

Multimedia
Enhanced



SERVICE MANUAL

**WHIRLPOOL & MAYTAG 6.2 CU FT
DIRECT DRIVE TOP LOAD WASHER**



WTW9500E*



MVWB955F*

*All Colors and Versions

W10864849

FORWARD

This Whirlpool Service Manual, (Part No. W10864849), provides the In-Home Service Professional with service information for the “WHIRLPOOL & MAYTAG 6.2 CU. FT. DIRECT DRIVE TOP LOAD WASHER.”

The Wiring Diagram used in this Service Manual is typical and should be used for training purposes only. Always use the Wiring Diagram supplied with the product tech sheet when servicing the washer.

For specific operating and installation information on the model being serviced, refer to the “Use and Care Guide” or “Installation Instructions” provided with the washer.

GOALS AND OBJECTIVES

The goal of this Service Manual is to provide information that will enable the In-Home Service Professional to properly diagnose malfunctions and repair the “WHIRLPOOL & MAYTAG DIRECT DRIVE TOP LOAD WASHER.”

The objectives of this Service Manual 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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* Video Available  Look for this ICON throughout Section 4

PRODUCT SPECIFICATIONS & WARRANTY INFORMATION SOURCES (inside back cover)

Section 1: General Information

This section provides general safety, parts, and information for the “Whirlpool & Maytag Direct Drive Top Load Washer.”

- Washer Safety
- General Theory of Operation
- Model/Serial Number Location
- Tech Sheet Location
- Model & Serial Number Nomenclature
- Product Specifications

Washer Safety

Your safety and the safety of others are very important.

We have provided many important safety messages in this manual and on your 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.

General Theory of Operation

INTRODUCTION

The new Whirlpool & Maytag Direct Drive, Top Load Washer represents industry-leading innovation with the new improved direct drive system. The previous generation direct drive washer operated using a floating basket to assist in the

switching between spin and agitate modes. The new washer operates with a clutch coil system that provides reliable, immediate, and smooth shifting between the various wash modes.

NEW COMPONENTS

Sleek Under Glass User Interface — the Whirlpool washer features a new sleek under glass capacitive touch user interface that asks “what’s being washed” followed by “how you want to wash.” First select a cycle from the “What to Wash” (Mixed, Whites, Casuals, Jeans, Towels, Delicates, ActiveWear, Bulky/Sheets) and then select the “How to Wash” (Normal, ColorLast, Heavy Duty, Out Sanitize, Deep Water, Cold Wash, Quick). This new and improved input will help the customer achieve the best combination cycle available for the type of items being washed.



Figure 1 - User Interface with Intuitive Touch Controls

Basket — the Whirlpool & Maytag washer has an extra large basket capacity of 6.2 cu.ft. Other than size, the major difference from the previous model is that this basket does not have a flotation chamber to assist with changing between spin and agitate modes.

Motor — The motor is an electronically commutated direct-drive 3-phase BPM (Brushless Permanent Magnet) variable speed design that moves the impeller and spins the basket without the use of a transmission. The motor is comprised of a stator and rotor that are attached to the drive assembly. The motor direction and speed is controlled by the ACU (Appliance Control Unit) or main control.



Figure 2 - Basket

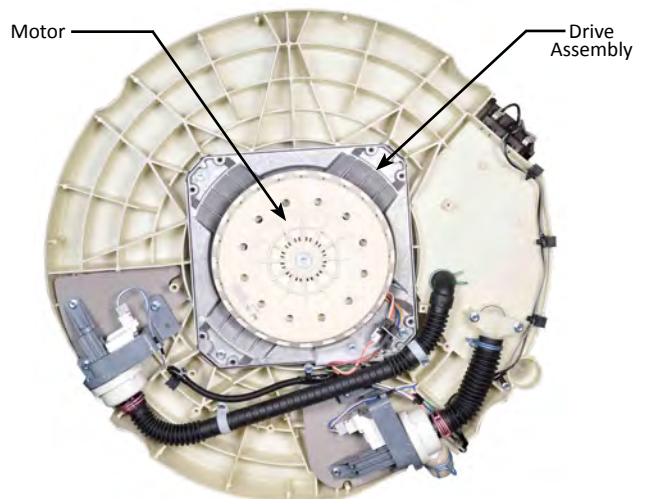


Figure 3 - Motor

...continued on next page

General Theory of Operation (continued)

NEW COMPONENTS (Continued)

Clutch Coil and Clutch Assembly — the clutch coil on the washer is a simple electromagnetic coil, which when energized, pulls the clutch into contact with the rotor. The drive assembly contains an internal and external drive shaft. The internal shaft, which is connected directly to the rotor, agitates the impeller; whereas the external shaft, which is

directly connected to the clutch, is able to spin the basket. Therefore, when the clutch coil is energized, the resulting magnetic field pulls the clutch out to engage with the rotor, resulting in spinning both the basket and impeller together. When the coil is de-energized, the clutch disengages the rotor and the spring returns the clutch to its home position. The motor now controls only the impeller.

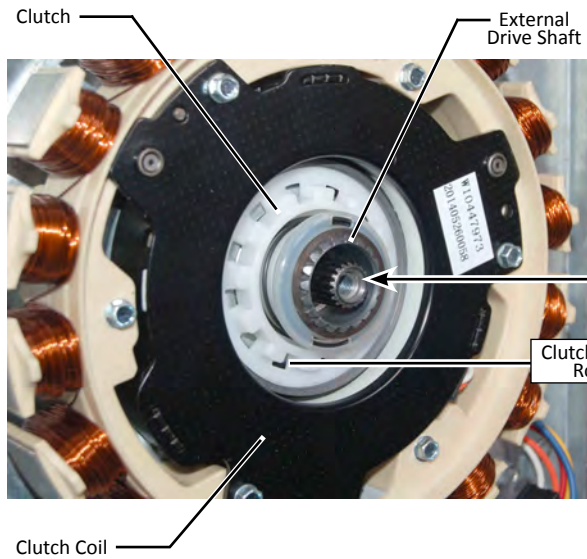


Figure 4 - Clutch Coil Assembly

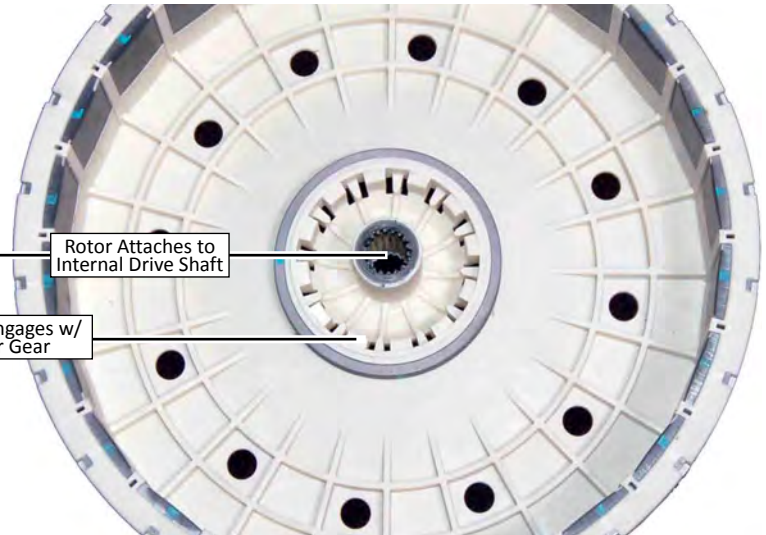


Figure 5 - Rotor

Automated Detergent Dispenser (Load & Go™ System) — Skip adding detergent to every load with the Load & Go™ system. The Load & Go™ cartridge holds up to a month's worth of detergent so you can simply fill it and forget it.

During the wash cycle, the Control signals the Bulk Dispense Pump (via the Relay Expansion Board) to pump detergent from the Load & Go cartridge to the Single Dose detergent dispenser. Next, the detergent water valve is activated and flushes the detergent into the basket.



Figure 6 - Viewed from Top

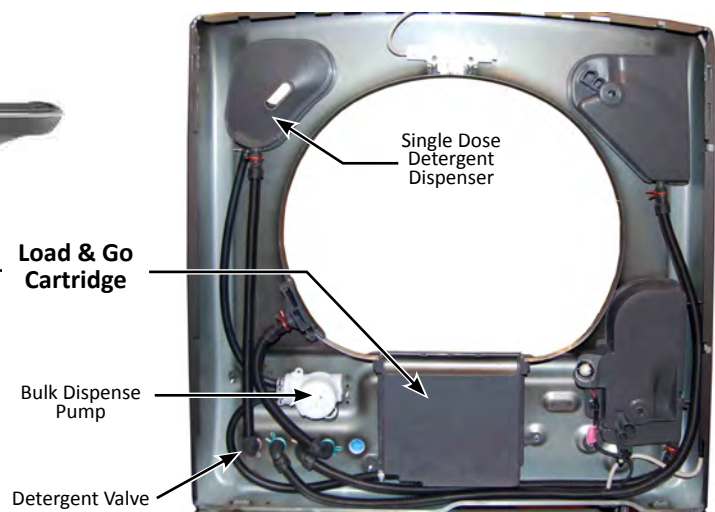


Figure 7 - Viewed from under top panel

Model/Serial Number Label & Tech Sheet Location

Model & Serial Number
Label Location



Figure 8 - Model / Serial Number Location

Tech Sheet Location
(Access Under Cabinet Top)



Figure 9 - Tech Sheet Location

GENERAL INFORMATION

Model & Serial Number Nomenclature

MODEL NUMBER	W	T	W	9500	E	W	0
INTERNATIONAL SALES OR MARKETING CHANNEL							
BRAND W = Whirlpool; M = Maytag							
ACCESS T or V = Top Load; F or H = Front Load							
PRODUCT W = Washer; D = Dryer							
FEATURE SET 9500 = 6.2 Cu Ft/GBPM Drive (Cabrio) B955 = 5.3 Cu Ft/GBPM Drive (Bravos)							
YEAR OF INTRODUCTION D = 2014; E = 2015; F = 2016							
COLOR CODE W = White; C = Chrome Shadow							
ENGINEERING CHANGE 0 = Basic Release; 1 = First Revision; 2 = Second Revision							

SERIAL NUMBER	C	4	25	10000
PRODUCTION SITE C = CLYDE, OH				
YEAR OF PRODUCTION 4 = 2014				
WEEK OF PRODUCTION				
PRODUCT SEQUENCE NUMBER				

Product Specifications

ELECTRICAL	
Line Voltage :	120 VAC
Frequency :	60 Hz
Amps :	15A
Low Volts Power Supply :	+12V, +5V
PRIMARY FEATURES	
Capacity :	6.2 cu. ft.
Control Panel :	Capacitive Touch/Electronic
Sound Package :	Quiet Wash™
Spin Speed (Max) :	1100 RPM
Basket Material :	Stainless Steel
Wash Action :	Impeller
Window :	Yes
Energy Star® Qualified :	Yes
DISPENSERS	
Load & Go :	Liquid HE Detergent Only
Single Dose Detergent :	Liquid HE Detergent Only *
Fabric Softener :	Liquid Only
Liquid Bleach / Oxi :	Liquid Only
WASH	
What to Wash :	Mixed, Whites, Casuals, Jeans, Towels, Delicates, ActiveWear, and Bulky Sheets
How to Wash :	Normal, ColorLast, HeavyDuty, Oxi Sanitize, Deep Water, Cold Wash, and Quick
Temperatures :	(5) Cold, Cool, Tap Cold, Warm, Hot
Soil Levels :	(4) Normal, Medium, Light, Heavy
OPTIONS	
Delay Start :	Up to 12 hours
Washer Options :	Extra Rinse, Oxi, Presoak, Steam Clean, Delay Wash
DIMENSIONS	
Height :	41-3/8" (105 cm)
Width :	29-1/2" (74.93 cm)
Depth :	30" (76.2 cm)
Gross Weight :	201 lbs. (91.17 kg)

* Do not place single-dose laundry packets or powder detergent into the dispenser. Add single-dose laundry packets or powder detergent directly to the washer basket.

Notes

Section 2: Diagnostics & Troubleshooting

This section provides diagnostic, fault codes, and troubleshooting information for the “Whirlpool & Maytag Direct Drive Top Load Washer.”

- Diagnostic Guide
- Diagnostic LED - Main Control
- Self Diagnostic Mode
- Activating Service Diagnostic Mode
- Key Activation & Encoder Test
- Service Test Mode
- Load & Test Cycle Functions Numbers Chart
- Service Diagnostics Verification Cycle
- Software Version Display
- Fault/Error Codes
- Exiting Service Diagnostic Mode
- Troubleshooting Guide

For Service Technician Use Only



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? Was a regular fuse used? Inform customer that a time-delay fuse is required.
- Are both hot and cold water faucets open and water supply hoses unobstructed?
- Make sure drain hose is not sealed into drain pipe, and that there is an air gap for ventilation. Ensure drain height is between 39" (991 mm) and 8' (2.4 m) above the floor.
- All tests/checks should be made with a VOM (volt-ohm-milliammeter) or DVM (digital-voltmeter) having a sensitivity of 20,000 Ω per volt DC or greater.
- Resistance checks must be made with washer unplugged or power disconnected.
- **IMPORTANT:** Avoid using large diameter probes when checking harness connectors as the probes may damage the connectors upon insertion.
- Check all harnesses and connections before replacing components. Look for connectors not fully seated, broken or loose wires and terminals, or wires not pressed into connectors far enough to engage metal barbs.
- A potential cause of a control not functioning is corrosion or contamination on connections. Use an ohmmeter to check for continuity across suspected connections.
- When removing AC power, allow time for the main control (ACU) to completely power down. Verify this by examining the diagnostic LED – it should be solidly off. At a minimum, leave AC power removed for one minute.

Diagnostic LED – Main Control

A troubleshooting tool has been implemented onto the main control board—a diagnostic LED (see Figure 1). **LED Flashing** – The Control is detecting correct incoming line voltage and the processor is functioning. **LED OFF or ON** – Control malfunction. Perform TEST #1: Main Control (ACU), page 3-4, to verify main control functionality.

Self Diagnostic Mode

These tests allow factory or service personnel to test and verify all inputs to the main control board. You may want to do a quick and overall checkup of the washer with these tests before going to specific troubleshooting tests.

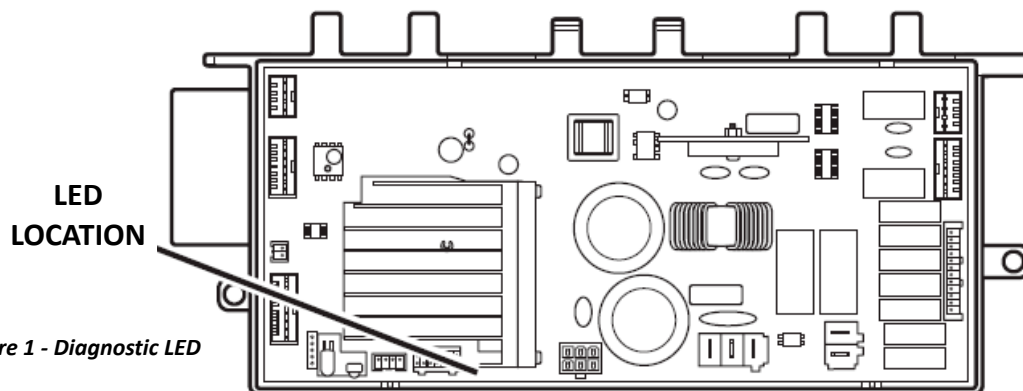


Figure 1 - Diagnostic LED

Activating Service Diagnostic Mode

1. Be sure the washer is in standby mode (plugged in with all indicators off).
2. Select any three (3) buttons (except POWER) and follow the steps below, using the same buttons (remember the buttons and the order that the buttons were pressed):

Within 8 seconds,

- Press and Release the **1st** selected button,
 - Press and Release the **2nd** selected button,
 - Press and Release the **3rd** selected button;
 - Repeat this 3 button sequence 2 more times.
3. If this test mode has been entered successfully, all indicators on the console will be illuminated for 5 seconds with "888" showing in the three-digit display and a tone will sound. If there are no saved fault codes, all indicators on the console will momentarily turn off, and then only the seven segment display will come back on and display "888". Upon entry to Service Diagnostic mode, all cycles and options reset to factory default.

NOTE: The Service Diagnostic mode will time out after 10 minutes of user inactivity, or shut down if AC power is removed from the washer.

Unsuccessful Activation

If entry into diagnostic mode is unsuccessful, refer to the following indication and action:

Indication: None of the indicators or display turn on.

Action: Select any cycle.

- If indicators come on, try to change the function for the three buttons used to activate the diagnostic test mode. If any button is unable to change the function, something is faulty with the button, and it will not be possible to enter the diagnostic mode using that button. Replace the user interface.
- If no indicators come on after selecting the cycle, go to TEST #1: Main Control (ACU), page 3-4.

Activation with Saved Fault Codes

If there is a saved fault code, it will be flashing in the display. Review the Fault/Error Codes table on pages 2-8 to 2-11 for the recommended procedure. If there is no saved fault code, "888" will be displayed.

For Service Technician Use Only

SERVICE DIAGNOSTIC MENU TABLE		
	Button Press	Function Behavior
1st Button	- Momentary press	- Activates Key Activation & Encoder Test
	- Press and hold for 5 secs.	- Exits Service Diagnostics
2nd Button	- Momentary press	- Activates Service Test Mode
	- Press and hold for 5 secs.	- Software Version Display
3rd Button	- Momentary press	- Displays Next Error Code
	- Press and hold for 5 secs.	- Clears the Error Codes

See “Activating Service Diagnostic Mode” to activate these buttons. Make sure all of step 3 is complete before activation.

Key Activation & Encoder Test

NOTE: The Service Diagnostic mode must be activated before entering the Key Activation & Encoder Test; see procedure on page 2-2.

Entry Procedure

Press and release the **1st** button used to activate Service Diagnostic mode. The following test will be available:

DIAGNOSTIC: Key Activation & Encoder Test

All indicator lights and display segments will be lit at the start of this test. Pressing each button will turn off its corresponding indicator(s) or display segment and sound a beep.

NOTE: A second press of the **POWER** button while in Key Activation & Encoder Test or pressing and holding the 1st button used to enter Service Diagnostic mode exits the Service Diagnostic mode and returns the washer to standby mode.

Service Test Mode

NOTE: The Service Diagnostic mode must be activated before entering Service Test Mode; see procedure on page 2-2.

NOTE: If, at any point, the user presses the **POWER** button during Service Test Mode, the washer exits to standby mode.

Active Fault Code Display in Service Test Mode

If the display begins flashing in the format F#, then E# while in Service Test Mode, it is displaying an active fault code (see Fault And Error Codes charts on pages 2-8 to 2-11). Active fault codes are codes that are currently detected. Only one active fault code can be displayed at a time.

Entry Procedure

To enter Service Test Mode, press and release the **2nd** button used to activate the Service Diagnostic mode.

Successful Entry

All LEDs turn off except the **POWER** button indicator and the **START** button indicator begins to flash.

Load and Test Cycle Selection Procedure

Loads, the Service Diagnostic Verification Cycle, and the Calibration Cycles are all assigned function numbers. These are defined in the chart on the following page.

The seven segment display will indicate the current selected function number.

Use the Soil Level and Temperature buttons or the cycle selector knob (Maytag) to select a function number. The Soil Level button or turning the cycle selector knob clockwise will increment through the function numbers and the Temperature button or turning the cycle selector knob counterclockwise will decrement through the function numbers.

Commanding Functions ‘On’ and ‘Off’ in Service Test Mode

With the desired function number on the seven segment display, the function can be toggled on and off by pressing the **START** button. Each press will toggle the state of the function from ‘off’ to ‘on’ or from ‘on’ to ‘off’. If the selected function is currently active (commanded ‘on’), the seven segment display will flash the function number at a 1 Hz rate (1 flash per second). If the load is currently commanded ‘off’, the seven segment display will show the function number without flashing. **NOTE:** Activating any of the spin or agitate functions will result in functions 10–14 reporting their status as ‘on’ because reported status is based on motor motion being commanded.

Failure to Turn Load On Indication

If the number of functions (pumps, valves, and motor) allowed on at the same time or the conditions to actuate the function are not correct, the display will turn off momentarily and a tone will sound. **NOTE:** There is a limit of four functions ‘on’ at a time.

The chart on the following page indicates function and test cycle function numbers:

For Service Technician Use Only

Load and Test Cycle Function Numbers Chart

NOTE: Some functions will not be available on all models

Display	Function	Notes
000	Toggle Lid Lock	Note: To lock or unlock the lid, all loads (pumps, motor, valves, and heater) must be off and the lid must be closed.
001	Toggle Cold Valve	
002	Toggle Hot Valve	
003	Toggle Fresh Fill Valve	For water flow, the cold and/or hot water valve(s) should be turned on first.
004	Toggle Detergent Valve	For water flow, the cold and/or hot water valve(s) should be turned on first.
005	Toggle Fabric Softener Valve	For water flow, the hot water valve should be turned on first.
006	Toggle Oxi Valve	For water flow, the hot water valve should be turned on first.
007	Toggle Bleach Valve	For water flow, the hot water valve should be turned on first.
008	Toggle Drain Pump	
009	Toggle Recirc. Pump	
010	Toggle Low Speed Spin	Lid must be closed and locked for this to be enabled. Note: The basket must be empty for this function.
011	Toggle Mid Speed Spin	Lid must be closed and locked for this to be enabled. Note: The basket must be empty for this function.
012	Toggle High Speed Spin	Lid must be closed and locked for this to be enabled. Note: The basket must be empty for this function.
013	Toggle Slow Agitate	Lid must be closed and locked for this to be enabled. Note: The basket must be empty for this function.
014	Toggle Fast Agitate	Lid must be closed and locked for this to be enabled. Note: The basket must be empty for this function.
016	Toggle Basket Light	Note: Basket light not available on all models.
017	Toggle Heater	Note: To actuate the heater, all functions (pumps, motor, and valves) must be off and water level must be above the impeller. Not available on all models.
018	Toggle Bulk Dispense Pump	Fill the bulk dispense pump with detergent. Look at the detergent cup for flow, which will appear as a trickle after 11/2–2 minutes.
050	Run Factory Calibration	Note: For factory test only.
051	Service Diagnostics Verification Cycle (see Chart on page 2-5)	Service Diagnostics for repair verification and installation verification. Upon completion, the UI will display 000. The Soil Level and Temperature buttons can be used to review step results if Pass/ Fail criteria exist. If a step has no Pass/Fail criteria, --- will be displayed.
052	Run Load Size Calibration Cycle	This calibrates the main control to the washer for optimal load size sensing. NOTE: Upon completion, the UI will display 000.
053	Run Dry Factory Calibration	Note: For factory test only.
075	Set Life Test Mode	Note: For factory test only. If life test mode is accidentally activated, Life Test can be exited by removing power from the washer and waiting for the control to power down as indicated by the diagnostic LED ceasing to flash (5-3).

For Service Technician Use Only

Service Diagnostics Verification Cycle

To activate the Service Diagnostics Verification Cycle, first enter Service Diagnostic Mode. Then activate Service Test Mode. Select the function number associated with the Service Diagnostics Verification Cycle in the chart on page 2-4 and press the **START** button. See the Service Test Mode section, page 2-3 for more details.

When Service Diagnostics Verification Cycle is activated, any function(s) that were manually commanded on will be turned off. Service Diagnostics Verification Cycle will start and the step number within the Service Diagnostics Verification Cycle sequence will be shown on the display. **NOTE:** The basket must be empty during this test.

Service Diagnostics Verification Cycle Chart (Whirlpool Models) *

Display	Washer Function	Recommended Procedure	Est. Time in Seconds
001	Warm water fills through the Detergent valve	If no water, use Service Test Mode to manually turn on and test the valve.	10
002	Cold water fills through the Fabric Softener valve	If no water, use Service Test Mode to manually turn on and test the valve.	10
003	Hot water fills through the Bleach/Oxi valve*	If no water, use Service Test Mode to manually turn on and test the valve.	10
004	Warm water fills through the detergent valve to minimum water level	If no water, use Service Test Mode to manually turn on and test the valve.	50-70
005	Validates pressure sensor	If this step fails, replace the machine control.	Up to 5
006	Validates inlet thermistor	If this step fails, go to and complete the Temperature Thermistor test.	Up to 5
007	Validates IPM thermistor	If this step fails, replace the machine control.	Up to 5
008	Turns on bulk dispense pump (on some models)	Use Service Test Mode to manually test the motor.	10
009	Turns on heater	If heater does not turn on, use Service Test Mode to manually turn on and test the heater.	8
010	Recirculates for 10 seconds	If water is not being recirculated, use service test load control to test the recirculation pump.	10
011	Turns on basket light (on some models)	If basket light does not turn on, use Service Test Mode to manually turn on and test the basket light.	10
012	Lid will lock	Lid must be closed. If lid does not lock, use service test load control to manually test the lid lock.	10
013	Skip	N/A	---

Continued on following page . . .

* Washer functions may differ slightly for Maytag Models, refer to product tech sheet for Service Diagnostics Verification Cycle Chart.

For Service Technician Use Only

Service Diagnostics Verification Cycle Chart (Whirlpool Models)* continued

Display	Washer Function	Recommended Procedure	Est. Time in Seconds
014	Drain pump on for 15 seconds	If water is not draining, use Service Test Mode to test the drain pump.	20
015	Drain pump and recirc. pump on for 25-30 seconds.	If water is not being drained or recirculated, use Service Test Mode to test the drain pump.	<10
016	Pause	N/A	5
017	Agitate for 5 seconds	Use Service Test Mode to manually test the motor.	5
018	Low speed spin for 5 seconds	Use Service Test Mode to manually test the motor.	5
019	Spin for 20-30 seconds	Use Service Test Mode to manually test the motor.	30-40
020	Agitate for 10 seconds	Use Service Test Mode to manually test the motor.	10
	Unlock lid	If lid does not unlock, use service test load control to manually test the lid lock.	5
Total time in minutes			Appx. 3-4 mins.

* Washer functions may differ slightly for Maytag Models, refer to product tech sheet for Service Diagnostics Verification Cycle Chart.

Service Diagnostics Verification Cycle Pass/Fail Indication

After the Service Diagnostics Verification Cycle completes, the Pass or Failure status of each step in the Service Diagnostics Verification Cycle is available by the following procedures:

Press the soil level or temperature buttons. The sequence step increments using the soil level button and decrements using the temperature button.

The display will alternate between the cycle test step and the test result, displaying each for 1 second on the seven segment display: "PAS" for Pass, "FAL" for Failure, "---" for no result/cannot test.

Exiting Service Diagnostics Verification Cycle Mode

Press the POWER button. All loads will be turned off and the washer will enter standby.

Fault Detection During Service Diagnostics Verification Cycle

Execution Some faults will stop the cycle execution (see Fault And Error Codes charts on pages 2-8 to 2-11 for those faults [marked with ‡] that stop the washer). If a fault is detected, the washer will stop executing the cycle and the step during which the fault was encountered will remain on the display. If no action is taken within 10 minutes, the display will be cleared and the washer will enter standby mode.

For Service Technician Use Only

Software Version Display

NOTE: The Software Version Display mode will time out after 10 minutes of user inactivity and return to standby mode.

Entry Procedure

To enter Software Version Display, press and hold the **2nd** button used to activate the Service Diagnostic mode for 5 seconds. Upon entry, all LEDs on the console will turn off, then the display will automatically cycle through the following information:

- UI software revision code (U major revision number, U minor revision number, U test revision number)
- UI GEE file software revision code (b major revision number, b minor revision number, b test revision number)
- Maytag Only: UI touch firmware revision code (t major revision number, t minor revision number, t test revision number)
- UI touch EEPROM revision code (o major revision number, o minor revision number, o test revision number)
- UI audio software revision code (A major revision number, A minor revision number, A test revision number)
- ACU software revision code (C major revision number, C minor revision number, C test revision number)
- ACU GEE file revision code (h major revision number, h minor revision number, h test revision number)
- MCI GEE file revision code (n major revision number, n minor revision number, n test revision number)
- Cycle design revision code (d major revision number, d minor revision number, d test revision number)

Exit Procedure

Pressing the **POWER** button will exit Software Version Display and return washer to standby mode.

Fault/Error Codes

Refer to Fault/Error Codes chart on pages 2-8 to 2-11.

Fault/Error Code Display Method

Fault codes are displayed by alternately showing F# and E#. All fault codes have an F# and an E#. The F# indicates the suspect System/Category. The E# indicates the suspect Component system.

Up to **eight** Fault/Error codes may be stored. When the oldest fault code is displayed, additional presses of the 3rd button will result in a triple beep, then display of the most recent fault code. If each press of the **3rd** button results in a triple beep and the display shows “888”, no saved fault codes are present.

Advancing Through Saved Fault/Error Codes

Procedure for advancing through saved fault codes:

Press and release the 3rd button used to activate Service Diagnostics	⇒ beep tone ⇒	second most recent fault code is displayed
Repeat	⇒ beep tone ⇒	third most recent fault code is displayed
Repeat	⇒ beep tone ⇒	fourth most recent fault code is displayed
Repeat	⇒ beep tone ⇒	fifth most recent fault code is displayed
• • •	• • •	• • •
Repeat	⇒ triple beep ⇒	no additional fault codes are stored--back to the most recent fault code

Clearing Fault Codes

To clear stored fault codes, enter Service Diagnostic mode. Then press and hold the **3rd** button used to enter Service Diagnostic mode for 5 seconds. Once the stored fault codes are successfully erased, the seven segment display will show “888” and a beep will sound.


EXITING SERVICE DIAGNOSTIC MODE

Use either of the two methods below to exit diagnostic mode.

- Pressing and holding the **1st** button used to activate the Service Diagnostic mode for 5 seconds.
- Pressing the **POWER** button once or twice, depending on diagnostic procedure.

For Service Technician Use Only

Fault and Error Codes

⚠ WARNING

<p style="text-align: center;">Electrical Shock Hazard</p> <p>Disconnect power before servicing.</p> <p>Replace all parts and panels before operating.</p> <p>Failure to do so can result in death or electrical shock.</p>

Code	Description	Explanation and Recommended Procedure
F0E2	Oversuds	<p>Fault is displayed when suds prevent the basket from spinning up to speed or the pressure sensor detects rising suds level. The main control will flush water in an attempt to clear suds. If the water flush is unable to correct the problem, this may indicate:</p> <ul style="list-style-type: none"> • Not using HE detergent. • Excessive detergent usage. • Check pressure hose connection from tub to main control. Is hose pinched, kinked, plugged, or leaking air? • Mechanical friction on drive mechanism or basket (items between basket and tub).
F0E3	Overload	<p>Fault is displayed when the main control detects a load size that exceeds the washer's capacity OR basket cannot be turned. This may signify:</p> <ul style="list-style-type: none"> • Load size exceeds washer capacity. Remove excess laundry, then restart the cycle. • Mechanical friction on drive mechanism or basket (items between basket and tub).
F0E4	Spin Limited by Water Temperature	<p>Fault is displayed when the water temperature is too high to have spin at final speed. Speed will be limited to 500 rpm.</p> <ul style="list-style-type: none"> • Check water valve function. See TEST #2: Valves, page 3-6.
F0E5 "OFB"	Off Balance Load	<p>Fault is displayed when an off balance condition is detected.</p> <ul style="list-style-type: none"> • Check for weak suspension. Basket should not bounce up and down more than once when pushed. • Items should be distributed evenly when loading.
F1E1‡	Main Control Fault	<p>Indicates a main control fault.</p> <ul style="list-style-type: none"> • See TEST #1: Main Control, page 3-4.
F1E2‡	Main Control Fault	<p>Indicates a fault of the motor control section of the main control.</p> <ul style="list-style-type: none"> • See TEST #3b: Drive System – Motor, page 3-9.
F2E1	UI Stuck Button	<p>Indicates that the user interface is detecting that a button is continuously activated.</p> <ul style="list-style-type: none"> • See Key Activation & Encoder Test, page 2-3.
F2E3	UI Mismatch	<p>Indicates that the machine control or user interface ID do not match the expected values.</p> <ul style="list-style-type: none"> • Verify that the ACU and UI part numbers are correct.
F2E4	UI Software Error: Incompatible Parameter File	<p>Indicates that a parameter file in the UI is not correct.</p> <ul style="list-style-type: none"> • Replace the user interface.
F2E5	UI Software Error: Parameter Memory Invalid	<p>Indicates that a parameter file in the UI is corrupt.</p> <ul style="list-style-type: none"> • Replace the user interface.

‡This fault will stop the washer during Service Diagnostics.

For Service Technician Use Only

Fault and Error Codes (continued)

Code	Description	Explanation and Recommended Procedure
F3E1‡	Pressure System Fault	Fault is displayed when the main control detects an out of range pressure signal. <ul style="list-style-type: none"> • Check pressure hose connection from tub to main control. Is hose pinched, kinked, plugged, or leaking air? • See TEST #6: Water Level, page 3-12.
F3E2	Inlet Water Temperature Fault	Fault is displayed when the inlet thermistor is detected to be open or shorted. <ul style="list-style-type: none"> • See TEST #5: Temperature Thermistor, page 3-11.
F3E4	Bulk Dispense Fault	Fault is displayed when the connection between the main control board and the Rex Board is not detected. <ul style="list-style-type: none"> • See TEST #12: Bulk Dispense Pump and Relay Expansion Board, page 3-18.
F4E1‡	Heater Stuck On	Fault is displayed when the heater is ON when it should be OFF. <ul style="list-style-type: none"> • See TEST #9: Heater Element, page 3-15.
F4E2	Heater Not Turning On	Fault is displayed when the heater has been turned ON by the control, but the control cannot detect that the heater is ON. <ul style="list-style-type: none"> • See TEST #9: Heater Element, page 3-15.
F5E1	Lid Switch Fault - Lid Is Up	Fault is displayed if lid is in locked state, but lid switch is open; control not sensing the strike in the lid lock. <ul style="list-style-type: none"> • User presses START with lid open. • The main control cannot detect the lid switch opening and closing properly. • See TEST #8: Lid Lock, page 3-14.
F5E2	Lid Lock Will Not Lock Or Lid Lock Failure	Fault is displayed if any of the following conditions occur: <ul style="list-style-type: none"> • Lid is not closed completely due to interference. • Check for lock interference with lid or lock bezel. • Wash media buildup is preventing the lock bolt from extending. • Main control detects open lid switch when attempting to lock. • Main control cannot determine if lid lock is in a locked state. • See TEST #8: Lid Lock, page 3-14.
F5E3	Lid Lock Will No Unlock	Fault is displayed when one of the following conditions occurs: <ul style="list-style-type: none"> • Excessive force on lid is preventing lock bolt from retracting. • Wash media buildup is preventing lock bolt from retracting. • Main control cannot determine if lid lock is in an unlocked state. • See TEST #8: Lid Lock, page 3-14.
F5E4	Lid Not Opened Between Cycles	Fault is displayed when one of the following conditions occurs: <ul style="list-style-type: none"> • User presses START with lid open. • User presses START after a predetermined number of consecutive washer cycles without opening lid. • The main control cannot detect the lid switch opening and closing properly. • See TEST #8: Lid Lock, page 3-14.
F6E2	Communication Error: UI Cannot Hear ACU	Fault is displayed when communication between the UI and the ACU has not been detected. <ul style="list-style-type: none"> • Check continuity in the UI harness. • Complete Test #1: Main Control, page 3-4 and Test #4: Keys and Encoders, page 3-10.
F6E3	Communication Error: ACU Cannot Hear UI	
F7E0	Loss Of Power	Fault is displayed when the main control detects control voltage is too low or lost. <ul style="list-style-type: none"> • Check power at outlet. • Check circuit breakers, fuses, or junction box connections. • Check AC power cord for continuity. • See TEST #1: Main Control, page 3-4.
F7E1	Loss of Power During Spin	Fault is displayed when power is lost during spin. This fault forces the washer to pause for 5 minutes to allow the basket to stop before continuing the cycle. <ul style="list-style-type: none"> • See F7E0 recommendations above.

‡This fault will stop the washer during Service Diagnostics.

For Service Technician Use Only

Fault and Error Codes (continued)

Code	Description	Explanation and Recommended Procedure
F7E2	Motor Drive Module Over Temperature	Fault occurs when the main control detects a problem in the motor drive. See TEST #3b: Drive System – Motor, page 3-9.
F7E3	Motor Drive Module Over Current	
F7E4	Motor Drive Module Over Voltage	
F7E5	Shifter Failure	<p>Fault is displayed when the main control determines the shifter is not engaging the basket for spin or disengaging it for wash.</p> <ul style="list-style-type: none"> • Check shifter connectors. • Check for clothing or another item wedged between the impeller and the basket that could bind them together. • Check that the shifter slider moves freely. • See TEST #3a: Drive System – Shifter, page 3-7.
F7E6	Motor Circuit Open	<p>Fault is displayed when main control detects one or more of the motor lines is open.</p> <ul style="list-style-type: none"> • Check motor circuit. • See TEST #3: Drive System, page 3-7 or TEST #3b: Drive System – Motor, page 3-9.
F7E7	Motor Start Failure	<p>Fault is displayed when the main control is unable to get to the commanded motor speed.</p> <ul style="list-style-type: none"> • Mechanical friction on drive mechanism or basket (items between basket and tub). • Load off balance. Items should be distributed evenly when loading. • See TEST #3: Drive System, page 3-7 or TEST #3b: Drive System – Motor, page 3-9.
F7E8	Motor Stator Over Temperature	<p>Fault is displayed when the main control determines the motor temperature is too high.</p> <ul style="list-style-type: none"> • Perform service calibration to calibrate water level and load size detection. • Mechanical friction on drive mechanism or basket (items between basket and tub).
F7E9	Locked Rotor	<p>Fault is displayed when the main control determines that the motor is not moving when it is being actively driven.</p> <ul style="list-style-type: none"> • Mechanical friction on drive mechanism or basket (items between basket and tub). • See TEST #3: Drive System, page 3-7 or TEST #3b: Drive System – Motor, page 3-9.
“LF” or F8E1‡	Long Fill	<p>Fault is displayed when the water level does not change for a period of time OR water is present but the control does not detect the water level changing.</p> <ul style="list-style-type: none"> • Is water supply connected and turned on? • Are hose screens plugged? • Is water siphoning out of the drain hose? • Check for proper drain hose installation. • Low water pressure; fill times longer than 10 minutes. • Is the pressure hose connection from the tub to the main control pinched, kinked, plugged, or leaking air? • See TEST #2: Valves, page 3-6.
F8E3‡	Overflow or Flood Condition	<p>Fault is displayed when main control senses water level that exceeds washer capacity.</p> <ul style="list-style-type: none"> • Check pressure hose connection from tub to main control. Is hose pinched, kinked, plugged, or leaking air? • Check for proper drain hose installation. Is water siphoning out of the drain hose? Drain hose must not be more than 4.5” (114 mm) into the drain pipe. Make sure drain hose is not sealed into drain pipe, and that there is an air gap for ventilation. Ensure that drain height is between 39” (991 mm) and 8’ (2.4 m) above the floor. • May signify problem with water inlet valves. • Pressure transducer fault on main control. • See TEST #2: Valves, page 3-6 and TEST #6: Water Level, page 3-12.

‡This fault will stop the washer during Service Diagnostics.

For Service Technician Use Only

Fault and Error Codes (continued)

Code	Description	Explanation and Recommended Procedure
F8E6	Water Hazard	<p>Fault is displayed when main control senses water in the tub and the lid has been left open for more than 10 minutes.</p> <ul style="list-style-type: none"> • Check pressure hose connection from tub to main control. Is hose pinched, kinked, plugged, or leaking air? • Check for proper drain hose installation. Is water siphoning out of the drain hose? Drain hose must not be more than 4.5" (114 mm) into the drain pipe. Make sure drain hose is not sealed into drain pipe, and that there is an air gap for ventilation. Ensure that drain height is between 39" (991 mm) and 8' (2.4 m) above the floor. • May signify problem with water inlet valves. • Pressure transducer fault on main control. • May signify problem with lid lock. • See TEST #2: Valves, page 3-6, TEST #6: Water Level, page 3-12, or TEST #8: Lid Lock, page 3-14.
"drn" or "dr" F9E1‡	Drain Pump System Problem - Long Drain	<p>Fault is displayed when the water level does not change after the drain pump is on.</p> <ul style="list-style-type: none"> • Is the drain hose or the drain pump clogged? • Is the drain hose height greater than 8' (2.4 m)? • Is the pressure hose connection from the tub to the main control pinched, kinked, plugged, or leaking air? • Too much detergent. • Is the pump running? If not, see TEST #7: Drain Pump, page 3-13.
F9E2	Water Ring Detected, Pump Drive System Problem	<p>Fault is displayed when the system is unable to drain water from load.</p> <ul style="list-style-type: none"> • Is the drain hose or the drain pump clogged? • Is the drain hose height greater than 8' (2.4 m)? • Is the pressure hose connection from the tub to the main control pinched, kinked, plugged, or leaking air? • Too much detergent. • Is the pump running? If not, see TEST #7: Drain Pump, page 3-13.

‡This fault will stop the washer during Service Diagnostics.

For Service Technician Use Only

Troubleshooting Guide

NOTE: Always check for error codes first (pages 2-8 to 2-11)

Some tests will require accessing components. See Section 4, "Component Access" for component locations. For detailed testing procedures, refer to Section 3, "Component Testing."

Problem	Possible Cause	Checks & Tests
Won't Power Up <ul style="list-style-type: none"> • No operation • No keypad response • No LEDs or display 	No power to washer.	Check power at outlet, check circuit breakers, fuses, or junction box connections.
	Connection problem between AC plug and main control.	Check the AC power cord for continuity.
	Connections between main control and UI.	Check connections and continuity between main control and UI.
	User Interface problem.	See TEST #4: Keys and Encoders, page 3-10 and TEST #10: Service LEDs, page 3-16.
	Main Control problem.	See Test #1: Main Control (ACU), page 3-4.
Basket Light Won't Turn On (on some models)	Connections between main control and basket light.	Check connections and continuity between main control and basket light.
	Basket Light.	See TEST #11: Basket Light, page 3-17.
	Main Control problem.	See Test #1: Main Control (ACU), page 3-4.
Won't Start Cycle No response when START is pressed Important: Starting a cycle requires "Press and hold" of START button	Lid lock mechanism not functioning.	1. Lid not closed due to interference. 2. Lock not closed due to interference. 3. See TEST #8: Lid Lock, page 3-14.
	Connections between main control and UI.	Check connections and continuity between main control and UI.
	User Interface problem.	See TEST #4: Keys and Encoders, page 3-10 and TEST #10: Service LEDs, page 3-16.
	Main Control problem.	See Test #1: Main Control (ACU), page 3-4.
UI Won't Accept Selections	Connections between main control and UI.	Check connections and continuity between main control and UI.
	User Interface problem.	See TEST #4: Keys and Encoders, page 3-10 and TEST #10: Service LEDs, page 3-16.
	Main Control problem.	See Test #1: Main Control (ACU), page 3-4.
No Sounds When Keys Are Pressed	Button sounds are turned off.	See TEST #4: Keys and Encoders, page 3-10.
	Connections between main control and UI.	Check connections and continuity between main control and UI.
	User Interface problem.	See TEST #4: Keys and Encoders, page 3-10 and TEST #10: Service LEDs, page 3-16.
	Main Control problem.	See Test #1: Main Control (ACU), page 3-4.
Won't Fill	No water supplied to washer.	1. Check water connections to washer. 2. Verify that hot and cold waster supply is on.
	Plugged filter/screen.	Check for plugged filter or screen in the water valve or hoses.
	Drain hose installation.	Check for proper drain hose installation.
	Valve problem.	See TEST #2: Valves, page 3-6.
	Main Control problem.	See Test #1: Main Control (ACU), page 3-4.
Overfills	Pressure hose.	See TEST #6: Water Level, page 3-12.
	Valve problem.	See TEST #2: Valves, page 3-6.
	Washer requires calibration.	Perform Service Calibration, page 2-4.
	Pressure transducer on main control.	See Test #1: Main Control (ACU), page 3-4.

For Service Technician Use Only

Troubleshooting Guide (continued)

Problem	Possible Cause	Checks & Tests
Bulk Dispense Not Dispensing Detergent (not on all models)	Connections between main control, Rex board, and bulk dispense pump.	Check connections and continuity between main control, Rex board, and bulk dispense pump.
	Plugged bulk dispense hose.	Check bulk dispense hose for obstructions.
	Harness connections.	Check harness connections between main control, Rex board, and bulk dispense pump.
	Bulk dispense pump problem.	See TEST #12: Bulk Dispense Pump and Relay Expansion Board, page 3-18.
	Rex board problem.	See TEST #12: Bulk Dispense Pump and Relay Expansion Board, page 3-18.
Won't Dispense Fabric Softener or Oxi (Oxi not on all models)	Main Control problem.	See Test #1: Main Control (ACU), page 3-4.
	No water supplied to washer.	1. Check water connections to washer. 2. Verify that hot and cold waster supply is on.
	Obstruction in dispenser.	Clean obstruction from dispenser.
	Valve problem.	See TEST #2: Valves, page 3-6.
Won't Recirculate the Water (Recirculation Pump not on all models)	Main Control problem.	See Test #1: Main Control (ACU), page 3-4.
	Plugged recirculation hose.	Check recirculation hose for obstructions.
	Obstructions to recirculation pump.	Check tub sump under impeller plate and basket for obstructions.
	Harness connections.	Check harness connections between main control and recirculation pump.
	Recirculation pump problem.	See TEST #7: Drain Pump & Recirc. Pump, page 3-13.
Incorrect Water Temperature	Main Control problem.	See Test #1: Main Control (ACU), page 3-4.
	Water hose installation.	Make sure inlet hoses are connected properly.
	Temperature thermistor.	See TEST #5: Temperature Thermistor, page 3-11.
	Valve problem.	See TEST #2: Valves, page 3-6.
Won't Agitate	Main Control problem.	See Test #1: Main Control (ACU), page 3-4.
	Water covering the impeller?	See TEST #6: Water Level, page 3-12.
	Is lid lock showing open during the cycle?	See TEST #8: Lid Lock, page 3-14
	Harness connections.	Check harness connections between main control and drive system.
	Shifter problem.	See TEST #3a: Drive System - Shifter, page 3-7.
	Motor problem.	See TEST #3b: Drive System - Motor, page 3-9.
Won't Spin	Main Control problem.	See Test #1: Main Control (ACU), page 3-4.
	Is lid lock showing open during the cycle?	See TEST #8: Lid Lock, page 3-14.
	Harness connections.	Check harness connections between main control and drive system.
	Shifter problem.	See TEST #3a: Drive System - Shifter, page 3-7.
	Motor problem.	See TEST #3b: Drive System - Motor, page 3-9.
Won't Drain (continued next page)	Main Control problem.	See Test #1: Main Control (ACU), page 3-4.
	Drain hose installation.	Check for proper drain hose installation. Make sure it is not inserted more than 4.5" (114 mm). Make sure drain hose is not sealed into drain pipe, and that there is an air gap for ventilation.
	Standpipe position.	Ensure drain height is between 39" (991 mm) and 8' (2.4 m) above the floor.
	Plugged drain hose.	Check drain hose for obstructions.

For Service Technician Use Only

Troubleshooting Guide (continued)


Problem	Possible Cause	Checks & Tests
Won't Drain (continued)	Obstructions to drain pump.	Check tub sump under impeller plate & basket for obstructions.
	Harness connections.	Check harness connections between main control and drain pump.
	Drain pump.	See TEST #7: Drain Pump, page 3-13.
	Main Control problem.	See Test #1: Main Control (ACU), page 3-4.
Cycle Time Longer Than Expected	Oversuds.	1. Verify use of HE detergent. 2. Excessive detergent usage.
	Off balance.	1. Load is off balance. 2. Balance ring water leak.
	Drain hose installation.	Check for proper drain hose installation. Make sure it is not inserted more than 4.5" (114 mm). Make sure drain hose is not sealed into drain pipe, and that there is an air gap for ventilation.
	Standpipe position.	Ensure drain height is between 39" (991 mm) and 8' (2.4 m) above the floor.
	Draining slowly.	Check for pump or drain hose obstructions.
	Water pressure drop.	Results in longer fill time.
	Friction or drag on drive.	Check motor and bearings; check for items between tub and basket.
	Weak suspension.	Basket should not bounce up and down more than once when pushed.
Poor Wash Performance Please reference Use & Care Guide	Oversuds.	1. Verify use of HE detergent. 2. Excessive detergent usage.
	Load is tangling.	1. Washer not loaded properly. 2. Perform Service Calibration, page 2-4.
	Incorrect water level.	1. Perform Service Calibration, page 2-4. 2. See TEST #2: Valves, page 3-6. 3. See TEST #6: Water Level, page 3-12.
	Clothes wet after cycle is complete (not water saturated, but very damp)	1. Overloaded washer. 2. Oversuds (see above). 3. Items caught in tub sump. 4. Weak suspension. 5. Shifter not moving into position. 6. Cold/Rinse water > 105°F (40°C). 7. See TEST #7: Drain Pump, page 3-13. 8. See TEST #3b: Drive System - Motor, page 3-9.
	Load not rinsed.	1. Check proper water supply. 2. Not using HE detergent. 3. Washer not loaded properly. 4. Shifter not moving into spin position. 5. See TEST #2: Valves, page 3-6. 6. See TEST #3b: Drive System - Motor, page 3-9.
	Not cleaning clothes.	1. Washer not loaded properly. 2. Not using HE detergent. 3. Not using correct cycle. 4. Shifter not moving into position. 5. See TEST #3b: Drive System - Motor, page 3-9.
	Fabric damage.	1. Washer overloaded. 2. Bleach added incorrectly. 3. Sharp items in tub.
	Wrong option or cycle selection.	Refer customer to "Use & Care Guide".


Section 3: Component Testing

This section provides a wiring diagram, control board specifications, testing procedures and strip circuits for the "Whirlpool & Maytag Direct Drive Top Load Washer."

- Testing: Safety Information
- Wiring Diagram
- Component Testing
- TEST #1: Main Control (ACU)
- TEST #2: Valves
- TEST #3: Drive System
- TEST #3a: Drive System - Shifter
- TEST #3b: Drive System - Motor
- TEST #4: Keys and Encoders
- TEST #5: Temperature Thermistor
- TEST #6: Water Level
- TEST #7: Drain & Recirculation Pump
- TEST #8: Lid Lock
- TEST #9: Heater Element
- TEST #10: Service LEDs
- TEST #11: Basket Light
- TEST #12: Bulk Dispense Pump & REX
- Notes

For Service Technician Use Only

⚠ DANGER

Electrical Shock Hazard
<p>Only authorized technicians should perform diagnostic voltage measurements.</p> <p>After performing voltage measurements, disconnect power before servicing.</p> <p>Failure to follow these instructions can result in death or electrical shock.</p>

⚠ WARNING

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

Voltage Measurement Safety Information

When performing live voltage measurements, you must do the following:

- Verify the controls are in the off position so that the appliance does not start when energized.
- Allow enough space to perform the voltage measurements without obstructions.
- Keep other people a safe distance away from the appliance to prevent potential injury.
- Always use the proper testing equipment.
- After voltage measurements, always disconnect power before servicing.

IMPORTANT: Electrostatic Discharge (ESD) Sensitive Electronics

ESD problems are present everywhere. Most people begin to feel an ESD discharge at approximately 3000V. It takes as little as 10V to destroy, damage, or weaken the main control assembly. The new main control assembly may appear to work well after repair is finished, but a malfunction 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 main control assembly in anti-static bag, observe above instructions.

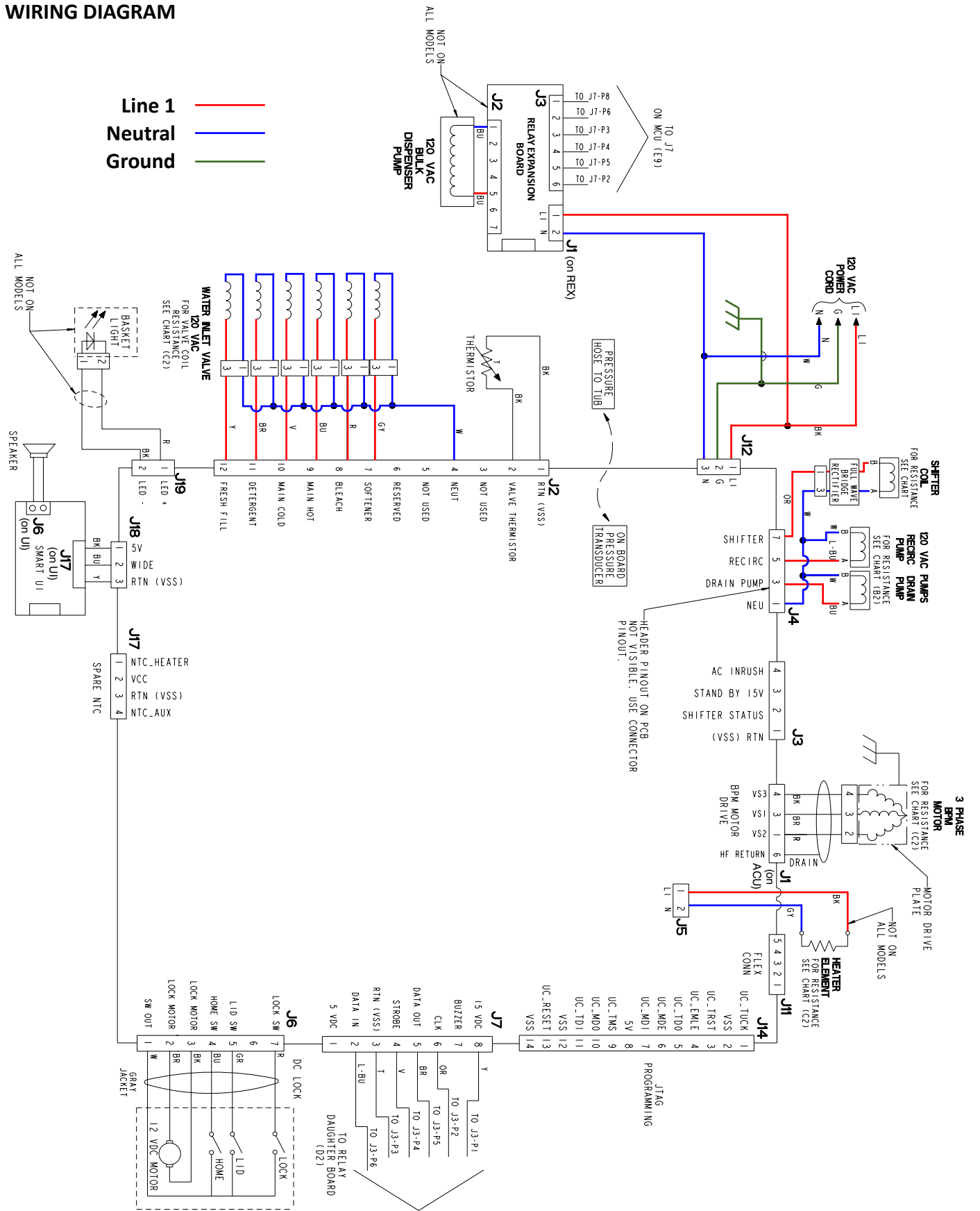
IMPORTANT SAFETY NOTICE — “For Technicians only”

This service data sheet is intended for use by persons having electrical, electronic, and mechanical experience and knowledge at a level generally considered acceptable in the appliance repair trade. Any attempt to repair a major appliance may result in personal injury and property damage. The manufacturer or seller cannot be responsible, nor assume any liability for injury or damage of any kind arising from the use of this data sheet.

For Service Technician Use Only

WIRING DIAGRAM

Line 1 —
 Neutral —
 Ground —



For Service Technician Use Only

⚠ DANGER



Electrical Shock Hazard

Only authorized technicians should perform diagnostic voltage measurements.

After performing voltage measurements, disconnect power before servicing.

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

Component Testing

TESTING WASHER COMPONENTS FROM THE CONTROL

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

- The most common cause for mis-diagnosed control failure is poor connections. Therefore, disconnecting, inspecting and reconnecting wires will be necessary throughout test procedures.
- All tests/checks should be made with a VOM or DVM 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.
- **IMPORTANT:** Voltage checks must be made with all connectors attached to the boards.
- Resistance checks must be made with power cord unplugged or power disconnected, and with wiring harness or connectors disconnected from the control.

The testing procedures in this section may require the use of needle probes to measure voltage. Failure to use needle probes may damage the connectors.

IMPORTANT: Whenever the washer is tilted for service or troubleshooting, drain water from the basket, remove any load items in the basket, and, if equipped, remove bulk dispense drawer.

TEST #1: Main Control (ACU)

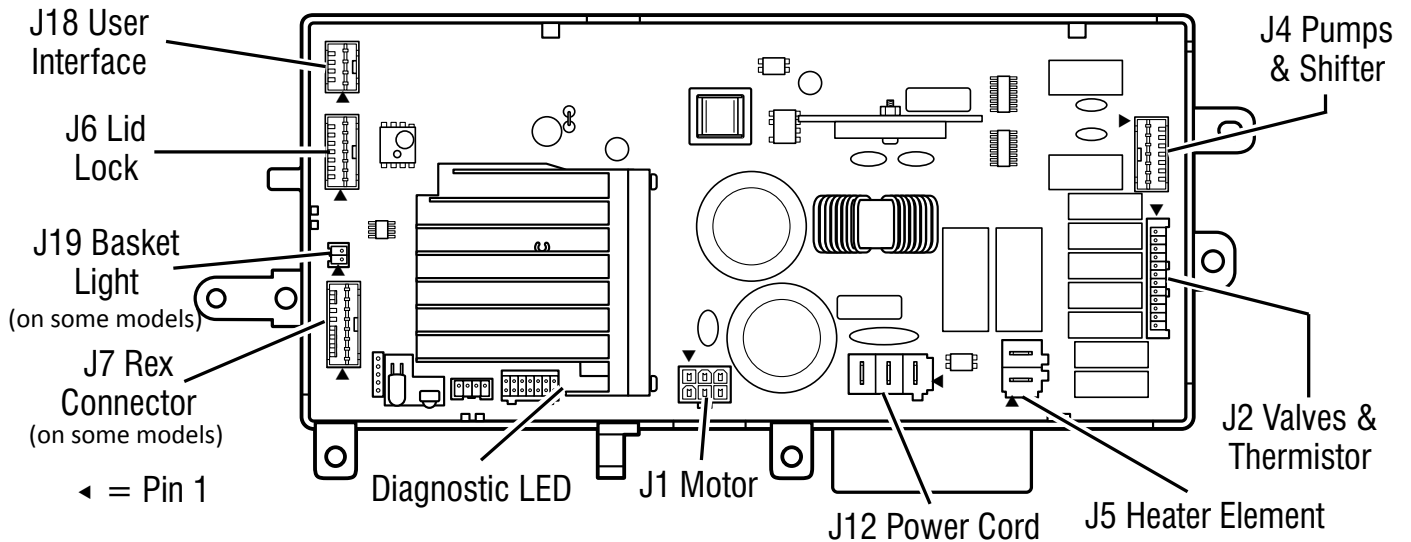
This test checks for incoming and outgoing power to and from main control. This test assumes that proper voltage is present at the outlet.

1. Unplug washer or disconnect power.
2. Remove console to access main control.
3. Verify that ALL connectors are inserted all the way into the main control.
4. Plug in washer or reconnect power.
5. With a voltmeter set to **AC**, connect black probe to J12-3 (Neutral) and red probe to J12-1 (L1).
 - If 120 VAC is present, go to step 6.
 - If 120 VAC is not present, check the AC power cord for continuity (See Wiring Diagram, page 3-3.)
6. Is the "Diagnostic LED" flashing or continuously 'ON' or 'OFF'? (See Figure 1, on page 3-5 for LED location.)
 - Flashing: (+5 VDC present and micro operating) proceed to Key Activation & Encoder Test, page 2-3.
 - ON: (+5 VDC present but micro failure) continue to step 9.
 - OFF: (+5 VDC missing or micro failure) proceed to step 7.
7. Check if console UI is affecting the main control DC supply.
 - a. Unplug washer or disconnect power, and wait for the diagnostic LED to turn off.
 - b. Remove connector **J18** from main control.
 - c. Plug in washer or reconnect power.
 - d. Recheck the Diagnostic LED per step 6.
 - If the diagnostic LED is now flashing, go to Test #4: Keys and Encoders, "None of the indicators light up", step 4, page 3-10. If diagnostic LED is not flashing, continue to step 8.
8. Perform voltage checks inside header **J18** on the board – **do not short pins together.**
 - a. With a voltmeter set to **DC**, connect black probe to J18-3 (Circuit Gnd) and red probe to J18-1 (+5 VDC).
 - If DC voltage is not present, go to step 9.
 - If the DC voltage is present, but the diagnostic LED is not flashing, continue to step 9.
9. Main Control has malfunctioned.
 - a. Unplug washer or disconnect power.
 - b. Replace the main control.
 - c. Reassemble all parts and panels.
 - d. Plug in washer or reconnect power. Perform Service Diagnostics to verify repair.

Continue to next page for Main Control Board diagram and Main Control Board connectors & pinouts

For Service Technician Use Only

MAIN CONTROL BOARD (FIGURE 1)




MAIN CONTROL BOARD CONNECTORS AND PINOUTS (FIGURE 2)

MOTOR	J1 Motor	J1-6 Shield HF Return	PUMPS & SHIFTER	J4 Pumps & Shifter	J4-7 Orn Shifter	REX BOARD	J7 Relay Expnsion Brd.	J7-8 Yel 15VDC
	J1-5 Open	J4-5 Lt Blu Recirc. Pump (not on all models)		J7-7 Buzzer (not on all models)				
	J1-4 Blk VS3	J4-3 Blu Drain Pump		J7-6 Orn Clock				
	J1-3 Brn VS1	J4-1 Wht Neutral		J7-5 Brn Data Out				
	J1-2 Open	J5 Heater Element		J7-4 Vlt Strobe				
	J1-1 Red VS2	J5-2 Gry Neutral		J7-3 Tan Rtn (VSS)				
VALVES & THERMISTOR	J2 Valves & Thermistor	J2-12 Yel Fresh Fill Valve	HEATER ELEMENT	J5 Heater Element	J5-2 Gry Neutral	POWER CORD	J12 Power Cord	J12-3 Wht Neutral
	J2-11 Brn Detergent Valve	J5-1 Blk L1		J12-2 Grn Ground				
	J2-10 Blu Cold Valve	LID LOCK	J6 Lid Lock	J12-1 Blk L1				
	J2-9 Red Hot Valve		J6-7 Red Lock Sw	UI	J18 User Interface	J18-3 Yel Rtn (VSS)		
	J2-8 Vlt Oxi Valve (not on all models)		J6-6 Open		J18-2 Blu Wide			
	J2-7 Gry Softener Valve		J6-5 Grn Lid Sw		J18-1 Blk 5V			
	J2-6 Pre Wash (not on all models)		J6-4 Blu Home Sw		J19 Basket Light	J19-2 Blk - LED		
	J2-5 Open		J6-3 Blk Lock Motor	J19-1 Red +LED				
	J2-4 Wht Neutral	J6-2 Brn Lock Motor						
	J2-3 Open	J6-1 Wht Sw Out						
	J2-2 Blk Thermistor							
	J2-1 Blk Rtn (VSS)							

For Service Technician Use Only

⚠ 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.

TEST #2 Valves

This test checks the electrical connections to the valves, and the valves themselves.

1. Check the relays and electrical connections to the valves by performing the Cold, Hot, Fresh Fill, Detergent, Fabric Softener, and Oxi (not on all models) Load and Test Cycle Function on page 2-4. Each test activates and deactivates the selected valve. The following steps assume one (or

more) valve(s) did not turn on.

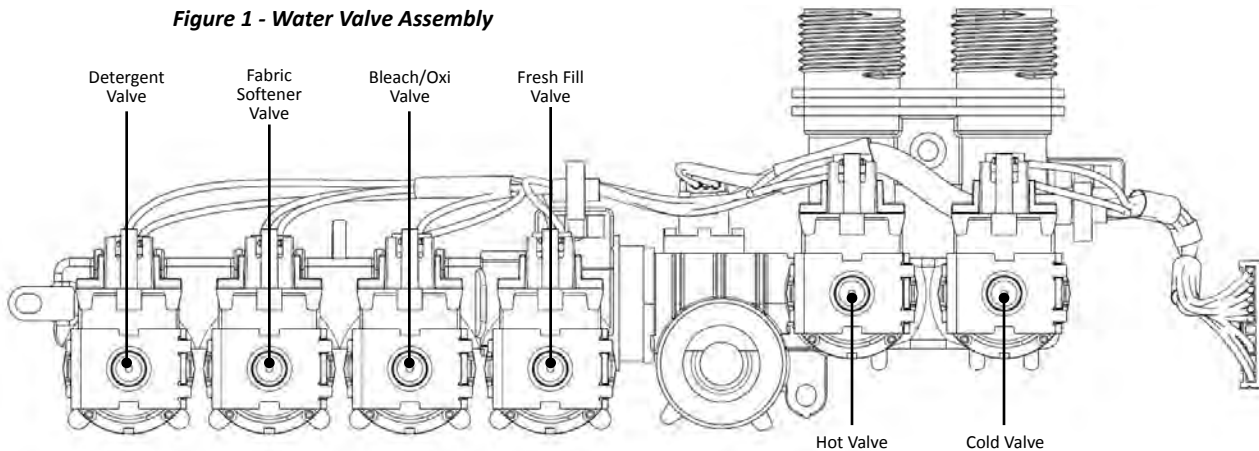
2. For the valve(s) in question check the individual solenoid valves:
 - a. Unplug washer or disconnect power.
 - b. Remove console to access main control.
 - c. Remove connector **J2** from main control. Refer to main control diagram on page 3-5.
 - d. Check harness connection to solenoid valves.
3. Check resistance of the valve coils across the following **J2** connector pinouts:

Valve	Pinout
Fabric Softener	J2, 4 & 7 (White & Gray)
Oxi (not on all models)	J2, 4 & 8 (White & Red)
Hot	J2, 4 & 9 (White & Blue)
Cold	J2, 4 & 10 (White & Violet)
Detergent	J2, 4 & 11 (White & Brown)
Fresh Fill	J2, 4 & 12 (White & Yellow)

Resistance should be 790–840 Ω.

- If resistance readings are tens of ohms outside of range, replace the valve assembly.
- If resistance readings are within range, replace main control and perform Service Diagnostics to verify repair.

Figure 1 - Water Valve Assembly



WATER VALVES

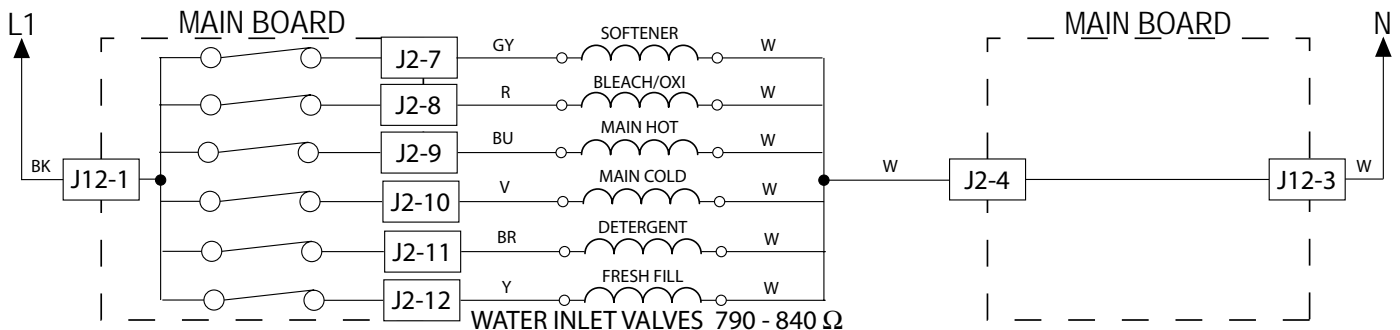



Figure 2 - Water Valves Strip Circuit

For Service Technician Use Only

⚠ DANGER



Electrical Shock Hazard

Only authorized technicians should perform diagnostic voltage measurements.

After performing voltage measurements, disconnect power before servicing.

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

4. Remove console to access main control.
5. Visually check that the J4 connector is inserted all the way into the main control.
 - If visual checks pass, go to step 6.
 - If connector is not inserted properly, reconnect J4 and repeat step 1.
6. Plug in washer or reconnect power.
7. With a voltmeter set to **AC**, connect the black probe to J4-1 (N) and red probe to J4-7 (L1). Activate shifter motor by commanding Spin (ON) or Agitate (OFF) in Service Test Mode.

NOTE: Motor must be stopped to toggle the shifter.

IMPORTANT: Lid must be closed with Lid Lock enabled to run the Spin and Agitate tests.

 - If 120 VAC is present, go to step 8.
 - If 120 VAC is not present, go to step 12.
8. Unplug washer or disconnect power.
9. Tilt washer back and remove sound pad (if equipped) to access the drive system (see Figure 1).

TEST #3 Drive System

Pre-Test Procedure

1. Activate Service Diagnostic Test Mode, retrieve any fault/error codes, and clear them. If the displayed error codes are F7E3, F7E4, F7E5, F7E6, F7E7, F7E9, there is likely a motor or shifter related issue.
2. Once the error codes are cleared, enter Service Test Mode and run the Fast Agitate test; if the motor runs after 15–20 seconds, there is not a problem with the motor, control, or motor wiring harness connections.
3. While in Service Test Mode, try to get the washer to spin; if the motor hums briefly and then shuts down, go to Fault Code Display Mode and check for fault codes.

TEST #3a: Drive System – Shifter

This test checks connections, shifter coil, and harness.

NOTE: Lid must be closed and locked for the motor to agitate or spin.

IMPORTANT: Whenever the washer is tilted for service or troubleshooting, drain water from the basket, remove any load items in the basket, and, if equipped, remove bulk dispense drawer.

Functional Check:

1. Check the shifter and electrical connections by performing both the Spin and Agitate tests under Service Test Mode on page 2-4. The following steps assume that this step was unsuccessful.
2. Unplug washer or disconnect power.
3. The motor and shifter should be able to be turned independently of each other. If they are locked together, there is a shifter slider issue. Proceed to step 12.

NOTE: Rotating the impeller quickly can cause the UI to attempt to power up, and may cause audible feedback and the main control to power up and apply braking torque to the impeller.

 - If basket and impeller turn freely, go to step 4.
 - If basket and/or impeller do not turn freely, determine what is causing the mechanical friction or lockup.

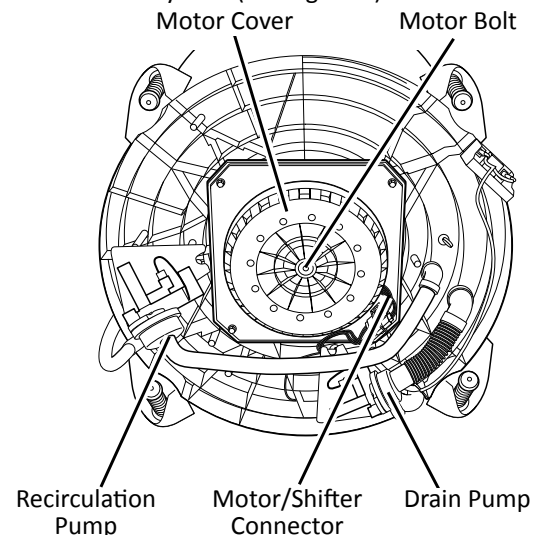


Figure 1 - Drive Area, Viewed From Bottom, Sound Pad (if equipped) Removed

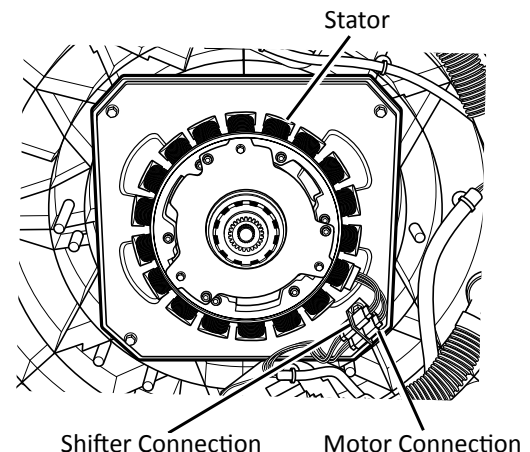


Figure 2 - Motor Cover (Rotor) Removed

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10. Visually check the electrical connections to the shifter.
 - If visual check passes, go to step 11.
 - If connections are loose, reconnect the electrical connections and repeat step 1.
11. With an ohmmeter, check the harness for continuity between the shifter and main control using the following pinouts. See chart below.

Shifter and Pump Connector Harness	
J4-1 (White wire)	To shifter connector Pin 3 (White wire)
J4-7 (Orange wire)	To shifter connector Pin 1 (Orange wire)

- If there is continuity, go to step 12.
 - If there is no continuity, replace the lower washer harness and repeat step 1.
12. Remove the motor bolt, then the motor cover (see Figure 2). Remove the motor stator and the shifter coil and confirm that the slider on the motor shaft moves freely (see Figure 3).
 - If slider moves freely, and there are no indications of rubbing on the inside diameter of the shifter coil and outside diameter of the slider, go to step 13.
 - If slider binds or does not move freely, or there are indications of rubbing on the inside diameter of the shifter coil or outside diameter of the slider, replace the drive.

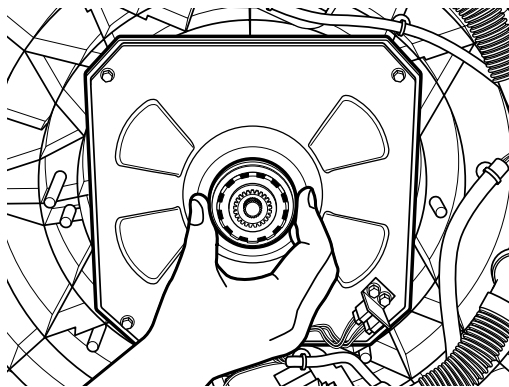


Figure 3 - Checking Slider Movement/Appearance

- a. Unplug washer or disconnect power.
 - b. Replace the drive.
 - c. Reassemble all parts and panels.
 - d. Plug in washer or reconnect power. Perform Service Diagnostics to verify repair.
13. If the preceding steps did not correct the problem, replace the main control.
 - a. Unplug washer or disconnect power.
 - b. Replace the main control.
 - c. Reassemble all parts and panels.
 - d. Plug in washer or reconnect power. Perform Service Diagnostics to verify repair.

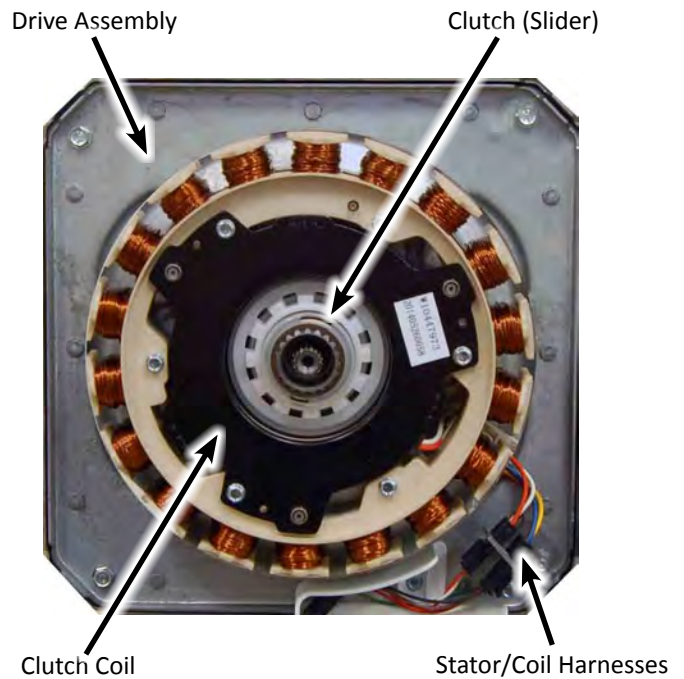


Figure 4 - Drive Assembly, Clutch Coil, and Clutch (Slider)

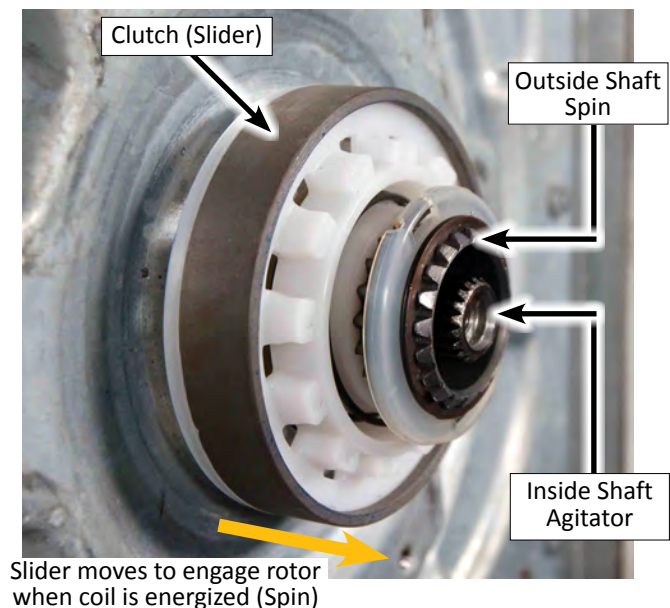



Figure 5 - Clutch (Slider) shown with Clutch Coil removed

Continue to next page for TEST #3b: Drive System - Motor

For Service Technician Use Only

⚠ 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.

TEST #3b: Drive System - Motor

This test checks the wiring to the motor and the motor itself.

IMPORTANT: Whenever the washer is tilted for service or troubleshooting, drain water from the basket, remove any load items in the basket, and, if equipped, remove bulk dispense drawer.

1. See Activating Service Diagnostic Mode, page 2-2, and check the motor and electrical connections by performing the Low, Mid, and High Speed Spin Test under Service Test Mode, page 2-3. The following steps assume that this step failed.
2. Unplug washer or disconnect power.
3. Check to see if impeller will turn freely and is not connected to the basket.

NOTE: Rotating the impeller quickly can cause the UI to attempt to power up, and may cause audible feedback and the main control to power up and apply braking torque to the impeller.

 - If impeller turns freely, go to step 4.
 - If impeller does not turn freely, determine what is causing the mechanical friction or lockup.
4. Remove console to access main control.
5. Visually check that the J1 connector is inserted all the way into the main control.
 - If visual checks pass, go to step 6.
 - If visual checks fail, reconnect J1 and repeat step 1.
6. With an ohmmeter, verify resistance values as shown below:

Check between connector pins	Resistance value should be:	Go to Step 7 if values are:	Go to Step 10 if values are:	Go to Step 10 if:
J1 1-3	8-10 ohms	Much higher than 10 ohms	Much less than 8 ohms	Resistances are all correct
3-4	8-10 ohms	higher than 10 ohms	less than 8 ohms	are all correct

7. Tilt washer back to access the bottom of the washer and the drive motor area (see Figure 1, page 3-7).
8. Visually check that the motor connection on the drive is fully inserted into its mating connector.

- If visual checks pass, go to step 9.
 - If visual checks fail, reconnect motor connector on drive plate and repeat step 1.
9. With an ohmmeter, check for continuity on the motor harness between all pins on the J1 machine/motor control connector and the drive motor connector.
 - If there is continuity, go to step 10.
 - If there is no continuity, replace the lower washer harness and run Service Diagnostics to verify repair.
 10. Tilt washer back (if it is not already) to disconnect the motor connector and use an ohmmeter to verify the motor resistance values at the drive motor connector (see Figure 2, page 3-7).

Check between drive motor connector	Resistance value should be:	Go to Step 11 if values are:	Go to Step 14 if values are:	Go to Step 15 if:
2-3 (R-BR)	8-10 ohms	Much higher than 10 ohms	Much less than 8 ohms	Resistances are all correct
3-4 (BR-BK)	8-10 ohms	higher than 10 ohms	less than 8 ohms	are all correct

11. Remove the motor bolt, then the motor cover (see Figure 2, page 3-7).
12. Remove the shifter coil and stator to access the motor connection.
13. Visually check that motor electrical connection cover is fully seated (see Figure 1 below).
 - If visual check passes, go to step 14.
 - If visual check fails, fully seat the motor connection cover, reassemble stator and motor cover, and repeat step 1.

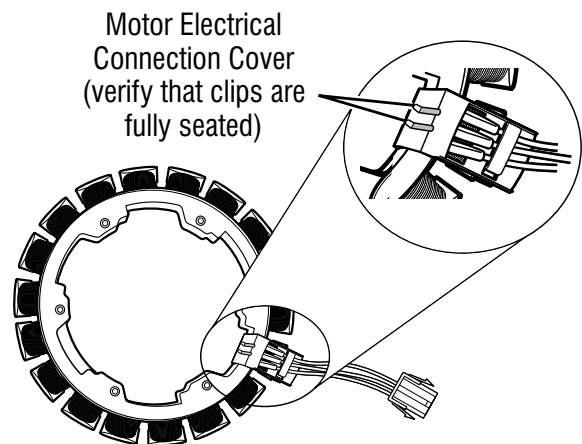



Figure 1 - Removing Shifter Coil and Checking Motor Electrical Connection

14. Replace the drive.
 - a. Reconnect harness and ground connection, if separate. Reassemble all parts and panels.
 - b. Plug in washer or reconnect power. Perform Service Diagnostics to verify repair.
 - If the motor still fails to operate, go to step 15.
15. If the tests above have failed to fix motor drive issues, replace the main control.
 - a. Unplug washer or disconnect power.
 - b. Replace the main control assembly.
 - c. Plug in washer or reconnect power. Perform Service Diagnostics to verify repair.

For Service Technician Use Only

⚠ 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.

Some buttons do not toggle indicators:

1. Unplug washer or disconnect power.
2. Replace the UI assembly.
3. Reassemble all parts and panels.
4. Plug in washer or reconnect power.
5. To verify repair, activate the Service Diagnostic Mode, and then perform Key Activation & Encoder Test on page 2-3.

No audio feedback is heard:

1. Enter the Service Diagnostic Mode, and then perform Key Activation & Encoder Test on page 2-3.
 - If audio feedback is heard with each button press while in Key Activation & Encoder Test mode, continue to step 2.
 - If no audio feedback is heard with each button press while in Key Activation & Encoder Test mode, continue to step 4.
2. Exit Key Activation & Encoder Test by pressing POWER.
3. Turn on the washer and enable audio feedback in normal mode:
 - Whirlpool: Press “Audio Level” to change the button sounds level (Off, Low, Med, High). Each press increments the sound one level.
 - Maytag: Press “Audio Level” to change the button sounds volume (this will also change the volume of the end-of-cycle signal).
4. Unplug washer or disconnect power.
5. Whirlpool: Access the user interface by separating the glass top of the lid from the lid’s white lower frame. Visually check that the speaker connects to **J6** on the UI. Maytag: Access the console electronics and, if needed, remove the user interface from the console shell and visually check that the speaker connects to **J6** on the UI.
6. If visual check passes, replace the user interface assembly.
7. Reassemble all parts and panels.
8. Plug in washer or reconnect power. Perform Service Diagnostics on page 2-5. To verify repair, activate the Service Diagnostic Mode, and then perform Key Activation & Encoder Test on page 2-3.

TEST #4: Keys and Encoders

Keys and Encoders Test:

This test is performed when any of the following situations occurs during “Key Activation & Encoder Test” on page 2-3.

- One or more indicators do not light up
- Some buttons do not toggle indicators
- No audio feedback is heard

One or more indicators do not light up:


1. Unplug washer or disconnect power.
2. Access the console’s electronic assemblies and visually check that the ACU J18 and UI J17 connectors are inserted all the way into the main control and that the UI harness connector is fully seated on the UI. If the speaker connector is visible, visually verify that the speaker connects to J6 on the UI.
3. If both visual checks pass, follow procedure under TEST #1, Main Control (ACU), page 3-4 to verify supply voltages.
4. Verify the continuity of the UI harness.

ACU J18 - Pin 1	Black	UI J17 - Pin 3
ACU J18 - Pin 2	Blue	UI J17 - Pin 2
ACU J18 - Pin 3	Yellow	UI J17 - Pin 1

- If continuity fails, replace the UI harness and go to step 5.
 - If continuity passes, go to Test #11, page 3-17, then return to step 5.
5. Reassemble all parts and panels.
 6. Plug in washer or reconnect power.
 7. To verify repair, activate the Service Diagnostic Mode, and then perform Key Activation & Encoder Test on page 2-3.

For Service Technician Use Only

⚠ 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.

thermistor between pins J2-1 and J2-2. Verify that the approximate resistance, shown in the table below, is within ambient temperature range.

THERMISTOR RESISTANCE		
Approx. Temperature		Approx. Resistance
F°	C°	(KΩ)
32	0	32.3
41	5	25.2
50	10	19.8
59	15	15.7
68	20	12.5
77	25	10.0
86	30	8.1
95	35	6.3
104	40	5.4
113	45	4.4
122	50	3.6
131	55	3.0
140	60	2.5
149	65	2.1

TEST #5: Temperature Thermistor

This test checks valves, main control, temperature thermistor, and wiring.

1. Check the cold valve by performing Cold Valve test under Service Test Mode in Service Diagnostic Mode on page 2-4.
 - If cold water is being dispensed, proceed to step 2.
 - If hot water is being dispensed, verify proper hose connection.
2. Check the hot valve by performing Hot Valve test under Service Test Mode in Service Diagnostic Mode on page 2-4.
 - If hot water is being dispensed, proceed to step 3.
 - If cold water is being dispensed, ensure that household hot water is present.
3. Unplug washer or disconnect power.
4. Remove console to access main control.
5. Remove connector **J2** from the main control. With an ohmmeter, measure the resistance of the temperature thermistor between pins J2-1 and J2-2. Verify that the approximate resistance, shown in the table below, is within ambient temperature range.
 - If the resistance is within the range shown in the table, go to step 6.
 - If the resistance is infinite or close to zero, replace the valve assembly.
6. If the thermistor is good, replace main control and perform Service Diagnostics (see page 2-4) to verify repair.

NOTE: Most thermistor errors are a result of the resistance being out of range. If the temperature thermistor malfunctions, the washer will default to pre-programmed wash settings.

TEMPERATURE THERMISTOR

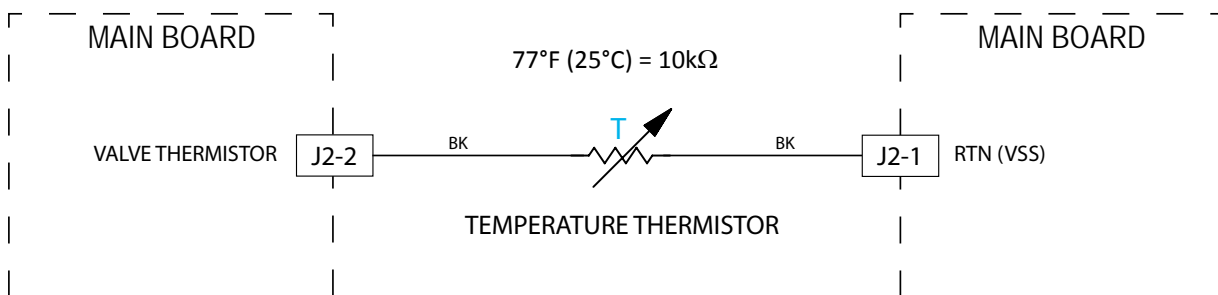



Figure 1 - Thermistor Strip Circuit

For Service Technician Use Only

⚠ 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.

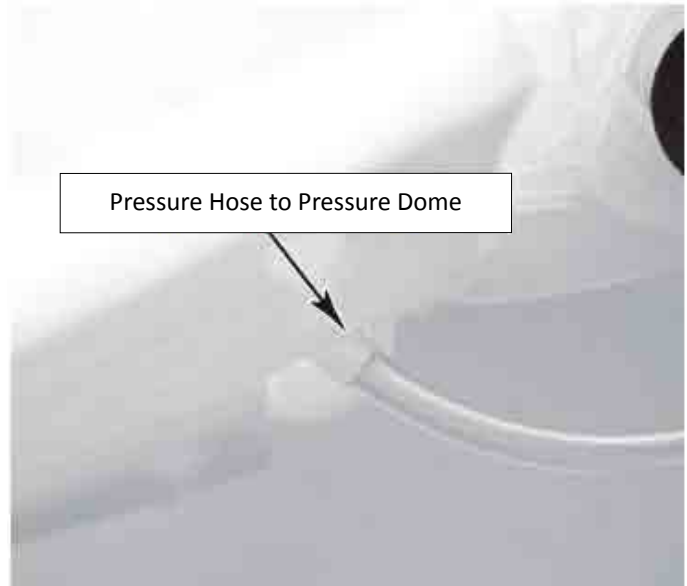


Figure 2 - Hose Connection at Pressure Dome

TEST #6: Water Level

This test checks the water level sensing components.

NOTE: Usually, if the pressure transducer malfunctions, the washer will generate a long fill, or long drain error.

1. Check the functionality of the pressure transducer by running a small load cycle. The valves should turn off automatically after sensing the correct water level in the tub. The following steps assume that this step was unsuccessful.
2. Drain the tub until all water has been removed.
3. Unplug washer or disconnect power.
4. Remove console to access main control.
5. Check hose connections between the pressure transducer on the main control (Figure 1) and the pressure dome on the tub (Figure 2).
6. Check to ensure hose is routed correctly in the lower cabinet and not pinched or crimped inside the console or by the back panel.
7. Verify there is no water, suds, or debris in the hose or dome. Disconnect hose from main control and blow into hose to clear water, suds, or debris.
8. Check hose for leaks. Replace if needed.
9. If the preceding steps did not correct the problem, replace main control and perform Service Diagnostics. Run fill cycle to test and verify repair.

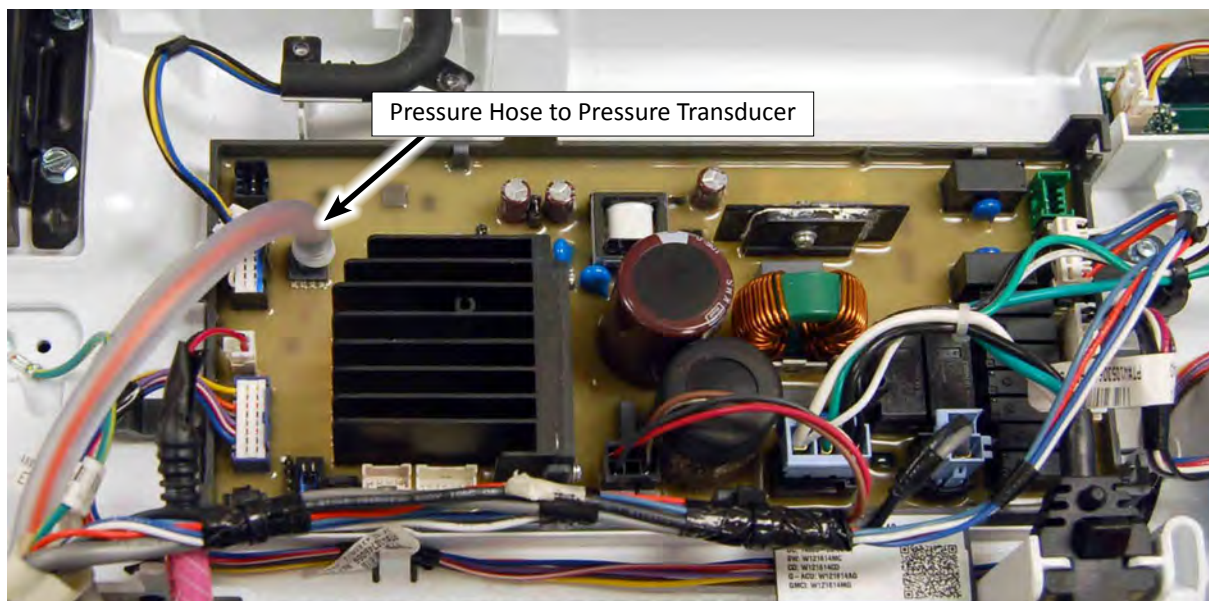



Figure 1 - Hose Connection at Main Control

For Service Technician Use Only

⚠ 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.

TEST #7: Drain & Recirculation Pump

Perform the following checks if washer does not drain.

IMPORTANT: Whenever the washer is tilted for service or troubleshooting, drain water from the basket, remove any load items in the basket, and, if equipped, remove bulk dispense drawer.

1. Check for obstructions in the usual areas. Clean and then perform step 2.
2. Check the drain pump (and recirculation pump, on some models) and electrical connections by turning on the drain pump (and recirculation pump, on some models) in Service Test Mode on page 2-3. The following steps assume that this step was unsuccessful.
3. Unplug washer or disconnect power.
4. Remove console to access main control.
5. Visually check that the **J4** connector is inserted all the way into the main control.
 - If visual check passes, go to step 6.
 - If connector is not inserted properly, reconnect J4 and repeat step 2.
6. Remove connector **J4** from main control. With an ohmmeter, verify resistance values shown below across the following J4 connector pinouts:

Component	J4 Connector Pinout	Correct Resistance
Drain Pump	J4, 1 & 3	18-24 Ω
Recirc. Pump	J4, 1 & 5	26-32 Ω

- If values are open or out of range, go to step 7.
 - If values are correct, go to step 11.
7. Tilt washer back to access drain pump (and recirculation pump, on some models). Verify pump is free from obstructions.
 8. Visually check the electrical connections at the drain pump (and, on some models, the recirculation pump).
 - If visual check passes, go to step 9.
 - If connections are loose, reconnect the electrical connections and repeat step 2.
 9. With an ohmmeter, check harness for continuity between the drain pump (and recirculation pump, on some models) and main control. See chart below.

Main Control to Drain Pump (and Recirculation Pump)
Drain Pump Pin 1 to Main Control J4-1 (White Wire)
Drain Pump Pin 2 to Main Control J4-3 (Blue Wire)
Recirc. Pump Pin 1 to Main Control J4-1 (White Wire)
Recirc. Pump Pin 2 to Main Control J4-5 (Lt Blue Wire)

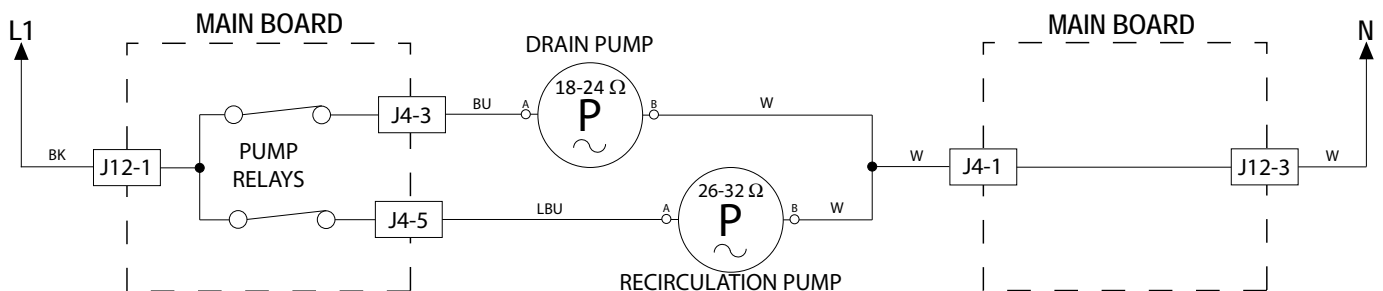
- If there is continuity, go to step 10.
 - If there is no continuity, replace the lower washer harness and repeat step 2.
10. With an ohmmeter, measure the resistance across the two pump terminals. Resistance should be as shown in the chart below:

Component	Correct Resistance
Drain Pump	18-24 Ω
Recirculation Pump	26-32 Ω

 - If values are open or out of range, replace the pump motor.
 - If the resistance at the pump motor is correct, go to step 11.
 11. If the preceding steps did not correct the drain problem, replace the main control.
 - a. Unplug washer or disconnect power.
 - b. Replace the main control.
 - c. Reassemble all parts and panels.
 - d. Plug in washer or reconnect power. Perform Service Diagnostics to verify repair.


DRAIN & RECIRCULATION PUMPS

Figure 1 - Pumps Strip Circuits



For Service Technician Use Only

⚠ 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.

5. Check the lid lock motor winding and switches by removing J6 from the main control and checking the resistance values shown in the following table:

LID LOCK RESISTANCE			
Component	Resistance Unlocked	Resistance Locked	Contacts
Motor Winding	35 Ω (±5 Ω)	35 Ω (±5 Ω)	J6-2 J6-3
Lock Switch-Home	0 Ω	Open Circuit	J6-1 J6-4
Lock Switch-Lock	Open Circuit	0 Ω	J6-1 J6-7
Lock Switch-Lid	Lid Closed = 0 Ω Lid Open = Open Circuit		J6-1 J6-5

TEST #8: Lid Lock

Perform the following checks if the washer does not lock (or unlock).

1. Check the lid lock by performing Lid Lock test under Service Test Mode in Service Diagnostic Mode on page 2-3. The following steps assume that this step was unsuccessful.
2. Unplug washer or disconnect power.
3. Remove console to access main control.
4. Visually check that the J6 connector is inserted all the way into the main control.
 - If visual check passes, go to step 5.
 - If connector is not inserted properly, reconnect J6 and repeat step 1.

Test: Power on the washer and open the lid. All lights EXCEPT Power/Cancel should turn off (due to open lid).

- If resistance values are good, go to step 6.
 - If switch measurements do not match the values shown in the table for unlocked (or locked) condition, a problem exists in the lid lock. Replace the lid lock mechanism.
6. If the preceding steps did not correct the lock problem, replace the main control.
 - a. Unplug washer or disconnect power.
 - b. Replace the main control.
 - c. Reassemble all parts and panels.
 - d. Plug in washer or reconnect power. Perform Service Diagnostics to verify repair.

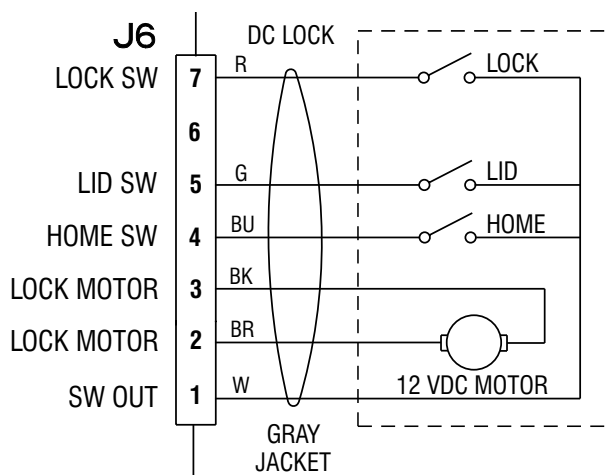


Figure 1 - Lid Lock Schematic

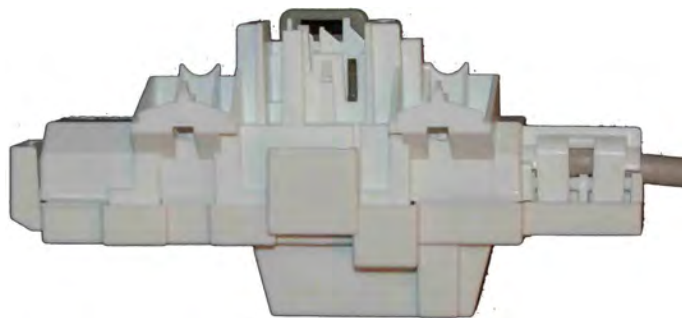



Figure 2 - Lid Lock

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⚠ WARNING



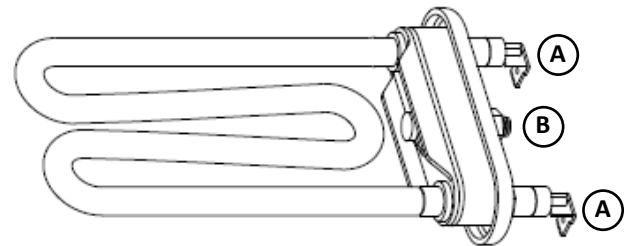
Electrical Shock Hazard

Disconnect power before servicing.

Replace all parts and panels before operating.

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

Heater Element (Figure 1)



A. Heater Terminals
B. Heater Compression Nut

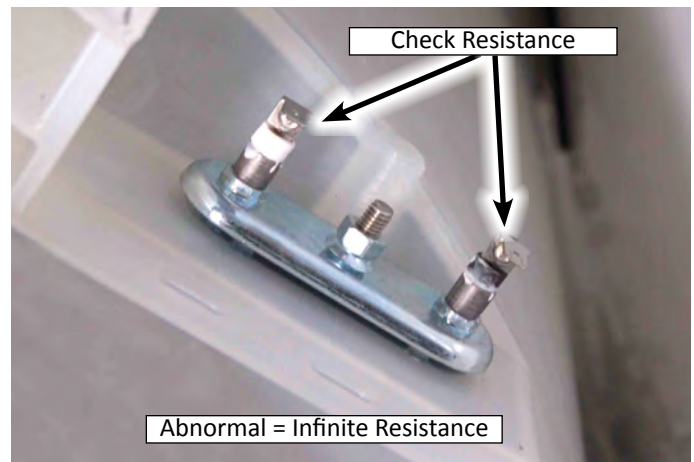
TEST #9: Heater Element (on some models)

Perform the following checks to ensure the heater is functioning properly.

IMPORTANT: Whenever the washer is tilted for service or troubleshooting, drain water from the basket, remove any load items in the basket, and, if equipped, remove bulk dispense drawer.

1. Unplug washer or disconnect power.
2. Remove the heater terminal plastic cover.
3. Check the connection to the water heater element.
4. Check the resistance of the heater element (abnormal = infinity). See Figure 2.
5. If the resistance is infinite, replace the heater element and reinstall the heater terminal plastic cover.
6. Visually inspect that the connector on the main control (J5) that plugs into the lower harness is installed correctly (see wiring diagram, page 3-3).
 - If visual check passes, go to step 7.
 - If visual check fails, reconnect cable.
7. If connections are correct, replace the main control.

Heater Element Test (Figure 2)



HEATER ELEMENT

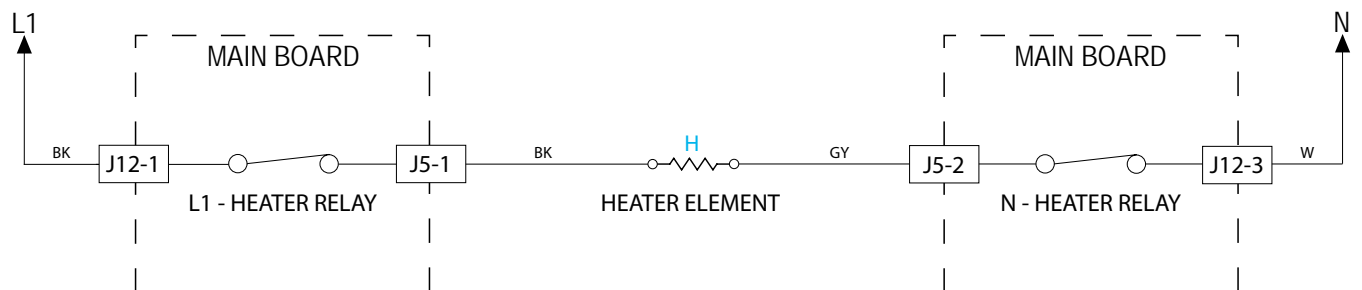



Figure 3 - Heater Element Strip Circuit

For Service Technician Use Only

⚠ 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.

LED name/color/function is as follows:

- **Service Power** (Amber) will flash at 1 Hz when power is supplied to the UI.
- **Service Data** (Blue) will illuminate (or flash) to indicate a functioning communication channel between the UI and the ACU.
- **Service Button Sounds/Control Lock** (White) will illuminate when BOTH of the following are true:
 - The Control Lock feature is turned off.
 - The Audio Level is NOT turned off.

If **Service Power LED** does not flash, the UI is not powered properly. Check harness and harness connections.

If **Service Data LED** does not illuminate, either press POWER to turn on/off the washer, or unplug the washer and then plug it back in. If Service Data LED does not illuminate upon re-application of power, the UI is not powered properly. Check harness for continuity, harness connections, and ACU.

If **Service Button Sounds/Control Lock LED** does not illuminate, either press POWER to turn on/off the washer, or unplug the washer and then plug it back in. If Service Button Sounds/Control Lock LED still does not illuminate:

1. Verify that the Control Lock feature is turned off. Press & hold CONTROL LOCK for 3 seconds to toggle the feature.
2. Verify that the Audio Level setting is not muted. Press POWER to turn on the washer, then press AUDIO LEVEL until the corresponding LED illuminates.

If all three Service LEDs do not illuminate/flash as described above, the UI may need to be replaced.

TEST #10: Service LEDs (on some models)

The underside of the user interface has 3 LEDs to help diagnose common problems with the UI, including unresponsive keys and a non-functioning speaker.

The LEDs are accessed by separating the glass top of the lid from the lid's lower frame. **NOTE:** The lower frame has magnets. With the lid open, it may not be able to interact properly with the UI.

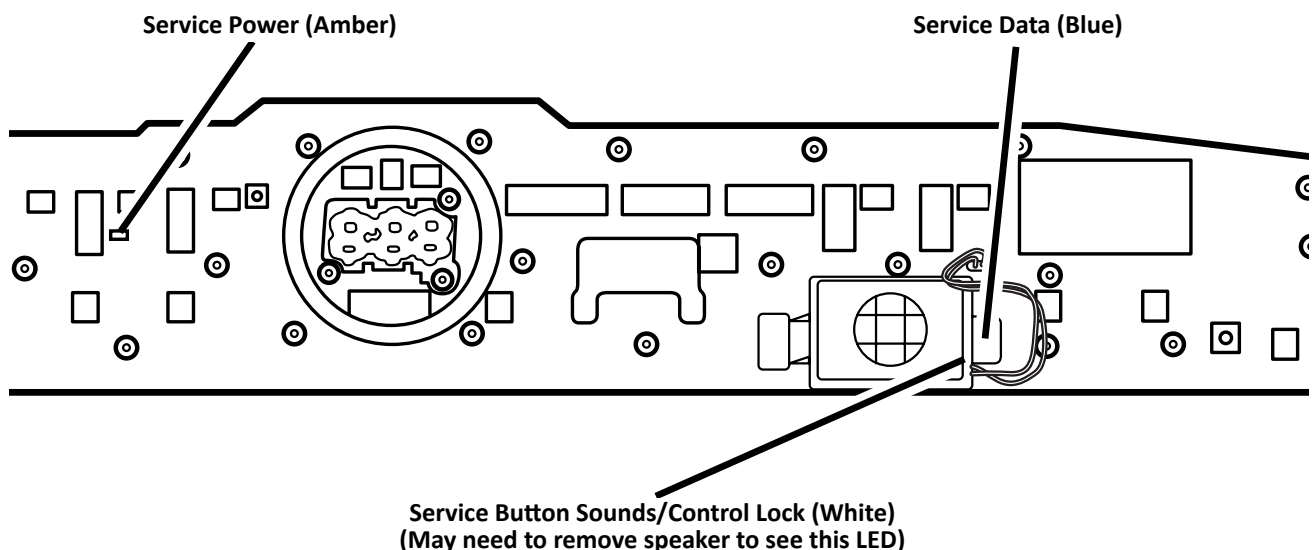



Figure 1 - Service LEDs on back of UI

For Service Technician Use Only

⚠ DANGER



Electrical Shock Hazard

Only authorized technicians should perform diagnostic voltage measurements.

After performing voltage measurements, disconnect power before servicing.

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

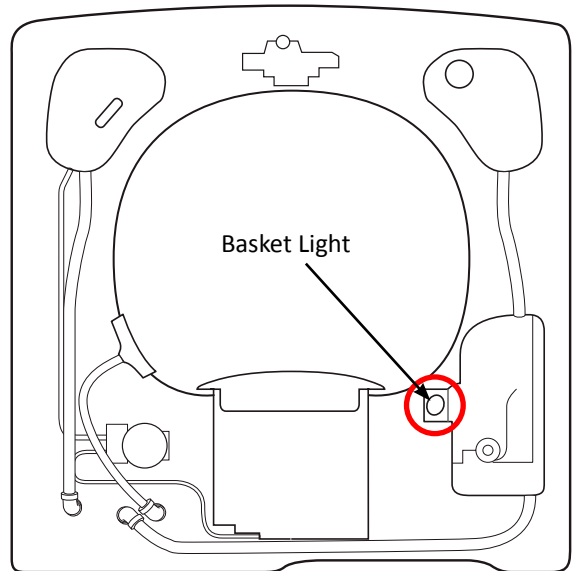
- If the harness and connections are good, go to step 6.
 - If not, repair or replace as needed and go to step 8.
6. Unplug the basket light connector **J19** from the main control (see Figure 1, page 3-5). Plug in washer or reconnect power.
 7. With a multimeter set to **DC** voltage, connect the multimeter to the main control with the positive probe on Pin 1 of J19, and the negative probe on Pin 2 of J19.
 - a. With the lid closed (basket light off), the DC voltage should be approximately 0.13 volts.
 - b. With the lid open (basket light on), the DC voltage should be approximately 2.8–5.0 volts.
 - If the correct DC voltage range is present for when the lid is closed and for when the lid is open, unplug washer or disconnect power and replace the basket light.
 - If the DC voltage range is not correct for when the lid is closed or for when the lid is open, unplug washer or disconnect power, replace the main control board and go to step 8.
 8. Reassemble all parts and panels. Plug in washer or reconnect power. Perform the Service Diagnostics Verification Cycle to verify repair.

TEST #11: Basket Light (on some models)

IMPORTANT: Whenever the washer is tilted for service or troubleshooting, drain water from the basket, remove any load items in the basket, and, if equipped, remove bulk dispense drawer. This test is performed if the basket light does not turn on. This test will check the functionality of the lid switch, as well as the electrical connections and signal between the basket light and main control.

1. Power on the washer and open the lid.
 - Whirlpool: All indicator lights except Power/Cancel should turn off (due to open lid). If not, replace the lid switch.
 - Maytag: Once the lid is opened, the basket light should turn on. If not, there may be a problem with the basket light or the lid switch.
2. Verify that the basket light turns on and off using the Service Test Mode on page 2-3. Follow the Service Test Mode procedure to turn the basket light on and off. The following steps assume the basket light did not turn on.
3. Unplug washer or disconnect power.
4. Whirlpool: Remove rear tray to access the main control. Maytag: Remove console to access the main control.
5. Verify that the basket light connector **J19** is securely connected to the main control (see Figure 1, page 3-5).

BASKET LIGHT LOCATION-UNDER TOP (Figure 1)



BASKET LIGHT

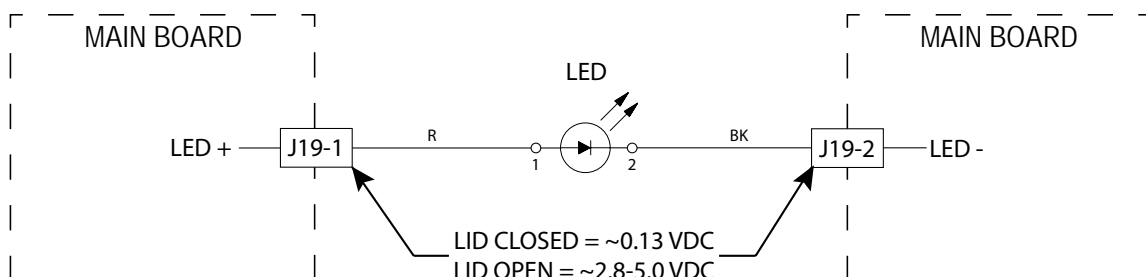



Figure 2 - Basket Light Strip Circuit

For Service Technician Use Only

⚠ 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.

TEST #12: Bulk Dispense Pump and Relay Expansion Board (on some models)

This test is performed if the bulk dispense feature is not dispensing detergent. This test will check the function, the electrical connections, the hose connections, and the resistance of the bulk dispense pump.

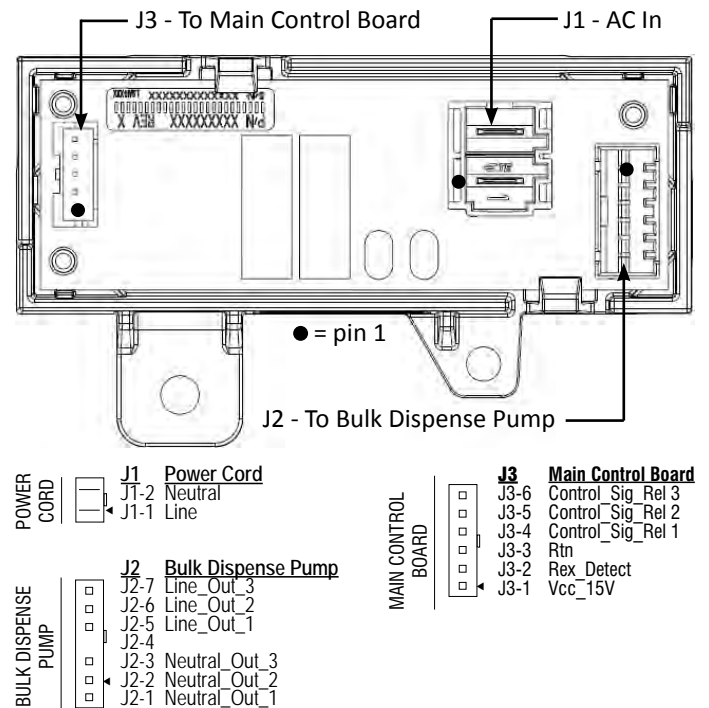
Enter Service Diagnostic Mode shown on page 2-2. Retrieve any fault/error codes. If the displayed fault/error code is F3E4, there is likely a connection issue between the main control (J7, see Figure 1 page 3-5) and the Rex board (J3, see Figure 1, on this page). Clear the fault/error codes.

1. Once the fault/error codes are cleared, verify that the bulk dispense container in the bulk dispense drawer is filled with detergent before proceeding. Enter Service Test Mode described on page 2-3. Follow the Service Test Mode procedure to activate the bulk dispense pump. After a minimum of 2 minutes, detergent should start to trickle, then drip every few seconds through the detergent dispenser on the front left corner as shown in Figure 2, page 3-19. **NOTE:** The liquid will trickle in small amounts into the detergent dispenser. The following steps assume no detergent flowed after a minimum of 2 minutes while the bulk dispense pump was activated.
2. Unplug washer or disconnect power.
3. Remove console cover to access the main control and Rex board.
4. Verify that the main control connector **J7** for the Rex board is securely connected to the main control (see Figure 1, page 3-5).
 - If the harness and connections are good, go to step 5.
 - If not, repair or replace as needed, check the other connections per steps 5 and 6, and go to step 10.
5. Verify that the Rex board connectors **J1**, **J2**, and **J3** are securely connected to the Rex board (see Figure 1 on this page).
 - If the harness and connections are good, go to step 6.
 - If not, repair or replace as needed, check the other connections per step 6, and go to step 10.

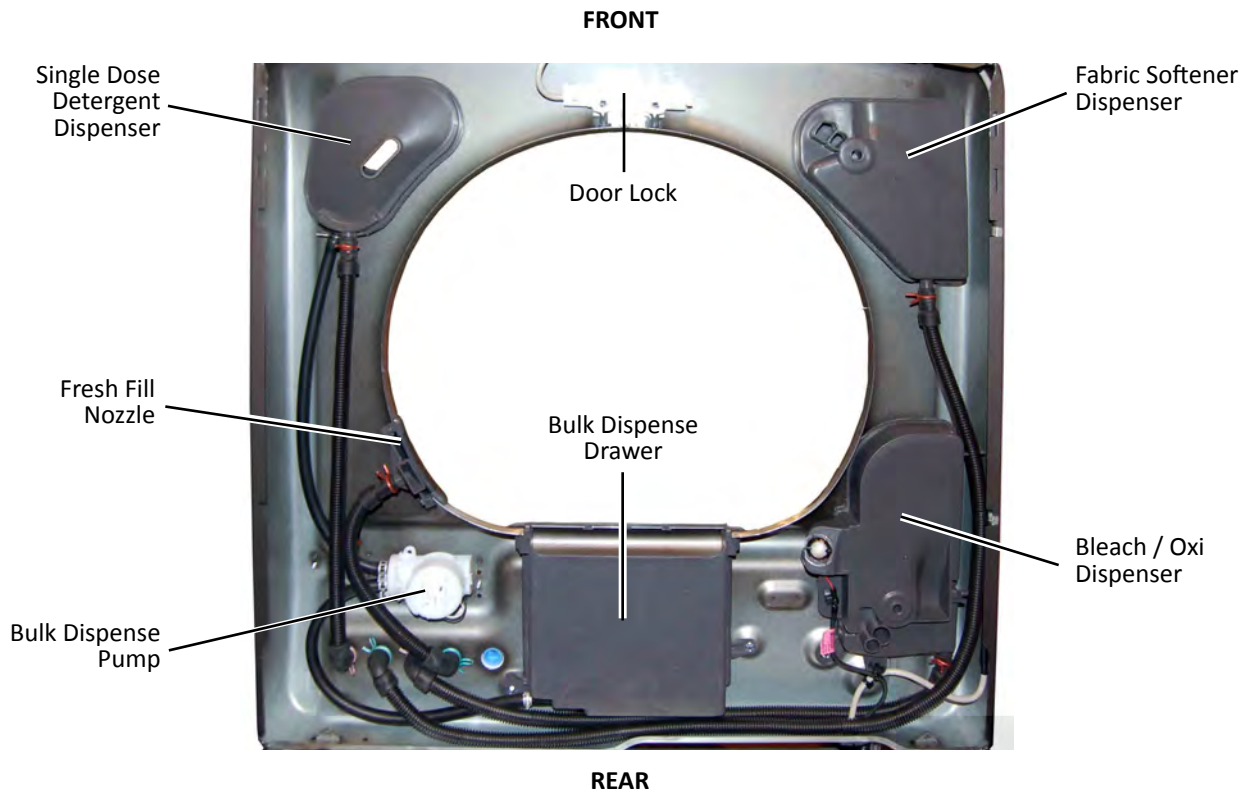
6. Verify that the bulk dispense extension harness is connected to the bulk dispense pump connector that is protruding through the top (see Figure 3, page 3-19).
 - If the harness and connections are good, go to step 7.
 - If not, repair or replace as needed and go to step 10.
7. Unplug the bulk dispense extension harness from the bulk dispense pump connector that is protruding through the top (see Figure 3, page 3-19). Connect a multimeter to the bulk dispense pump connector terminals and set it to read the resistance. The bulk dispense pump resistance should be between 1485 ohms and 1815 ohms.
 - If the resistance value is between 1485 ohms and 1815 ohms, proceed to step 9.
 - If the resistance value is out of range, proceed to step 8.

Access the underside of the top as shown in figure 2, page 3-19. **IMPORTANT:** Remove bulk dispense drawer before accessing underside of top.
8. Replace the bulk dispense pump. Inspect the hoses that are connecting the bulk dispense pump to the detergent drawer and the detergent dispenser for cracks, holes, and obstructions. Replace any damaged or obstructed hoses and proceed to step 10.
9. Replace the Rex board and proceed to step 10.
10. Reassemble all parts and panels. Plug in washer or reconnect power. Repeat step 1 to verify repair.
 - If no detergent flowed after at least 2 minutes while the bulk dispense pump was activated, continue to step 11.
11. Replace main control and go to step 12.
12. Reassemble all parts and panels. Plug in washer or reconnect power. Repeat step 1 to verify repair.

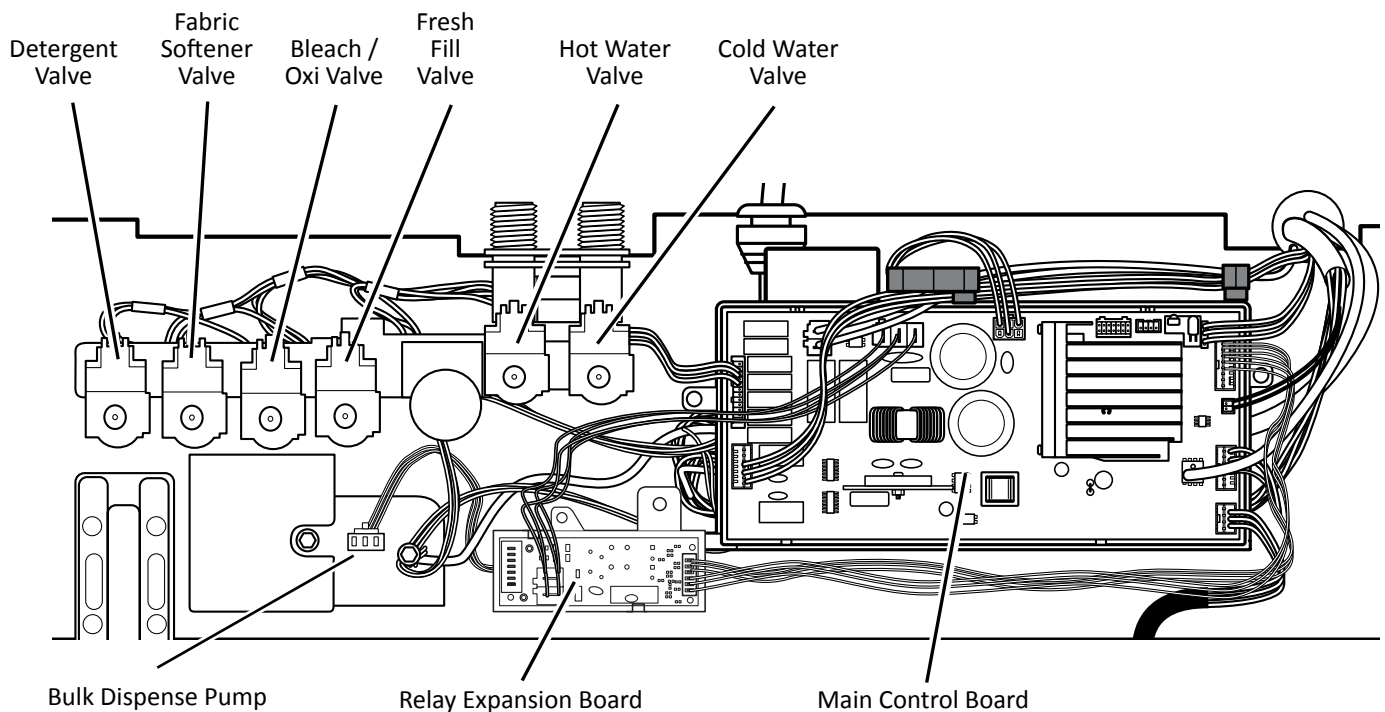
RELAY EXPANSION BOARD (FIGURE 1)



COMPONENT LOCATIONS - UNDERSIDE OF TOP (FIGURE 2)



COMPONENT LOCATIONS - CONSOLE ELECTRONICS & VALVES (FIGURE 3)



Notes




Multimedia
Enhanced

Section 4: Component Access

This section provides service parts access, removal, and installation instructions for the “2016 Cabrio & Bravos Top Load, Direct Drive Washer.”

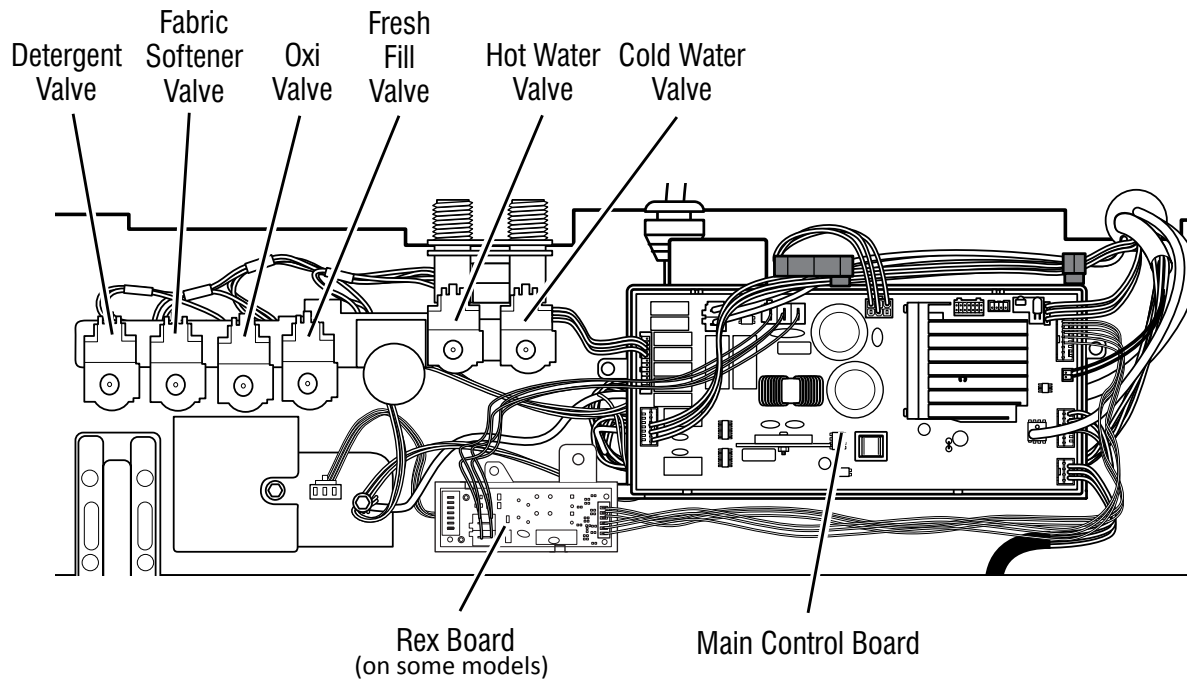
IMPORTANT: Whenever the washer is tilted for service or troubleshooting, drain water from the basket, remove any load items in the basket, and, if equipped, remove bulk dispense drawer.

- Component Locations
- Removing the Access Panel
- Lifting the Top Panel
- Removing the Main Control
- Removing the Relay Expansion Board (REX)
- Removing the Lid Assembly
- Removing the User Interface
- Removing the Water Valve Assembly
- Removing the Bulk Dispense Pump
- Removing the Tub Ring, Impeller, and Basket
- Removing the Motor and Drive Assembly
- Removing the Pumps
- Removing the Heater
- Removing the Lid Lock
- Removing the Basket Light

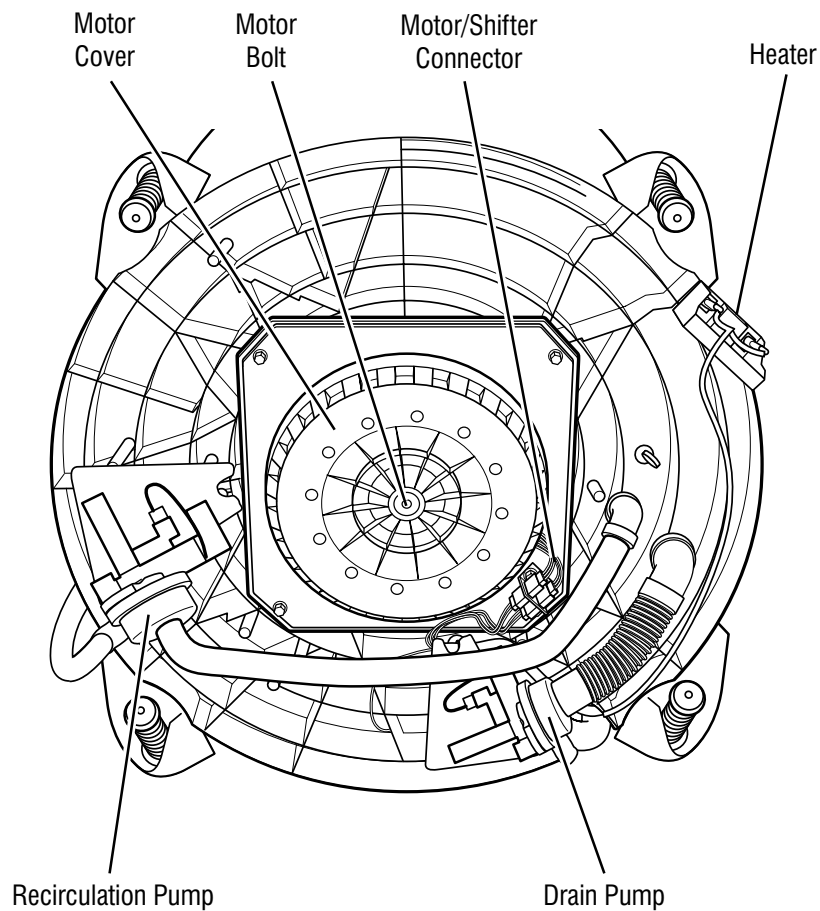
Video Available  Look for this ICON throughout Section 4

Component Locations

CONSOLE ELECTRONICS & VALVES (FIGURE 1)

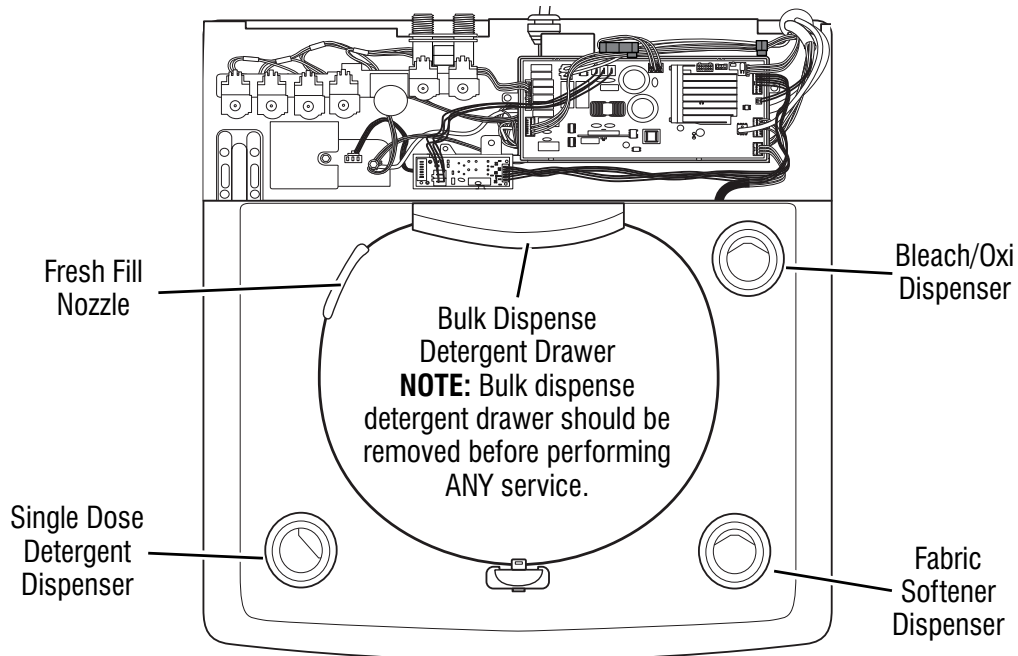


BOTTOM VIEW — DRIVE SYSTEM & PUMPS (FIGURE 2)

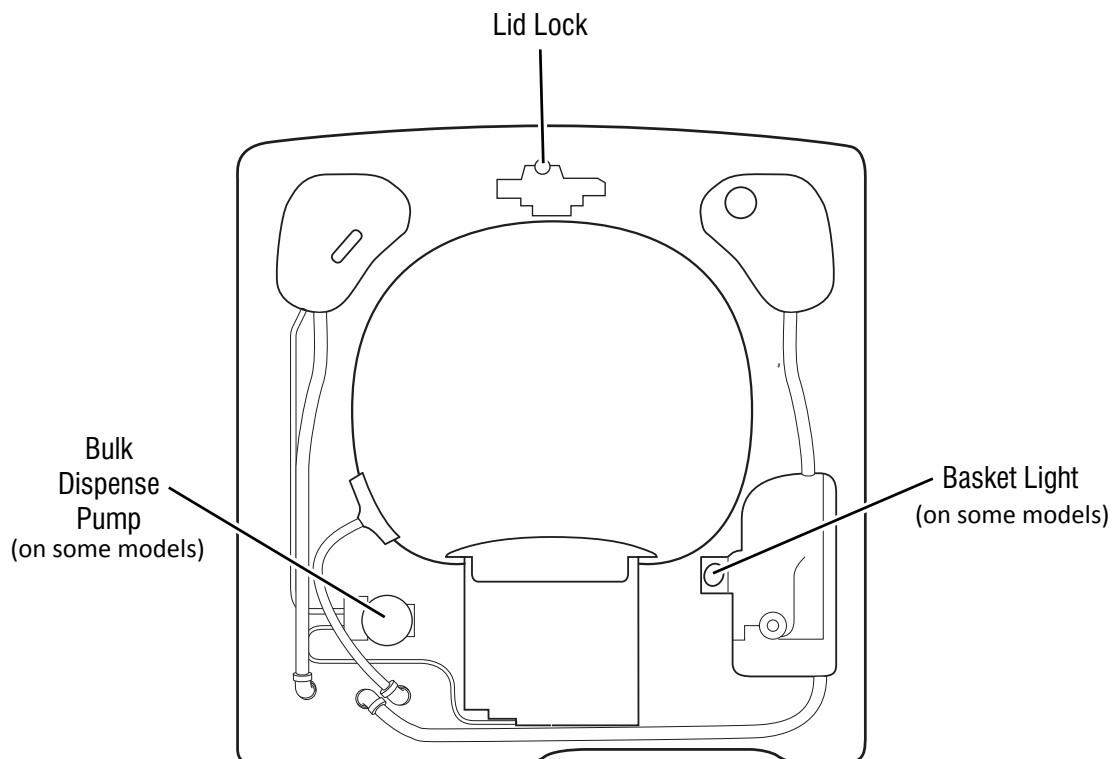


Component Locations

DISPENSERS (FIGURE 3)



UNDERSIDE OF TOP (FIGURE 4)





Removing the Access Panel

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.

5. Once the panel is removed, you have access to the main control, relay expansion board (if equipped), water valve assembly, and lid hinges (see Figure 2).

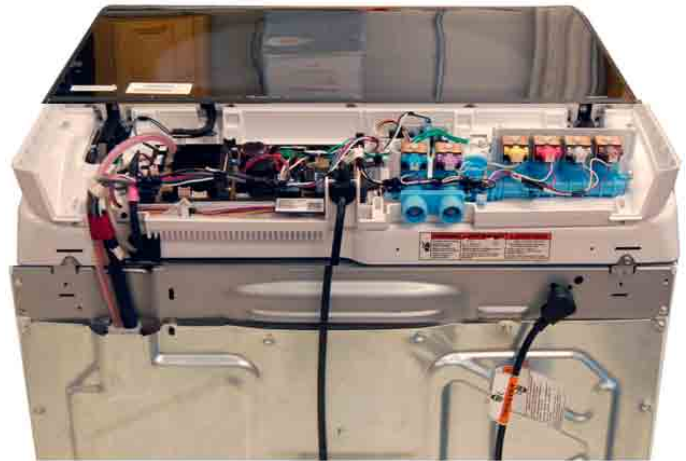


Figure 2

Removing the Access Panel

1. Unplug washer or disconnect power.
2. Turn off water supply to washer.
3. Remove three (3) 1/4" hex-head mounting screws from the rear of the access panel as indicated in Figure 1.
NOTE: The screws should remain attached to the access panel.
4. Lift up panel slightly from the rear and remove from washer.

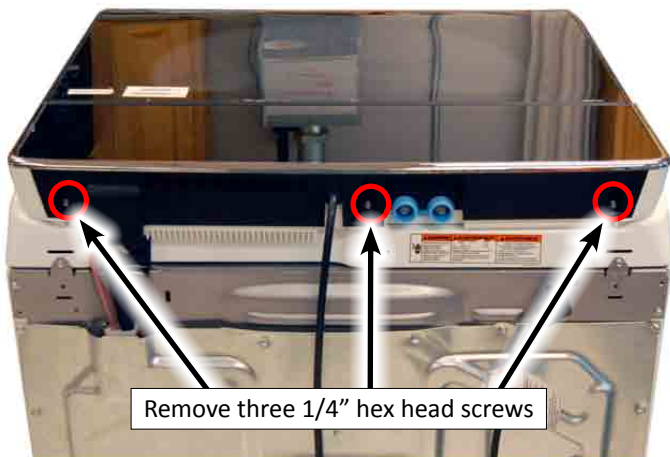


Figure 1



Lifting the Top Panel

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.

8. Raise the top about 1/4". Then, while still keeping it lifted, push the top back about 1/4" (see Figure 3).



Figure 3

Lifting the Top Panel

1. Unplug washer or disconnect power.
2. Turn off water supply to washer.
3. Disconnect hot and cold inlet water hoses.
4. If equipped, remove the bulk dispense drawer.
5. Tape the washer lid closed.
6. Remove three (3) 1/4" hex-head mounting screws from the rear of the console as indicated in Figure 1. Remove harness cover and set aside.



Figure 1

7. Slide top forward about 1/2" (see Figure 2).

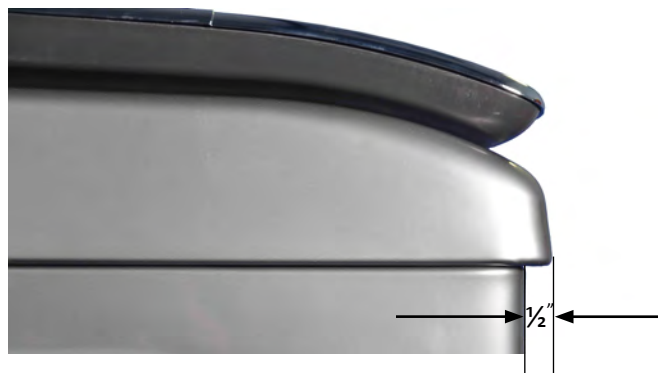


Figure 2

9. Lift top panel. Insert the two tabs located at the top of the rear panel into the slots at the back of the top panel (see Figures 4 & 5).

IMPORTANT: The tabs cannot support the top panel on their own. The Top Panel must be supported against the back wall or using a support rod.

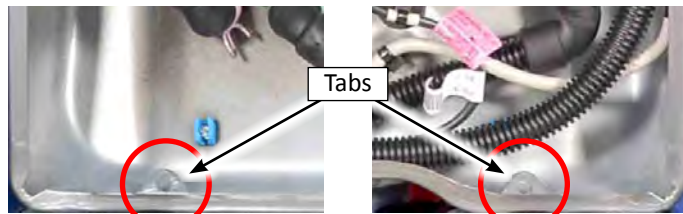


Figure 4

Figure 5



Removing the Main Control

⚠ 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.

Main Board Connectors

Connector	Component(s)
J1	Motor
J2	Valves & Thermistors
J4	Pumps & Clutch Coil
J5	Heater Element
J6	Lid Lock
J7	Relay Expansion Board
J12	Power Cord
J18	User Interface
J19	Basket Light

Removing the Main Control

IMPORTANT: Electrostatic Discharge (ESD) Sensitive Device. Failure to follow the ESD precautions outlined at the beginning of Section 3 "Testing" may destroy, damage, or weaken the main control assembly.

1. Unplug washer or disconnect power.
2. Turn off water supply to washer.
3. Perform the procedures on page 4-4, "Removing the Access Panel" prior to performing the following steps.
4. Remove pressure hose from Main Control (see Figure 1).
5. Disconnect all connectors from the Main Control (see Figure 1).
6. Using a 1/4" nut driver, remove the two (2) hex-head screws (locations circled in Figure 1) securing the main control to the top panel of the washer. Remove board.

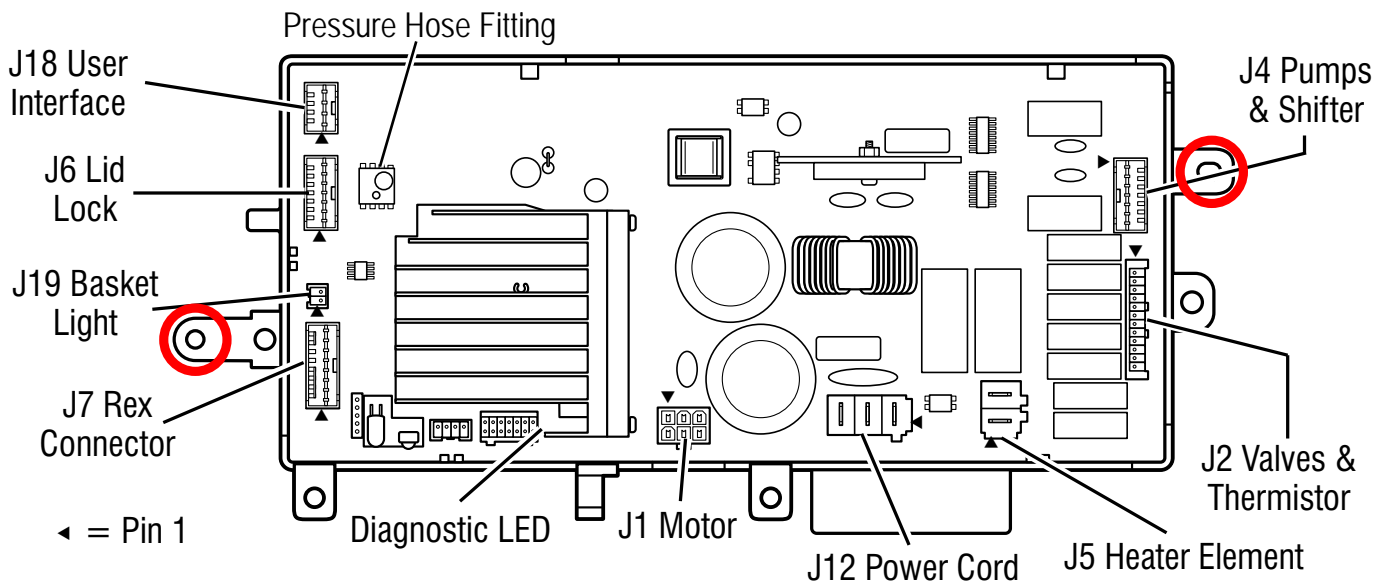


Figure 1



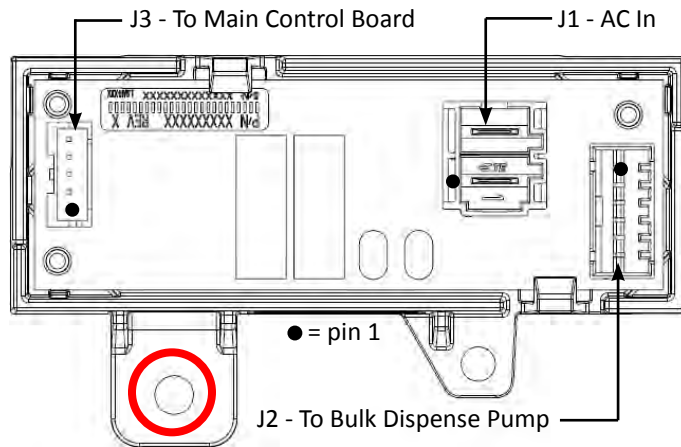
Removing the Relay Expansion Board (REX)

⚠ 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.

Relay Expansion Board (Figure 2)



Removing the Relay Expansion Board (REX)

IMPORTANT: Electrostatic Discharge (ESD) Sensitive Device. Failure to follow the ESD precautions outlined at the beginning of Section 3 "Testing" may destroy, damage, or weaken the relay expansion board.

1. Unplug washer or disconnect power.
2. Turn off water supply to washer.
3. Perform the procedures on page 4-4, "Removing the Access Panel" prior to performing the following steps.
4. Disconnect all connectors from the Relay Expansion Board (see Figure 1 & 2).
5. Using a 1/4" nut driver, first 'loosen' the two (2) hex-head screws securing the main control (see Figure 1, page 4-6).
6. Next, remove the one (1) 1/4" hex-head screw (location circled in Figure 1 & 2) securing the Relay Expansion board to the top panel of the washer. Remove board.

Relay Expansion Board Connectors

Connector	Component(s)
J1	AC In
J2	Bulk Dispense Pump
J3	Main Control Board



Figure 1

REASSEMBLY NOTE: When re-installing the Relay Expansion Board, be sure to re-tighten the two (2) main control screws.



Removing the Lid 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.

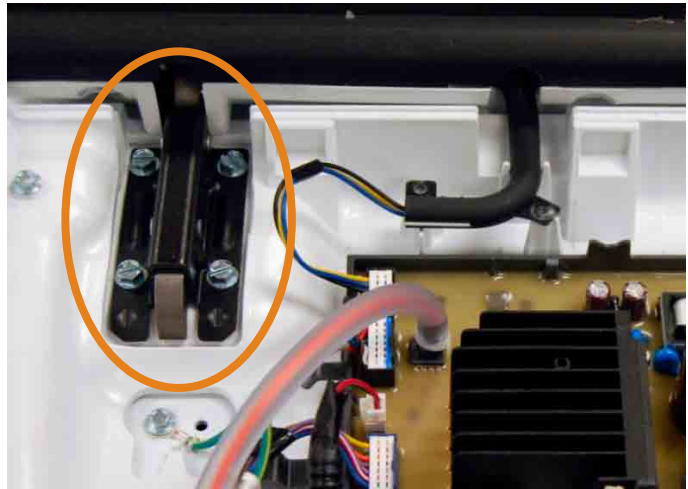


Figure 2

Removing the Lid Assembly

1. Unplug washer or disconnect power.
2. Turn off water supply to washer.
3. Perform the procedures on page 4-4, "Removing the Access Panel" prior to performing the following steps.
4. Disconnect the User Interface connector "J18" from the Main Control (see Figure 1).
5. Next, remove the two (2) 1/4" hex-head screws securing the User Interface harness to the top panel (locations circled in Figure 1).

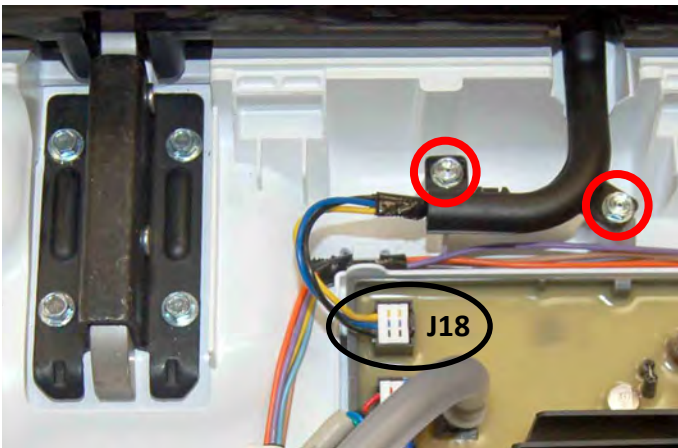


Figure 1



Figure 3

8. Lift lid assembly up and forward to disengage hinge hooks from top panel.

REASSEMBLY NOTE: When reinstalling the lid assembly, insert hinge hooks into the top panel. The hooks will help support the lid while reinstalling the hinge screws. (See Figure 4.)

6. **IMPORTANT:** Raise lid to release spring tension on hinges before removing the hinge screws.
7. Using a 1/4" nut driver, remove the eight (8) 1/4" hex-head screws securing the two hinges to the top panel. See Figures 2 and 3.

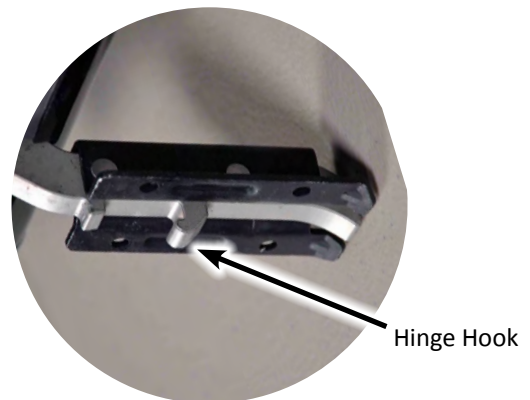


Figure 4



Removing the User Interface

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.

Removing the User Interface

IMPORTANT: The User Interface and Upper Lid is a complete assembly and service replacement part. Do not attempt to separate the User Interface from the upper lid or damage to the UI will result.

IMPORTANT: Electrostatic Discharge (ESD) Sensitive Device. Failure to follow the ESD precautions outlined at the beginning of Section 3 "Testing" may destroy, damage, or weaken the user interface.

1. Unplug washer or disconnect power.
2. Turn off water supply to washer.
3. Perform the procedures on page 4-4, "Removing the Access Panel" prior to performing the following steps.
4. Perform the procedures on page 4-7, "Removing the Lid Assembly" prior to performing the following steps.
5. Place a towel on a smooth flat work surface. Place the lid assembly top-down on the towel.
6. Using a 1/4" nut driver, remove the five (5) 1/4" hex-head screws (locations circled in Figure 1) securing the lower frame to the lid assembly.

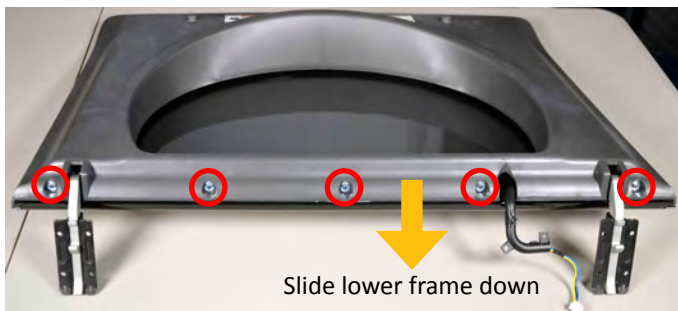


Figure 1

7. Slide the lower frame down toward hinges and remove from upper lid/UI assembly (See Figure 1).

8. Figure 2 shows the Lid and User Interface Assembly with lower frame removed. The service replacement does not include the UI Harness, and Hinges. These parts must be moved over to the new service replacement part.
9. Using a T-20 TORX driver, remove the screw securing the UI harness to the upper lid assembly (location circled in Figure 2).
10. Next, remove the UI harness from the upper lid/UI assembly and set aside (see Figure 2).



Figure 2

11. Using a 5/16" nut driver, remove the eight (8) 5/16" hex-head screws securing the two hinges to the upper lid assembly and relocate to the new assembly. See Figure 3.



Figure 3

12. Reinstall the UI harness on the new Upper Lid/UI assembly and secure with T-20 screw removed in step 9.

NOTE: The speaker can be replaced as a separate service part. To remove, disconnect harness from UI and depress clip securing speaker to assembly (see Figure 4).



Figure 4



Removing the Water Valve 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.

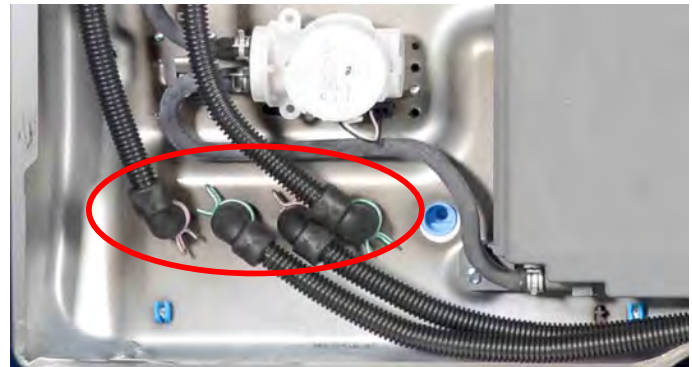


Figure 1

- Lower the top panel and disconnect the Water Inlet Valve connector "J2" from the Main Control (see Figure 2).

Removing the Water Valve Assembly

NOTE: The water inlet valve is replaced as an assembly, which includes all six valves, and valve assembly harness.

- Unplug washer or disconnect power.
- Turn off water supply to washer.
- Disconnect hot and cold inlet water hoses.
- Perform the procedures on page 4-4, "Removing the Access Panel" prior to performing the following steps.
- Perform the procedures on page 4-5, "Lifting the Top Panel" prior to performing the following steps.
NOTE: If equipped, remove the bulk dispense drawer.
- From underneath the top panel, remove the four (4) hoses from the bottom of the dispenser (shown circled in Figure 1).

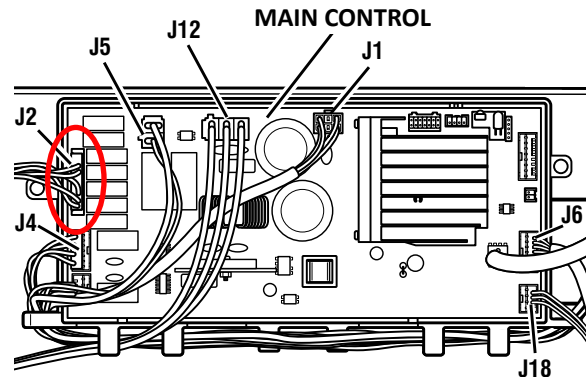


Figure 2

- Using a 1/4" nut driver, remove the three (3) hex-head screws securing the water valve assembly to the top panel of the washer (locations circled in Figure 3 below). Remove water valve assembly.
- Reverse procedure to reinstall the Water Valve Assembly.

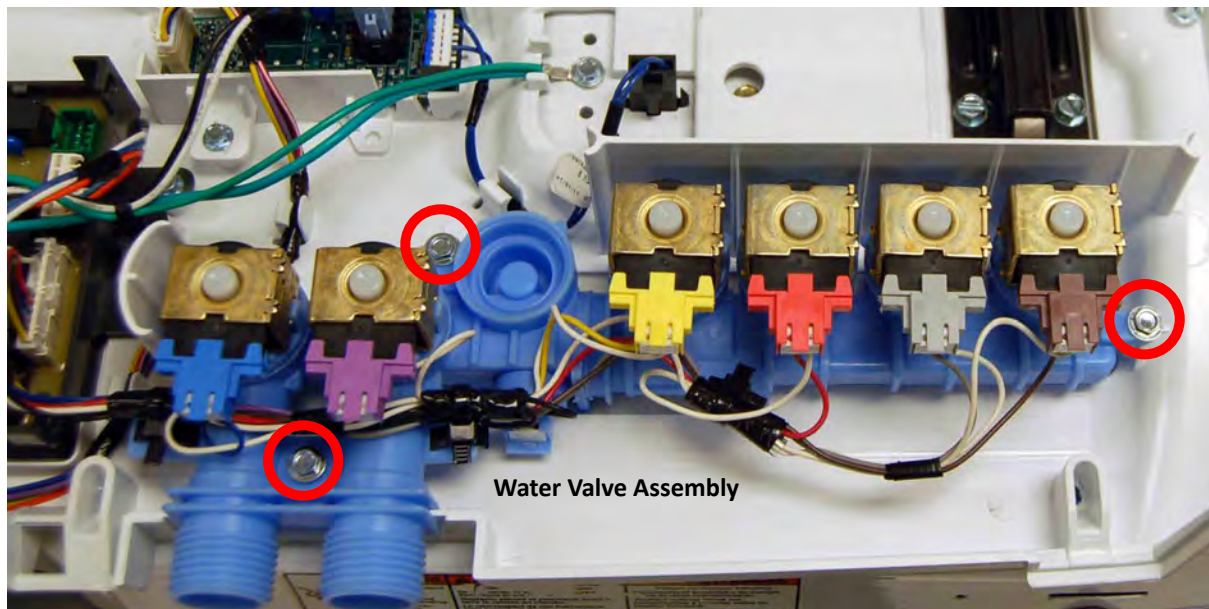


Figure 3



Removing the Bulk Dispense Pump

⚠ 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.

7. Loosen the hose clamps and pull the inlet and outlet drain hoses off the pump. Note that there may be liquid laundry detergent in the hoses.

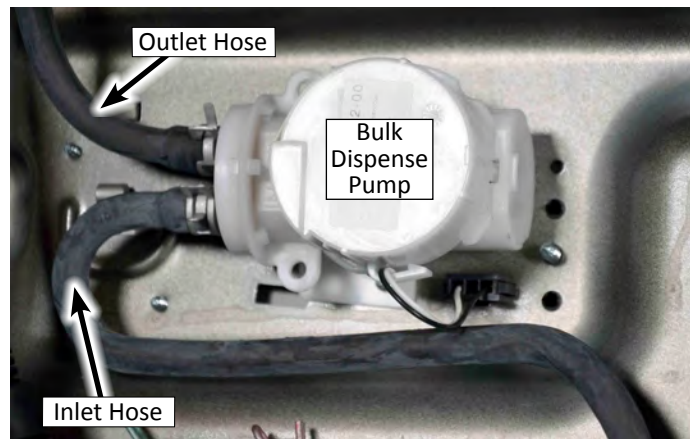


Figure 2

Removing the Bulk Dispense Pump

1. Unplug washer or disconnect power.
2. Turn off water supply to washer.
3. Disconnect hot and cold inlet water hoses.
4. Perform the procedures on page 4-4, "Removing the Access Panel" prior to performing the following steps.
5. Perform the procedures on page 4-5, "Lifting the Top Panel" prior to performing the following steps. **NOTE:** If equipped, remove the bulk dispense drawer.
6. From underneath the top panel, locate the bulk dispense pump. See Figure 1.



Figure 1

8. Lower the top panel and disconnect the Bulk Dispense Pump connector as shown in Figure 3. Depress the tabs on each side of the 'empty' connector to release from panel.
9. Using a 1/4" nut driver, remove one (1) 1/4" hex-head screw shown in Figure 3.

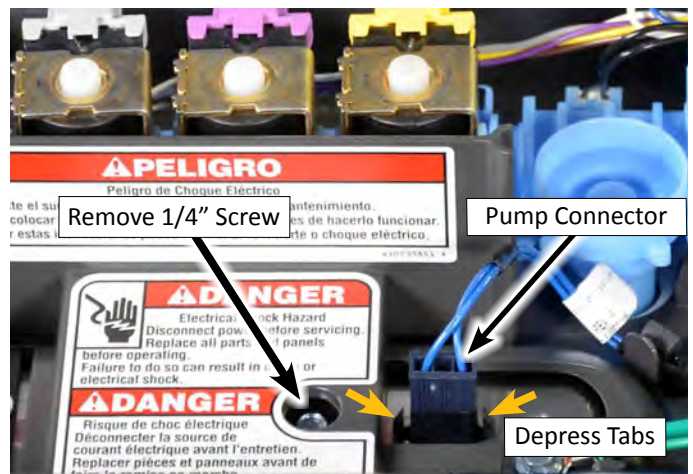


Figure 3

10. Lift the top panel and remove the Bulk Dispense Pump. Reverse procedure to reinstall the pump.



Removing the Tub Ring, Impeller, and Basket

⚠ 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.

Lifting the Top Panel

1. Unplug washer or disconnect power.
2. Turn off water supply to washer.
3. Disconnect hot and cold inlet water hoses.
4. Perform the procedures on page 4-5, "Lifting the Top Panel" prior to performing the following steps. **NOTE:** If equipped, remove the bulk dispense drawer.

Removing the Tub Ring

1. Disconnect recirculation hose from tub ring.
Note: location may vary depending on model.
2. Locate the tub ring clips illustrated in Figure 1. Unclip each clip with a "stubby" flat blade screwdriver. Remove tub ring from washer.

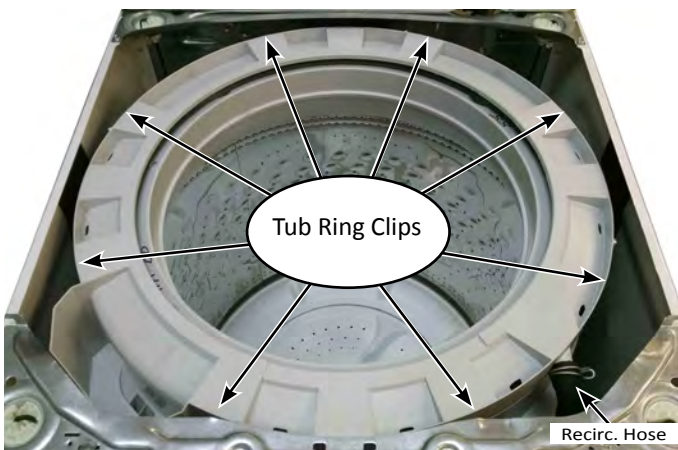


Figure 1

Removing the Impeller

1. Insert the blade from a small screwdriver into the slot in the impeller cap, then pry the cap up and remove it (see Figure 2).

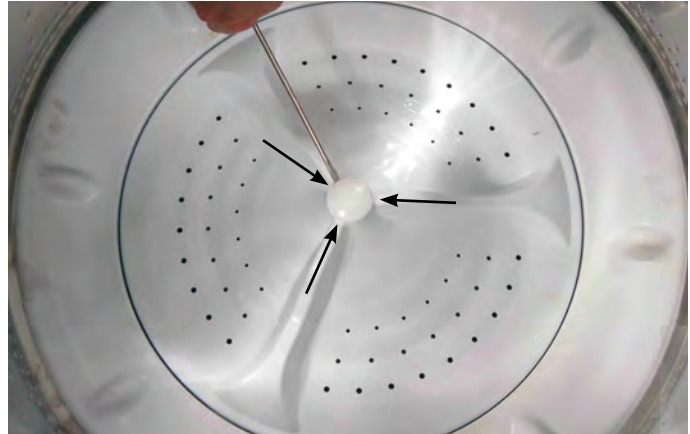


Figure 2

2. Remove the 7/16" hex-head bolt from the impeller, then lift and remove the impeller from the basket (see Figure 3).

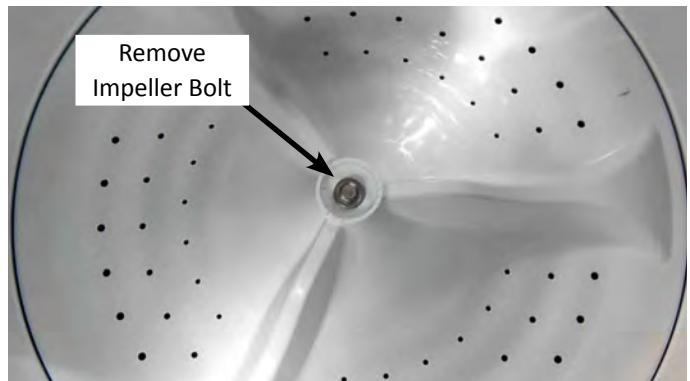


Figure 3

REASSEMBLY NOTE: Any time the impeller bolt is removed, Loctite® adhesive (Threadlocker Blue 242® or similar adhesive) must be reapplied, otherwise the bolt will eventually work itself loose resulting in a second call.



Removing the Tub Ring, Impeller, and Basket (continued)

Removing the Basket

1. Using a Spanner Wrench and hammer, tap wrench with hammer until nut becomes loose (see Figure 4). Remove Spanner Nut.



Figure 4

REASSEMBLY NOTE: When re-installing the basket, screw on spanner nut until it is finger tight. Then, using a mallet or hammer, tighten up to an additional $\frac{3}{4}$ turn (see Figure 6). Do NOT apply Loctite® to spanner nut. Applying Loctite® to the spanner nut will make it virtually impossible to remove again.

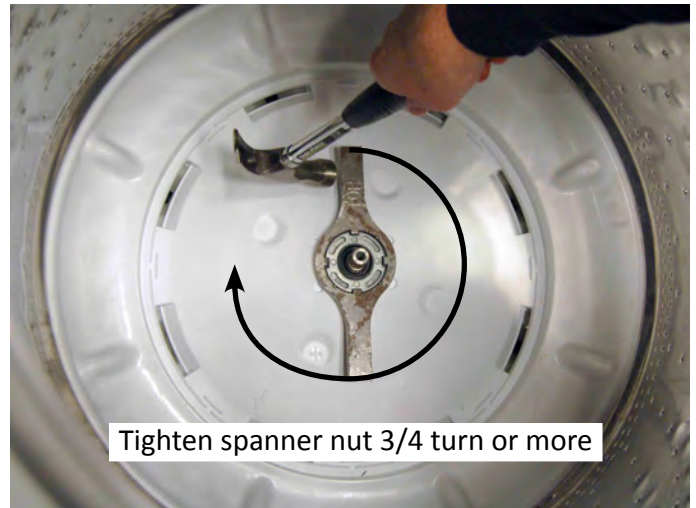


Figure 6

2. Lift the basket out of the washer.



Figure 5



Removing the Motor and Drive 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.

Preparation

1. Unplug washer or disconnect power.
2. Turn off water supply to washer.
3. Disconnect hot and cold inlet water hoses and remove the drain hose from the standpipe or laundry tub.
4. If equipped, remove the bulk dispense drawer.
5. Tape the washer lid closed.
6. Carefully lay the washer on its back panel. Place padding on the floor to protect the surfaces.
7. Remove sound padding and set aside.

Removing the Rotor, Clutch Coil, and Stator

1. Unplug the clutch coil and stator connectors. Remove all connectors from the bracket (see Figure 1). Remove connector bracket if replacing the drive assembly.

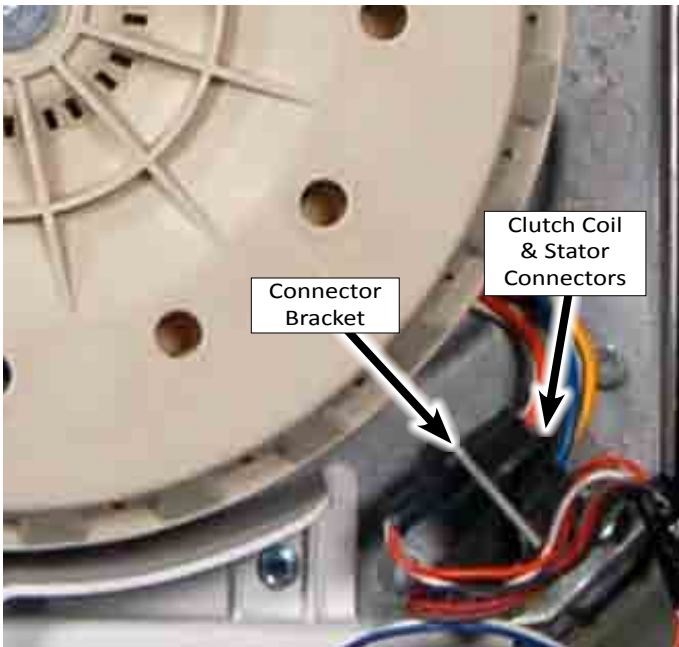


Figure 1

2. **Remove Rotor** - Use a T-30 TORX driver to remove the center rotor bolt (see Figure 2). Rock the rotor back and forth until the rotor has been pulled away from the stator.

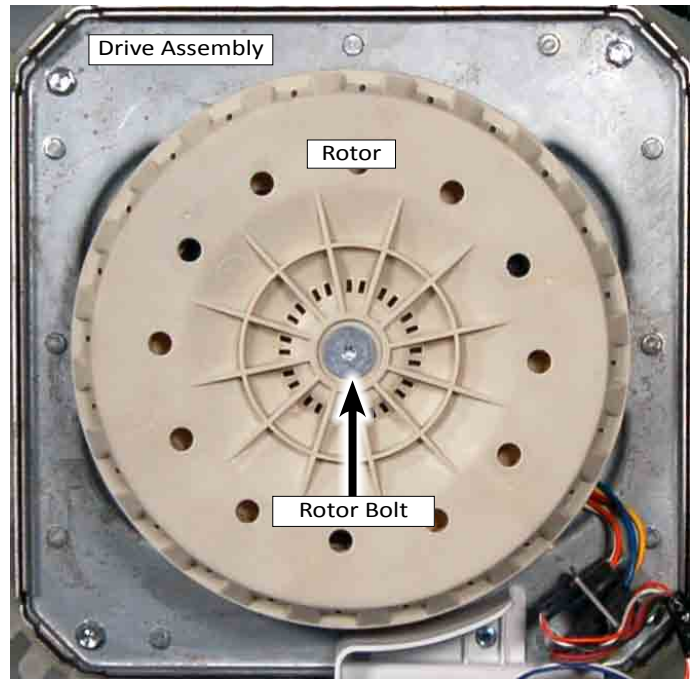


Figure 2

3. **Remove Clutch Coil and Stator** - Completely remove the three 7mm stator bolts (red) and then loosen the three 7mm clutch coil bolts (blue) until they disengage the drive assembly (see Figure 3). Remove both the clutch coil and stator from the drive assembly. **NOTE:** Leaving the clutch coil bolts in place maintains the orientation of the coil to the stator for ease of reinstallation.

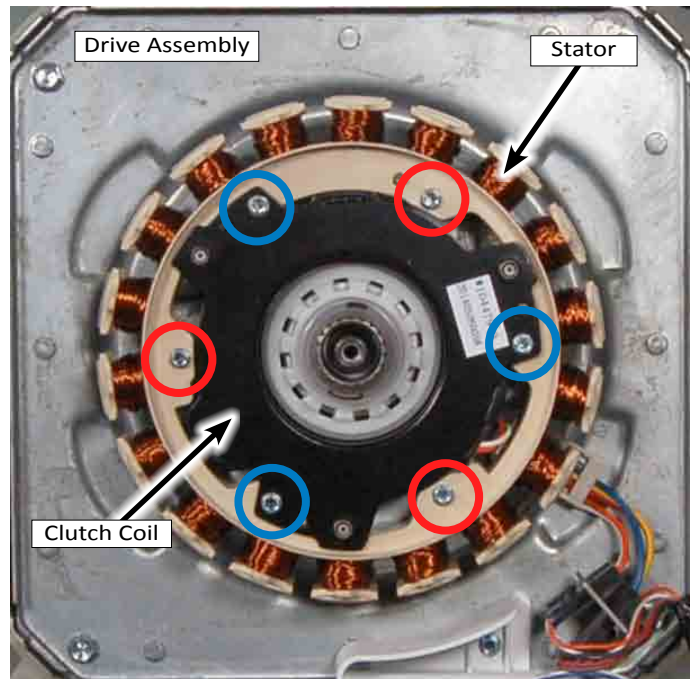


Figure 3

Removing the Motor and Drive Assembly (continued)

Removing the Clutch (Slider) Assembly

1. **Remove Slider** - Figure 1 shows the three parts of the clutch assembly; the spiral retaining ring, the clutch spring, and the clutch (slider). The first step in removing the clutch assembly is to remove the spiral retaining ring. Locate the overlap of the spiral ring and use a small flat blade screwdriver to pry ring off of shaft.
2. Next, remove the clutch spring, and then the clutch (slider).

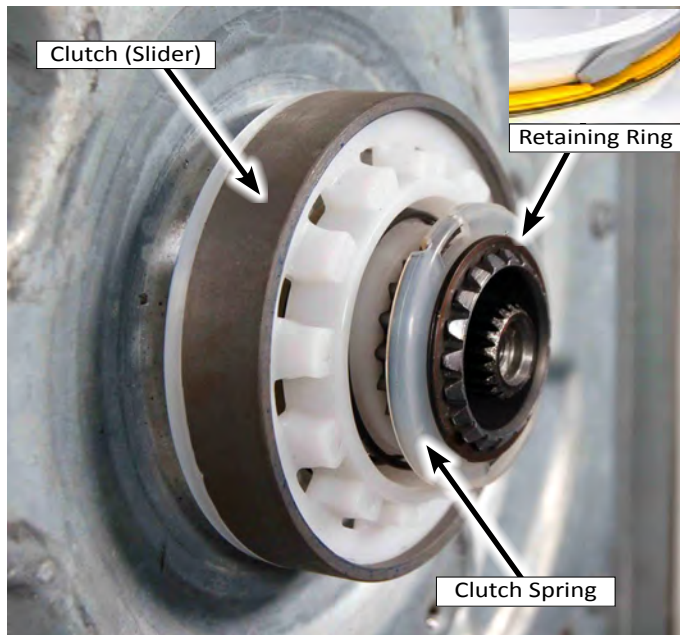


Figure 1

Removing the Drive Assembly

1. Use a 1/4" socket to remove the hex-head screw securing the ground wire to the drive assembly (see Figure 2).
2. Use a 10mm socket to remove the four (4) screws securing the drive assembly to the tub. (The bottom right screw also secures the connector clip to the drive assembly.) The drive assembly can now be pulled away from the tub.

NOTE: If the drive assembly cannot be easily be pulled from the tub, it may be necessary to tap on the drive assembly from inside the tub to loosen the drive from the tub.

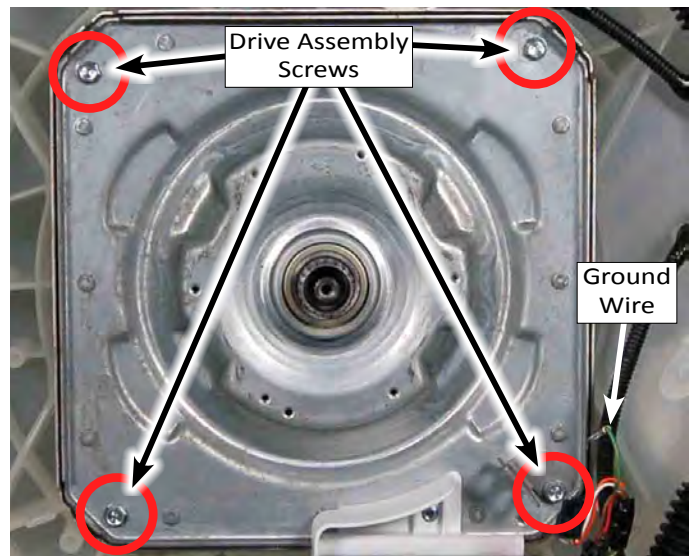
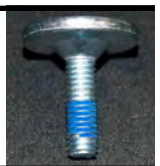


Figure 2

IMPORTANT REASSEMBLY NOTES

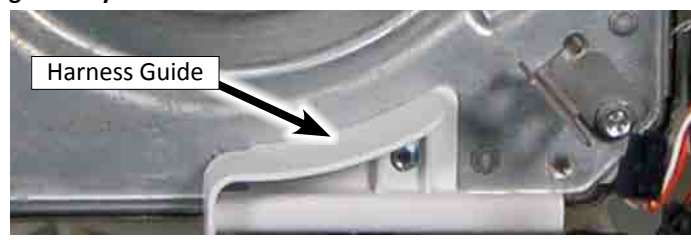
REASSEMBLY NOTE: When you reinstall the rotor over the stator assembly, do not grip the rotor housing around the rear edge with your fingers. The magnets around the rotor housing are very strong, and they will pull the rotor into the stator coil magnets when the rotor magnets come within their magnetic field. Keep your fingers along the outside of the rotor housing and away from the rear edge when you are installing it on the stator assembly.

REASSEMBLY NOTE: Any time the rotor bolt is removed, Loctite® adhesive (Threadlocker Blue 242® or similar adhesive) must be reapplied, otherwise the bolt will eventually work itself loose resulting in a second call.



REASSEMBLY NOTE: The four (4) drive assembly screws are threaded into the bottom of the plastic tub (see Figure 2 above). Using a power driver to tighten the screws may strip the holes. Tighten only by hand until very snug.

REASSEMBLY NOTE: The harness guide routes the harness away from moving drive components (rotor). Be sure to reinstall the guide anytime it is removed.





Removing the Pumps

⚠ 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.

Preparation

1. Unplug washer or disconnect power.
2. Turn off water supply to washer.
3. Disconnect hot and cold inlet water hoses and remove the drain hose from the standpipe or laundry tub.
4. If equipped, remove the bulk dispense drawer.
5. Tape the washer lid closed.
6. Carefully lay the washer on its back panel. Place padding on the floor to protect the surfaces.
7. Remove sound padding and set aside.

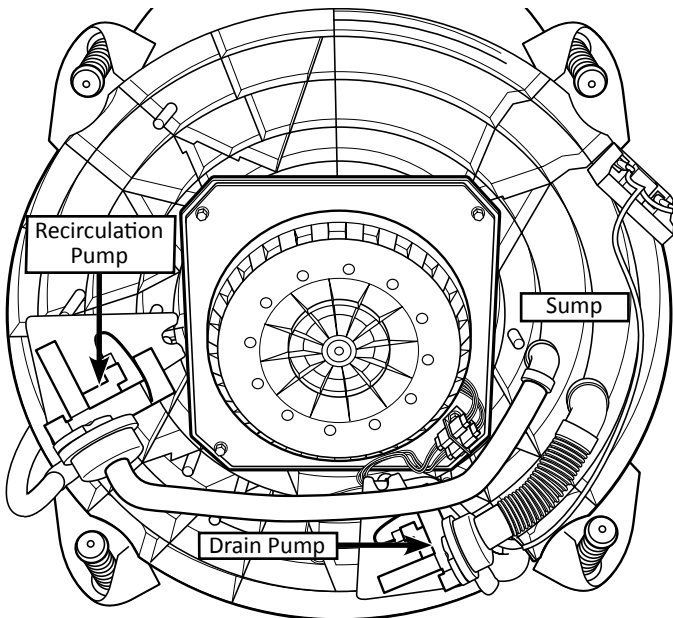


Figure 1 - Pump Locations

Removing the Drain Pump (Figure 2)

1. Disconnect pump connector from drain pump. Unclip harnesses as shown in Figure 2.
2. Loosen the two (2) hose clamps and pull the inlet and outlet drain hoses off the pump. Note that there is a tab on the outlet that fits into a slot in the hose.
3. Remove the three (3) 8mm hex-head screws (circled) and remove drain pump from tub.

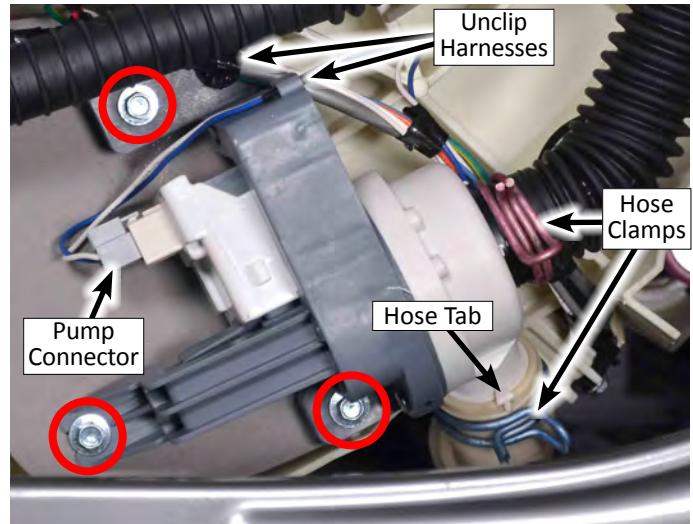


Figure 2 - Drain Pump

Removing the Recirculation Pump (Figure 3)

1. Disconnect pump connector from recirculation pump. Unclip harness as shown in Figure 3.
2. Loosen the two (2) hose clamps and pull the inlet and outlet drain hoses off the pump. Note that there is a tab on the outlet that fits into a slot in the hose.
3. Remove the three (3) 8mm hex-head screws (circled) and remove recirculation pump from tub.

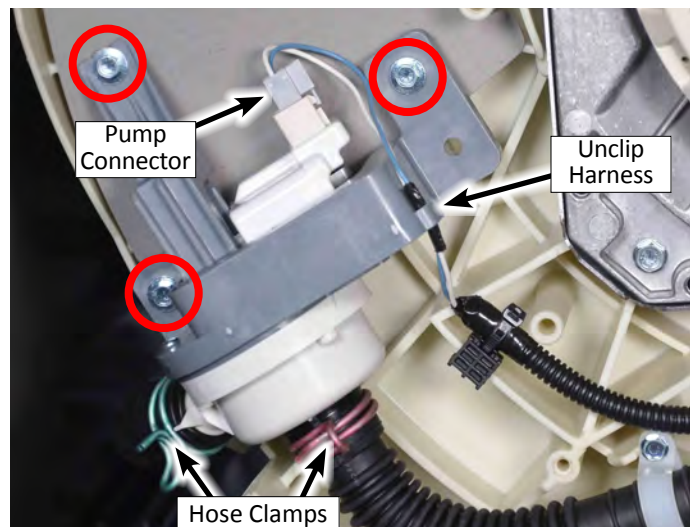


Figure 3 - Recirculation Pump



Removing the Heater

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.

Preparation

1. Unplug washer or disconnect power.
2. Turn off water supply to washer.
3. Disconnect hot and cold inlet water hoses and remove the drain hose from the standpipe or laundry tub.
4. If equipped, remove the bulk dispense drawer.
5. Tape the washer lid closed.
6. Carefully lay the washer on its back panel. Place padding on the floor to protect the surfaces.
7. Remove sound padding and set aside.

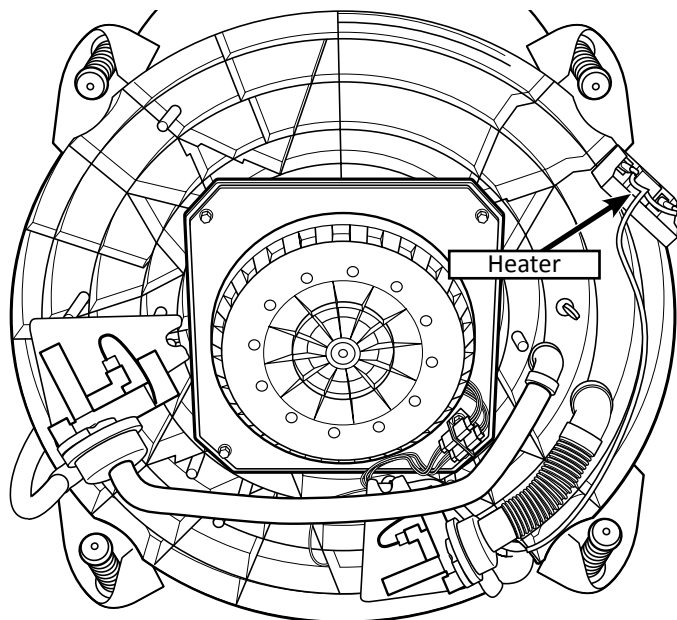


Figure 1 - Heater Location

Removing the Heater

1. Disconnect harness (2 terminals) from the Heater Assembly (see Figure 2).
2. Remove the 8mm hex-head screw securing the heater cover to the tub. Remove heater cover from washer (see Figure 2).

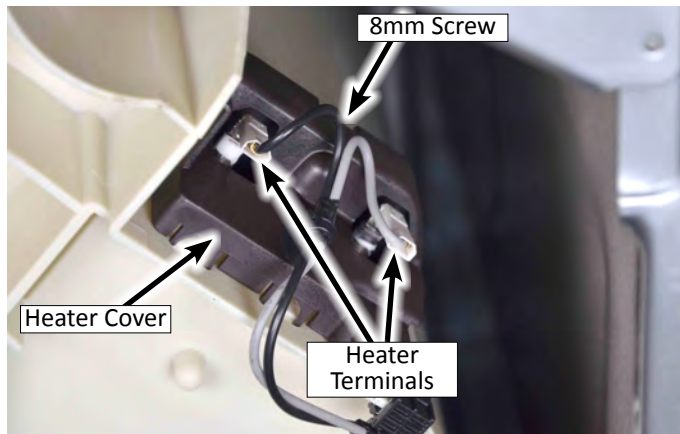


Figure 2

3. Use a 10mm socket to loosen the nut securing heater element to tub. When the heater gasket has decompressed sufficiently, remove the element from tub assembly (see Figure 3).

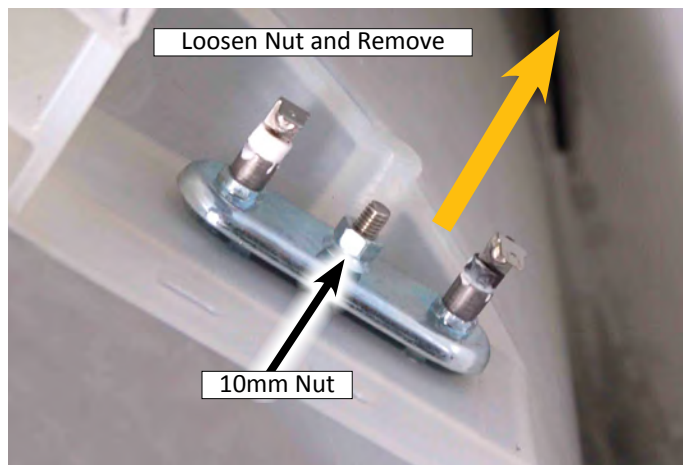


Figure 3

Heater Element

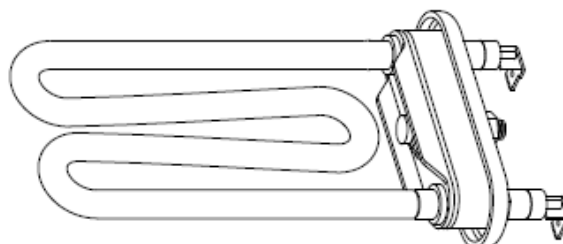


Figure 4



Removing the Lid Lock

⚠ 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.

7. Perform the procedures on page 4-5, "Lifting the Top Panel" prior to performing the following steps. **NOTE:** If equipped, remove the bulk dispense drawer.
8. Remove the Lid Lock harness from the clips on right side and front of top panel.
9. Remove the two (2) 1/4" hex-head screws (circled) securing the lid lock assembly to the lid (see Figure 2). Lift the lid lock assembly up from lip of opening.

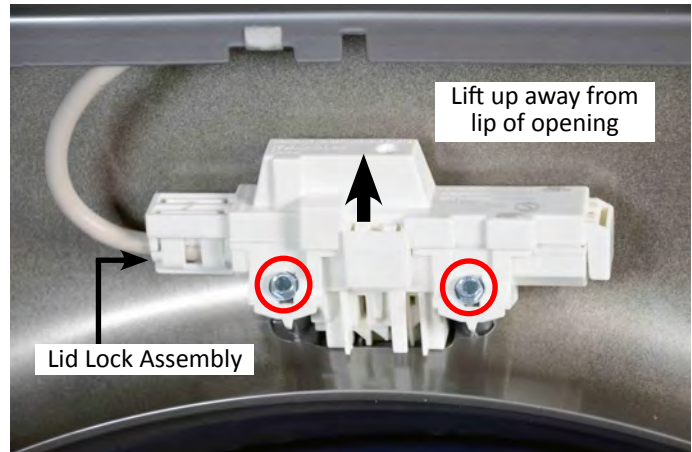


Figure 2

Removing the Lid Lock

1. Unplug washer or disconnect power.
2. Turn off water supply to washer.
3. Disconnect hot and cold inlet water hoses.
4. Perform the procedures on pages 4-4, "Removing the Access Panel" prior to performing the following steps.
5. Disconnect the Lid Lock connector "J6" from the Main Control (see Figure 1).
6. Feed the Lid Lock harness through opening in back of washer top panel (see Figure 1).

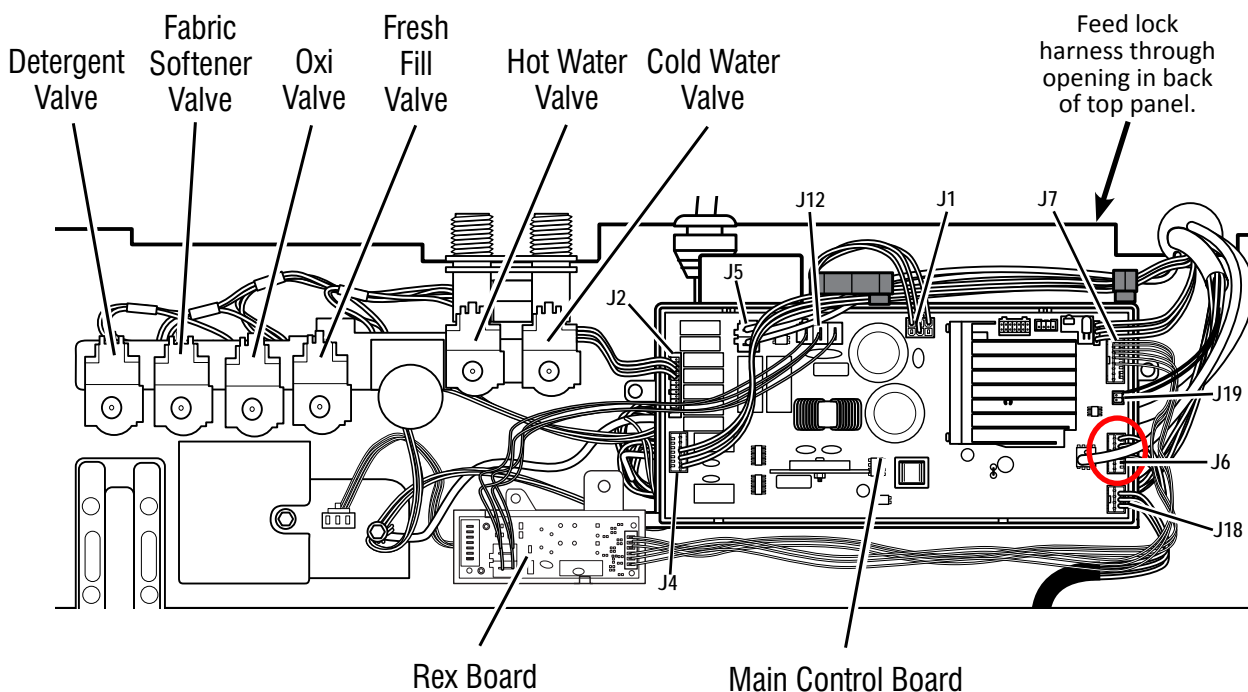


Figure 1



Removing the Basket Light

⚠ 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.

Removing the Basket Light

1. Unplug washer or disconnect power.
2. Turn off water supply to washer.
3. Disconnect hot and cold inlet water hoses.
4. Perform the procedures on pages 4-4, "Removing the Access Panel" prior to performing the following steps.
5. Disconnect the Basket Light connector "J19" from the Main Control and feed the Basket Light harness through opening in back of washer top panel (see Figure 1).

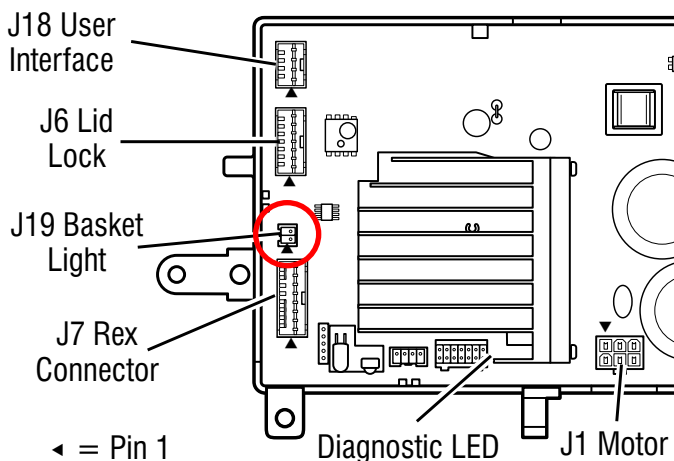


Figure 1

6. Perform the procedures on page 4-5, "Lifting the Top Panel" prior to performing the following steps. **NOTE:** If equipped, remove the bulk dispense drawer.
7. Locate the Basket Light under the top panel. The light is located next to the Bleach/Oxi Dispenser. Pull out the two harness retaining clips as shown in Figure 2.

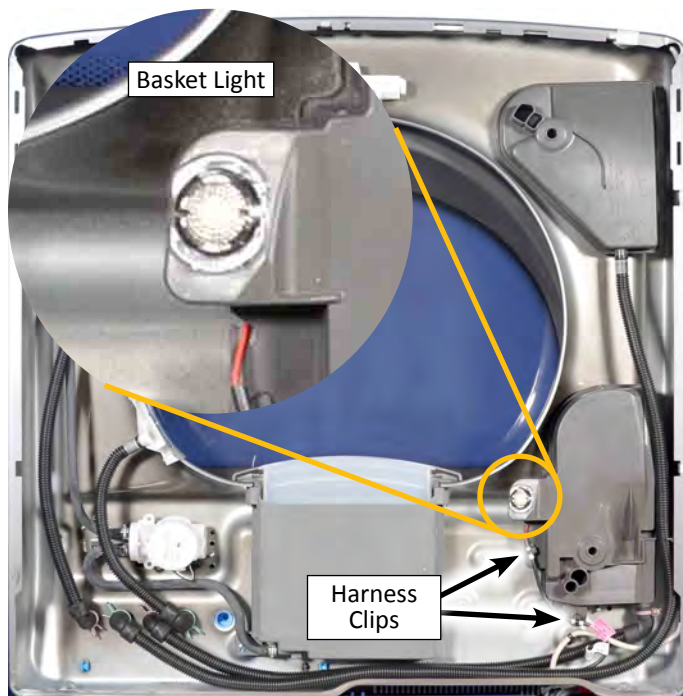


Figure 2

8. The Basket Light is secured in position using two tabs as shown in Figure 3.



Figure 3

9. Using a small flat-blade screwdriver, insert the tip into the slot located on one side of the Basket Light mount (shown in Figure 4) and depress the tabs on the light housing to remove the light assembly.



Figure 4

Notes

PRODUCT SPECIFICATIONS & WARRANTY INFORMATION SOURCES

IN THE UNITED STATES:

**FOR PRODUCT SPECIFICATIONS AND WARRANTY INFORMATION CALL:
FOR WHIRLPOOL PRODUCTS: 1-800-253-1301**

**FOR TECHNICAL ASSISTANCE WHILE AT THE CUSTOMER'S HOME CALL:
THE TECHNICAL ASSISTANCE LINE: 1-800-832-7174**

**HAVE YOUR STORE NUMBER READY TO IDENTIFY YOU AS AN
AUTHORIZED IN-HOME SERVICE PROFESSIONAL**

**FOR LITERATURE ORDERS (CUSTOMER EXPERIENCE CENTER):
PHONE: 1-800-851-4605**

**FOR TECHNICAL INFORMATION AND SERVICE POINTERS:
www.servicematters.com**

IN CANADA:

**FOR PRODUCT SPECIFICATIONS AND WARRANTY INFORMATION CALL
PHONE: 1-800-461-5681**

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