

All About

Servicing

24" Dishwashers
Electronic Series

Frigidaire[®]

W White-Westinghouse

Gibson

Kelvinator 

TAPPAN

Electrolux Major Appliances; North America
250 Bobby Jones Expwy
Augusta, GA 30907

Safe Servicing Practices

Avoid personal injury and/or property damage by observing important Safe Servicing Practices.

Following are some limited examples of safe practices:

1. **DO NOT** attempt a product repair if you have any doubts as to your ability to complete the repair in a safe and satisfactory manner.
2. Always Use The Correct Replacement Parts as indicated in the parts documentation. Substitutions may defeat compliance with Safety Standards Set For Home Appliances.
3. Before servicing or moving an appliance:
 - Remove power cord from the electrical outlet, trip circuit breaker to OFF position, or remove fuse.
 - Turn off water supply for steam dryer models.
 - Turn off gas supply for gas dryers.
4. Never interfere with the proper operation of any safety device.
5. **Use ONLY REPLACEMENT PARTS CATALOGED FOR THIS APPLIANCE. Substitutions may defeat compliance with Safety Standards Set For Home Appliances.**
6. **GROUNDING:** The standard color coding for safety ground wires is **GREEN**, or **GREEN** with **YELLOW STRIPES**. Ground leads are not to be used as current carrying conductors. It is **EXTREMELY** important that the service technician reestablish all safety grounds prior to completion of service. Failure to do so will create a hazard.
7. Prior to returning the product to service, ensure that:
 - All electrical connections are correct and secure.
 - All electrical leads are properly dressed and secured away from sharp edges, high temperature components, and moving parts.
 - All non-insulated electrical terminals, connectors, heaters, etc. are adequately spaced away from all metal parts and panels.
 - All safety grounds (both internal and external) are correctly and securely connected.
 - All panels are properly and securely reassembled
 - Gas and water supplies are turned ON if shut off prior to service.

ATTENTION!!!

This service manual is intended for use by persons having electrical and mechanical training and a level of knowledge of these subjects generally considered acceptable in the appliance repair trade. Electrolux Home Products, Inc. cannot be responsible, nor assume any liability, for injury or damage of any kind arising from the use of this manual.

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Section 1 Basic Information

This manual covers models **FDB2410HIB**, **FDB2410HIC**, and **FDB2410HIS** 24 inch stainless steel dishwashers.

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Important Safety Instructions

The service technician should be aware of the safety instructions below to make sure the customer is operating the dishwasher in accordance with the Use and Care Manual provided with the unit.

- Read all instructions before using the dishwasher.
- Use the dishwasher only as instructed in the Use and Care Manual.
- This manual does not cover every possible condition and situation that may occur. Use common sense and caution when installing, operating and maintaining any appliance.
- National Sanitation Foundation (NSF) certified residential dishwashers are not intended for licensed food establishments. Such establishments require a higher dishwasher water temperature to meet commercial sanitization requirements.
- **DISHWASHER MUST BE ELECTRICALLY GROUNDED.** Read the Installation Instructions for details.
- This dishwasher is designed to operate on regular house current (120 V, 60 Hz). Use a circuit equipped with a 15 ampere fuse or circuit breaker. Use a 20 ampere fuse if dishwasher is connected with a food waste disposer.

- Do not operate dishwasher unless all enclosure panels are in their proper place as explained in the Installation Instructions provided with the dishwasher.
- To avoid entrapment and/or suffocation, remove the door to the washing compartment when removing an old dishwasher from service or discarding it.
- Keep young children and infants a safe distance away from the dishwasher when it is in operation.
- Use only detergents and rinse agents recommended for use in a dishwasher.
- Do not abuse, sit on, or stand on the door or dish rack of the dishwasher.
- Store dishwasher detergent and rinse agents out of the reach of children.
- Do not wash plastic items unless marked "dishwasher safe" or the equivalent. Check with manufacturer for recommendations, if not marked. Items that are not dishwasher safe may melt and create a potential fire hazard.
- If the dishwasher drains into a food disposal, make sure disposal is completely empty before running dishwasher.
- Disconnect electrical power to dishwasher before servicing.
- Repairs should be done by a qualified professional.
- Do not tamper with controls.
- Use care unloading the dishware when the SANITIZE option has been selected. Contents may be hot to the touch immediately after the end of cycle.
- When loading items to be washed:
 - Locate sharp items and knives so that they are not likely to damage the tub or door seal;
 - Load sharp items and knives with the handles up to reduce the risk of cut-type injuries. Alternatively, place sharp items and knives in the utensil shelf located in the upper rack.
- Under certain conditions, hydrogen gas may be produced in a hot water system that has not been used for 2 weeks or more.
 HYDROGEN GAS IS EXPLOSIVE. If hot water system has not been used for such a period, before using dishwasher, turn on all hot water faucets and let water flow from each for several minutes. This will release any accumulated hydrogen gas.
 HYDROGEN GAS IS FLAMMABLE. Do not smoke or use an open flame during this time.
- Do not store or use combustible materials, gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

Section 1 Basic Information

Product Specifications

Electrical

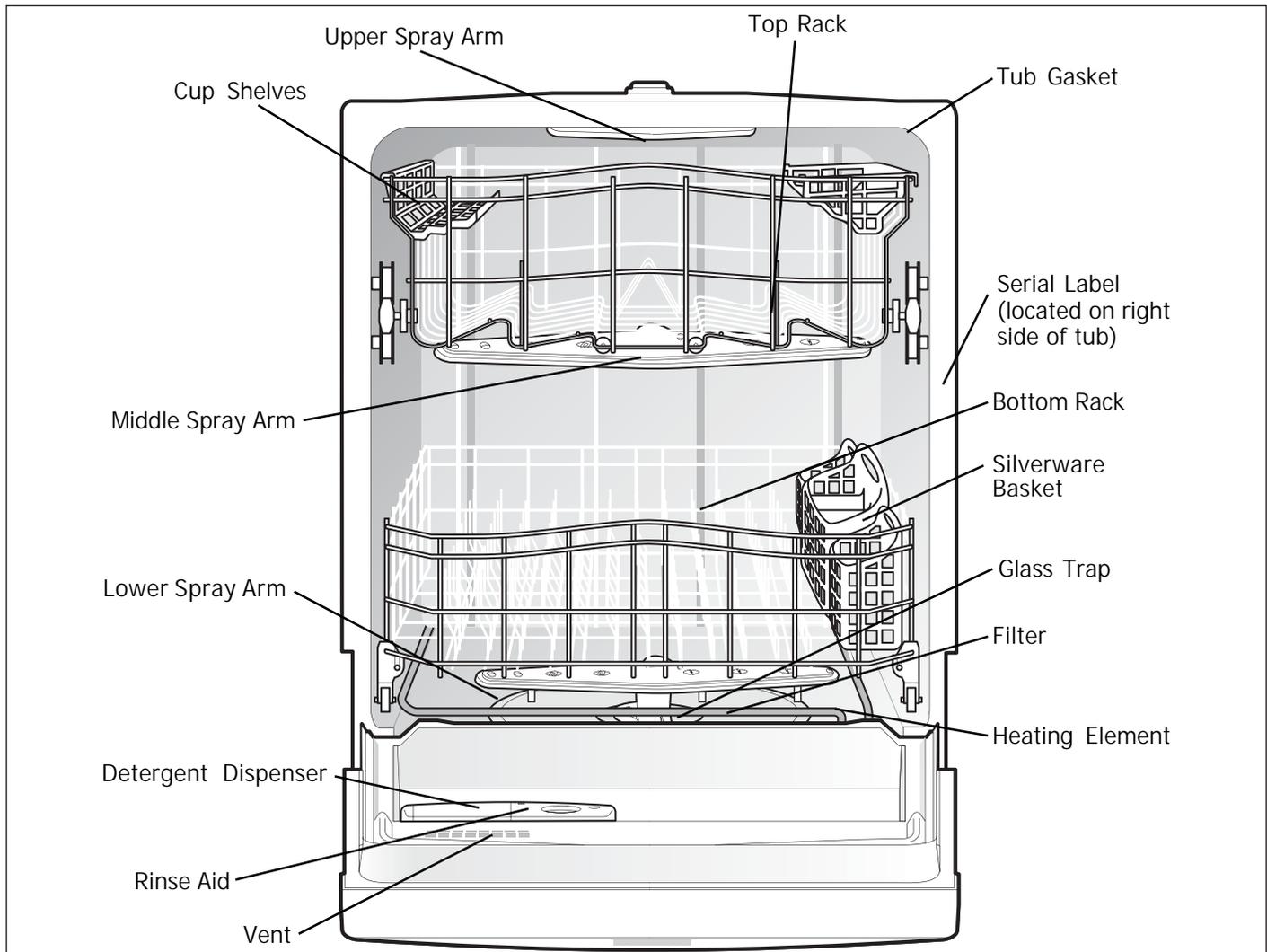
Rating	120 Volts, 60Hz
Separate Circuit.. ..	15 amp min., 20 amp max.
Motor (Amps)	1.8
Heater Wattage	900
Total Amps (load rated).....	10.0
TempAssure.....	140°F ±5°F
.....	(60°C±3°C) [with outer door in place]
TempBoost	145°F ±5°F (63°C ±3°C)
Heated Wash/Heated Rinse	
Sanitize	150°F ±5°F (66°C ±3°C)
Hi-Limit Thermostat	200°F (93°C)

Water Supply

Suggested minimum incoming water temperature.....	120°F (49°C)
Pressure (PSI) min./max.	20/120
Connection (NPT).....	3/8"
Consumption (Normal Cycle).....	4.9 - 9.7 U.S. gallons,
.....	18.5 - 36.7 liters
Water valve flow rate (U.S. GPM).....	.83
Water recirculation rate (U.S. GPM).....	approx. 12
Water fill time.....	87 sec.

Feature Overview

The dishwasher cleans by spraying a mixture of hot water and detergent through the spray arms against soiled surfaces. Each cycle begins with a pre-drain. Next, the dishwasher fills with water covering the filter area. Water is then pumped through the filter and spray arms. Soil particles go down the drain as the water is pumped out and replaced with clean water. The number of water fills will vary with the cycle being used.



Section 1 Basic Information

Filling the Detergent Dispenser

The detergent dispenser has one covered and one uncovered cup. Detergent in the uncovered cup falls into the dishwasher when the door is closed. The covered cup opens automatically to release detergent.

- Use only fresh automatic dishwashing detergent. Other detergents will cause oversudsing.
- When using automatic dishwashing detergent tabs, place one tab in main wash cup and close.
- Add detergent just before starting cycle.
- Store detergent in a cool, dry location. Moist or caked detergent will not dissolve properly.



CAUTION

The use of industrial grade detergent can damage the heating coil and other parts of the dishwasher leading to damage to the unit and surrounding property. Use only household grade automatic dishwasher detergents.

How Much Detergent To Use

The amount of detergent to use depends on the water hardness. Water hardness is measured in grains per gallon. Using too little detergent can result in poor cleaning and hard water filming or spotting. Using too much detergent in soft water can cause a permanent film called etching. Your local water company, water softener company or county extension agent can tell you the water hardness in your area.

Rinse Aid

Rinse aid greatly improves drying and reduces water spots and filming. Water “sheets” off dishes rather than forming water droplets that cling and leave spots. A dispenser, located next to the detergent cup, automatically releases a measured amount of rinse aid during the last rinse. If spotting and poor drying are problems, increase the amount of rinse aid dispensed by rotating the dial to a higher number. The dial is located under the dispenser cap. The indicator will be dark when full, and will show clear when it is time to refill. On models with a STATUS window, “LO” will appear at the end of the cycle indicating that it is time to refill.

To add liquid rinse aid, turn dispenser cap 1/4 turn counterclockwise and lift out. Pour in rinse aid until liquid touches the indicated fill level. Replace cap. Do not overfill as this can cause oversudsing. Wipe up any spills with a damp cloth. The dispenser holds enough for 35 to 140 washes, depending on setting.

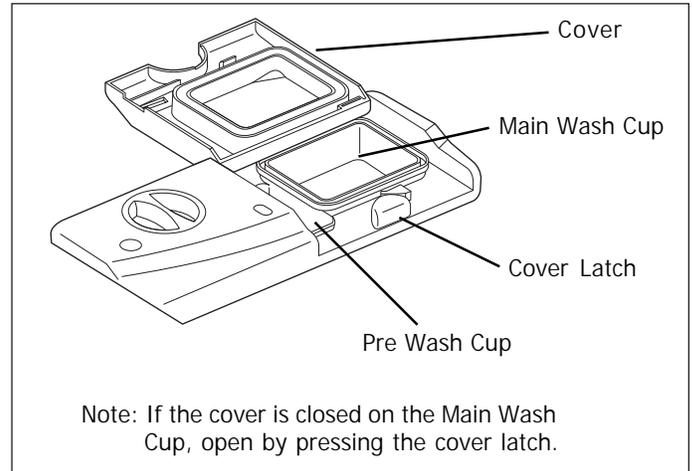


Figure 1-1

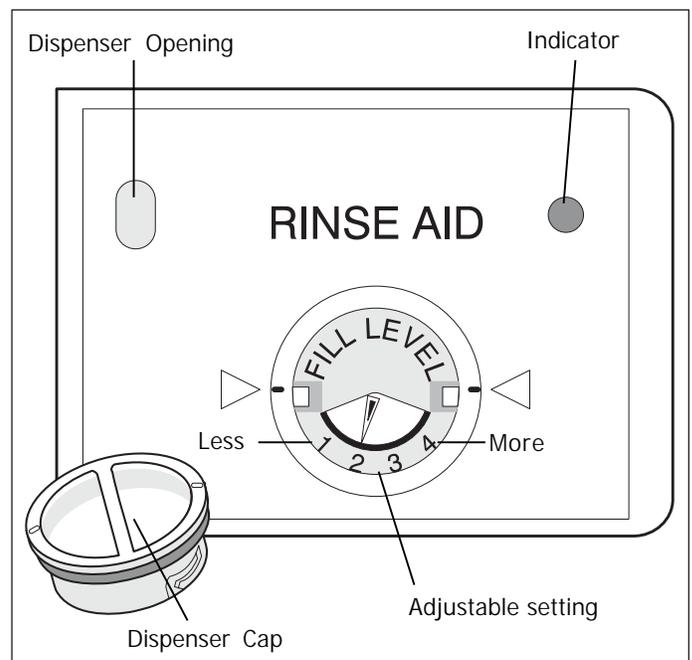


Figure 1-2



NOTE

The HEAT DRY option in combination with rinse aid will enhance drying performance. The energy required to use the HEAT DRY option costs pennies per cycle. Choosing not to select the HEAT DRY option may leave items in the dish load that will not be completely dry at the end of the cycle.

Section 1 Basic Information

Detergent Usage Guide				
Cycle	Soft Water (0-3 grains)	Medium Hard Water (4-8 grains)	Hard Water (9-12 grains)	Very Hard Water* (over 12 grains)
Pots & Pans or Normal Wash	2 teaspoons (each cup— 1/4 full)	5 teaspoons (each cup—fill to line above "Regular")	8 teaspoons (each cup— completely full)	Each Cup— Completely Full (water softener recommended)
Energy Saver or China Crystal	2 teaspoons (Main Wash cup— 1/4 full)	5 teaspoons (Main Wash cup—fill to line above "Regular")	8 teaspoons (Main Wash cup— completely full)	Main Wash Cup— Completely Full (water softener recommended)
Rinse Only	No Detergent	No Detergent	No Detergent	No Detergent (water softener recommended)

*Note: For very hard water, detergent alone may not be enough. A water softener is recommended to improve water quality and dishwashing performance. Try adding more detergent at the beginning of the main wash portion of the cycle. As a rule, use 1 teaspoon for each grain above 12. Unlatch the door, open slowly and add detergent to the bottom of the tub. Close the door to latch and the dishwasher will continue through the cycle.

Care and Cleaning

WARNING

Burn Hazard

Allow heating element to cool before cleaning the interior. Failure to do so can result in burns.

Outside - Occasionally wipe with a mild nonabrasive detergent and water. Rinse and dry.

Models with Stainless Steel Door - Clean outer door with warm soapy water and a dishcloth or sponge. Rinse with clean water and a dry cloth. Do not use harsh cleaners.

Inside - The inside of the dishwasher is self cleaning with normal use. If needed, clean around the tub gasket area with a damp cloth.

Cleaning the Filter

For optimum performance, your dishwasher is equipped with a filter assembly featuring a main filter, cup and fine filter as shown in Figure 3-3. All food fragments are removed from the dishwasher as water passes through the filter assembly.

Each part of the assembly should be cleaned often to ensure that all food fragments are removed from the dishes.

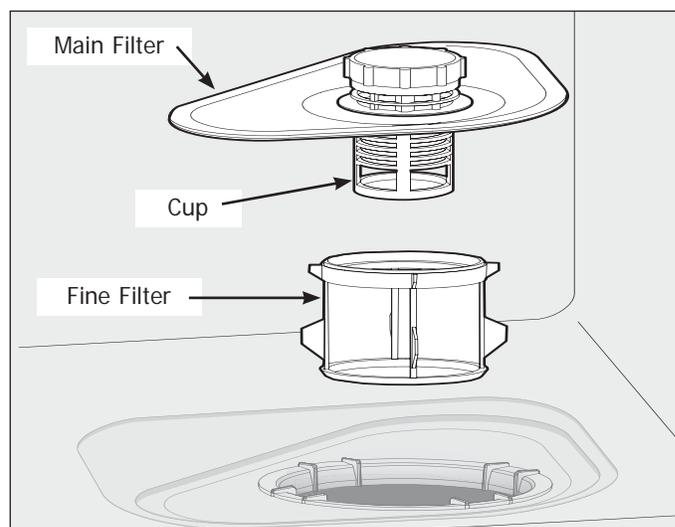


Figure 1-3

To remove food fragments from the filter assembly, the filters must be removed from the dishwasher. To remove the filters, rotate the cup counterclockwise to remove cup and main filter. Next, rinse the main filter and fine filter under running water.

Cleaning with a brush may also be necessary to remove any fragments trapped in the filters. Once cleaning has been completed, simply reassemble the filter as shown in Figure 3-3. To ensure that the filter is fully seated, press down on the top of the main filter. Using the dishwasher without a properly installed filter is not recommended as it will reduce the cleaning efficiency and may damage dishware or wash pump.

Care of Drain Air Gap

If a drain air gap was installed for the dishwasher, check to make sure it is clean so the dishwasher will drain properly. A drain air gap is usually mounted on the countertop and can be inspected by removing the cover. This is not part of the dishwasher and is not covered by warranty.

Winterizing



CAUTION

Freezing temperatures may cause water lines to rupture. Be sure all supply lines to unit and circulating lines within dishwasher are protected. Failure to do so could result in property damage.

A dishwasher left in an unheated location should be protected from freezing.

To Disconnect Service:

1. Turn off electrical power to the dishwasher at the supply source by removing fuses or tripping circuit breaker.
2. Shut off water supply.
3. Place a pan under the inlet valve. Disconnect water line from inlet valve and drain into pan.
4. Disconnect drain line from pump and drain water into pan.

To Restore Service:

1. Reconnect the water, drain, and electrical power supply.
2. Turn on water and electrical power supply.
3. Fill both detergent cups and run dishwasher through a POTS & PANS cycle.
4. Check connections to make sure they do not leak.

Cleaning the Spray Arm

The spray arm may need to be cleaned to insure that there are no clogs to the spray arm jets and bearings due to hard water chemicals.

To remove spray arm, simply hold the spray arm in place and turn the retaining nut clockwise. Then pull up on the spray arm lifting it off the shaft.

To clean the spray arm, use warm soapy water and a soft brush to clean the jets and bearings.

To replace the spray arm, simply set the spray arm on the shaft, take the retaining nut and turn it counter-clockwise until it has locked into place.

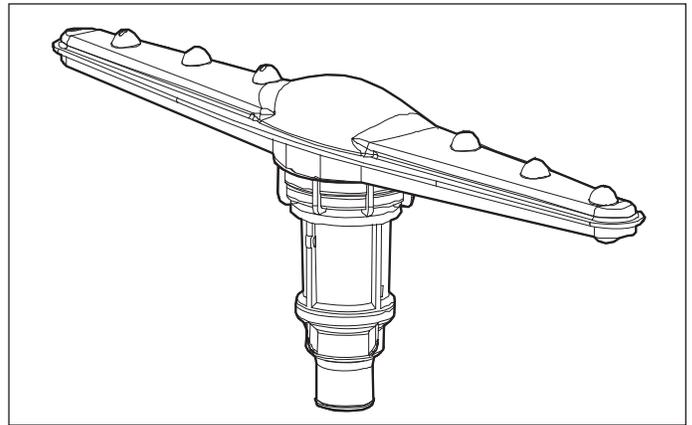


Figure 1-4

Section 1 Basic Information

Major Appliance Warranty Information

Your appliance is covered by a one year limited warranty. For one year from your original date of purchase, Electrolux will pay all costs for repairing or replacing any parts of this appliance that prove to be defective in materials or workmanship when such appliance is installed, used and maintained in accordance with the provided instructions.

Exclusions

This warranty does not cover the following:

1. Products with original serial numbers that have been removed, altered or cannot be readily determined.
2. Product that has been transferred from its original owner to another party or removed outside the USA or Canada.
3. Rust on the interior or exterior of the unit.
4. Products purchased "as-is" are not covered by this warranty.
5. Food loss due to any refrigerator or freezer failures.
6. Products used in a commercial setting.
7. Service calls which do not involve malfunction or defects in materials or workmanship, or for appliances not in ordinary household use or used other than in accordance with the provided instructions.
8. Service calls to correct the installation of your appliance or to instruct you how to use your appliance.
9. Expenses for making the appliance accessible for servicing, such as removal of trim, cupboards, shelves, etc., which are not a part of the appliance when it is shipped from the factory.
10. Service calls to repair or replace appliance light bulbs, air filters, water filters, other consumables, or knobs, handles, or other cosmetic parts.
11. Surcharges including, but not limited to, any after hour, weekend, or holiday service calls, tolls, ferry trip charges, or mileage expense for service calls to remote areas, including the state of Alaska.
12. Damages to the finish of appliance or home incurred during installation, including but not limited to floors, cabinets, walls, etc.
13. Damages caused by: services performed by unauthorized service companies; use of parts other than genuine Electrolux parts or parts obtained from persons other than authorized service companies; or external causes such as abuse, misuse, inadequate power supply, accidents, fires, or acts of God.

DISCLAIMER OF IMPLIED WARRANTIES; LIMITATION OF REMEDIES

CUSTOMER'S SOLE AND EXCLUSIVE REMEDY UNDER THIS LIMITED WARRANTY SHALL BE PRODUCT REPAIR OR REPLACEMENT AS PROVIDED HEREIN. CLAIMS BASED ON IMPLIED WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED TO ONE YEAR OR THE SHORTEST PERIOD ALLOWED BY LAW, BUT NOT LESS THAN ONE YEAR. ELECTROLUX SHALL NOT BE LIABLE FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES SUCH AS PROPERTY DAMAGE AND INCIDENTAL EXPENSES RESULTING FROM ANY BREACH OF THIS WRITTEN LIMITED WARRANTY OR ANY IMPLIED WARRANTY. SOME STATES AND PROVINCES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, OR LIMITATIONS ON THE DURATION OF IMPLIED WARRANTIES, SO THESE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU. THIS WRITTEN WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS. YOU MAY ALSO HAVE OTHER RIGHTS THAT VARY FROM STATE TO STATE.

If You Need Service

Keep your receipt, delivery slip, or some other appropriate payment record to establish the warranty period should service be required. If service is performed, it is in your best interest to obtain and keep all receipts. Service under this warranty must be obtained by contacting Electrolux at the addresses or phone numbers below.

This warranty only applies in the USA and Canada. In the USA, your appliance is warranted by Electrolux Major Appliances North America, a division of Electrolux Home Products, Inc. In Canada, your appliance is warranted by Electrolux Canada Corp. Electrolux authorizes no person to change or add to any obligations under this warranty. Obligations for service and parts under this warranty must be performed by Electrolux or an authorized service company. Product features or specifications as described or illustrated are subject to change without notice.

USA
1.800.944.9044
Electrolux Major Appliances
North America
P.O. Box 212378
Augusta, GA 30907



Canada
1.800.668.4606
Electrolux Canada Corp.
5855 Terry Fox Way
Mississauga, Ontario, Canada
L5V 3E4

Section 2 Installation Information

Recognize safety symbols, words and labels:

Safety items throughout this manual are labeled with a WARNING or CAUTION based on the risk type as described below:



WARNING

This symbol alerts you to situations that may cause serious body harm, death or property damage.



CAUTION

This symbol alerts you to situations that may cause bodily injury or property damage.



WARNING

To reduce the risk of fire, electrical shock, or injury when using a dishwasher, follow basic safety precautions including the following:

- Read all instructions before operating the dishwasher.
- Before performing any type of service or installation, make sure that electric power to the dishwasher is disconnected.
- To avoid the possibility of explosion or fire, do not store or use combustible, flammable, or explosive liquids or vapors (such as gasoline) inside or in the vicinity of this or any other appliance.
- This appliance is equipped with a three-prong grounding plug for protection against possible electric shock hazards. Plug it only into a dedicated, grounded electrical outlet. When only a standard two-prong electrical outlet is available, the customer must have it replaced with a dedicated, properly grounded three-prong electrical outlet before using this appliance.
 - Do not under any circumstances, cut or remove the third (ground) prong from the power cord.
 - Do not use an adapter plug.
 - Do not use an extension cord.
 - Do not use a power cord that is frayed or damaged.
 - The use of a ground fault interrupter (GFI) is not recommended.
- Do not install or use a damaged appliance. If you receive a damaged appliance, immediately contact your dealer or builder.
- The installer must show the customer the location of the power plug so that they know where and how to disconnect power to the dishwasher.
- Do not install, repair, or replace any part of the dishwasher unless specifically recommended in the literature accompanying it. A qualified service technician should perform all other service.



WARNING

Electrolux Home Products Inc. cannot be held responsible for damage to property or injury to persons caused by failure to comply with the installation, maintenance and safety instructions contained in this Service Manual.

Section 2 Installation Information

Tools and Materials Needed for Installation

- Drill, Electric
- Driver, Socket 1/4" , 5/16"
- Flaring Tool / Tube Cutter (for copper tubing)
- Flashlight
- Level
- Pipe Joint Compound (for iron pipe plumbing) or Pipe Thread Tape (for sealing threads)
- Pliers
- Safety Glasses
- Saw, Keyhole or 1/2", 1-1/2" to 2" Hole Cutters
- Screw Drivers, Slotted and #2 Phillips (magnetic tip preferred)
- Tape, Electrical or Duct
- Tape, Measuring
- Wire Stripper or Utility Knife
- Wrench, Hex-end
- Wrenches, 2 Adjustable (for copper tubing) or 2 Pipe wrenches (for iron pipe plumbing)

Parts You Will Need *(Not Included)

- Conduit Connector
- Drain Hose Clamp, 1 1/4" Diameter
- Elbow, 90° with a 3/8" National Pipe Thread
- Wire Nuts, UL listed (3)
- Strain Relief

* If required:

- "Y" Branch Tailpiece and Connector Kit, Available at Plumbing Supply Store.
- Air Gap Kit, Available at Plumbing Supply Store.
- Fasteners for floor anchoring, Available at Hardware Store
- Hand Shut-off Valve, Available at Plumbing Supply Store.



WARNING

The dishwasher must be connected to a grounded metal, permanent wiring system. The equipment grounding conductor must be run with the circuit conductors and connected to the appliances' equipment grounding terminal or lead. It is the consumers responsibility to contact a qualified installer to make sure the electrical installation conforms with the National Electrical Code and local codes and ordinances.

Do not connect the dishwasher to the power supply until the appliance is permanently grounded.

All wiring connections must be enclosed in the junction box. This unit has copper lead wires. Joining aluminum building wire to stranded copper wire should be done by a qualified electrician using materials recognized by UL and local codes.

Do not use an extension cord. Such use can result in fire, electrical shock, or other personal injury.

Failure to follow these instructions could result in death or serious injury.



WARNING

Disconnect electrical power at the fuse box or circuit breaker box before beginning installation. Failure to follow this warning could result in death or serious injury.

Read all instructions before installing dishwasher. For your safety, please read and observe all safety instructions.

Section 2 Installation Information

Installation Preparation

1. The rough cabinet opening must be at least 24" deep and 24" wide. The opening should be 32.5" to 35" maximum height.
2. The dishwasher must be installed so that the drain hose is no more than 10 feet in length for proper drainage.
3. The dishwasher must be fully enclosed on the top, sides and back, and must not support any part of the enclosure.



WARNING

Electrical, water, and drain lines must be confined to shaded areas in Figure 2-1. Electric conductors, water, and drain could be damaged. Failure to follow these instructions could result in fire or electric shock.



IMPORTANT

For proper operation and appearance of unit, cabinet opening should have dimensions as shown in Figure 2-1. If unit is to be placed in a corner, there must be at least a 2-inch side clearance to open door. (See Figure 2-2)

If dishwasher is installed at end of a cabinet line, sides and back must be fully enclosed.



NOTE

ADA installation, (32-1/2") beneath 34" high countertops may be accomplished by adjusting the kickplate and leveling legs.



NOTE

As a precaution, it is recommended, but not required that the cabinets enclosing all sides of the dishwasher (including the underside of the countertop) be sealed with an oil based paint or moisture-proof polyurethane to prevent possible steam/moisture damage.

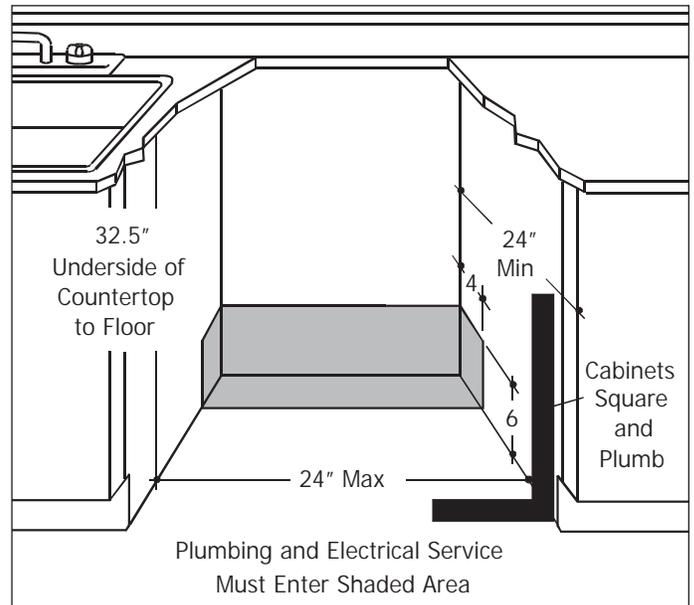


Figure 2-1.

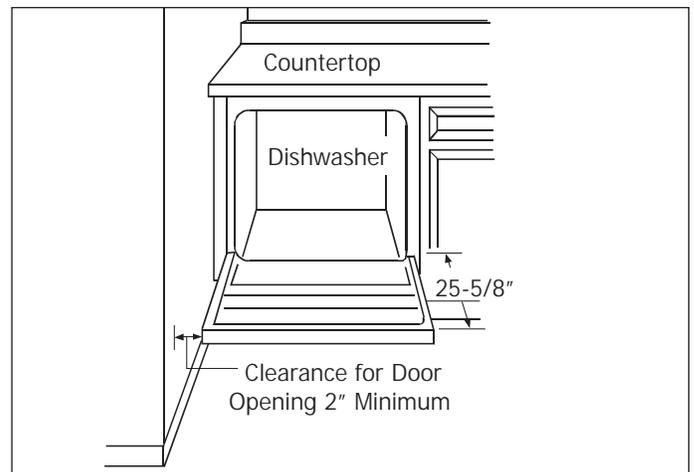


Figure 2-2.

Section 2 Installation Information

Connections For Electrical, Water, and Drain

Locating the Connections

1. Follow local codes and ordinances.
2. Do not exceed 10 feet distance to drain.
3. Do not connect drain lines from other devices to the dishwasher drain hose.
4. Dishwasher must be connected to waste line with an air gap (not supplied) or 32" minimum high drain loop, depending on local codes and ordinances to prevent back flow into the dishwasher.
5. Air gap must be used if waste tee or disposer connection is less than 18' above the floor to prevent siphoning.

➔ IMPORTANT

Do not cross drain, water, and electrical lines in front of dishwasher motor or frame.

➔ IMPORTANT

Disconnect power before starting installation.

Drain Preparation

The type of drain installation depends on answers to the following questions:

1. Do local codes or ordinances require an air gap?
2. Will waste tee or disposer connection be less than 18" above the floor?
3. Will installation have a drain loop less than 32" above floor?

If the answer to ANY of the 3 questions above is YES, Method 1 MUST be used. Otherwise either Method 1 or Method 2 may be used. (See Figure 2-3 & 2-4)

Cabinet Preparation

Drill a 1-1/2" diameter hole in the cabinet wall within the shaded areas shown in Figure 2-2 for the drain hose connection. The hole should be smooth with no sharp edges.

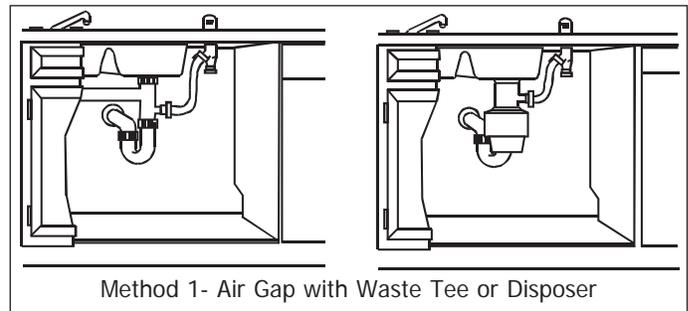


Figure 2-3.

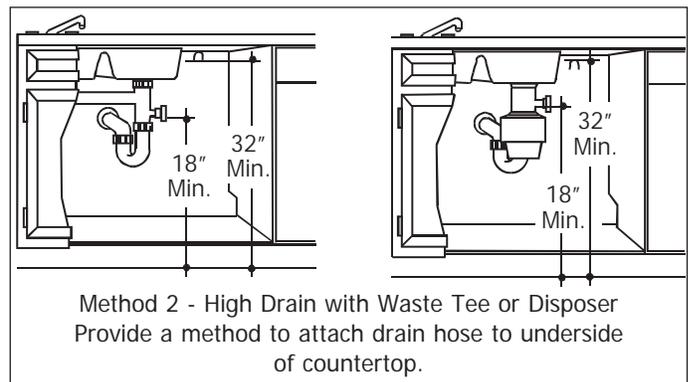


Figure 2-4.

📌 NOTE

Install waste tee or disposer and air gap according to manufacturer's instructions.

⚠ CAUTION

An air gap **MUST** be used if the drain hose is connected to waste tee or disposer lower than 18" above the floor. Failure to provide the proper drain connection height with air gap or 32" minimum, high drain loop will result in improper draining of the dishwasher.

Section 2 Installation Information

Prepare Electrical Wiring

WARNING

FOR PERSONAL SAFETY:
Remove house fuse or open circuit breaker before beginning installation.
Do not use an extension cord or adapter plug with this appliance.



Electrical Requirements

1. This appliance must be supplied with 120V, 60 Hz. and connected to an individual properly grounded branch circuit, protected by a 15 or 20 ampere circuit breaker or time delay fuse.
2. Wiring must be 2 wire with ground. (See Figure 2-5)
3. If the electrical supply does not meet the above requirements, consult a licensed electrician before proceeding.

Grounding Instructions - Cable Direct

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 be connected to the equipment grounding terminal or lead on the appliance.

Grounding Instructions - Power Cord Models

This appliance must be grounded. In the event of a malfunction or breakdown, grounding will reduce the risk of electrical shock by providing a path of least resistance for electric current. The plug must be plugged into an appropriate outlet that is installed and grounded in accordance with local codes and ordinances.

WARNING

The improper connection of the equipment grounding conductor can result in a risk of electric shock. Check with a qualified electrician or service representative if you are in doubt that the appliance is properly grounded.

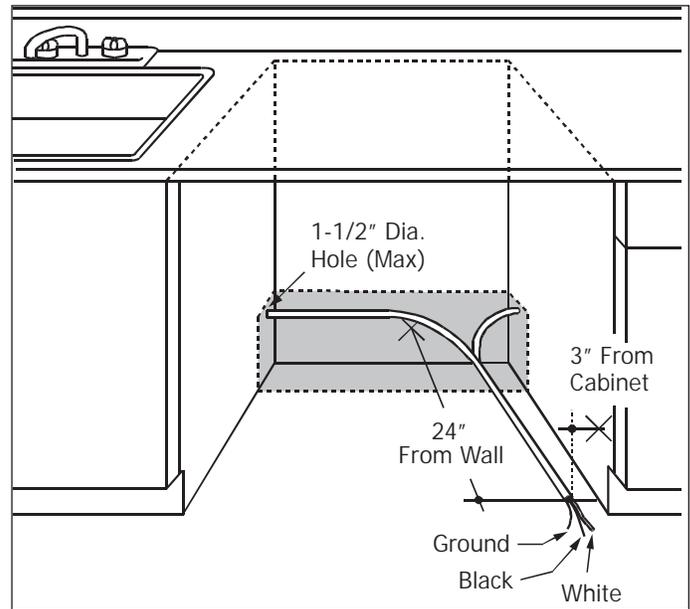


Figure 2-5.

Cabinet Preparation & Wire Routing

1. The wiring may enter the opening from either side, rear or floor within the shaded area.
2. Cut a 1-1/2" maximum diameter hole to admit the electrical cable. The hole must be free of sharp edges. If the cabinet wall is metal, the hole edge must be covered with a bushing or grommet.
3. Cable direct connections may pass through the same hole as drain hose and hot water line, if convenient. If cabinet wall is metal, the hole edge must be covered with a bushing or grommet.

NOTE

Power cords with plug must pass through a separate hole.

Electrical Connection to Dishwasher

Electrical connection is on the right front of dishwasher.

1. For cable direct connections the cable must be routed as shown in Figure 2-5. Cable must extend a minimum of 24" from the rear wall.
2. For power cord connections, install a 3-prong grounding type receptacle. The power-supply receptacle for the appliance must be installed in a cabinet or on a wall adjacent to the undercounter space in which the appliance is to be installed.

Section 2 Installation Information

Prepare Hot Water Line

1. The line may enter from either side, rear or floor within the shaded area shown in Figure 2-6.
2. The line may pass through the same hole as the electrical cable and drain hose, or cut an additional 1-1/2" diameter hole to accommodate water line.

WARNING

Plumbing material and drain hose must not come in contact with wiring or electrical components. Failure to follow this warning could result in personal injury from exposed wiring.

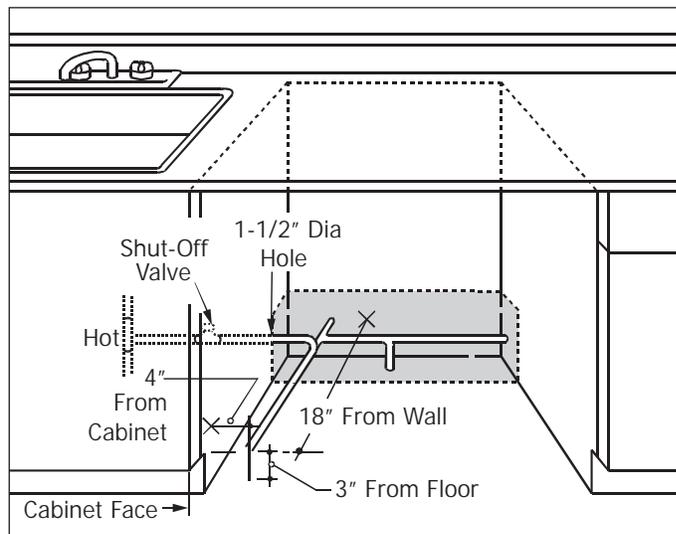


Figure 2-6.

Water Line Connection

1. Turn off the water supply.
2. Install a hand shut-off valve in an accessible location, such as under the sink. (Optional, but strongly recommended, and may be required by local codes.)
3. Water connection is on the left side of dishwasher. Install the hot water inlet line, using no less than 3/8" O.D. copper tubing. Route the line as shown in Figure 2-6 and extend forward at least 18" from rear wall.
4. Adjust water heater for 120°F to 150°F temperature.
5. Flush water line to clean out debris.
6. The hot water supply line pressure must be 20-120 PSI.

Section 2 Installation Information

Installation Steps

Check Door Balance

CAUTION

Opening the door will cause the dishwasher to tip forward. Do not open the door until you are ready to install the dishwasher. If it is necessary to open the door, hold the top of the dishwasher securely with one hand and hold the door with the other hand.



1. To check the door balance, hold the top of the dishwasher firmly.
2. Open the door slowly, if the door drops when released, increase spring tension. If the door closes when released, decrease tension.
3. Pull the spring adjustment pin out of the holes, insert in the next highest or lowest hole and test again. (See Figure 2-7)
4. Adjust both door springs to the same tension.
5. Continue moving the spring pin until door is balanced.

Adjust Leveling Legs

1. Move the dishwasher close to the installation location and lay unit on its back.
2. Measure installation height and dishwasher height. Extend leveling legs out from the dishwasher base, 1/4" less than installation height. (See Figure 2-8)

Remove Kickplate

1. Remove two (2) screws at front of the kickplate assembly using a #2 Phillips screwdriver.
2. Tilt and pull forward to remove. (See Figure 2-9).

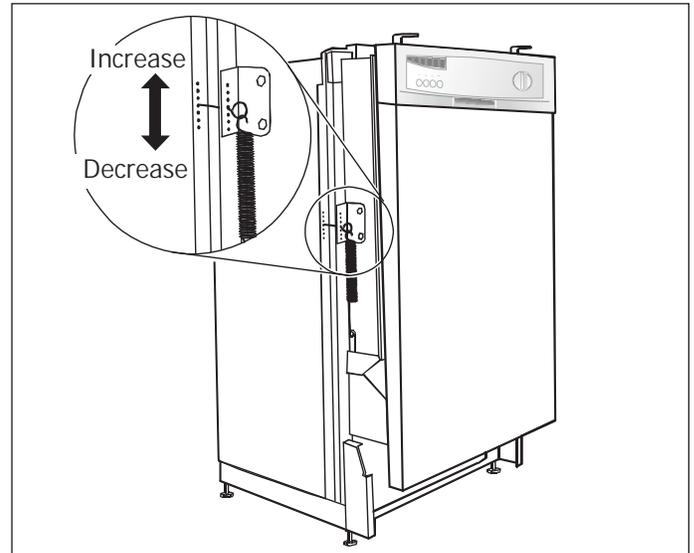


Figure 2-7.

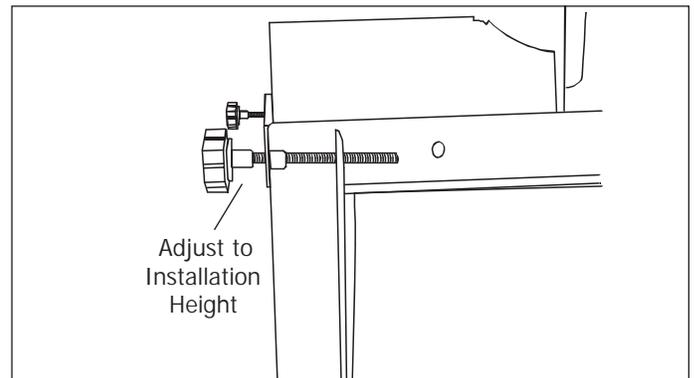


Figure 2-8.

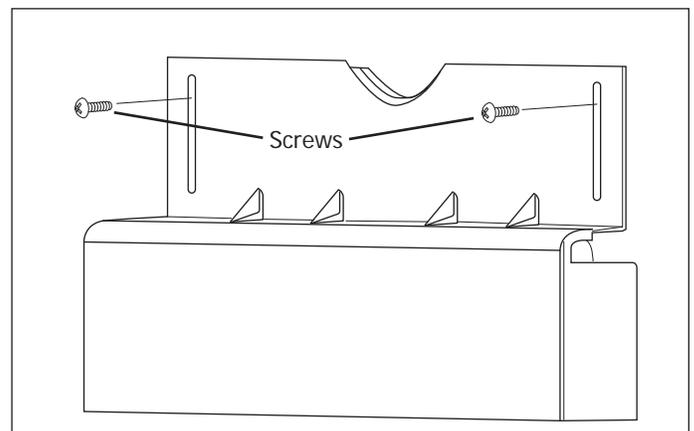


Figure 2-9.

Section 2 Installation Information

Install 90° Elbow

1. Wrap 90° elbow with thread seal tape.
2. Install a 90° elbow onto the water valve.
(See Figure 2-10)
3. Do not over tighten 90° elbow, water valve bracket could bend or water valve fitting could break.
4. Position the end of the elbow to face the rear of the dishwasher.

Position Water Line and House Wiring

Position water supply line and house wiring on the floor of the installation opening to avoid interference with base of dishwasher and components under dishwasher.
(See Figure 2-11)

Insert Drain Hose Through Cabinet

Insert drain hose into cabinet wall hole.
If a power cord is used, guide the end through a separate hole. (See Figure 2-12)

NOTE

Position water line and house wiring on the floor to avoid interference with base of dishwasher.

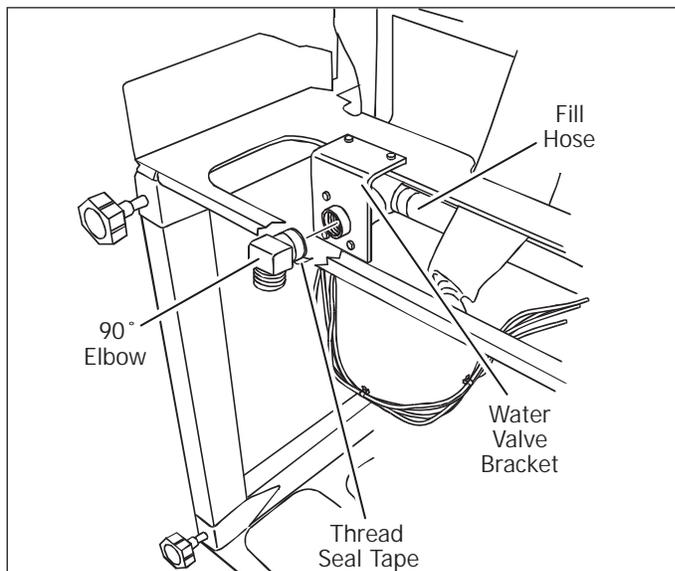


Figure 2-10.

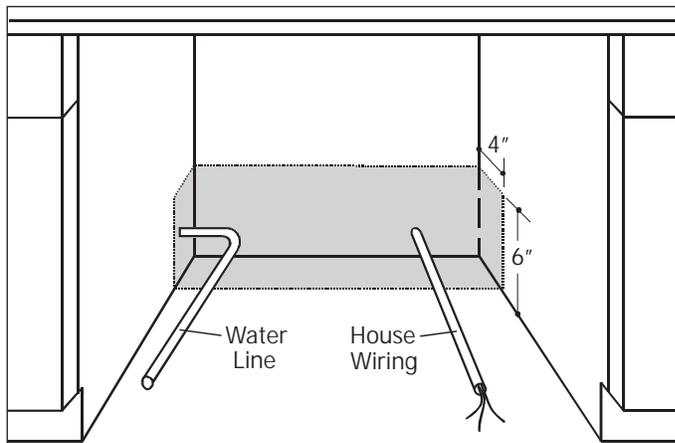


Figure 2-11.

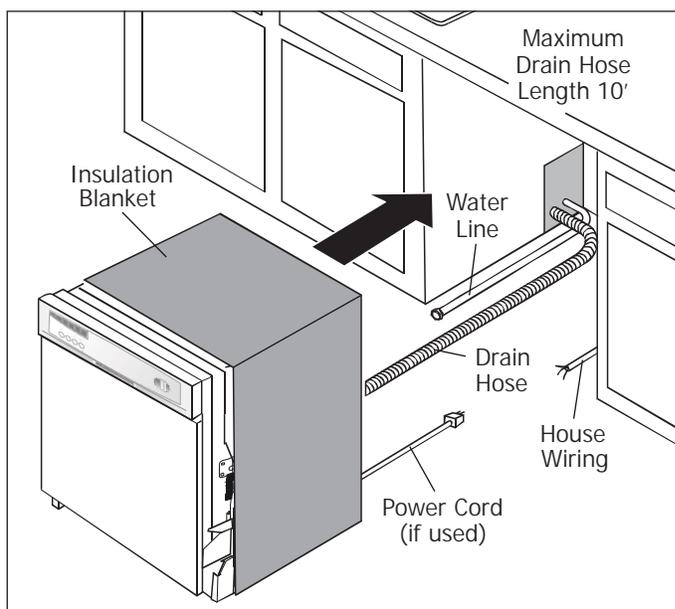


Figure 2-12.

Section 2 Installation Information

Slide Dishwasher Partially Into Cabinet

CAUTION

Do Not push against front panel with knees. Damage to front panel will occur.

1. Slide dishwasher into the opening a few inches at a time. (See Figure 2-13)
2. As you proceed, pull the drain hose through the opening under the sink. Stop pushing when the dishwasher is a few inches forward of adjacent cabinetry.
3. Make sure drain hose is not kinked under the dishwasher and there is no interference with the water line, wiring or any other component.

Position Dishwasher Under Countertop

1. Check to be sure that wires are secure under the dishwasher and not pinched or in contact with door springs or other dishwasher components.
2. Check tub insulation blanket, if equipped. It should be positioned so it is not bunched up or interfering with door springs. Check by opening and closing the door.
3. Push dishwasher into cabinet. The front corners of the dishwasher door should be flush with cabinet doors. Be careful not to dent front panel with knees or damage countertop or cabinets with dishwasher components.

Level Dishwasher

IMPORTANT

Dishwasher must be level for proper dish rack operation and wash performance.

1. Place level on door and rack track inside the tub as shown to check that the dishwasher is level. (See Figure 2-14)
2. Level the dishwasher by adjusting the four leveling legs individually. (See Figure 2-15)
3. Pull lower rack out about halfway. Check to be sure the rack does not roll forward or back into dishwasher. If the rack rolls in either direction, the dishwasher must be leveled again.
4. If door hits the tub, the dishwasher is not installed correctly. Adjust leveling legs to align door to tub.

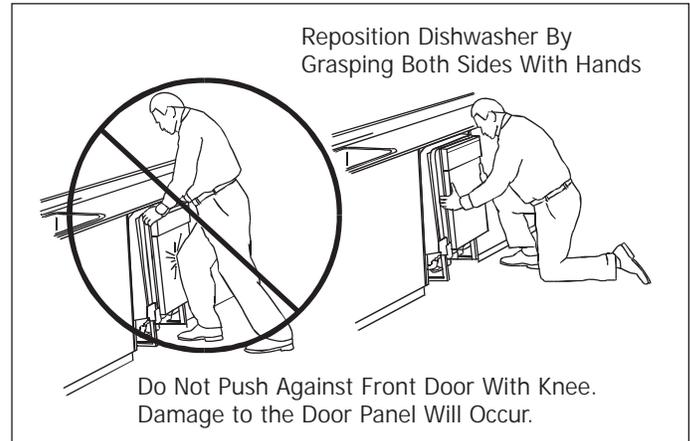


Figure 2-13.

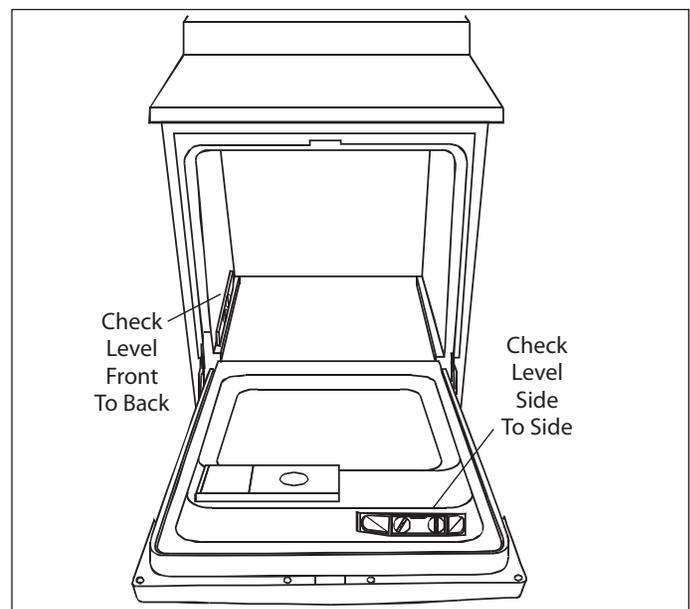


Figure 2-14.

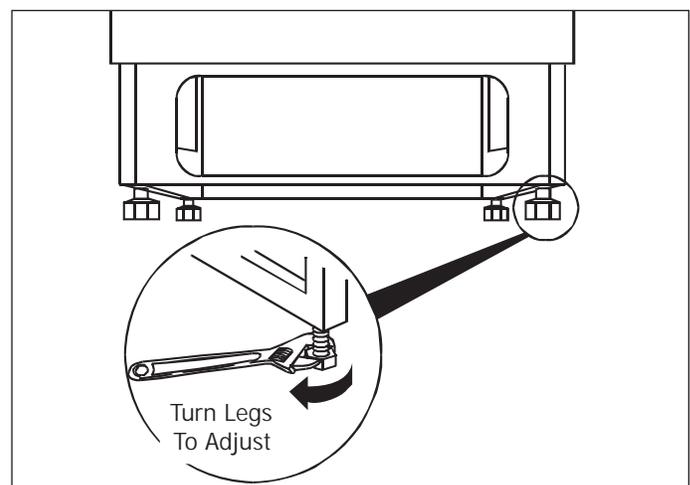


Figure 2-15.

Section 2 Installation Information

Secure Dishwasher to Cabinet

The dishwasher must be secured to the countertop.

1. Position the dishwasher so that the tub flange aligns with the front face of the cabinet frame. (See Figure 2-16)

NOTE

Check to be sure the dishwasher is centered in the opening and there is no interference with adjacent cabinets when opening or closing the door.

2. Fasten the dishwasher to the underside and side face of the countertop with the 2 Phillips screws provided. (See Figure 2-16)

IMPORTANT

Drive screws straight and flush. Protruding screw heads will scratch the top of the control panel and can interfere with door closing.

NOTE

Use Dishwasher Attachment Kit PN 154406801 to replace the attachment bracket(s) in the top frame that mount the dishwasher. 2- brackets and 4 screws for mounting are included in the kit.

For under granite counter installs, use Dishwasher Side Mounting Kit PN 154477201 to mount dishwasher to side cabinets and not to counter top. 2-brackets, screws and instructions are included in the kit.

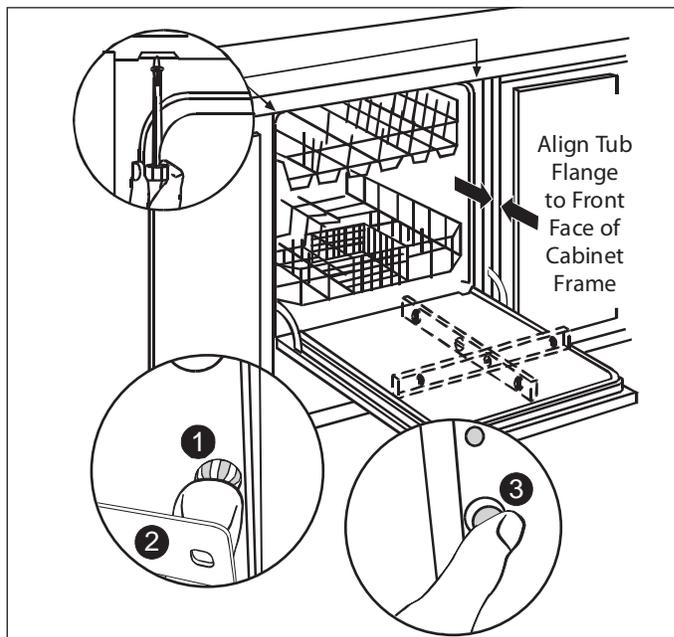


Figure 2-16.

Connect Water Supply

Connect water supply line to 90° elbow.

1. Slide compression nut, then ferrule over end of water line. (See Figure 2-17)
2. Insert water line into 90° elbow.
3. Slide ferrule against elbow and secure with compression nut.

IMPORTANT

Check to be sure that door spring does not rub or contact the fill hose or water supply line. Test by opening and closing the door. Re-route the lines if a rubbing noise or interference occurs.

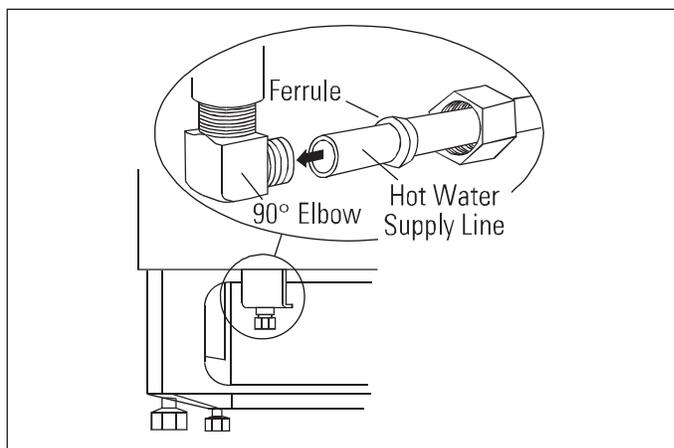


Figure 2-17.

Section 2 Installation Information

Connect Drain Line

1. The drain hose molded end will fit 5/8", 3/4" or 1" diameter connections on the air gap, waste tee or disposer. Cut on the marked line as required for the installation. (See Figure 2-18)
2. If a longer drain hose is required, add up to 42" of length for a total of 10 feet to the factory installed hose. Use 5/8" or 7/8" inside diameter hose and a coupler to connect the two hose ends. Secure the connection with hose clamps. (See Figure 2-19)
3. Secure the drain hose to the air gap, waste tee or disposer with clamps.

NOTE

Entire drain hose length must not exceed 10' for proper drain operation

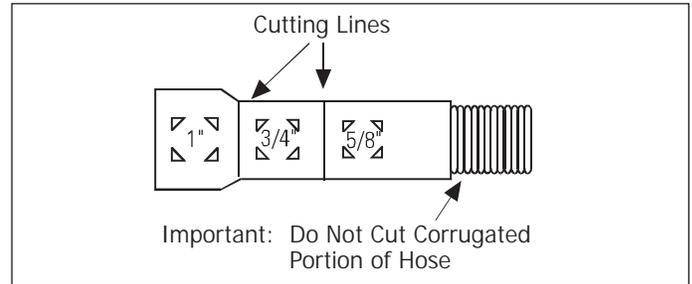


Figure 2-18.

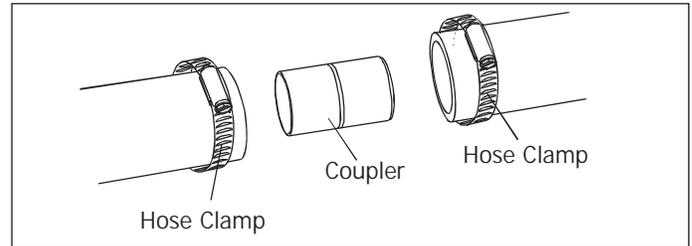


Figure 2-19.

Drain Line Installation

1. Connect drain line to air gap, waste tee or disposer using either previously determined method. (See Figure 2-20 and 2-21)

IMPORTANT

When connecting drain line to disposer, check to be sure that drain plug has been removed. Dishwasher will not drain if plug is left in place.

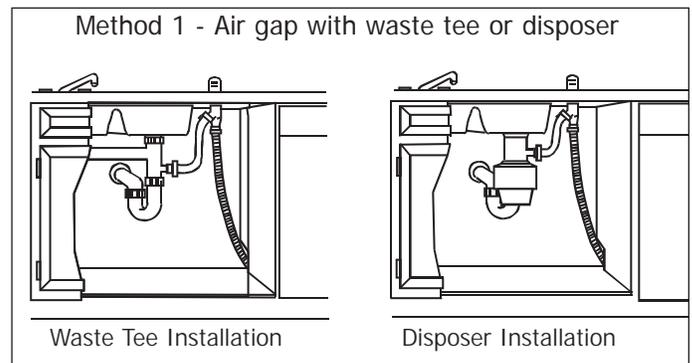
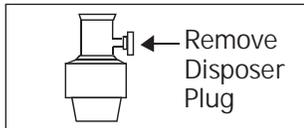


Figure 2-20.

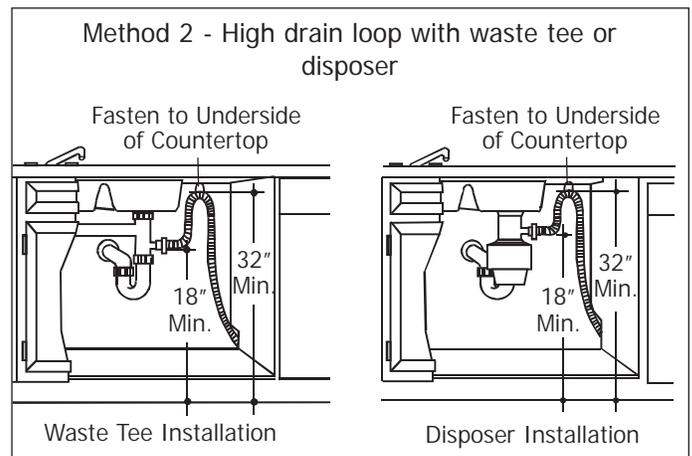


Figure 2-21.

Section 2 Installation Information

Connect Power Supply

Verify that power is turned off at the source.

1. Remove junction box cover "A". (See Figure 2-22)
2. Locate the three dishwasher wires, (white, black and green) with stripped ends. Insert dishwasher wires through the small hole in the junction box "B".
3. Secure house wiring to the bottom of the junction box with a strain relief "C".
4. Use wire nuts to connect incoming ground to green, white to white and black to black "D".
5. Replace junction box cover. Check to be sure that wires are not pinched under the cover.

WARNING

If house wiring is not 2-wire with ground, a ground must be provided by the installer. When house wiring is aluminum, be sure to use UL Listed antioxidant compound and aluminum to copper connectors.

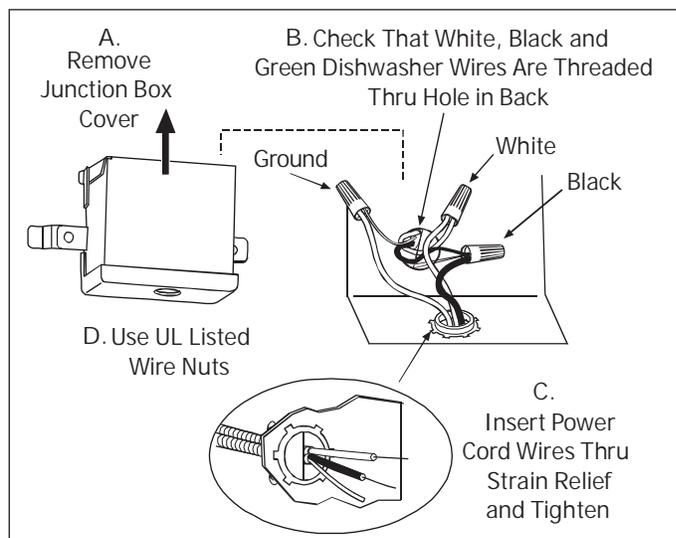


Figure 2-22.

Replace Kickplate

Verify that power is turned off at the source.

1. Place kickplate against the legs of the dishwasher.
2. The slots should align with front cross brace screw holes. Allow the kickplate to touch the floor.
3. Use the 2 lower screw holes for installations over 33-1/2" high. (See Figure 2-23)

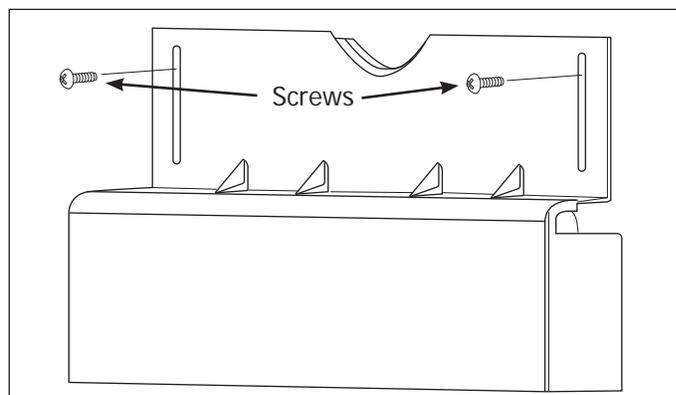


Figure 2-23.

Finalize Installation

Dishwasher Wet Test

1. Turn on power supply (or plug power cord into outlet, if equipped).
2. Turn dial to Normal "Wash" position.
3. Close door.
4. Check to be sure that water enters the dishwasher. If water does not enter the dishwasher, check to be sure that water and power are turned on.
5. Check for leaks under the dishwasher. If a leak is found, turn power supply off, then tighten connections. Restore power after leak is corrected.
6. Check for leaks around the door. A leak around the door could be caused by door rubbing or hitting against adjacent cabinetry. Reposition the dishwasher if necessary.
7. The dishwasher will drain and turn off about 5 to 7 minutes after the first fill. Check drain lines. If leaks are found, turn power off at the breaker and correct plumbing as necessary. Restore power after corrections are made.
8. Open dishwasher door and make sure most of the water has drained. If not, check that disposer plug has been removed and/or air gap is not plugged. Also check drain line for kinking or obstructions.
9. Run the dishwasher through another fill and drain cycle. Check for leaks and correct if required.
10. At the end of drain, press start cancel to turn unit off.



Installation Checklist

Doors

- Handles are secure and tight
- Door seals completely to cabinet on all sides
- Dishwasher door is level across the top

Leveling

- Dishwasher is level, side-to-side and front-to-back
- Toe grille is properly attached to dishwasher
- Cabinet is setting solid on all corners and is securely fastened.

Electrical Power

- House power turned on
- Dishwasher is plugged in

Water System

- Drain hose is assembled to drain pump
- Drain functioning
- Check for leaks at all joints
- Water and drain lines have no kinks.

Final Checks

- Shipping material removed
- Registration card sent in

Section 3 Electronic Control And Testing



Figure 3-1. Control Panel

Basic Operation

1. Load dishwasher according to Use and Care Manual.
2. Add detergent to dispenser.
3. Add rinse aid, if needed.
4. Close door to latch.
5. Select desired CYCLE (See Cycle Chart). The indicator light above the pad will glow when selected.
6. Select desired OPTIONS. The indicator light above the pad will glow when selected.
7. Run hot water faucet nearest dishwasher until water is hot. Turn water off.
8. To start, press START/CANCEL pad.

NOTE

The dishwasher is programmed to remember the last cycle chosen and does not need to be reset. To start the dishwasher using the same cycle and options selected on the previous wash, just press the START/CANCEL pad.

Wash Cycle Selections

Cycle times are approximate and will vary with options selected and the incoming water temperature. Hot water is necessary to activate dishwasher detergent and melt fatty food soils. An automatic sensor will check the incoming water temperature, and if it is not hot enough, the timer will be delayed for automatic water heating in the main wash of all cycles. This happens even when HI-TEMP WASH option has not been selected. When HI-TEMP WASH is selected, an even higher temperature will be guaranteed to handle heavier soil loads.

Status Window

The STATUS window, indicates the following activity:

- 1H-24H...** Number of delay start hours. The last hour will count down in minutes.
- CL** Close dishwasher door. The status indicator lights will also flash to indicate current cycle status.
- Hd** Indicates a water heat delay.
- MINUTES** Number of minutes left in cycle (1-99). If cycle is longer than 99 minutes, a small light will appear in the lower right corner and remain on until time counts below 99.
- PF** Appears in window when dishwasher is first installed, or when power has been interrupted. HI-TEMP WASH and NO HEAT DRY indicator lights will also flash. To clear, touch START/CANCEL pad.
- LO** Appears in window when the rinse aid dispenser is low and needs to be refilled.

Section 3 Electronic Control And Testing

Wash Cycles

Normal Wash Cycle

The Normal Wash cycle is pre-programmed with a pre-wash of 6 minutes in length, followed by two 6 minute rinses. These are followed by the main wash cycle with a minimum wash time of 25-1/2 minutes in length. The next cycle is programmed with two rinses, the first will be 6-1/2 minutes, the second will be a minimum time of 26-1/2 minutes. The cycle finishes with a pre-programmed heated dry time of 20 minutes. Cycle times can vary depending on any options selected.

Pots and Pans Cycle

The Pots and Pans cycle is pre-programmed with a pre-wash of 6 minutes in length, followed by three 6 minute rinses. These are followed by the main wash cycle with a minimum wash time of 37 minutes. The next cycle is programmed with two rinses, the first is 5 minutes, the second a minimum time of 21 minutes. The cycle finishes with a preprogrammed heated dry time of 19-1/2 minutes. Cycle times can vary depending on any options selected.

China Crystal Cycle

The China Crystal cycle is pre-programmed with a pre-wash of 6 minutes in length, followed by the main wash cycle with a minimum wash time of 8-1/2 minutes in length. The next cycle is programmed with one rinse of 7-1/2 minutes, and the final rinse of 4 minutes, ending with a pre-programmed heated dry time of 29 minutes. Cycle times can vary depending on any options selected.

Energy Saver Cycle

The Energy Saver cycle is pre-programmed with only the main wash cycle, with a minimum wash time of 27-1/2 minutes. The next cycle is programmed with two rinses, the first is 7-1/2 minutes, the second a minimum rinse time of 23-1/2 minutes. The cycle finishes with a pre-programmed heated dry time of 29-1/2 minutes. Cycle times can vary depending on any options selected.

Rinse and Hold Cycle

The Rinse and Hold cycle is programmed with two rinses, the first rinse will be 6 minutes with the second rinse 7-1/2 minutes in length.

Options Selections

Hi-Temp Wash

When HI-TEMP WASH option is selected, the dishwasher heats water in the main wash to approximately 140°F (60°C). This increase in water temperature helps dishwasher detergent remove food grease and soil from dishes more effectively and aids in drying. HI-TEMP WASH option can be used with all cycles except CHINA CRYSTAL (some models) and RINSE and HOLD. HI-TEMP WASH is automatically provided when POTS & PANS cycle is selected.

When HI-TEMP WASH option is selected, the light above the pad will come on and remain on until end of cycle. To turn off the HI-TEMP WASH option, press the pad a second time. The light above the pad will turn off.

Heat Dry

The HEAT DRY option, in combination with rinse aid, will enhance drying performance. The energy required to use the HEAT DRY option costs pennies per cycle. The HEAT DRY may not be a chosen option; however there may be items in the dish load that will not be completely dry at the end of the cycle.

Water vapor may be seen coming from the vent during the drying portion of cycle. The drying option may be changed at any time during the cycle and affects only the drying period. Opening the door longer than one minute during the dry cycle cancels the selected drying cycle.

Delay Start

The DELAY START option allows you to automatically delay starting the dishwasher from 1-24 hours. On models with 1-24 hour delay, press the DELAY START pad until the desired delay time shows in the STATUS window. A light will come on indicating the delay start hours and will remain on until the cycle starts.

To cancel the DELAY START option and begin the cycle before the delay period is over, press the START/CANCEL pad.

To Cancel a Cycle

You can cancel a cycle anytime during the cycle. Press START/CANCEL pad and the dishwasher will start a 60 second drain. At the end of the drain, select the desired cycle.

Section 3 Electronic Control And Testing

Status Indicator Lights

The WASHING light (some models) comes on at the beginning of cycle and remains on until the end of the main wash. The DRYING light (some models) indicates the drying portion of the cycle. The light will come on when either drying option is selected.

The LOW RINSE light (some models) comes on at the end of a cleaning cycle when the rinse agent reservoir is low. The light will remain on through 5 successive cycles or until the reservoir is filled. The CLEAN light (some models) will come on at end of cycle and remain on until the door is opened.

Child Lock Controls

To prevent children from accidentally changing the dishwasher cycle or starting the dishwasher, lock the dishwasher controls by pressing and releasing the or the NO HEAT DRY pad for 3 seconds while the door is latched. An indicator light on the lock graphic pad will illuminate when the controls are locked and no new selections can be made until the lock is released. To unlock the controls, press the NO HEAT DRY pad until the indicator light goes out.

Cycle Chart				
Cycle	To Select Cycle	Water (approx.)	Time* (minutes)	Washes/ Rinses
Pots & Pans For pots, pans, casseroles and dinnerware with dried-on or baked-on soils.	Select POTS & PANS and desired OPTIONS. HI-TEMP WASH will automatically be provided.	6.3 gal. 5.2 imp. gal. 23.8 liters	89	2 washes 5 rinses
Normal Wash For regularly soiled dishes and silverware.	Select NORMAL WASH and desired OPTIONS.	5.4 gal. 4.5 imp. gal. 20.4 liters	80	2 washes 4 rinses
China Crystal For lightly soiled china and crystal.	Select CHINA CRYSTAL and desired OPTIONS.	3.6 gal. 3.0 imp. gal. 13.6 liters	54	1 wash 3 rinses
Energy Saver For lightly soiled or pre-rinsed dishes and silverware.	Select ENERGYSAVER and desired OPTIONS.	2.7 gal. 2.3 imp. gal. 10.2 liters	48	1 wash 2 rinses
Rinse Only For rinsing dishes that will be washed later.	Select RINSE ONLY . DO NOT USE detergent.	1.8 gal. 1.5 imp. gal. 6.8 liters	18	2 rinses

Figure 3-2.

* Includes dry time.

Section 3 Electronic Control And Testing

Wash Cycle Description

All of the wash cycles start with the drain pump running to evacuate the sump of any water before clean water enters the unit to start the wash cycle. The control sends power to the water valve and water enters from the top of the air gap on the left side of the tub. From the air gap, water exits through a hose near the bottom of the air gap to a port on the rear of sump. Water level in the dishwasher will be just to the sides of the tub at the completion of the fill cycle for a total of slightly less than one gallon. The water fill is a timed event. The unit uses a pressure switch as a safety to prevent an over-fill condition. This pressure switch is mounted to the right frame leg. The pressure tube connected to the pressure switch is mounted to an air bell on the rear of the sump. After the fill, the control starts the wash motor, pulling water from the sump and into all of the spray arms simultaneously for the cleaning cycle. The water entering the wash pump, first passes through the three filters that are mounted in the sump. This removes food particles from the wash water so only clean water is sprayed back onto the dish load. At the same time the wash motor is started throughout the cycle, the control energizes the heater to maintain and increase water temperature to improve cleaning and to activate the detergent. The control is continually monitoring the water temperature with the use of the thermistor. Water in the tub will be pumped out and the tub refilled throughout the cycle to help improve water quality during the wash cycle. The number of times this occurs depends on the cycle selected. The last drain out will be at the end of the dry cycle to insure all of the water has been removed from the tub as the cycle ends.

Wash System Components

The Wash system is a combination of 5 sub systems:

1. Fill System which includes the water valve, air gap and safety pressure switch.
2. Water Distribution System which includes the wash motor and pump assembly, and three spray arms.
3. Filter System is made up of three filters.
4. Water Heating System is the heater and the safety thermostat.
5. Drain System is the drain pump and connecting hoses.

Water Valve Operation and Checks

The water valve is an electrically operated shut off valve and is designed to handle incoming water pressure from 20 to 120 psi. There is a built-in flow washer to regulate the rate of water flow into the dishwasher.

To check the water valve:

First select a wash cycle and allow the cycle to come to the fill portion of the cycle, open the door and connect meter leads to valve close door and check for voltage. The solenoid can be checked for resistance this should read 1K ohms. (See Figure 3-3)

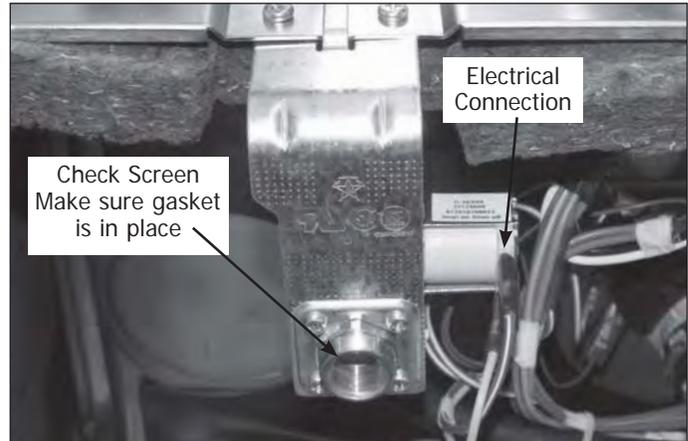


Figure 3-3.

Pressure Switch Operation and Checks

Overflow protection is accomplished with a pressure switch mounted to the right side frame behind the junction box. The pressure switch has a normally closed contact for the water valve. If water in the tub over fills the contact in the switch opens and disconnects power to the water valve. A pressure tube from the switch loops up the right side of the tub to the top of the air gap then to an air chamber on the front of the sump.

To check the pressure switch:

Check the terminals on the switch for resistance. The reading should be 0 ohms resistance. (See Figure 3-4)

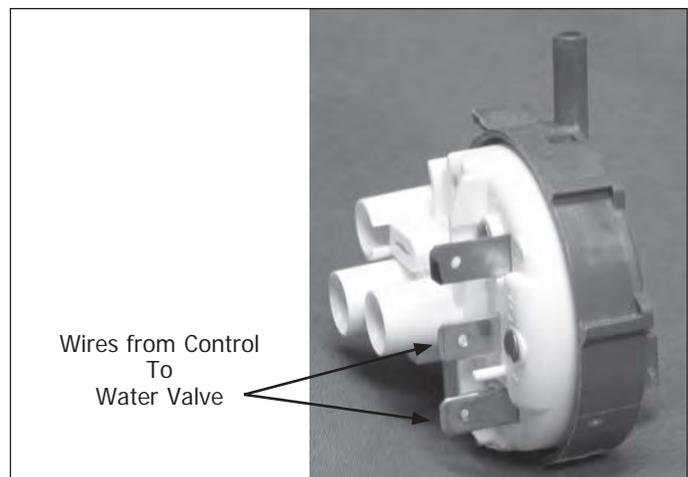


Figure 3-4.

Section 3 Electronic Control And Testing

Wash Motor Operation and Checks

The wash motor and pump are one assembly mounted to the left of the sump. Water enters the front of the wash pump and exits thru two ports. One supplies water to the lower spray arm.

The second port supplies water to the delivery tube attached to the outside rear wall of the tub. This tube supplies water to the center and to the upper spray arms. The delivery tube has a port for a hose to feed the upper spray arm. The motor is a single speed capacitor start motor, with an internal thermal overload that will auto reset for motor protection. The pump turns clockwise when facing the front of the pump. The motor and pump assembly mounts with the inlet hose in the front and a rear mounting bracket that attaches to the rear frame.

To check the wash motor:

There is a plug with two connectors that are locking terminals and need to be pressed to unlock. Remove the terminals and test for resistance. The resistance for the motor should be 24 ohms. The dishwasher will have to be removed from under the counter to replace the wash motor. (See Figure 3-5)



Figure 3-5.

Heater Operation and Checks

The purpose of the heater is to maintain and increase water temperature during the wash and rinse cycles and to assist in drying the dishes. The heater is a 475 to 630 watt element mounted in the right front of the tub using a single mounting flange with a gasket molded to the under side. The tub has two heater supports welded to the bottom to support the heater.

To check the heater:

The heater can be checked from the front. The terminals are locking terminals and must be pressed to unlock. The resistance reading of the heater dry, will be 21.4 ohms. The amperage draw will change depending if the heater is wet or dry as will the resistance. (See Figure 3-6)

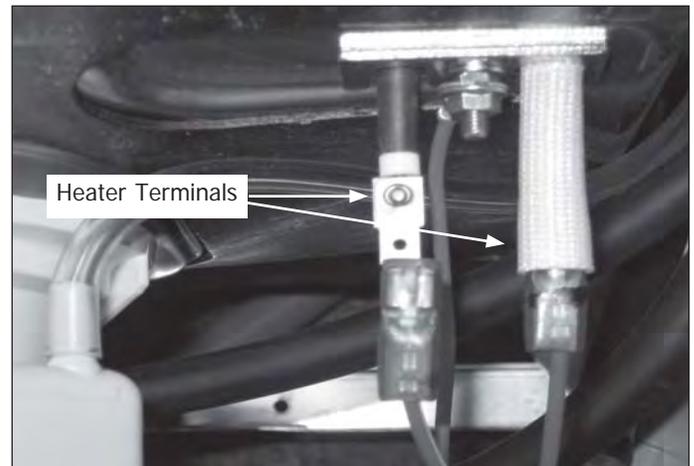


Figure 3-6.

Section 3 Electronic Control And Testing

Drain Pump Operation and Checks

The drain pump is mounted to the right side frame facing forward. A hose from the bottom of the sump is attached to the front of the drain pump. The discharge of the drain pump has a flapper check valve to prevent drain water from backing into the tub when the dishwasher is idle. The drain motor is a wet rotor magnet induction design and is dual directional to help prevent blockage and locking up of the impeller by foreign material entering the pump.

The dishwasher may need to be pulled forward to access the drain pump. If the pump is restricted, the inlet can be removed to clean the impeller.

To check the drain pump:

The drain pump operates on 120 VAC current. The drain pump motor, when checked for resistance at the wire terminal connections should be 24 ohms.

(See Figure 3-7)

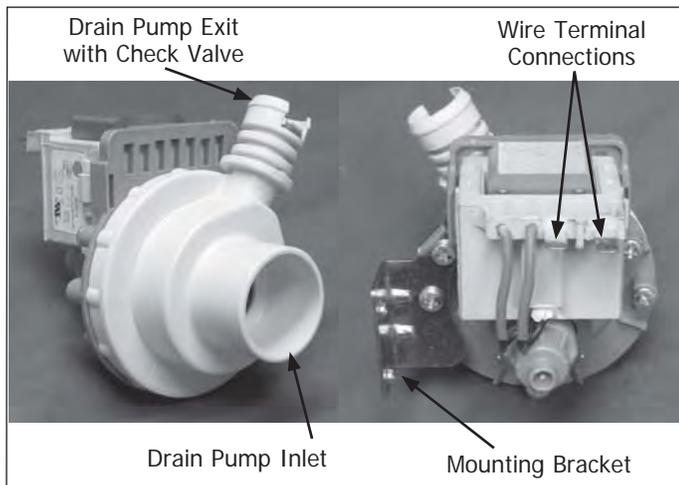


Figure 3-7.

The Electronic Control System

The electronic control system consists of:

1. The control board
2. The selector switch board
3. Temperature thermistor
4. Rinse aid sensor.

In operation, the selector switch board and the two sensors, input information to the electronic control to program a cycle and operate the dishwasher.

Electronic Control

The electronic control has the total control of the dishwasher once a cycle is started. The control receives power from two sources, the first is the junction box. The junction box connection is located on the control board and can be checked at the P-3 connector at pins #6 - black wire, and #7 - white wire. (See Figure 3-8) Power from the junction box powers the transformer. This supplies the 12 volts to operate the control system and allows the control to be powered up if the dishwasher door is opened or closed. This transformer is mounted on the board and can not be replaced without replacing the control board.

The second power source comes from the door switch. This is located at the black wire on the P-1 terminal and is redirected by the control to operate all of the electrical components in the dishwasher.

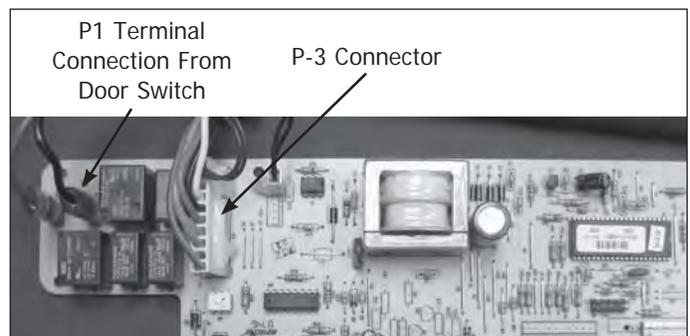


Figure 3-8.

Section 3 Service and Testing Electrical System

Starting and Testing Control

The control at power up will display a "PF" code, that shows the control has received power from the junction box and is awaiting a command. The first check is to press the START/CANCEL pad, this will clear the "PF" code, and the control will be ready for operation.

The next check for the control with "PF" in the display, is to open and close the door. This opens the door switch, the control senses the power loss from the switch, and the "PF" will clear from the display" and the control will be ready for operation.

If after either of these tests the "PF" still remains in the display, the control is not reacting to commands and to the presence of power from the door switch. The corrective action is to replace the control.

If while a cycle is in operation, and a "PF" code appears in the display, this is an indication the microprocessor on the control has experienced a power loss. The control system needs to be checked for shorts or damage that could effect the control. Replacing the main control is the last resort for this condition.

Water/Service Test

The dishwasher can be tested by use of the water/service test. This test allows the dishwasher to operate all the electrical components in a short cycle of 382 seconds. This test will not give failures codes or display if a component has or will fail, but will in most cases, give you time to do electrical checks of the different component. By running this test, all of the components are operated in order as they will in a wash cycle so operation can be monitored.

The water/service test is a special function initiated from the power failure mode or idle mode.

While in power failure or idle mode - Simultaneously press the NO HEAT DRY and START/CANCEL pads for 1-1/2 seconds. The dishwasher will then step through the test cycle per the chart below. Pressing the START/CANCEL pad will advance the dishwasher to the next step. (See Figure 3-9)

STEP	TOTAL TIME (SEC)	WATER VALVE	CIRCULATION PUMP	DRAIN MOTOR	HEATER	DISPENSER	VENT*	WASHING LED	DRYING LED	RINSE AGENT LED	CLEAN LED
1 FILL	36	1	0	0	0	0	0	1	0	0	0
2 WASH/HEAT/ DISP	60	0	1	0	1	1	0	1	0	0	0
3 PAUSE	0.6	0	0	0	1	0	0	1	0	0	0
4 WASH/HEAT	75	0	1	0	1	0	0	0	0	0	0
5 WASH/HEAT/DISP	60	0	1	0	1	1	0	0	0	0	0
6 DRAIN	60	0	0	1	0	0	1	0	0	0	0
7 DRY	90	0	0	1	X	0	0	0	1	0	0
TOTAL	382							0	0	1	1

X - denotes selectable option
 CLEAN LED stays on until door is opened or cycle is selected
 * VENT is actuated on models with active vent system

Figure 3-9. Water /Service Test Chart

Selector Switch

The display board is used to program the control for the desired wash cycle and options. This display board is a circuit board with microswitches for each cycle and options. This board also has indicator lights and two 7 segment displays to show time remaining and cycle status. The display board has a wire ribbon to connect it to the control. (See Figure 3-10)

To check the selector switch:

With the wire ribbon connected to the control, press a cycle pad. The light for that pad should light after 10 to 15 seconds. The light will then go out, proceed to the next pad and repeat until all pads have been checked. The final check will be to select a cycle and press the START/CANCEL pad to make sure the control will accept the start command from the display board. If the unit starts or the time starts to count down, the display board has properly programmed the control.

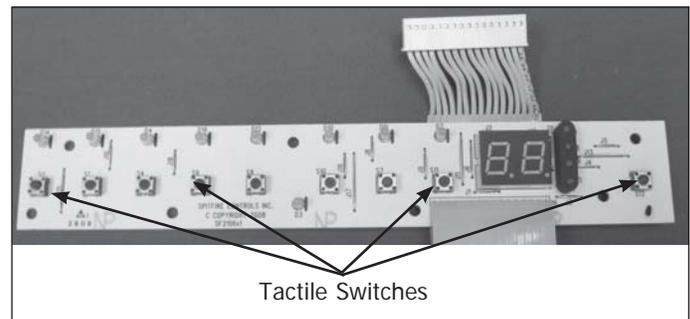


Figure 3-10.

Section 3 Electronic Control And Testing

Temperature Sensing in the Control System

The control system has two sensors, a thermistor located in the machine compartment to the left of the sump, and the rinse aid sensor mounted on the right side of the dispenser. These two sensors are in the 12VDC control system and receive power from the transformer. (See Figure 3-11)

The thermistor is used by the control to read water temperature so the control can adjust cycle time. The thermistor can be checked for resistance, which is best done at room temperature and should read 10K ohms. This reading will decrease as the thermistor temperature increases. The thermistor can be checked at the electronic control. Remove power to the dishwasher and remove the P-3 connector from the control. Check resistance at the two blue wires at P-3 #9 and P-3 #10, if a faulty reading is indicated, the thermistor can be checked at the disconnect plug next to the sump. (See Figure 3-12)

The rinse aid sensor is used by the control to inform the customer when the rinse aid dispenser needs to be refilled. This sensor is located on the right side of the detergent dispenser and is connected with two black wires. The sensor will read 0 ohms resistance when the rinse aid is low or empty, and when the dispenser is full, the sensor will not have an ohms reading. Before checking this sensor, remove one of the wires, then make your checks.

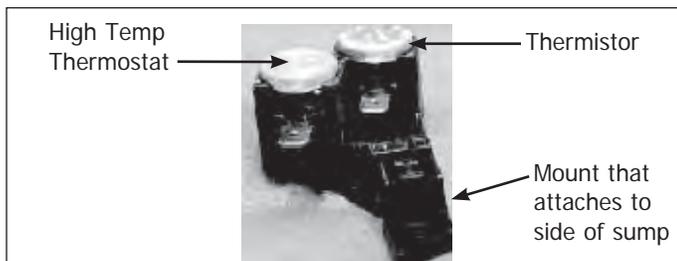


Figure 3-11.

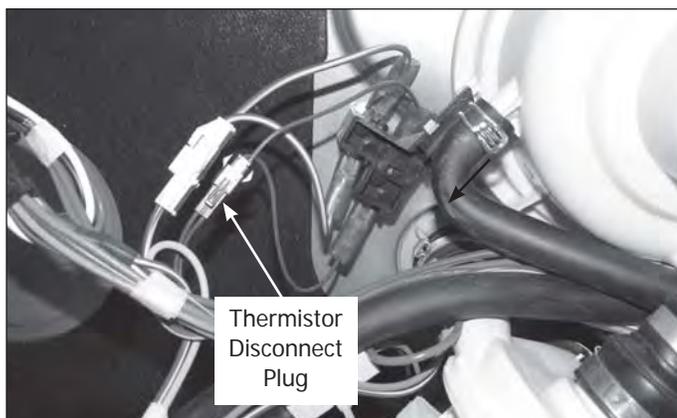


Figure 3-12.

Detergent and Rinse Aid Dispenser

The detergent and rinse aid dispensers are combined into one housing that are controlled with a common wax motor actuator. (See Figure 3-13) The first time the control energizes the actuator, the cover over the detergent side of dispenser opens, dispensing detergent for the main wash cycle. The second time the actuator is energized, rinse aid is released in the final rinse cycle.

The detergent side of the dispenser has two cups for detergent under the one cover. The larger of the two cups is for the detergent needed in the main wash. The smaller is for detergent used in the pre-wash, which falls into the tub from slots in the cup cover when the dishwasher door is closed.

The rinse aid section has both a clear indicator to show the amount of agent in the dispenser and a reed switch, mounted to the side of the dispenser, that is monitored by the control to inform the user if the agent is low. There is also an adjustable hub inside this dispenser, visible by removing the cap, to adjust the amount of rinse aid dispensed in the cycle. The adjustment is made by turning the hub to a higher or lower number, the higher the number the more agent that is dispensed. The detergent and rinse aid dispenser is replaced as a complete assembly.

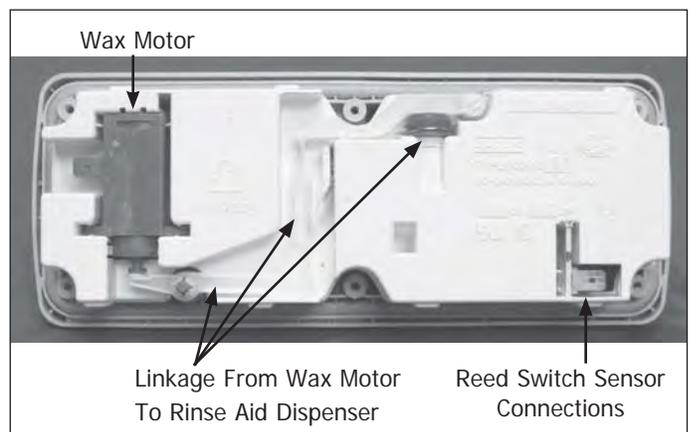


Figure 3-13.

Section 3 Electronic Control And Testing

Testing Dispenser

The dispenser wax motor is activated by 120 volts and can be function tested outside the product with an approved service cord.

WARNING

When operating the dispenser with a service cord, the wax motor will become very hot when power is applied. This can cause a burn if touched.



The wax motor runs on 120 VAC. Make sure the service cord used in this procedure is approved and in accordance with all local and state electrical codes.

With power applied to the wax motor, the actuator will extend to release the detergent cover, this should happen within 30 to 45 seconds. As power is removed from the wax motor, the plunger in the wax motor retracts. The pin at the opposite end now falls in the rinse aid actuator. As it does, it follows a track down the back side of the actuator to the bottom. The dispenser is now ready to dispense the rinse aid. The next time power is applied to the wax motor, rinse aid is released into the tub.

To test the dispenser:

1. Attach a service cord to the wax motor.
2. Apply power and allow actuator to fully extend.
3. Disconnect power and allow actuator to completely retract.
4. Repeat to actuate rinse aid dispenser.

Door Latch Assembly

The door latch and switch assembly holds the inner door panel tight against the tub-door seal. The door switches, mounted to the door latch, make sure all operation of the dishwasher stops if the door is opened. The primary purpose of the door latch and switch assembly is to increase the safety for the user and to protect their property. The door latch has two microswitches, one mounted to each side of the latch. For safety, both sides of the electrical power to the dishwasher will be broken when the door is opened.



Figure 3-14.

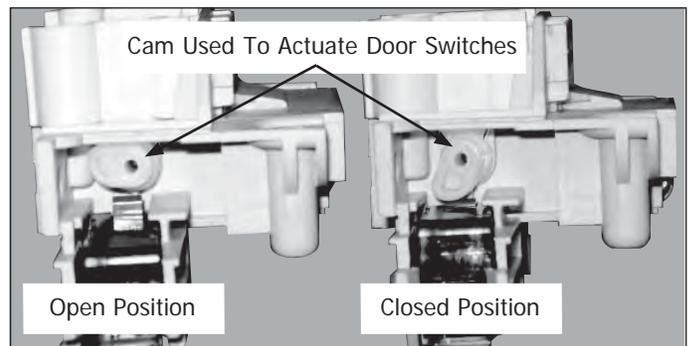


Figure 3-15.

As the door moves to the tub, the latch inside the console pushes into a strike mounted to the top of the tub, which pushes back a cam located inside the latch. (See Figure 3-14)

This cam pushes against a spring that in turn, lowers an actuator over the two normally open microswitches, closing the switches and starting the dishwasher. (See Figure 3-15) The latch and door switches are an assembly and cannot be replaced separately.

To test the door switches:

1. Disconnect power to the unit for safety.
2. When checking a switch always remove one wire from the switch.
3. Now check the switch for continuity with the latch closed, then for no continuity with the switch open.

Section 3 Electronic Control And Testing

Rinse and Hold Wash Table		DESCRIPTION	DURATION TIME (SEC)	TEMPERATURE (F)	WATER VALVE	CIRCULATION MOTOR	DRAIN MOTOR	HEATER	DISPENSER	CUMULATIVE SECONDS	CUMULATIVE DURATION (MIN +)	REMAINING SECONDS	TIME REMAINING (MIN)
INTERVAL NUMBER	FILL NUMBER												
1	0	DRAIN	0		0	0	1	0	0	0.0	0	0.0	13.0
2	1	FILL	36		1	0	0	0	0	36.0	0	36.0	13.0
5	1	WASH	270		0	1	0	0	0	306.0	5	6.0	13.0
6	1	DRAIN	60		0	0	1	0	0	366.0	6	6.0	8.0
7	2	FILL	36		1	0	0	0	0	402.0	6	42.0	7.0
8	2	WASH	360		0	1	0	0	0	762.0	12	42.0	7.0
9	2	DRAIN	60		0	0	1	0	0	822.0	13	42.0	1.0
		Total seconds								822.0			
		Total Minutes								13.0			

Wash Tables for Frigidaire
SS 24 inch KDPS-0012 Rev B

Figure 3-17. Rinse and Hold Wash Table

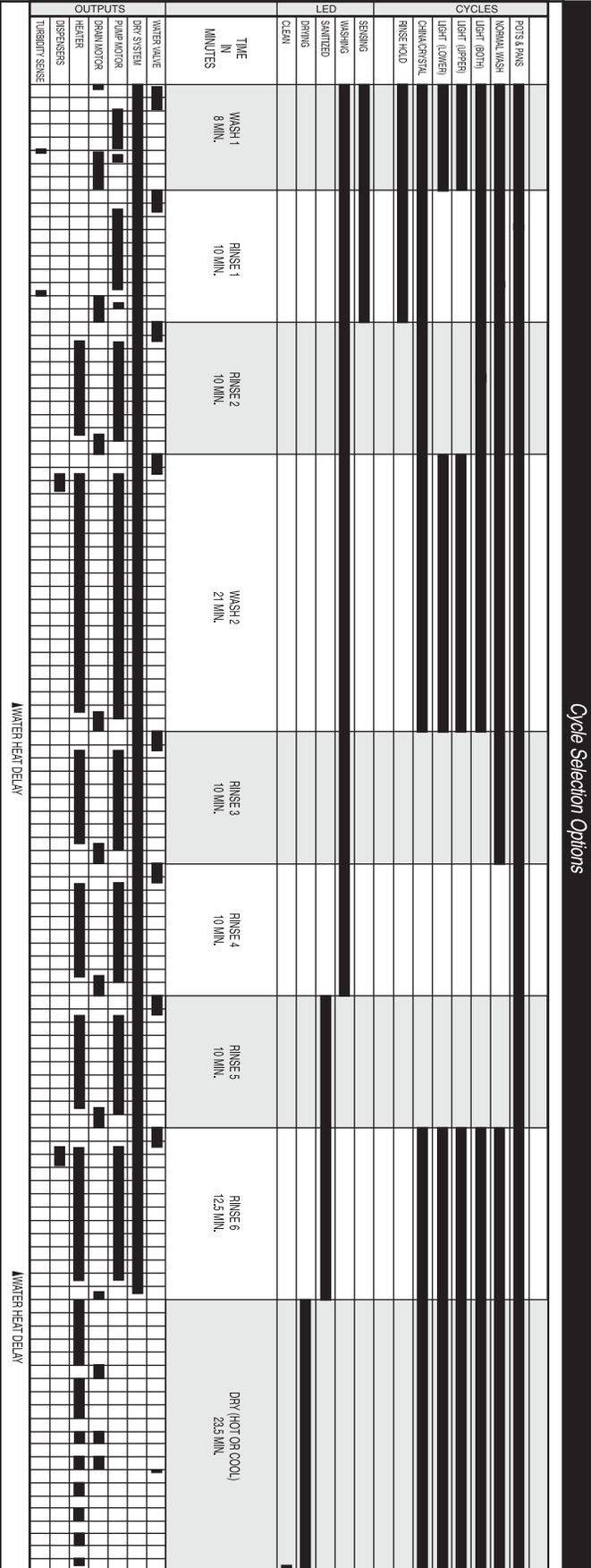


Figure 3-16. Cycle Selection Options Table

Component Teardown

This section explains how to access and remove components from a Frigidaire 24" Dishwasher, and has been arranged in such a way as to simulate which components would need to be removed first in order to gain access to other components. When following a component removal procedure, it may be necessary to reference another component removal procedure listed earlier in this section.

IMPORTANT

Before continuing, please take note of the **WARNINGS** and **CAUTIONS** below.

WARNING

- If it is necessary to remove a dishwasher unit from its installation, use proper lifting techniques as units are heavy and could fall resulting in serious injury or death. Pulling a unit from its installation should only be performed by a trained authorized service technician or installer.
- To avoid electric shock, power to a dishwasher unit must be disconnected whenever accessing/ removing components powered by electricity or components near other electrical components.
- After service is completed, be sure all safety-grounding circuits are complete, all electrical connections are secure, and all access panels are in place.
- If unit was used prior to service, the heating element will be hot. Wear protective gloves and the appropriate safety gear when working with heating elements.
- If removing a door or drawer from a unit, remember that the doors and drawers are heavy. If they were to fall, they could cause serious personal injury.
- All voltage checks should be made with a voltmeter having a full scale range of 130 volts or higher.
- If removing a door or drawer from a unit, remember that the doors and drawers are heavy. If they were to fall, they could cause serious personal injury.

CAUTION

- If working in the sump area, remember that tubing and heating element may be hot.

Section 4 Component Teardown

Kickplate Removal

Remove the kickplate by extracting the two screws securing the kickplate to the front cross brace. (See Figure 4-1)

Outer Door Panel Removal

1. Disconnect power from unit.
2. Fully open door.
3. The outer door panel and console are secured with screws to the inner door assembly. (See Figure 4-2) The screws labeled "A" in Figure 4-1 pass through the console then fasten into the outer door panel. While holding outer door panel in place, extract the four screws from both sides of inner door panel.
4. Continue holding outer door panel in place as you close the door. Slide the outer panel down until free of the console. Remove outer panel from unit.

Console Removal

1. Disconnect power to the dishwasher.
2. Remove outer door panel.
3. Extract the four remaining screws holding the console to the inner door panel. It is recommended to remove the center two screws last, this helps to hold console to prevent damage to wire harness. (See Figure 4-2)

Electronic Control Removal

1. Disconnect power to the dishwasher.
2. Remove outer door panel.
3. Remove the console.
4. Extract the four screws securing control cover to console. (See Figure 4-3)
5. Remove wires and disconnect plugs from control. Some of the disconnect plugs may be glued on, carefully trim glue away from disconnect plugs. The plugs will not need to be re-glued to new control.
6. Remove screws mounting control board to console. (See Figure 4-4)

CAUTION

When handling or replacing a control board, it is important the servicer have a wrist ground strap on and connected to the cabinet or another ground to prevent static electricity from damaging the board.

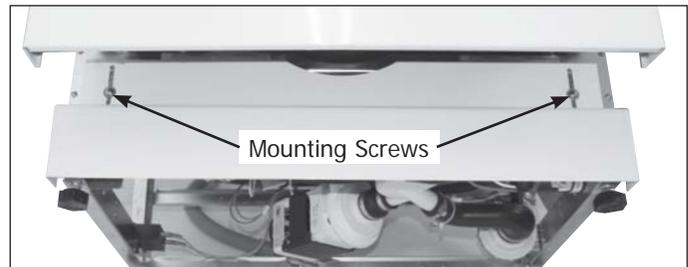


Figure 4-1.

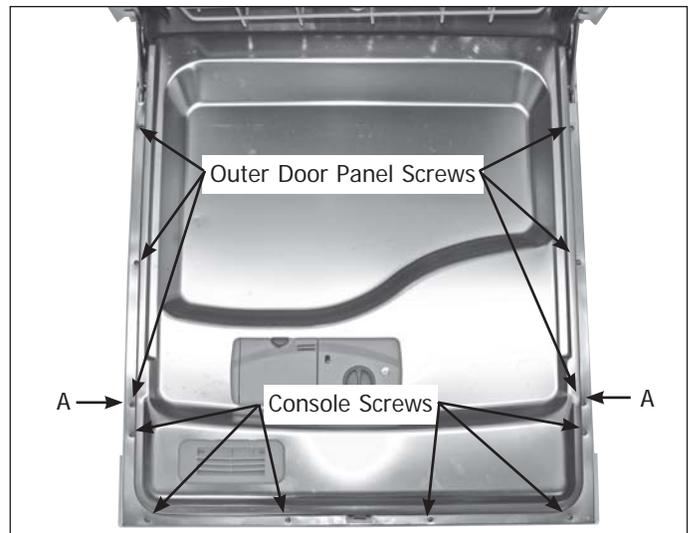


Figure 4-2.

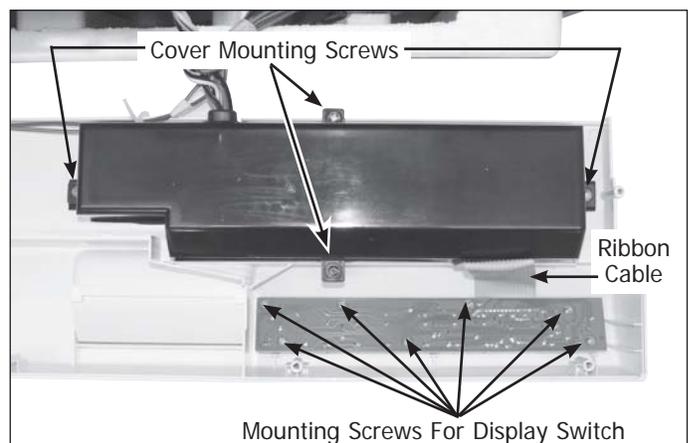


Figure 4-3.

IMPORTANT

All terminals on this dishwasher are locking terminals and have a release that needs to be pressed down to remove wires from all electrical terminals.



Section 4 Component Teardown

Display Board Removal

1. Disconnect power to the dishwasher.
2. Remove outer door panel.
3. Remove the console.
4. Extract the four screws securing control cover to console. (See Figure 4-3)
5. Disconnect hard wire ribbon cable from electronic control board.
6. Extract mounting screws securing display board to console. (See Figure 4-3)

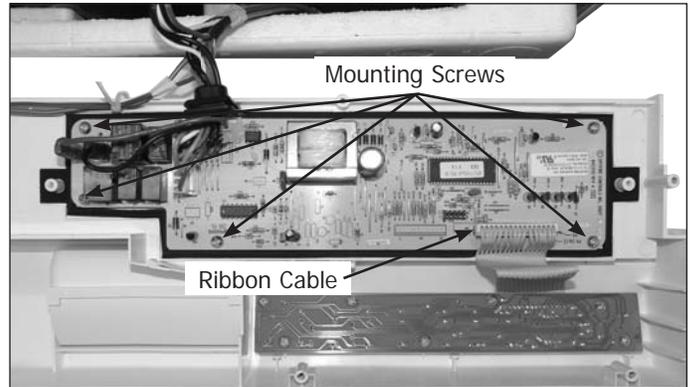


Figure 4-4.

Door Latch and Door Switches Removal

1. Disconnect power to the dishwasher.
2. Remove console from inner door panel.
3. Extract two screws mounting latch and selector switch from top of inner door panel. (See Figure 4-5)
4. Remove four wires from selector switch. Terminals have locks, press down on lock to remove terminal. Both black wires can go on either door switch, but do need to be on the same switch.

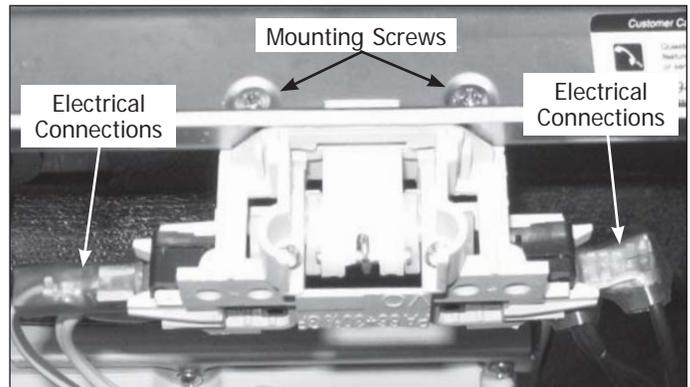


Figure 4-5.

Dispenser Assembly Removal

1. Disconnect power to the dishwasher.
2. Remove outer door panel.
3. Extract the six screws securing dispenser assembly to door panel. Remove mounting reinforcements from dispenser. (See Figure 4-6)
4. Remove the two wire leads from dispenser wax motor terminals and the two wire leads from the rinse aid reed switch terminals on the right side of dispenser. Terminals have locks, press down on lock to remove terminal.
5. Push dispenser through inner panel and remove from unit.

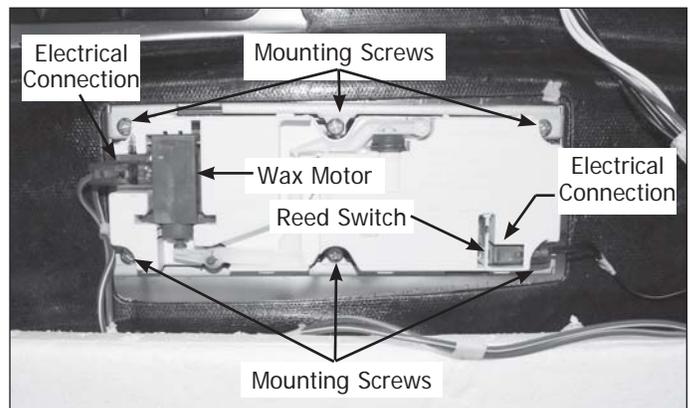


Figure 4-6.

Vent Assembly Removal

1. Disconnect power to the dishwasher.
2. Remove console from inner door panel.
3. Extract the four screws securing vent housing to the vent grate located on the inside of inner door panel. (See Figure 4-7) Pull vent assembly off inner panel. The vent grate will be removed from the opposite side of the inner panel.
4. On reassembly make sure vent gasket is properly seated in vent housing.

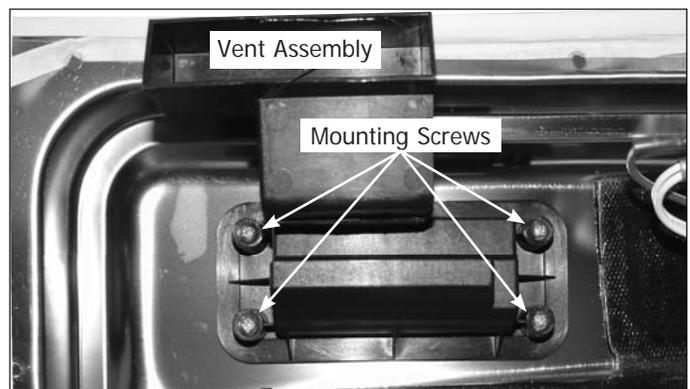


Figure 4-7.

Section 4 Component Teardown

Door Spring Removal

NOTE

When removing the product from under the counter, extreme care must be taken to protect the product and the floor from damage. Always use protection under feet and legs when pulling unit out. When reinstalling, make sure product is leveled and secured.

1. Extract dishwasher installation screws and pull forward to access door spring.
2. Pull pin out of side frame to release top of spring. (See Figure 4-8)
3. Replace spring, adjust as needed by installing pin into proper hole in frame. Apply grease on both ends of the spring after making final adjustment.
4. Reinstall making sure unit is level and secure.

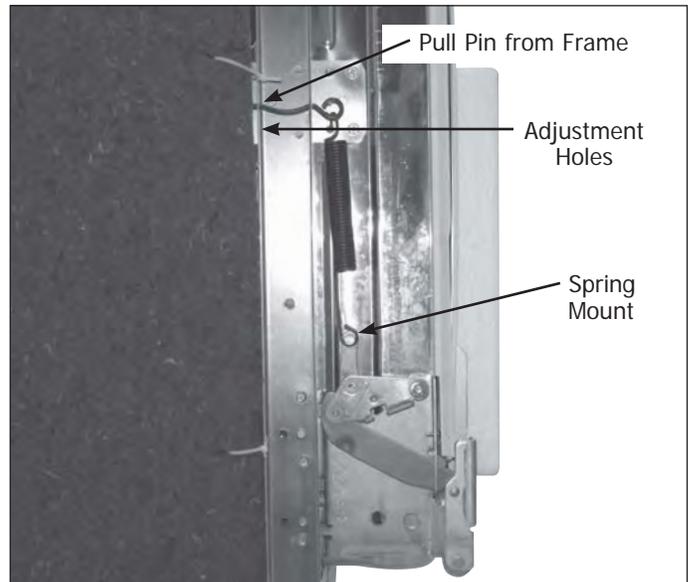


Figure 4-8.

Inner Door Panel Removal

1. Disconnect power to the dishwasher.
2. Remove outer door panel and console.
3. Disconnect wire harness connections from door latch and dispenser assembly terminals.
4. Cut retaining straps securing wire harness to inner door panel. Pull wire harness through inner door panel and hinge assembly. Extract the screw securing the ground wire to the hinge assembly. (See Figure 4-10)
5. Loosen dishwasher from its installation position and pull forward to access door spring.
6. Pull pin out of side frame to release top of spring. (See Figure 4-8)
7. Extract the four screws securing inner door panel to hinge assembly. Remove inner door panel from unit. (See Figure 4-9)

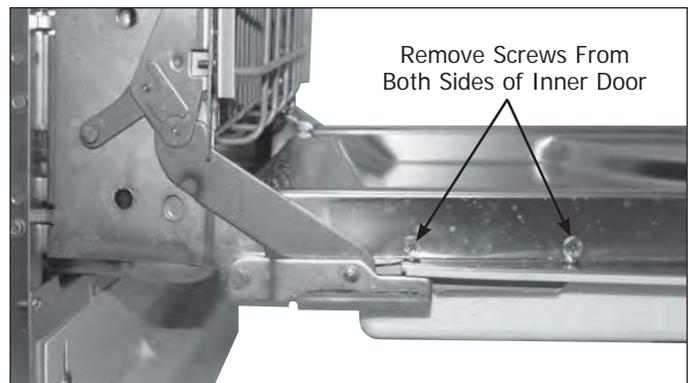


Figure 4-9.

Hinge Assembly Removal

1. Remove inner door panel.
2. Remove the hinge pin clamp from each side of the hinge assembly. (See Figure 4-10)
3. Pull the hinge pin out of hinge assembly. Hinge assembly will drop from the unit.
4. Reassemble in reverse order making sure lubricant is used on both ends of springs.
5. Adjust springs as needed before installing under counter.
6. Reinstall making sure unit is level and secure.

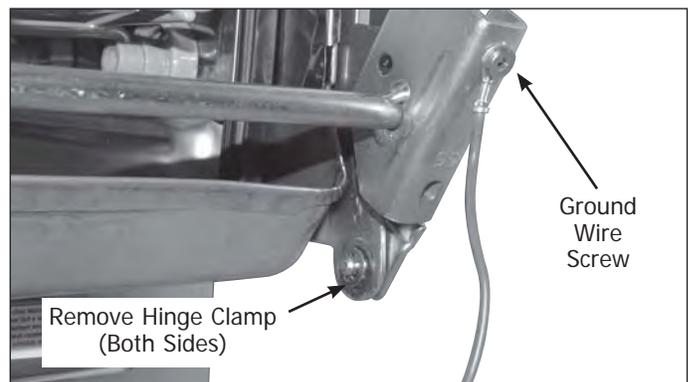


Figure 4-10.

Accessing the Interior Components

The lower rack assembly is removed by opening the door and simply pulling the lower rack assembly out of the unit.

Lower Spray Arm Removal

1. Open door and remove lower rack.
2. The lower spray arm has a lock ring holding it to the spray arm support. Turn the lock nut clockwise to release arm. (See Figure 4-11)
3. When reinstalling arm turn lock ring counter clockwise until lock clicks.

Upper Rack Removal

1. Open door.
2. Slide rack rail forward. The end cap on the rail has a lock securing the end cap to the rack rail.
3. Push lock release while pushing end cap off rail. (See Figure 4-12)
4. Slide rack from rails.

Center Spray Arm Removal

1. Remove upper rack.
2. The center spray arm has a lock ring holding it to the delivery tube mounted under the upper rack. Turn the lock ring clockwise looking down from top of rack to release arm. (See Figure 4-13)
3. When reinstalling arm turn lock ring counter clockwise looking down from top of rack until lock ring clicks. There is a gasket inside the spray arm providing a water seal. Locking the spray arm will require some force. Make sure spray arm is fully locked to delivery tube.

Upper Spray Arm Removal

1. Open door and remove upper rack.
2. The upper spray arm has a lock ring securing it to the upper spray arm nut mounted to the top of the unit. (See Figure 4-14) Turn the lock ring clockwise to release arm.

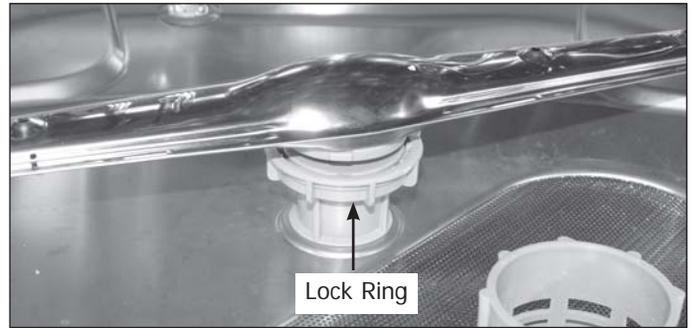


Figure 4-11.

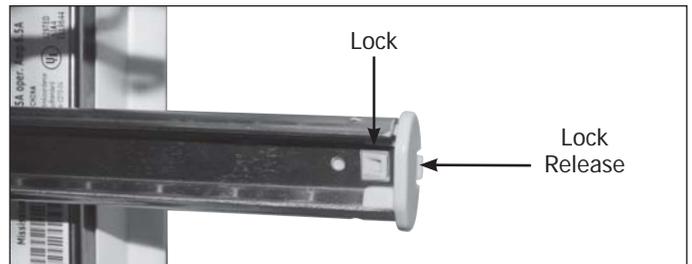


Figure 4-12.

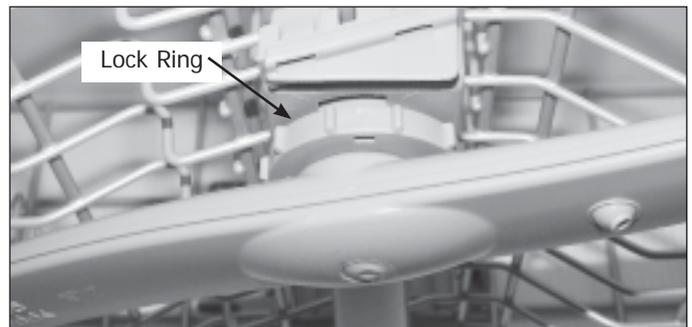


Figure 4-13.



Figure 4-14.

Section 4 Component Teardown

Filter Removal

1. Open door and remove lower rack.
2. Rotate the cup counterclockwise until free of lock, then pull out of filter cavity. (See Figure 4-15)
3. Lift main filter from bottom of wash tub.
4. Lift fine filter out of sump cavity.

Door Seal Removal

1. To remove the door seal, open door and pull free from the channel around the tub. (See Figure 4-16)
2. Locate the inside of new seal. Go to the end of the seal, one side will be shaved off. This is the inside.
3. Find center of seal. Push center of seal into channel below door strike first to hold in place.
4. Go to bottom of seal and adjust so end is on bottom of tub, then push into channel. (See Figure 4-17)
5. Go to top corner and form seal into corner, then tack seal into the channel to the bottom of the tub.
6. Repeat for opposite side.
7. Close door to seat seal into channel.

Roller Assembly Removal

NOTE

When removing the product from under the counter, extreme care must be taken to protect the product and the floor from damage. Always use protection under feet and legs when pulling unit out. When reinstalling, make sure product is leveled and secured.

If removing the inner roller assembly, the insulation wrap will need to be removed by cutting the retaining straps and lifting the insulation cover from the unit.

1. Open door and remove upper rack and rail.
2. Extract dishwasher installation screws and pull forward to access screws securing roller assembly to interior of wash tub.
3. Extract the two screws that secure the roller assembly to the interior of the wash tub. To access the inner roller assembly screws the insulation wrap will need to be removed. (See Figure 4-18)

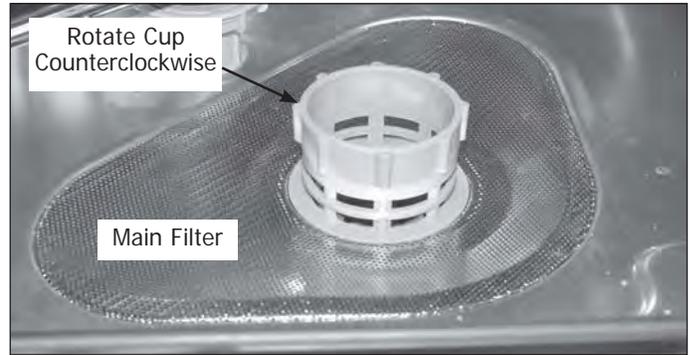


Figure 4-15.

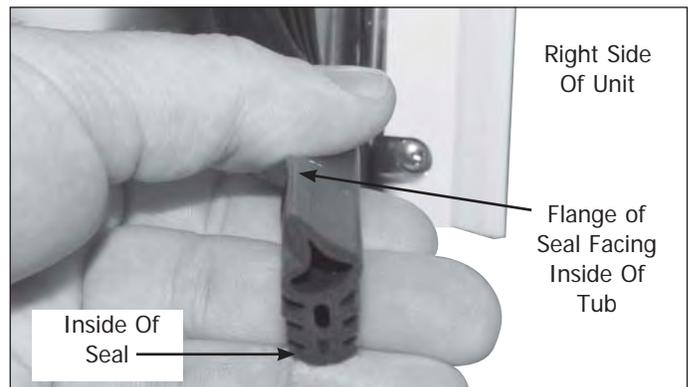


Figure 4-16.

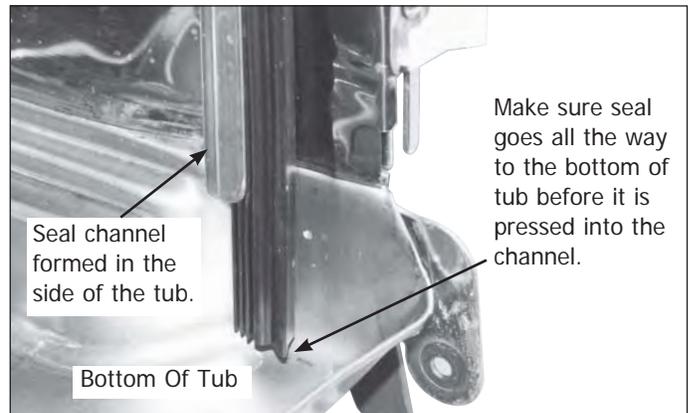


Figure 4-17.

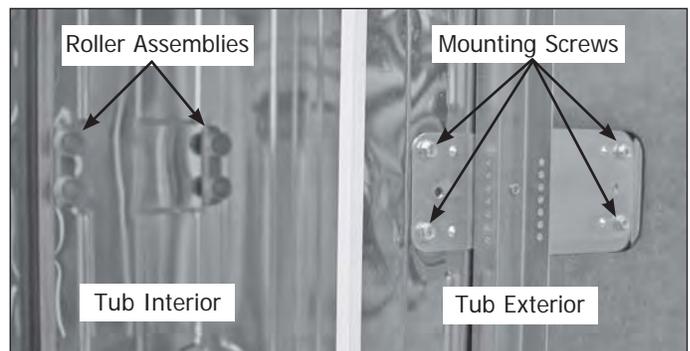


Figure 4-18.

Accessing the Water System Components

NOTE

To access the water system components, it may be necessary to remove the unit from its installation. When removing the product from under the counter, extreme care must be taken to protect the product and the floor from damage. Always use protection under feet and legs when pulling unit out.

The insulation wrap is removed by cutting the retaining straps and lifting the insulation cover from the unit.

When servicing water lines, have a material available to absorb water present in the water system. When reinstalling, make sure unit is leveled and secured.

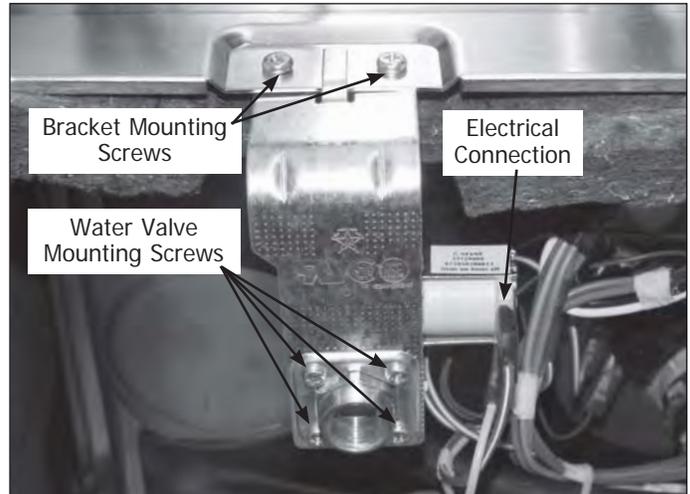


Figure 4-19.

Water Valve Removal

1. Disconnect power to dishwasher.
2. Remove kickplate and outer door panel.
3. Turn off water supply to dishwasher then place protection under water valve inlet to catch water that will be in the line when hose is removed.
4. Extract the two screws securing valve to front cross brace. (See Figure 4-19)
5. Disconnect wires from water valve terminals. Terminals have locks, press down on lock to remove terminal.
6. Remove fill hose from valve.
7. Extract the four screws securing the water valve to the mounting bracket. (See Figure 4-19)
8. Install in reverse order.



Figure 4-20.

Junction Box And Front Cross Piece Removal

1. Disconnect power to dishwasher.
2. Remove kickplate and outer door panel.
3. Extract the screw securing the junction box cover to front cross brace. (See Figure 4-20)
4. Disconnect the wires at junction box. Extract ground wire screw from back of junction box. Remove the wire harness from junction box.
5. Remove water valve mounting bracket.
6. Extract the six screws securing the front cross piece to the lower front of the cabinet. (See Figure 4-21)
7. Complete repair in reverse order.

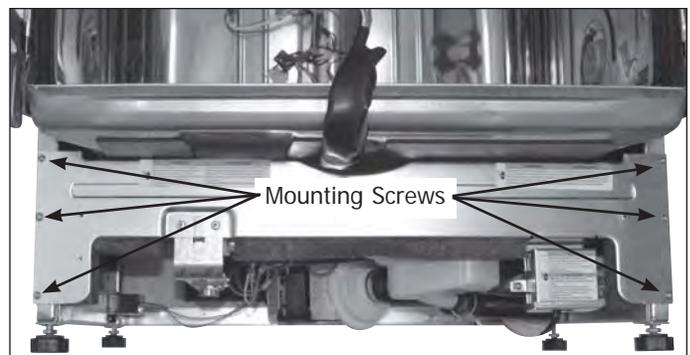


Figure 4-21.

Section 4 Component Teardown

Pressure Switch Removal

1. Disconnect power to dishwasher.
2. Remove lower rack, kickplate and outer door panel.
3. Remove as much water as possible from sump.
4. Remove unit from under countertop far enough to access back of pressure switch.
5. Removing the water valve and front cross brace will provide easier access to the pressure switch
6. With pliers, compress mount on back side of switch while pushing switch mount through frame.
7. Disconnect the wire leads from pressure switch terminals. Terminals have locks, press down on lock to remove terminal. (See Figure 4-22)
8. Remove pressure hose from switch by pushing it off the switch inlet tube.
9. Complete repair in reverse order.

NOTE

When removing the product from under the counter, extreme care must be taken to protect the product and the floor from damage. Always use protection under feet and legs when pulling unit out. When reinstalling, make sure product is leveled and secured.

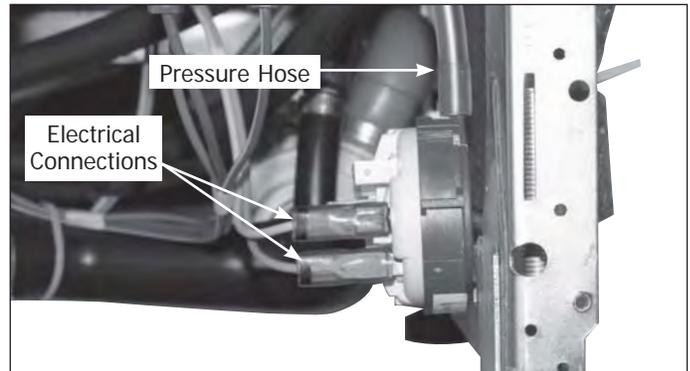


Figure 4-22.

Heater Element Removal

The heater element may be changed without removing the unit from under the counter.

1. Disconnect power to dishwasher.
2. Turn off water supply to dishwasher.
3. Remove upper and lower rack, kickplate and outer door panel.
4. Remove as much water as possible from sump before starting this repair.
5. Using pliers, loosen heater element from mounting clamps on the left side of tub. (See Figure 4-23)
6. Remove water valve mounting bracket. Water line may not need to be disconnected from the valve, but care must be taken to not damage inlet line.
7. Disconnect wires at junction box and remove front cross brace.
8. Disconnect wire leads from the heater terminals. Terminals have locks, press down on lock to remove terminal. (See Figure 4-24)
9. Remove nut securing ground wire to mounting stud. Pull ground wire from stud.
10. Remove mounting nut and mounting plate. Push heater element into tub.
11. Place new element into tub and fasten heater into mounts and lock in place. Insert heater element terminals through tub.
12. Complete repair in reverse order.

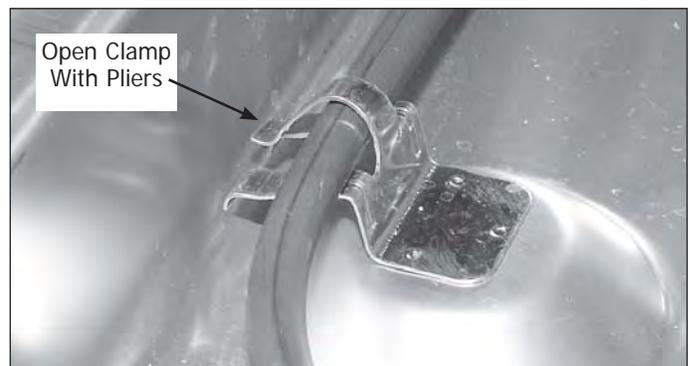


Figure 4-23.

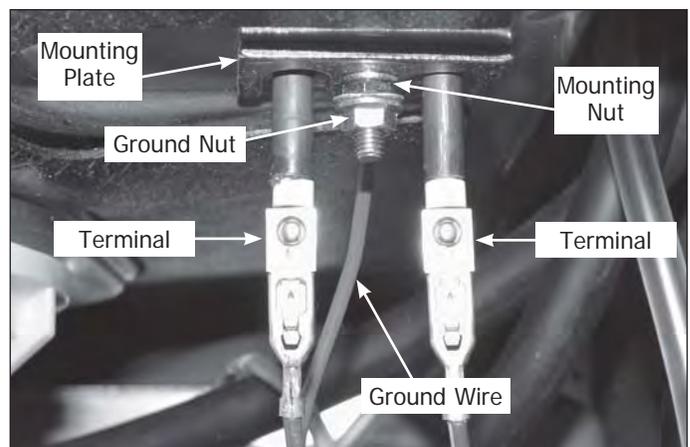


Figure 4-24.

Section 4 Component Teardown

Safety Thermostat and Thermistor and Mounting Bracket Removal

NOTE

It is possible to replace the thermostats with the dishwasher installed under the counter. Remove the components listed below, but do not lay unit on its back.

1. Disconnect power to dishwasher.
2. Remove lower rack and as much water as possible from sump.
3. Remove kickplate and outer door panel and water valve mounting bracket. Disconnect wires at junction box and remove front cross brace.
4. If unit was removed, lay unit on its back. Make sure there is protection for the floor before unit is laid down.
5. Remove thermistor block from underside of sump. The mount for the safety thermostat and thermistor may need to be broken off the sump, as the retaining latch on the back side of mount is not accessible. New thermostats will come with a new mount. (See Figure 4-25)
6. Remove the wire leads from the thermostat and safety thermostat terminals. Terminals have locks, press down on lock to remove terminal.
7. Apply thermalastic to head of new thermistor and safety thermostat before installing onto sump.
8. Complete repairs in reverse order.

Drain Pump Removal

1. Disconnect power and water supply to dishwasher.
2. Remove lower rack and as much water as possible from sump.
3. Remove kickplate and outer door panel and water valve mounting bracket. Disconnect wires at junction box and remove front cross brace.
4. Remove unit from under countertop.
5. Place protection under pump to catch water as drain inlet and outlet hoses are removed from drain pump.
6. Extract the two screws mounting drain pump mounting bracket to side frame of unit. (See Figure 4-26)
7. Disconnect wires from the drain pump. Terminals have locks, press down on lock to remove terminal. (See Figure 4-27)
8. Extract the two screws securing the drain pump to the mounting bracket. (See Figure 4-27)
9. Replace drain pump in reverse order.

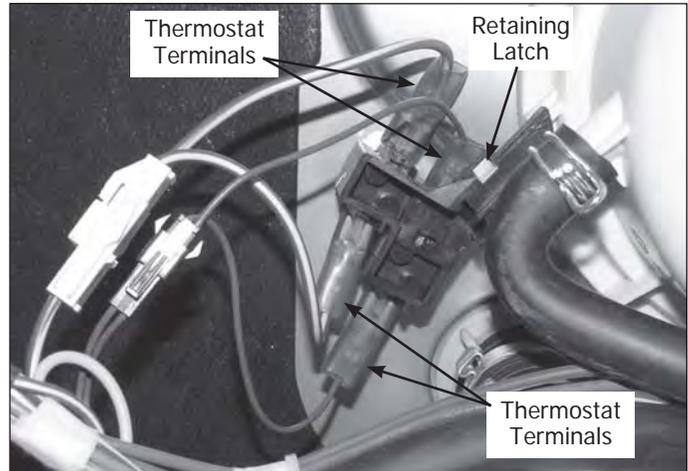


Figure 4-25.

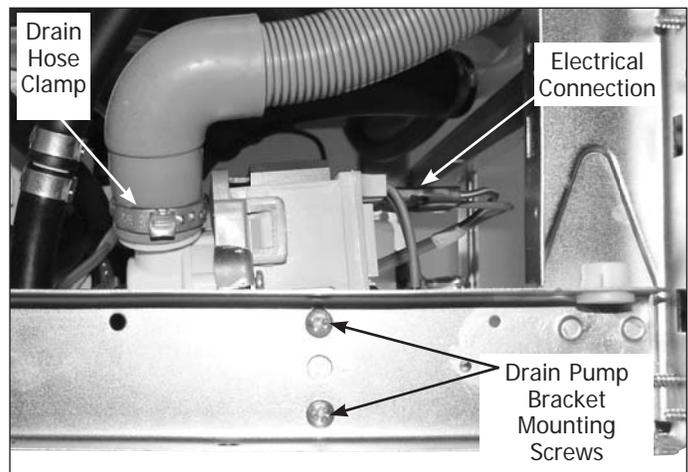


Figure 4-26. View From Lower Left Rear Corner

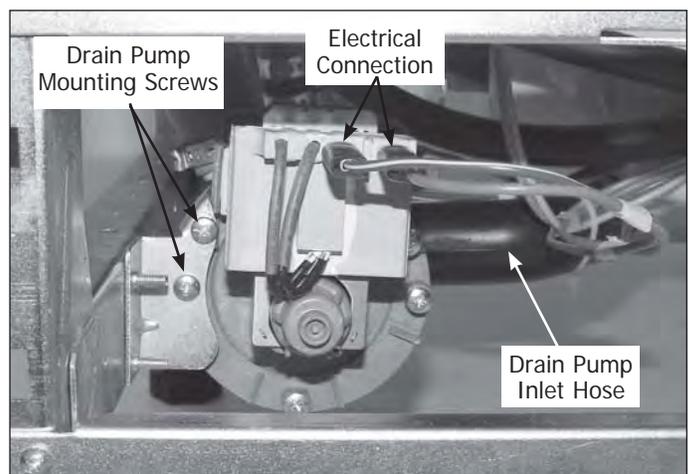


Figure 4-27. View From Lower Rear Left Corner

Section 4 Component Teardown

Wash Motor and Pump Assembly Removal

1. Disconnect power and water supply to dishwasher.
2. Remove upper and lower rack, kickplate and outer door panel.
3. Remove as much water as possible from sump before starting this repair.
4. Turn off water supply to dishwasher, then place protection under water line that attaches to the water valve to catch water that will be in the line as supply line is removed from the water valve.
5. Remove unit from under countertop.
6. The front of the pump is held in place by the hose to the lower spray arm support, delivery tube, and the intake hose. The rear has an adjustable mounting bracket.
7. Extract the two screws from the rear of the unit securing the motor mounting bracket to the rear frame cross bars before laying dishwasher on its back. Make sure there is protection for the floor before unit is laid down. (See Figure 4-28)
8. Disconnect the two wires from disconnect block and the ground wire attached to the motor frame.
9. Disconnect the wire leads from the capacitor terminals. Terminals have locks, press down on lock to remove terminal. (See Figure 4-29)
10. Remove hose clamps from delivery tube, lower spray arm support, and inlet hose to remove motor and pump assembly. (See Figures 4-28 and 4-30)
11. Complete repair in reverse order.

Capacitor Removal

1. Disconnect power to dishwasher.
2. Remove unit from under countertop.
3. Disconnect the wire leads from the capacitor terminals. Terminals have locks, press down on lock to remove terminal. (See Figure 4-29)
4. Extract the screw securing the capacitor to the frame rail.

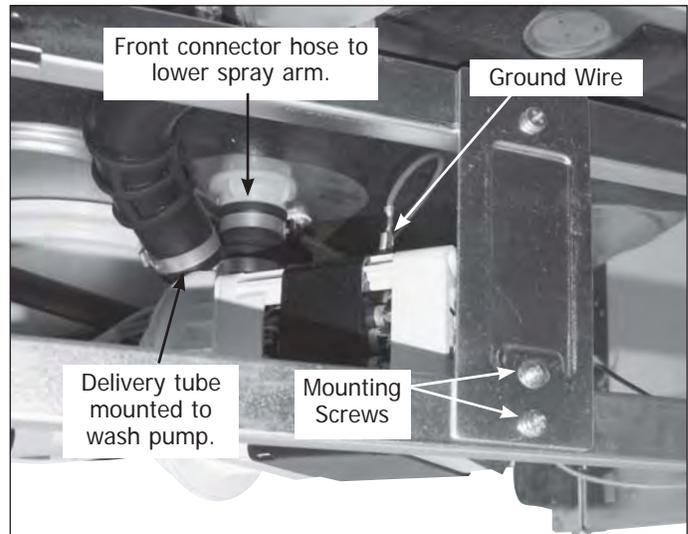


Figure 4-28.

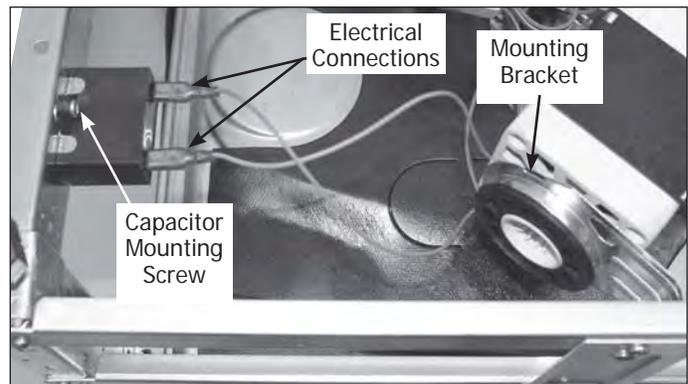


Figure 4-29.

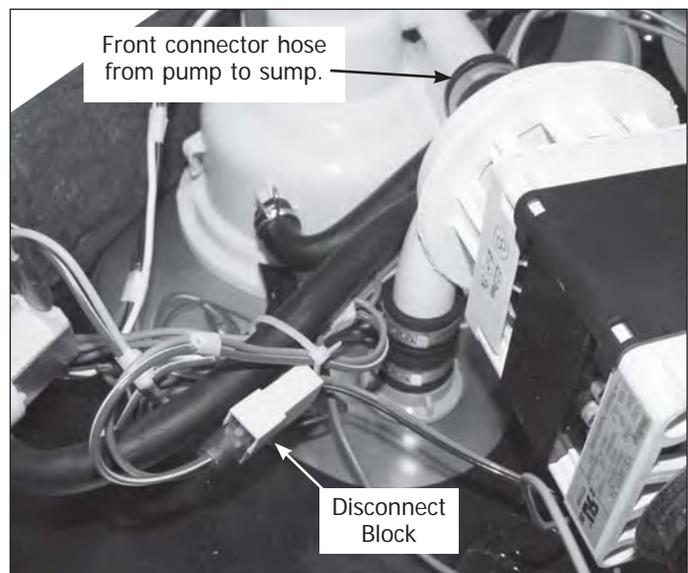


Figure 4-30.

Section 4 Component Teardown

Delivery Tube Removal

NOTE

When removing the product from under the counter, extreme care must be taken to protect the product and the floor from damage. Always use protection under feet and legs when pulling unit out. When reinstalling, make sure product is leveled and secured.

1. Disconnect power and water supply to dishwasher.
2. Remove both upper and lower rack.
3. Remove as much water as possible from sump before starting this repair.
4. Remove nozzle from rear of inner tub. This nozzle unscrews counter clockwise from the delivery tube. The nozzle is very tight. (See Figure 4-31)
5. Remove unit from under counter top. Cut insulation wrap retaining straps and lift insulation wrap from unit.
6. Turn dishwasher over and extract screws securing rear upper frame brace to unit frame. Pull frame brace from unit. (See Figure 4-32)
8. Remove clamp then pull feed hose for upper spray arm mounted on the side of delivery tube. (See Figure 4-33)
9. Remove clamp from hose that mounts delivery tube to the connector hose from wash pump.
10. Install new delivery tube into hole in the back of tub.
11. Reinstall hose to upper spray arm and connector hose from wash pump and tighten clamp.
12. Reinstall frame brace and set unit upright.
13. Install rear nozzle making sure it is tight.
14. Replace all items removed from unit to complete repair.

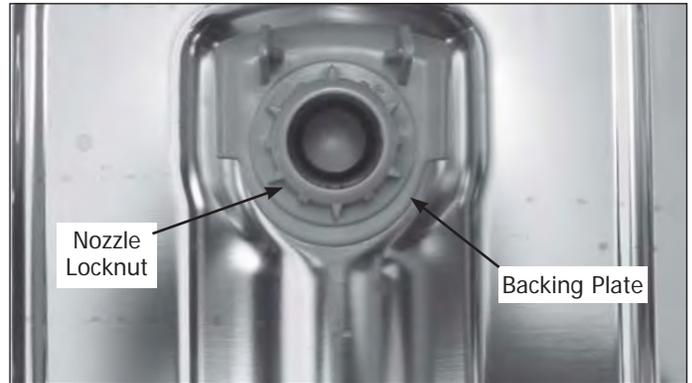


Figure 4-31.

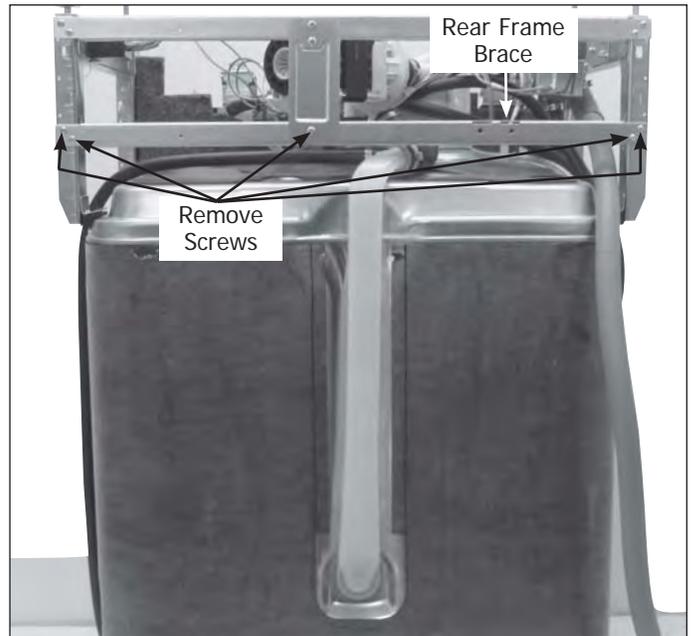


Figure 4-32.

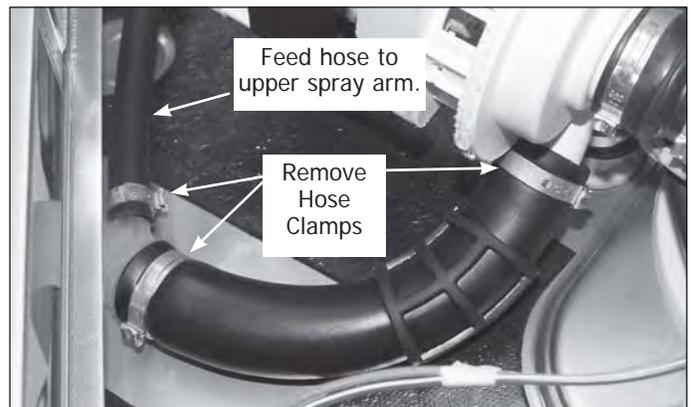


Figure 4-33.

Section 4 Component Teardown

Wash Sump Removal

1. Disconnect power and turn off the water supply to the dishwasher before starting this repair.
2. Remove upper and lower rack, kickplate and outer door panel.
3. Before removing the incoming water line to the dishwasher, place protection under the water valve to catch any water that will be in the line as it is removed.
4. Remove as much water as possible from sump.
5. Remove lock ring from inside sump by turning counter clockwise, a pair of slip jaw pliers may be used. Place into sump as shown to turn lockout of sump. (See Figure 4-34)
6. Remove unit from under counter top.
7. Lay unit on its back. Make sure there is protection for the floor before unit is laid down.
8. Remove hoses from sump. The hose from the pressure switch, which is mounted to the air chamber of the sump, is easier to remove if it is pushed from the sump and not pulled off by the hose. (See Figure 4-35)
9. Disconnect the safety thermostat and thermistor at quick disconnect.
10. Carefully remove thermostat mount from the sump. As the mount is removed, use care and watch for the two small springs in the mount over the thermostat and thermistor as they can be easily lost.
11. Install thermostat, thermistor and mount onto new sump. Do not remove any of the thermalastic from tub bottom. Install sump gasket into the top of new sump.
12. Place sump into the tub. There is a square locator in the sump, this is to help position the sump properly before locking it in place. Install sump lock.
13. Reinstall all hoses, making sure they are not kinked, and then clamp in place.
14. Continue to complete repair in reverse order.

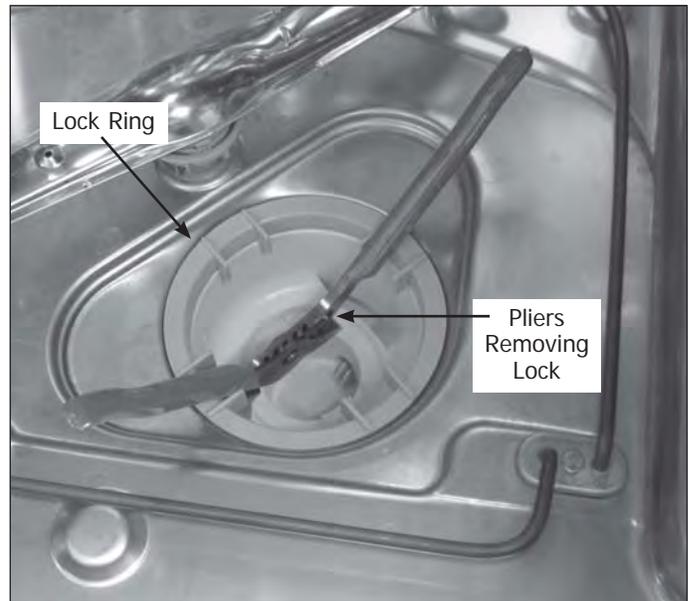


Figure 4-34.

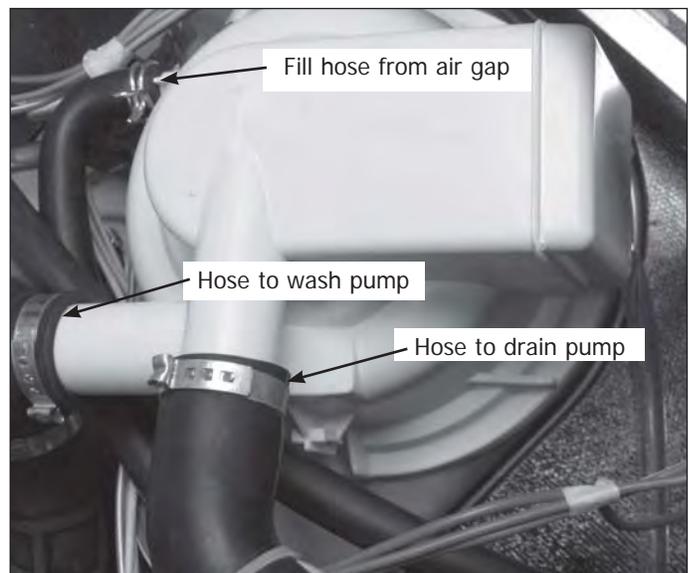


Figure 4-35.

Section 4 Component Teardown

Water Tunnel Removal

1. Disconnect power and turn off the water supply to the dishwasher before starting this repair.
2. Remove upper and lower rack, kickplate and outer door panel.
3. Before removing the incoming water line to the dishwasher, place protection under the water valve to catch any water that will be in the line as it is removed.
4. Remove as much water as possible from sump.
6. Remove unit from under counter top. Remove insulation wrap from exterior of unit.
8. From inside tub, remove lock nut from water tunnel by turning counterclockwise. (See Figure 4-36)
9. From the outer right side of unit, disconnect the three hose clamps from the water tunnel. Remove the pressure switch hose from the bottom retainer of water tunnel. (See Figure 4-37)
10. Pull water tunnel from tub.
11. Replace water tunnel and complete repair in reverse order.

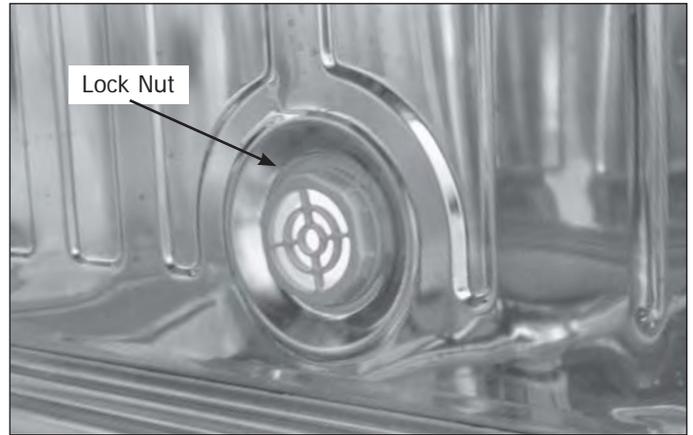


Figure 4-36.

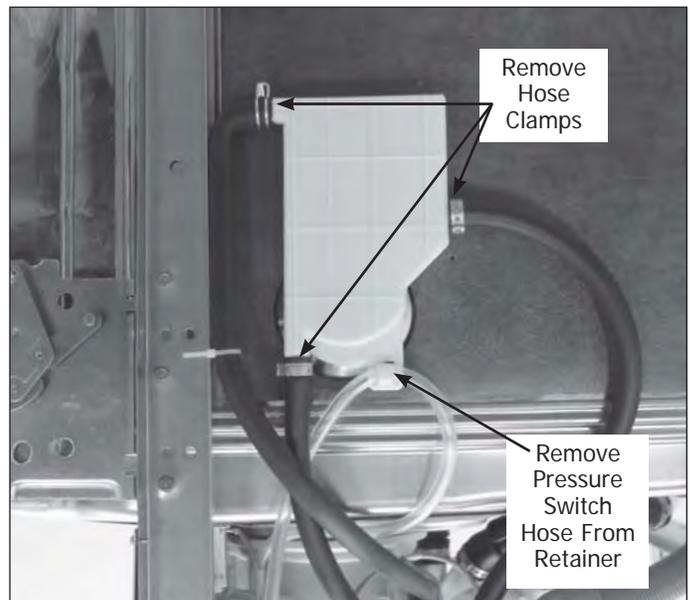


Figure 4-37.

Section 5 Troubleshooting

Problem	Cause	Correction
Dishwasher will not operate when turned on.	<ol style="list-style-type: none"> 1. Fuse (blown or tripped). 2. 120 VAC supply wiring connection faulty. 3. Electronic control board defective. 4. No 12 VAC power to control. 5. Motor (inoperative). 6. Door switch (open contacts). 7. Door latch not making contact with door switch. 8. Touch pad circuit defective. 9. No indicator lamps illuminate when START or OPTIONS are pressed. 	<ol style="list-style-type: none"> 1. Replace fuse or reset breaker. 2. Repair or replace wire fasteners at dishwasher junction box. 3. Replace control board. 4. Replace control board. 5. Replace motor/impeller assembly. 6. Replace door switch. 7. Replace latch assembly. 8. Replace console assembly. 9. Replace console assembly.
Motor hums but will not start or run.	<ol style="list-style-type: none"> 1. Motor (bad bearings). 2. Motor stuck due to prolonged non-use. 	<ol style="list-style-type: none"> 1. Replace motor assembly. 2. Rotate motor impeller.
Motor trips out on internal thermal overload protector.	<ol style="list-style-type: none"> 1. Improper voltage. 2. Motor windings shorted. 3. Glass or foreign items in pump. 	<ol style="list-style-type: none"> 1. Check voltage. 2. Replace motor/impeller assembly. 3. Clean and clear blockage.
Dishwasher runs but will not heat.	<ol style="list-style-type: none"> 1. Heater element (open). 2. Electronic control board defective. 3. Wiring or terminal defective. 4. Hi-Limit thermostat defective. 	<ol style="list-style-type: none"> 1. Replace heater element. 2. Replace control board. 3. Repair or replace. 4. Replace thermostat.
Dispenser cover will not latch or open.	<ol style="list-style-type: none"> 1. Latch mechanism defective. 2. Electronic control board defective. 3. Wiring or terminal defective. 4. Broken spring(s). 5. Defective actuator. 	<ol style="list-style-type: none"> 1. Replace dispenser. 2. Replace control board. 3. Repair or replace. 4. Replace dispenser. 5. Replace actuator.
Dishwasher will not pump out.	<ol style="list-style-type: none"> 1. Drain restricted. 2. Electronic control board defective. 3. Defective drain pump. 4. Blocked impeller. 5. Open windings. 6. Wiring or terminal defective. 	<ol style="list-style-type: none"> 1. Clear restrictions. 2. Replace control board. 3. Replace pump. 4. Check for blockage, clear. 5. Replace pump assembly. 6. Repair or replace.
Dishwasher will not fill with water.	<ol style="list-style-type: none"> 1. Water supply turned off. 2. Defective water inlet fill valve. 3. Check fill valve screen for obstructions. 4. Defective float switch. 5. Electronic control board defective. 6. Wiring or terminal defective. 7. Float stuck in "UP" position. 	<ol style="list-style-type: none"> 1. Turn water supply on. 2. Replace water inlet fill valve. 3. Disassemble and clean screen. 4. Repair or replace. 5. Replace control board. 6. Repair or replace. 7. Clean float.

Section 5 Troubleshooting

Problem	Cause	Correction
Dishwasher water siphons out.	<ol style="list-style-type: none"> 1. Drain hose (high) loop too low. 2. Drain line connected to a floor drain not vented. 	<ol style="list-style-type: none"> 1. Repair to proper 32-inch minimum height. 2. Install air gap at counter top.
Detergent left in dispenser.	<ol style="list-style-type: none"> 1. Detergent allowed to stand too long in dispenser. 2. Dispenser wet when detergent was added. 3. Detergent cover held closed or blocked by large dishes. 4. Improper incoming water temperature to properly dissolve detergent. 5. See "Detergent cover will not open." 	<ol style="list-style-type: none"> 1. Instruct customer/user. 2. Instruct customer/user. 3. Instruct customer/user on proper loading of dishes. 4. Incoming water temperature of 120°F is required to properly dissolve dishwashing detergents.
At the end of the cycle dishes are not dry.	<ol style="list-style-type: none"> 1. Type of dishes that make up the load. 2. Dishwasher installed in closed cabinetry. 3. Incoming water not hot enough. 4. The rinse aid dispenser is empty. 5. Rinse aid is not being dispensed in the cycle. 	<ol style="list-style-type: none"> 1. Plastic items do not dry well in dishwashers. 2. Ample outside air is needed for intake of vent system. 3. Check incoming water temperature needs to be at least 120°F. 4. Rinse aid is needed to speed evaporation of water from the dishes. Fill rinse aid section of the dispenser. Check setting of dispenser and increase setting to aid in drying. 5. See Problem: Dispenser is not opening.

Section 6 Wiring Diagrams

