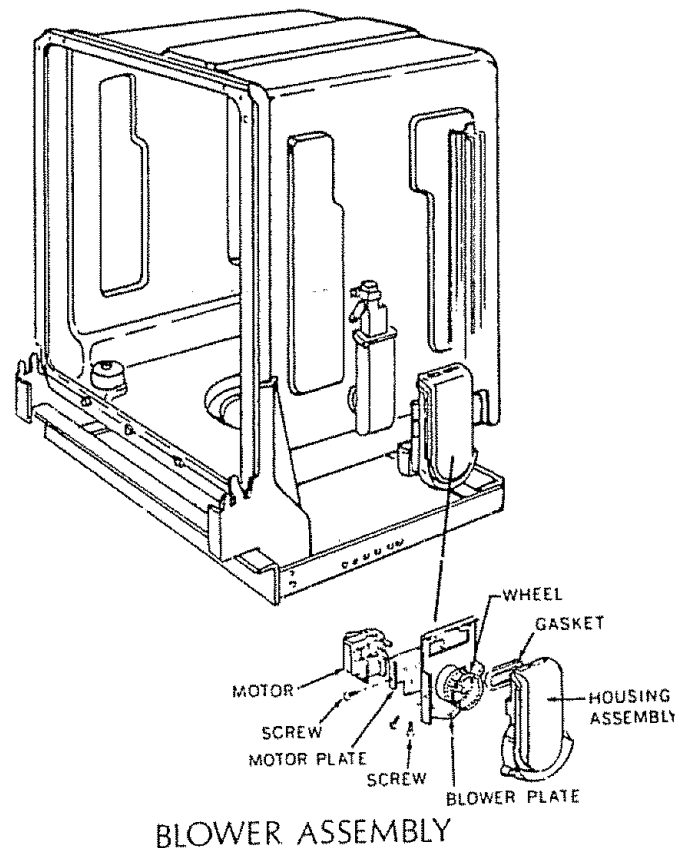


FIGURE 90

A. Servicing the Blower Assembly

The blower motor and blower wheel are mounted to a sub-plate and this assembly can be easily removed as follows:

1. Detach the leads to the blower motor.
2. Remove one screw from the motor mounting plate (Figure 91)



BLOWER ASSEMBLY

FIGURE 91

3. Move the assembly to the left and lift out.

The blower wheel is pressed onto the motor shaft and can be pried off (carefully) with a screwdriver placed between the motor mounting plate and the blower wheel. When reinstalling the blower wheel to motor shaft maintain a $3/16$ " space between the back side of the blower wheel and the motor mounting plate.

B. *Checking Blower Operation*

The operation of the fan can be easily checked by setting the control to some portion of the dry period and observing blower operation.

If the blower motor fails to operate check as follows:

1. Advance the timer to the Dry position.
2. Check for voltage at the quick connect or terminal block.
3. If voltage is present, check leads to blower motor. Replace motor if defective.
4. If no voltage is present, consult the wiring diagram and make the necessary checks to determine where the voltage loss occurred.

In the event that the blower housing may have to be removed, proceed as follows: (Figure 92)

1. Disconnect power and remove the access panel and toe panels
2. Disconnect the wires to the blower motor at the terminal board or quick disconnect block
3. Remove screws holding the internal duct cover to the tub and remove cover (some models)
4. Remove screws from inside of the tub holding the blower assembly

- 5 Remove blower housing assembly from under tub
- 6 Re-install with new gasket

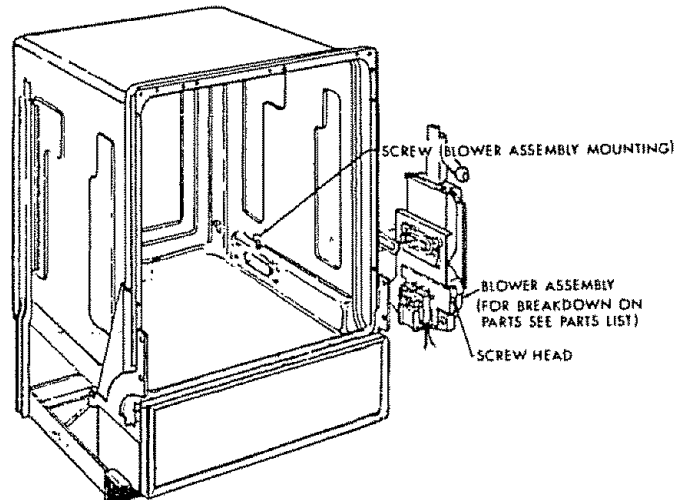


FIGURE 92

Heating Elements

A. Heating Element

The heating element is used to maintain hot water for washing and rinsing operations in some models and to provide a source of heat for drying the dishes.

B. Operation

A helical strand of resistance wire is encased in a sheath with magnesium oxide tightly packed between the wire and the sheath for electrical insulation. Heat is generated in the resistance wire when 120 volts AC is applied to it. The heat is then transmitted through the magnesium oxide and through the sheath to the water or air surrounding it. See Figure 93 for a cut-away view of the heater.

The direct causes for the element to malfunction are.

1. Interruption of the electrical circuit to the heating element.
2. The helical resistance wire becomes burned or broken.
3. The helical resistance wire short-circuits to the sheath due to breakdown of the magnesium oxide

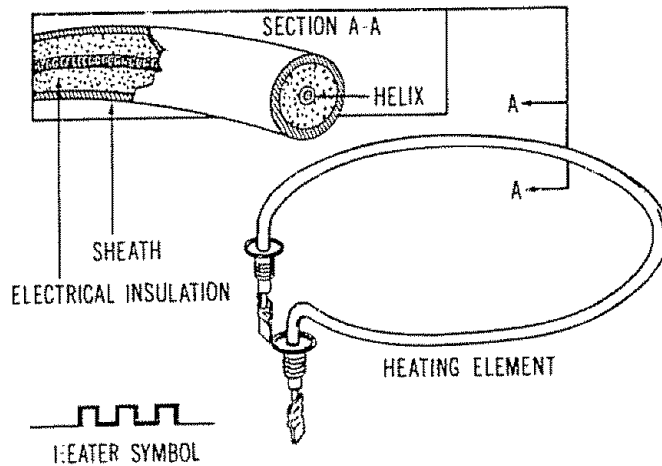


FIGURE 93

C. *Heater Testing*

Connect the dishwasher electrically. Remove the racks from the tub. Advance the timer to the beginning of the "Dry" cycle. If your dishwasher has a Power Miser Switch be sure it is in the "Hot" position. Turn the dishwasher on and allow it to operate for about 3 minutes.

Partially open the dishwasher door. The heating element should be glowing red around its circumference.

If the heating element does not show evidence of heating, check voltage across the heater terminal. If line voltage is read, it shows electrical power is reaching the element and a defective element is indicated.

If voltage is not present, check for an open circuit. Refer to the schematic wiring diagram.

When installing a new element, make certain the tub mounting holes are cleaned of any hardened gasket material. Always use new gaskets when installing a heating element. Remember to reconnect the ground wire to the heater sheath.

D. *Hot Dry - Cool Dry Power Miser Switch*

This feature gives the operator the option of a normal drying cycle with heat or the energy saving option of air drying dishes without heat.

1. NON-blower models - Cool Dry selection will cause the heater circuit to open at the completion of the final pump out. The timer motor will remain energized and will continue to run approximately 26 minutes to the "Off" position.
2. Blower Model - Cool dry selection will cause the heater circuit to open as described for non-blower models. In models having blowers, however, the blower will continue to operate and circulate air within the dishwasher for 26 minutes. The machine will then shut off.

Drying without heat will not be as effective as drying with heat. Drying can be improved by unlatching the door at the completion of the cycle.

The Hot Dry-Cool Dry feature is one that has been requested by the consumer. Use of the cool dry feature will result in considerable reduction in the electrical energy required to operate the dishwasher.

E *Power Miser Circuits – Single Pole Single Throw*

The heater is controlled by cam switch B-3 during the washes and rinses, and by cam switch B-7 during the dry as shown in Figure 94. If the "Power Miser" switch is open, the heater circuit is interrupted during the dry period

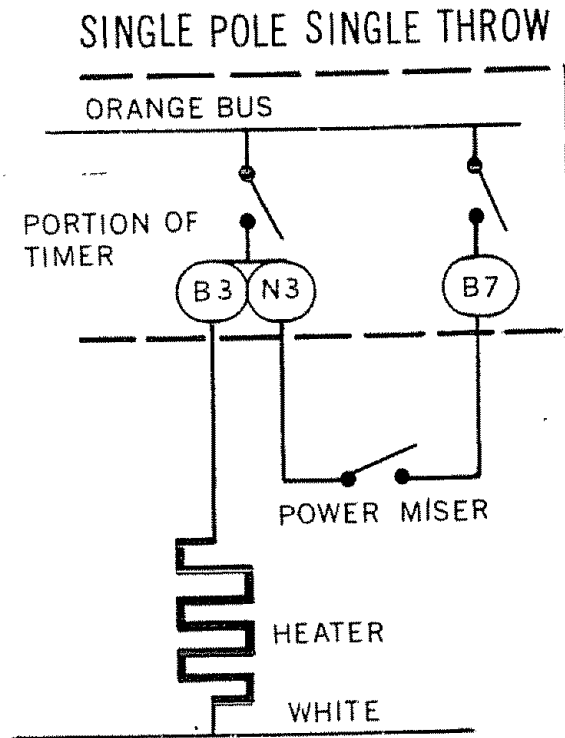


FIGURE 94

F. *Power Miser Circuits – Single Pole Double Throw Switch*

The heat is controlled primarily by the "Red" cam switch. When the "Orange" power miser connection is closed, the "Red" cam switch energizes the heater whenever it is closed. However, if the power miser is closed to "ORG-BLUE," the "Red" cam switch can only energize the heater when the motor circuit is closed (washes and rinses only). (See Figure 95)

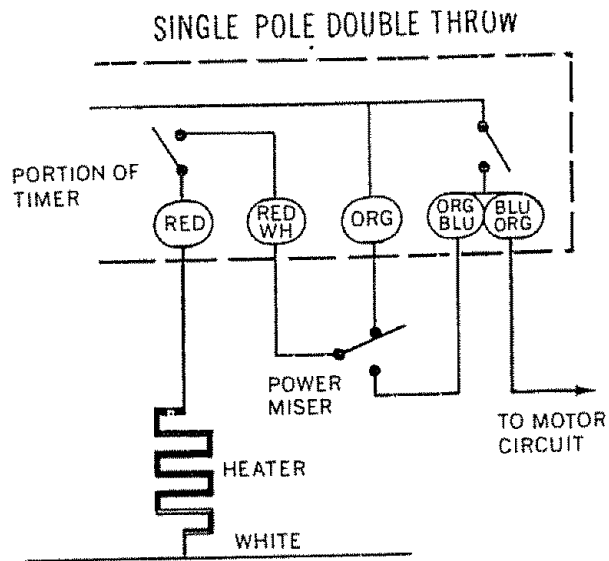


FIGURE 95

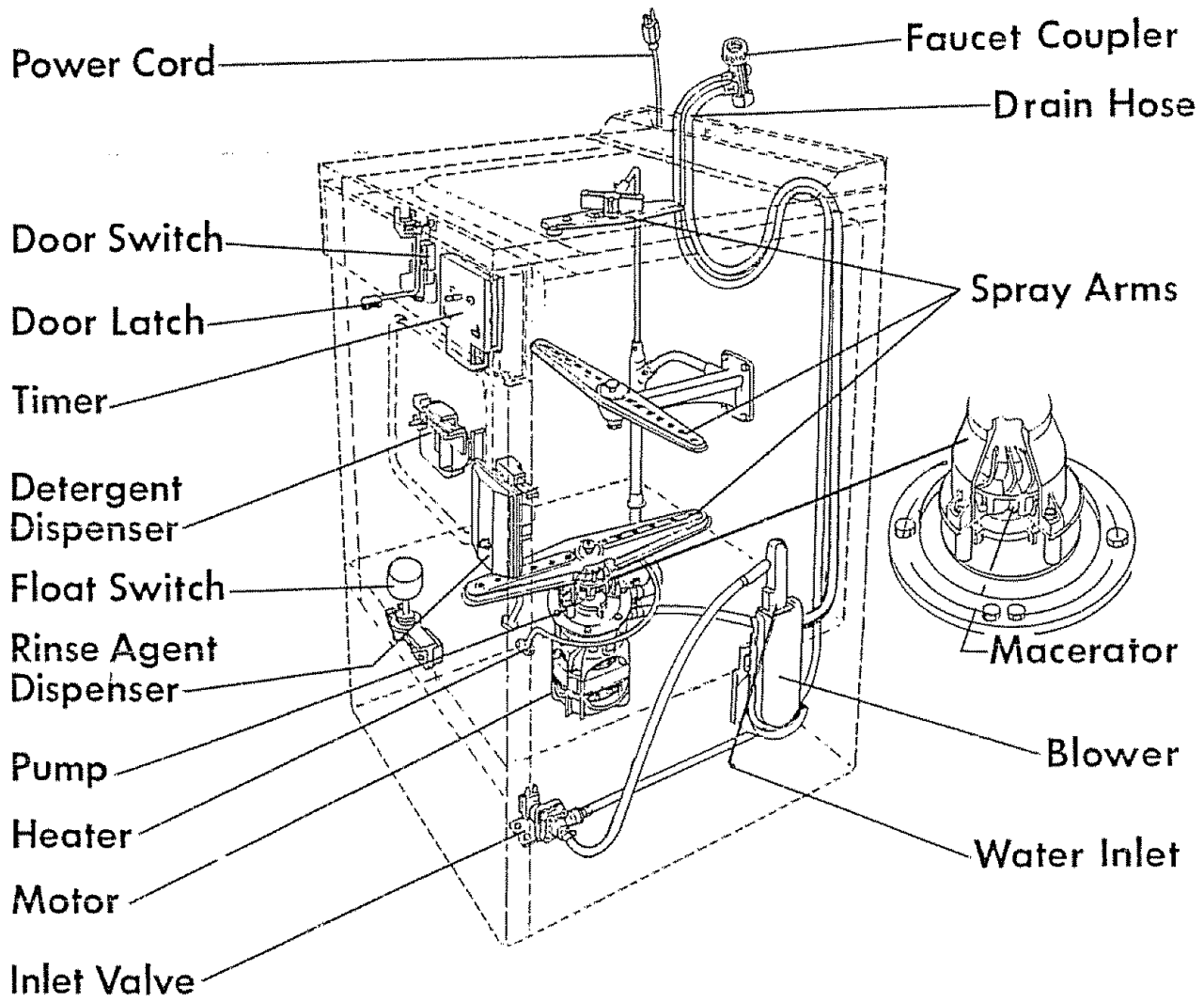


FIGURE 96

I. TROUBLE SHOOTING

General Trouble Shooting

CAUTION:

Always disconnect the dishwashers from the electrical power source *before* adjusting or replacing components.

| PROBLEM | POSSIBLE CAUSE | ACTION |
|--|---|--|
| Dishes not clean. | | Refer to introductory section at beginning of this manual. |
| Dishwasher will not operate when turned on. | <ol style="list-style-type: none"> No power to dishwasher. Open circuit between power source and timer. Loose terminal connections at door switch and/or timer terminals. Defective door switch. Defective selector switch. Defective timer motor circuits. Defective start switch. Main motor defective. | <ol style="list-style-type: none"> Check electrical outlet or connection to junction box on built-in. Check wiring and/or power cords. Repair as needed. Check continuity. Check continuity. Refer to Timer Testing. Applies to models with a rapid advance timer. Check continuity. Refer to Motor Testing. |
| Dishwasher automatically repeats with door latched | <ol style="list-style-type: none"> Start switch contacts sticking closed. A grounded timer motor combined with reverse polarity connection at junction box or wall receptacle causing the "hot" side of the circuit to bypass "off" switches in the timer. Grounded thermostat with reverse polarity. Broken slides inside of selector switch (rapid advance timer only). | <ol style="list-style-type: none"> Replace start switch. Replace timer. Refer to Installation Instructions for proper electrical connection and grounding of power receptacles. Replace thermostat. Check electrical connection. Refer to wiring diagram and check selector switch circuitry. |
| Dishwasher runs with door open. | <ol style="list-style-type: none"> Door switch defective. Terminals shorted to each other at the door switch. Latching handle turned to the "ON" position. Grounded electrical component combined with reverse polarity connection at junction box or wall receptacle. | <ol style="list-style-type: none"> Check continuity. Replace defective parts. Check safety tab, which prevents turning handle into run position with door open. Replace defective component. Refer to Installation Instruction for proper electrical connection and grounding of power receptacle. |

| PROBLEM | POSSIBLE CAUSE | ACTION |
|---|--|--|
| Dishwasher omits portion of a selected wash cycle | 1. Damaged or defective timer switch or cams inside timer case. | 1. Refer to timer testing. |
| | 2. Open circuit between selector switch and timer. (Rapid advance timer only.) | 2. Refer to wiring diagram and trace circuit for power loss. |
| | 3. Defective electrical component. | 3. Check component associated with missed portion of cycle. |
| | 4. Pinion gear slipping on rapid advance motor shaft. | 4. Replace timer. Applies to dishwashers with rapid advance timer. |
| Dishwasher performs part of the cycle at incorrect times. | 1. Lead wires connected to incorrect timer terminals. | 1. Refer to wiring diagram for correct connections. |
| | 2. Selector switch improperly wired. | 2. Refer to wiring diagram for correct connections. |
| | 3. Pinion gear slipping on rapid advance motor shaft. | 3. Replace timer. Applies to dishwashers with rapid advance timers. |
| | 4. Damaged or defective selector switch. | 4. Check selector switch per wiring diagram. |
| Dishwasher stops part way through a cycle. | 1. Cycle selector button is not fully depressed. | 1. Refer to Owners Manual on proper way to use dishwasher. |
| | 2. Wires disconnected at the selector switch terminals. | 2. Reconnect wires. |
| | 3. Open circuit inside the selector switch. | 3. Refer to selector switch circuitry on wiring diagram and check continuity. |
| | 4. Timer damaged or switches making and breaking at wrong time. | 4. Refer to wiring diagram and cycle chart. Check all timer switches for correct length of time each should be closed. |
| Stuck in portion of the cycle. (Timer will not advance.) | 1. Open circuit to motor. | 1. Refer to wiring diagram and check this circuit. |
| | 2. Wire disconnected at heater. | 2. Reconnect wire. |
| | 3. Thermostat contacts not closing to start timer motor after water reaches temperature in the delay (sani) periods. | 3. Check thermostat. |
| | 4. Open circuit or damaged selector switch. | 4. Refer to wiring diagram and check circuitry of selector switch. |
| | 5. Defective timer motor. | 5. Check if power to timer motor. If timer motor has power and is rotating, the timer is defective. |

| PROBLEM | POSSIBLE CAUSE | ACTION |
|--|---|---|
| Dishwasher automatically rapid advances through entire cycle. | 1. Cycle changer button stuck down. (Models prior to 1972.) | 1. Release button or replace switch. |
| Dishwasher will not fill with water (no water comes in). | 1. No water supply to dishwasher. 2. Open circuit between timer terminal and fill valve. 3. Fill valve defective. 4. Open circuit in float switch. 5. Open timer contact. | 1. Check line valve to dishwasher. 2. Refer to wiring diagram and check circuit for power loss. 3. Replace fill valve. 4. Check operation of float. Check float switch. 5. Refer to wiring diagram. Check voltage. |
| Fill time is correct (Approx. 1 min.) but machine has insufficient water charge (correct charge is 9 to 10½ quarts, 7 to 9 quarts for compact dishwasher). | 1. Low water pressure. 2. Clogged filter screen in fill valve. 3. Hot water supply line too small, kinked and/or restricted. 4. Reduced flow to dishwasher due to heavy draw at another location in home. (Bath, Washer, etc.) | 1. Minimum water pressure is 20 P.S.I. 2. Remove and clean filter screen. 3. Refer to Installation for recommended requirements and routing. 4. Use dishwasher when water draw at other locations is at a minimum. |
| Fill time is short, resulting in a short water charge NOTE: Some models have abbreviated water fills (approx 45 sec.) on Normal and Water Miser cycles | 1. Float switch interrupts the timer controlled fill time. 2. Timer contacts for fill valve are not staying closed for the prescribed time. 3. Turning the timer into fill to start washing cycle. 4. Using rapid advance button and advancing dishwasher to off then following up with a short wash cycle on next washing. (This condition can only occur when the operator does not allow the dishwasher to complete its cycle automatically.) (Models prior to 1972.) | 1. Check float switch. 2. Refer to wiring diagram Ester line chart for switch contact time. Test run dishwasher and check length of fill time. 3. Turn knob until pilot light burns (never turn into fill). 4. Applies only to a dishwasher with rapid advance timer. Do not change timer or selector switch — inherent in design. |
| Dishwasher continues to fill even though there is no voltage to fill valve. | 1. Defective valve. 2. Dirt or foreign material under diaphragm in fill valve. | 1. Replace valve 2. Clean valve. |

| PROBLEM | POSSIBLE CAUSE | ACTION |
|--|---|--|
| Drains or water syphons out of dishwasher after a fill for either a wash or rinse. | 1. No loop in drain line. (Undercounter Dishwashers) | 1. All drain lines must have an elevated loop. Refer to installation instructions. |
| | 2. Drain line connected after "J" trap (undercounter washers). | 2. Drains must be connected ahead of "J" trap or into top end of a garbage disposal. Refer to installation instructions. |
| | 3. Recirculating hose from pump to top spray tube partially or totally restricted. | 3. Check circulation of water system. Clear any restrictions or blockage. |
| | 4. Main motor running in wrong direction (start phase wires reversed at timer or motor). | 4. Refer to wiring diagram for proper connections. |
| Dishwasher will not drain. NOTE: Approx. 2 pints of water will remain in bottom of the tub. | 1. Drain port in pump casting totally obstructed. | 1. Clean drain port. If unable to clean, replace casting. |
| | 2. Main motor won't run in clockwise direction (open start phase winding). | 2. Refer to wiring diagram for pump out period and check voltage to motor. |
| | 3. Vanes broken off the lower impeller. | 3. Dismantle top section of pump assembly – visually inspect. |
| | 4. Drain line kinked or collapsed (total restriction). | 4. Check drain line. |
| | 5. Open circuits between timer output terminal and motor. | 5. Refer to wiring diagram and check out run and drain phase motor circuits for loss of voltage. |
| | 6. Open timer contacts for motor start and run windings. | 6. Refer to wiring diagram for closed timer contact period. Check voltage through timer for these periods. |
| Dishwasher does not drain completely. NOTE: Approx. 2 pints of water will remain in the bottom of the tub, which is a normal condition. | 1. Drain line too small. | 1. The drain line must never be under 1/2 inch inside diameter. |
| | 2. Clogged coupler (portable model). | 2. Visually inspect and clean. |
| | 3. Drain line loop too far from dishwasher. (Water drains back into dishwasher. Long drain lines only.) | 3. Loop must be close to dishwasher. Refer to installation instructions. |

| PROBLEM | POSSIBLE CAUSE | ACTION |
|---|--|---|
| Noisy Pump system. | 1. Debris in tub bottom. | 1. Clean out pump. |
| | 2. Pump part or parts not tightened down properly. | 2. Inspect and correct. |
| | 3. Impellers improperly shimmed and rubbing. | 3. Use Shim gauge furnished with impeller and seal kit. When seals are shimmed correctly the impellers will be in correct position. |
| | 4. Defective bearings in motor. | 4. Remove all impellers and test run motor. |
| | 5. Sucking sound at end of drain period. | 5. Normal condition. |
| Main motor kicks out repeatedly on overload. | 1. Debris in pump, locking pump system. | 1. Clean pump. |
| | 2. Motor shaft seals are stuck together. | 2. Disassemble and inspect seals. |
| | 3. Main motor shaft not centered in pump housing cavity. | 3. Use installation tool No. 803923 (available through Sears parts department) and center housing as outlined. |
| | 4. Main motor bolts not tightened evenly. | 4. Loosen bolts and tighten evenly (tighten crosswise). |
| Dishwasher will not heat water to required temperature in the thermostat delay periods. | 1. Defective heating element. | 1. Check continuity. |
| | 2. Open circuit through timer safety thermostat and/or heater. | 2. Refer to wiring diagram and trace circuits for voltage loss. |
| | 3. Defective thermostat. | 3. Refer to the proper section in this manual for testing thermostat. |
| Dishes are not dry at end of dry phase. | 1. Open circuit through timer to heater. | 1. Refer to wiring diagram and trace circuit for loss of voltage. |
| | 2. Defective heater. | 2. If voltage to heater, remove leads and check for continuity through heater. |
| | 3. Improper loading of dishes. | 3. Refer to Owner's Manual for proper loading pattern. |
| | 4. Water not hot enough. | 4. Refer to detergent manufacturers recommendation. Check and adjust water heater. |
| | 5. Blower inoperative. (Blower models only.) | 5. Check operation of the blower motor in the dry phase after the final pump out. |
| | 6. Unfavorable temperature and humidity conditions. (Non-blower models.) | 6. Unlatch door at end of final rinse, and allow dinnerware to cool before removing from dishwasher. Moisture will evaporate. |

| PROBLEM | POSSIBLE CAUSE | ACTION |
|--|--|--|
| Lever won't latch or stay in run position. | <ol style="list-style-type: none"> 1. Latch lever bent. 2. Door misaligned to tub. (Undercounter models.) | <ol style="list-style-type: none"> 1. Repair or replace mechanism. 2. Loosen attach brackets and reposition tub for proper door closure. Be sure machine is level. |
| Detergent Cup won't latch. | <ol style="list-style-type: none"> 1. Cams not locking on linkage arm (Solenoid operated Cup). 2. Cam not locking on bi-metal leaf. (Bi-metal operated cup.) 3. Roll pin or shaft broken. 4. Broken springs. | <ol style="list-style-type: none"> 1. File notch deeper on surface of cam that rests against linkage arm. 2. Adjust leaf or replace bi-metal control. 3. Replace roll pin or install shaft kit. 4. Replace as needed. |
| Detergent cup won't open to release detergent. | <ol style="list-style-type: none"> 1. Roll pin or shaft broken. 2. Cup binding. 3. Defective solenoid, wiring or timer. 4. Defective bi-metal release, wiring or timer. | <ol style="list-style-type: none"> 1. Replace roll pin or install shaft kit. 2. Repair or replace as needed. 3. Refer to the wiring diagram and check detergent cup electrical circuit. 4. Refer to the wiring diagram and check detergent cup electrical circuit. |
| Detergent does not wash out of detergent cup. | <ol style="list-style-type: none"> 1. Dish or pan blocking detergent cup. 2. Detergent cup hot and wet when loaded. 3. Old detergent. | <ol style="list-style-type: none"> 1. See loading instructions in Owner's Manual. 2. If cup is wet, dry before loading. 3. Don't use detergent that has become caked or lumpy. |
| Wetting agent liquid runs out continuously. | <ol style="list-style-type: none"> 1. Wetting agent cup ribs not against door liner. 2. Diaphragm seal out of shape, puckered, etc. (Solenoid operated dispenser.) 3. Springs defective. | <ol style="list-style-type: none"> 1. Mount cup so all areas of cup ribs are resting against door liner. 2. Replace dispenser. 3. Replace springs. |
| Wetting agent liquid runs out each time door is opened and closed. | <ol style="list-style-type: none"> 1. Plunger stuck or held in open position. 2. Coil spring or "C" clip broken. 3. Solenoid defective. 4. Bi-metal release defective. | <ol style="list-style-type: none"> 1. Free plunger or adjust bi-metal release. 2. Replace parts as necessary. 3. Replace solenoid and bracket assembly. 4. Replace bi-metal assembly. |

| PROBLEM | POSSIBLE CAUSE | ACTION |
|---|---|---|
| Wetting agent liquid won't eject. | 1. Wetting agent cup ribs not against door liner. | 1. Same as in No. 1 in previous problem. |
| | 2. Coil spring or "C" clip broken. (Solenoid type.) | |
| | 3. Solenoid defective. | |
| | 4. Bi-metal release defective. | |
| Wetting agent dispenser leak (Bi-metal release type). | 1. Overfilling. | 1. Follow instructions in the Owner's Manual. |
| | 2. Bottle cracked. | 2. Replace. |
| | 3. Defective seal on stopper. | 3. Replace stopper. |
| | 4. Dishwasher not level. | 4. Level dishwasher. |

Water Leaks

The source of a water leak is sometimes very difficult to locate. Before operating the dishwasher or attempting any repair, disconnect the dishwasher from the electrical power source. Take off the door and access panel and look for water "tracks." Be sure to check all the "tracks" and inspect the area which you suspect to be the source of the leak. Make certain you trace the water tracks back to its origin. After making the repair, wipe away all water "tracks" and test the machine again to verify your diagnosis and correction.

Identification of where the leak is located and what is causing the leak is the most difficult part of the problem. In some cases, there may be more than one source for the leak.

If the leak cannot be located, make the following routine checks.

1. Check spray arm - make sure there is no opening anywhere along the crimped seam and/or the spray arm is not binding on the pump housing. Be sure the spray arm nut is installed correctly.
2. Tighten all screws and bolts in interior of tub.
CAUTION: Excessive tightening may crack porcelain.
3. Tighten water inlet port nut.
4. Check gasket for cuts or wrinkles. Gasket should fit snugly against all sides of the tub. Pay particular attention to the lower corners.
5. Check all hose connections.
6. Check water temperature. Follow the detergent manufacturers temperature recommendation. Water that is too cool may cause sudsing.
7. Check detergent. (Must be fresh and must be *for Dishwasher use only*.)
8. Do not pre-rinse with regular dishwashing soap.
9. Follow loading instructions in owner's manual.

Following the procedures outlined in points 1 through 9 should eliminate the source of the leak.

MISCELLANEOUS SERVICE PART NUMBERS

| | | |
|----|---|--------------------|
| 1 | Oversize screw for door latch | 806863 |
| 2 | Oversize screw for outer door panel | 806863 |
| 3 | Oversize screw for blower housing | 806565 |
| 4 | Latch kit, 1972 - present (except one piece door models) | 807042 |
| 5 | Improved caster, portable models, pre-1983 | 809540 |
| 6 | Threaded repair casters - (2) | 807000 |
| 7 | Positive fill kit, (except solid state models) | 806898 |
| 8 | Utensil basket for spatulas and long knives | 807253 |
| 9 | Plastic grids for bottom of silverware basket to keep narrow handled flatware from falling through basket | 808803 |
| 10 | Rack touch-up, gold vinyl | 806957 |
| 11 | Porcelain repair and sealant, white silicone | 807509 |
| 12 | Tub cleaning, white mineral residue from hard water, use vinegar, Tang, citric acid crystals, Lime-Away, or Glass Magic | - purchase locally |
| 13 | To remove suds in dishwasher when wrong type of detergent is used, pour one cup of liquid cooking oil into tub and run dishwasher | |
| 14 | Relay-transformer assembly for solid state models '78 - '83 | 808111 |
| 15 | Red plastic pocket for solid state timer | 808758 |
| 16 | Wiring harness for solid state models | 808018 |
| 17 | Molex terminal for solid state harness | 808000 |
| 18 | Cleaner-lubricant for solid state edge connectors Div 92 Source 192 | Top-8 |
| 19 | Plastic wire ties, Div. 98 Source 980 | STD374058 |
| 20 | Right hand terminal block (black), for timers '83 | 808231 |
| 21 | Left hand terminal block (white), for timers '83 | 808232 |
| 22 | Terminals for timer blocks, (25) | 808333 |
| 23 | Terminals for timer connections outside of block (25) | 808334 |
| 24 | Pin type terminal for printed circuit board, model 7034 | 808660 |
| 25 | Wiring for dishwasher application (25 ft. lengths) | |
| | White - 807307 | Orange - 807310 |
| | Black - 807308 | Blue - 807311 |
| | Red - 807309 | Yellow - 807312 |
| | | Pink - 807313 |
| 26 | Misc gasket kit for tub installation | 808657 |
| 27 | Baffle plate for 18" upper pump housing | 808380 |
| 28 | Universal pump seal kit for short shaft motor (806300) | 808722 |
| 29 | Universal pump diffuser housing kit | 806978 |
| 30 | Insulation for outside of undercounter tub | 808441 |
| 31 | Plastic display window for 24" models | 808459 |
| 32 | Plastic display window for 18" models | 808474 |
| 33 | Platinum/Toast inserts for door/access panels (24") | 808755 |
| 34 | Black/White inserts for door/access panels (24") | 808804 |
| 35 | Door gasket/vent baffle kit 1969 - | 808070 |
| 36 | Water valve kit - undercounter | 808668 |
| 37 | Water valve kit - portable | 808667 |
| 38 | Main motor 1967 - | 806300 |
| 39 | Complete pump/motor assembly 1978 - (through tub installation) | 808673 |

Check with your local Sears service center for availability and application of these and other parts for your specific model.

