

# **KitchenAid**

## **TECHNICAL EDUCATION**

### **Pro Line® FRONT-LOADING AUTOMATIC WASHER**



**MODEL KHWV01RSS**

**JOB AID 4317375**

## FORWARD

This KitchenAid Job Aid “Pro Line® Front-Loading Automatic Washer” (Part No. 4317375), provides the In-Home Service Professional with information on the installation, operation, and service of the Pro Line® Front-Loading Automatic Washer. For specific information on the model being serviced, refer to the “Use and Care Guide,” or “Tech Sheet” provided with the washer.

The Wiring Diagram used in this Job Aid is typical and should be used for training purposes only. Always use the Wiring Diagram supplied with the product when servicing the unit.

## GOALS AND OBJECTIVES

The goal of this Job Aid is to provide information that will enable the In-Home Service Professional to properly diagnose malfunctions and repair the KitchenAid Pro Line® Front-Loading Automatic Washer.

The objectives of this Job Aid are to:

- Understand and follow proper safety precautions.
- Successfully troubleshoot and diagnose malfunctions.
- Successfully perform necessary repairs.
- Successfully return the washer to its proper operational status.

WHIRLPOOL CORPORATION assumes no responsibility for any repairs made on our products by anyone other than authorized In-Home Service Professionals.

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# GENERAL

## WASHER SAFETY

**Your safety and the safety of others are very important.**

We have provided many important safety messages in this manual and on the appliance. Always read and obey all safety messages.



This is the safety alert symbol.

This symbol alerts you to potential hazards that can kill or hurt you and others.

All safety messages will follow the safety alert symbol and either the word “DANGER” or “WARNING.” These words mean:

**! DANGER**

**You can be killed or seriously injured if you don’t immediately follow instructions.**

**! WARNING**

**You can be killed or seriously injured if you don’t follow instructions.**

All safety messages will tell you what the potential hazard is, tell you how to reduce the chance of injury, and tell you what can happen if the instructions are not followed.

# MODEL & SERIAL NUMBER DESIGNATIONS

## MODEL NUMBER

MODEL NUMBER	K	H	W	V	01	R	SS	0
PRODUCT GROUP K = KITCHENAID								
PRODUCT IDENTIFICATION H = HORIZONTAL AXIS - DOMESTIC								
FEATURE CODE W = WASHER								
FEATURE CODE V = PRO LINE								
SERIES								
YEAR OF INTRODUCTION R = 2005								
COLOR CODE								
ENGINEERING CHANGE (NUMERIC)								

## SERIAL NUMBER

SERIAL NUMBER	MC	T	26	01005
DIVISION RESPONSIBILITY MC = American Dryer Corp.				
YEAR OF PRODUCTION T = 2006				
WEEK OF PRODUCTION 26 = 26TH WEEK				
PRODUCT SEQUENCE NUMBER				

## MODEL NUMBER (PEDESTAL)

MODEL NUMBER	L	A	V	27	01	R
PRODUCT GROUP L = Laundry						
PRODUCT IDENTIFICATION A = Accessory						
FEATURE CODE V = ProLine						
PRODUCT WIDTH = 27"						
SERIES						
YEAR OF INTRODUCTION R = 2005						

# MODEL & SERIAL NUMBER LABEL AND TECH SHEET LOCATIONS

The Model/Serial Number label and Tech Sheet locations are shown below.

**Model & Serial Number  
Label Location**



**Tech Sheet Location  
(Behind Toe Panel)**



## SPECIFICATIONS

<b>Model Number</b>	<b>KHWV01RSS</b>
<b>Color</b>	SS = Stainless Steel
<b>Electrical Requirements</b> Heating Power Max. Current Rated Current Voltage Frequency	1,000W 12A 15A 120V 60 Hz
<b>Average Water Usage/ Normal Cycle</b>	14.8 Gal./56 L
<b>Capacity</b>	19 lbs. (9 kg.)
<b>Volume</b>	3.8 cu. ft. (IEC equiv.)
<b>Max. Spin Speed</b>	1200 RPM
<b>Dimensions</b> Height Height (Feet Extended) Width Depth W/Handle Weight	41.7" (1,059mm) 42.7" (1,085mm) 27.0" (687mm) 32.8" (833mm) 289 lbs. (132kg.)
<b>Installation Options</b>	Pedestal
<b>Programs</b> Program Selector Temperature Selector Spin Speed	Button 11 Programs Button (6 levels) Button (6 levels)

# INSTALLATION INFORMATION

## INSTALLATION REQUIREMENTS

### TOOLS AND PARTS

Gather the required tools and parts before starting installation. Read and follow the instructions provided with any tools listed here.

#### Tools needed for connecting the water inlet hoses

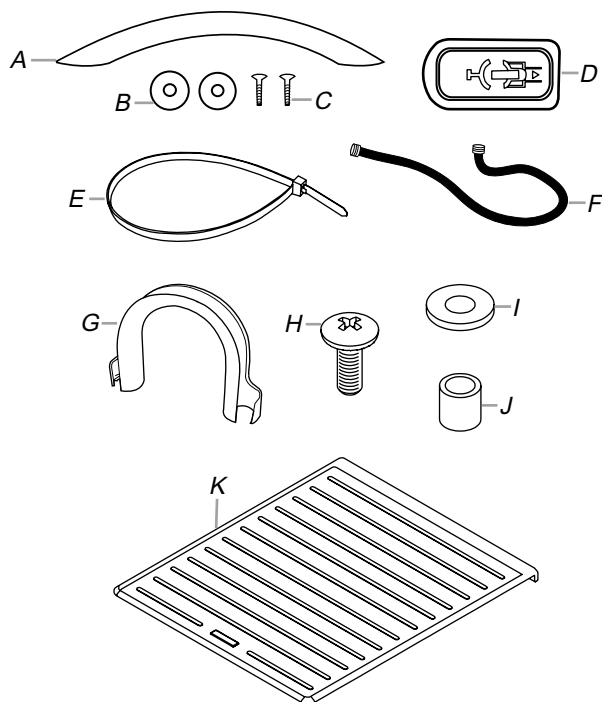
- Pliers that open to 1-9/16" (39.5 mm)
- Flashlight (optional)

#### Tools needed for installation

- Adjustable or open end wrenches 13 mm and 9/16" (14 mm)
- Phillips screwdriver
- Level
- Wood block
- Tape measure

#### Parts supplied

Remove parts package from the washer drum. Check that all parts are included. Remove the optional decorative mat (included) from the top of the washer and set aside.



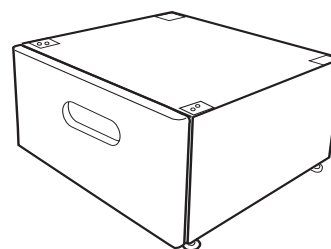
- A. Door handle
- B. Door handle washers (2)
- C. Door handle screws (2)
- D. Transport bolt hole plug (4)
- E. Cable tie
- F. Inlet hose (2)
- G. Drain hose form
- H. Decorative mat mounting screws (2)
- I. Decorative mat flat washers (2)
- J. Decorative mat spacers (2)
- K. Decorative mat

### Alternate parts

If You Have	You Will Need to Buy
Laundry tub or standpipe taller than 96" (2.4 m)	Sump pump system (if not already available)
Overhead sewer	Standard 20 gal. (76 L), 30" (76.2 cm) tall drain tub or utility sink and sump pump (available from local plumbing suppliers)
Floor drain	Siphon break, Part Number <b>285834</b> ; additional drain hose Part Number <b>8318155</b> ; and connector kit, Part Number <b>285835</b>
Drain hose too short	4 ft drain hose extension kit, Part Number <b>285863</b>
Water faucets beyond reach of fill hoses	2 longer water fill hoses: 6 ft (1.8 m) Part Number <b>76314</b> , 10 ft (3.0 m) Part Number <b>350008</b>

### OPTIONS

A pedestal may be purchased separately for this washer. This pedestal will add about 11" (27.9 cm) to the height of the unit for a total vertical height of approximately 53" (134.6 cm).



Optional Pedestal

To order, call the dealer from whom you purchased your washer or refer to the "Assistance or Service" section of the "Use & Care Guide." Ask for Model Number LAV2701RSS.

## LOCATION REQUIREMENTS

Selecting the proper location for your washer improves performance and minimizes noise and possible washer “walk.”

The washer can be installed under a custom counter, in a basement, laundry room, closet, or recessed area. See “Drain System,” page 2-3.

**IMPORTANT:** Do not install or store the washer where it will be exposed to the weather.

Companion appliance location requirements should also be considered. Proper installation is your responsibility.

### You will need

- A water heater set to deliver 120°F (49°C) water to the washer.
- A grounded electrical outlet located within 6 ft (1.8 m) of where the power cord is attached to the back of the washer. See “Electrical Requirements,” page 2-4.
- Hot and cold water faucets located within 5 ft (1.5 m) of the hot and cold water fill valves, and water pressure of 20-100 psi (137.9-689.6 kPa).
- A level floor with a maximum slope of 1" (2.5 cm) under entire washer. Installing the washer on carpeting is not recommended.
- A sturdy and solid floor to support the washer with a total weight (washer, water and load) of 550 lbs (249 kg).

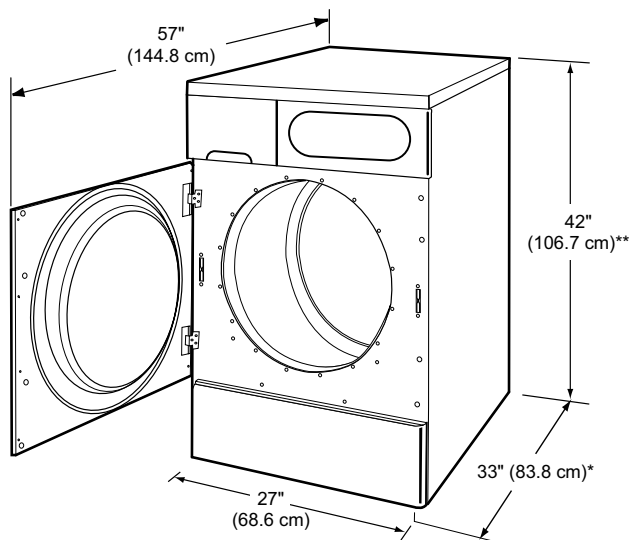
Do not operate your washer in temperatures below 32°F (0°C). Some water can remain in the washer and can cause damage in low temperatures. See “Washer Care,” page 3-20 for winterizing information.

### Installation Spacing

The following spacing dimensions are recommended for this washer. This washer has been tested for installation with spacing of 0" (0 cm) clearance on the sides, front, rear, and top. Recommended spacing should be considered for the following reasons:

- The location must be large enough to allow the washer door to be fully opened.
- Additional spacing should be considered for ease of installation and servicing.
- Additional clearances might be required for wall, door, and floor moldings.
- Additional spacing of 1" (2.5 cm) on all sides of the washer is recommended to reduce noise transfer.
- Companion appliance spacing should also be considered.

### Washer Dimensions



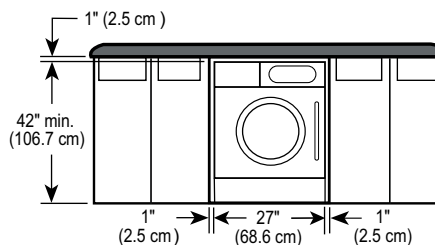
\* Includes the door handle.

\*\* Includes the feet extended 1" (2.5 cm). The optional decorative mat (included) will add approximately ½" (1.3 cm).

**NOTE:** Door is not reversible.

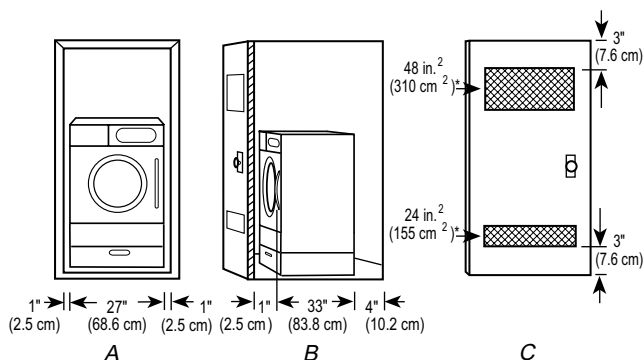
### Recommended installation spacing for custom undercounter installation, washer only

The dimensions shown are for a washer without the optional decorative mat placed on top.



## Recommended installation spacing for recessed or closet installation, with or without a pedestal

- For closet installation with a door, minimum ventilation openings in the top and bottom of the door are required. Louvered doors with equivalent openings are acceptable.

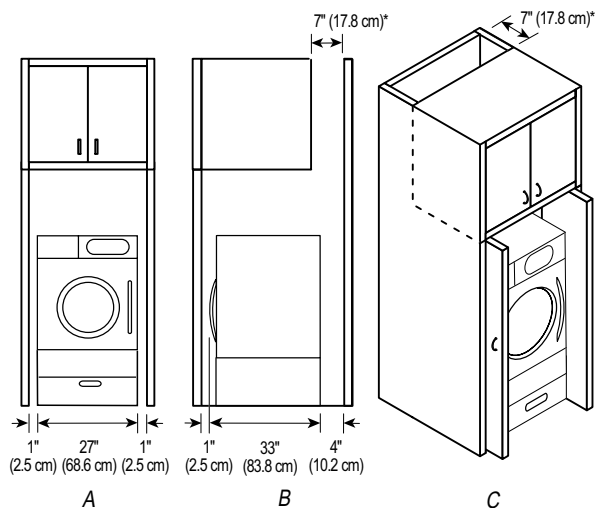


A. Recessed area  
B. Side view - closet or confined area  
C. Closet door with vents

\*Required spacing

## Recommended installation spacing for cabinet installation, with or without a pedestal

- For cabinet installation, with a door, the minimum ventilation openings in the top are required.



A. Front view  
B. Side view  
C. Cabinet with vents

\*Required spacing

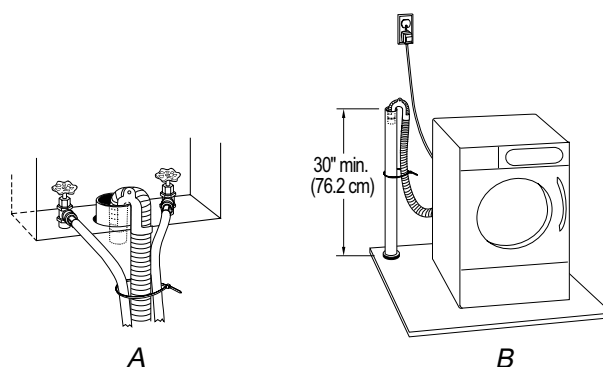
## DRAIN SYSTEM

The washer can be installed using the standpipe drain system (floor or wall), the laundry tub drain system, or the floor drain system. Select the drain hose installation method you need. See “Tools and Parts,” page 2-1.

### Standpipe Drain System— Wall Or Floor (Views A & B)

The standpipe drain requires a minimum diameter standpipe of 2" (5 cm). The minimum carry-away capacity can be no less than 17 gal. (64 L) per minute.

The top of the standpipe must be at least 30" (76.2 cm) high and no higher than 96" (2.4 m) from the bottom of the washer.



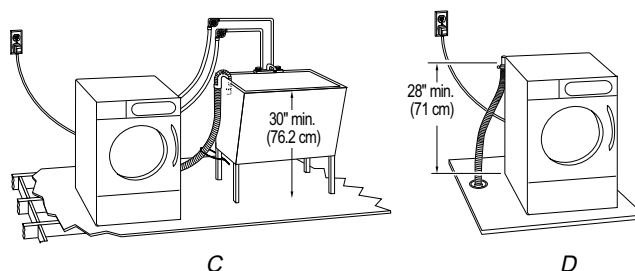
### Laundry Tub Drain System (View C)

The laundry tub needs a minimum 20 gal. (76 L) capacity. The top of the laundry tub must be at least 30" (76.2 cm) above the floor.

### Floor Drain System (View D)

The floor drain system requires a siphon break that may be purchased separately. See “Tools and Parts,” page 2-1.

The siphon break must be a minimum of 28" (71 cm) from the bottom of the washer. Additional hoses might be needed.



## ELECTRICAL REQUIREMENTS

### **WARNING**



#### **Electrical Shock Hazard**

**Plug into a grounded 3 prong outlet.**

**Do not remove ground prong.**

**Do not use an adapter.**

**Do not use an extension cord.**

**Failure to follow these instructions can result in death, fire, or electrical shock.**

- A 120-volt, 60-Hz., AC-only, 15- or 20-ampere, fused electrical supply is required. A time-delay fuse, or circuit breaker, is recommended. It is recommended that a separate circuit serving only this appliance be provided.
- This washer is equipped with a power supply cord having a 3 prong grounding plug.
- To minimize possible shock hazard, the cord must be plugged into a mating, 3 prong, grounding-type outlet, grounded in accordance with local codes and ordinances. If a mating outlet is not available, it is the personal responsibility and obligation of the customer to have the properly grounded outlet installed by a qualified electrician.
- If codes permit and a separate ground wire is used, it is recommended that a qualified electrician determine that the ground path is adequate.

- Do not ground to a gas pipe.
- Check with a qualified electrician if you are not sure the washer is properly grounded.
- Do not have a fuse in the neutral or ground circuit.

### **GROUNDING INSTRUCTIONS**

#### **For a grounded, cord-connected washer:**

This washer 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. This washer is equipped with a cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

**WARNING:** Improper connection of the equipment-grounding conductor can result in a risk of electric shock. Check with a qualified electrician or serviceman if you are in doubt as to whether the appliance is properly grounded.

Do not modify the plug provided with the appliance. If it will not fit the outlet, have a proper outlet installed by a qualified electrician.

#### **For a permanently connected washer:**

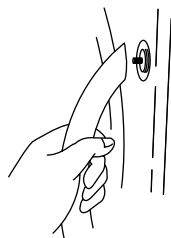
This washer must be connected to a grounded metal, permanent wiring system, or an equipment-grounding conductor must be run with the circuit conductors and connected to the equipment-grounding terminal or lead on the appliance.



# INSTALLATION INSTRUCTIONS

## ATTACH DOOR HANDLE

1. Insert the 2 screws through the holes in the door.
2. Place the plastic washers onto the screws.
3. Attach the handle by hand tightening the screws, first the top then the bottom.



4. Push the handle against the door. Using a Phillips screwdriver, tighten the screws.

**NOTE:** Do not overtighten.

## REMOVE TRANSPORT SYSTEM

### **⚠ WARNING**

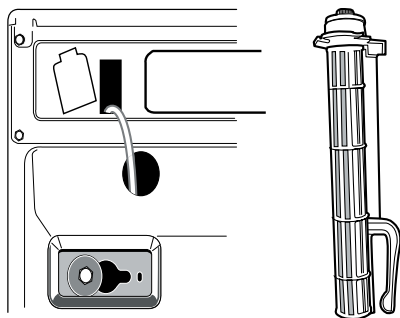
#### **Excessive Weight Hazard**

**Use two or more people to move and install washer.**

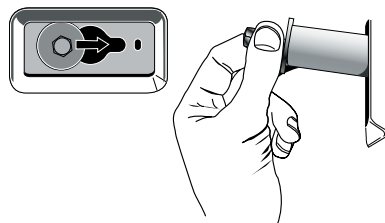
**Failure to do so can result in back or other injury.**

**IMPORTANT:** Position the washer so that the rear of the unit is within approximately 3 feet (90 cm) of the final location.

There are 4 bolts in the rear panel of the washer that support the suspension system during transportation. These bolts also retain the power cord inside the washer until the bolts are removed.



1. Using a 13 mm wrench, loosen each of the bolts.
2. Once the bolt is loose, move it to the center of the hole, and completely pull out the bolt, including the plastic spacer covering the bolt. The power cord will be attached to all 4 bolts inside the washer.



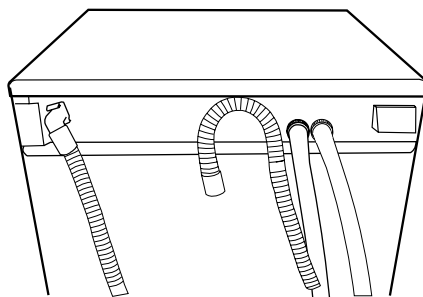
3. Once all 4 bolts are removed, discard the bolts and spacers. Then pull the power cord through the opening of the rear panel and close the hole with the attached cap.
4. Close the bolt holes with the 4 transport bolt hole plugs.

**NOTE:** If the washer is to be transported at a later date, call your local service center. To avoid suspension and structural damage, the machine must be properly prepared (transport system installed) for relocation by a certified technician.

## ROUTE THE DRAIN HOSE

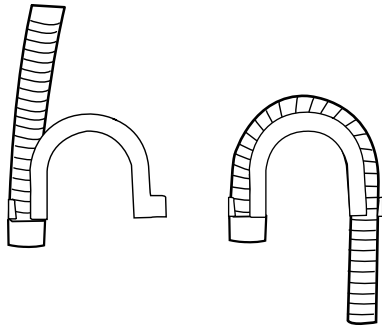
Proper routing of the drain hose helps avoid floor damage due to water leakage. Read and follow these instructions.

The drain hose is connected to your washer. Gently pull the corrugated drain hose from the shipping clips.



### Laundry tub drain or standpipe drain

Connect the drain hose form to the corrugated drain hose.



- A. Snap either end of the drain hose form to the drain hose at the point where the corrugation begins.  
B. Bend drain hose over drain hose form and snap into place.

### To keep drain water from going back into the washer:

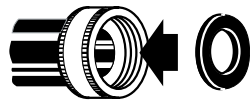
- Do not straighten the drain hose, and do not force excess drain hose into standpipe. Hose should be secure, but loose enough to provide a gap for air.
- Do not lay excess hose on the bottom of the laundry tub.

### Floor drain

You may need additional parts. See Floor drain under “Tools and Parts,” page 2-1.

### CONNECT THE INLET HOSES

**IMPORTANT:** Verify that there are rubber washers installed in both ends of both of the inlet hoses.



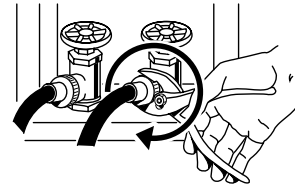
A. Coupling B. Washer

### Connect the inlet hoses to the water faucets.

Make sure the washer drum is empty.

1. Attach the red inlet hose to the hot water faucet. Screw on coupling by hand until it is seated on the washer.
2. Attach the blue inlet hose to the cold water faucet. Screw on coupling by hand until it is seated on the washer.

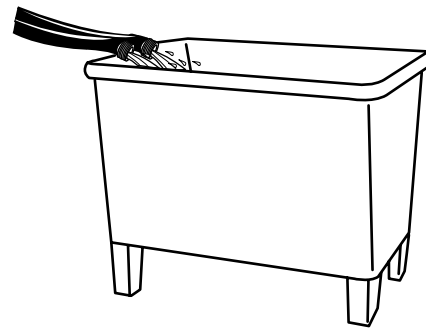
3. Using pliers, tighten the couplings with an additional two-thirds turn.



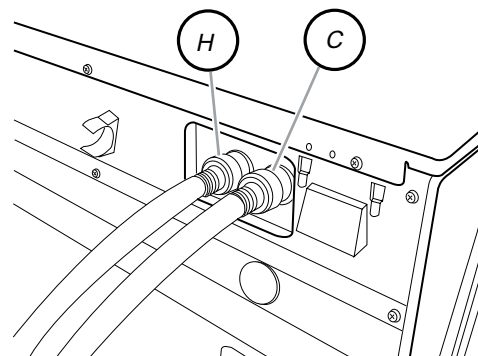
**NOTE:** Do not overtighten or use tape or sealants on the valve. Damage to the valves can result.

### Clear the water lines

- Run water through both faucets and inlet hoses, into a laundry tub, drainpipe or bucket, to get rid of particles in the water lines that might clog the inlet valve screens.
- Check the temperature of the water to make sure that the hot water hose is connected to the hot water faucet and that the cold water hose is connected to the cold water faucet.



### Connect the inlet hoses to the washer



H. Hot water inlet C. Cold water inlet

1. Attach the red water inlet hose to the washer's hot (H) water inlet valve. Screw on coupling by hand until it is seated on the washer.

2. Attach the blue water inlet hose to the washer's cold (C) water faucet. Screw on coupling by hand until it is seated on the washer.

3. Using pliers, tighten the couplings with an additional two-thirds turn.

**NOTE:** Do not overtighten. Damage to the coupling can result.

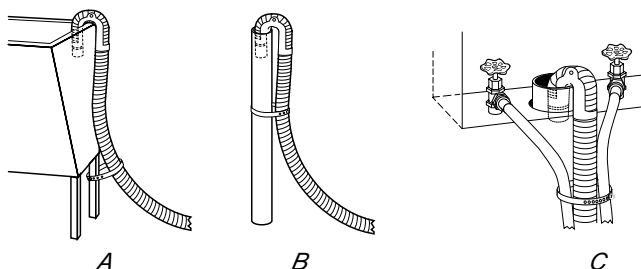
4. Turn on the water faucets completely and check for leaks.

**NOTE:** Replace original inlet hoses after 10 years of use to reduce the risk of hose failure. Record hose installation or replacement dates on the hoses for future reference.

Periodically inspect and replace hoses if bulges, kinks, cuts, wear, or leaks are found.

## SECURE THE DRAIN HOSE

1. Drape the power cord over the washer top.
2. Secure the drain hose to the laundry tub leg or standpipe with the cable tie provided. See illustrations A and B.



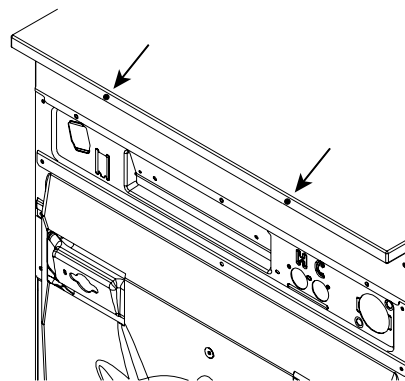
If the washer faucets and the drain standpipe are recessed (see illustration C), put the hooked end of the drain hose in the standpipe. Tightly wrap the cable tie around the water inlet hoses and the drain hose.

## NOTES:

- Do not force excess drain hose back into the rear of the washer.
- Do not force excess drain hose into the standpipe.
- To avoid siphoning, do not seal the drain hose into the standpipe.

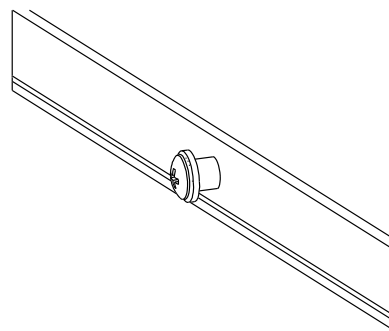
## ATTACH DECORATIVE MAT

1. Locate the 2 holes in the back of your washer.



Back view of washer

2. Place the flat washer and then the spacer on the mounting screw and attach to the washer using a Phillips screwdriver.

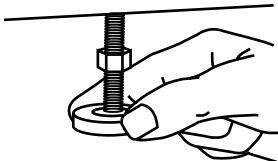


3. Check that the top of the washer and the bottom of the mat are clean.
4. Set the mat in place on top of the washer. Hook the back edge of the decorative mat over the mounting screws.

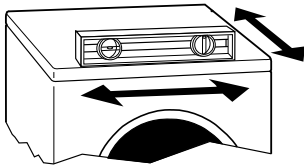
## LEVEL THE WASHER

One foot has been installed at a different height on your new washer. The other three feet were preset at the factory. Properly leveling your washer will minimize excessive noise and vibration.

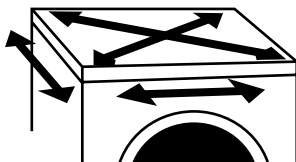
1. Using a 9/16" (14 mm) open-end wrench, verify that the nuts on the three preset feet are tightened against the cabinet.
2. Slide the washer to its final location.
3. Push on the upper front panel to be sure that the washer is on the rear feet. Lower the right front foot until it contacts the floor. By hand, firmly rotate the foot up to an additional 1-1/2 turns.



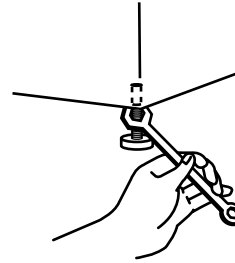
4. Check the levelness of the washer by placing a level on the top edge of the washer, first side to side, then front to back.



5. Rock washer gently front to back, side to side and diagonally to make sure that all four feet are in firm contact with the floor.

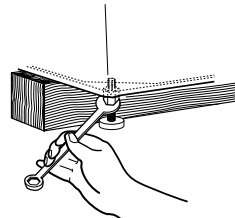


6. After the washer is level, use a 9/16" (14 mm) open-end wrench to turn the nuts on the feet tightly against the washer cabinet.



**IMPORTANT:** All four feet must be tightened. If the nuts are not tight against the washer cabinet, the washer may vibrate.

7. If the washer is not level, move the washer out slightly and first prop the front with a wood block and adjust the feet as necessary. Then prop the back and adjust feet as necessary. Repeat this step until the washer is level.



## COMPLETE INSTALLATION

1. Check the electrical requirements. Be sure that you have the correct electrical supply and the recommended grounding method. See "Electrical Requirements," page 2-4.
2. Check that all parts are now installed. If there is an extra part, go back through the steps to see which step was skipped.
3. Check that you have all of your tools.
4. Remove any protective film or tape remaining on the washer.
5. Dispose of, or recycle all packaging materials.
6. Check that the water faucets are on.
7. Check for leaks around faucets and inlet hoses.

## **! WARNING**



### **Electrical Shock Hazard**

**Plug into a grounded 3 prong outlet.**

**Do not remove ground prong.**

**Do not use an adapter.**

**Do not use an extension cord.**

**Failure to follow these instructions can result in death, fire, or electrical shock.**

8. Plug into a grounded 3 prong outlet.
9. Read "Washer Use," page 3-9.
10. To test and to clean your washer, measure 1/2 the detergent manufacturer's recommended amount of HE High Efficiency detergent for medium sized loads. Pour the detergent into the detergent dispenser. Select NORMAL/CASUAL, and then select START. Allow the washer to complete one whole cycle.



Use only HE High Efficiency detergent.

## — NOTES —

# PRODUCT OPERATION

## THEORY OF OPERATION

### WATER SYSTEM

The water system consists of the hot and cold water inlet valves, a water temperature sensor, a water flowmeter and control, and the dispenser distribution system along with a traditional pressure switch.

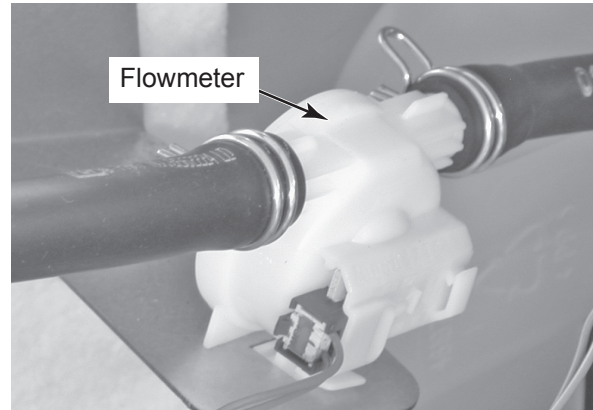
### WATER INLET VALVES

The hot and cold water inlet valves are located at the back of the washer. These valves receive a control signal from the Central Control Unit to manage the temperature of incoming water. The temperatures are determined by the specific wash cycle selected and a temperature sensor located in the wash tub. To improve cleaning of heavily soiled clothing and to provide a sanitizing feature, the water temperature can be increased through the use of a heating element located in the bottom of the tub.

### FLOWMETER

Water flow, or the quantity of water introduced throughout any cycle, is monitored by a flowmeter and Central Control Unit. When the flowmeter registers a maximum of 10.5 gal. (40 L), and the Central Control Unit has not detected the pressure switch trip, the water valves will be shut off and an error code will show in the digital display.

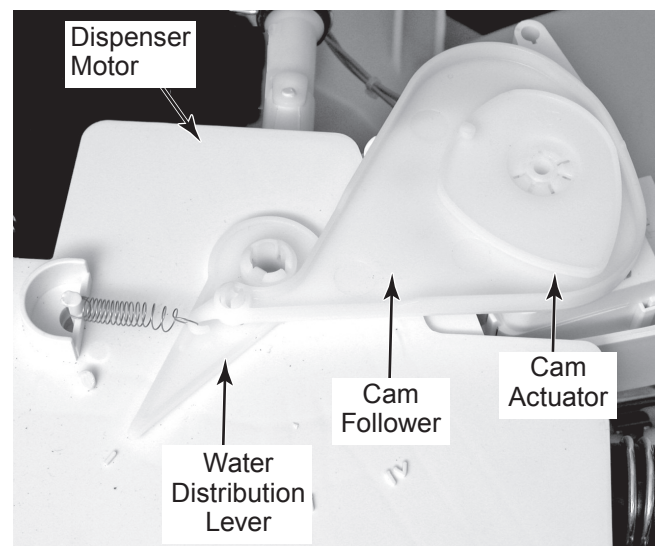
The flowmeter is also used to introduce additional water into the tub for higher water levels, based on cycle requirements.



### DISPENSER DISTRIBUTION SYSTEM

All wash and rinse water is introduced into the wash tub through a Dispenser Distribution System located in the top left corner of the washer. The system consists of a motor that turns a cam gear. The cam follower will divert the incoming water to one of the follow water inlet modes:

- Detergent Dispensing
- Bleach Dispensing
- Fabric Softener Dispensing





The dispenser drawer has four separate compartments for adding laundry products to the wash load. These compartments are:

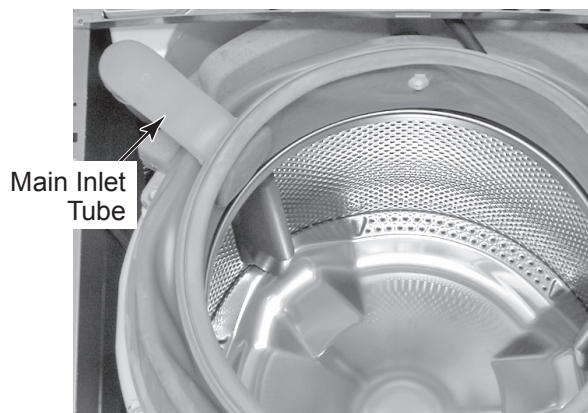
1. Prewash Detergent Compartment
2. Main Wash Detergent Compartment
3. Bleach Compartment
4. Fabric Softener Compartment



Laundry products are diluted and dispensed automatically at the proper time during the wash cycle. The separator in the Prewash and Main Wash Detergent Compartment can be moved to accommodate either liquid or powdered detergents.

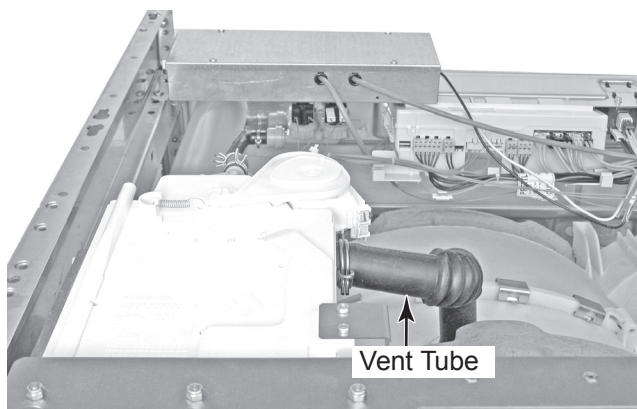
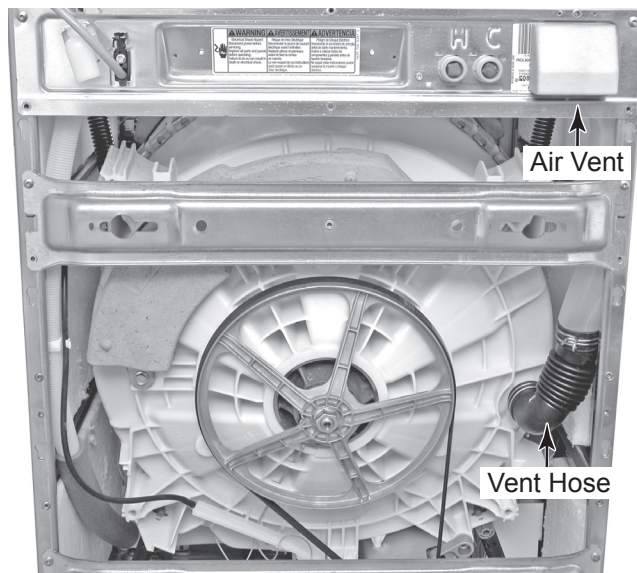


The water enters the wash tub through the main inlet tube.



## AIR VENT SYSTEM

As a safety feature, the washer is designed to allow fresh air to circulate through the tub. An inlet vent at the rear of the washer brings air into the tub. The fresh air is vented through the dispenser assembly vent hose and out the front of the dispenser drawer cutout.



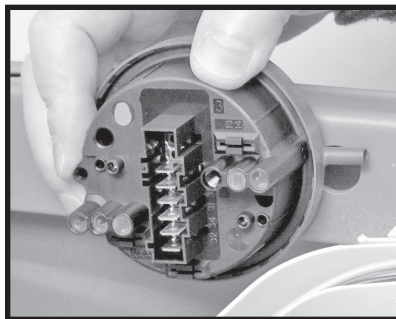


## PRESSURE SWITCH

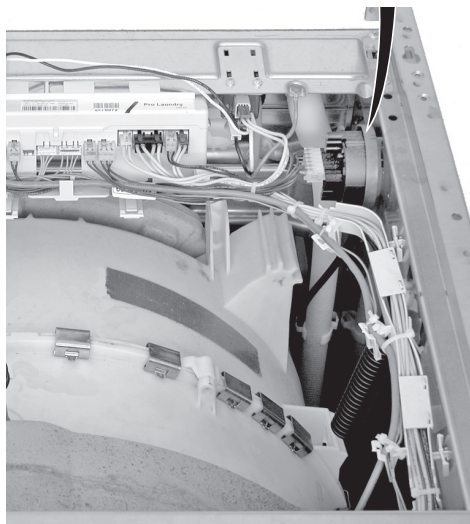
The pressure switch is located in the top right rear corner of the washer. This switch senses water level in the wash tub. The control signal from the pressure switch is sent to the Central Control Unit and is used to determine the amount of water introduced into the wash tub during the wash cycle.

The pressure switch also senses the suds level in the wash tub. If excessive sudsing occurs, the washer starts an automatic suds routine. The display will show the word "Sud." The automatic suds routine adds additional rinse and drain operations until the suds level is reduced.

If an overfill condition is detected by the pressure switch, the CCU will turn on the drain pump and attempt to stop filling.

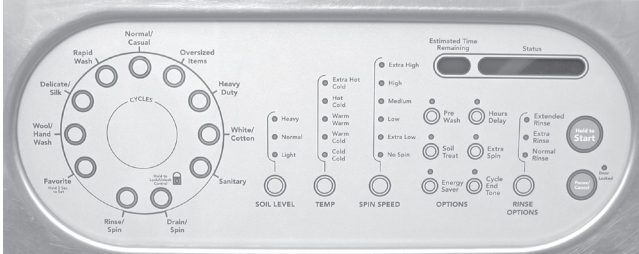


Pressure Switch



## CONTROL ASSEMBLY (TOUCHPAD/LED BOARD)

The Touchpad/LED board is part of the control assembly. It is connected to the Central Control Unit by a cable. This interfaces the consumer inputs to the Central Control Unit.

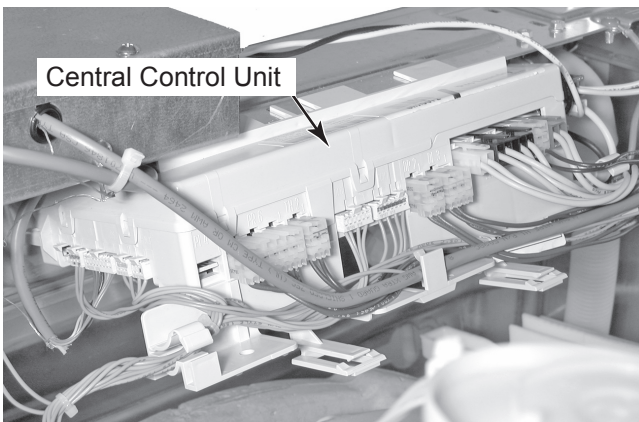


## CENTRAL CONTROL UNIT (CCU)

The Central Control Unit is located at the top rear of the washer and is enclosed in a control box. There are no serviceable parts inside the control box. If diagnostic tests indicate any component of the CCU is defective, the entire control box must be replaced.

The CCU receives input from the touchpad/LED board and directly controls the dispenser, drain pump, water inlet valves, door locking and unlocking solenoids, and heating element relay. The CCU monitors the pressure switch, flowmeter, temperature sensor and door lock switches.

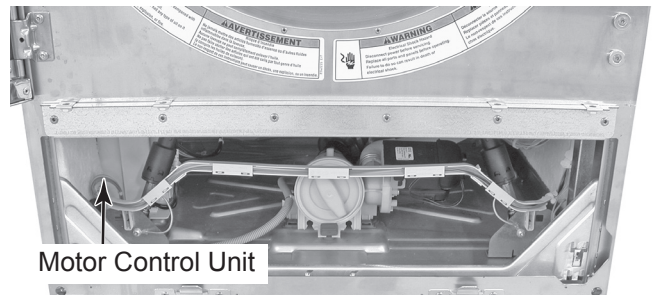
The CCU sends the customer selection input to the Motor Control Unit for proper motor operation.



## MOTOR CONTROL UNIT (MCU)

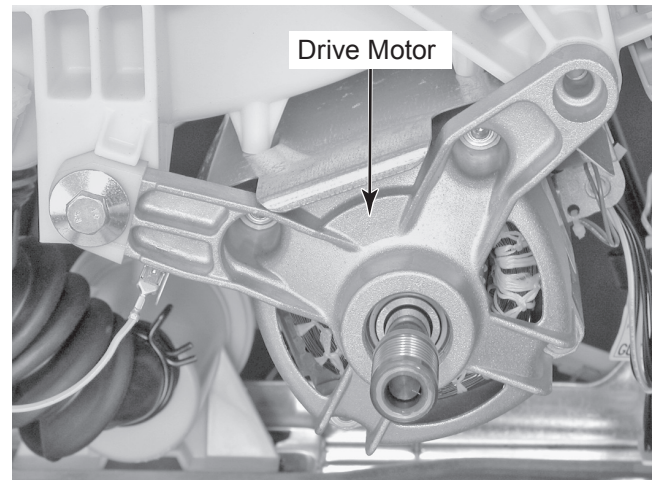
The Motor Control Unit is located inside a plastic control box located in the lower front corner of the washer cabinet. The control box is shown with the access door open.

The MCU operates the drive motor at varying speeds and direction based on inputs received by the CCU to complete the cycle selected. The MCU also monitors a tachometer on the motor to confirm that the drive motor is operating at the proper speed and direction.



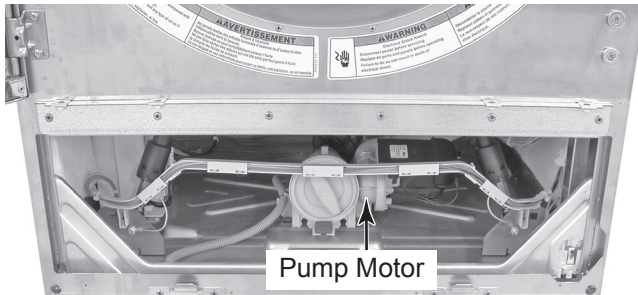
## DRIVE MOTOR

The drive motor is a three-phase asynchronous induction type that operates at various speeds and direction based on input voltages and frequencies. A tachometer on the motor shaft sends a feedback signal to the Motor Control Unit indicating the rotation speed and direction.

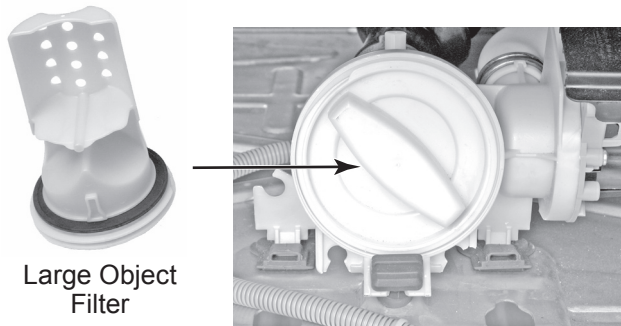


## PUMP MOTOR

A separate pump/pump motor is used to drain the wash tub.

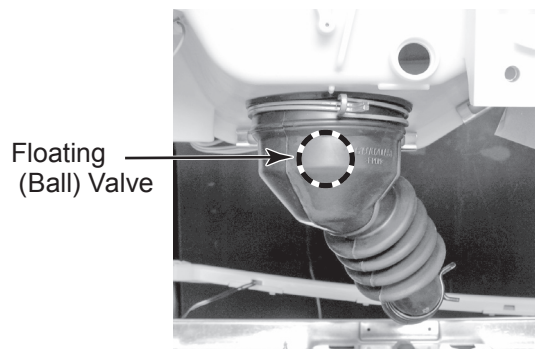


The pump motor is 120 VAC and is attached directly to the pump. The pump has a cleanout filter located at the front that allows for the removal of large objects that may have passed from the basket.



## ECO VALVE

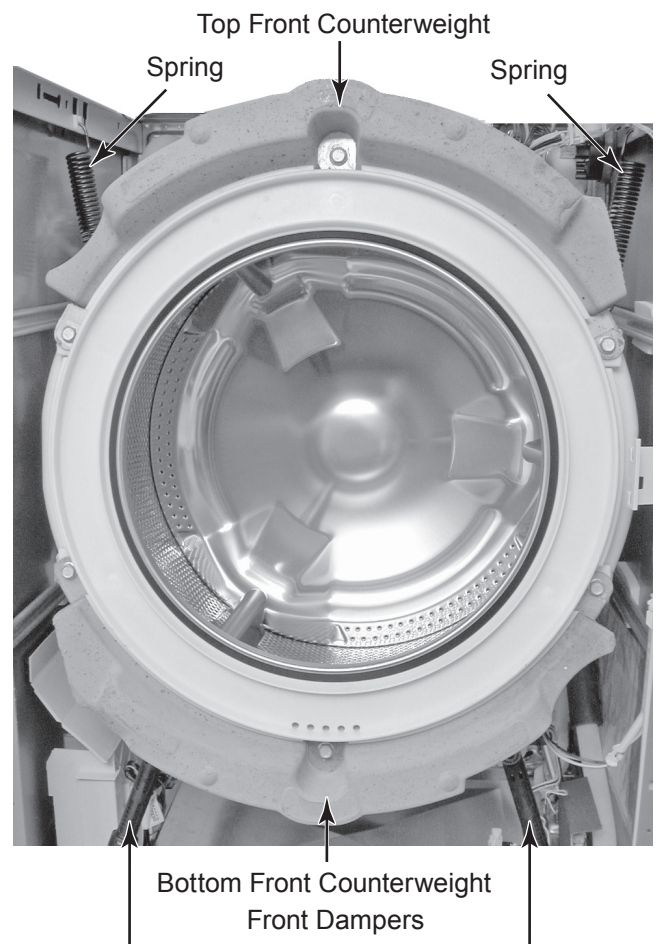
The washer has a specially designed floating (ball) valve that closes during the wash portion of the cycle so that 100% of the water and detergent mixture is used on the wash load. The Eco Valve insures that no water or detergent is wasted.



## SUSPENSION SYSTEM

The wash tub is held in position with four dampers attached to the bottom four corners of the tub assembly. In addition, the wash tub is suspended from the top frame of the washer with two springs attached to the sides of the unit.

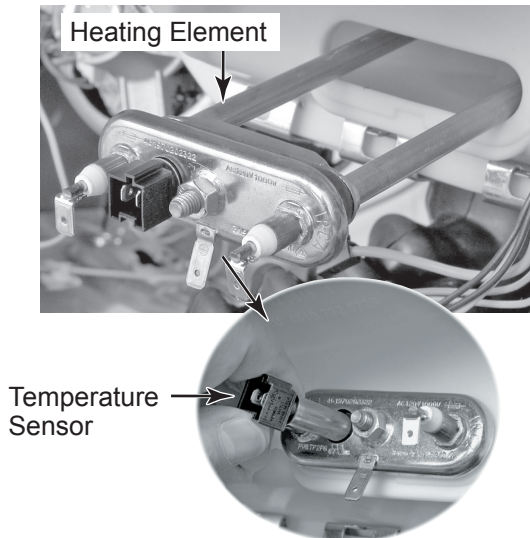
Stability for this suspension system is provided by three concrete counterweights. Two are located at the front of the wash tub. One is positioned at the back of the tub. These counterweights eliminate the need for the traditional balance ring.





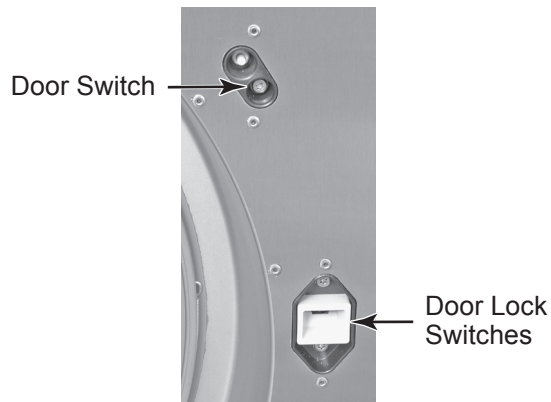
## HEATING ELEMENT & TEMPERATURE SENSOR

A heating element is used to increase the water temperature during certain wash cycles. The temperature sensor is used with the heater to monitor water temperature in the tub.

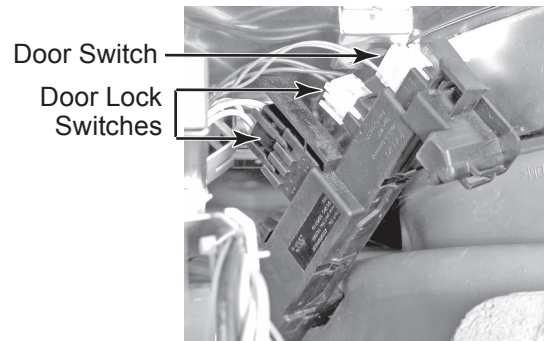


## DOOR LOCK/SWITCH ASSEMBLY

The Door Lock/Switch Assembly is located on the right side of the door opening.

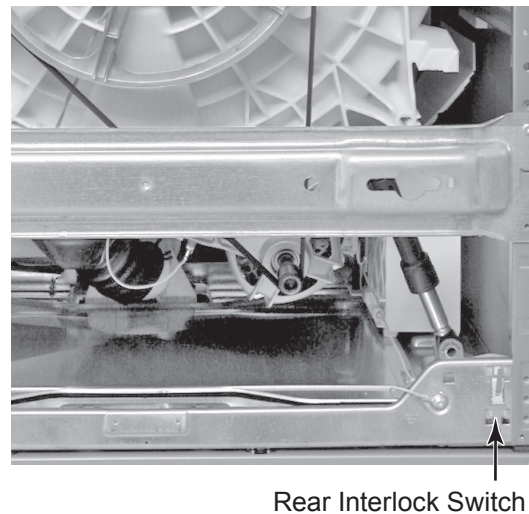


The assembly contains a solenoid operated latching mechanism that will electrically lock the door during a wash cycle.



## INTERLOCK SWITCHES

The front and rear interlock switches are located immediately behind the toe and rear panels of the washer. The switches provide a grounding circuit to the drive motor and heating element when either panel is removed for servicing.



## FEATURES AND BENEFITS

### ELECTRONIC CONTROLS

Flexible electronic controls are easy to use whether you are a beginner or an expert.

### DETERGENT ADVANTAGE SYSTEM DISPENSER

The four compartments in the dispenser allow loading of all laundry products before the washer is started. The products will be dispensed into the wash at the optimal time for high performance cleaning. A timed bleach release is included in the detergent advantage system. The detergent is added at the beginning of the cycle and the bleach is added after the enzymes have had a chance to do their cleaning. The fabric softener is dispensed in the rinse cycle. The Detergent Advantage System Dispenser tray is easily removed for cleaning.

### AUTO WATER LEVEL

Adjusting to the size of the load, this feature allows the washer to use the minimal amount of water needed to clean and rinse the clothes. Because only the required amount of water is used, the washer saves energy, too.

### LARGER LOAD SIZE

Since there is no agitator, you can wash larger, bulkier items such as an average size sleeping bag. You are also able to wash more clothes at one time, which means fewer loads.

### SUSPENSION SYSTEM

To reduce washer “walk” and “off-balance” conditions, your new washer combines:

- 2 Springs to isolate vibration
- 4 Shock absorbers at the washer base to minimize movement

### STAINLESS STEEL DRUM

The Stainless Steel drum eliminates corrosion and enables higher spin speeds for more water extraction, reducing drying time.

### ADAPTIVE VARIABLE SPEED MOTOR

The motor adapts to the load size and to the cycle selected to give the optimum cleaning, rinsing, and spinning conditions. The motor can handle slow speeds needed for wool and delicate items, but it is powerful enough to handle a large clothes load.

### HIGH-EFFICIENCY WASH SYSTEM

This new front-loading, high-efficiency washer saves time with fewer, larger loads, conserves resources and lowers your water and energy bills too.

### SPIN SPEEDS

This washer automatically selects the spin speed based on the cycle selected. This factory setting can be changed. The washer offers up to six different spin speed choices.

### THERMAL OPTIMIZER

The heating system ensures that the wash water is heated to the preset temperature for Heavy Duty, White/Cotton, Sanitary, and the Soil Treat option. It also provides “stepped cleaning” when using the Sanitary cycle or the Soil Treat option. “Stepped cleaning” starts the wash cycle with warm water to remove stains (such as blood or grass). The water continues heating in order to remove stains such as dirty mechanical oil.

### ADD A GARMENT

When lighted, Rapid Wash, Normal/Casual, Heavy Duty, White/Cotton, and Sanitary can be paused and the door unlocked so you can add a garment that may have been forgotten when loading the washer. The ADD A GARMENT status message is displayed for up to the first 8 minutes of a cycle and then the LOCKED message will be displayed.

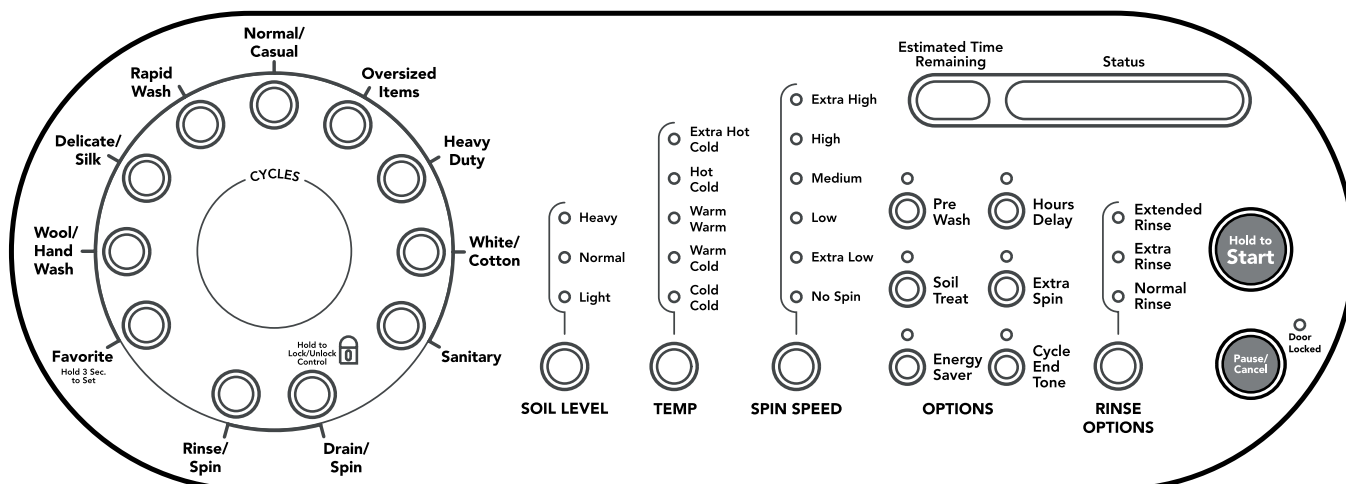
## **DIRECT DETERGENT INJECTION**

A concentrated detergent solution is sprayed onto the clothes at the beginning of the cycle to ensure that the detergent comes into contact with the clothes as quickly as possible, removing stains from your clothes without pretreating.

## **DYNAMIC OFF-BALANCE DETECTION**

This washer uses two sensors to detect load size and the amount of off-balance within the load. The suspension system and controls are specially designed to redistribute the load automatically.

# WASHER USE



## STARTING THE WASHER

**WARNING**

**Fire Hazard**

**Never place items in the washer that are dampened with gasoline or other flammable fluids.**

**No washer can completely remove oil.**

**Do not dry anything that has ever had any type of oil on it (including cooking oils).**

**Doing so can result in death, explosion, or fire.**

The following is a guide to using your washer. Please refer to specific sections of this manual for more detailed information.

Do not store laundry products on the top surface of this washer. Vibration is normal during operation.

## USING THE PROPER DETERGENT

Use only High Efficiency detergents. The package for this type of detergent will be marked "HE" or "High Efficiency." This wash system, along with less water, will create too much sudsing with a regular non-HE detergent. Using regular detergent will likely result in washer errors, longer cycle times and reduced rinsing performance. It may also result in component failures and noticeable mold or mildew. HE detergents are made to produce the right amount of suds for the best performance. Follow the manufacturer's instructions to determine the amount of detergent to use.



Use only HE High Efficiency detergent.

## First Wash Cycle Without Laundry

Before washing clothes for the first time, if not completed during the final installation step, choose the Normal/Casual cycle and run it without clothes. Use only HE High Efficiency detergent. Use 1/2 the manufacturer's recommended amount for a medium sized load. This initial cycle serves to ensure the interior is clean before washing clothes.

## For All Wash Cycles

### 1. To load washer

Open the washer door by pulling on the handle. Sort laundry according to color and type of fabric. Place a load of sorted clothes in the washer. Do not overload washer. Overloading can cause poor cleaning.

- The washer can be fully loaded, but not tightly packed. Washer door should close easily.
- Mix large and small items. Avoid washing a single item. Load evenly.
- Wash small items, such as infant socks, in mesh garment bags. It is recommended that more than one garment bag be used, and that each garment bag be filled with equal amounts of material.
- When unloading garments, occasionally check under the rubber rim at the front of the tub for small items.

2. Close the washer door by pushing it firmly until the lock clicks. The washer door will remain locked during the wash cycle.

**NOTE:** After any wash cycle is completed, the door must be opened and then closed before a new cycle can begin. The door can be opened only if PAUSE/CANCEL is selected while ADD A GARMENT shows in the status display or if the cycle has been canceled. See “To cancel a cycle” in “Changing Cycles, Options and Modifiers,” page 3-13.

3. Open the Dispenser Drawer and add laundry products to the detergent, bleach, or fabric softener compartments. Close drawer slowly to avoid spills. See “Using the Dispenser,” page 3-11.

4. Turn on the washer by selecting one of the WASH CYCLES. The indicator light for the selected cycle will illuminate. When selecting a Wash Cycle, the preset options, Soil Level, Temp, Spin Speed for the selected cycle will illuminate. The display shows the estimated time remaining. The preset settings provide the recommended fabric care for the selected cycle. See “Cycles,” page 3-14.

5. Select the desired Options. Not all Options are available with all cycles. See “Options,” page 3-16.

6. Select the desired Modifiers (Soil Level, Temp, and Spin Speed). Not all Modifiers are available with all Cycles and Options. See “Modifiers,” page 3-17.

7. If desired, select the CYCLE END TONE. The signal is helpful when you are washing items that should be removed from the washer as soon as it stops.

### 8. To begin the wash cycle immediately

Select START (for approximately 1 second).

- If you do not select START within 5 minutes of choosing a cycle, the washer automatically shuts off.
- When the wash cycle is complete, the CLOTHES CLEAN status message is displayed, the door unlocks, and the wash load can be removed from the washer. The washer powers down automatically 5 minutes after the cycle is complete and the CLOTHES CLEAN display goes off. To power down the washer manually after the wash cycle is complete, select PAUSE/CANCEL once.

### 9. To begin the wash cycle later

Select HOURS DELAY until the desired delay time (in hours) shows in the Estimated Time Remaining display. Select START. The countdown to the wash cycle will show in the Status display.



## USING THE DISPENSER

Your new washer has a dispenser drawer with four separate compartments for your laundry products—two are for detergent, one is for liquid chlorine bleach, and one is for liquid fabric softener. Laundry products are diluted and dispensed automatically at the proper time during the wash cycle, making it unnecessary for you to return to the washer during the cycle to add them.

It is normal for small amounts of water to remain in the dispensers when the wash cycle is complete.

Do not put laundry products directly into the wash tub. Always use the proper dispensers when adding laundry products.

### Choosing the Right Detergent

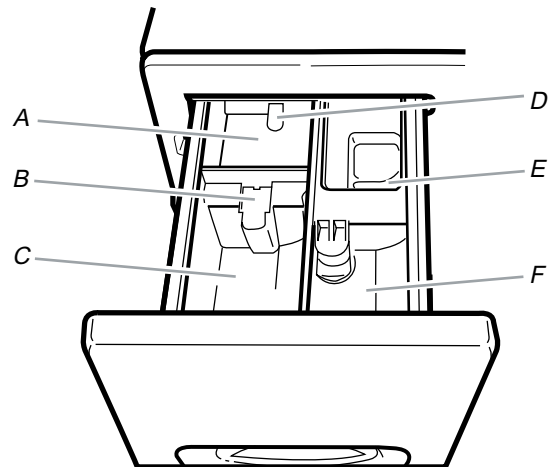
Use only High Efficiency detergents. The package for this type of detergent will be marked “HE” or “High Efficiency.” This wash system, along with less water, will create too much sudsing with a regular non-HE detergent. Using regular detergent will likely result in washer errors, longer cycle times and reduced rinsing performance. It may also result in component failures and noticeable mold or mildew. HE detergents are made to produce the right amount of suds for the best performance. Follow the manufacturer’s instructions to determine the amount of detergent to use.



Use only HE High Efficiency detergent.

## To fill dispenser compartments

1. Pull out the dispenser drawer.
2. Add the desired laundry product to the proper compartment.
3. Push in the dispenser drawer slowly and completely (to avoid a spill).



Dispenser

- A. Prewash detergent compartment
- B. Separator
- C. Main Wash detergent compartment
- D. Dispenser release lever
- E. Chlorine bleach compartment
- F. Fabric softener compartment

### Prewash detergent compartment (Letter A in Dispenser Illustration)

Add detergent to this compartment when using the Pre Wash option. Liquid or powdered detergent may be used in this compartment. The detergent will automatically be dispensed during Pre Wash, if the Pre Wash option is selected.

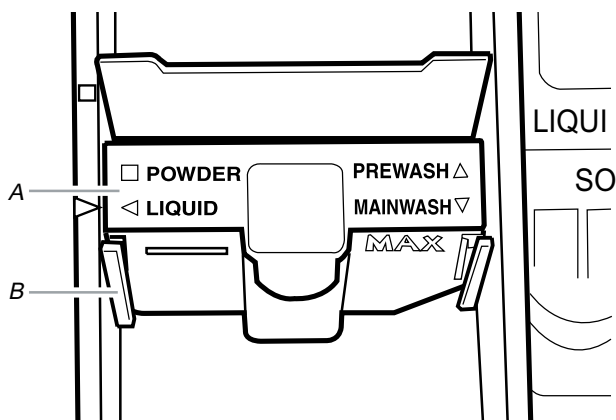
- Using High Efficiency (HE) detergent, add 1/3 the recommended amount to the Prewash compartment and 2/3 the recommended amount to the Main Wash compartment.
- Do not fill beyond the “MAX” level.

## Main Wash detergent compartment (Letter C in Dispenser Illustration)

Add liquid or powdered detergent to this compartment for your main wash cycle. The detergent separator must always be in place, either in the front or back position.

**IMPORTANT:** If you are using the Pre Wash, or Delay option, powdered detergent must be used in the main wash compartment since liquid detergents may seep out of the main wash compartment during the prewash, or delay before the main wash begins.

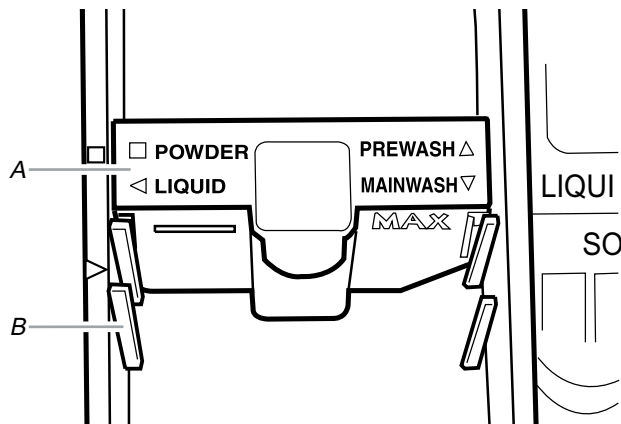
- Do not fill beyond the “MAX” level.
- Liquid or powdered color-safe bleach may be added to the Main Wash compartment along with the same type of detergent, liquid or powdered.
- Liquid detergent: Put the SEPARATOR in the front position, between the guides, as shown. There will be no gap between the bottom of the wash cycle detergent compartment and the bottom of the separator.



Separator in front position, between guides

A. Separator  
B. Guide

- Powdered detergent: Put the SEPARATOR in the back position, behind the guides, as shown. There will be a gap between the bottom of the wash cycle detergent compartment and the bottom of the separator.



Separator in back position, behind guides

A. Separator  
B. Guide

**NOTE:** The separator will be in the POWDER (back) position when shipped from the factory.

## Chlorine bleach compartment (Letter E in Dispenser Illustration)

Add no more than 1/3 cup (80 mL) liquid chlorine bleach to this compartment. The bleach will be automatically diluted and dispensed at the optimum time during the first rinse after the wash cycle. This compartment cannot dilute powdered bleach.

- Always measure liquid chlorine bleach. Use a measuring cup with a pour spout; do not guess.
- Do not fill beyond the “MAX” level.

**NOTE:** Overfilling could cause garment damage.

## Fabric Softener compartment (Letter F in Dispenser Illustration)

Add no more than 1/4 cup (60 mL) liquid fabric softener to this compartment. Fabric softener will be automatically dispensed in the final rinse.

- Do not fill beyond the “MAX” level.

## PAUSING OR RESTARTING

1. To pause the washer at any time, select PAUSE/CANCEL.
2. To continue the cycle, select and hold START (for approximately 1 second).

## CHANGING CYCLES, OPTIONS AND MODIFIERS

You can change the Cycle before START is selected. You can change the factory default settings for the Modifiers (Soil Level, Temp, and Spin Speed) and Options anytime before START is selected and during the wash cycle.

**NOTE:** To help protect your garments, not all Options and Modifiers can be selected with all wash cycles.

Cycles, Options and Modifiers can be changed anytime before START is selected.

Options and Modifiers can be changed anytime after START is selected and before the start of the selected Option or Modifier.

### To cancel a cycle and select a new cycle

1. Select PAUSE/CANCEL twice.
2. Select desired cycle.
3. Select the desired Options.
4. Select and hold START (for approximately 1 second) to restart the washer at the beginning of the new cycle.

### To cancel a cycle

1. Select PAUSE/CANCEL twice.
2. The washer powers down, the door unlocks, and clothes can be removed.

**NOTE:** If the water level or the temperature is too high, the washer will drain automatically before the door unlocks.

### To change Options or Modifiers after the cycle has started

1. Select PAUSE/CANCEL.
2. Select the desired Options or Modifiers.
3. Select and hold START (for approximately 1 second) to continue the cycle.

**NOTE:** Options and Modifiers can be changed anytime after START is selected and before the start of the selected Option or Modifier.

## To drain the washer manually

1. Select PAUSE/CANCEL.
2. Select DRAIN/SPIN.
3. Select and hold START (for approximately 1 second) to begin the drain.
4. When the spin is complete, the door unlocks. Items can be removed from the washer.

## STATUS DISPLAY

Messages on the status display help you to follow the progress of your washer. They also indicate when you can add an additional item to the wash cycle and when the controls are locked.



### Adding items

You can add items to the washer after the cycle has started for Rapid Wash, Normal/Casual, Heavy Duty, White/Cotton, and Sanitary if ADD A GARMENT message is displayed.

### To add items

1. Select PAUSE/CANCEL. The washer door unlocks, and items can be added.
2. To continue the cycle, close the door and select and hold START (for approximately 1 second).

### Cycle Complete

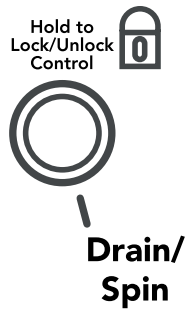
The CLOTHES CLEAN status message is displayed for 5 minutes after the cycle is complete. The washer will then power down.

### Locking controls

The Control Lock avoids unintended use of the washer. You can also use the control lock feature to avoid unintended cycle or option changes during a cycle. When the locked icon appears in the display, all buttons are disabled except for Pause/Cancel and Start. You can lock the controls while the washer is operating.

To lock the controls

Select and hold DRAIN/SPIN for 3 seconds.



The CONTROL LOCK icon illuminates.

To unlock the controls

Select and hold DRAIN/SPIN for 3 seconds until the CONTROL LOCKED icon disappears.

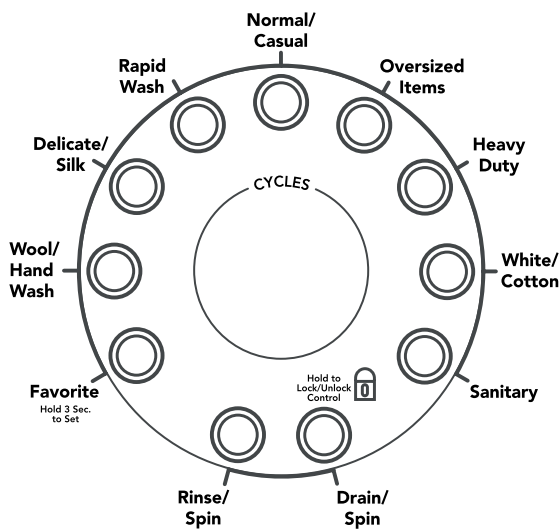
Estimated Time Remaining

The cycle times vary automatically based on your water pressure, water temperature, detergent, and clothes load. The cycle time will be extended if oversudsing occurs or the load is unbalanced.

CYCLES

Wash Cycles

Wash Cycles can be selected by pressing the button next to the desired wash cycle. Each cycle is designed for different types of fabric and soil levels.



- Each cycle has a preset Soil Level (cycle time), Water Temperature, Spin Speed and may have preset Options. The preset settings provide the recommended fabric care for the selected cycle.
- The preset settings can be changed anytime before START is selected. Not all Options and Modifiers are available with all Cycles. (To change settings after the cycle has started, select PAUSE/CANCEL, then select the desired settings. Select START [for approximately 1 second] to continue the cycle.)

Preset cycle settings

Each cycle has a preset Soil Level (cycle time), Water Temperature, and Spin Speed. The preset settings provide the recommended fabric care for the selected cycle. See chart.

Cycle	Estimated Time* (hr:min)	Soil Level	Wash/ Rinse Temp	Spin Speed
Sanitary	(2:00)	Normal	Extra Hot/Cold	Extra High
White/ Cotton	(1:10)	Heavy	Hot/ Cold	Extra High
Heavy Duty	(1:30)	Heavy	Hot/ Cold	Extra High
Oversized Items	(0:55)	Normal	Warm/ Cold	Extra Low
Normal/ Casual	(0:45)	Medium	Warm/ Cold	High
Rapid Wash	(0:35)	Light	Warm/ Cold	Extra High
Delicate/Silk	(0:35)	Normal	Cold/ Cold	No Spin
Wool/Hand Wash	(0:35)	Normal	Cold/ Cold	Extra Low
Rinse/Spin	(0:25)	N/A	Cold/ Cold	Extra High
Drain/Spin	(0:15)	N/A	N/A	Extra High

\* The cycle times vary automatically based on your water pressure, water temperature, detergent, and clothes load. The cycle time will be extended if oversudsing occurs or the load is unbalanced.

## **Sanitary**

Use this cycle to clean heavily soiled colorfast fabrics. This cycle combines a very hot water temperature and fast-speed tumbling to help ensure the removal of heavy soils and stains. It is recommended that you set your hot water heater to 120°F (49°C) to ensure proper performance during this cycle. Extra high-speed spin helps shorten drying time.

## **White/Cotton**

This cycle is especially designed for cleaning loads of soiled white fabrics with the addition of bleach. Hot washing temperatures assure optimal bleach activity. An additional rinse provides optimal rinse performance to avoid chlorine residues on your laundry. This cycle combines fast-speed tumbling, longer wash time, and extra high speed spin to shorten drying time.

## **Heavy Duty**

Use this cycle to wash loads of sturdy, colorfast fabrics and normal to heavily soiled garments. This cycle combines fast-speed tumbling, longer wash time, and extra high-speed spin to shorten drying times. If the water temperature is lower than needed for this cycle, the heater will warm the water to the optimum temperature.

**NOTE:** Soil Treat is a default option for this cycle. To ensure best performance, the water is heated as the cycle progresses. This gradual heating assists in the removal of organic soils such as blood.

## **Oversized Items**

Use this cycle to wash large items such as blankets and comforters. This cycle starts with a soak to thoroughly saturate your large load. This is followed by medium wash action and extra low spin speeds to maintain load balance.

## **Normal/Casual**

Use this cycle to wash loads of no-iron fabrics such as sport shirts, blouses, casual business clothes, permanent press blends, cottons and linens, and synthetic fabrics. This cycle combines medium-speed tumbling, high-speed spin, and a load cooling process to reduce wrinkling.

## **Rapid Wash**

Use this cycle to wash small loads of 2-3 lightly soiled garments that are needed in a hurry. This cycle combines fast-speed tumbling, a shortened wash time, and extra high-speed spin to shorten drying time.

## **Delicate/Silk**

Use this cycle to clean washable silk and ultra delicate garments. (Check label instructions to make sure that garment is washable.) This cycle gently tumbles and drains without spinning to gently clean garments and minimize wrinkling. Garments will contain a higher amount of water at the end of this cycle, because there is no spinning action.

- Use mesh garment bags to wash undergarments such as underwire bras, items with strings, and small items such as socks.

## **Wool/Hand Wash**

Use this cycle to clean washable woolen and special care garments. (Check label instructions to make sure that the garment is washable.) Similar to the way garments are hand washed in a sink, the wash action of this cycle combines periods of extra low tumbling speeds and soaking. Low spin speeds minimize wrinkling.

- Use mesh garment bags to wash undergarments such as underwire bras, items with strings, and small items such as socks.



## Favorite

Favorite allows you to store a customized wash cycle for future use.

To customize a wash Cycle:

1. Select a cycle.
2. Select the desired OPTIONS.
3. Select the desired MODIFIERS (Soil Level, Temp, and Spin Speed).
4. To save the cycle, press and hold FAVORITE (approximately 3 seconds) or until a beep sounds and the letters "SET" are displayed on your machine.
5. Press START.
6. To reuse this cycle at another time, select FAVORITE and press START.

## Rinse/Spin

Use this cycle to get a rinse and spin only. This cycle combines fast-speed tumbling and extra high speed spin. If desired, you can reduce the spin speed by selecting the speed you want from the SPIN SPEED modifier.

### Rinse/Spin is useful for

- Loads that need rinsing only.
- Adding fabric softener to a load using the fabric softener dispenser.

## Drain/Spin

Use this cycle to drain your washer or to drain and spin your wash load. The spin speed is preset to extra high. If desired, you can reduce the spin speed by selecting the speed you want from the SPIN SPEED modifier.

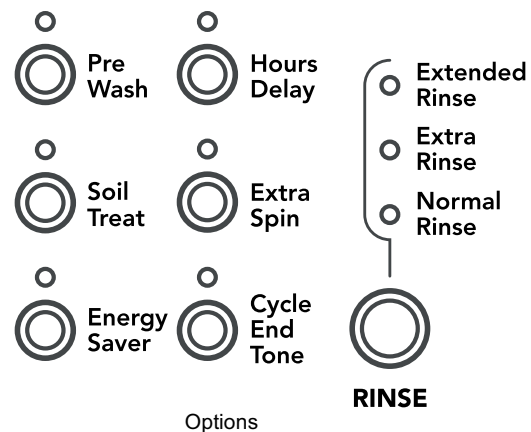
**NOTE:** Loads of synthetics, delicate fabrics, handwashables, and woolens should be drained with no spin or low spin to avoid fabric stress.

## NORMAL SOUNDS

As with any new product, you will hear sounds that you are not accustomed to. You may hear various sounds when the door is locked or unlocked, and during the washing, rinsing, or spinning process. Between changes in wash actions, there will be momentary pauses. You will hear water spraying and splashing during the wash and rinse cycles. These new sounds and pauses are part of normal washer operation. See "Troubleshooting," page 3-24.

## OPTIONS

You can customize your wash by adding Options to your cycle selections. You can add or change an option after starting a cycle anytime before the selected option begins. Not all Options are available with all cycles.



- See "Laundry Guide," page 3-18 for an overview of possible options for each Cycle selection.
- You can select more than one option for a cycle. Some options cannot be added to some cycles, for example, Soil Treat cannot be added to the Rapid Wash cycle.
- If an option is available with a selected cycle, the light for that option will illuminate when selected.
- If an option is unavailable with a selected cycle, there will be a short tone and the light for that option will not illuminate when selected.

## Prewash

Use this option for loads of heavily soiled items that need pretreatment. This option adds a 15 minute prewash and drain to the main wash cycle.

- Add detergent to the Prewash and Main Wash compartments of the Dispenser Drawer.
- When using Prewash, do not use liquid detergent in the Main Wash compartment. Use powdered detergent for the main wash cycle. See “Using the Dispenser,” page 3-11.

## Soil Treat

Use this option for heavily soiled loads that need improved soil treatment. When Soil Treat is selected, the water temperature of the selected wash cycle is automatically set to Hot/Cold. The water will then be heated to a hot water temperature to aid in stain removal. This option will provide optimal removal of organic stains such as blood.

**NOTE:** If Soil Treat is selected with the Sanitary cycle, the water will be heated to an extra hot temperature.

## Energy Saver™ Option

The Energy Saver™ Option allows you to increase your energy savings on the higher temperature cycles (White/Cotton and Heavy Duty) while maintaining cleaning performance by lengthening the wash time by only 10 minutes.

**NOTE:** For the best energy performance, use the Normal/Casual Cycle.

## Hours Delay

To begin the wash cycle later select Hours Delay until the desired delay time (in hours) shows in the Estimated Time Remaining display. Select START. The countdown to the wash cycle will show in the display window.

- When delaying a cycle, use only powdered detergents in the main wash compartment since liquid detergents may seep out of the compartment during Delay, before the wash cycle begins.

## Extra Spin

Use this option to add an additional spin to any cycle.

## Cycle End Tone

This signal is helpful when you are removing items from the washer as soon as it stops.

## Normal Rinse

Consists of a two phase rinsing process that is effective for everyday laundry.

## Extra Rinse

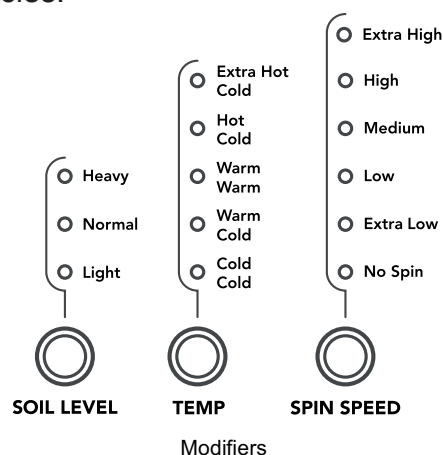
A second rinse can be used to ensure the removal of detergent or bleach residue from garments. This option provides an additional rinse with the same water temperature as the first rinse.

## Extended Rinse

This option provides the best rinse level, to allow for even better detergent removal.

## MODIFIERS

Preset cycle settings of water Temperature, Wash/Rinse, and Spin Speed can be changed. You can change a modifier after starting a cycle anytime before the selected Modifier begins. Not all Modifiers are available with all options and cycles.



- To change cycle time, select the SOIL LEVEL button until the desired setting illuminates.
- To change the water temperature, select the TEMP button until the desired setting illuminates.
- To change the spin speed, select the SPIN SPEED button until the desired setting illuminates.

## Wash/Rinse Temp

Select a water temperature based on the type of load you are washing. Use the warmest water safe for fabrics. Follow garment label instructions.

Warm rinses leave the loads dryer than cold rinses. Warm rinses increase wrinkling. In cold climates, a warm rinse makes the load more comfortable to handle. Cold rinses save energy.

## Temperature Guide

Wash Water Temperature	Suggested Fabrics
<b>EXTRA HOT*</b>	Sturdy colorfast fabrics Heavy soils
<b>HOT*</b>	Whites and pastels Heavy soils
<b>WARM</b>	Bright colors Moderate to light soils
<b>COLD</b>	Colors that bleed or fade Light soils

*\*When used with Soil Treat option, the water is heated gradually to assist in the removal of organic soils such as blood.*

*In wash water temperatures colder than 60°F (15.6°C), detergents do not dissolve well. Soils may be difficult to remove.*

## SENSORSURE® Automatic Temperature Control

SENSORSURE® automatic temperature control electronically senses and maintains a uniform water temperature.

SENSORSURE® automatic temperature control regulates incoming hot and cold water. The SENSORSURE® automatic temperature control is automatically turned ON when a cycle is selected. See “Preset Cycle Settings” in “Cycles,” page 3-14.

- SENSORSURE® automatic temperature control works for the wash temperature with Extra Hot/Cold, Hot/Cold, Warm/Warm, Warm/Cold, and Cold/Cold settings.
- SENSORSURE® automatic temperature control works for the rinse temperature with the Warm/Warm setting.

## LAUNDRY GUIDE

Refer to the chart below for suggested load types and their corresponding cycles. Listed to the right are the options available to each of these washer cycles.

CYCLE	SUGGESTED LOAD TYPE	AVAILABLE OPTIONS						
		Pre Wash	Soil Treat	Energy Saver	Hours Delay	Extra Spin	Extend Rinse	Extra Rinse
<b>Sanitary</b>	Heavily soiled underwear, towels, work clothes, diapers, etc.	✓	✓		✓	✓	✓	✓
<b>White/Cotton</b>	Heavily soiled whites made of cotton or cotton blends	✓	✓	✓	✓	✓	✓	✓
<b>Heavy Duty</b>	Moderately soiled work clothes, underwear, towels, and denims, made of sturdy fabrics	✓	✓	✓	✓	✓	✓	✓
<b>Oversized Items</b>	Normally soiled blankets, comforters, pillows, bulky jackets, etc.				✓		✓	✓
<b>Normal/Casual</b>	Lightly to normally soiled blouses, shirts, pants, polos, made of cotton, polyester, linen, and cotton blends	✓	✓		✓	✓	✓	✓
<b>Rapid Wash</b>	Lightly soiled casual wear or sportswear made of cotton, polyester, nylon, or cotton blends				✓	✓	✓	✓
<b>Delicate/Silk</b>	Machine washable silks and delicates, such as dresses, blouses, skirts, slacks and curtains				✓		✓	
<b>Wool/Hand Wash</b>	Machine washable woolens and machine washable special care items such as sweaters, knits and dresses				✓		✓	
<b>Rinse/Spin</b>	All load types				✓	✓	✓	✓
<b>Drain/Spin</b>	All load types				✓	✓		



# LAUNDRY TIPS

## Preparing clothes for washing

Follow these recommendations to help you prolong the life of your garments.

- Use only High Efficiency detergents. The package for this type of detergent will be marked “HE” or “High Efficiency.” This wash system, along with less water, will create too much sudsing with a regular non-HE detergent. Using regular detergent will likely result in washer errors, longer cycle times and reduced rinsing performance. It may also result in component failures and noticeable mold or mildew. HE detergents are made to produce the right amount of suds for the best performance. Follow the manufacturer’s instructions to determine the amount of detergent to use.



Use only HE High Efficiency detergent.

- Close zippers, snaps, and hooks to avoid snagging other items. Remove pins, buckles, and other hard objects to avoid scratching the washer interior. Remove non-washable trim and ornaments.
- Empty pockets and turn them inside-out.
- Turn down cuffs; brush away lint and dirt.
- Turn synthetic knits inside-out to avoid pilling.
- Tie strings and sashes so they will not tangle.
- Mend tears, loose hems, and seams.
- Treat spots and stains.
- Stained or wet garments should be washed promptly for best results.
- Mix large and small items, avoid washing single items, and load evenly.
- Wash small items, such as infant socks, in a mesh garment bags. To create a balanced

load it is recommended that more than one garment bag be used, and that each garment bag be filled with equal amounts of material.

**NOTE:** If you are washing only small items, it is recommended that more than one mesh garment bag be used, and that each garment bag be filled with equal amounts of material.

## Sorting

- Separate heavily soiled items from lightly soiled ones, even if they would normally be washed together. Separate lint-givers (towels, chenille) from lint-takers (corduroy, synthetics, permanent press). When possible, turn lint-givers inside-out.
- Separate dark colors from light colors, colorfast items from non-colorfast items.
- Sort by fabric and construction (sturdy cottons, knits, delicate items).

## Unloading

- Remove clothes from washer after the cycle is completed. Metal objects such as zippers, snaps, and buckles may rust if left in the washer basket for a long time.
- When unloading garments, occasionally check under the gray colored seal at the front of the tub for small items.

## Loading suggestions (maximum size loads)

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### Heavy Work Clothes

4 jeans	2 sweatpants
4 workpants	2 sweatshirts
4 workshirts	

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### Towels

10 bath towels	14 washcloths
10 hand towels	

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### Mixed Load

3 sheets (1 king, 2 twin)	9 T-shirts
4 pillowcases	9 shorts
3 shirts	10 handkerchiefs
3 blouses	

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### Rapid Wash cycle

2 dress shirts	1 pair dress pants
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# WASHER CARE

## CLEANING YOUR WASHER

### Cleaning the door seal

1. Open the washer door and remove any clothing or items from the washer.
2. Inspect the gray colored seal between the door opening and the basket for stained areas. Pull back the seal to inspect areas under the seal.
3. If stained areas are found, wipe down these areas of the seal, using the procedure that follows.
  - a) Mix a dilute solution, using 3/4 cup (177.4 mL) of liquid chlorine bleach, and 1 gal. (3.8 L) of warm tap water.
  - b) Wipe the seal area with the dilute solution, using a damp cloth.
  - c) Let stand 5 minutes.
  - d) Wipe down area thoroughly with a dry cloth and let the washer interior air dry.

### IMPORTANT:

- Wear rubber gloves when cleaning for prolonged periods.
- Refer to the bleach manufacturer's instructions for proper use.

### Washer Monthly Maintenance Procedure

Your washer has a special cycle stored within the machine's programming. Pressing a specific combination of buttons will enter this cleaning cycle. This cycle uses higher water volumes in combination with liquid chlorine bleach to thoroughly clean the inside of your washing machine.

### NOTES:

- Read these instructions completely before beginning the cleaning process.
- If necessary, the cleaning cycle may be interrupted by pressing the PAUSE/CANCEL button. However, this will not immediately stop the cycle. The machine will display "int" (interrupt) and continue with several rinse and drain steps to ensure that all remaining bleach is rinsed from the washer.

### Begin procedure

1. Open the washer door and remove any clothing or items from the washer.
2. Be sure the door is closed.
3. Open the dispenser drawer and remove the detergent divider from the Main Wash detergent compartment. See "Using the Dispenser," page 3-11 for instructions. No laundry products will be added at this time; you will be required to add only liquid chlorine bleach, at a later step.
4. Be sure the dispenser drawer is closed.
5. To enter the cycle, a specific combination of buttons must be pressed.
  - Select the RINSE/SPIN button.
  - Select LOW Spin Speed.
  - Select WARM/COLD Water Temperature.
  - Select the EXTRA RINSE, Rinse Option.
  - Push the CYCLE END TONE button 4 times within 5 seconds to start the cycle. The door will lock, and filling will begin.

**NOTE:** The water in the washer will dispense for a moment, then the door will unlock, lock again, and then the cycle will continue.

  - The machine will fill and run a short sensing cycle. This will take approximately 3 minutes.
6. The washer will provide 4 short tones. Check the Estimated Time Remaining display for the codes indicated below.
  - a) If the washer displays the letters "Ab" (Add Bleach) in the Estimated Time Remaining display, you will hear 4 short tones. Proceed to Step 7.
  - b) If the washer displays the letters "rL" (Remove Load) in the Estimated Time Remaining display, an error tone will sound. The door will unlock.
    - Open the door and remove the items from the washer.
    - Continue the cycle by pressing the START button.

**NOTE:** The water in the washer will dispense for a moment, then the door will unlock, lock again, and then the cycle will continue with another check for items in the washer.

- The machine will fill and run a short cycle to determine whether any items have been left in the washer. This will take approximately 3 minutes.
- The washer will repeat Step 5 until it can determine that there are no items in the washer and will display “Ab” (Add Bleach).

7. Add liquid chlorine bleach.

- a) If using the maintenance procedure for the first time, open the dispenser drawer and immediately add 1 cup (236.6 mL) liquid chlorine bleach to the Main Wash detergent compartment. The liquid chlorine bleach should immediately flow out of the dispenser.
- b) For subsequent monthly maintenance procedures, open the dispenser drawer and immediately add 1/3 cup (78.8 mL) liquid chlorine bleach to the Main Wash detergent compartment. The liquid chlorine bleach should immediately flow out of the dispenser.

**NOTES:**

- Water will be flowing into the dispenser drawer when the bleach is added. This is normal.
- Do not add any detergent to this cleaning cycle. Use of more than 1 cup (236.6 mL) of bleach will cause product damage over time.

8. Once the cleaning cycle has begun, allow the cycle to complete. An estimated cycle time will appear on the display.
9. After the cleaning cycle is complete, leave the door open, slightly, to allow for better ventilation and drying of washer interior.
10. Replace the detergent compartment divider.

**Always do the following to maintain washer freshness**

- Use only HE High Efficiency detergent.
- Leave the door slightly open after each cycle to allow for better ventilation and drying of washer interior.
- Run the monthly maintenance procedure using 1/3 cup (78.8 mL) of liquid chlorine bleach.
- If the procedure does not sufficiently improve the machine freshness, evaluate your installation and usage conditions for other causes.

**Cleaning the exterior**

To avoid damaging the exterior finish, do not use soap-filled scouring pads, abrasive cleaners, steel-wool pads, gritty washcloths or some paper towels on stainless steel surfaces.

- To clean the stainless steel surfaces of the washer, use a stainless steel wipe. Rub in the direction of the grain. To order stainless steel wipes, refer to the “Assistance or Service” section of the “Use & Care Guide.” Ask for Part Number 8212510.
- To clean the optional decorative mat, remove it from the top of the washer and clean both sides with an all-purpose cleaner. Rinse with water and dry with a soft lint-free cloth. Place it back on top of the washer.

**Cleaning the dispenser drawer**

The dispenser drawer is removable for easy cleaning.

1. Unlock the dispenser drawer by pressing the Release Lever in the Prewash compartment. See “Using the Dispenser,” page 3-11. Remove the drawer.
2. Remove the inserts (the siphon from the softener and bleach compartments and the separator).
3. Wash the parts under running water.
4. Replace the inserts and return the dispenser to the drawer.

## WATER INLET HOSES

Replace original inlet hoses after 10 years of use to reduce the risk of hose failure. Periodically inspect and replace inlet hoses if bulges, kinks, cuts, wear or leaks are found.

When replacing the inlet hoses, record the date of replacement.

## VACATION, STORAGE, AND MOVING CARE

Install and store your washer where it will not freeze. Because some water may stay in the hoses, freezing can damage your washer. If storing or moving your washer during freezing weather, winterize it.

### Non-Use Or Vacation Care

Operate the washer only when you are at home. If you will be on vacation, or not using your washer for an extended period of time, you should:

- Unplug washer or disconnect power.
- Turn off the water supply to the washer. This helps avoid accidental flooding (due to a water pressure surge) while you are away.
- Slightly open door to provide ventilation.

### To winterize the washer:

1. Put 1 quart (1 L) of R.V.-type antifreeze in the drum.
2. Run washer on a DRAIN/SPIN cycle.
3. Unplug washer or disconnect power.
4. Shut off both water faucets.
5. Disconnect water inlet hoses from faucets and drain.

### To use the washer again:

1. Flush water pipes.
2. Reconnect water inlet hoses to faucets.
3. Turn on both water faucets.

## **WARNING**



### Electrical Shock Hazard

**Plug into a grounded 3 prong outlet.**

**Do not remove ground prong.**

**Do not use an adapter.**

**Do not use an extension cord.**

**Failure to follow these instructions can result in death, fire, or electrical shock.**

4. Plug in washer or reconnect power.
5. Run the washer through the NORMAL/CASUAL cycle with 1/2 the manufacturer's recommended amount of HE High Efficiency detergent for a medium size load, to clean the washer and remove the antifreeze, if used.

### To transport the washer:

1. If washer will be moved during freezing weather, put in 1 qt (1 L) of R.V.-type antifreeze in the drum. Run washer on a DRAIN/SPIN cycle.
2. Unplug the power cord.
3. Disconnect the drain hose from the drain system and attach to rear panel clips.
4. Shut off both water faucets.
5. Disconnect the water inlet hoses from faucets, then drain the hoses and clip them to the rear panel of the washer.
6. **IMPORTANT:** Call service. Do not reuse transport bolts. Unit must be transported in the upright position. To avoid suspension and structural damage, your machine must be properly set up for relocation by a certified technician.

### **Reinstalling the washer**

1. Follow the "Installation Instructions," page 2-5 to locate, level and connect the washer.
2. Run the washer through the NORMAL/CASUAL cycle with 1/2 the manufacturer's recommended amount of HE High Efficiency detergent for a medium size load, to clean the washer and remove the antifreeze, if used.

# TROUBLESHOOTING

## WASHER AND COMPONENTS

### Error Codes

- **“FH” (Water Inlet Problem—no water or insufficient water supply)**

Select PAUSE/CANCEL twice to cancel the cycle. Unplug washer or disconnect power.

#### Check the following:

Are water faucets completely turned on?

Are screens at inlet hose connection to washer clogged?

Are water inlet hoses kinked?

Are water inlet hoses frozen?

### **WARNING**



#### Electrical Shock Hazard

**Plug into a grounded 3 prong outlet.**

**Do not remove ground prong.**

**Do not use an adapter.**

**Do not use an extension cord.**

**Failure to follow these instructions can result in death, fire, or electrical shock.**

Plug in washer or reconnect power. Re-select cycle and press START.

- **“F02” (Drain Problem)**

Select PAUSE/CANCEL twice to cancel the cycle. Unplug washer or disconnect power.

#### Check the following:

Is the drain hose kinked?

Is the drain hose frozen?

Is the drain hose clogged?

Is the drain hose more than 96 in. (2.4 m) above the floor?

- **“SUD” (Suds Routine)**

When excessive suds are detected, a suds routine automatically starts. This routine removes extra suds and assures proper rinsing of your garments. “SUD” is displayed during rinsing and at the end of the cycle to inform you that Suds Routine was activated. Use only HE (High Efficiency) detergents.

- **“F” Variables [F4 to F16] (Electrical Problem)**

Select PAUSE/CANCEL twice to cancel the cycle. Select DRAIN/SPIN if there is excessive water in the washer.

Re-select cycle and press START.

### Noisy, Vibrating, Off-Balance

- **Is the washer level and are all four feet in firm contact with the floor?**

The washer must be level. The four feet should be properly installed, and the nuts should be tightened against the washer cabinet. See “Level the Washer,” page 2-8.

- **Washer making a different noise?**

As with any new product, you will hear sounds that you are not accustomed to. You may hear various sounds when the door is locked or unlocked, and during the washing, rinsing, or spinning process. Between changes in wash actions, there will be momentary pauses. You will hear water spraying and splashing during the wash and rinse cycles. These new sounds and pauses are part of normal washer operation.

- **Is washer installed on a sturdy and solid floor?**

Refer to the “Installation Instructions” for flooring requirements. Noise and vibration may be reduced by placing a piece of 3/4” (19.1 mm) plywood underneath your washer. The plywood may extend underneath both washer and dryer to keep them at equal heights.



- **Is the washer gurgling or humming?**

As water is drained from the washer, you may hear air being pulled through the pump. This happens during the end of draining. It is normal.

- **Are you washing items with metal snaps, buckles or zippers?**

You may hear metal items touching the washer drum. This is normal.

- **Were the 4 shipping bolts in the back of the machine removed?**

See “Remove Transport System,” page 2-5.

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## Leaking

- **Was the door opened during “Add a garment”?**

Water can drip off the inside of the door, when the door is opened after the start of a cycle.

- **Is HE detergent being used?**

The non-High Efficiency detergents can cause oversudsing which can leak from the rear of the washer.

- **Are the fill hoses tight?**

- **Are the fill hose rubber washers properly seated?**

Check both ends of each hose. See “Connect the Inlet Hoses,” page 2-6.

- **Is the drain hose properly installed?**

The drain hose should be secured to the drainpipe or laundry tub. See “Secure the Drain Hose,” page 2-7.

- **Is the sink or drain clogged?**

Sink and drainpipe must be able to carry away 17 gal. (64 L) of water per minute. If clogged or slow, water can back up out of drainpipe or sink. Check household plumbing (laundry tubs, faucets, drainpipe, water pipes) for leaks.

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## Dispenser Operation

- **Are the laundry products in the correct dispenser compartment?**

Add the correct amounts of detergent, fabric softener or liquid chlorine bleach to the correct compartments. Add powdered or liquid color-safe bleach to the Main Wash compartment. Be sure to match powdered color-safe bleach with powdered detergent or match liquid color-safe bleach with liquid detergent.

- **Is the detergent separator in the correct position?**

Separator should be in the front position when using liquid detergent and in the back position when using powdered detergent.

- **Did you follow the manufacturer’s directions when adding detergent and fabric softener to the dispensers?**

Measure detergent and fabric softener. Slowly pour into the dispensers. Wipe up all spills. Dilute fabric softener in the fabric softener dispenser.

- **Is the fabric softener dispenser clogged?**

Clean the fabric softener dispenser. See “Washer Care,” page 3-20 for details.

- **Is there water in the dispenser at the end of the cycle?**

A small amount of water will remain in the dispenser compartment. This is normal.

---

## Washer Odor

- **Have you run the Clean Washer Cycle lately?**

To freshen your washer and to avoid odors, see “Cleaning Your Washer,” page 3-20.

- **Are you using HE detergent?**

Use of non-HE detergent can cause a film residue which can result in odor.

- **Did you leave the door open after use?**

This washer has a tight seal to avoid water leaks. To avoid odors leave the door open to allow the washer to dry between uses.



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## Door Won't Unlock

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- **Did all of the water drain out of the washer during the spin?**

Select DRAIN/SPIN to remove any water remaining in the washer. The washer door will unlock at the end of the drain.

- **Is the door locked and is the “Add a garment” light on?**

Press PAUSE/CANCEL once. The door will unlock.

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## WASHER OPERATION

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### Washer Won't Run, Fill, Rinse Or Tumble; Washer Stops

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- **Is the power cord plugged into a grounded 3 prong outlet?**

Plug power cord into a grounded 3 prong outlet.

- **Are you using an extension cord?**

Do not use an extension cord.

- **Has a household fuse blown, or has a circuit breaker tripped?**

Replace the fuse, or reset the circuit breaker. If the problem continues, call an electrician.

- **Are both the hot and cold water faucets turned on?**

Turn on the water.

- **Is the water inlet hose kinked?**

Straighten the hoses.

- **Are the water inlet valve screens clogged?**

Turn off the water and remove inlet hoses from the washer. Remove any accumulated film or particles. Reinstall hoses, turn on water and check for leaks.

- **Is the washer in a normal pause in the cycle?**

The washer pauses for about 2 minutes during certain cycles. Allow the cycle to continue. Some cycles feature periods of tumbling and soak.

- **Is the washer overloaded?**

Wash smaller loads.

- **Is the washer door firmly shut?**

The door must be closed during operation.

- **Are the shipping bolts removed?**

All four shipping bolts must be removed for proper operation of the washer.

- **Has a cycle been selected, but START has not been selected and held for 1 second?**

Press and hold START, for 1 second.

- **Was the door open after completion of last cycle?**

The door must be opened and closed again to start a new cycle.

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### Washer Continues To Fill Or Drain, Drain Cycle Seems Stuck

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- **Is the top of drain hose lower than 30" (76 cm) on washer?**

The top of the drain hose must be at least 30" (76 cm) above the floor. See “Drain System,” page 2-3.

- **Does the drain hose fit too tightly in the standpipe, or is it taped to the standpipe?**

The drain hose should be loose yet fit securely. Do not seal the drain hose with tape. The hose needs an air gap. See “Secure the Drain Hose,” page 2-7.

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### Washer Won't Drain Or Spin, Water Remains In Washer

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- **Is the drain hose clogged, or the end of the drain hose more than 96" (2.4 m) above the floor?**

- **Is your voltage low?**

Check electrical source or call electrician.

- **Excessive suds?**

When excessive suds are detected, a special suds routine automatically starts. Cycle will complete once extra suds are removed. This will occur more frequently when a non-HE detergent is used.

- **Is the load balanced?**

A single or bulky item may cause imbalance. Add more items or redistribute the load.

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## **Not Enough Water/Not Enough Suds**

---

- **Low Water?**

This washer uses very little water to provide good cleaning results. You will see little or no water splashing in this washer. This is normal.

- **Are you using HE detergent?**

HE detergent is a low sudsing detergent. This is normal and will not affect cleaning performance.

---

## **Wash/Rinse Temperature**

---

- **Are the hot and cold water inlet hoses reversed?**

See “Connect the Inlet Hoses,” page 2-6.

- **Are you washing many loads?**

As your frequency of loads washed increases, the water temperature may decrease for hot and warm temperatures. This is normal.

---

## **Cycle Time Changes/Cycle Too Long**

---

- **Estimated cycle time?**

The cycle times vary automatically based on your water pressure, water temperature, detergent, and clothes load. The cycle time will be extended if oversudsing occurs or the load is unbalanced. The options you select will also affect the cycle times that are shown in the Preset Cycle Settings table, page 3-14.

- **Excessive suds?**

When excessive suds are detected, a special SUDs routine is started automatically, to remove the extra suds, and assure proper rinsing of your garments. This routine will add time to the original cycle.

- **Did the load cause imbalance?**

When too much imbalance occurs, an imbalance routine will start to redistribute the load. During the imbalance routine the time displayed may pause until this activity is complete, then resume with the remainder of the cycle.

- **Did you choose the Sanitary cycle or Soil Treat option?**

In both cases the heater will be activated to provide maximum cleaning performance. Additional time will be added to the regular cycle to heat the water. This additional time will depend on the load size and the hot water inlet temperature.

- **Are you washing a single item or bulky load?**

Spin time is added if an unbalanced load is detected. The washer will attempt to redistribute the load with additional tumbling.

- **Did you wash a large load on the Rapid Wash cycle?**

The Rapid Wash cycle is designed for smaller load sizes (2-3 items) of lightly soiled garments. If larger loads are washed in this cycle, wash time will be increased.

- **Did you wash a large load in a gentle or Delicate/Hand Wash cycle?**

When using the Quick Wash, Delicate/Silk or Wool/Hand Wash cycles, you should use small loads. This ensures a gentle wash for your garments without increasing cycle times.

---

## **CLOTHING CARE**

---

### **Load too wet**

---

- **Did you use the right cycle for the load being washed?**

Select a cycle with a higher spin speed.

- **Did you wash a single item or bulky items or have you overloaded the washer?**

A single item, bulky items, or overloading may cause imbalance. Add items or try to evenly distribute your wet laundry in the drum, and start a DRAIN/SPIN cycle. If the laundry is still wet, take half of the load out of the washer and try again.

- **Did you use HE detergent?**

Suds during rinse and spin cycles can reduce spin speed. Use HE detergent.

---

### **Residue, Lint, Stains On Load; Gray Whites, Dingy Colors**

---

- **Did you add detergent to the dispenser?**

For best results, add detergent to the detergent compartment. Do not add detergent to the washer drum.

- **Did you sort properly?**

Sort lint givers (towels, chenille) from lint takers (corduroy, synthetics). Dye transfer can occur when mixing whites and colors in a load. Sort dark clothes from whites and lights.

- **Did you overload the washer?**

Do not overload the washer. The washer can be fully loaded, but not tightly packed. The wash load must be balanced. Lint can be trapped in the load if overloaded.

- **Check the following:**

Was paper or tissue left in pockets?

- **Did you use enough HE detergent?**

Follow manufacturer's recommendations for the type of load you are washing. For best performance, use only High Efficiency detergent. Use enough HE detergent to remove soil and hold it in suspension.

- **Do you have hard water?**

Use more detergent for washing heavy soils in cold or hard water.

- **Is your water colder than 60°F (15.6°C)?**

Wash water colder than 60°F (15.6°C) may not completely dissolve the detergent. Use hot or warm washes if safe for the fabric load. Make sure your hot water system is adequate to provide a hot water wash.

- **Are you using a low speed wash cycle?**

Powdered detergents may not dissolve well in a low-speed cycle. For best results, use liquid detergent for low speed cycles like Delicate/Silk or Wool/Hand Wash.

- **Did you unload the washer promptly?**

To avoid dye transfer, unload the washer as soon as it stops.

- **Did you use a fabric softener dispensing ball?**

Dispensing balls will not operate correctly with this washer. Add liquid fabric softener to the fabric softener compartment.

- **Did you use powdered detergent in a low-speed cycle?**

Consider using liquid detergent.

- **Did you use Rapid Wash on a large load?**

For best results, use Rapid Wash for small, lightly soiled loads.

---

### **Stains On Load**

---

- **Did you add detergent to the dispenser?**

For best results, add detergent to the detergent compartment. Do not add detergent to the washer drum.

- **Did you use enough HE detergent?**

Use enough detergent to remove soil and hold it in suspension. Use only HE detergent. Follow the manufacturer's instructions to determine the amount of detergent to use.

- **Is there above average iron (rust) in water?**

You may need to install an iron filter.

- **Did you properly sort the load?**

Sort dark clothes from whites and lights.

---

## Load Is Wrinkled

---

- **Did you unload the washer promptly?**

Unload the washer as soon as it stops.

- **Did you use the right cycle for the load being washed?**

Use the Delicate/Silk cycle or another cycle with a low spin speed to reduce wrinkling.

- **Did you overload the washer?**

The wash load must be balanced and not overloaded. Loads should tumble freely during washing.

- **Was the wash water warm enough to relax wrinkles?**

If safe for load, use warm or hot wash water.

- **Are the hot and cold water hoses reversed?**

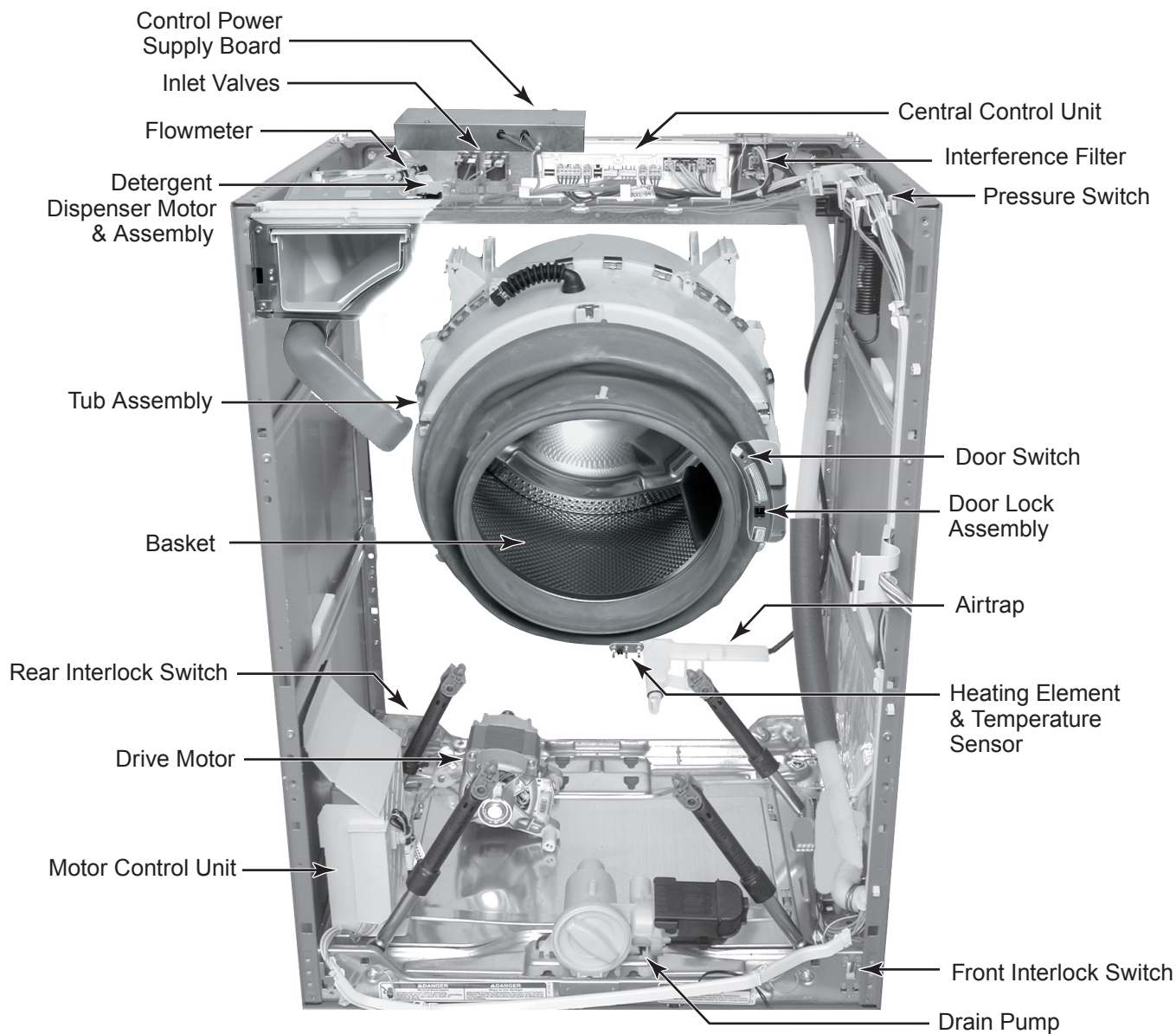
Check that the hot and cold water hoses are connected to the right faucets. A hot rinse followed by spin will cause wrinkling. See "Connect the Inlet Hoses," page 2-6.

## — NOTES —

# COMPONENT ACCESS

This section instructs you on how to service each component inside the KitchenAid Pro Line® Front-Loading Automatic Washer. The components and their locations are shown below.

## COMPONENT LOCATIONS



Not Shown: Control Assembly



## REMOVING THE CONTROL ASSEMBLY

### **WARNING**



**Electrical Shock Hazard**  
**Disconnect power before servicing.**  
**Replace all parts and panels before operating.**  
**Failure to do so can result in death or electrical shock.**

1. Unplug washer or disconnect power.
2. Turn off the water supply to the washer.
3. Remove the rubber mat from the top of the washer.

Lift Rubber Mat Off Top Cover

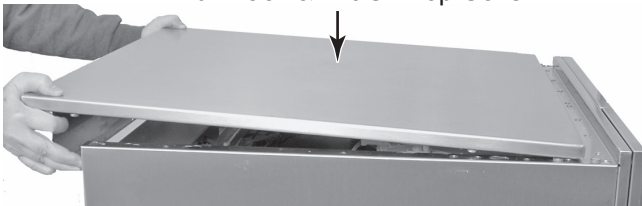


4. Remove the five screws from the rear flange of the top cover.



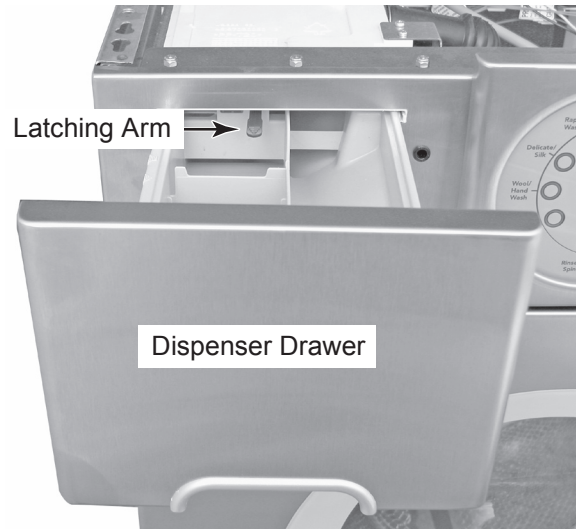
5. Pull back on the cover and release the pins in the cover from the slots in the chassis, then lift the cover off the unit.

Pull Back & Lift Off Top Cover

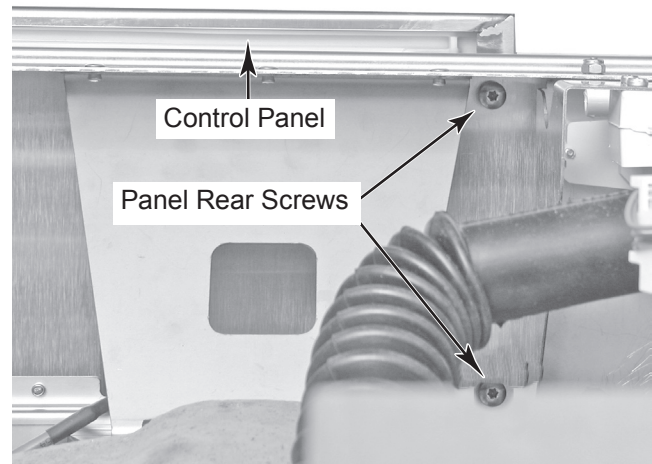


6. Open the washer door.

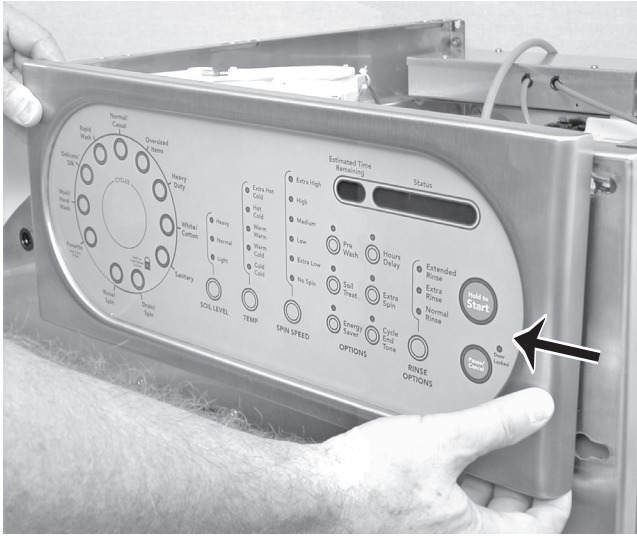
7. Pull the dispenser drawer out as far as it will go. Press down on the latching arm and remove the drawer from the dispenser.



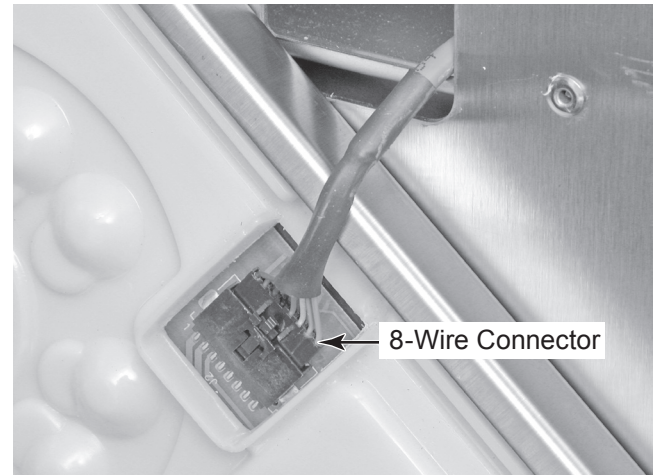
8. Remove the two screws from the rear of the control panel.



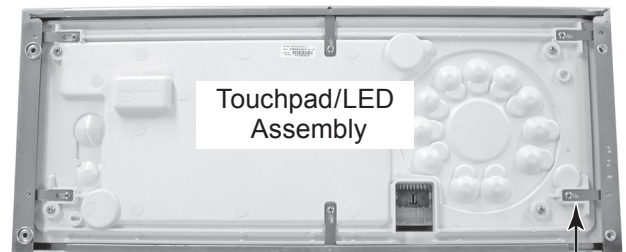
9. Slide the control panel to the left, remove the pins from the keyhole slots in the chassis, and pull the panel away from the unit.



10. Disconnect the 8-wire cable connector from the board pins and remove the control panel.



11. Remove the six screws and mounting clips from the touchpad/LED assembly cover.
12. Lift and remove the touchpad/LED assembly from the control panel.



Mounting Clip  
Screw (1 of 6)

## REMOVING THE DOOR LOCK & DOOR SWITCH ASSEMBLY

### **⚠ WARNING**



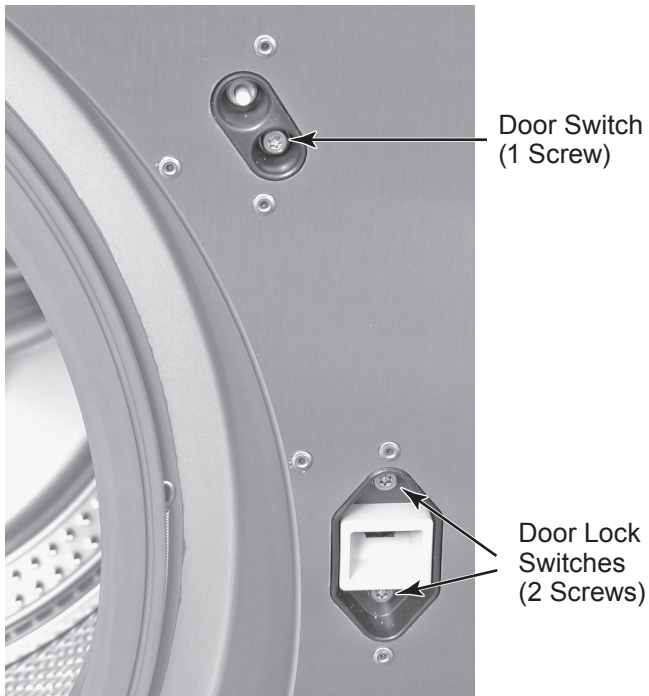
#### **Electrical Shock Hazard**

**Disconnect power before servicing.**

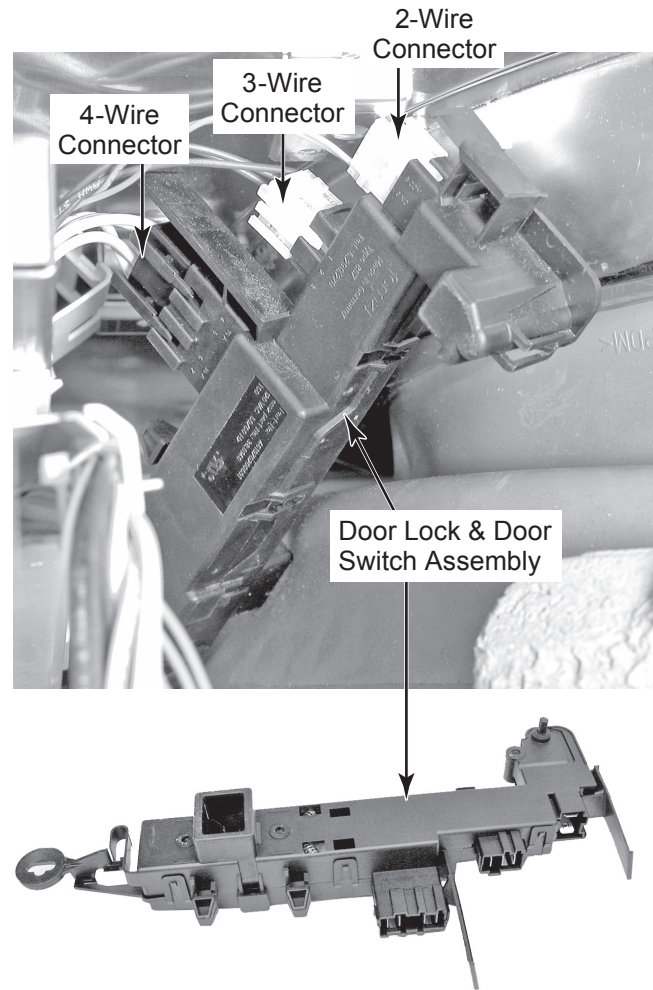
**Replace all parts and panels before operating.**

**Failure to do so can result in death or electrical shock.**

1. Unplug washer or disconnect power.
2. Turn off the water supply to the washer.
3. Remove the top cover (see page 4-2 for the procedure).
4. Open the washer door.
5. Remove the three screws from the door lock and door switch assembly, and push the assembly out of the panel cutouts.



6. Accessing the door lock and door switch assembly from the top of the washer, disconnect the 2-, 3-, and 4-wire connectors from the switch terminals, and remove the door lock and door switch assembly from the unit.





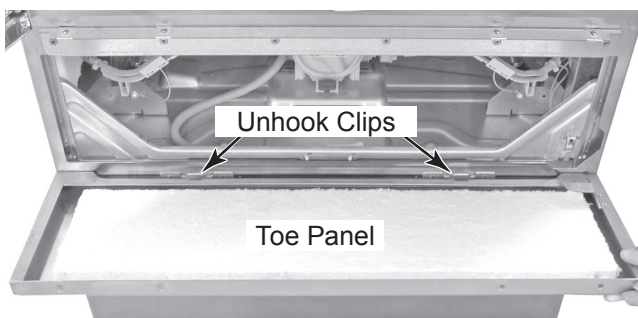
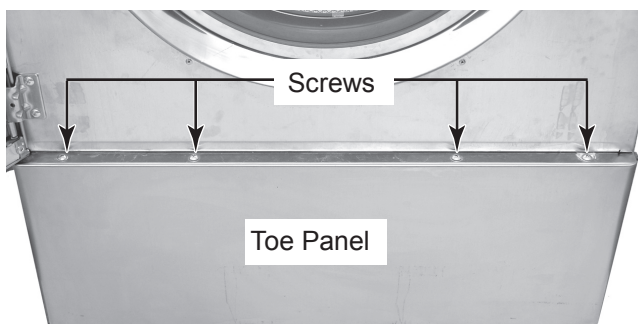
## REMOVING THE FRONT PANEL AND BELLOWS

### **WARNING**

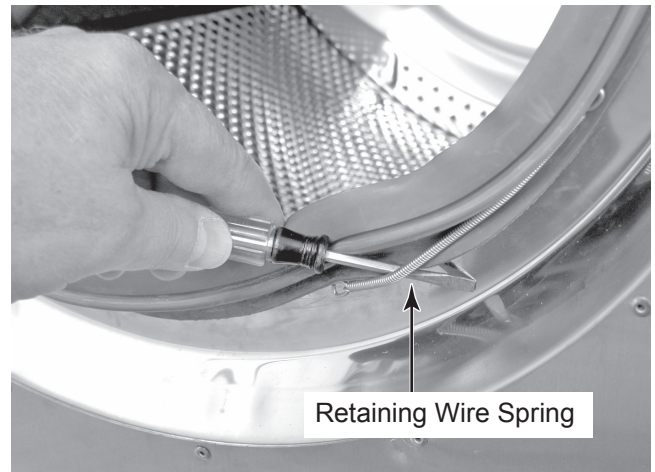


**Electrical Shock Hazard**  
**Disconnect power before servicing.**  
**Replace all parts and panels before operating.**  
**Failure to do so can result in death or electrical shock.**

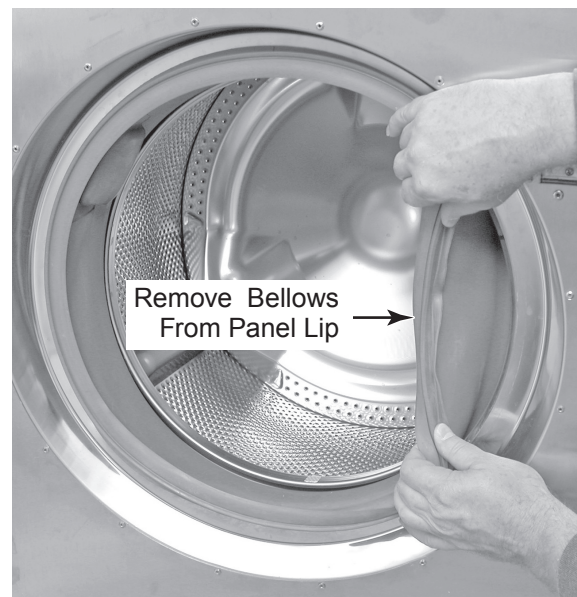
1. Unplug washer or disconnect power.
2. Turn off the water supply to the washer.
3. Remove the top cover and the control assembly (see page 4-2 for the procedures).
4. **To remove the front panel:**
  - a) Open the washer door.
  - b) Remove the four screws from the top of the toe panel.
  - c) Pull the top of the toe panel away from the washer, lift the panel and unhook it at the bottom, and remove the panel.



- d) Using a small screwdriver, pry the retaining wire spring out, and then pull the retaining wire from around the bellows.



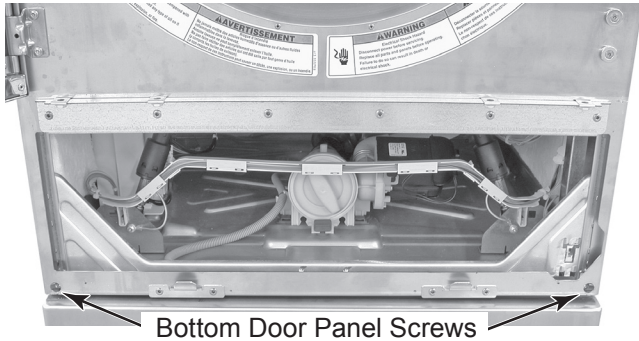
- e) Unhook the bellows from the lip of the door panel and push it behind the panel.



- f) Remove the three screws from the door lock and door switch assembly (see step 5 on page 4-4).
- g) Close the washer door.

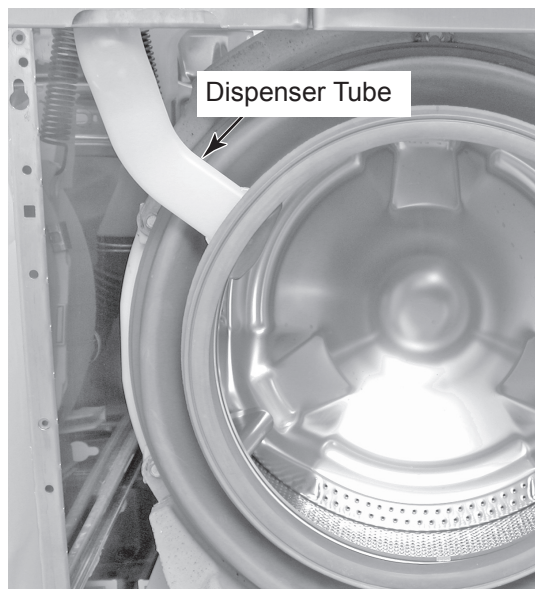
**Continued on the next page.**

- h) Remove the two bottom screws from the front panel.
- i) Lift the front panel and door to release the pins from the chassis keyhole slots and remove the panel from the washer.

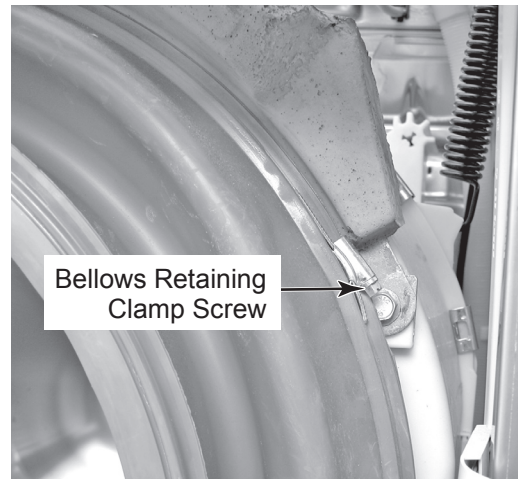


**5. To remove the bellows:**

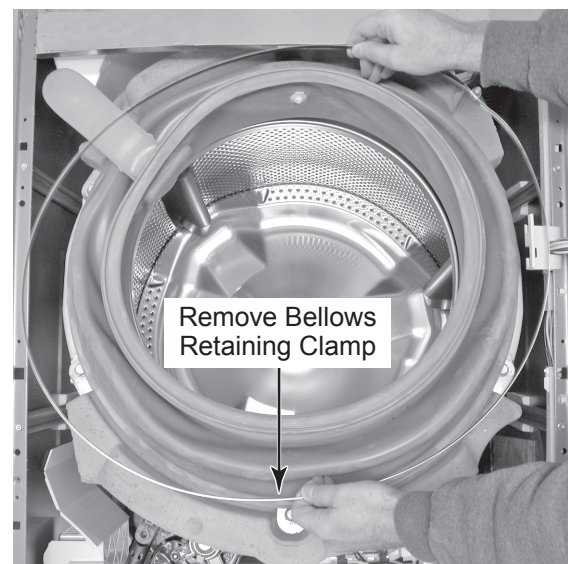
- a) Remove the end of the dispenser tube from the bellows.



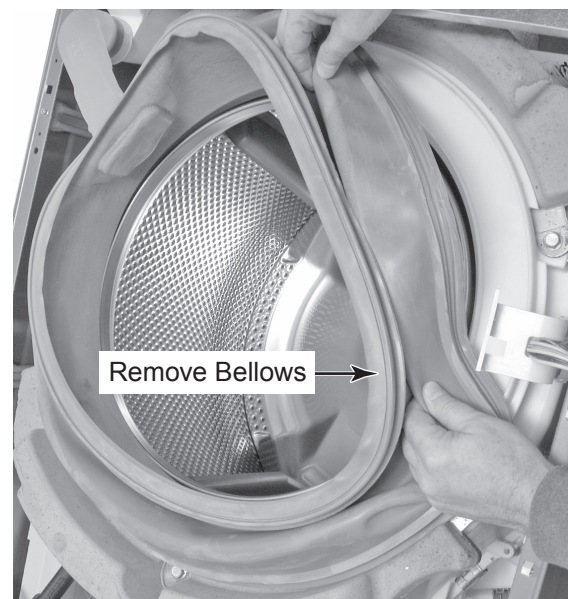
- b) Use a 7mm socket, and turn the bellows retaining clamp screw counterclockwise until the clamp is loose enough to remove from around the bellows (see the top right photo).



- c) Remove the bellows retaining clamp.



- d) Remove the bellows from the front of the tub.





## REMOVING THE DETERGENT DISPENSER MOTOR & ASSEMBLY

### **⚠ WARNING**

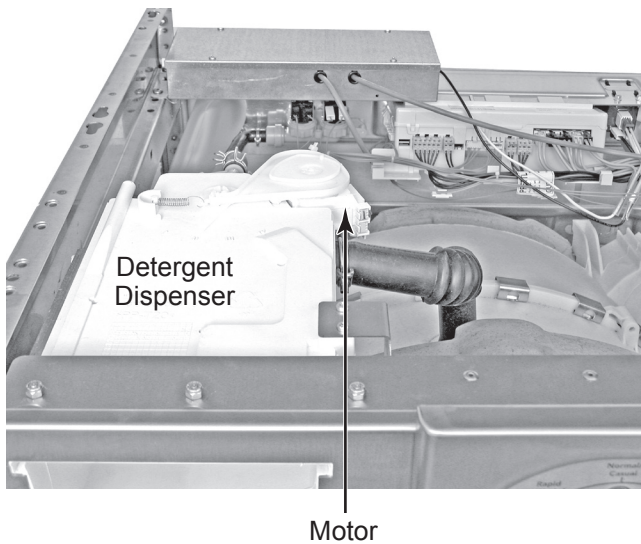


#### **Electrical Shock Hazard**

**Disconnect power before servicing.  
Replace all parts and panels before  
operating.**

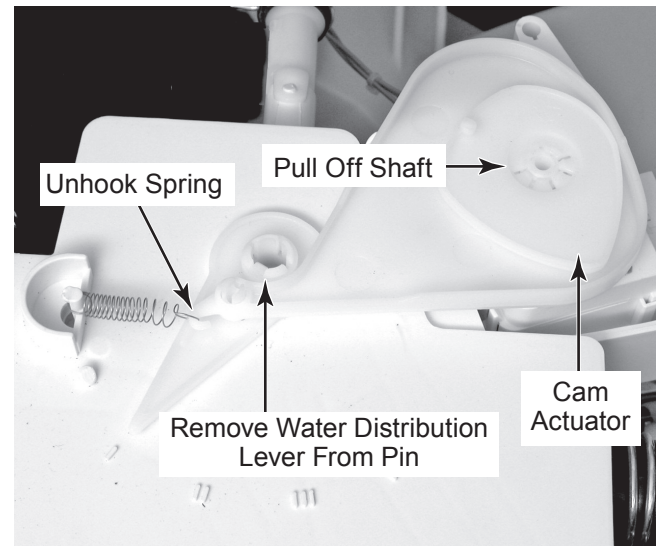
**Failure to do so can result in death or  
electrical shock.**

1. Unplug washer or disconnect power.
2. Turn off the water supply to the washer.
3. Remove the top cover and the control assembly (see page 4-2 for the procedures).

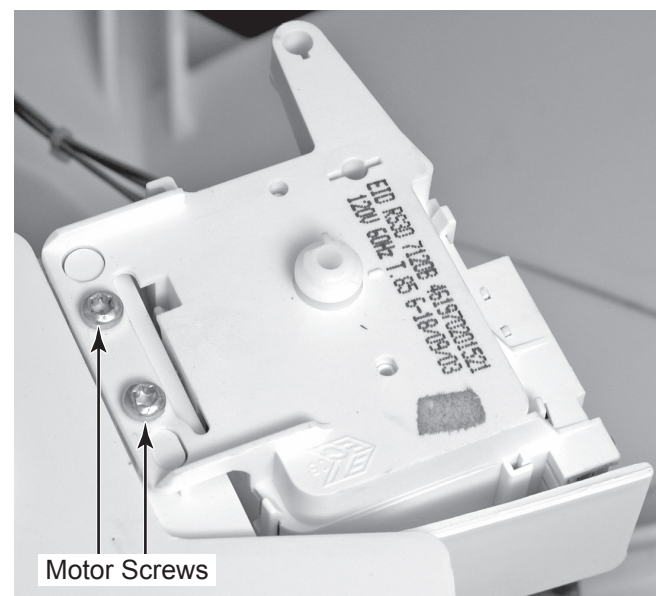


4. To remove the detergent dispenser motor:

- a) Unhook the spring from the end of the water distribution lever.
- b) Carefully pull the cam actuator and the water distribution lever off the motor shaft, then pull the water distribution lever off the lever connection pin.



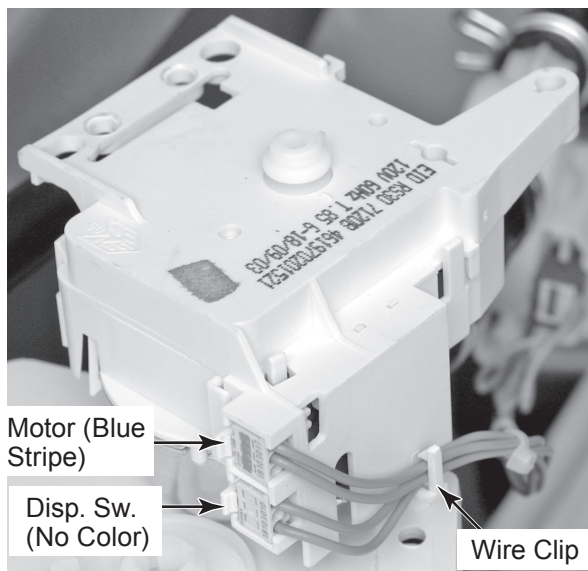
- c) Remove the two motor screws, cut the wire tie (if present), and remove the motor from the detergent dispenser.



**Continued on the next page.**

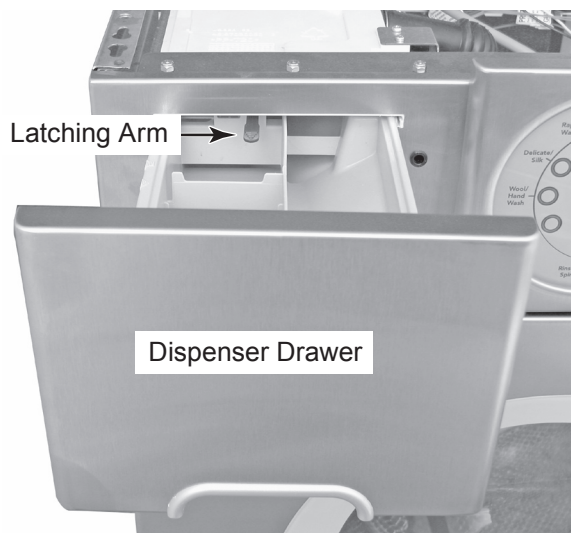


- d) Remove the motor and switch wires from the wire clip.
- e) Disconnect the two wire connectors from the motor terminals. **NOTE:** The connector with the blue stripe (motor connector) is installed above the connector with no color indicator (dispenser switch connector).



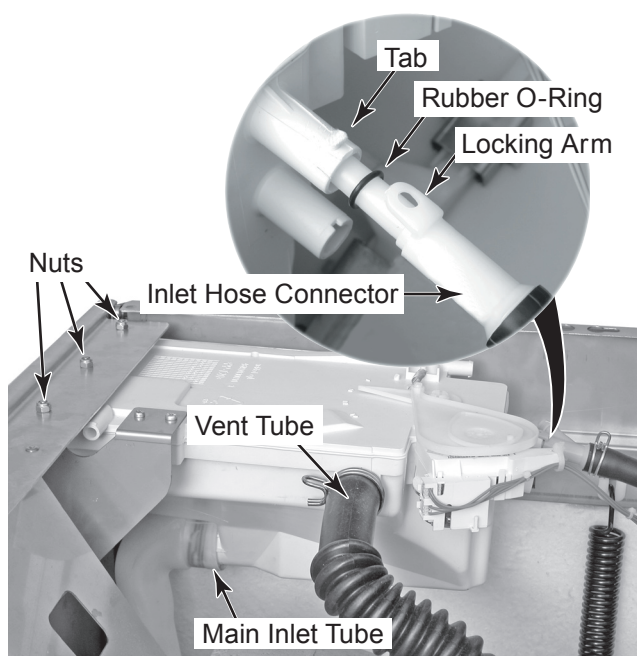
5. **To remove the detergent dispenser assembly:**

- a) Pull the dispenser drawer out as far as it will go. Press down on the latching arm and remove the drawer from the dispenser.

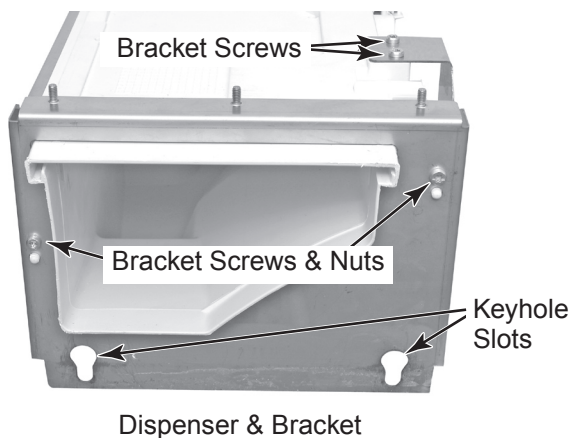


- b) Remove the detergent dispenser motor (see step 4).

- c) Use a small screwdriver and raise the locking arm on the inlet hose connector so that it clears the tab. Pull the connector and rubber o-ring out of the detergent dispenser.
- d) Loosen the clamp and pull the vent tube from the detergent dispenser.
- e) Remove the three nuts.
- f) Push down on the dispenser and unhook the front panel pins from the dispenser bracket keyhole slots. Pull the detergent dispenser back, and remove the main inlet tube at the bottom, then remove the dispenser.



- g) Remove the four T-20 screws from the dispenser bracket and remove the bracket.



## REMOVING THE FLOWMETER

### **⚠ WARNING**



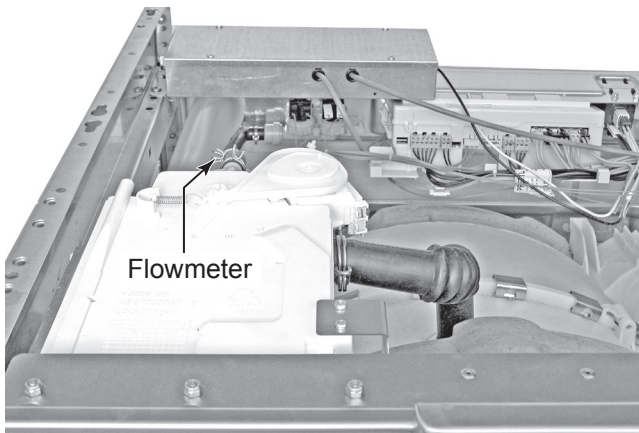
#### **Electrical Shock Hazard**

**Disconnect power before servicing.**

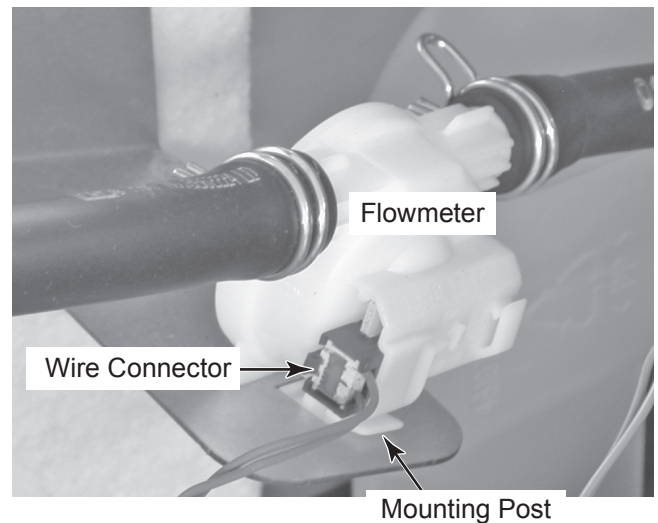
**Replace all parts and panels before operating.**

**Failure to do so can result in death or electrical shock.**

1. Unplug washer or disconnect power.
2. Turn off the water supply to the washer.
3. Remove the top cover and the control assembly (see page 4-2 for the procedures).



4. Loosen the two clamps and remove the two hoses from the ends of the flowmeter.
5. Disconnect the wire connector from the flowmeter.
6. Squeeze the locking tabs on the mounting post and remove the flowmeter from the bracket.



## REMOVING THE INLET VALVES

### **⚠ WARNING**



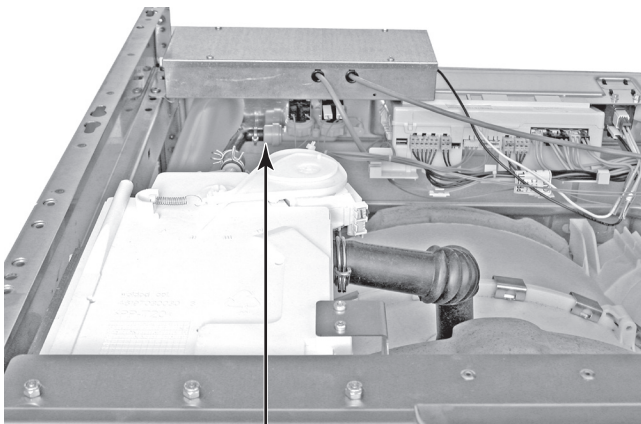
#### **Electrical Shock Hazard**

**Disconnect power before servicing.**

**Replace all parts and panels before operating.**

**Failure to do so can result in death or electrical shock.**

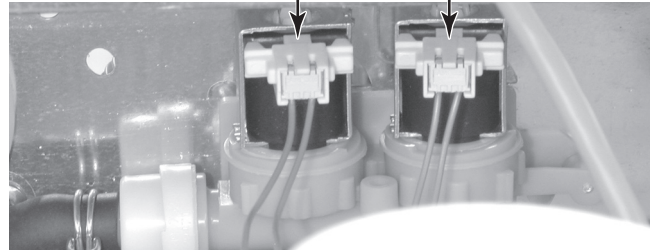
1. Unplug washer or disconnect power.
2. Turn off the water supply to the washer.
3. Remove the top cover and the control assembly (see page 4-2 for the procedures).



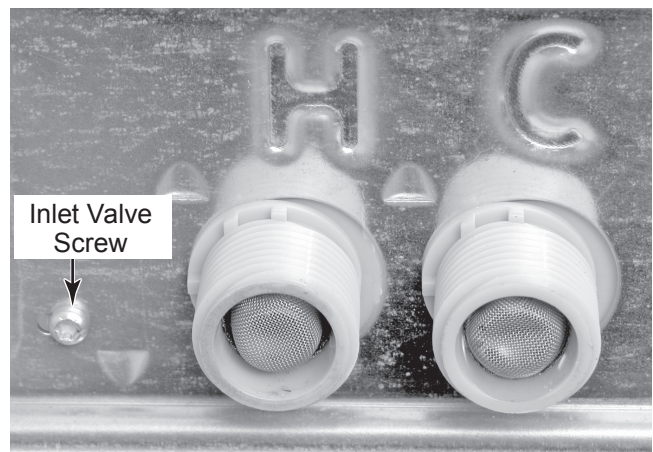
Inlet Valves

4. Disconnect the wire connectors from the white (cold) and yellow (hot) water inlet valve terminals.

Disconnect Wire Connectors  
White (Cold) Yellow (Hot)

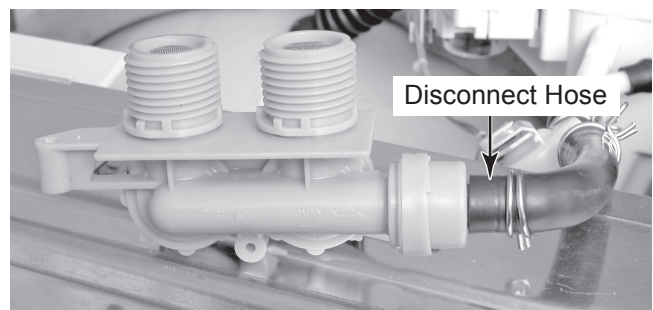


5. From the rear of the washer, remove the inlet valve screw, slide the valves to the right and unhook them from the panel, and remove them.



Rear Of Washer

6. Loosen the clamp and disconnect the hose from the water valves.





## REMOVING THE CONTROL POWER SUPPLY BOARD

### **⚠ WARNING**



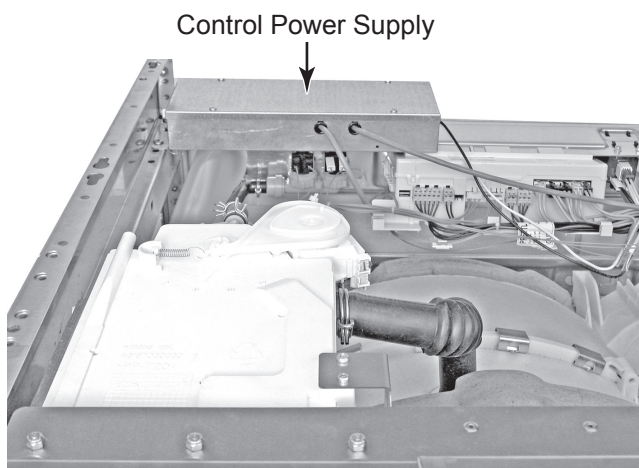
#### **Electrical Shock Hazard**

**Disconnect power before servicing.**

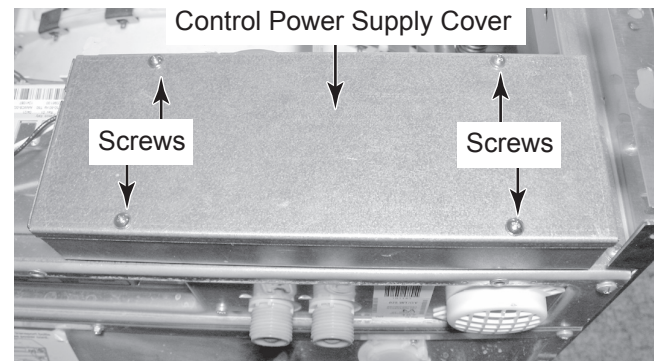
**Replace all parts and panels before operating.**

**Failure to do so can result in death or electrical shock.**

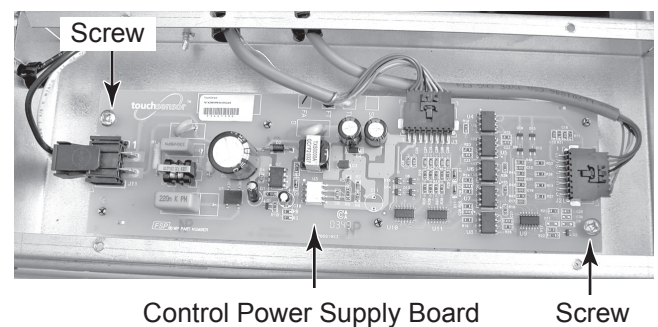
1. Unplug washer or disconnect power.
2. Turn off the water supply to the washer.
3. Remove the top cover and the control assembly (see page 4-2 for the procedures).



4. Remove the four screws from the cover and remove the cover from the control power supply housing.



5. Disconnect the three connectors from the control power supply board.
6. Remove the two screws from the control power supply board and remove the board from the housing.



# REMOVING THE CENTRAL CONTROL UNIT

## **⚠ WARNING**



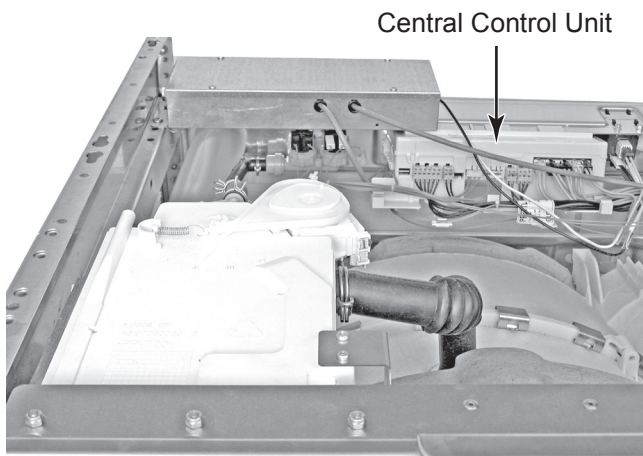
### **Electrical Shock Hazard**

**Disconnect power before servicing.**

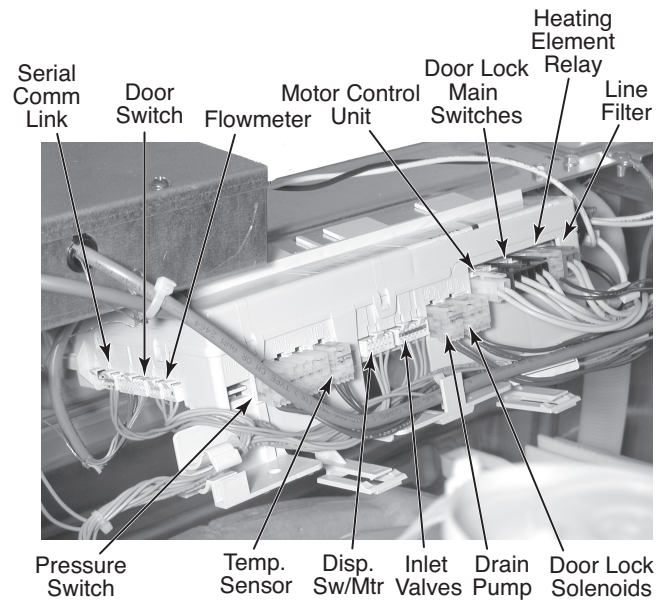
**Replace all parts and panels before operating.**

**Failure to do so can result in death or electrical shock.**

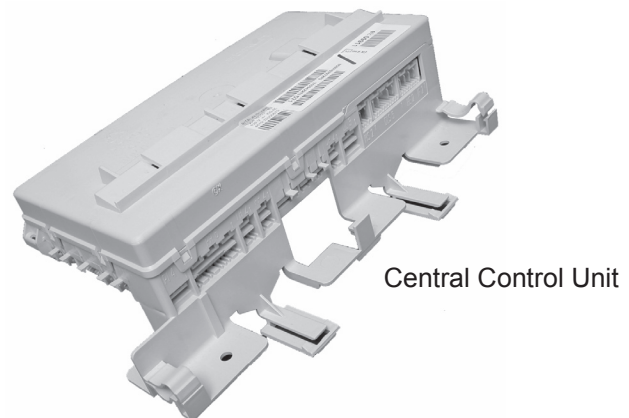
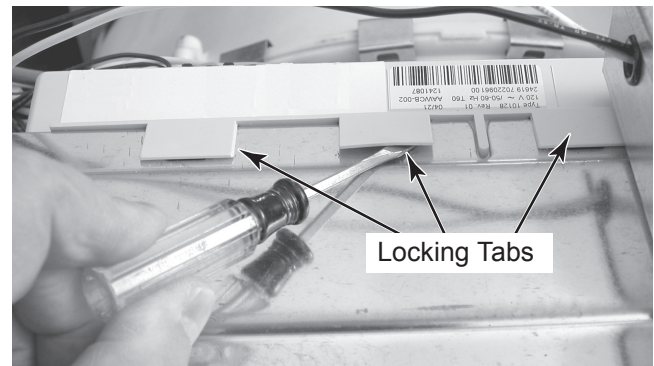
1. Unplug washer or disconnect power.
2. Turn off the water supply to the washer.
3. Remove the top cover and the control assembly (see page 4-2 for the procedures).



4. Remove all of the wire connectors from the central control unit (see the photo at the top of the right column). **NOTE:** Each connector has a locking arm or locking tabs that you must release to remove the connector from the unit.



5. Unlock the two wire clips and remove the wires from each of the clips.
6. Pry up on the locking tabs with a small screwdriver and unhook the central control unit from the washer.



## REMOVING THE INTERFERENCE FILTER

### **WARNING**



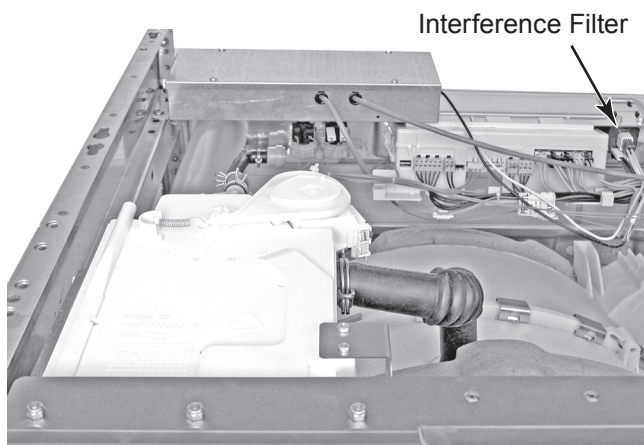
#### **Electrical Shock Hazard**

**Disconnect power before servicing.**

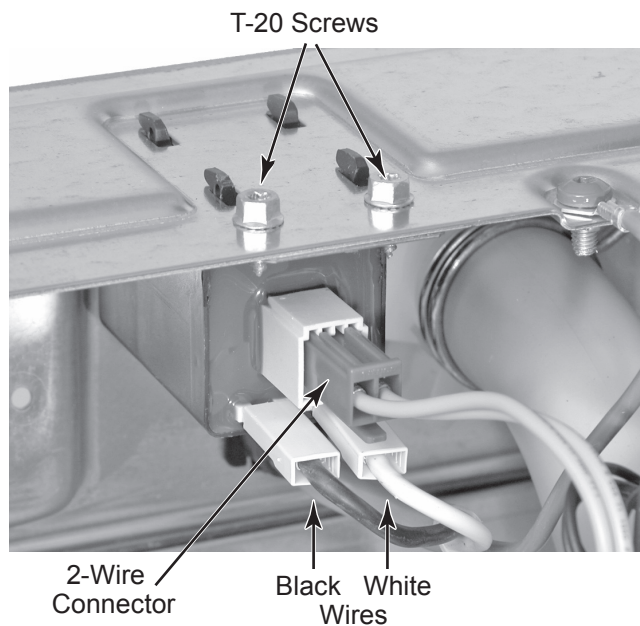
**Replace all parts and panels before operating.**

**Failure to do so can result in death or electrical shock.**

1. Unplug washer or disconnect power.
2. Turn off the water supply to the washer.
3. Remove the top cover and the control assembly (see page 4-2 for the procedures).



4. Disconnect the three connectors from the interference filter terminals. **NOTE:** The green 2-wire connector has a locking arm at the bottom that you must press to release the connector.
5. Remove the two T-20 screws from the interference filter and remove the filter from the washer.





## REMOVING THE PRESSURE SWITCH

### **WARNING**

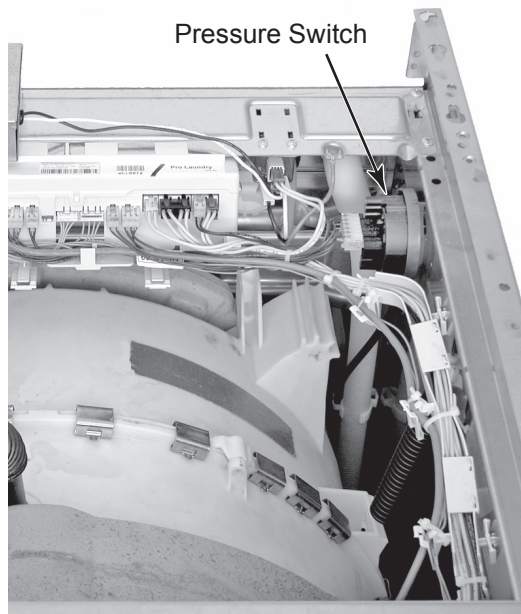


#### **Electrical Shock Hazard**

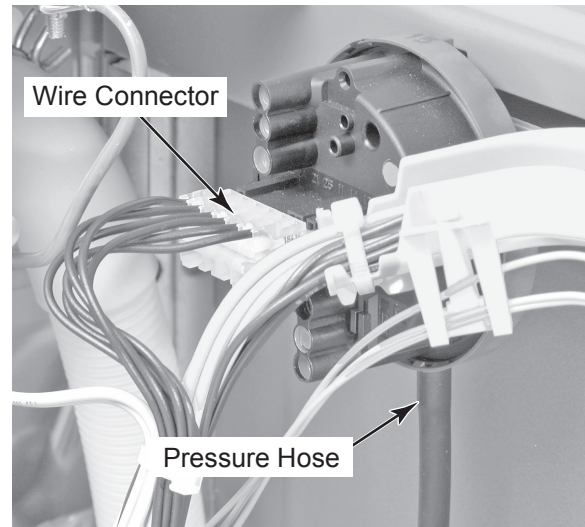
**Disconnect power before servicing.  
Replace all parts and panels before  
operating.**

**Failure to do so can result in death or  
electrical shock.**

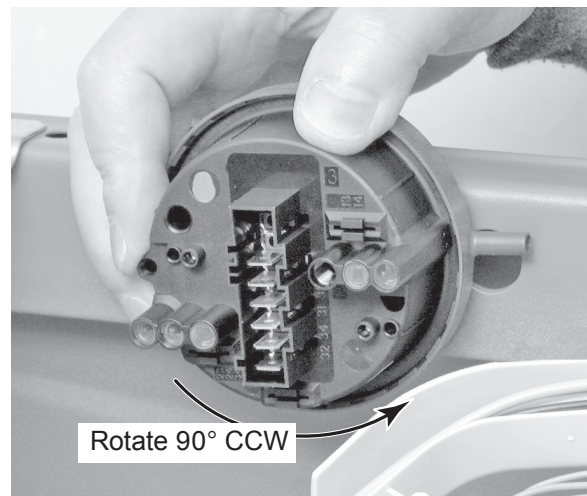
1. Unplug washer or disconnect power.
2. Turn off the water supply to the washer.
3. Remove the top cover and the control assembly (see page 4-2 for the procedures).



4. Pull the pressure hose off the pressure switch inlet.
5. Press on the two locking arms at the bottom of the wire connector, and pull the connector off the pressure switch terminals.



6. Turn the pressure switch 90° counterclockwise so that the square locking tab is aligned with the chassis cutout. Pull the tab out of the cutout, and remove the switch.



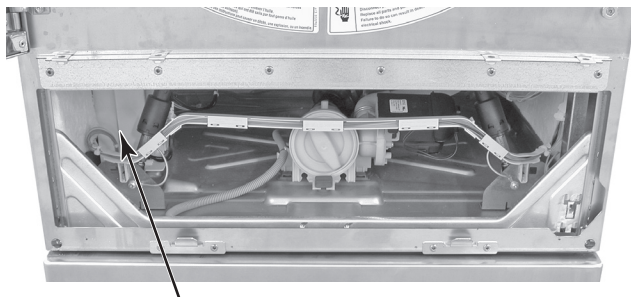
## REMOVING THE MOTOR CONTROL UNIT

### WARNING



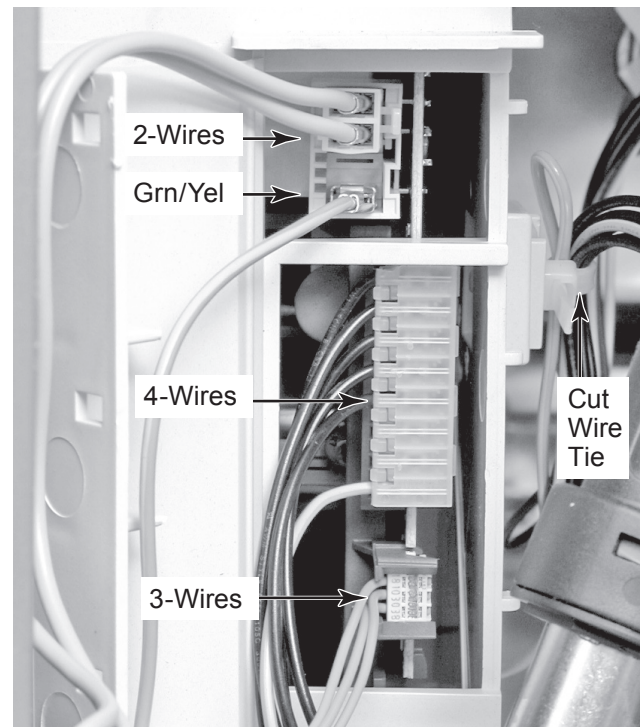
**Electrical Shock Hazard**  
**Disconnect power before servicing.**  
**Replace all parts and panels before operating.**  
**Failure to do so can result in death or electrical shock.**

1. Unplug washer or disconnect power.
2. Turn off the water supply to the washer.
3. Remove the toe panel (see page 4-5 for the procedure).

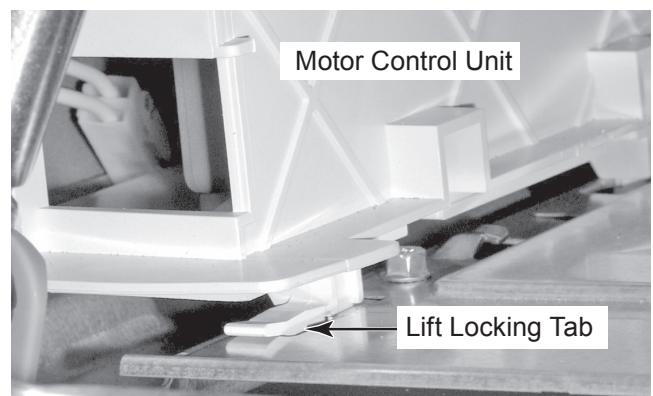


Motor Control Unit  
Wiring Access Door

4. Open the wiring access door on the front of the motor control unit.
5. Disconnect the four wire connectors from the motor control unit (see the photo at the top of the right column). **NOTE:** Each connector has a locking arm or locking tabs that you must release to remove the connector from the unit.

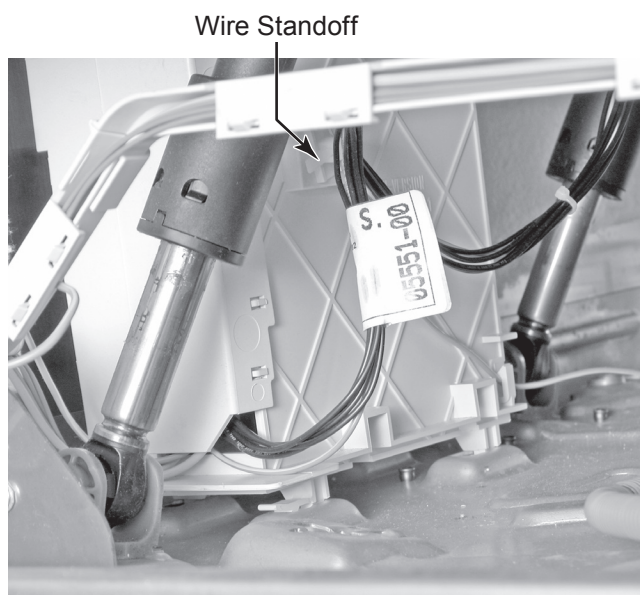


6. Cut the wire tie and pull the cut tie out of the slot in the standoff. **NOTE:** Be careful not to cut any of the wires in the tie.
7. Lift the locking tab on the motor control unit, and slide the tabs forward as far as they will go.
8. Lift the motor control unit so the tabs are out of their chassis slots, and remove the unit from the washer.



**Continued on the next page.**

**REASSEMBLY NOTE:** After reinstalling the motor control unit, slide a new wire tie through the slot in the standoff and secure the wires to the standoff.





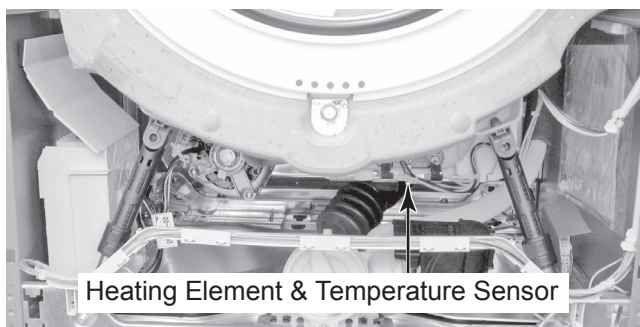
## REMOVING THE TEMPERATURE SENSOR & THE HEATING ELEMENT

### **WARNING**

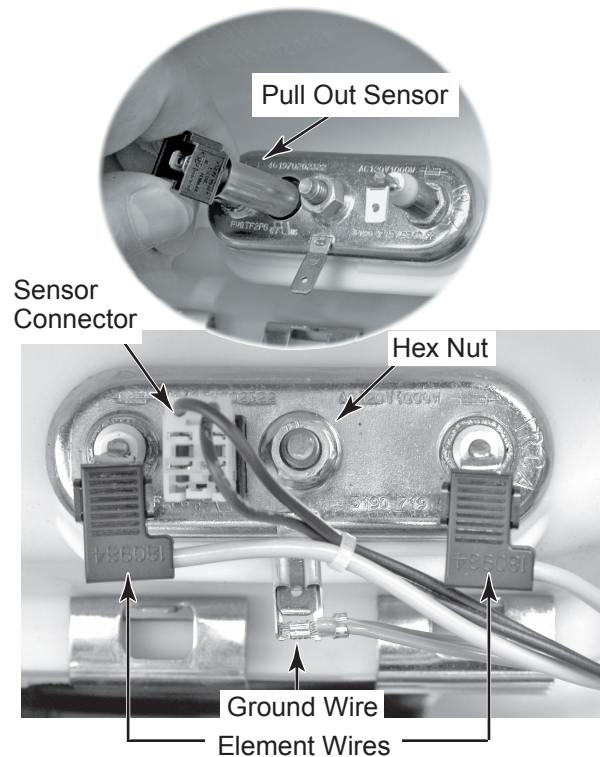


**Electrical Shock Hazard**  
**Disconnect power before servicing.**  
**Replace all parts and panels before operating.**  
**Failure to do so can result in death or electrical shock.**

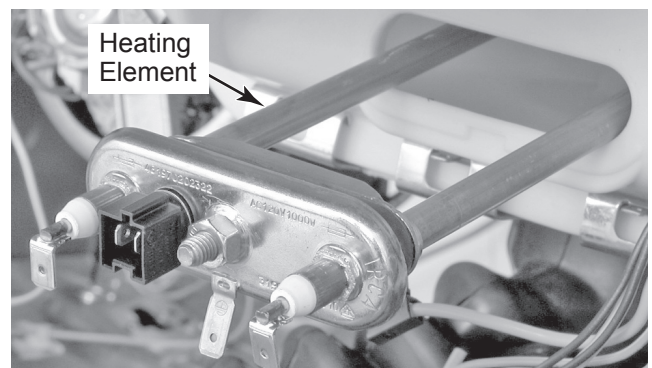
1. Unplug washer or disconnect power.
2. Turn off the water supply to the washer.
3. Remove the toe panel (see page 4-5 for the procedure).



4. Use a 13/32" (10 mm) socket and loosen the hex nut on the heating element bracket (refer to the photos at the top of the right column).
5. **To remove the temperature sensor:**
  - a) Disconnect the sensor connector.
  - b) Pull the sensor out of the heating element bracket hole.



6. **To remove the heating element:**
  - a) Remove the temperature sensor (see step 5).
  - b) Disconnect the element wires and the green ground wire from the terminals.
  - c) Pull the heating element and temperature sensor out of the tub.



## REMOVING THE DRAIN PUMP ASSEMBLY

### **⚠ WARNING**



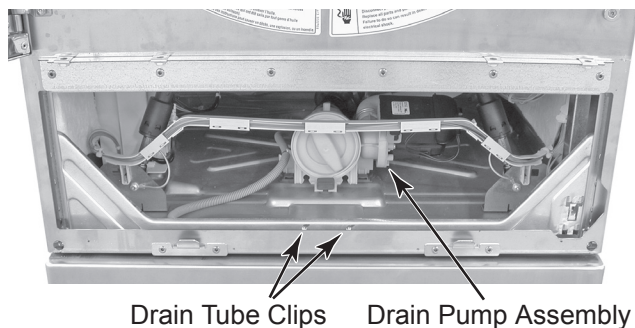
#### **Electrical Shock Hazard**

**Disconnect power before servicing.**

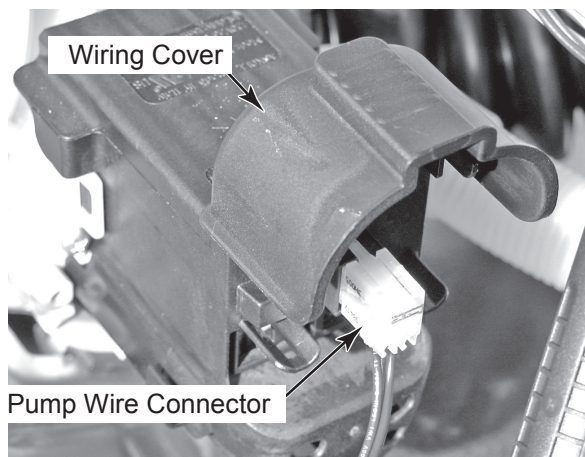
**Replace all parts and panels before operating.**

**Failure to do so can result in death or electrical shock.**

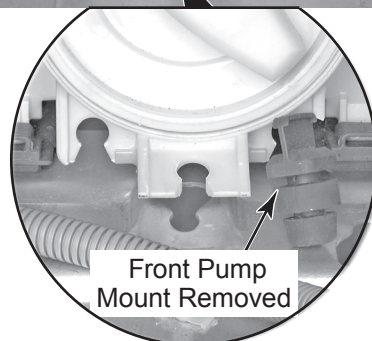
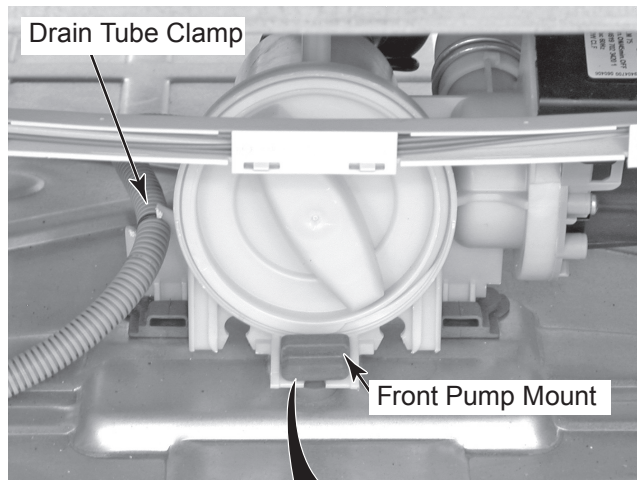
1. Unplug washer or disconnect power.
2. Turn off the water supply to the washer.
3. Remove the toe panel (see page 4-5 for the procedure).
4. Unclip the end of the drain tube and drain the water from the drain pump into a container.



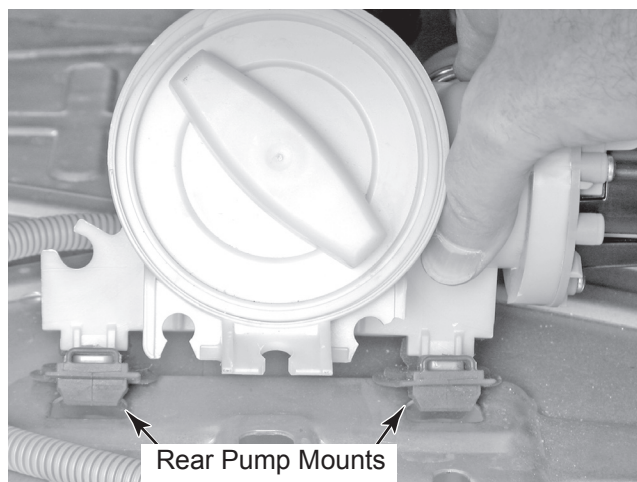
5. Raise the drain pump wiring cover and disconnect the wire connector.



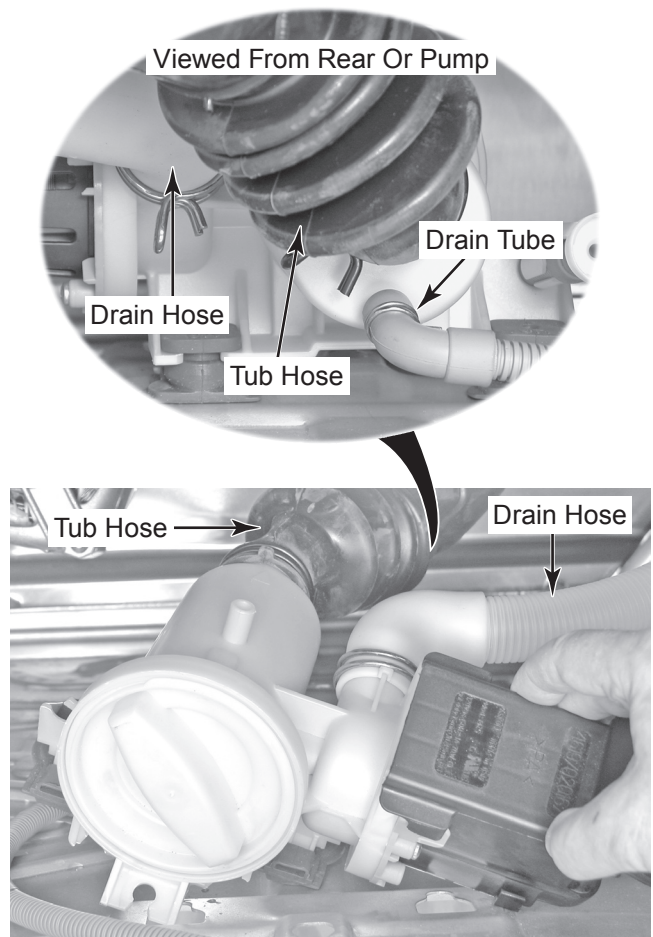
6. Pull the drain tube out of the clamp.
7. Pull the front pump mount from the front of the pump, then remove the mount from the chassis keyhole slot.



8. Tip the drain pump back so the two rear pump mount stops are out of their chassis slots, then pull the pump forward to remove the mounts from the slots, and remove the pump.



9. Loosen the clamps and remove the drain tube, and the tub and drain hoses from the pump. **NOTE:** Have a shallow pan ready to catch any remaining water from the hoses.





## REMOVING THE AIRTRAP

### WARNING



#### Electrical Shock Hazard

Disconnect power before servicing.

Replace all parts and panels before operating.

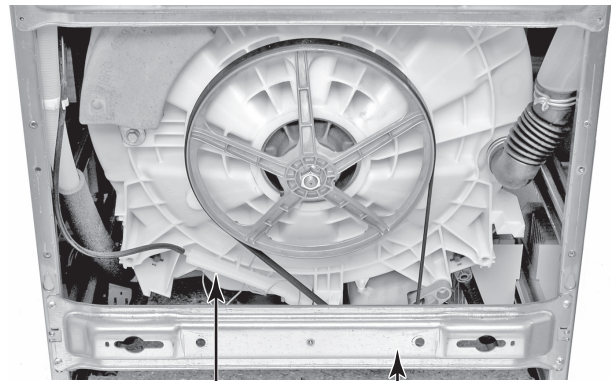
Failure to do so can result in death or electrical shock.

1. Unplug washer or disconnect power.
2. Turn off the water supply to the washer.
3. Pull the washer away from the wall so that you can access the rear panel.
4. Remove the thirteen screws from the rear panel and remove the panel from the washer.



Rear Panel Screw (1 of 13)

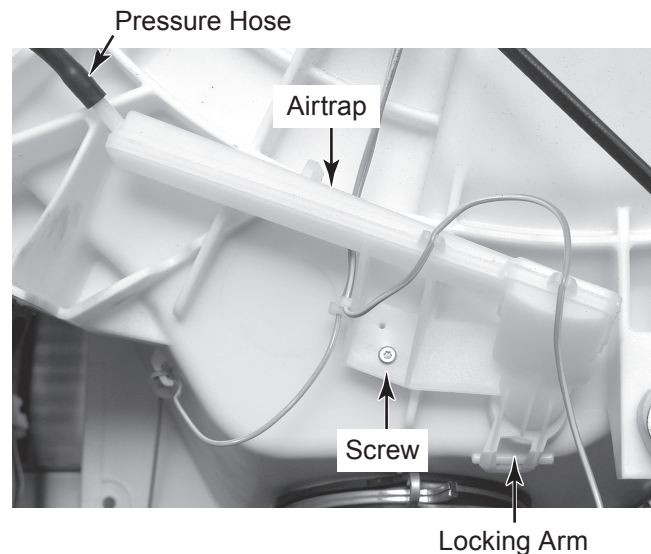
5. Remove the T-20 hex-head screws from the bottom brace and remove the brace.



Airtrap

Bottom Brace

6. Pull the pressure hose off the airtrap fitting.
7. Remove the T-10 screw from the airtrap.
8. Press the locking arm to unlock the airtrap and pull it back and off the tub. **NOTE:** Replace the rubber o-ring if it is cracked or worn.



Pressure Hose

Airtrap

Screw

Locking Arm

## REMOVING AN INTERLOCK SWITCH

### WARNING



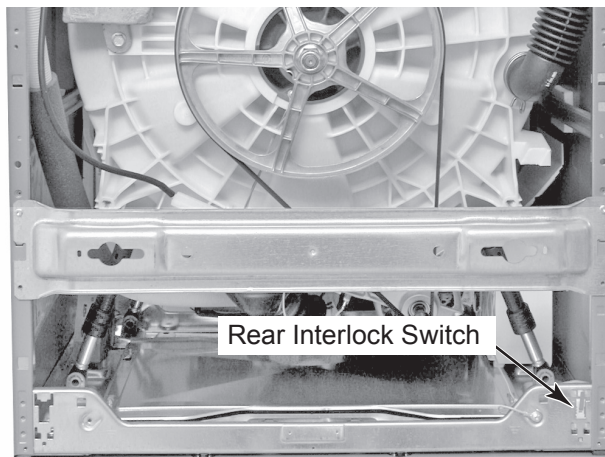
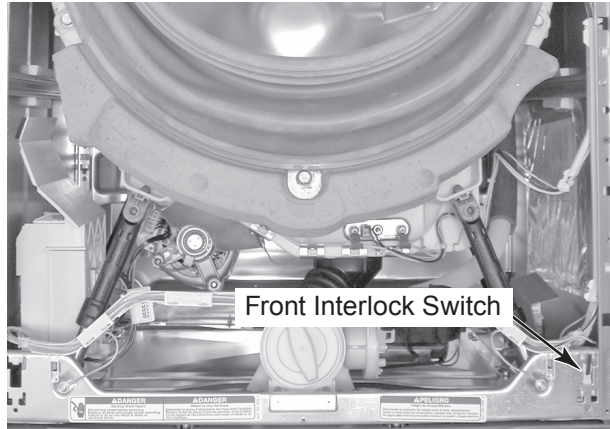
#### Electrical Shock Hazard

**Disconnect power before servicing.**

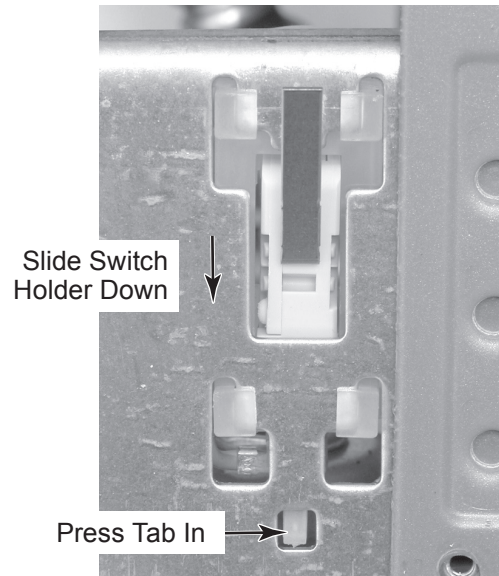
**Replace all parts and panels before operating.**

**Failure to do so can result in death or electrical shock.**

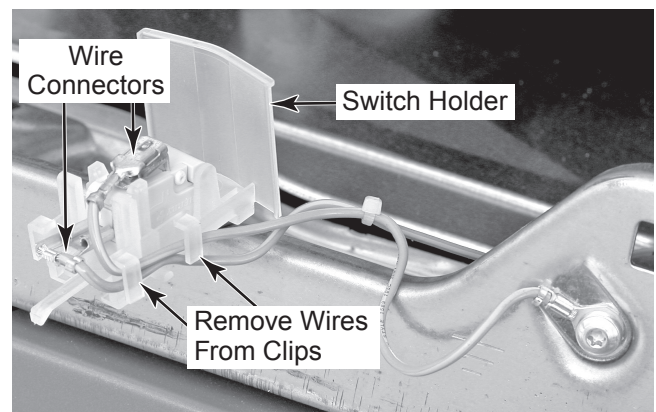
1. Unplug washer or disconnect power.
2. Turn off the water supply to the washer.
3. Depending on the interlock switch you are servicing, remove the toe panel (see page 4-5 for the procedure), or the rear panel (see page 4-20 for the procedure).



4. Press in on the locking tab. Slide the switch holder down in the chassis slots, and remove it from the chassis.

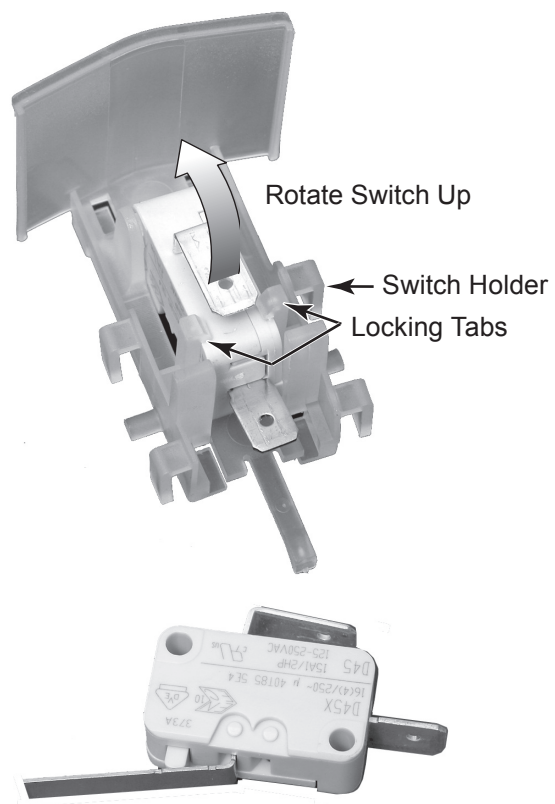


5. Remove the wires from the switch holder clips, and disconnect the wire connectors from the switch terminals. **NOTE:** The top connector has a locking tab on it.



**Continued on the next page.**

6. Push out on the locking tabs of the switch holder, rotate the switch up, and remove it from the holder.





## REMOVING THE DRIVE MOTOR

### **⚠ WARNING**



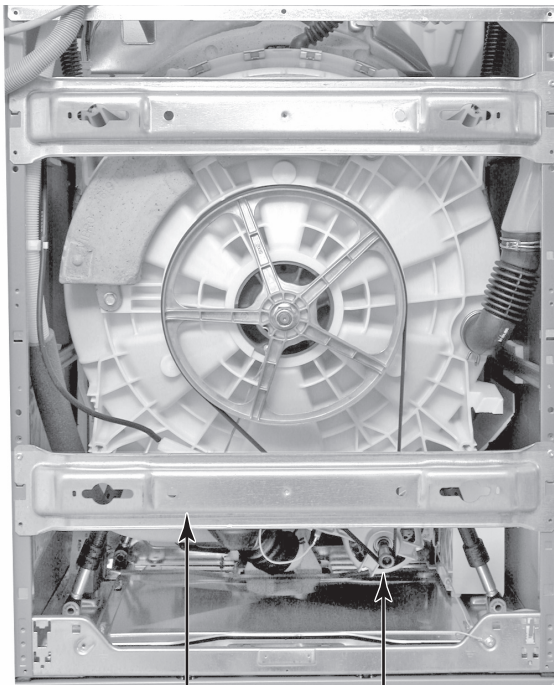
#### **Electrical Shock Hazard**

**Disconnect power before servicing.**

**Replace all parts and panels before operating.**

**Failure to do so can result in death or electrical shock.**

1. Unplug washer or disconnect power.
2. Turn off the water supply to the washer.
3. Pull the washer away from the wall so that you can access the rear panel.
4. Remove the rear panel from the washer (see page 4-20 for the procedure).
5. Remove the two T-20 hex-head screws from the bottom brace and remove the brace.



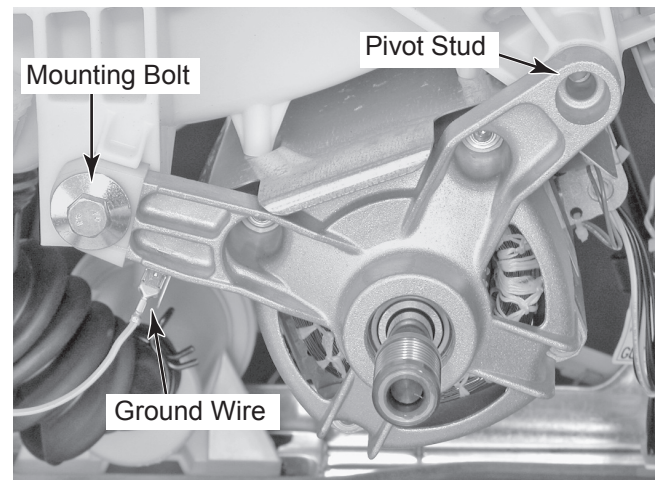
Bottom Brace      Drive Motor

6. Remove the drive belt from the end of the drive motor shaft and then remove the belt from the drive pulley.



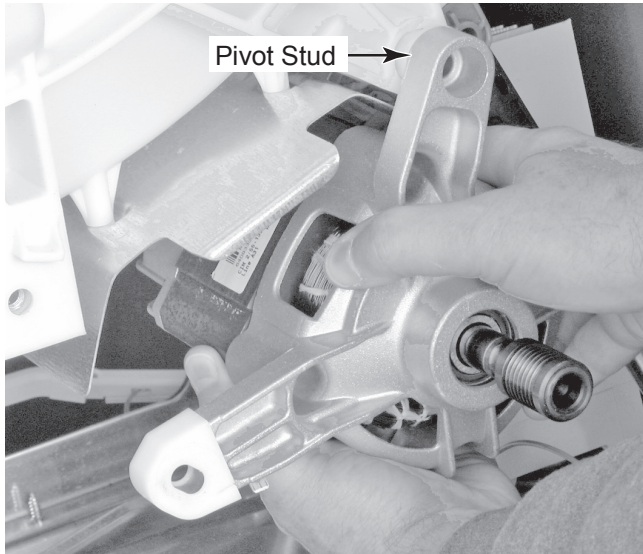
Drive Pulley      Belt      Drive Motor

7. Disconnect the green ground wire from the drive motor frame.
8. Remove the 1/2" hex-washer-head mounting bolt from the drive motor.

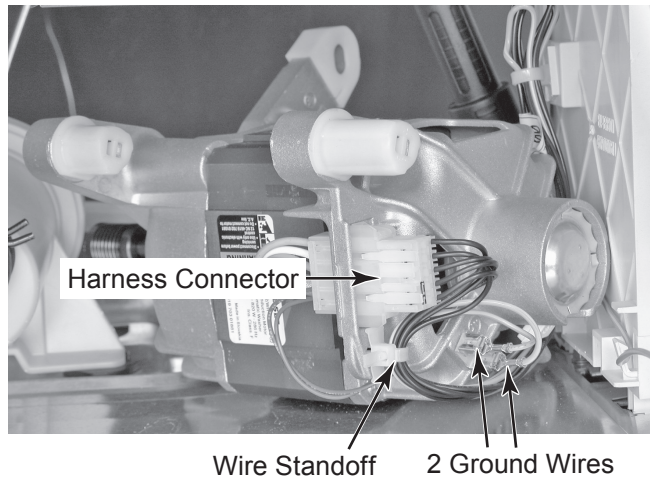


**Continued on the next page.**

9. Pull the drive motor toward you and remove the pivot studs from the tub holes; then turn the motor around so that you can access the motor wires.



10. Squeeze the tabs on the standoff mounting post and push the standoff out of the motor bracket.
11. Press the two locking arms down and disconnect the harness connector from the motor.
12. Disconnect the two green ground wires from the motor terminals.



## REMOVING THE TUB AND BASKET ASSEMBLY

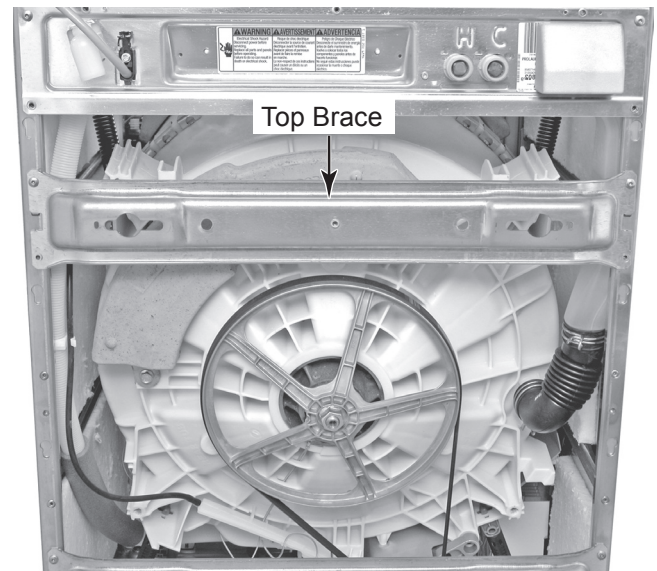
### **WARNING**



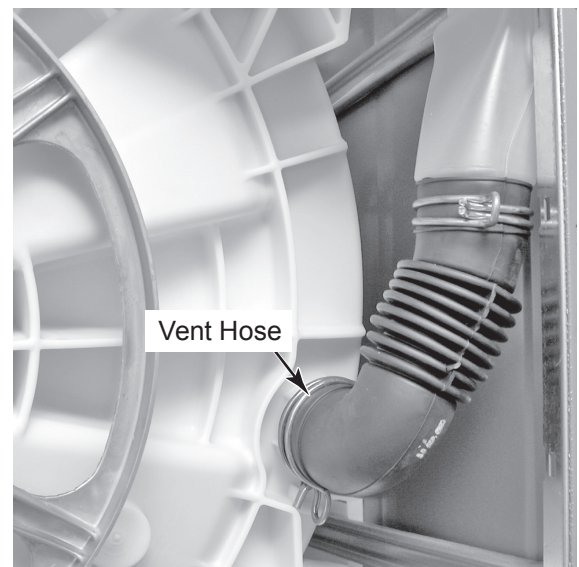
**Electrical Shock Hazard**  
**Disconnect power before servicing.**  
**Replace all parts and panels before operating.**  
**Failure to do so can result in death or electrical shock.**

1. Unplug washer or disconnect power.
2. Turn off the water supply to the washer.
3. Remove the detergent dispenser assembly (see page 4-7 for the procedure).
4. Remove the bellows (see page 4-5 for the procedure).
5. Remove the heating element & temperature sensor (see page 4-17 for the procedures).
6. Remove the drain pump assembly (see page 4-18 for the procedure).
7. Remove the airtrap (see page 4-20 for the procedure).
8. Remove the drive motor and belt (see page 4-23 for the procedure).

9. Remove the T-20 hex-head screws from the top brace, and remove the brace from the rear of the washer. **NOTE:** If you did not remove the bottom brace in step 7, remove it now.



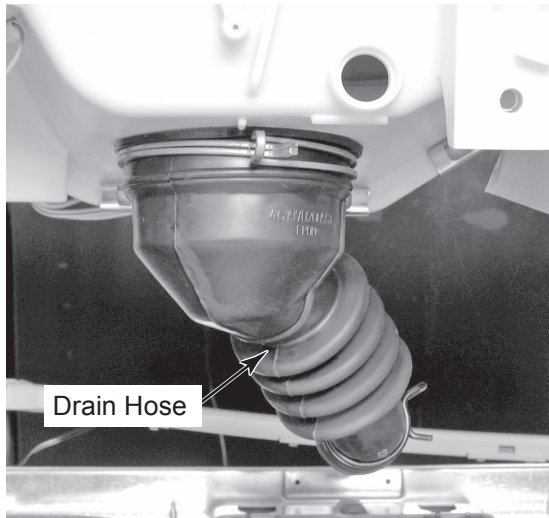
10. Loosen the clamp and pull the end of the vent hose from the tub.



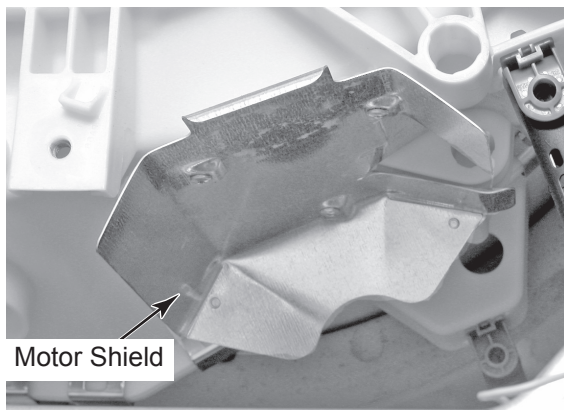
**Continued on the next page.**



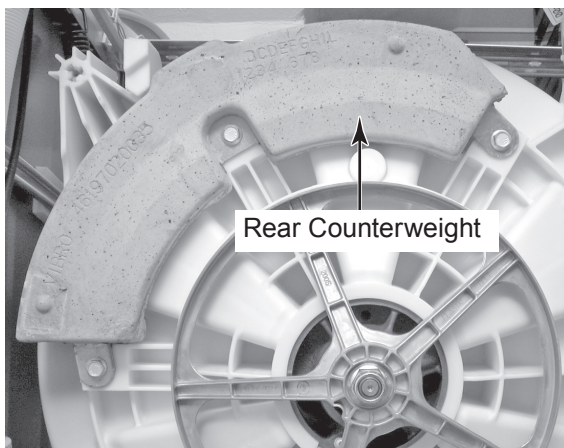
11. Loosen the clamp and pull the end of the drain hose from the tub.



12. Remove the three T-20 screws from the drive motor shield and remove the shield from the bottom of the tub.

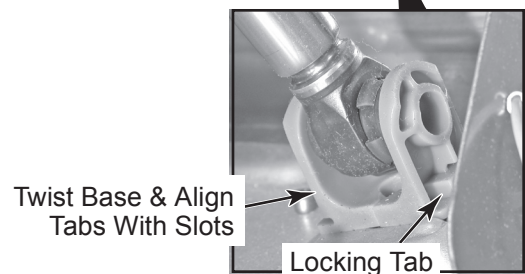
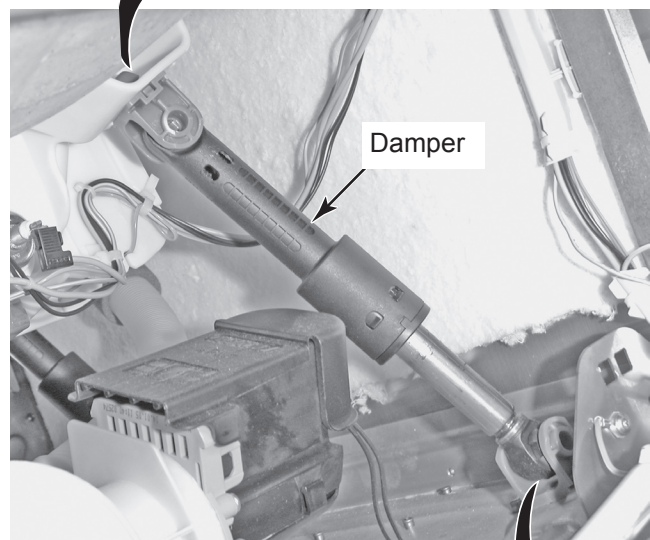
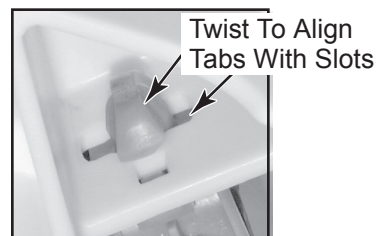


13. Remove the three 1/2" hex-head bolts from the rear counterweight and remove the weight.



14. Remove the two dampers from the washer. To remove a damper:

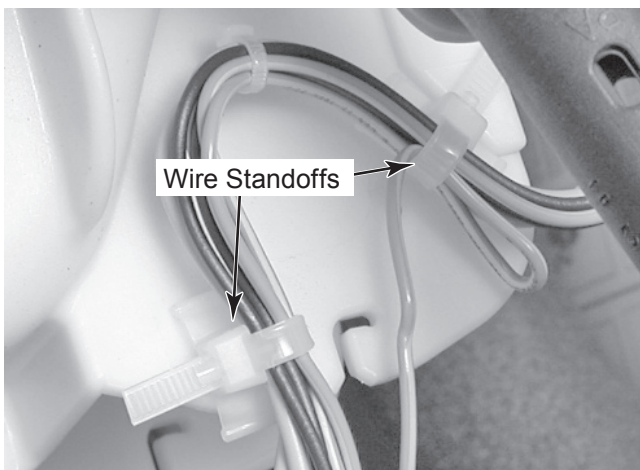
- Push the locking tab down and out of the slot with a small screwdriver.
- Twist the top damper section so the tabs align with the slots in the tub.
- Pull the top of the strut down through the slot.
- Similarly, release the locking tab, twist the base of the damper at the floor of the chassis with a pair of pliers so the tabs align with the slots, and remove the damper.



15. Remove the screw from the green ground wire eyelet and remove the wires from the clips in the tub.

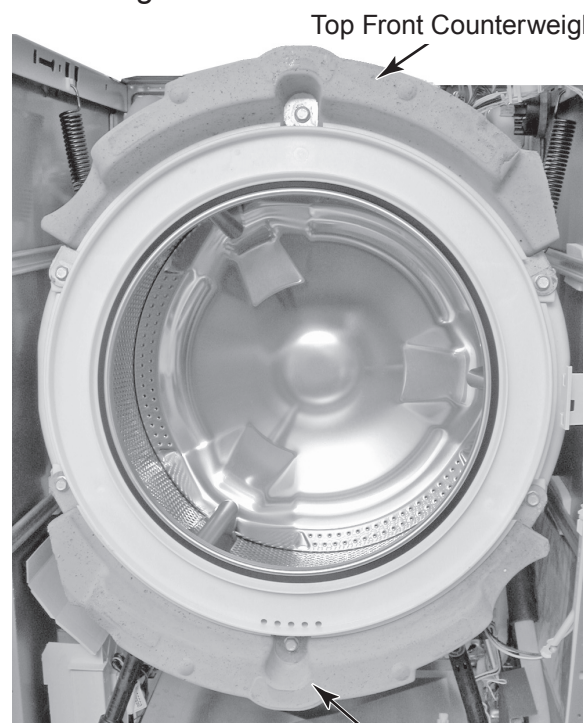


16. Squeeze the tabs on the two standoff mounting posts and push the standoffs out of the motor bracket.



**IMPORTANT NOTE:** When you remove the bottom front counterweight in the following step, be sure to support it with one hand while you remove the screws with the other hand; otherwise, the weight will fall, and could cause an injury or damage the floor covering.

17. While supporting the bottom front counterweight with one hand, remove the three 1/2" hex-head bolts with the other hand, and remove the weight.
18. Remove the three 1/2" hex-head bolts from the top front counterweight, and remove the weight.



**SUPPORT WEIGHT  
WHILE REMOVING**

Bottom Front Counterweight

**Continued on the next page.**



19. Using the procedure in step 14, remove the two front dampers from the tub.

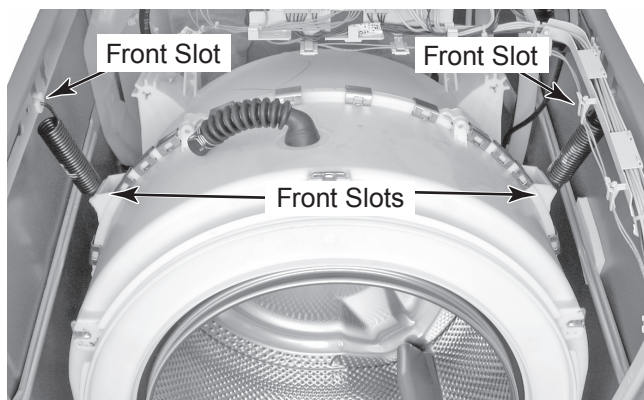
## **⚠ WARNING**

### **Excessive Weight Hazard**

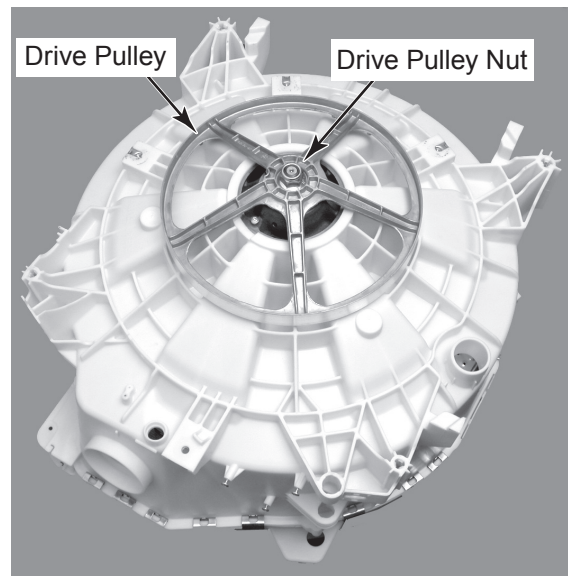
**Use two or more people to move and install washer.**

**Failure to do so can result in back or other injury.**

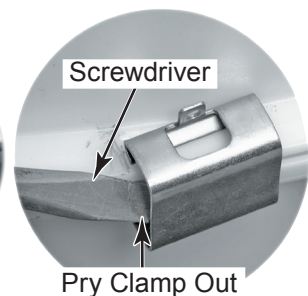
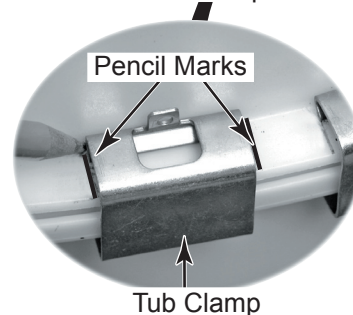
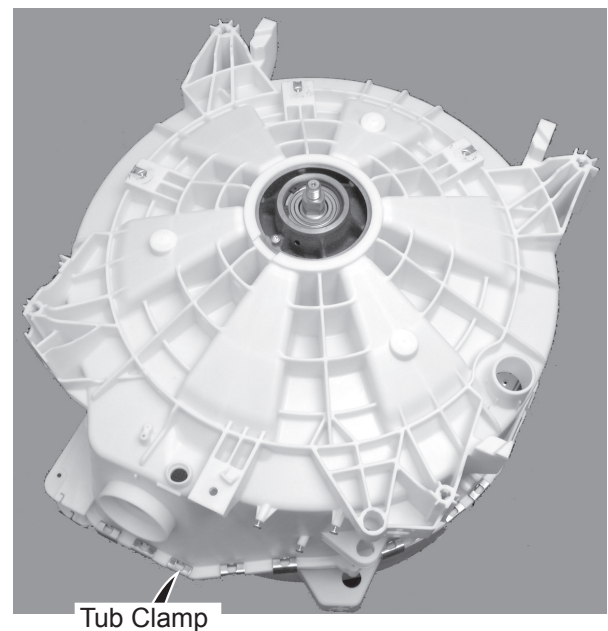
20. Lift the tub and basket assembly and unhook the two suspension springs, then remove the assembly from the washer, and place it front-down on a padded surface so that the back pulley faces up. **NOTE:** The suspension springs are installed in the front slots of the cabinet, as well as in the tub. Do not use the back slots; they are used with other models.



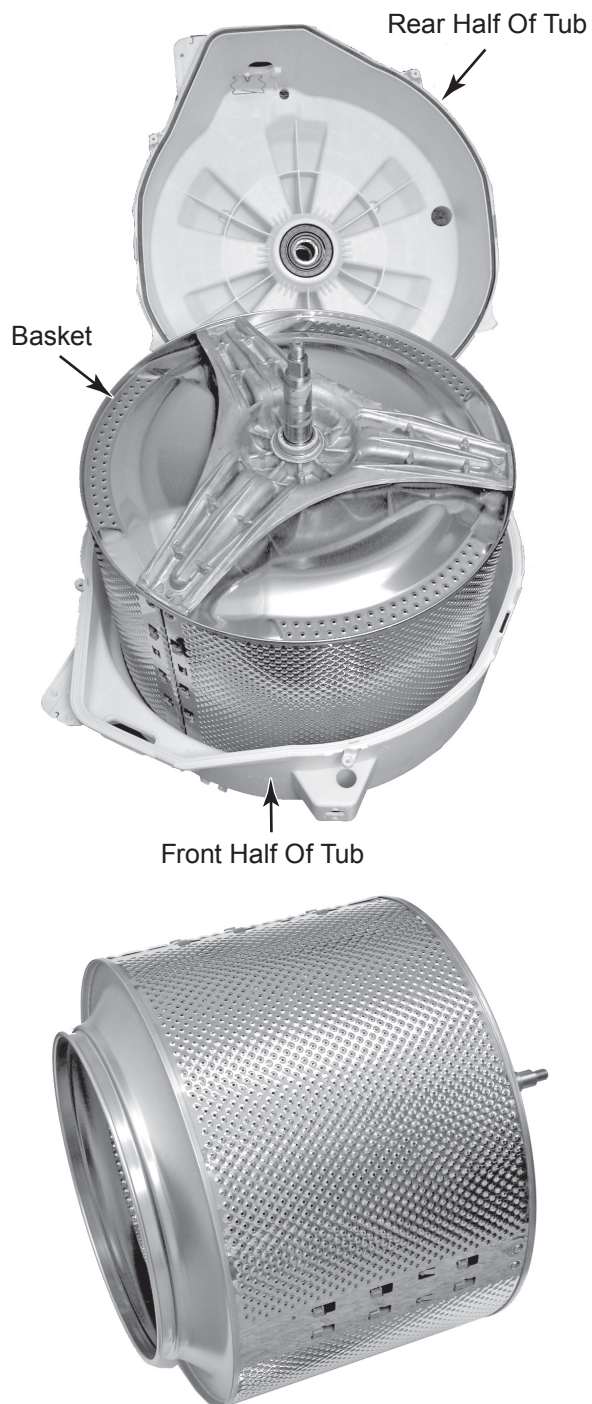
21. Remove the 15/16" hex-washer nut from the drive pulley and remove the pulley from the basket shaft (see the top right photo).



22. Mark the edges of the tub clamps with a pencil so that you can reinstall the clamps in the same locations later.
23. Use a screwdriver blade, and pry off the tub clamps.



24. Lift the rear half of the tub off the front half.
25. Lift the basket from the front half of the tub.



26. To replace the heater element wire holder, remove the T-20 screw.
27. To replace the tub gasket, pry the gasket out of the slot and remove it. **NOTE:** The basket hub is molded into the rear half of the tub. If it is worn and needs to be replaced, you will need to replace the rear half of the tub.

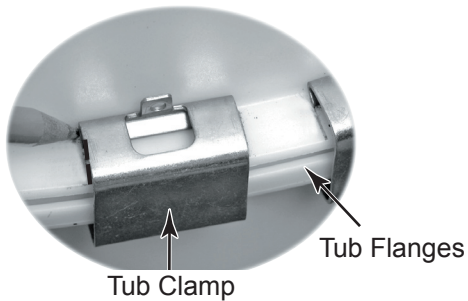


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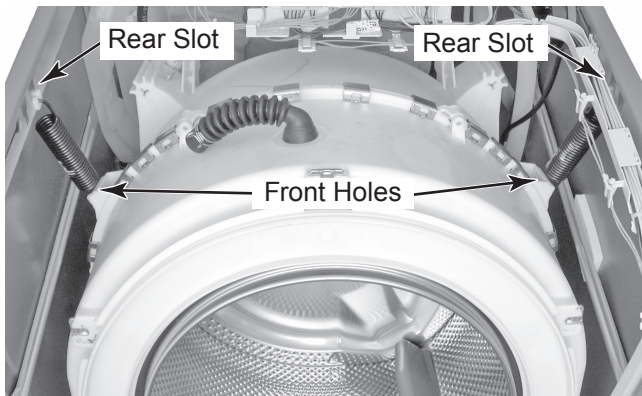


## REASSEMBLY NOTES:

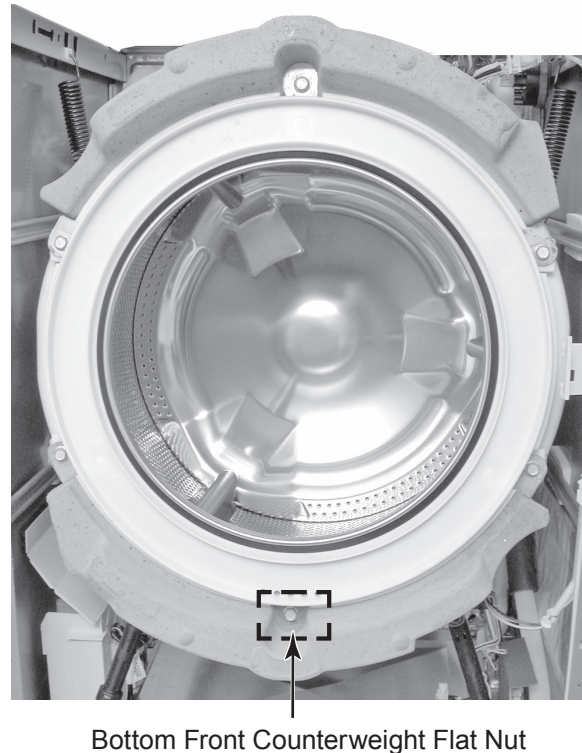
1. When reassembling the tub, install the tub clamps over the flanges of the two tub sections with a hammer.



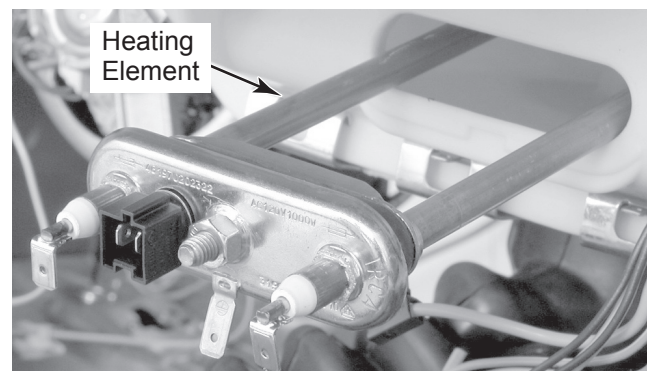
2. When reinstalling the tub assembly, hook the two suspension springs into the front holes of the tub and the rear slots of the cabinet.



3. When reinstalling the bottom front counterweight, first tape the flat nut in place in the tub slot so it does not fall out.



4. When reinstalling the heating element in the tub, make sure that it is held in place by the wire holder (see the photo in step 27 on the previous page).



5. After reinstalling the tub, install two new wire ties around the standoffs (see step 16 on page 4-27).



## SECURING A LOOSE BAFFLE

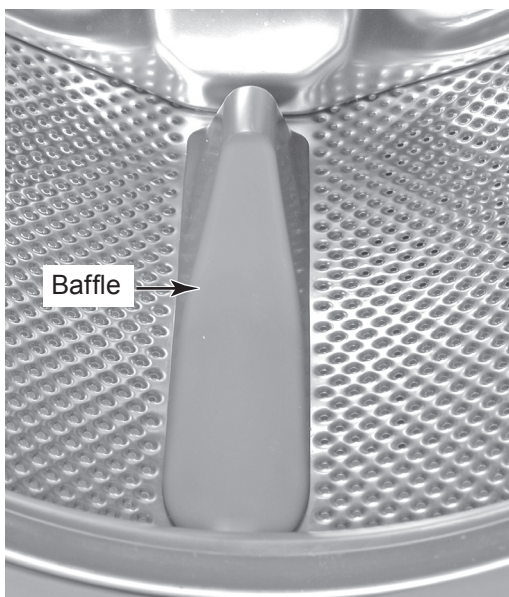
### **WARNING**



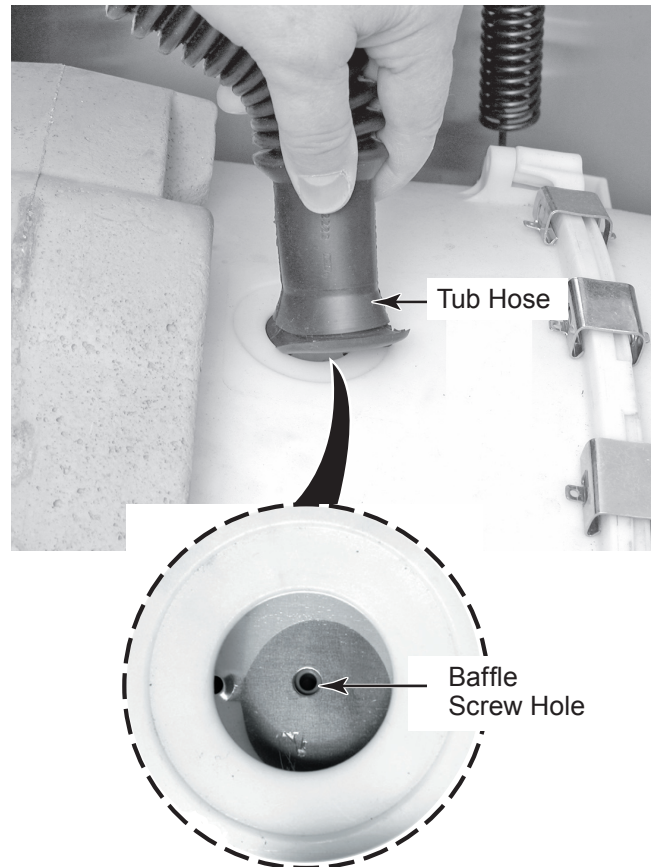
**Electrical Shock Hazard**  
**Disconnect power before servicing.**  
**Replace all parts and panels before operating.**  
**Failure to do so can result in death or electrical shock.**

**NOTE:** This procedure instructs you on how to secure a baffle that has come loose from the basket.

1. Unplug washer or disconnect power.
2. Turn off the water supply to the washer.
3. Remove the top cover from the washer (see page 4-2 for the procedure).
4. Open the washer door.
5. If necessary, reinstall the baffle on the inside of the basket by inserting the tabs into the basket slots, and pushing it back as far as the slots will allow.



6. Pull the end of the tub hose off the basket.
7. View the basket through the tub hose opening, and rotate the basket until the replacement baffle mounting screw hole is visible.
8. Install the mounting screw in the baffle mounting hole.



## — NOTES —

# COMPONENT TESTING

Before testing any of the components, perform the following checks:

- Control failure can be the result of corrosion on connectors. Therefore, disconnecting and reconnecting wires will be necessary throughout test procedures.
- All tests/checks should be made with a VOM (volt-ohm-milliammeter) or DVM (digital-volt-meter) having a sensitivity of 20,000 ohms-per-volt DC, or greater.
- Check all connections before replacing components, looking for broken or loose wires, failed terminals, or wires not pressed into connectors far enough.
- Resistance checks must be made with power cord unplugged from outlet, and with wiring harness or connectors disconnected.
- Unless stated otherwise, make all resistance checks by disconnecting the component connector at the Central Control Unit (CCU).

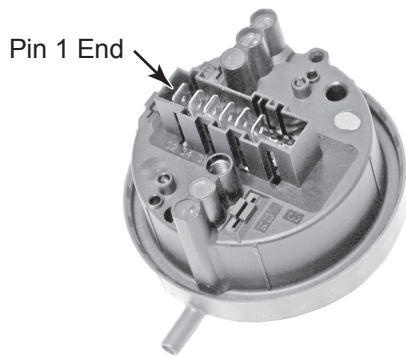


## ! WARNING

### Electrical Shock Hazard

**Disconnect power before servicing.**  
**Replace all parts and panels before operating.**  
**Failure to do so can result in death or electrical shock.**

## PRESSURE SWITCH



Refer to page 4-14 for the procedure for accessing the pressure switch.

1. Unplug washer or disconnect power.

2. Disconnect the hose and wire connector from the pressure switch.
3. Set the ohmmeter to the R X 1 scale.
4. Touch the ohmmeter test leads to the pressure switch connector pins shown below. The meter should indicate 0  $\Omega$  for each measurement.

### Water Level Setting Test Points

Empty	Pins 4 and 6
Suds Detect	Pins 1 and 2
L1	Pins 4 and 5
Overflow	Pins 3 and 4



## ⚠ WARNING

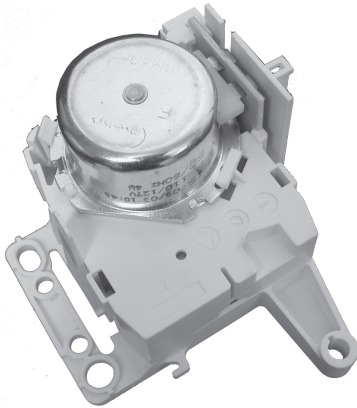
### Electrical Shock Hazard

Disconnect power before servicing.

Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

## DETERGENT DISPENSER MOTOR & SWITCH

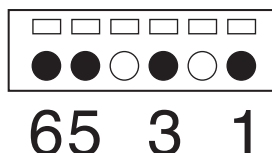


Refer to page 4-7 for the procedure for accessing the detergent dispenser motor.

1. Unplug washer or disconnect power.
2. Disconnect the detergent dispenser motor and switch connector from the CCU.
3. Set the ohmmeter to the R X 100 scale.
4. Touch the ohmmeter test leads to the indicated wire connector pins. The meter should indicate as follows:

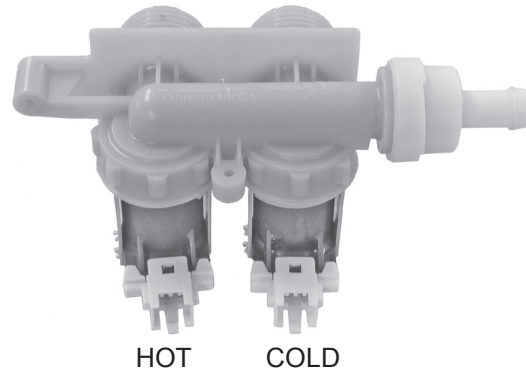
Dispenser motor at pins 1 and 3 = 1400 to 1600  $\Omega$ .

Dispenser switch at pins 5 and 6 = 0  $\Omega$ .



(Connector Viewed From Wire End)

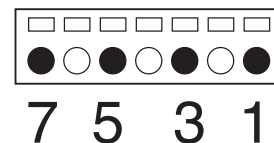
## INLET VALVE SOLENOIDS



Refer to page 4-10 for the procedure for accessing the inlet valves.

1. Unplug washer or disconnect power.
2. Disconnect the inlet valve solenoid connector from the CCU.
3. Set the ohmmeter to the R X 100 scale.
4. Touch the ohmmeter test leads to the following wire connector pins. The meter should indicate between 750 and 850  $\Omega$ .

- Cold Water Solenoid = pins 1 and 3.
- Hot Water Solenoid = pins 5 and 7



(Connector Viewed From Wire End)



## ! WARNING

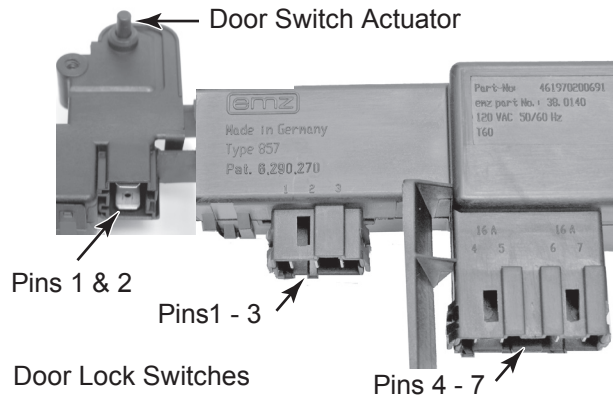
### Electrical Shock Hazard

Disconnect power before servicing.

Replace all parts and panels before operating.

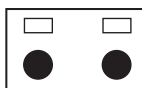
Failure to do so can result in death or electrical shock.

## DOOR LOCK/SWITCH ASSEMBLY



Refer to page 4-4 for the procedure for accessing the door lock/switch assembly.

1. Unplug washer or disconnect power.
2. Set the ohmmeter to the R X 1 scale.
3. **To test the door switch:**
  - a) Disconnect the connector from the CCU.
  - b) Touch the ohmmeter test leads to the two connector pins. The meter should indicate as follows:  
Door closed = 0  $\Omega$ .  
Door open = infinite (open circuit).



2 1

(Connector Viewed From Wire End)

- c) Reconnect the door switch connector to the CCU.

4. **To test the door lock/unlock solenoids:**

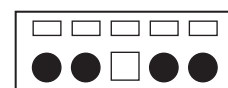
- a) Disconnect the connector from the CCU.
- b) Touch the ohmmeter test leads to the indicated connector pins. The meter should indicate as follows:  
Lock solenoid at pins 1 and 3 = 60  $\Omega$ .  
Unlock solenoid at pins 2 and 3 = 60  $\Omega$ .



1 2 3

(Connector Viewed From Wire End)

- c) Reconnect the door lock/unlock solenoid connector to the CCU.
5. **To test the door lock main switches:**
  - a) Turn the washer on and select a cycle.
  - b) Press START and you should hear the door lock solenoids engage.
  - c) Unplug the washer from the wall outlet.
  - d) Disconnect the door lock main switch connector from the CCU.
  - e) Touch the ohmmeter test leads to the indicated connector pins. The meter should indicate as follows:  
Main switch 1 at pins 4 and 5 = 0  $\Omega$ .  
Main switch 2 at pins 6 and 7 = 0  $\Omega$ .



45 67

(Connector Viewed From Wire End)





## ⚠ WARNING

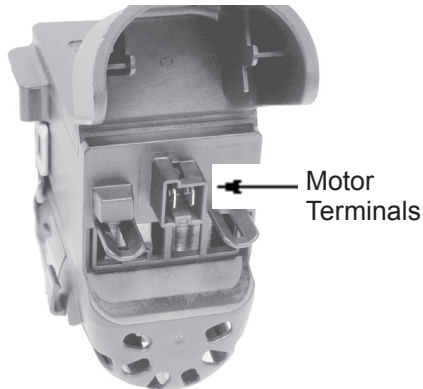
### Electrical Shock Hazard

Disconnect power before servicing.

Replace all parts and panels before operating.

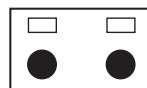
Failure to do so can result in death or electrical shock.

### DRAIN PUMP MOTOR



Refer to page 4-18 for the procedure for accessing the drain pump assembly.

1. Unplug washer or disconnect power.
2. Disconnect the drain pump motor connector from the CCU.
3. Set the ohmmeter to the R X 1 scale.
4. Touch the ohmmeter test leads to the two drain pump motor connector pins. The meter should indicate 15  $\Omega$ .



2 1

(Connector Viewed From Wire End)

### INTERFERENCE FILTER



Refer to page 4-13 for the procedure for accessing the interference filter.

1. Unplug washer or disconnect power.
2. Disconnect the wire connectors from the interference filter terminals.
3. Set the ohmmeter to the R X 10K scale.
4. Touch the ohmmeter test leads to the interference filter connector pins. The meter should indicate approximately 450K  $\Omega$ .



## ⚠ WARNING

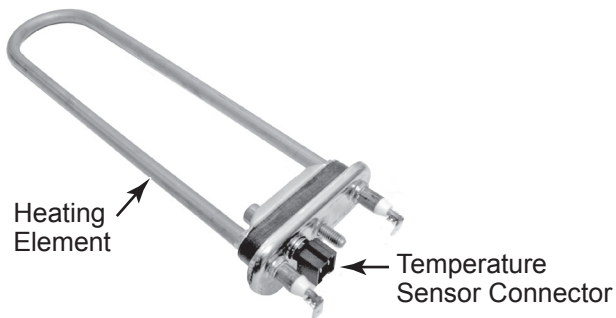
### Electrical Shock Hazard

Disconnect power before servicing.

Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

## HEATING ELEMENT & TEMPERATURE SENSOR

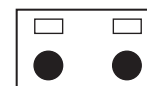


Refer to page 4-17 for the procedure for accessing the heating element & temperature sensor.

1. Unplug washer or disconnect power.
2. Disconnect the wire connectors from the heating element and temperature sensor terminals.
3. Set the ohmmeter to the R X 1 scale.

4. Touch the ohmmeter test leads to the two heating element terminals. The meter should indicate between 10 and 20  $\Omega$ .
5. Disconnect the heating element temperature sensor connector from the CCU.
6. Touch the ohmmeter test leads to the two temperature sensor connector terminals. The meter should indicate as shown in the following chart.

Temperature	Results
32°F (0°C)	35.9K $\Omega$
86°F (30°C)	9.7K $\Omega$
104°F (40°C)	6.6K $\Omega$
122°F (50°C)	4.6K $\Omega$
140°F (60°C)	3.2K $\Omega$
158°F (70°C)	2.3K $\Omega$
203°F (95°C)	1K $\Omega$



2 1

(Connector Viewed From Wire End)



## ⚠ WARNING

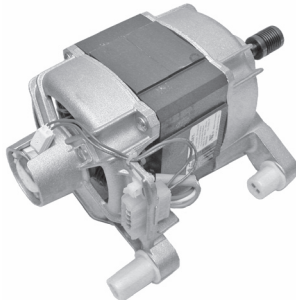
### Electrical Shock Hazard

Disconnect power before servicing.

Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

## DRIVE MOTOR



(Connector Viewed From Wire End)

Refer to page 4-23 for the procedure for accessing the drive motor.

1. Unplug washer or disconnect power.
2. Disconnect the wire connector from the drive motor.
3. Set the ohmmeter to the R X 1 scale.
4. Touch the ohmmeter test leads to the following drive motor pins. The meter should indicate between 3 and 8  $\Omega$ .

Pins 1 & 2

Pins 1 & 3

Pins 2 & 3

**NOTE:** Pins 4 and 5 are for the tachometer.

## INTERLOCK SWITCH



Refer to page 4-21 for the procedure for accessing an interlock switch.

1. Unplug washer or disconnect power.
2. Disconnect the wires from the interlock switch terminals.
3. Set the ohmmeter to the R X 1 scale.
4. Touch the ohmmeter test leads to the two interlock switch terminals. The meter should indicate an open circuit with the actuator in, and a closed circuit (0  $\Omega$ ) with the actuator out.

# DIAGNOSTICS & TROUBLESHOOTING

## DIAGNOSTICS



### **! WARNING**

#### **Electrical Shock Hazard**

**Disconnect power before servicing.**

**Replace all parts and panels before operating.**

**Failure to do so can result in death or electrical shock.**

### **IMPORTANT**

#### **Electrostatic Discharge (ESD) Sensitive Electronics**

ESD problems are present everywhere. ESD may damage or weaken the electronic control assembly. The new control assembly may appear to work well after repair is finished, but failure may occur at a later date due to ESD stress.

- Use an anti-static wrist strap. Connect wrist strap to green ground connection point or unpainted metal in the appliance.

**-OR-**

Touch your finger repeatedly to a green ground connection point or unpainted metal in the appliance.

- Before removing the part from its package, touch the anti-static bag to a green ground connection point or unpainted metal in the appliance.
- Avoid touching electronic parts or terminal contacts; handle electronic control assembly by edges only.
- When repackaging failed electronic control assembly in anti-static bag, observe above instructions.

### **DIAGNOSTIC GUIDE**

Before servicing, check the following:

- Make sure there is power at the wall outlet.
- Has a household fuse blown or circuit breaker tripped? Time delay fuse?
- Are both hot and cold water faucets open and the water supply hoses unobstructed?
- All tests/checks should be made with a VOM (volt-ohm-milliammeter) or DVM (digital-volt-meter) having a sensitivity of 20,000 ohms per volt DC or greater.
- Check all connections before replacing components. Look for broken or loose wires, failed terminals, or wires not pressed into connectors far enough.
- A potential cause of a control not functioning is corrosion on connections. Observe connections and check for continuity with an ohmmeter.
- Connectors: Look at top of connector. Check for broken or loose wires. Check for wires not pressed into connector far enough to engage metal barbs.
- Resistance checks must be made with power cord unplugged from outlet, and with wiring harness or connectors disconnected.



## FAILURE/ERROR DISPLAY CODES

DISPLAY	EXPLANATION AND RECOMMENDED PROCEDURE
F H	<b>NO WATER DETECTED ENTERING MACHINE OR PRESSURE SWITCH TRIP NOT DETECTED.</b>
	<p>If after 30 seconds the control does not detect water entering machine, the valves will be turned off and the error code will be displayed.</p> <p style="text-align: center;"><b>OR</b></p> <p>If the control has turned the water valves on, and after 8 minutes, the flow sensor has detected 10.5 gallons of water passing through it, but has not detected the pressure switch trip, the valves will be turned off, and the error code will flash.</p> <p>Press PAUSE/CANCEL twice to clear the display.</p>
	<p><b><u>Possible Causes / Procedure</u></b></p> <ul style="list-style-type: none"> <li>• If there is no water in the unit: <ul style="list-style-type: none"> <li>- Make sure that both valves at the water source(s) are turned on all the way.</li> <li>- Check for plugged or kinked inlet hoses or plugged screens in the inlet valves.</li> <li>- Verify inlet valve operation.</li> </ul> </li> <li>• If there is water in the unit: <ul style="list-style-type: none"> <li>- Verify drain pump operation.</li> <li>- Verify that the pressure switch hose is in good condition and properly connected to tub and pressure switch.</li> </ul> </li> </ul> <ol style="list-style-type: none"> <li>1. Verify there is not a siphon problem.</li> <li>2. Unplug washer or disconnect power.</li> <li>3. Verify wire harness connections to inlet valves, pressure switch, drain pump, flow meter, and Central Control Unit (CCU).</li> <li>4. Check all hoses for possible leaks.</li> <li>5. Plug in washer or reconnect power.</li> <li>6. Verify pressure switch operation.</li> <li>7. Verify flow meter operation by blowing air through the part and measuring the resistance.</li> <li>8. Verify CCU operation by running a Diagnostic test or any cycle.</li> </ol>

DISPLAY	EXPLANATION AND RECOMMENDED PROCEDURE
F 02	<b>LONG DRAIN</b>
	<p>If the drain time exceeds eight minutes, the water valves are turned off and “F/02 ” is flashed. Press PAUSE/CANCEL two times to clear the display.</p> <p><b>NOTE:</b> After four minutes the “Sud” error will be displayed, then four minutes later the “F/02 ” error code will be displayed.</p>
	<p><b><u>Possible Causes / Procedure</u></b></p> <ol style="list-style-type: none"> <li>1. Check the drain hose and make sure it is not plugged or kinked.</li> <li>2. Unplug washer or disconnect power.</li> <li>3. Check the electrical connections at the pump and make sure the pump is running.</li> <li>4. Check the drain pump filter for foreign objects.</li> <li>5. Plug in washer or reconnect power.</li> <li>6. If the above does not correct the problem, go to step 7.</li> <li>7. Unplug washer or disconnect power.</li> <li>8. Replace the pump.</li> </ol>
F 05	<b>WATER TEMPERATURE SENSOR ERROR</b>
	<p>If during the water heating step in the wash cycle, the water temperature sensor (NTC) value is out of range, the “F/05” error code will be displayed.</p>
	<p><b><u>Possible Causes / Procedure</u></b></p> <ol style="list-style-type: none"> <li>1. Unplug washer or disconnect power.</li> <li>2. Check the water temperature sensor. Refer to the “Water Temperature Sensor ” section. Check connections to the water temperature sensor.</li> <li>3. Check resistance of heating element, if present on this model. (abnormal = infinity)</li> </ol>
F 06	<b>DRIVE MOTOR TACHOMETER ERROR</b>
	<p>The control is unable to properly detect motor speed and the machine will shut down. If a failure occurs during high-speed spin, the door will be unlocked after three minutes.</p>
	<p><b><u>Possible Causes / Procedure</u></b></p> <ol style="list-style-type: none"> <li>1. Verify the shipping system including shipping bolts, spacers and cables are removed.</li> <li>2. Unplug washer or disconnect power.</li> <li>3. Check wire harness connections between the drive motor and the Motor Control Unit (MCU), and between the MCU and the Central Control Unit (CCU).</li> <li>4. Plug in washer or reconnect power.</li> <li>5. Check the MCU by looking for operations of the drive motor.</li> <li>6. Check the drive motor for powered rotations.</li> </ol>

DISPLAY	EXPLANATION AND RECOMMENDED PROCEDURE
F 07	<b>MOTOR CONTROL UNIT ERROR</b>
	The main control has detected a short in the Motor Control Unit. If a failure occurs during high-speed spin, the door will be unlocked after three minutes.
	<b><u>Possible Causes / Procedure</u></b> <ol style="list-style-type: none"> <li>1. Unplug washer or disconnect power.</li> <li>2. Check wire harness connections between the drive motor and the Motor Control Unit (MCU), and between the MCU and the Central Control Unit (CCU).</li> <li>3. Plug in washer or reconnect power.</li> <li>4. Check the MCU by looking for operations of the drive motor.</li> <li>5. Check the drive motor for powered rotations.</li> </ol>
F 09	<b>OVERFLOW CONDITION</b>
	If the overflow contact on the pressure switch is closed for more than 60 seconds, an Overflow Condition will occur. In an overflow condition, the door remains locked and the drain pump runs constantly, even if PAUSE/CANCEL is pressed twice and the display is cleared. Turn off hot and cold water faucets and unplug the unit before servicing.
	<b><u>Possible Causes / Procedure</u></b> <ol style="list-style-type: none"> <li>1. Check the drain hose and make sure it is not plugged or kinked.</li> <li>2. Unplug washer or disconnect power.</li> <li>3. Check wire harness connections to the drain pump, pressure switch, and Central Control Unit (CCU).</li> <li>4. Check/clean drain pump filter of foreign objects.</li> <li>5. Check for drain pump failure.</li> <li>6. Check the inlet valve for proper shut off.</li> <li>7. Check the pressure switch for proper operation.</li> </ol>
F 10	<b>MOTOR CONTROL UNIT (MCU) HEAT SINK THERMAL TRIP</b>
	If the thermal protector on the MCU heat sink gets too hot, it will open the thermal protector on the heat sink which will stop motor functions and an "F/10" will be displayed.
	<b><u>Possible Causes / Procedure</u></b> <ol style="list-style-type: none"> <li>1. Check for proper installation, verify the unit is not located near a source of heat and has proper ventilation.</li> <li>2. Unplug washer or disconnect power.</li> <li>3. Check wire harness connections to the MCU, the motor, and Central Control Unit (CCU).</li> <li>4. Check the drive system for any worn or failed components.</li> <li>5. Plug in washer or reconnect power.</li> <li>6. Check the MCU by looking for operations of the drive motor.</li> <li>7. Check the drive motor for powered rotations.</li> </ol>

DISPLAY	EXPLANATION AND RECOMMENDED PROCEDURE
F 11	<b>SERIAL COMMUNICATION ERROR</b>
	Communication between the Central Control Unit (CCU) and the Motor Control Unit (MCU) cannot be sent correctly.
	<b><u>Possible Causes / Procedure</u></b> <ol style="list-style-type: none"> <li>1. Unplug washer or disconnect power.</li> <li>2. Check wire harness connections to the MCU, the motor, and Central Control Unit (CCU).</li> <li>3. Check the drive system for any worn or failed components.</li> <li>4. Plug in washer or reconnect power.</li> <li>5. Verify CCU operation by running a Diagnostic test or any cycle.</li> <li>6. Check the MCU by looking for operations of the drive motor.</li> <li>7. Check the drive motor for powered rotations.</li> <li>8. Check that the serial harness at the MCU is not mounted upside down. The wires should be to the left when facing the MCU connectors.</li> </ol>
F 13	<b>DISPENSER CIRCUIT ERROR</b>
	When the dispenser motor cannot be driven to its proper position.
	<b><u>Possible Causes / Procedure</u></b> <ol style="list-style-type: none"> <li>1. Unplug washer or disconnect power.</li> <li>2. Check mechanical linkage from dispenser motor to the top of the dispenser.</li> <li>3. Check wire harness connections to the dispenser motor and Central Control Unit (CCU).</li> <li>4. Check dispenser motor for powered rotations.</li> </ol>
F 14	<b>EEPROM ERROR</b>
	The Central Control Unit (CCU) receives its data from an EEPROM onboard the CCU. If there is an error reading this data it will cause this error.
	<b><u>Possible Causes / Procedure</u></b> <ul style="list-style-type: none"> <li>• A power glitch may cause this error.</li> </ul> <ol style="list-style-type: none"> <li>1. Unplug washer or disconnect power for two minutes.</li> <li>2. Verify CCU operation by running a Diagnostic test or any cycle.</li> </ol>
F 15	<b>MOTOR CONTROL UNIT (MCU) ERROR</b>
	If the MCU detects multiple resets or errors during a wash cycle it will go into this error mode.
	<b><u>Possible Causes / Procedure</u></b> <ol style="list-style-type: none"> <li>1. Unplug washer or disconnect power.</li> <li>2. Check wire harness connections to the MCU, the motor, and Central Control Unit (CCU).</li> <li>3. Check drive belt.</li> <li>4. Plug in washer or reconnect power.</li> <li>5. Check the MCU by looking for operations of the drive motor.</li> <li>6. Check the drive motor for powered rotations.</li> </ol>



DISPLAY	EXPLANATION AND RECOMMENDED PROCEDURE
F 21  F 22	<b>CCU / TOUCHPAD / LED ASSEMBLY ERROR</b>
	This error occurs if the touchpad/LED assembly is not able to transmit/receive data to/from the central control unit (CCU).
	<b><u>Possible Causes / Procedure</u></b> <ol style="list-style-type: none"> <li>1. Check the touchpad/LED assembly by selecting different cycles and changing the modifiers and options available to confirm the touchpad/LED is responding.</li> <li>2. Unplug washer or disconnect power.</li> <li>3. Check wire harness connections to the touchpad/LED assembly and Central Control Unit (CCU).</li> </ol>
F 32	<b>PRESSURE SWITCH FAILURE</b>
	<p>If after 30 seconds the control does not detect water entering machine, the valves will be turned off and the error code will be displayed.</p> <p style="text-align: center;"><b>OR</b></p> <p>If the control has turned the water valves on, and after 8 minutes, the flow sensor has detected 10.5 gallons of water passing through it, but has not detected the pressure switch trip, the valves will be turned off, and the error code will flash.</p> <p>Press PAUSE/CANCEL twice to clear the display.</p>
	<b><u>Possible Causes / Procedure</u></b> <ol style="list-style-type: none"> <li>1. Unplug washer or disconnect power.</li> <li>2. Check to verify that the pressure switch is operational.</li> <li>3. Replace pressure switch.</li> </ol>
F 33	<b>SYSTEM LEAK</b>
	<p>If after 30 seconds the control does not detect water entering machine, the valves will be turned off and the error code will be displayed.</p> <p style="text-align: center;"><b>OR</b></p> <p>If the control has turned the water valves on, and after 8 minutes, the flow sensor has detected 10.5 gallons of water passing through it, but has not detected the pressure switch trip, the valves will be turned off, and the error code will flash.</p> <p>Press PAUSE/CANCEL twice to clear the display.</p>
	<b><u>Possible Causes / Procedure</u></b> <ol style="list-style-type: none"> <li>1. Check for crack or holes in the washer tub and pressure switch hose.</li> <li>2. Replace components if necessary.</li> </ol>

DISPLAY	EXPLANATION AND RECOMMENDED PROCEDURE
<i>F dU</i>	<b>DOOR UNLOCK ERROR</b>
	A Door Unlock Error occurs if the door cannot be unlocked. It will try to unlock the door six times before displaying the error code.
	<p><b><u>Possible Causes / Procedure</u></b></p> <ul style="list-style-type: none"> <li>• Door lock mechanism is broken.</li> <li>• Door switch/lock unit failure.</li> </ul> <ol style="list-style-type: none"> <li>1. Check door switch/lock unit for foreign objects.</li> <li>2. Unplug washer or disconnect power.</li> <li>3. Check wire harness connections to the door switch/lock unit and Central Control Unit (CCU).</li> </ol> <p><b>NOTE:</b> The door switch/lock unit can be manually unlocked. See “Manually Unlocking The Door Lock System”.</p>
<i>F dL</i>	<b>DOOR LOCK ERROR</b>
	A Door Lock Error occurs if the door cannot be locked. It will try to lock it six times before displaying the error code.
	<p><b><u>Possible Causes / Procedure</u></b></p> <ul style="list-style-type: none"> <li>• Door lock mechanism is broken or removed from door.</li> <li>• Door switch/lock unit failure.</li> </ul> <ol style="list-style-type: none"> <li>1. Unplug washer or disconnect power.</li> <li>2. Check door switch/lock unit.</li> <li>3. Check the wire harness connections to the door switch/lock unit and Central Control Unit (CCU).</li> </ol>
<i>Sud</i>	<b>SUDS LOCK (OVERDOSE OF DETERGENT DETECTED DURING THE WASH CYCLE)</b>
	The Motor Control Unit senses a suds lock condition by analyzing the current draw on the drive motor. If “Sud” is displayed a potential Suds Lock is detected. This may signify a bad pump, an extra heavy load, excessive detergent, or excessive suds.
	<p><b><u>Possible Causes / Procedure</u></b></p> <ul style="list-style-type: none"> <li>• If too much detergent was used: <ul style="list-style-type: none"> <li>- Run the unit through a Rinse/Spin cycle.</li> <li>- Run a Normal cycle without adding any detergent.</li> </ul> </li> </ul> <p>This should clear the unit of the excess detergent.</p> <ol style="list-style-type: none"> <li>1. Check the drain hose and make sure it is not plugged or kinked.</li> <li>2. Unplug washer or disconnect power.</li> <li>3. Check wire harness connections to the drain pump, pressure switch, and Central Control Unit (CCU).</li> <li>4. Check/clean drain pump filter of foreign objects.</li> <li>5. Plug in washer or reconnect power.</li> <li>6. Check drain pump.</li> <li>7. Check the pressure switch.</li> <li>8. Verify CCU operation by running a Diagnostic test or any cycle.</li> </ol>

## DIAGNOSTIC TEST

Refer to the Overview Test Program chart below. The washer must be empty and the control must be in the OFF state before pressing the button sequence to start the test.

### Starting the Test Mode

- Close the door.
- Under Cycles, press DRAIN/SPIN.
- Press SPIN SPEED and select NO SPIN.

- Under Options, press PREWASH button four times within 5 seconds. Three beeps will sound.

If the Starting procedure fails, press PAUSE/CANCEL, then repeat the starting procedure.

### Test Program Control

In order to advance to the next step of the test procedure, press PREWASH Option button two times.

## OVERVIEW TEST PROGRAM

Indication	Control Action	Actuators To Be Checked
<b>C:00</b>	Door locks.	• Door lock system
<b>C:01</b>	Fill by cold water inlet valve.	• Flowmeter • Cold water inlet valve
<b>C:02</b>	Distribution system is set to Prewash position.	• Dispenser motor • Dispenser contact
<b>C:03</b>	Fill by hot water inlet valve.	• Hot water inlet valve
<b>C:04</b>	Drum rotates clockwise at wash speed.	• Motor • Motor Control (MCU)
<b>C:05</b>	Heater (if present on this model) is switched ON. Drum rotates clockwise at wash speed. If there is not enough water in the tub, the water inlet valve will be switched ON to achieve the minimum water volume.	• Heater (if present on this model) • NTC
<b>C:06</b>	Drain pump is ON.	• Drain pump
<b>C:07</b>	Drum rotates counterclockwise from 35 to 90 rpm within 15 seconds.	• Motor • Motor Control (MCU)
<b>C:08</b>	Drum rotates counterclockwise at maximum speed. <ul style="list-style-type: none"><li>- If max. speed =EXTRA HIGH, drum speed = &gt;1000 rpm.</li><li>- If max. speed =HIGH, drum speed = &gt;800</li></ul>	• Motor • Motor Control (MCU)

Be sure to perform the Diagnostic Test before replacing the system components.

### Motor Continuity Test

1. Unplug washer or disconnect power.
2. Disconnect the wire harness from the motor and measure the resistance of the motor. Use the following table:

Pins	Results
1 to 2	Normal = 6 $\Omega$ (approximate) Abnormal = Infinity
2 to 3	
1 to 3	

### Water Temperature Sensor

1. Unplug washer or disconnect power.
2. Disconnect the wire harness from the water temperature sensor and measure the resistance of the sensor. Use the following table. An abnormal condition is an open circuit.

Temperature	Results
32°F /0°C	35.9 k $\Omega$
86°F /30°C	9.7 k $\Omega$
104°F /40°C	6.6 k $\Omega$
122°F /50°C	4.6 k $\Omega$
140°F /60°C	3.2 k $\Omega$
158°F /71°C	2.3 k $\Omega$
203°F /96°C	1 k $\Omega$

### Displaying the last stored failure code:

1. Under Cycles, press DRAIN/SPIN.
2. Press SPIN SPEED and select NO SPIN.
3. Under Options, press PREWASH button and hold this button for 5 seconds.
  - a) Immediately after those 5 seconds the last stored failure code is displayed for 4 seconds.
  - b) After those 4 seconds the display switches automatically back to the selection mode (showing the RTI and the temperature of the selected cycle).

### Manually Unlocking The Door Lock System

1. Unplug washer or disconnect power.
2. Remove the top panel.
3. Reach down along the inside of the front and locate the bottom of the door switch/lock unit.
4. Located on the bottom of the door switch/lock unit is a teardrop shaped tab. Gently pull the tab down about a 1/4" or until a click is heard.
5. The door may be opened.

## **ELECTRONIC ASSEMBLIES - REMOVAL OR REPLACEMENT**

**IMPORTANT:** Electrostatic (static electricity) discharge may cause damage to electronic control assemblies (see page 6-1).

**NOTE:** Be sure to perform the Diagnostic Tests before replacing the control board.

### **To remove Central Control Unit (CCU):**

1. Unplug washer or disconnect power.
2. Remove all connectors from the CCU.
3. Place two flat blade screwdrivers under the left and right tab, on the top of the CCU and slide the CCU forward.

### **To reassemble CCU:**

1. Align the tab on top of the CCU with the notch in the cabinet. Also, align the posts on the back of the CCU with the hole in the back of the cabinet.
2. Slide the CCU back into place.
3. Reconnect wire harness.

### **To remove the touch-pad/LED power supply:**

1. Unplug washer or disconnect power.
2. Remove the top panel.
3. Remove the touch-pad/LED power supply cover.
4. Remove connections and screws from the power supply board.

### **To remove the touch-pad/LED assembly:**

1. Unplug washer or disconnect power.
2. Remove the top panel.
3. Remove 2 screws from the rear of the console, located on the dispenser side.
4. Facing the washer front, open the dispenser drawer and slide the console to the left to remove it.
5. Disconnect the cable from the rear of the console.
6. Remove the mounting clip screws and mounting clips from the rear of the console.
7. Remove the touch-pad/LED assembly.

### **To remove Motor Control Unit (MCU):**

1. Unplug washer or disconnect power.
2. Remove wire harness cover and disconnect the wire harness from the MCU.
3. With a flat blade screwdriver, lift the front tab up and slide the MCU forward.

### **To remove line/ interference filter:**

1. Unplug washer or disconnect power.
2. Disconnect the three connectors from the line filter and power cord.
3. Remove the two screws which secure the line filter to the top brace.



# TROUBLESHOOTING GUIDE



## ⚠ WARNING

### Electrical Shock Hazard

**Disconnect power before servicing.**

**Replace all parts and panels before operating.**

**Failure to do so can result in death or electrical shock.**

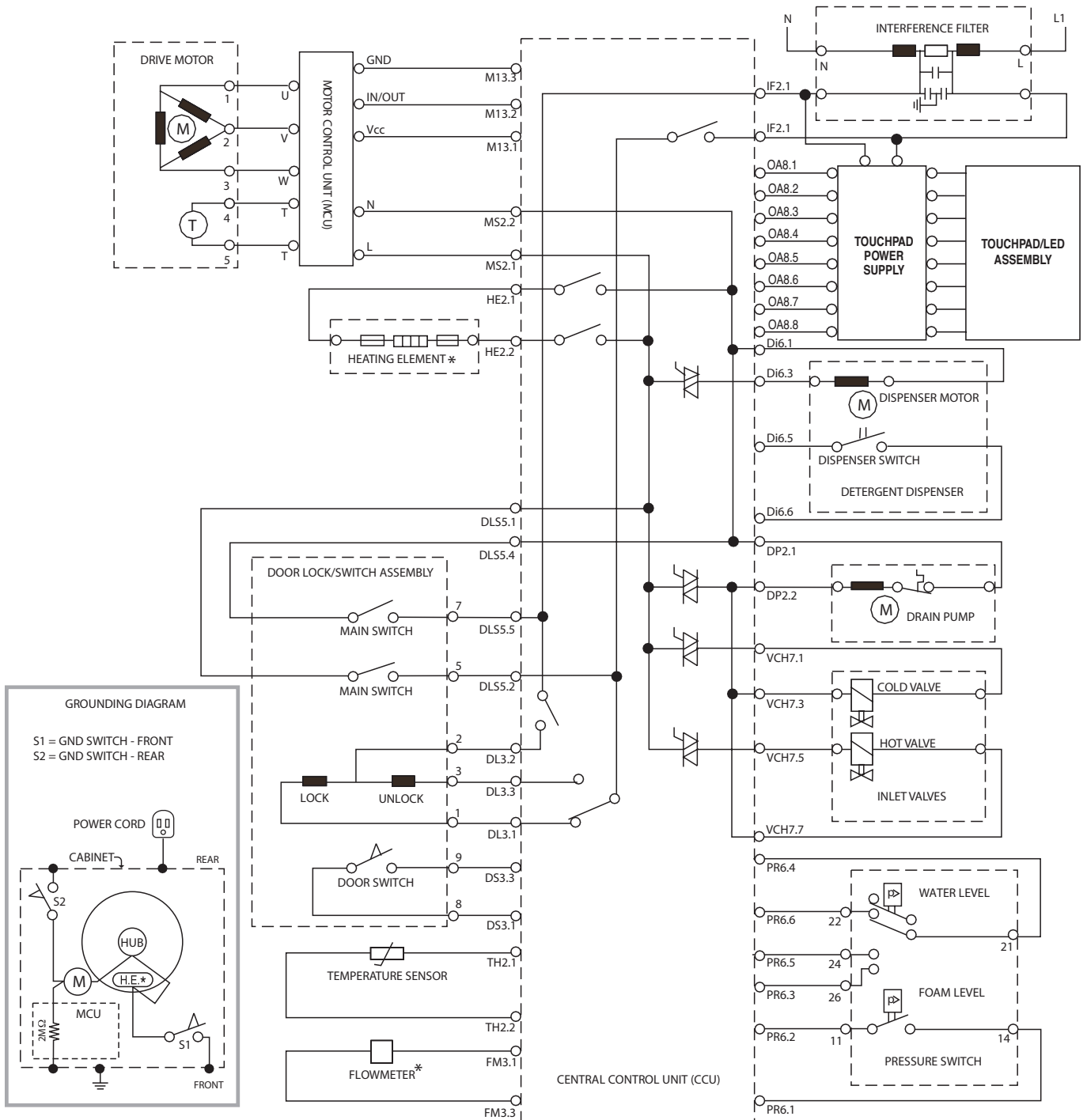
PROBLEM	POSSIBLE CAUSE/TEST
	<b>NOTE:</b> Possible Cause/Tests must be performed in the sequence shown for each problem.
<b>WON'T POWER UP</b> (Buttons do not respond when pressed)	<ol style="list-style-type: none"> <li>1. Check that the unit is plugged into a working outlet and for blown fuses.</li> <li>2. Check for power going to Central Control Unit (CCU) by listening for a click in the CCU when unit is plugged in. If no click, replace CCU.</li> <li>3. Unplug washer or disconnect power.</li> <li>4. Check continuity of line cord and line filter.</li> <li>5. Check harness connections to CCU, and touchpad/LED power supply.</li> <li>6. Plug in washer or reconnect power.</li> <li>7. Check the touchpad/LED assembly by selecting different cycles and changing the modifiers and options available to confirm the touchpad/LED is responding.</li> </ol>
<b>WON'T START CYCLE</b>	<ol style="list-style-type: none"> <li>1. Open and close the door. The door has to be opened between consecutive wash cycles.</li> <li>2. Check the door switch/lock unit using the diagnostics (see "Diagnostic Test").</li> <li>3. If door is locked, drain the unit.</li> <li>4. Unplug washer or disconnect power.</li> <li>5. Check the wire harness connections.</li> <li>6. Plug in washer or reconnect power.</li> <li>7. Check the touchpad/LED assembly by selecting different cycles and changing the modifiers and options available to confirm the touchpad/LED is responding.</li> </ol>
<b>WON'T SHUT OFF</b>	<ol style="list-style-type: none"> <li>1. Check for a Fault/Error Code on the display.</li> <li>2. Press PAUSE/CANCEL button on the touchpad twice.</li> <li>3. Check the touchpad/LED assembly by selecting different cycles and changing the modifiers and options available to confirm the touchpad/LED is responding.</li> <li>4. Unplug washer or disconnect power.</li> <li>5. Check that the drain hose and drain pump filter are clear of foreign objects and not plugged.</li> <li>6. Plug in washer or reconnect power.</li> <li>7. Check drain pump.</li> <li>8. Verify CCU operation by running a Diagnostic test or any cycle.</li> </ol>

PROBLEM	POSSIBLE CAUSE/TEST
	NOTE: Possible Cause/Tests must be performed in the sequence shown for each problem.
<b>CONTROL WON'T ACCEPT SELECTIONS</b>	<ol style="list-style-type: none"> <li>1. Press PAUSE/CANCEL button on the touchpad twice.</li> <li>2. Drain the unit, then check that the drain hose and drain pump filter are clear of foreign objects.</li> <li>3. Check the touchpad/LED assembly by selecting different cycles and changing the modifiers and options available to confirm the touchpad/LED is responding.</li> <li>4. Unplug washer or disconnect power.</li> <li>5. Check harness connections.</li> <li>6. Plug in washer or reconnect power.</li> <li>7. Verify CCU operation by running a Diagnostic test or any cycle.</li> </ol>
<b>WON'T DISPENSE</b>	<ol style="list-style-type: none"> <li>1. Verify the unit is level.</li> <li>2. Verify dispenser drawer is not clogged with detergent.</li> <li>3. Unplug washer or disconnect power.</li> <li>4. Check water connections to the unit and within the unit. Check for plugged screen in water source.</li> <li>5. Check dispenser motor.</li> <li>6. Check harness connections.</li> <li>7. Plug in washer or reconnect power.</li> <li>8. Verify CCU operation by running a Diagnostic test or any cycle.</li> </ol>
<b>WON'T FILL</b>	<ol style="list-style-type: none"> <li>1. Check installation. Verify hot and cold water faucets are open.</li> <li>2. Unplug washer or disconnect power.</li> <li>3. Check inlet valves.</li> <li>4. Check water connections to the unit and within the unit. Make sure water supply hoses are unobstructed. Check for plugged screen.</li> <li>5. Plug in washer or reconnect power.</li> <li>6. Check operating pressure switch.</li> <li>7. Check drain pump motor.</li> <li>8. Verify CCU operation by running a Diagnostic test or any cycle.</li> <li>9. Check under problem "Won't Dispense."</li> </ol>
<b>OVER FILLS</b>	<ol style="list-style-type: none"> <li>1. Verify the unit is level.</li> <li>2. Unplug washer or disconnect power.</li> <li>3. Check pump drain system. This could indicate a failure to drain.</li> <li>4. Check operating pressure switch.</li> <li>5. Check pressure switch hose.</li> <li>6. Verify flowmeter operation by blowing air through the part and measuring the resistance.</li> <li>7. Plug in washer or reconnect power.</li> <li>8. Verify CCU operation by running a Diagnostic test or any cycle.</li> </ol>

PROBLEM	POSSIBLE CAUSE/TEST
	<b>NOTE:</b> Possible Cause/Tests must be performed in the sequence shown for each problem.
<b>DRUM WON'T ROTATE</b>	<ol style="list-style-type: none"> <li>1. Check drive belt.</li> <li>2. Check drive motor.</li> <li>3. Unplug washer or disconnect power.</li> <li>4. Check wire harness connections.</li> <li>5. Plug in washer or reconnect power.</li> <li>6. Check the MCU by looking for operations of the drive motor.</li> </ol>
<b>MOTOR OVERHEATS</b>	<ol style="list-style-type: none"> <li>1. Check drive motor.</li> <li>2. Unplug washer or disconnect power.</li> <li>3. Check wire harness connections.</li> <li>4. Check drive belt.</li> <li>5. Plug in washer or reconnect power.</li> <li>6. Check the MCU by looking for operations of the drive motor.</li> </ol>
<b>WON'T DRAIN</b>	<ol style="list-style-type: none"> <li>1. Unplug washer or disconnect power.</li> <li>2. Check wire harness connections.</li> <li>3. Check drain pump.</li> <li>4. Check drain pump motor.</li> <li>5. Check that the drain hose and drain pump filter are clear of foreign objects.</li> <li>6. Plug in washer or reconnect power.</li> <li>7. Verify CCU operation by running a Diagnostic test or any cycle.</li> </ol>
<b>MACHINE VIBRATES</b>	<ol style="list-style-type: none"> <li>1. Remove shipping system.</li> <li>2. Check installation.</li> <li>3. Check leveling feet.</li> </ol>
<b>INCORRECT WATER TEMPERATURE</b>	<ol style="list-style-type: none"> <li>1. Check that the inlet hoses are connected properly.</li> <li>2. Unplug washer or disconnect power.</li> <li>3. Check the water heater and wire harness connections to it.</li> <li>4. Check water temperature sensor for an abnormal condition (see "Water Temperature Sensor").</li> <li>5. Plug in washer or reconnect power.</li> <li>6. Verify CCU operation by running a Diagnostic test or any cycle.</li> </ol>
<b>DISPLAY FLASHING</b>	See "Failure/Error Display Codes."

## — NOTES —

# WIRING DIAGRAM





## — NOTES —

# **PRODUCT SPECIFICATIONS AND WARRANTY INFORMATION SOURCES**

## ***IN THE UNITED STATES:***

### **FOR PRODUCT SPECIFICATIONS AND WARRANTY INFORMATION CALL:**

FOR WHIRLPOOL PRODUCTS: 1-800-253-1301  
FOR KITCHENAID PRODUCTS: 1-800-422-1230  
FOR ROPER PRODUCTS: 1-800-447-6737

### **FOR TECHNICAL ASSISTANCE WHILE AT THE CUSTOMER'S HOME CALL:**

THE TECHNICAL ASSISTANCE LINE: 1-800-253-2870

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AUTHORIZED IN-HOME SERVICE PROFESSIONAL**

### **FOR LITERATURE ORDERS:**

PHONE: 1-800-851-4605

### **FOR TECHNICAL INFORMATION AND SERVICE POINTERS:**

[www.servicematters.com](http://www.servicematters.com)

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## ***IN CANADA:***

### **FOR PRODUCT SPECIFICATIONS AND WARRANTY INFORMATION CALL:**

1-800-461-5681

### **FOR TECHNICAL ASSISTANCE WHILE AT THE CUSTOMER'S HOME CALL:**

THE TECHNICAL ASSISTANCE LINE: 1-800-488-4791

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