



ELECTROLUX HOME PRODUCTS, INC.

# ***DISHWASHER SERVICE MANUAL***

## ***2002 MECHANICAL MODELS:***

***FDR251RJR0   FDR252RBB0  
FDR251RJS0   FDR252RBS0  
FDS251RJR0   FDS252RBS0***

*Frigidaire*

***TAPPAN***

***W*** White-Westinghouse

**Gibson**

***Kelvinator*** 

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## SAFE SERVICING PRACTICES - ALL APPLIANCES

To avoid personal injury and/or property damage, it is important that **Safe Servicing Practices** be observed. The 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 it in a safe and satisfactory manner.
2. Before servicing or moving an appliance:
  - Remove the power cord from the electrical outlet, trip the circuit breaker to the OFF position, or remove the fuse.
  - Turn off the gas supply.
  - Turn off the water supply.
3. Never interfere with the proper operation of any safety device.
4. **USE ONLY REPLACEMENT PARTS CATALOGED FOR THIS APPLIANCE. SUBSTITUTIONS MAY DEFEAT COMPLIANCE WITH SAFETY STANDARDS SET FOR HOME APPLIANCES.**
5. **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.
6. 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

### 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.

# FRIGIDAIRE TECHNICAL SPECIFICATIONS

MODEL	FDR251RJR0	FDR251RJS0	FDS251RJR0	FDR252RBB0	FDR252RBS0	FDS252RBS0
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## ELECTRICAL

Service Data Sheet	154384501	154384501	154384501	154384501	154384501	154384501
Voltage	120 VAC	120 VAC	120 VAC	120 VAC	120 VAC	120 VAC
Cycles	60 Hertz	60 Hertz	60 Hertz	60 Hertz	60 Hertz	60 Hertz
Circuit Rating (Amps)	15 / 20	15 / 20	15 / 20	15 / 20	15 / 20	15 / 20
Motor (HP)	1/8 <sup>th</sup>	1/8 <sup>th</sup>	1/8 <sup>th</sup>	1/8 <sup>th</sup>	1/8 <sup>th</sup>	1/8 <sup>th</sup>
Motor (Amps)	3.2	3.2	3.2	3.2	3.2	3.2
Heater (Watts)	600	600	600	600	600	600
Total Amps	8.5	8.5	8.5	8.5	8.5	8.5
Temp Boost	140°F (60°C)	140°F (60°C)	140°F (60°C)	140°F (60°C)	140°F (60°C)	140°F (60°C)

## COMPONENT RESISTANCE (ohms)

Timer Motor	7700	7700	7700	7700	7700	7700
Heating Element	23-25	23-25	23-25	23-25	23-25	23-25
Motor Run Winding	6.0	6.0	6.0	6.0	6.0	6.0
Wash Start Winding	6.4	6.4	6.4	6.4	6.4	6.4
Drain Start Winding	6.4	6.4	6.4	6.4	6.4	6.4
Dispenser	1928	1928	1928	1928	1928	1928
Water Valve Solenoid	699	699	699	699	699	699

## WATER SUPPLY

Minimum Incoming Water Temperature	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)
Pressure (min/max - psi)	20 / 120	20 / 120	20 / 120	20 / 120	20 / 120	20 / 120
Connection (NPT)	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"
Normal Cycle Water Consumption (gal.)	6.7	6.7	6.7	6.7	6.7	6.7
Water valve Flow Rate (GPM)	.83	.83	.83	.83	.83	.83
Water Recirculation Rate (GPM)	12	12	12	12	12	12
Water Fill Time (Seconds)	87	87	87	87	87	87

# COMPONENT OPERATION AND TESTING

## SAFETY PRECAUTIONS

Always turn off the electric power supply before servicing any electrical component, making ohm meter checks, or replacing any part.

All voltage checks should be made with a voltmeter having a full scale range of 130 volts or higher.

After service is completed, be sure all safety grounding circuits are complete, all electrical connections are secure, and all access panels are in place.

## TIMER

The timer allows the user to select the various cleaning cycles of the dishwasher. The timer controls all the electrical functions of the dishwasher in all stages of each cycle. All electrical functions can be traced on the charts and diagrams provided in this service manual.

### To Test The Timer

If the timer is suspected of faulty operation, reference the timer chart and the wiring diagram and proceed as follows:

1. Check power to product and door switch.
2. Set timer to "Pots and Pans" position. **Note:** If dishwasher has a 5 button selector switch, be sure to select "Pots and Pans" position.
3. Close and latch door. The pump motor should start into a pump out.
4. **If the motor does not start**, check for power at motor starting relay between blue-orange wire and a neutral wire.
5. If there is no power at blue-orange wire on relay then follow blue-orange wire back to timer. Check this wire at timer for power.
6. If no power is found at timer on the blue-orange wire, disconnect power to the dishwasher. Check for continuity between blue-orange wire and brown wire from selector switch to timer. You should read zero (0) ohms. If not, timer contact is open and timer needs to be replaced.
7. **If motor does start**, let timer motor advance timer through drain cycle to determine if timer motor and drive train are fully operative.
8. Let timer advance on through entire cycle to see that all other operations perform properly.

Continuity through the timer contacts and other controls and wires can also be checked with an ohmmeter.

**BE SURE TO DISCONNECT THE ELECTRICAL POWER**

If a timer contact fails to close or open as shown on the timer sequence chart or is burnt, the timer needs to be replaced.

If the timer does not advance automatically according to the timer sequence chart, the timer needs to be replaced.

To perform testing of the timer you will need to remove the control panel. To remove the control panel, see the section on **SERVICE AND REPAIR**.



## SELECTOR SWITCH

Two types of selector switches are used on dishwashers. A rocker type, which is used on some models for simple options such as heated or cool dry, and a multi functional push-button type, that provides the user with a wide selection of dishwashing cycles and/or multiple options.

The selector switch can be tested using an ohmmeter, along with the wiring schematic and the selector switch chart.

### To Test Selector Switch

1. Disconnect dishwasher from power supply.
2. Remove control panel. ( See Control Panel Removal in Service and Repair section. )
3. Carefully pull console forward to gain access to selector switch.
4. Remove electrical leads from selector switch.
5. Place leads from ohmmeter across switch terminal contact. See selector switch chart for switch operation.



## DOOR LATCH AND SWITCH ASSEMBLY

The door latch and switches are located in the door assembly behind the control panel. The dishwasher will not operate until the door is closed. The door latch engages the door catch mounted on the top frame of the dishwasher and holds the door firmly to the tub seal. As the cam in the latch is pushed back, the two door switches are closed. The door switches are normally open, double-pole, single throw switches.

### To Test the Door Switches

1. Disconnect dishwasher from power supply.
2. Remove screws securing control panel to inner door panel.
3. Remove wires from switches. **Do not remove latch from door**
4. Using an ohmmeter, check for continuity. You should read zero (0) resistance across switch with door closed and latched. With door open, your meter should read infinite resistance, or no reading at all.
5. If **either** switch shows a bad reading, replace door latch.



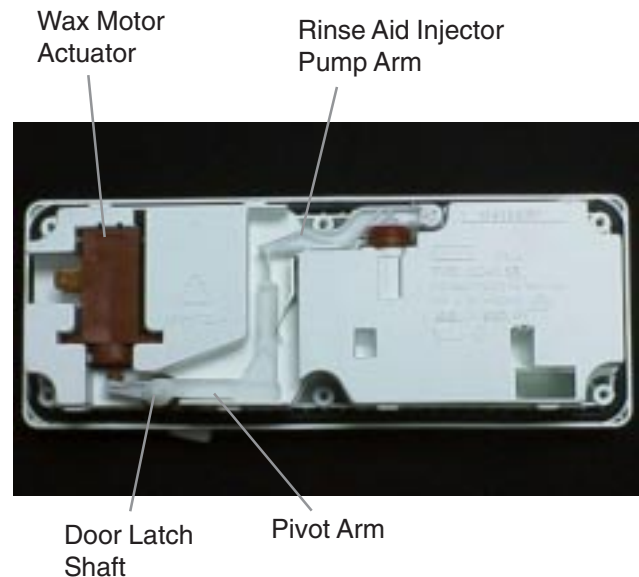
## DETERGENT & RINSE AID DISPENSER

The detergent and rinse aid dispenser consists of two dispensers combined in one housing that are controlled with one wax motor actuator. The first time the actuator is energized in a cycle, it dispenses detergent. The second time the actuator is energized, it dispenses rinse aid. By removing the cap from the rinse aid dispenser, you can gain access to a pointer for adjusting the amount of rinse aid dispensed. The adjustment is from one (1) to four (4) ml. The dispenser is replaced as a complete assembly; no replacement parts are available. For a more detailed explanation on how the dispenser operates see "Operation of the Dispenser".

## Operation of the Dispenser

The dishwasher has two detergent cups; one is molded into the inner door panel without a cover. The second is the dispenser having a spring-loaded cover with a manual or automatic release latch. Prior to starting the dishwasher, detergent is added to the dispense cup and the cover is latched closed. The open cup is also filled but will empty into the tub as soon as the door is lifted to the upright position.

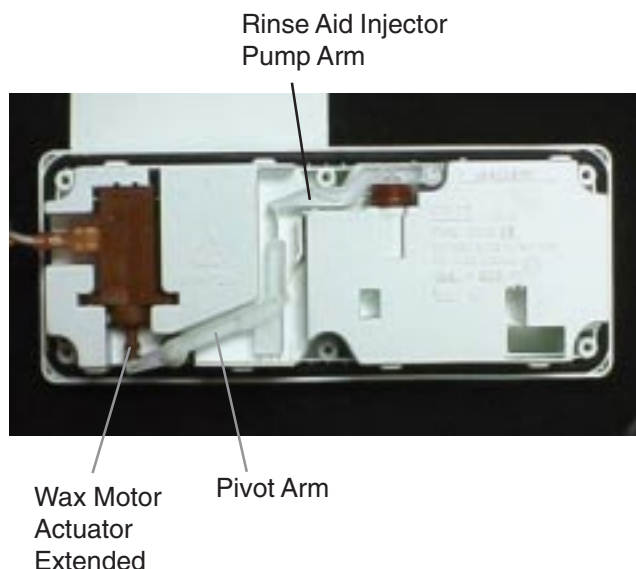
The detergent in the covered cup is held until the start of the second wash. The timer then supplies 120 VAC to the dispenser for one minute. It takes about 30 seconds for the actuator to move the pivot arm far enough to release the cover. When the power is applied to the actuator, the actuator plunger pushes the end of the pivot arm down. The pivot arm rotates on the shaft of the detergent dispenser door latch. As the shaft rotates, it turns the door latch, releasing the spring-loaded cover.



The pivot arm is spring loaded so that when power is removed, it returns to the normal (horizontal) position. The other end of the pivot arm has a pin that moves in a slot of the rinse aid injector pump arm. The rinse injector pump arm is slotted in such a way that when the actuator pushes the lever down the first time to release the detergent-cup cover, the pin moves up but does not raise the rinse injector pump arm. When the timer removes power from the actuator, the spring forces the rinse injector pump arm end of the pivot arm down. The compound slot in the rinse aid injector pump arm directs the pivot arm pin down the front of the rinse aid injector pump arm and under a shorter slot in the center of the arm. When the timer reaches the middle of the final rinse cycle, it again applies power to the dispense actuator which forces the pivot arm up at the rinse injector end. As the pin engages the shorter slot, it raises the rinse injector pump arm, which operates the pump.



When power is removed, the pivot arm spring forces the pin to the bottom of the slot. A leaf spring pushes the rinse aid injector pump arm to the left so that the pin returns to the original starting position.



Adjustment inside Rinse Aid Dispenser

#### To test the dispenser:

1. Select *Light Wash* on selector switch and turn timer to detent for *Light Wash*. Close and latch door.
2. Attach voltmeter to wax motor actuator. After timer advances through drain and fill, it should read 120 volts as power is applied to actuator. Detergent dispenser cup cover should open within 30 seconds.
3. Make sure pivot arm raises completely for pin to move from back to front of rinse aid injector pump arm. After power is removed, pivot arm should return to bottom by slot in front of rinse aid injector pump arm.

This test can be done with power from the dishwasher or by using a test cord and connecting the wax motor actuator to a 120 VAC power source. Remember to remove power when the actuator is fully extended.

## WATER FILL VALVE

The water valve is timer controlled and solenoid operated. The flow of water is controlled by a rubber flow washer capable of maintaining a flow rate of .83 gallons per minute with incoming water pressure of 20 to 120 P.S.I.

#### To Test the Water Valve:

1. Disconnect dishwasher from power supply.
2. Remove screws securing bottom service panel and remove panel.
3. Remove electrical leads from valve and check solenoid with an ohmmeter. See the Product Specifications for your model for the correct reading.
4. To check for operation, connect a separate 120VAC cord to valve and connect a ground to frame. Apply power for a few seconds and then remove power. The water flow should stop within 2 seconds. If not, replace valve.



## WATER VALVE TROUBLESHOOTING

#### No Water in the Tub:

1. Be sure main water supply and electrical power is turned on.
2. Check float assembly for free movement up and down.
3. Remove service panel.
4. Advance timer to fill position and latch door. Start dishwasher.
5. Check voltage to fill valve solenoid.
6. If voltage is present, disconnect power and measure resistance of solenoid coil. The resistance on this coil should be between 998 and 1188 ohms. If solenoid coil proves to be bad, replace valve.
7. If solenoid checks good, turn off water supply and electrical power to dishwasher. Remove water line from valve and check screen for debris. Clean screen and reassemble.
8. If there is no power to solenoid, check float switch, timer, door switch, or appropriate wiring harness.



### Water Will Not Shut Off:

1. Disconnect dishwasher from power supply. If water continues to flow, close main water supply valve and replace dishwasher valve.
2. If water turns off when power is disconnected, check for welded contacts in timer or timer motor that fails to advance. Replace timer. See REPLACE TIMER in the SERVICE AND REPAIR section.

### Water Level Too Low:

Water level should touch the heating element.

1. Check incoming water pressure: 20 P.S.I. is minimum pressure for an adequate fill.
2. Check main water supply valve to make sure it is fully open.
3. Check for a clogged screen in valve.

## HEATING ELEMENT

The heating element maintains the water temperature in the dishwasher during parts of the wash and rinse cycles. Refer to the tech data sheet with the dishwasher or the cycle chart in this manual to know in which cycles the heater is energized. The heater also heats the air during the static dry cycle.

### To Check Heater:

1. Advance timer to dry cycle. Select *Heated Dry* on the selector switch.
2. Close and latch dishwasher door.
3. Allow dishwasher to operate for one to two minutes. Open door and note if heat is present.

**CAUTION: DO NOT TOUCH THE HEATER!**

## THERMOSTAT

The thermostat mounted on the inner door panel on some models gives the user the option of a high temperature wash. On these models, the contact for the timer motor will open in the second wash. The dishwasher will pause until the thermostat closes at a water temperature of 140°F. The thermostat senses the temperature of the water as it falls down the inner door panel.

### To Check Thermostat:

1. Run hot water in sink
2. Place sensing lead from thermometer in sump of dishwasher.
3. Set timer to Light Wash and select water heat on selector switch.
4. Close door to start dishwasher.
5. Timer will stop and delay light will light. Check temperature of water in sump. After water temperature reaches 140°F, delay should go out and timer advance.
6. If timer advances, thermostat is good.

7. If not, jumper out thermostat to see if timer advances. If timer advances, thermostat did not close. Replace thermostat.

## FILL FUNNEL AND AIR GAP ASSEMBLE

The fill funnel and air gap assemble is molded onto the left side of the tub. It's purpose is to provide a method of supplying water to the tub in the wash and rinse cycles through an air gap, as required by plumbing codes. The air gap prevents the siphoning of wash water back into the water supply system, should the water pressure drop to less than atmospheric pressure. This air gap should not be stopped up or covered in any way.

## MOTOR START RELAY

The motor start relay has a normally open contact in series with the motor start windings. The relay coil is connected in series with the motor main winding. At start up, the high current draw of the main winding passing through the relay coil causes the contacts to close. This sends current back to the timer and the timer directs this current to the apricot start winding in the motor. When the motor attains normal speed, the current draw drops to normal and the relay contacts reopen, taking the start winding out of the circuit. The motor start relay is mounted on the dishwasher door hinge, weld assembly, behind the service panel.

### To Test the Relay:

1. Disconnect dishwasher from power supply.
2. Remove service panel.
3. Remove electrical leads from motor start relay.
4. Check relay coil for continuity across terminals L and M. Replace if open.
5. To check contacts L and S, remove screw securing motor start relay.
6. Turn relay upside down and check contacts for continuity. They should be closed, indicating continuity in this position and infinite continuity when relay is right side up.

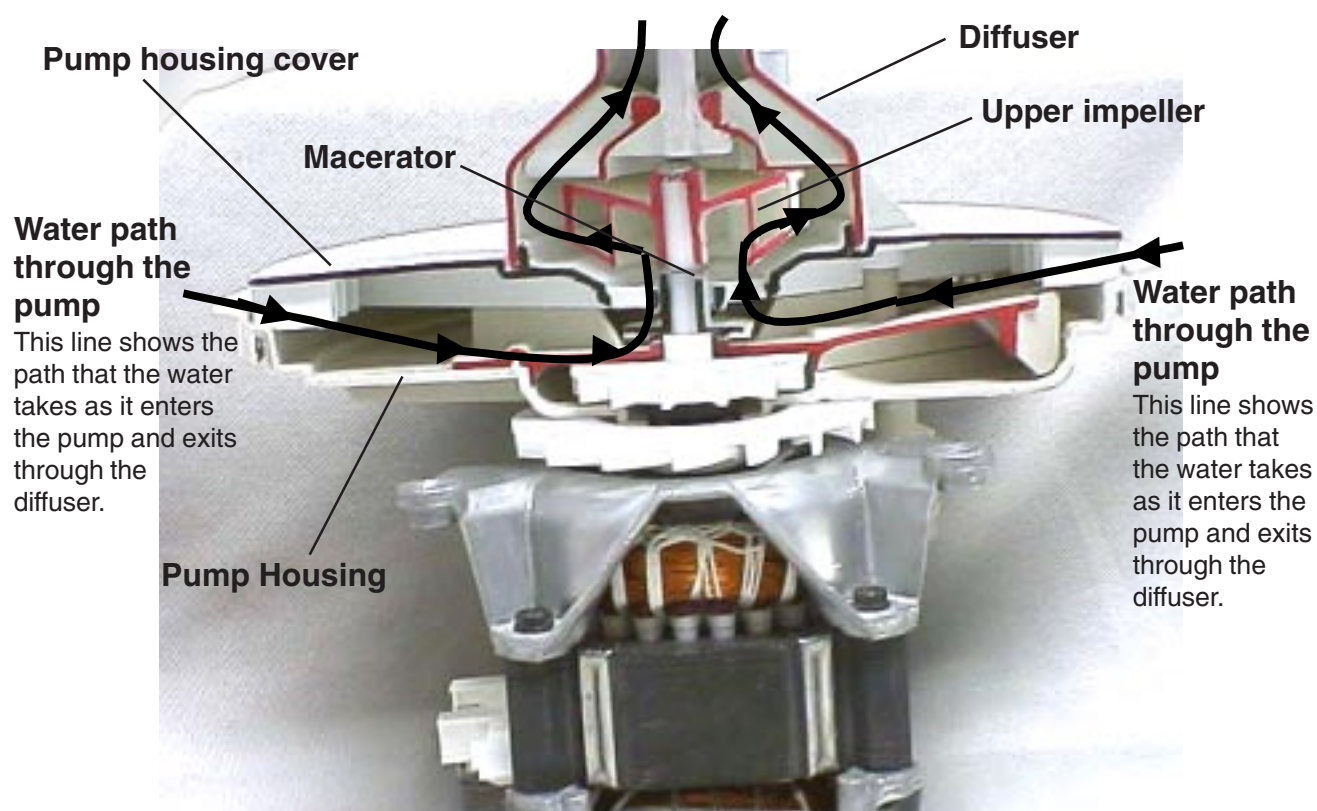
**NOTE:** This relay is position sensitive, which means that when energized, the contacts are pulled up to close, and are opened by gravity.

## MOTOR AND PUMP ASSEMBLY

The drive motor on this dishwasher is a 1/8 HP, 120 volt, 60 HZ, 1 phase, 3.2 amp, 3450 RPM; internal thermal overload protected motor. The motor is mounted under the pump assembly. The pump is direct driven. The motor itself is dual directional, having three sets of windings. The main or run winding will run in either direction. There are two phase or starting windings. One phase winding starts the motor in a counterclockwise direction. The other phase winding starts the motor in the clockwise direction.

## Motor and Pump Assembly in Wash

The timer contact closes to send power to the motor start relay, then on to the motor, starting the motor in the counterclockwise direction. As the motor starts, the water level in the bottom of the dishwasher will be just to the under side of the heater. The wash impeller pulls water into the pump housing up under the pump housing cover. As the water is drawn into the impeller, it must pass through the center of the housing cover and into the macerator blade, just under the impeller. This macerator blade is designed to cut up soft food waste so it can exit the dishwasher. As the water passes through the macerator blade, it then enters the wash impeller and is pushed out into the diffuser housing where the water is directed into the lower spray arm. The pump in the wash cycle will pump 24 to 28 gallons of water per minute into the lower spray arm.



The timer contact closes to send power to the motor start relay, then on to the motor. This time the motor starts in the clockwise direction. When the motor starts up, the water in the sump enters the pump housing through the pump housing cover and into the volute cover. The volute cover completely covers the lower impeller. The lower impeller pushes water through the pump to the drain port.

This pump will drain at a rate of 3 to 4 gallons of water per minute. As the water exits the drain port, the pressure opens a check valve on the outside of the port. This check valve, when closed, will keep water from entering the dishwasher from the house drain if it would get restricted. After the water passes through the check valve, it enters the drain hose and exits the dishwasher.



# SERVICE AND REPAIR DISASSEMBLY

## SAFETY PRECAUTIONS

Always turn off the electric power supply before servicing any electrical component, making ohmmeter checks, or replacing any part.

All voltage checks should be made with a voltmeter having a full scale range of 130 volts or higher.

After service is completed, be sure all safety grounding circuits are complete, all electrical connections are secure, and all access panels are in place.

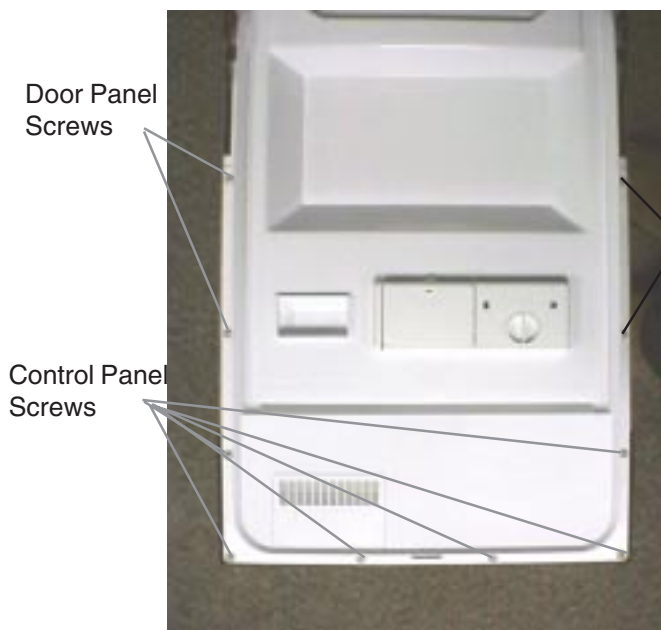
### Remove Outer Door Panel

1. Disconnect dishwasher from electrical supply.
2. Open door and remove two bottom screws from both sides of outer door panel. Hold panel as screws are removed. See figure below.
3. Close door and pull bottom of outer door panel away from door as you pull down on outer door panel.

### Remove Control Panel

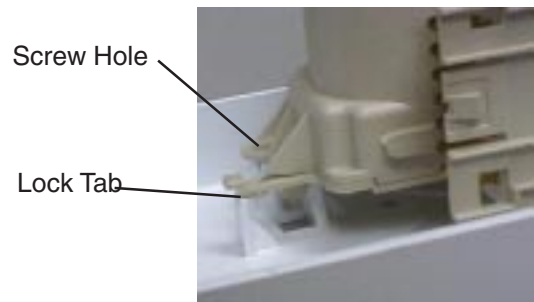
1. Disconnect dishwasher from electrical supply.
2. Open door and remove six screws around control panel. See figure below.
3. Close door and pull control panel away from top of door and up. Be sure control panel clears door latch.

Control Panel can be removed without removing outer door panel. Be sure to use caution not to scratch outer door panel.

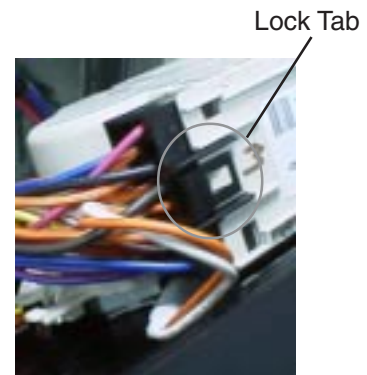


### To Replace Timer:

1. Disconnect dishwasher from electrical supply.
2. Remove timer knob. **Note:** You may need to add two pieces of tape to the sides of the knob and use pliers to remove the knob.
3. Remove six (6) screws securing control panel to inner door panel. (See Remove Control Panel .)
4. Carefully pull console forward to gain access to the controls.
5. Remove one (1) screw securing timer to control panel. With screw removed, lift locking tab just above mounting screw and slide timer to left and lift timer from control panel.



6. Lift the locking tab and pull multiconnector from timer. See figure below.
7. To install new timer, reinstall multiconnector onto new timer. Line up mounting tabs on right side of timer, as well as under locking tab into slots in control panel. Slide timer to right until lock tab on timer falls over post on control panel, then install mounting screw.
8. Reinstall control panel and knob. Check operation.





## Replace Selector Switch

1. **Disconnect dishwasher from the power supply.**
2. Remove control panel. (See Remove Control Panel.)
3. Remove switch mounting screws.
4. Remove plastic shield from switch. Reinstall onto new switch.
5. Transfer wires to new switch.
6. Reinstall new switch in reverse order.

**NOTE:** If Selector Switch is a rocker switch, squeeze locks on ends of switch to remove it from the control panel.



## Replace Door Latch Assembly

1. **Disconnect dishwasher from electrical supply.**
2. Remove control panel. (See Remove Control Panel.)
3. Remove wires from door switches.
4. Remove two screws mounting latch to inner door panel.
5. Slightly pull latch away from top and lift up to clear location tab on bottom of latch from mounting hole on inner door panel.

**Caution:** When reinstalling door latch, be sure location tab is in hole in the inner door panel. If the location tab is not in hole properly, the door switches may not close properly. See figure below.

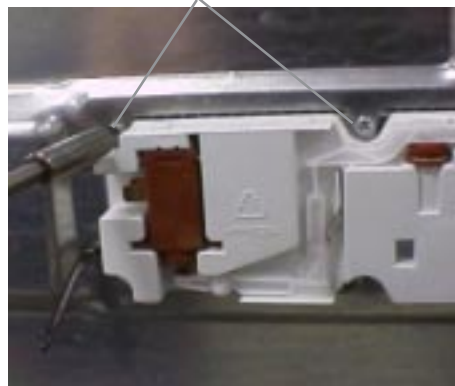
**Warning:** Be sure the wires are installed on door switch properly. Make sure both black wires are on one switch as well as both white wires are on the second switch.

## Replace the Detergent and Rinse Aid Dispenser

1. **Disconnect dishwasher from electrical supply.**
2. Remove outer door panel. ( See Remove Outer Panel)
3. Remove two wires from wax motor actuator.
4. Remove six screws holding dispenser.

**Note:** Gasket for dispenser only comes with dispenser.

Screws to mount dispenser



## Replace Thermostat

1. **Disconnect dishwasher from electrical supply.**
2. Remove outer door panel. (See Remove Outer Panel.)
3. Remove screw holding retainer over thermostat.
4. Remove wires from thermostat.



## Remove Access Panel

1. **Disconnect dishwasher from electrical supply.**
2. Open dishwasher door and remove two screws from top of access panel.
3. Close door; remove two screws, one on either side of panel.
4. Pull access panel out and up to remove.
5. To reinstall, reverse order.

## Replace Float Switch and Mounting Bracket

1. **Disconnect dishwasher from electrical supply.**
2. Remove access panel .(See Remove Access Panel above.)
3. Remove electrical wires from switch.
4. Carefully spread switch retainers and slide switch out of bracket.

5. To remove bracket, remove screw mounting bracket to bottom of tub.
6. To reassemble float switch and bracket, reverse order.
6. Slide dishwasher forward to gain access to water inlet to tub and remove clamp.
7. Install new tube in reverse procedure to complete repair.



**NOTE:** When reinstalling new fill tube, be sure the tube is mounted into retainers on side of tub.



### Replace Door Seal

1. Open door and pull seal from mounting channel in tub.
2. Check new seal for center marking on backside of seal.
3. Find center of seal and start at door strike. Insert seal into channel.
4. Go to bottom of either side and start seal into bottom, then push seal into channel at 5 to 6 spots up that side.
5. Go to other side and repeat step 4.
6. Close door to set seal.

### Replace Water Valve

1. **Disconnect dishwasher from electrical supply.**
2. **Turn off water supply to water valve from water source.**
3. Remove access panel. (See Remove Access Panel.)
4. Disconnect water line from water valve. Be careful to catch water when removing water line from valve.
5. Remove tub fill tube from valve.
6. Remove mounting screws.
7. Remove wiring harness connector.
8. Install new water valve . Reverse procedure to complete repair.

### Replace Fill Tube

1. **Disconnect dishwasher from electrical supply.**
2. Remove access panel. (See Remove Access Panel.)
3. Check water line, drain line and electric line for slack to slide dishwasher from under counter.
4. Remove tube from back of valve by expanding clamp.
5. Remove two screws mounting dishwasher to countertop.

### Replace Heater

1. **Disconnect dishwasher from electrical supply**
2. Remove access panel (see Remove Access Panel).
3. Remove wire connections from terminals on heater.
4. Remove nuts holding heater to bottom of tub.
5. **DO NOT REMOVE RETAINER CLIPS FROM TUB.**
6. From inside of tub, lift heater into tub and slide heater out of retainer clips.
7. Install new heater in reverse procedure to complete repair.
8. After reassembly, be sure to check for water leaks.



## Replace Door Springs and Hinges

**NOTE:** Springs and hinges can be changed without pulling dishwasher from under counter

1. **Disconnect dishwasher from electrical supply.**
2. Remove outer door panel. (see Door Panel Removal)
3. Remove access panel. (see Remove Access Panel)
4. Remove door spring hook from hole in frame, spring from hinge and spring pad from hinge. Slide cover off hinge and save for reuse.
5. Open door to loosen screws that mount hinge to inner door panel. Reclose door. Do not remove screws until door is closed.
6. Remove nuts from hinge mounting screws. Remove screws. Slide hinge over to remove pin from frame mounting hole.
7. Install new hinge to complete repair.



## Replace Upper Rack

1. Remove end cap from both rack slides.
2. Pull rack forward off slides.
3. Install new rack to complete repair.

## Replace Upper Rack Tub Rollers

1. See Upper Rack replacement.
2. Remove back slide end cap slide rail off rollers
3. Remove roller.
4. When installing new roller, first turn screw counterclockwise to keep from cross-threading hole, then tighten roller.

## Replace Motor Starting Relay

1. **Disconnect dishwasher from electrical supply.**
2. Remove access panel. (see Remove Access Panel)
3. Remove wires from relay.
4. Remove screw holding relay to front frame.

5. Install new relay. Reverse procedure to complete repair.
6. Start dishwasher motor to check operation.

## Disassembly of Pump and Motor

The pump and motor are serviceable and are not available as one unit. Servicing the water distribution of this product can be done without removing the pump from the dishwasher.

### To Remove Motor and Pump from dishwasher

1. **Disconnect dishwasher from electrical supply.**
2. Remove access panel. (see Remove Access Panel)
3. Remove lower rack.
4. Remove drain hose.
5. Disconnect wire plug from motor.
6. Turn three sump retainers into sump and loosen sump.
7. Push sump into tub from under dishwasher.
8. Remove from inside of tub.



Pictured is the motor and wash pump removed from the dishwasher. This is not an assembly and can be disassembled for service.



## Repair Wash Pump

### Remove spray Arm

1. Remove tower by turning off counterclockwise from spray arm.
2. Remove 3/8" nut holding arm to diffuser.

### Remove diffuser

Remove diffuser by removing 4 5/16" bolts holding diffuser to sump plate



### Remove Upper Wash Impeller

Upper wash impeller is held in place by 1- T-25 Torx screw.



### Remove macerator blade from shaft.



### Remove pump housing cover

### Remove pump slinger



### Remove volute cover

Remove volute cover held in by 2 T-20 Torx screws.



### Remove lower pump impeller



### Remove carbon face half of pump seal



### Remove Sump

Complete motor and pump must be removed to replace sump.

1. Disassemble pump as listed above.
2. Remove three 5/16" bolts holding motor to sump and remove motor.

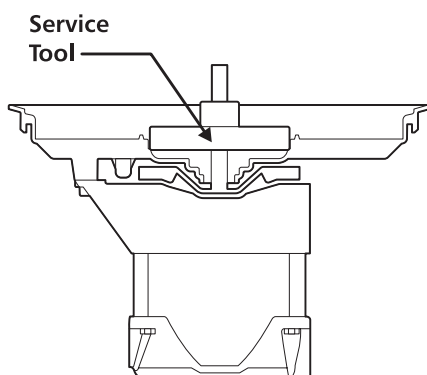


Motor Mounting  
Screws

## Motor to Sump Installation

Installation of motor to pump housing requires centering of motor shaft using service tool P/N 154384901.

Place pump housing on top of motor shaft lining up the screw hole of motor top end shield to embosses on pump housing. ( Make sure the motor plug is facing towards you and the drain pump port is at the right side to install correctly.) Now place service tool over top of motor shaft and slide service tool down into pump housing to center motor shaft to pump housing. Install mounting screws for motor to pump housing. Remove service tool and then complete rest of installation of other parts to assemble motor.



## Motor Shaft Seal

Motor shaft seal will come mounted on a sleeve; this is to protect the seal surfaces. This sleeve must be removed to install the new seal.



1. Check seal faces to be sure they are both clean and free of any foreign material.
2. Install ceramic half of seal into sump, making sure it bottoms out in sump.
3. Slide top half of seal onto motor shaft making sure it is down and tight and the surfaces are mating properly.

## Install sump gasket

1. Turn sump up side down.
2. Find notch on inside of gasket and line notch up with solid area beside drain port.
3. **Do not apply any lubricant to inside of gasket.** Place gasket onto sump, making sure flange on gasket goes into sump channel. See cut away.
4. Apply lubricant to tub to aid installing sump.



## To Check Motor

The motor on the dishwasher is a dual directional motor.

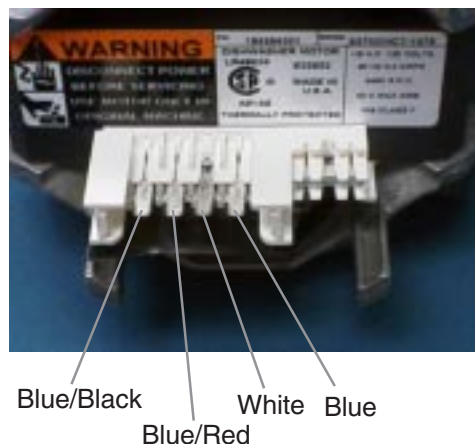
1. Disconnect power from dishwasher.
2. Remove access panel.
3. Remove wiring disconnect plug from motor.
4. With motor unplugged, check resistance on each motor winding. See chart below for correct readings.

**To Check Main Run Winding**, place one lead of ohmmeter on terminal on far right of motor plug and second lead from ohmmeter on next terminal to left.

**To Check wash start winding**, place one lead of ohmmeter on terminal on far-left side of motor plug. Place second lead from ohmmeter on third terminal to right.

**To Check drain start winding**, place one ohmmeter lead on each of the two center terminals on motor plug.

Motor Winding	Resistance	Wire Colors
Main Run Winding	6.0 Ohms	Blue & White
Wash Start Winding	6.4 Ohms	Blue/Black & White
Drain Start Winding	6.4 Ohms	Blue/Red & White

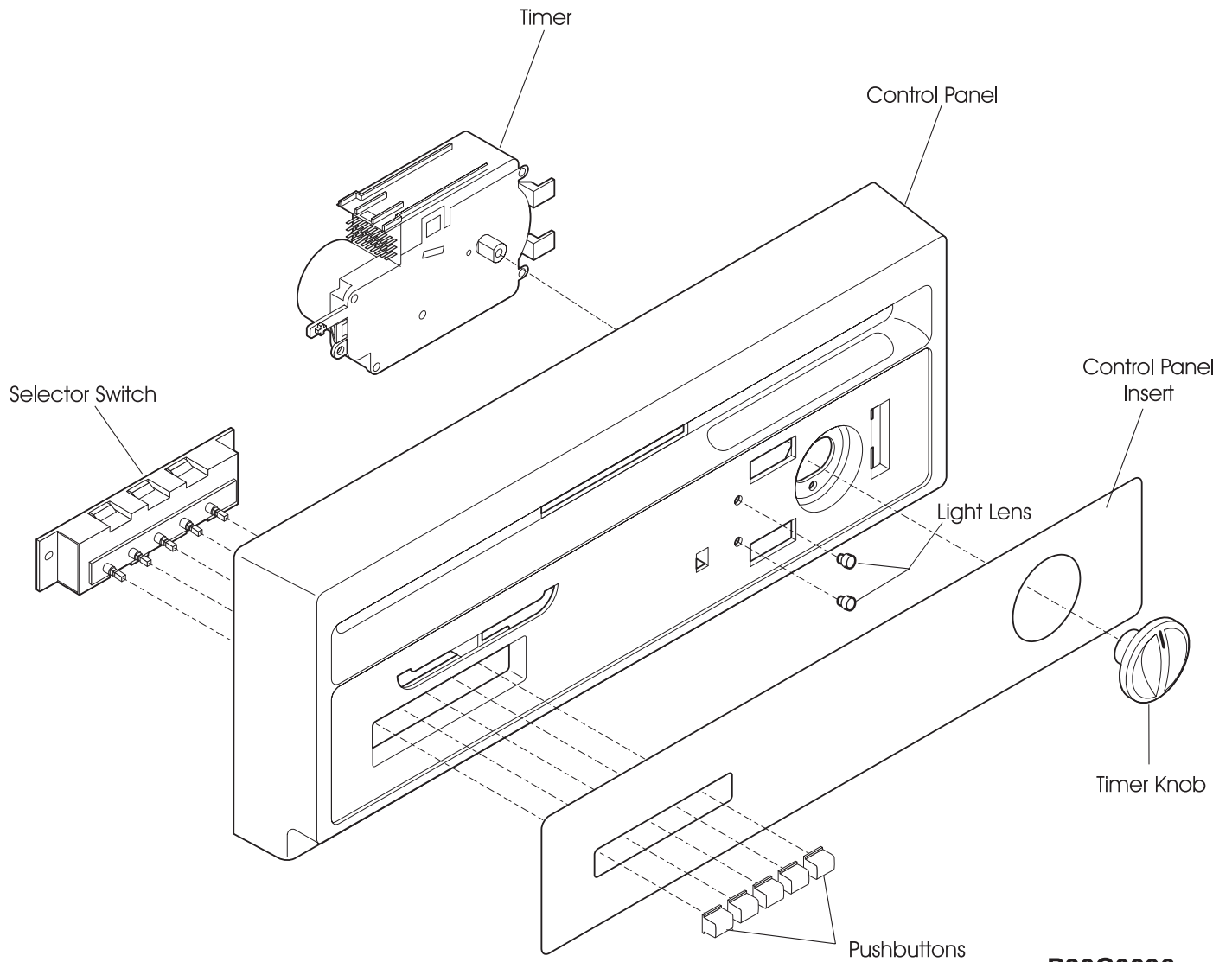


# APPENDIX A

## Exploded Views Location Chart

Model Number	Control Panel	Door	Tub	Motor & Pump	Frame	Racks
FDR251RJR0	A - 2	A - 3	A - 6	A - 10	A - 11	A - 15
FDR251RJS0	A - 2	A - 3	A - 6	A - 10	A - 11	A - 15
FDS251RJR0	A - 2	A - 3	A - 7	A - 10	A - 12	A - 15
FDR252RBB0	A - 2	A - 4	A - 8	A - 10	A - 13	A - 15
FDR252RBS0	A - 2	A - 4	A - 8	A - 10	A - 13	A - 15
FDS252RBS0	A - 2	A - 5	A - 9	A - 10	A - 14	A - 15

<b>CONTROL PANEL</b> <b>For Model #'s</b> <b>FDR251RJR0</b> <b>FDR251RJS0</b> <b>FDS251RJR0</b> <b>FDR252RBB0</b> <b>FDR252RBS0</b> <b>FDS252RBS0</b>
--



**P30C0096**

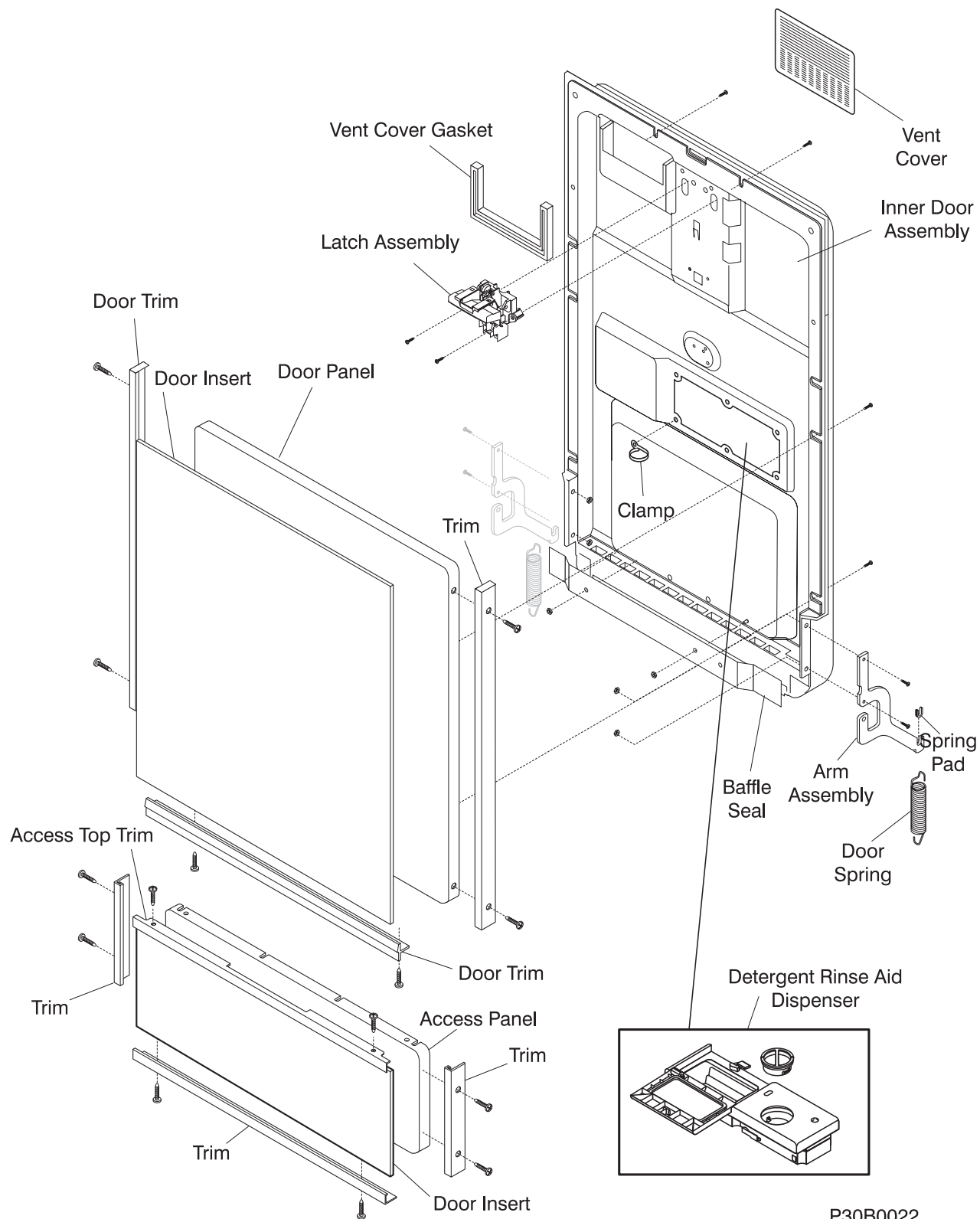
# DOOR

For Model #'s

FDR251RJR0

FDR251RJS0

FDS251RJR0



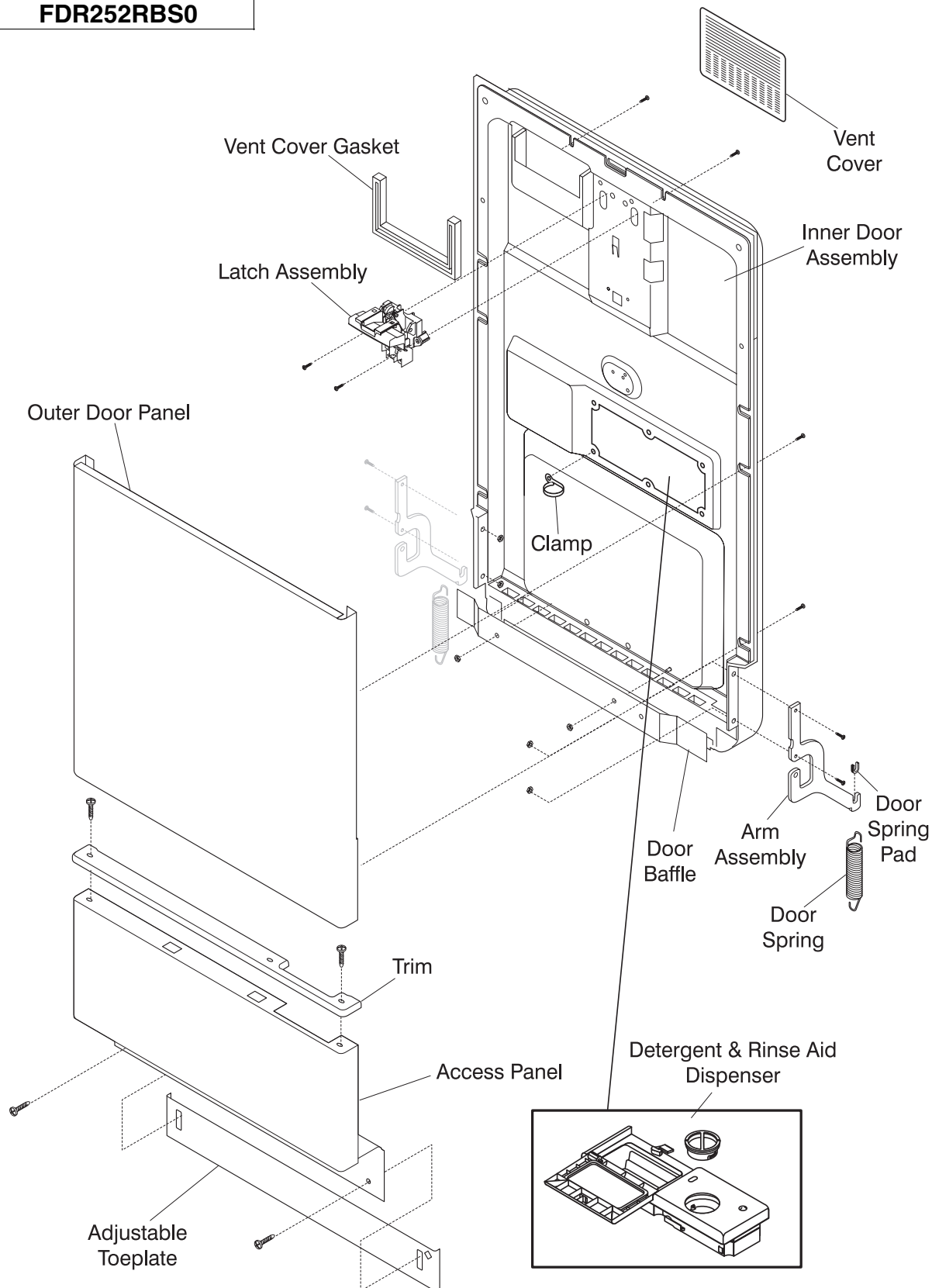
P30B0022

# DOOR

For Model #'s

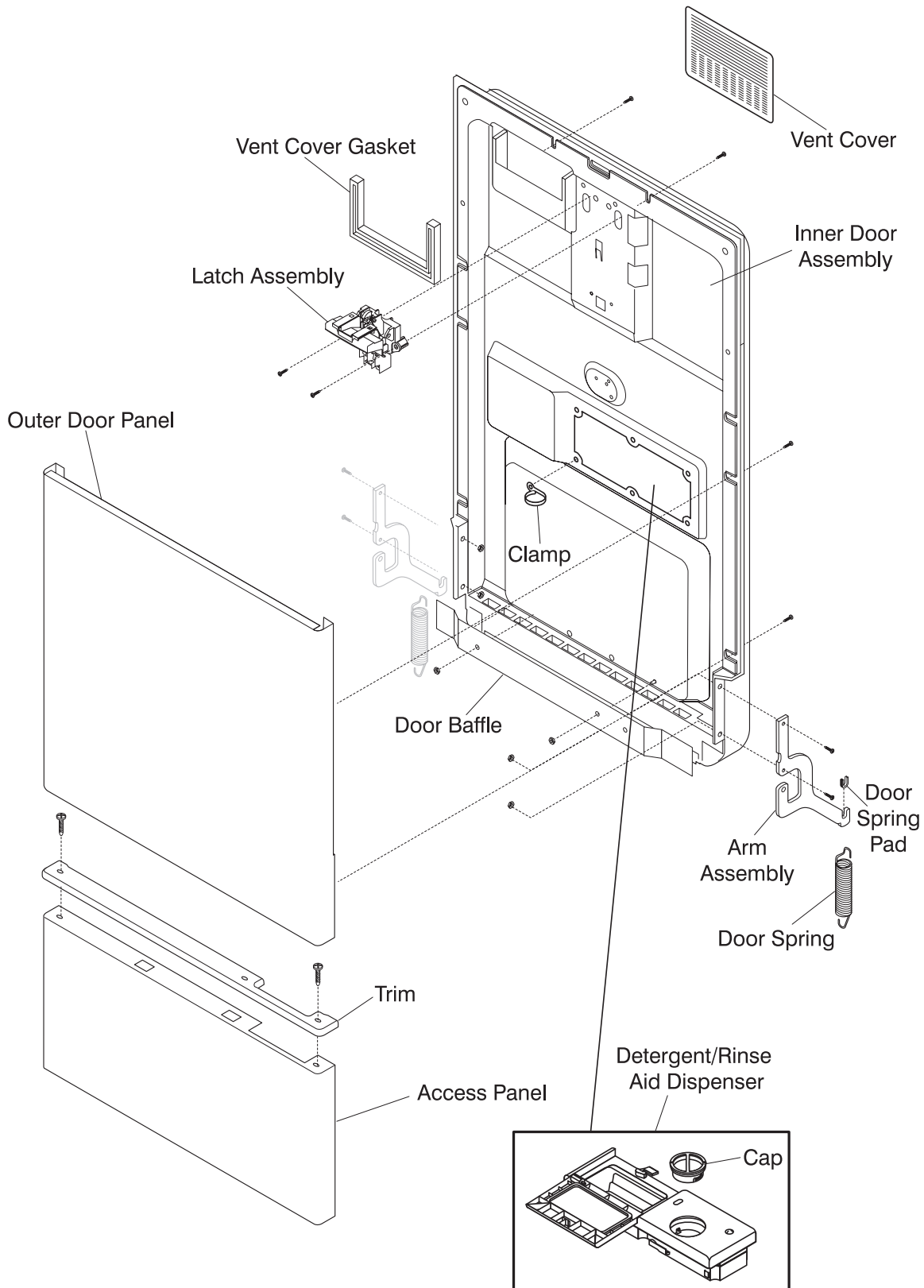
FDR252RBB0

FDR252RBS0



P30B0030

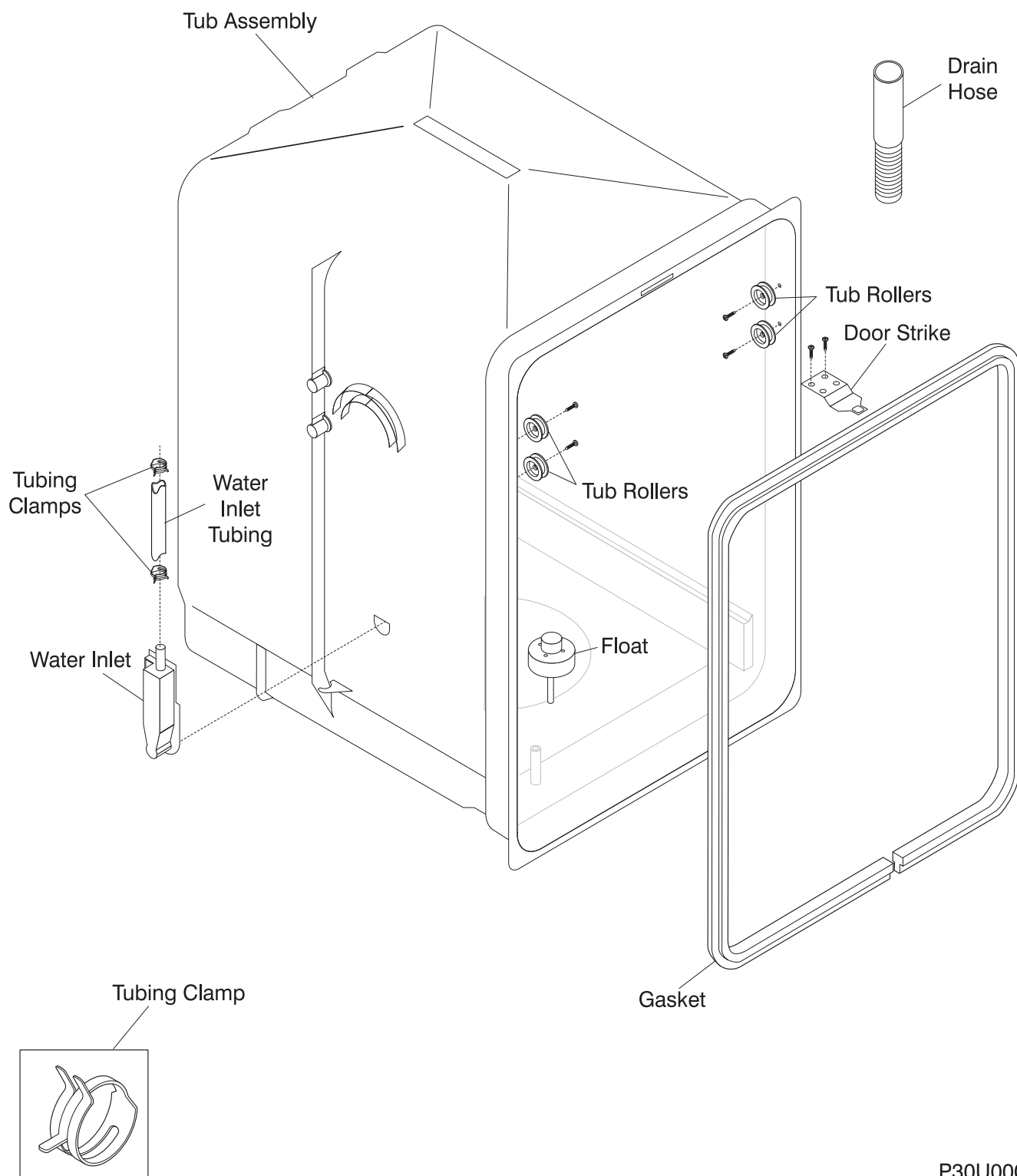
**DOOR**  
For Model #'s  
**FDS252RBS0**



P30B0031

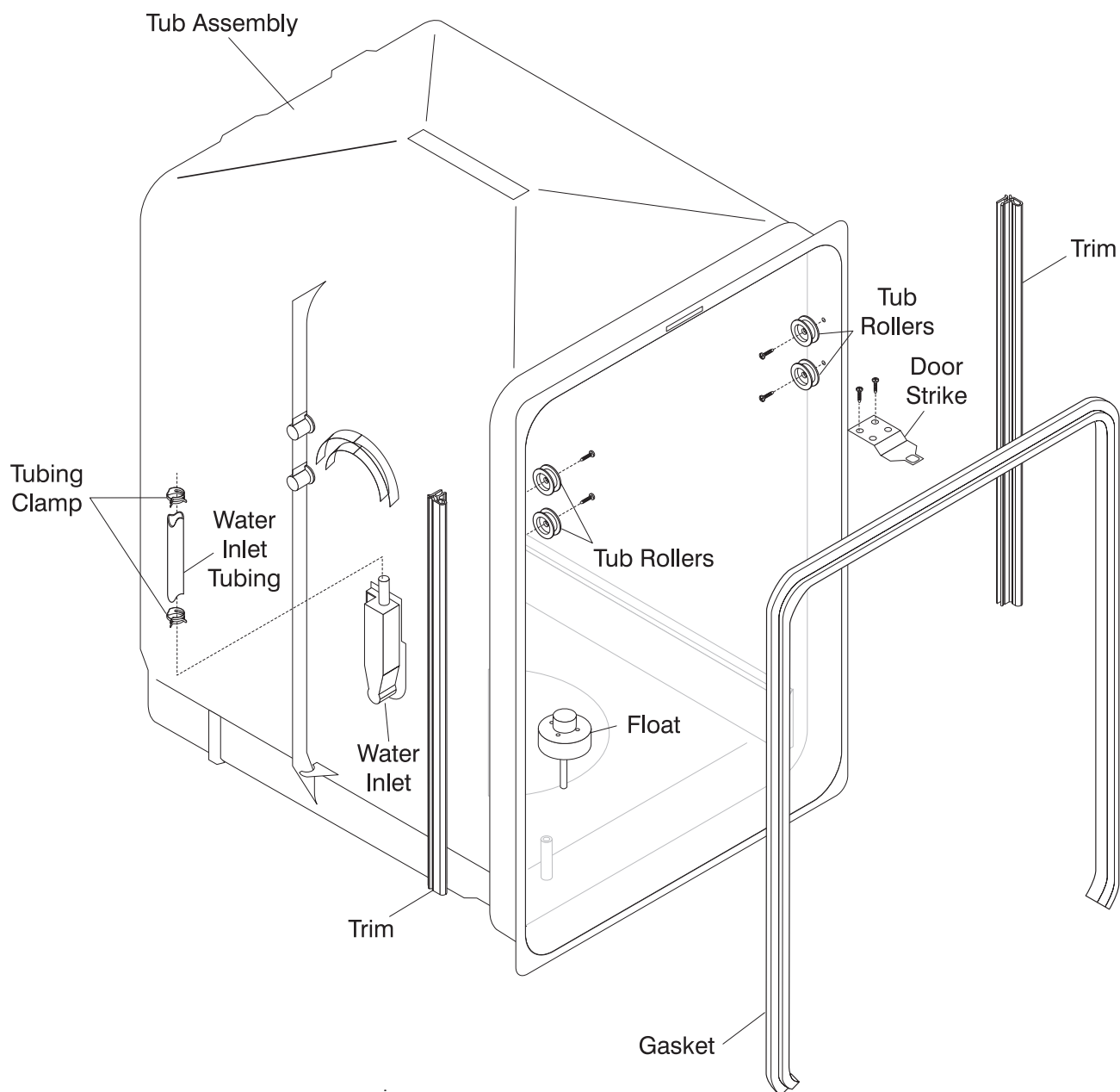


**TUB**  
**For Model #'s**  
**FDR251RJR0**  
**FDR251RJS0**

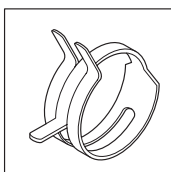


P30U0004

**TUB**  
**For Model #'s**  
**FDS251RJR0**

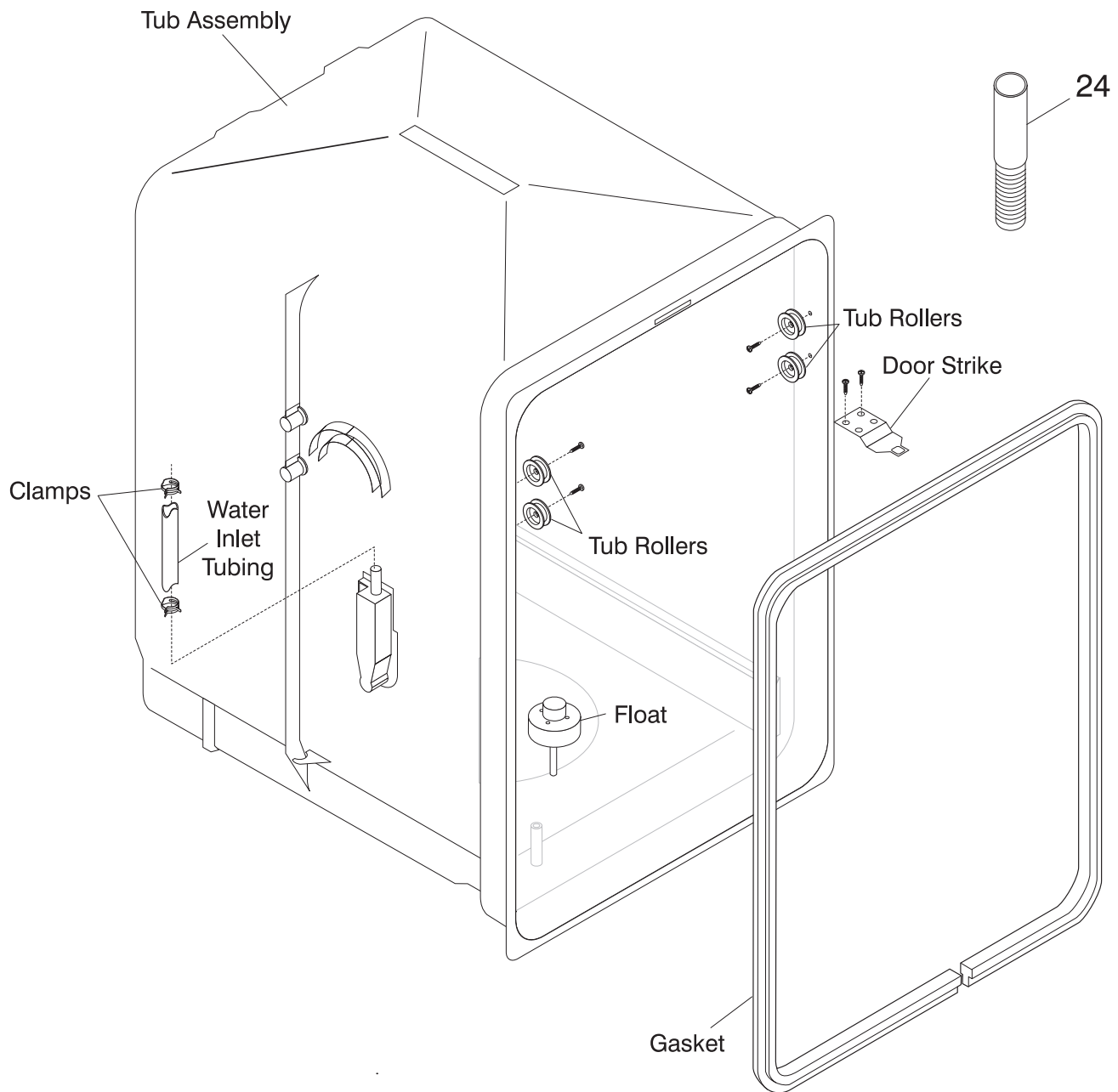


Tubing Clamp

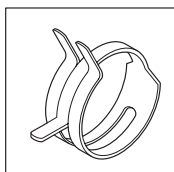


P30U0015

**TUB**  
**For Model #'s**  
**FDR252RBB0**  
**FDR252RBS0**

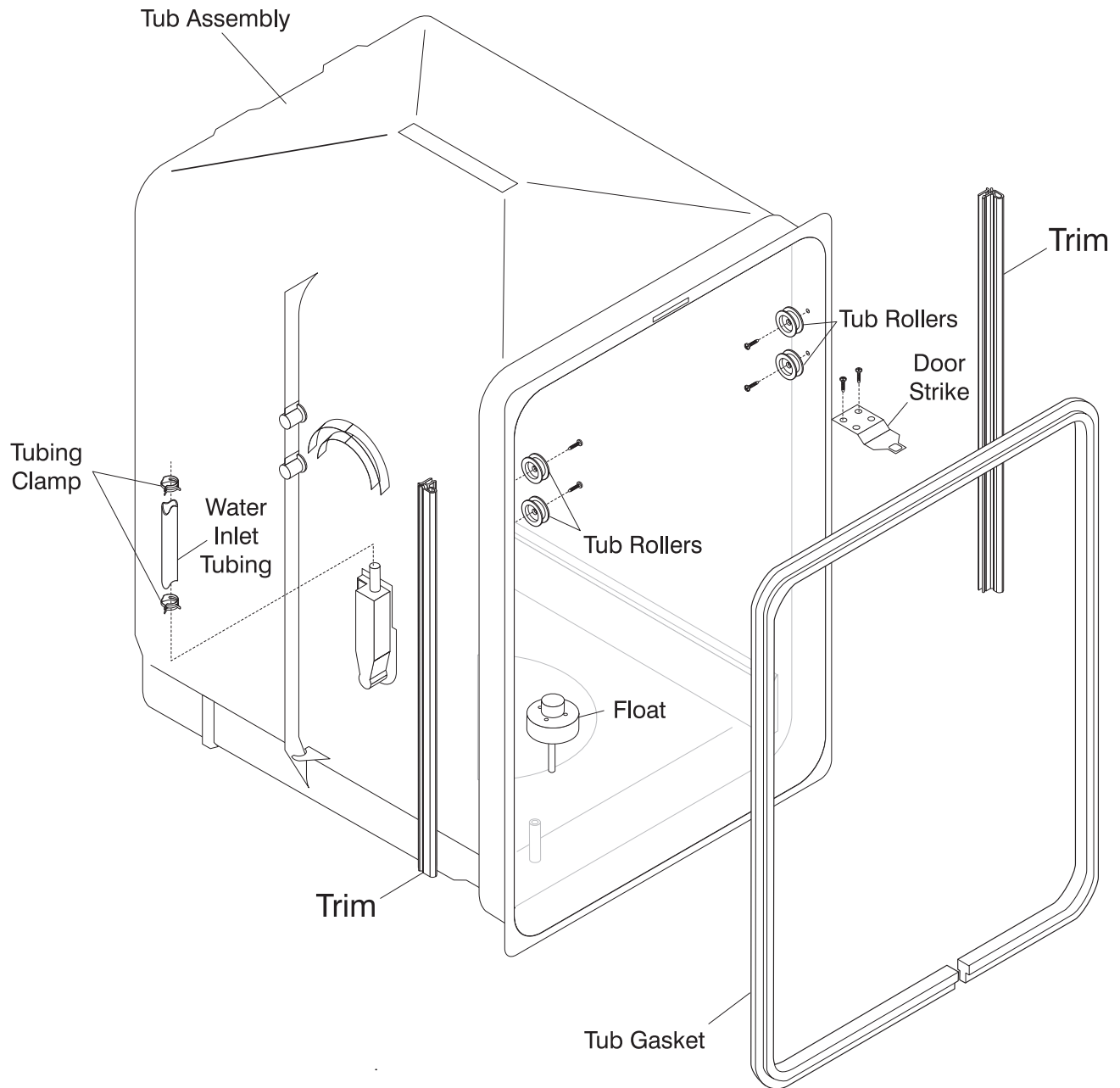


Tubing Clamp

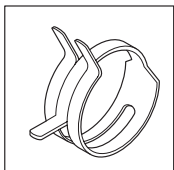


P30U0017

**TUB**  
**For Model #'s**  
**FDS252RBS0**



Tubing Clamp



P30U0019

# **MOTOR & PUMP**

For Model #'s

FDR251RJR0

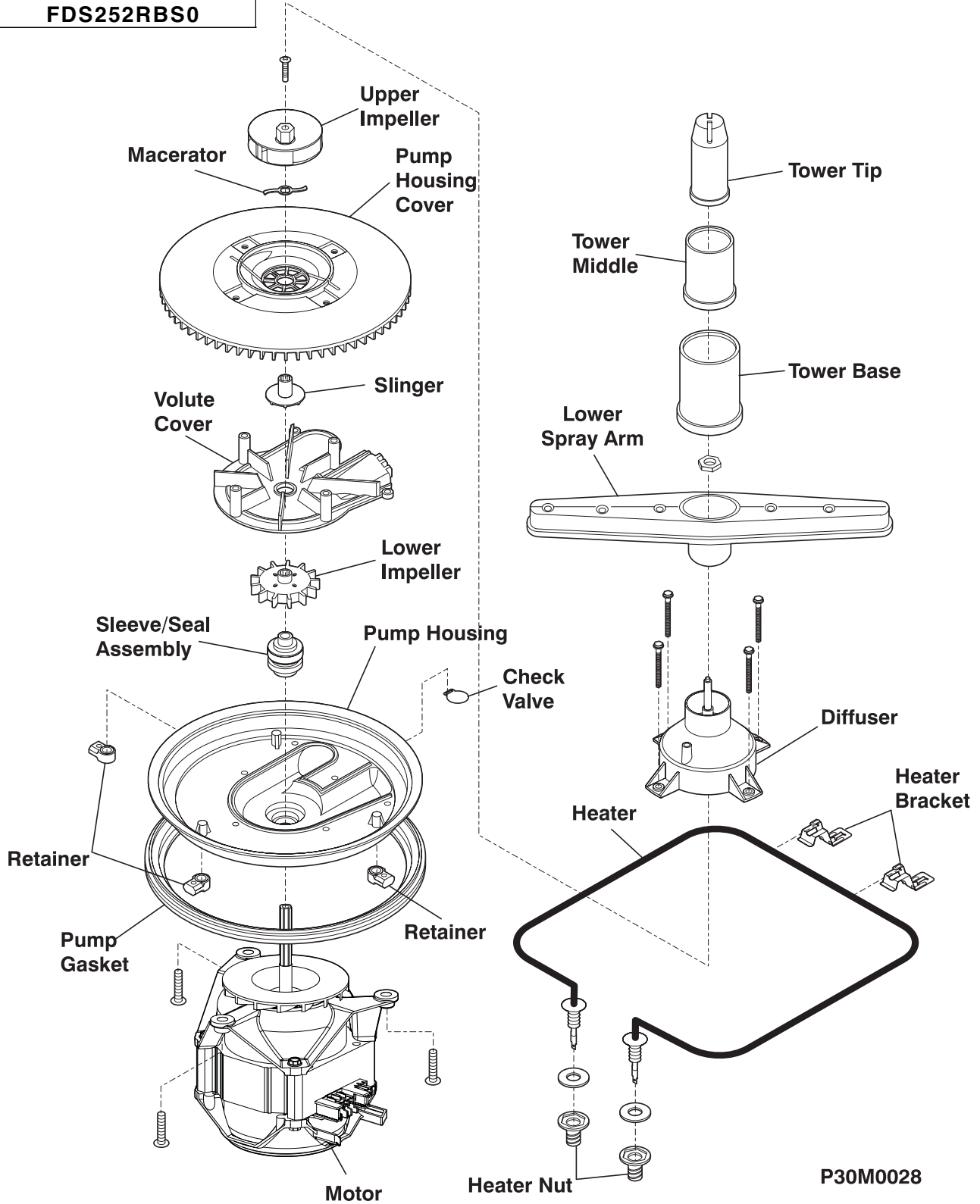
FDR251RJS0

FDS251RJR0

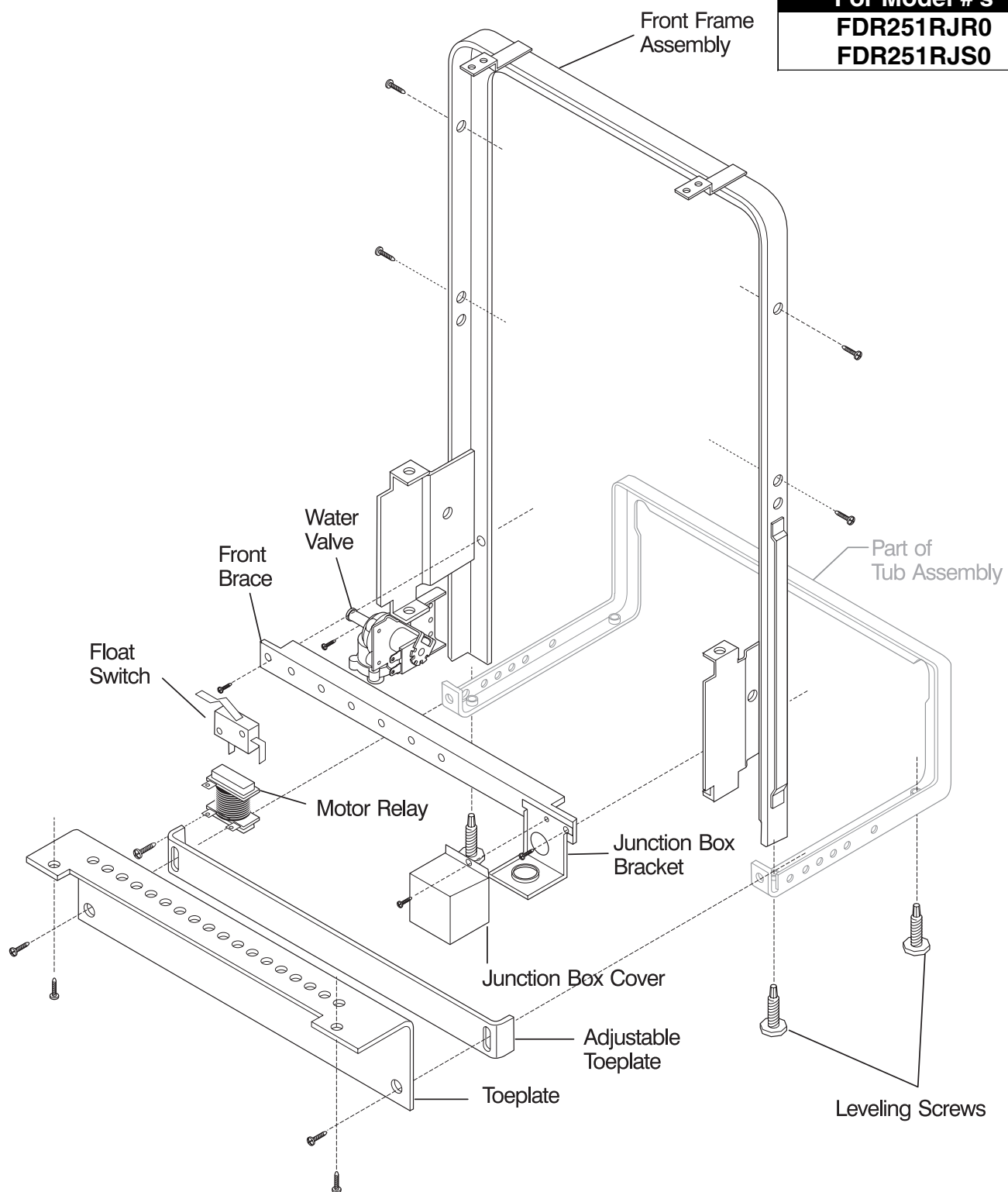
FDR252RBB0

FDR252RBS0

FDS252RBS0



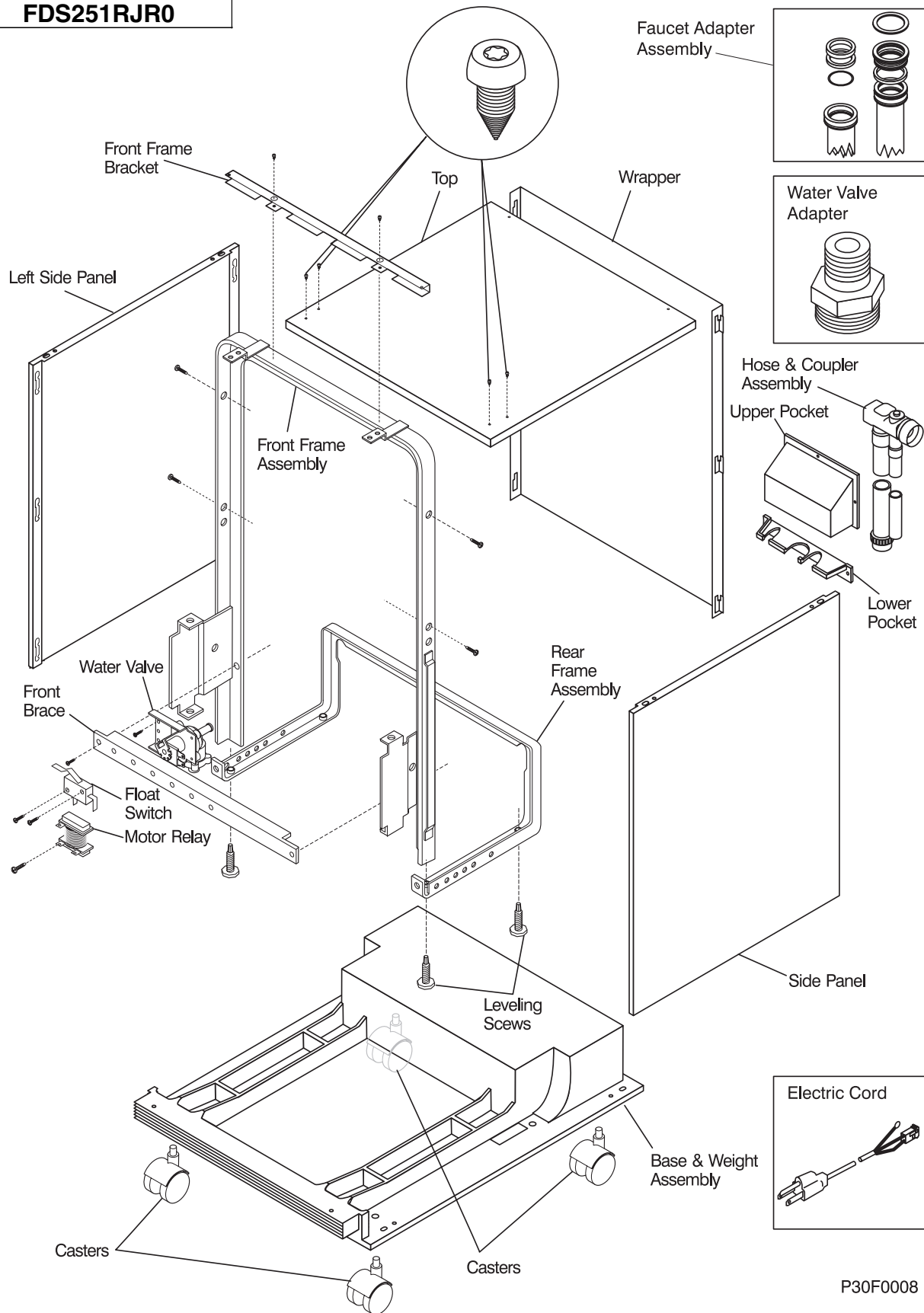
**FRAME**  
For Model #'s  
**FDR251RJR0**  
**FDR251RJS0**



P30F0007

# FRAME

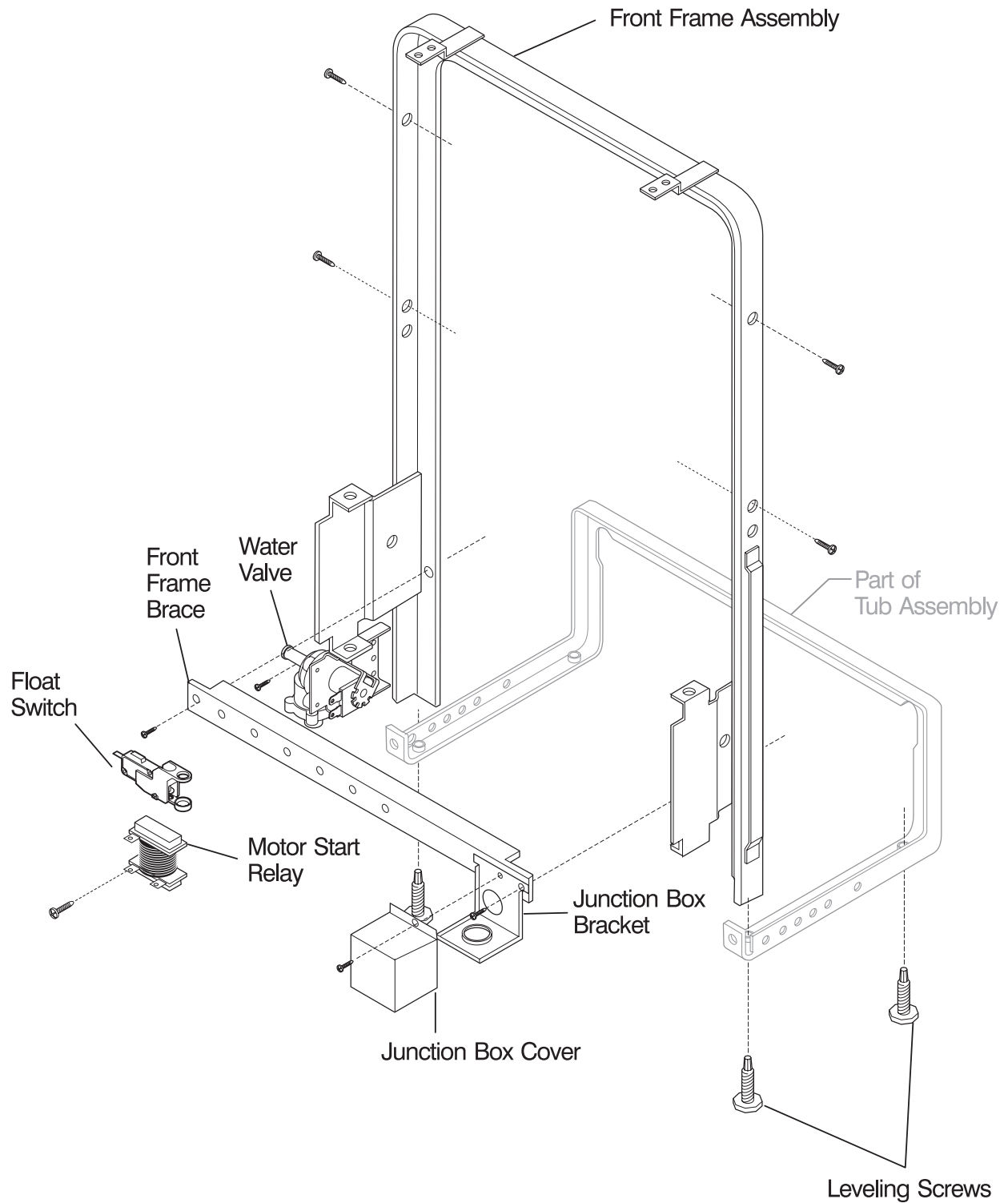
For Model #'s  
FDS251RJR0



P30F0008

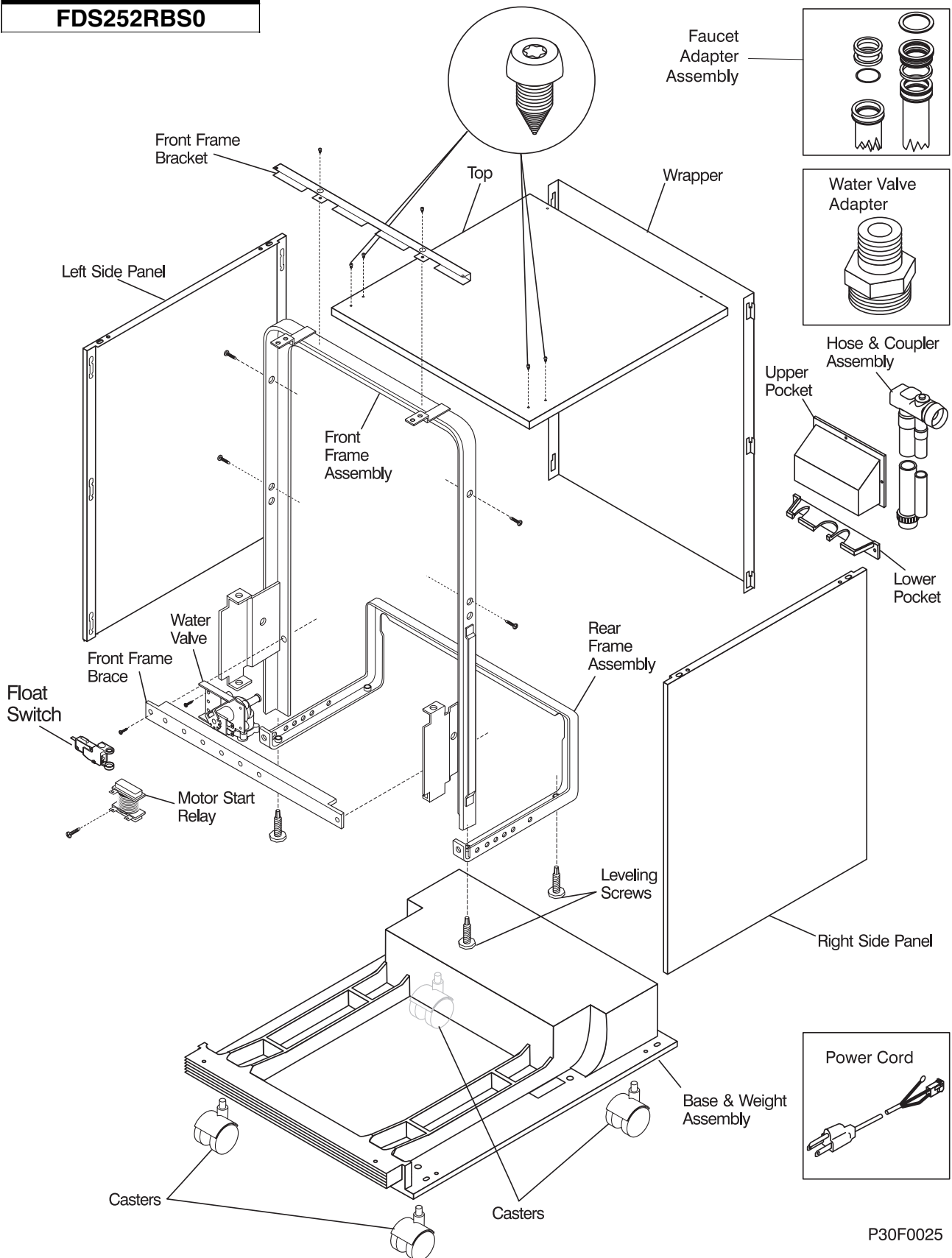


**FRAME**  
**For Model #'s**  
**FDR252RBB0**  
**FDR252RBS0**



P30F0024

**FRAME**  
For Model #'s  
**FDS252RBS0**



P30F0025

# **RACK**

**For Model #'s**

**FDR251RJR0**

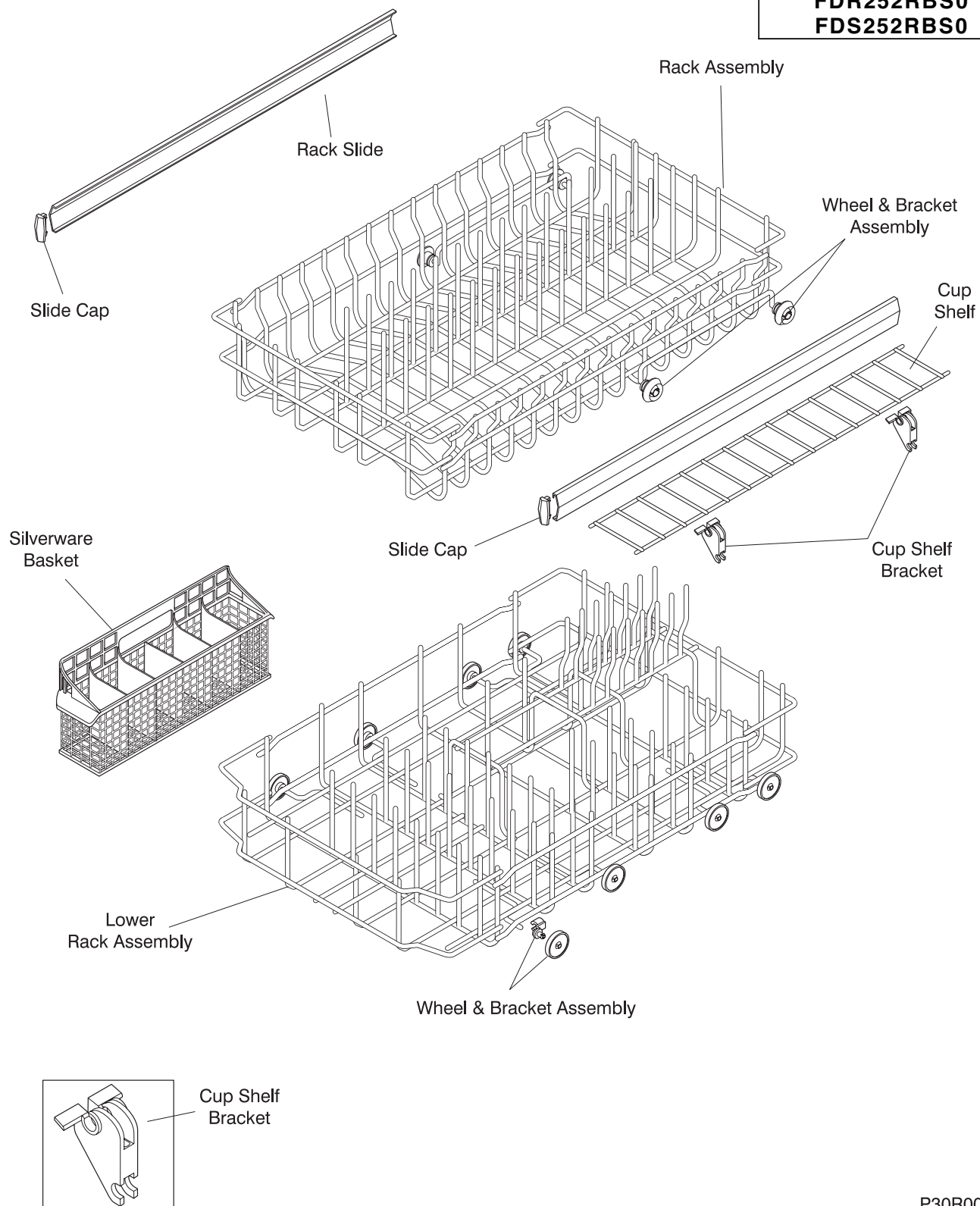
**FDR251RJS0**

**FDS251RJR0**

**FDR252RBB0**

**FDR252RBS0**

**FDS252RBS0**



P30R0021

# APPENDIX B

## Dishwasher Tech Data Sheet

Model Number	Service Data Sheet	Specifications	Timer Chart	Timer Block	Schematic
FDR251RJR0	154384501	B - 2	B - 3	B - 3	B - 3
FDR251RJS0	154384501	B - 2	B - 3	B - 3	B - 3
FDS251RJR0	154384501	B - 2	B - 3	B - 3	B - 3
FDR252RBB0	154384501	B - 2	B - 3	B - 3	B - 3
FDR252RBS0	154384501	B - 2	B - 3	B - 3	B - 3
FDS252RBS0	154384501	B - 2	B - 3	B - 3	B - 3

# Dishwasher Tech Data Sheet

DO NOT REMOVE: SERVICE TECHNICIAN'S USE

**▲WARNING:** DISCONNECT APPLIANCE FROM ELECTRICAL SUPPLY BEFORE SERVICING.

## SPECIFICATIONS

**Electrical Supply** (Under Load) - 60 Hz - 120 VAC  $\pm$  10%

**Supply Water Flow Rate** - Must fill 1 quart container in 18 seconds.

**Supply Water Temperature** - 120°F to 150°F (49°C - 66°C)

**Before starting** dishwasher, run water at sink faucet until hot.

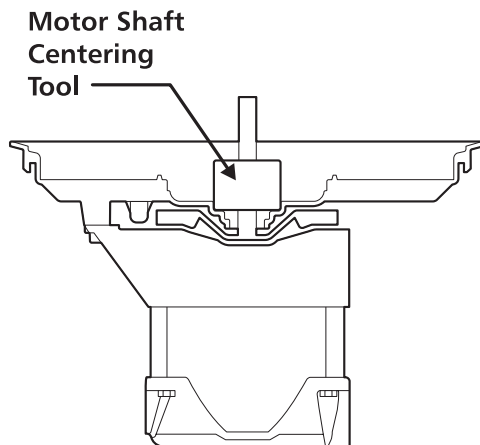
**Thermostat** (*some models*) - Contacts will close at 122°F  $\pm$  5°F (50°C  $\pm$  3°C). The sump water should heat to approximately 140°  $\pm$  5°F (60°C  $\pm$  3°C) with outer door in place.

**Water Charge** - 5 quarts (4.7 liters)

**Spray Arm Rotation** - 20 to 40 RPM

## MOTOR INSTALLATION

Installation of motor to pump housing requires centering of motor shaft using service tool 154384901 (*see illustration below*). Service tool is not packed with motor and must be ordered separately. Failure to center motor shaft may result in seal leaks and noisy operation. The centering tool is also used to install the seal.



## COMMON CAUSES OF LEAKS

### Door Area

- Tub gasket not firmly seated in corners.
- Tub shifted out of square during installation, causing leak in upper corners.
- Vent baffle not sealing properly against tub dam.
- Spray arm split, open crimp seams, or binding.
- Sudsing, which may be caused by:
  - *use of non-dishwasher detergent,*
  - *low water temperature (should be 140°F [60°C]),*
  - *inferior dishwasher detergent, not suppressing foam.*

### Lower pump housing and motor area

- Motor shaft seal damaged or defective.
- Pump housing gasket not seated, screws not tight.
- Pump housing cracked.
- Hose connections loose.

### Float area

- Dirty float tube causing float to stick.

### Other areas

- Water temperature over 160°F (71°C) causing excessive condensation.

## WASHABILITY COMPLAINTS

### Dishes not clean

- Supply water temperature 140°F (60°C) for best results.
- Improper loading.
- Detergent is old, caked or lumpy.
- Detergent cup is not releasing or opening too soon.
- Low water charge due to low water pressure or clogged water valve.
- Hard water film (water with 12 grains or more hardness may require a water softener). Use more detergent.
- Etching (usually on glassware) - caused by a combination of soft water (0 - 4 grains), water temperature over 160°F (71°C), or too much detergent.

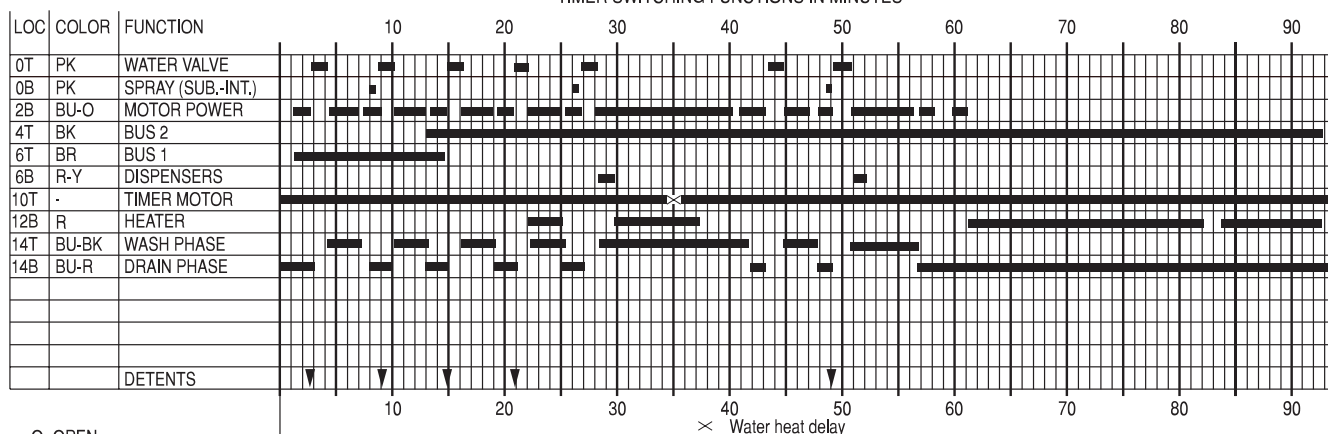
### Dishes not dry

- Dishes not loaded to permit proper draining.
- Wetting agent not being used in models equipped with automatic wetting agent dispenser.
- Supply water temperature under 140°F (60°C). Purge cold water out of hot water faucet.
- Low voltage supply.
- Cool Dry is being selected when Hot Dry is needed.
- Defective heating element - a good element has a resistance of 23 to 25 ohms.

### Staining

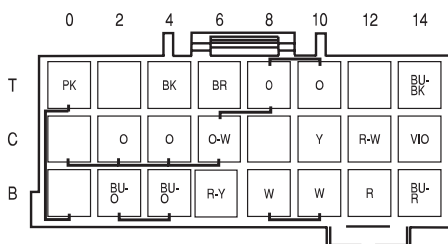
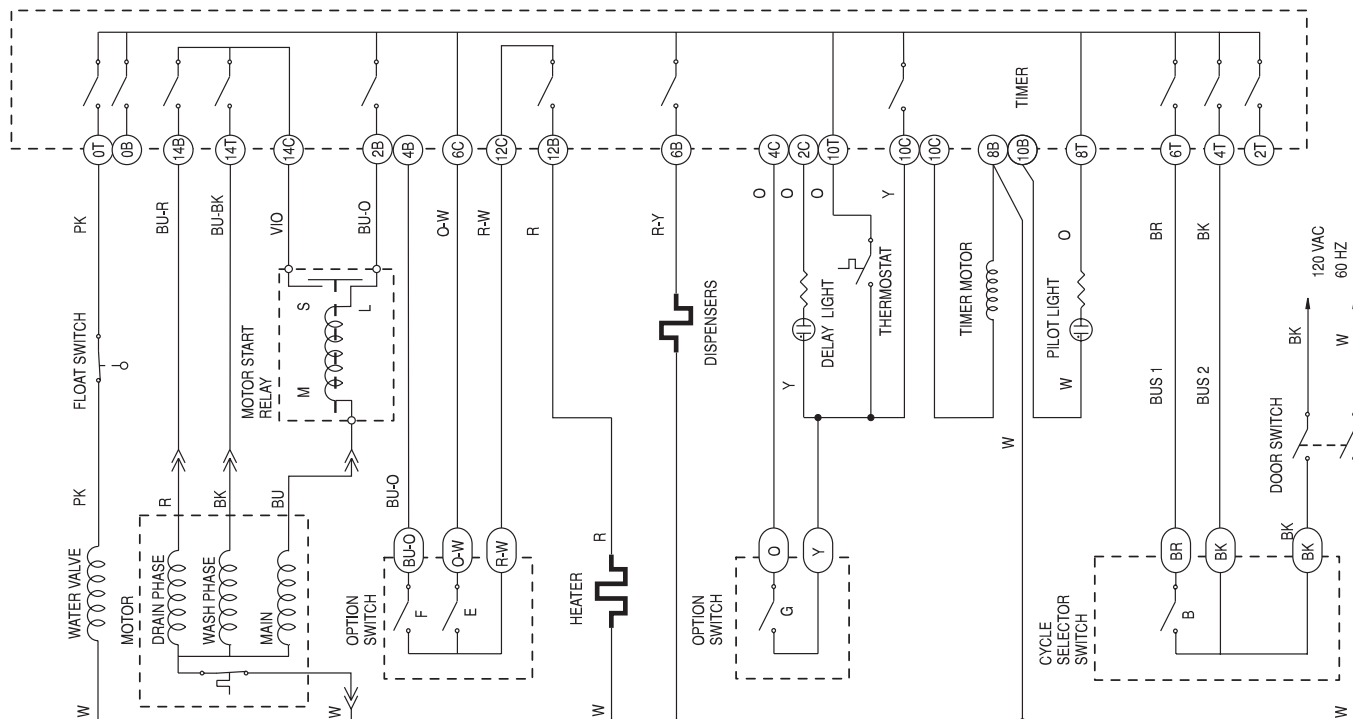
- Coffee or tea - to remove, place items in dishwasher and add 1 tablespoon of chlorine bleach to the detergent. Run machine through the cycle. **DO NOT LOAD SILVERWARE OR METAL ITEMS.**
- Red or brown stains on the tub or dishes may be caused by as little as 1 PPM of iron in the water supply. To remove iron stains from the tub:
  1. *Remove all dishware and silverware.*
  2. *Pour 8 oz. (224 ml) of resin bed cleaner, used in water softeners, into bottom of tub.*
  3. *Place detergent in covered cup.*
  4. *Allow dishwasher to run through complete normal cycle uninterrupted. The dry cycle may be omitted.*
- Hard water film or lime deposit build-up - pour 2 cups of vinegar into empty dishwasher and run through Rinse/Hold cycle. Filmed glasses/dishware may also be cleaned in this manner, but not silverware. Some commercial products, such as "Lime-A-Way", may be available in your area. **▲Caution:** Carefully follow instructions on product container.

# TIMER SWITCHING FUNCTIONS IN MINUTES



O=OPEN  
X=CLOSED  
E= EITHER

SWITCH				CYCLE
F	E	G	B	
			X	POTS & PANS
			X	HEAVY WASH
			O	NORMAL WASH
			O	LIGHT/SHORT
			O	RINSE & HOLD
E	E	O		WATER HEAT
X	O	E		COOL DRY
O	X	X		RESET OPTION



## Color Code

R:	Red	BK-Y:	Black/Yellow	VIO:	Violet
R-Y:	Red/Yellow	BK-W:	Black/White	PK:	Pink
R-W:	Red/White	O:	Orange	BU:	Blue
Y:	Yellow	O-W:	Orange/White	BU-R:	Blue/Red
W:	White	BR:	Brown	BU-BK:	Blue/Black
BU-O:	Blue/Orange	PK-W:	Pink/White	PK-BK:	Pink/Black
BK:	Black	BR-W:	Brown/White		

154384501