

LG TOP LOAD WASHER

Top load washer (Rocky) with matching dryer



WT5101

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SAFETY PRECAUTION

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IMPORTANT SAFETY NOTICE!

This service information is intended for individuals possessing adequate backgrounds of electrical, electronic, and mechanical experience. Any attempt to repair this appliance may result in personal injury or property damage. The manufacturer or seller can not be responsible for the interpretation of this information, nor can it assume any liability in connection with its use.

⚠ WARNING: To reduce the risk of fire, electric shock, or personal injury when using this appliance, follow basic precautions, including the following:

- **Wear gloves when working.**
Failure to do this can result in serious injury.
- **The appliance is heavy. Two or more people is required when moving the appliance.**
There is a risk of serious back injury or other injuries.
- **Certain internal parts are intentionally not grounded and may present a risk of electric shock only during servicing. Service personnel - Do not contact the following parts while the appliance is energized.**
: Pump bracket, rotor and heater
- **Disconnect this appliance from the power supply before servicing. Turning the controls to the off position does not disconnect this appliance from the power supply.**
Failure to do this can result in shock.
- **Reconnect all grounded devices after servicing.**
Failure to do this can result in shock.

To reduce the risk of fire, electric shock, or personal injury when using this appliance, follow basic precautions, including the following.

LG CONTACT PAGE

Customer Service (and Part Sales)	(800) 243-0000	
Technical Support (and Part Sales)	(800) 847-7597	
USA Website (GSFS)	http://gsfs-america.lge.com	
Customer Service Website	us.lgservice.com	
Knowledgebase Website	lgtechassist.com	← New: Software Downloads Technical Assistance
LG Web Training	lge.webex.com	← Presentations with Audio/Video and Screen Marks
LG CS Academy	lgcsacademy.com	← http://136.166.4.200

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LG TOP LOAD WASHER (ROCKY)

MOST
ENERGY EFFICIENT
TOP LOADER

WASH
better

WaveForce™
Detergent penetration
deep into clothes

Is it a washer? Or something better?

COLDWASH™ MEANS COLD-WATER SAVINGS
WITH WARM-WATER PERFORMANCE.

Inverse toroidal
Agitating wash

Separating
laundry

Water circulation
and penetration

Better washing more Gentle on your cloth with Waveforce™

The graphic illustrates the LG Top Load Washer (Rocky) with its key features and wash cycle stages. On the left, three overlapping circles highlight the 'MOST ENERGY EFFICIENT TOP LOADER' status, 'WASH better' performance, and the 'WaveForce™' technology for deep detergent penetration. The central text asks 'Is it a washer? Or something better?' and introduces 'COLDWASH™' technology, which provides cold-water savings while maintaining warm-water performance. Below this, three sequential diagrams show the wash cycle stages: 'Inverse toroidal Agitating wash' (a spiral water path), 'Separating laundry' (upward and downward arrows), and 'Water circulation and penetration' (circular arrows). A final circular inset shows a pink cloth being washed. At the bottom, it states 'Better washing more Gentle on your cloth with Waveforce™'.

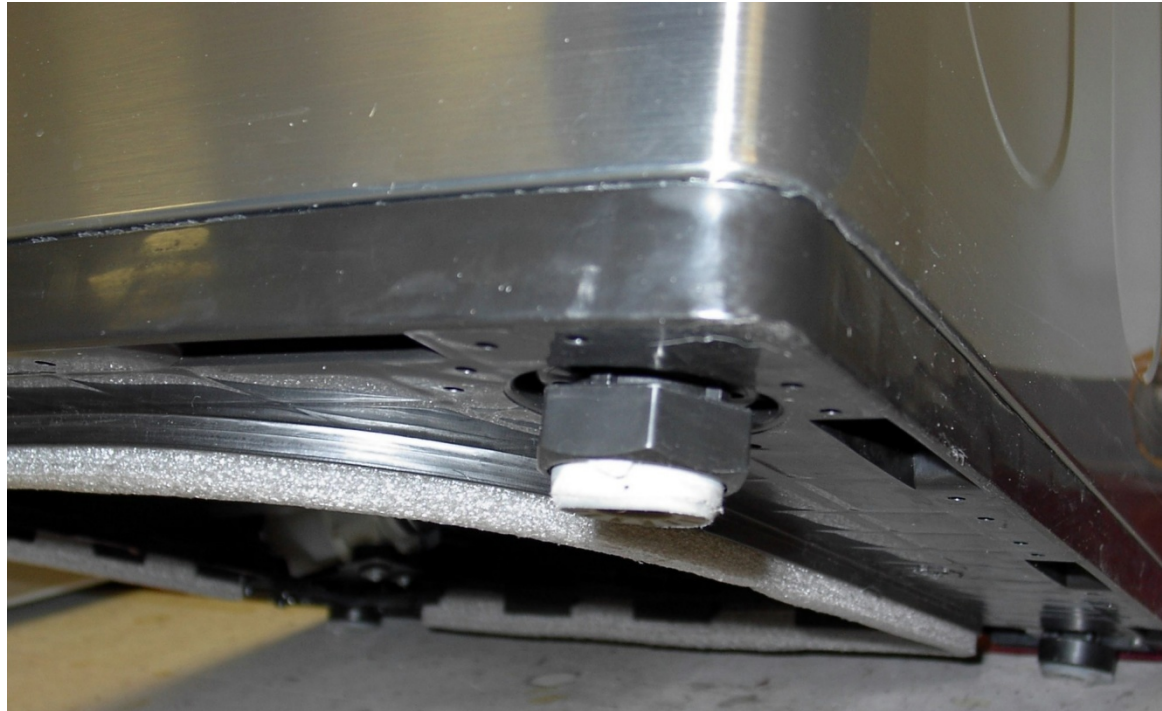
SPECIFICATIONS

Model	WT5101HW
Electrical	120VAC@60Hz.
Capacity	Can we not provide this information to the customer?
Inner Tub	Stainless
Inlet Water Pressure	14.5 ~ 116 PSI (100 ~ 800 kPa)
Rating of Fuse	125V, 12A for 100~127V/60Hz
Spin Speed	1050 $\pm$ 50
Weight	145.5 lbs (66kg)
Cycles	Normal/Cotton, Bulky/Bedding, Heavy Duty, Casual, Sanitary, Detergent Saver, Tub Clean, Bright White, Delicates, Pure Color, Sports Wear, Speed Wash, Wool, Towels
Time Delay	1-20Hr
Lid Interlock Switch	Magnet Sensor
Child Lock	Yes
Softener Dispenser	Yes
Detergent Dispenser	Yes
Bleach Inlet	Yes
Auto Power Off	Yes
Smart Rinse™	Yes
Heater	Yes



INSTALLATION INSTRUCTIONS

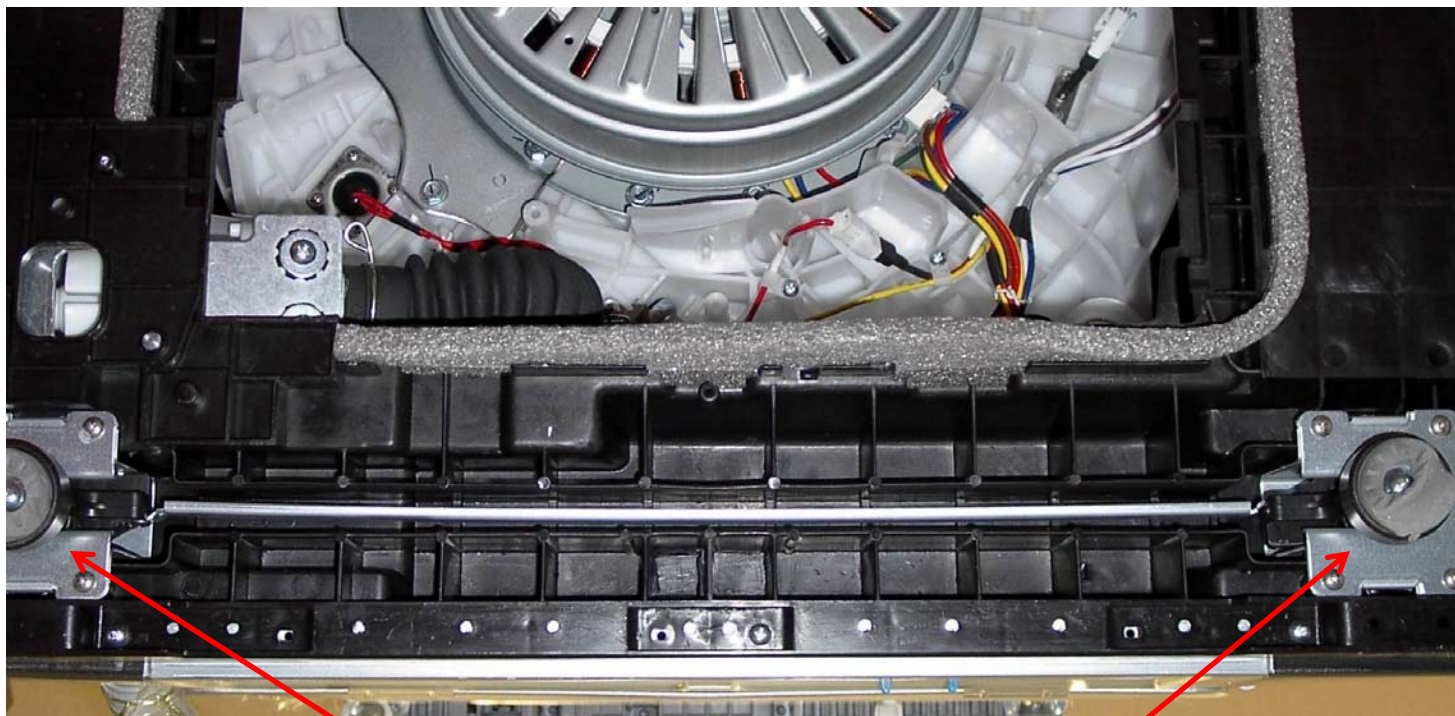
1. INSTALL THE WASHER ON A FIRM, FLAT SURFACE.
2. Using the two front leveling legs ,level the washer at the front from left to right.



To raise the leg, turn clockwise and counterclockwise to lower the level legs.

INSTALLATION INSTRUCTIONS

3. The top loader washer has self adjusting level legs. After the washer's front level legs have been adjusted from left to right, level the rear level legs by lifting the back of the washer approximately six inches off the ground and then lowering the washer down to the floor. The action of raising and lowering the washer will self adjust the rear level legs. Recheck the washer level from left to right and from side to side and re-level if necessary. The tub should be centered like a bubble on a level.



Self adjusting rear leveling legs.

INSTALLATION INSTRUCTIONS

4. Connect the water supply hoses to the washer and to the water tap.
Make sure the rubber washer gaskets are installed inside the hoses.
Verify that the hot water supply is connected to the hot water solenoid on the washer and the cold water supply is connected to the cold water solenoid.

Turn on the water and check for leaks.



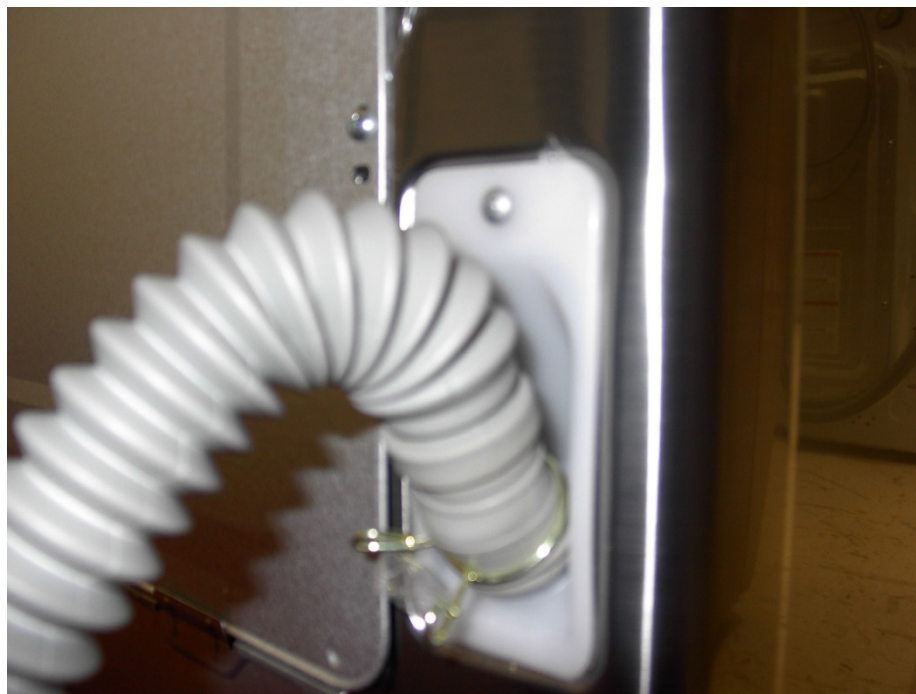
Water supply



Water hoses at washer

INSTALLATION INSTRUCTIONS

5. Connect the drain hose to the washer by installing clamp on the drain hose, pushing the hose on the body of the washer, and securing the drain hose to the washer with the clamp on the drain hose. Make sure the drain hose is positioned in the drain or wash tub approximately 35 to 47 inches from the floor. Check to make sure that the drain hose will not disengage from the drain when the water drains from the washer. **CHECK FOR LEAKS.**



Connection at the back of washer.

INSTALLATION INSTRUCTIONS

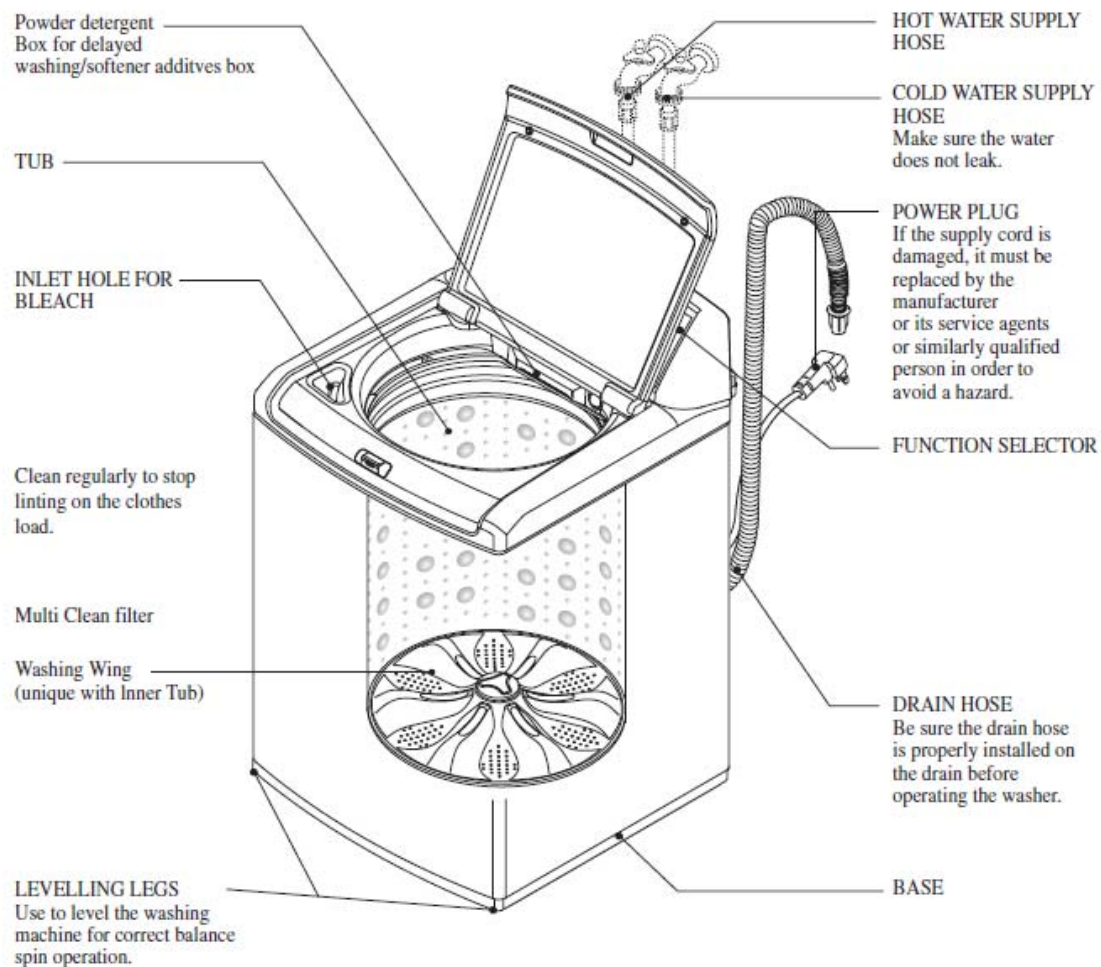
6. Plug in washer and check operation.



- The washer should never be installed or stored in a location subject to freezing temperatures. Damage to the water lines and internal mechanisms of the washer can result. If the washer was exposed to freezing temperatures prior to installation, allow it to stand at room temperature for several hours before use.
- Plug the power cord of washer into a properly grounded outlet.
- Maximum permissible water input temperature: 70° C (160° F.)
- Water supply pressure must be between 14.5 psi and 116 psi (100~800 kPa). If the water supply pressure is more than 116 PSI, a pressure reducing valve must be installed.)
- If water temperature and pressure are greater than above, it may cause damage to the machine. If you have uncontrolled water temperature and pressure you should fit a temperature and pressure relief valve to ensure that water temperature and water pressure remain within the safe limits. Consult a plumber or electrician if you are unable to adjust water temperature and or pressure.

ALWAYS ADHERE TO LOCAL AND NATIONAL ELECTRICAL AND PLUMBING CODES.

IDENTIFICATION OF PARTS



FUNCTION OF EACH BUTTON

POWER

- Power ON
- Push again, power goes off
- Powers off automatically after the wash is finished.
- After turning the power on, the unit will automatically turn off if nothing is selected.

LOAD SENSING

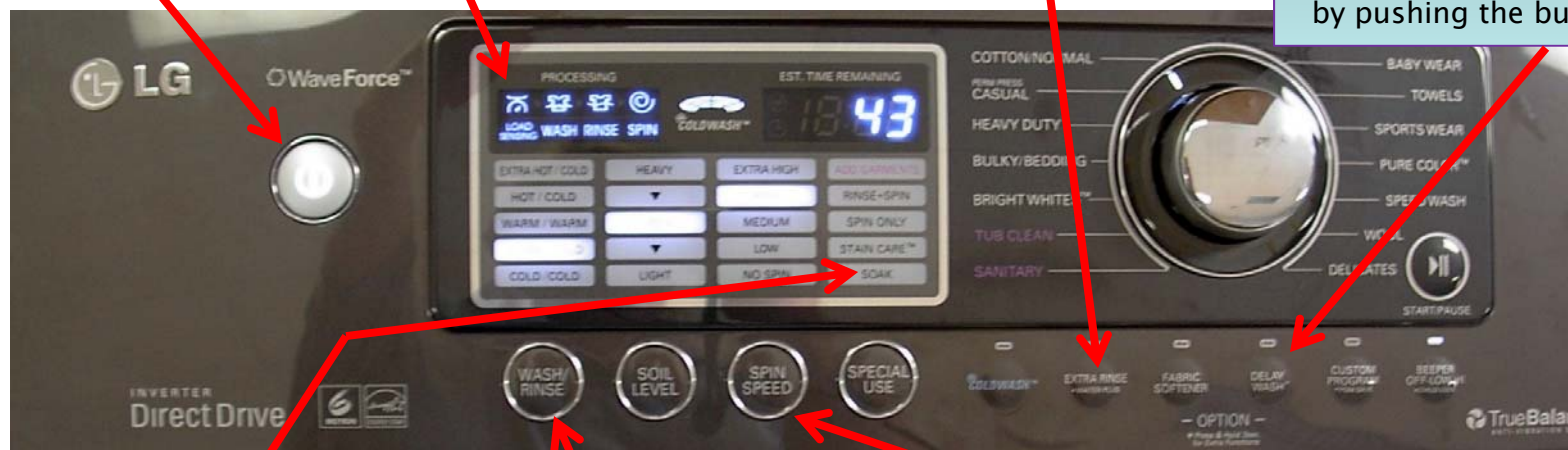
- It operates in all programs.
- During detection by the sensor, the **LOAD SENSING LED flashes**.
- During this step, the washing machine select optimized washing algorithm.

EXTRA RINSE BUTTON

- This includes an extra rinse cycle for a better rinsing action

DELAY WASH BUTTON

- Delayed finishing time.
- The time increases when the button is pushed.
- The following settings are indicated as the button is pushed 1>2 >3 >4 ... 12> 14 > 16 > 18 >... 24 HOURS.
- Repeats start and pause by pushing the button



SOAK

- Gives additional soak time.

WASH /RINSE

- Select to Water (Wash/Rinse) temperature.
- Pressing the button allows the selection of COLD/COLD > WARM/ WARM > HOT/COLD > EXTRA HOT/COLD respectively: Default setting is Warm/Cold.

SPIN SPEED

- Spin speed can be selected from No Spin to Extra high. Default is Low.

FUNCTION OF EACH BUTTON

CYCLE BUTTON

- Used for selecting wash program.
- This button allows the different kinds of laundry and dirtiness.
- Program selections light up in sequence as follows: NORMAL/COTTONS › BULKY /BEDDING › CASUAL › SANITARY › TUB CLEAN › BRIGHT WHITE › DELICATES › BABY WEAR › PURE COLOR › SPORTS WEAR › SPEED WASH › WOOL › TOWELS ›. Select the desired program by rotating the button.

START/PAUSE BUTTON

- Use to start or pause the wash cycle.
- Changes can be made to the wash settings while the machine is paused.
- Repeats start and pause by pushing the button



SOIL LEVEL

- Allows a selection to be made for the strength of the wash action.
- Power option selections light up in sequence as follows Normal › Heavy › light › Normal as the button is pushed. This can be selected for any program.
- Adjustment can be made while washing.
- Default SOIL LEVEL is Normal.

COLD WASH™

Runs a cycle without hot water or the wash heater, For greater efficiency, we recommend washing a small load (less than 8 pounds) and a low spin speed.

FABRIC SOFTNER

- Causes the dispensing of fabric softener in the final rinse cycle.

FUNCTION OF EACH BUTTON

BEEPER BUTTON

- The beeper sounds at the end of the cycle. The clothing should be removed at that time to prevent the setting of wrinkles.
- Touch the BEEPER button to cycle through the volume settings between OFF and high.

CHILD LOCK FUNCTION

- Use to lock or unlock the control buttons to prevent settings from being changed by a child.
- To actuate or release the CHILD LOCK, press and hold the BEEPER button until the lock is turned ON or OFF.



SPECIAL USE

- The following settings are indicated as the button is pushed SOAK › SPIN ONLY › RINSE+ SPIN ›
- Select COTTON/NORMAL, HEAVY/DUTY or TOWELES as the button is pushed SOAK › STAIN CARE › SPIN ONLY RINSE+SPIN.

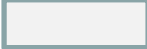
CUSTOM PROGRAM BUTTON

- This button allows you to store a customized wash cycle for future use.

WASHING PROGRAMS

Cycle	Fabric Type	Wash/Rinse	Spin Speed	Soil Level	Stain Care™	Cold Wash	Extra Rinse	Fabric Softener	Delay Wash
Sanitary (Select Models)	Heavily soiled Underwear, work clothes, diapers, etc.	Extra Hot/Cold	High	Heavy					
			Extra High No Spin Low Medium	Light Normal					
Tub Clean	Refer to page 24	Extra Hot/Cold	High						
Bright Whites™	White Fabrics	Extra Hot/Cold	Medium	Heavy					
			High Extra High No Spin Low	Light Normal					
Bulky Bedding	Large items such as Blankets and comforters.	Warm/Cold	Medium	Normal					
		Warm/Warm Hot/Cold Extra Hot/Cold Cold/Cold	High Extra High No Spin Low	Light Normal					
Heavy Duty	Heavily soiled cotton fabrics.	Hot/Cold	High	Heavy					
		Warm/Cold Warm/Warm	Extra High No Spin Low Medium	Light Normal					
Perm press Casual	Dress shirts/pants, wrinkle free clothing, poly cotton blend clothing, tablecloths.	Warm/Cold	Low	Normal					
		Warm/Warm Cold/Cold	Medium High No Spin	Heavy Light					
Cotton/Normal	Cotton, linen, towels, shirts, shorts, jeans, mixed loads.	Warm/Cold	High	Normal					
		Hot/Cold Extra Hot/Cold Cold/Cold	Extra High No Spin Medium	Heavy Light					
Baby Wear	Small and lightly soiled loads, specially skin sensitive clothes.	Hot/Cold	High	Light					
		Warm/Warm	Extra High No Spin Low Medium	Normal Heavy					
Towels	Towel, shirts, sheets, jeans, and mixed loads.	Warm/Cold	High	Normal					
		Hot/Cold Extra Hot/Cold Cold/Cold	Extra High No Spin Low Medium	Heavy Light					
Sports Wear	Active sports, exercise clothing.	Warm/Cold	Medium	Normal					
		Warm/Warm Cold/Cold	High No Spin Low	Heavy Light					
Pure Color™	Lightly soiled and colored clothing.	Cold/Cold	Medium	Normal					
			High Extra High No Spin Low	Heavy Light					
Speed Wash	Lightly soiled and small loads.	Warm/Warm	High	Light					
		Cold/Cold Warm/Cold	Extra High No Spin Low Medium	Normal Heavy					
Wool	Items labeled machine washable wool.	Warm/Cold	Low	Light					
		Cold/Cold Warm/Cold	Medium No Spin	Normal Heavy					
Delicate (Select Models)	Dress shirts/blouses, nylons, sheer or lacy garments.	Cold/Cold	Low	Light					
			Medium No Spin	Normal Heavy					

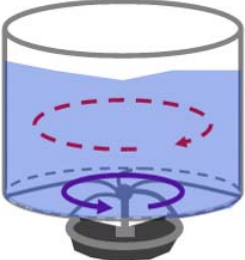
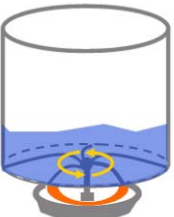
The cycle guide to the left shows the options and recommended fabric types for each cycle.

 = Default setting

NOTE: To protect your garments, not every wash/rinse temperature, spin speed, soil level, or option is available.

CONCEPT OF 6 MOTION™

Solution of TL Clothes damage : 6Motion™

Conventional	Swing	Agitating	Rotating
<i>Friction Washing</i>  <i>Only impeller rotation=>Clothes damage</i>	 <i>-Gentle washing& a balance of clothes evenly.</i>	 <i>- Washboard effect of TL normal washing.</i>	 <i>-Powerful Washing of impeller quick motion</i>
	Rubbing	Compressing	Waveforce™
	 <i>-Wash clothes by rubbing them together (with release clothes from tangling)</i>	 <i>-Centrifugal washing with uniform washing force.</i>	 <i>-Powerful washing with 6 way waterfalls.</i>



TOP LOAD OPERATION (wash cycle)

Just before filling the washer with water, the direct drive motor rotates the dry clothing, This motion is controlled by the Main PCB which measures the amount of time it takes for the motor to coast to a stop.

The larger clothes load will not be capable of generating a lot of momentum, so it will stop faster.

The direct drive motor will rotate back and forth up to four times.
This information will be used to determine the initial water fill level. This is known as **DRY LOAD SENSING**.

From the information supplied by the thermistor, the washer can adjust the wash water temperature by the hot and cold inlet valves to achieve the desired water temperature.

Just after the first fill, the direct drive motor rotates the locked basket and the pulsator.

The momentum of the rotation is measured again and is compared to the information obtained during the Dry Load Sense.

This information will determine if more water is needed

Depending on the wash cycle selected, the wash cycle will choose one or more of the “6 **MOTION™**” cycles.



TOP LOAD OPERATION (spin cycle)

During spin, the pulsator and basket are locked together.

Spin slow at first, the dirty water and lint are drained through the holes in the basket. When the water level is sensed to be low , the basket accelerates.

Spin speed are set to fabric type by the user at the start of the wash cycle. The spin speed can be as low as 350rpm or as high as 1100.

The washer is programmed to correct out of balance loads. This is accomplished by sensing the unbalanced load, stopping the spin and filling up to three times to correct the condition before lowering the spin speed.



TOP LOAD OPERATION (Power Spray Rinse & final spin)

The pulsator and spin basket are rotated slowly while fresh clean water is sprayed to the wash load.

Draining of the rinse water is completed and prepares the wash for the final rinse.

Using the information obtained during fill, the washer fills to optimal level for the final rinse.

Cold water is used and is dispensed through the fabric dispenser to dilute the fabric softener.

The cold water and the diluted fabric softener enters the basket until the desired water level is achieved.

The final spin completes the cycle.



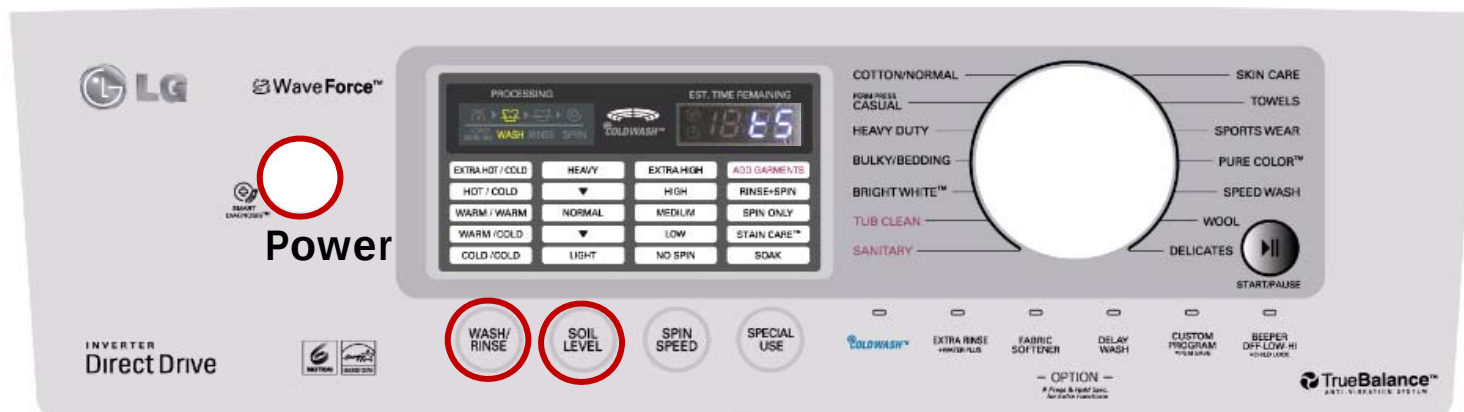
SPECIAL DRAIN FEATURE

This washer is equipped with a special feature that is designed to make your washer as safe as possible. If the washer is paused or shut off while there is still water in the tub, the water will drain after four minutes. This helps keep children safe by reducing the possibility of water remaining in the tub. If the washer is shut off for three minutes, while there is still water in the tub, an alarm will sound to notify you that the washer is about to drain the water from the tub. The washer can be restarted any time before the drain begins. If the washer is paused for four minutes, the display will shut off and all cycle settings will be lost. Three minutes after the control shuts off, the alarm will sound to notify you that the washer is about to drain the water from the tub. The washer can be turned on and another cycle may be started before the drain begins.

If no action is taken, the **dr** error code will display and the water will drain from the tub. Once the washer begins draining the water, the controls are disabled and the drain process cannot be interrupted. Once the water is completely drained, the washer will shut off.

NOTE: In the unlikely event that the washer experiences a problem that causes an error code to be displayed, the washer will still sound the alarm after three minutes and drain after four minutes. However, only the original error code will be displayed.

HOW TO DEMO *WAVE FORCE™* TECHNOLOGY



Operation Key

How to

Power + Wash/
Rinse Temp +
soil Level

Press Power + Wash/ Rinse Temp + Soil Level ; you will see **t1** on the display.

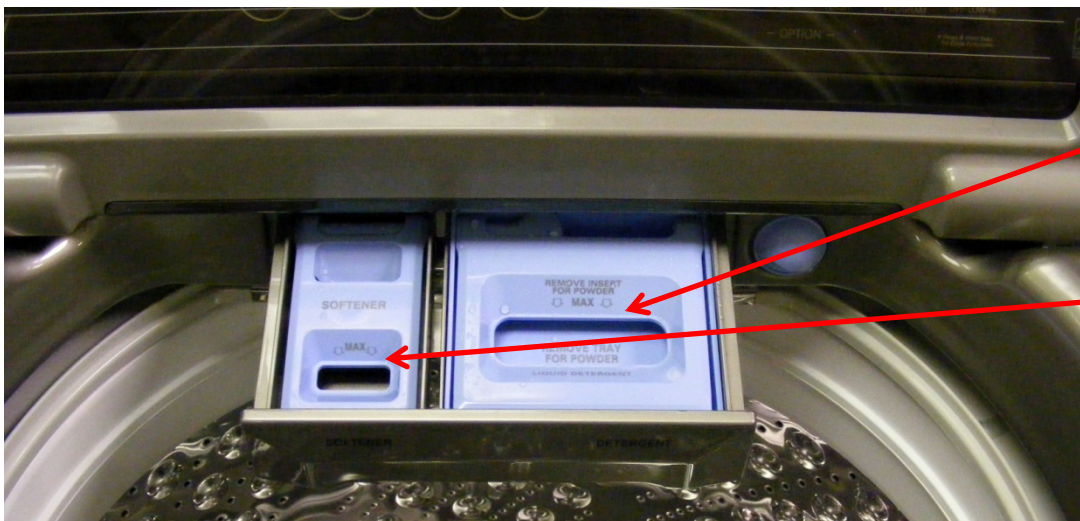
Press Start/pause until you see **t5** on the display.

- **t5 = weighing/distributing**

- **t7 = motion (if there is an LG towel inside, see demo movement)**

- **t8 = Shows RPM ramping to 1100 (add a 0). Tip: add a balloon with an LG towel to show “powerful yet gentle.”**

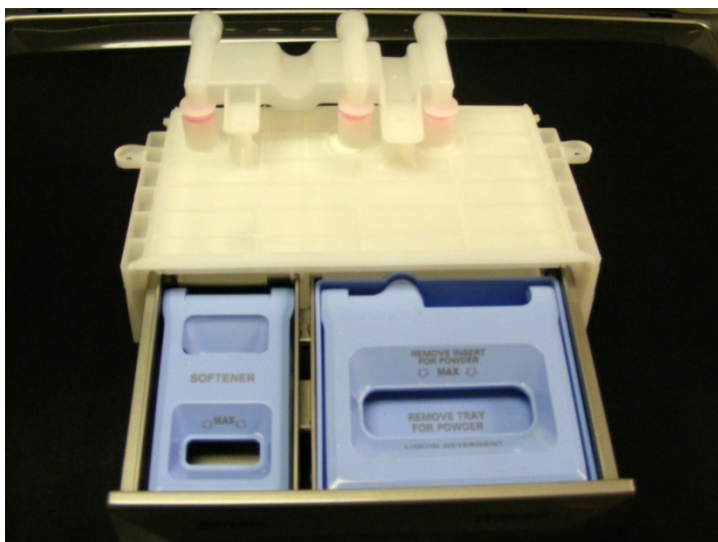
DISPENSERS



Detergent dispenser
NOTE: Remove insert
for powered detergent.

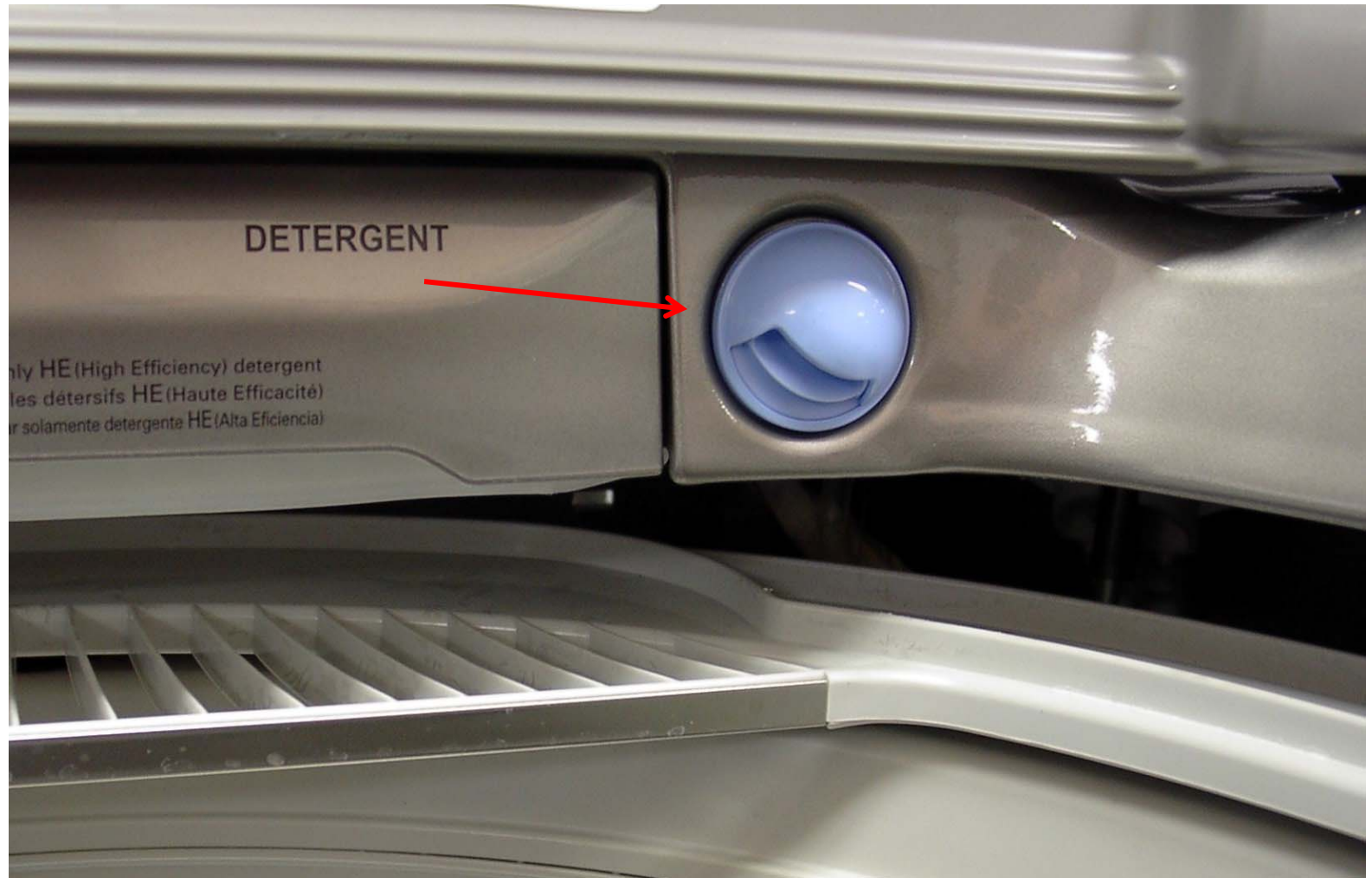
Fabric Softener
dispenser.

Bleach dispenser located
on left front corner.



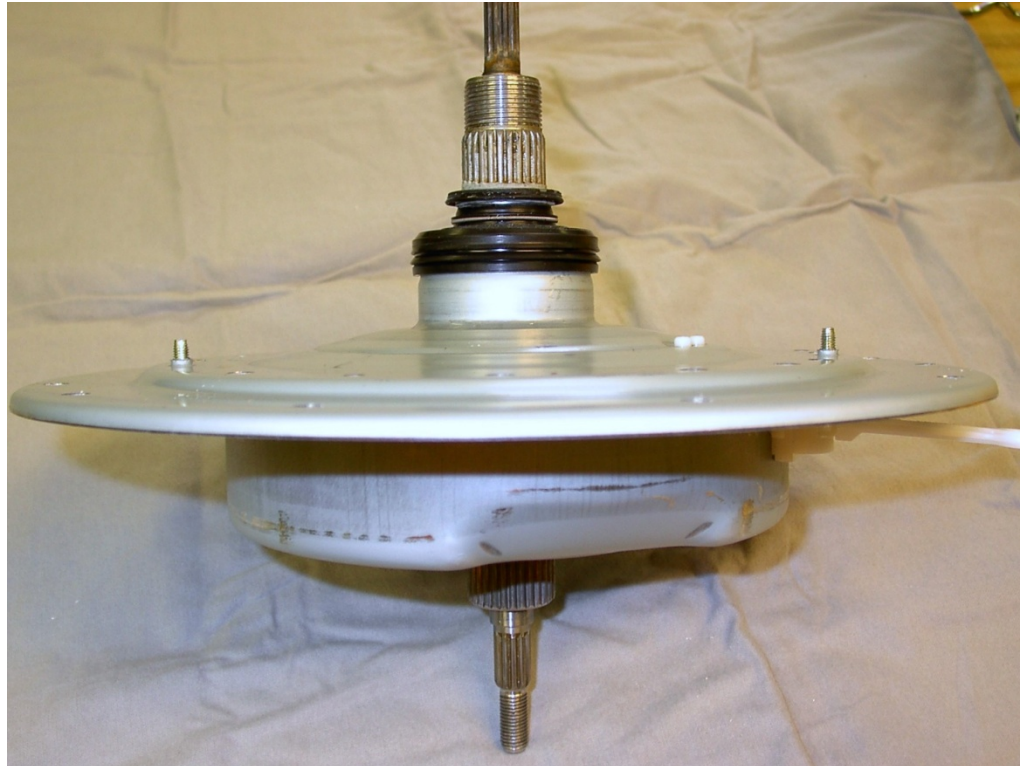


JET SPRAY



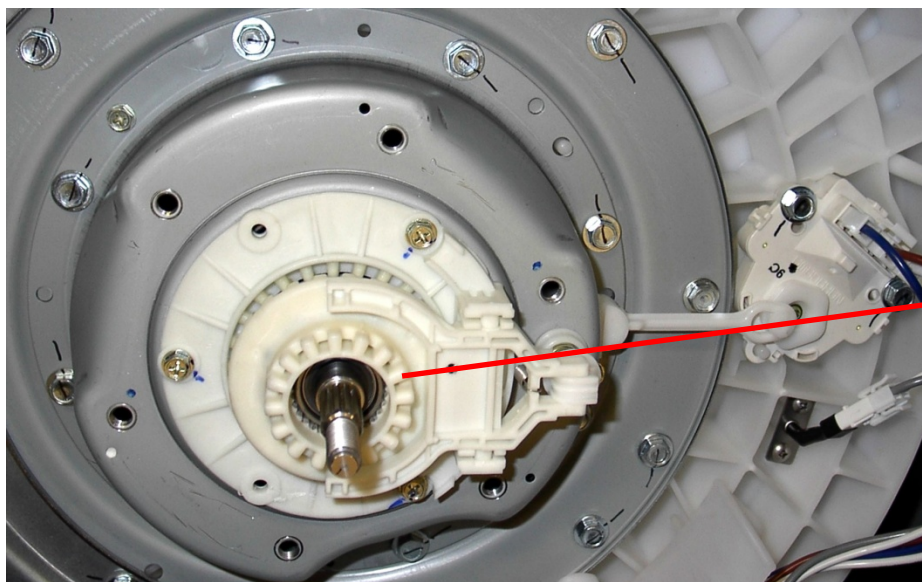


NO TRANSMISSION

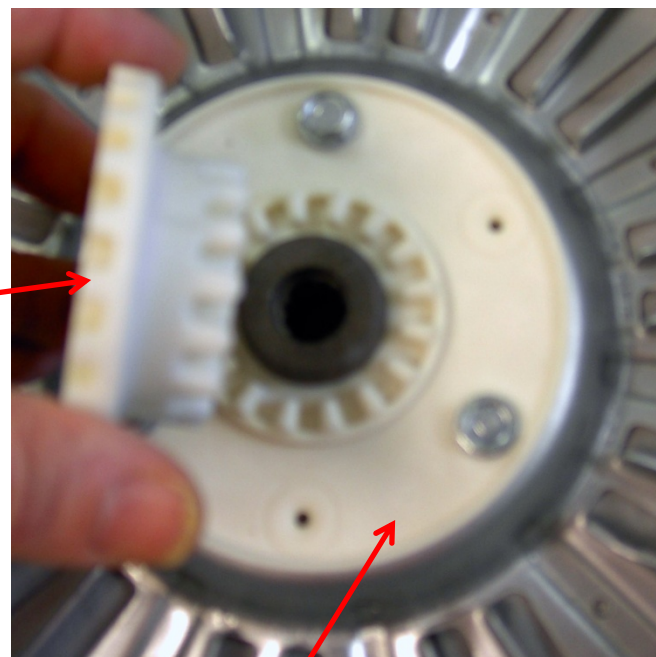


The Top Load Washer uses a mechanism instead of a transmission.
Without a transmission, there are less moving parts.
Without a lot of moving part, the mechanism is less noisy and more dependable.

CLUTCH SHIFTER OPERATION



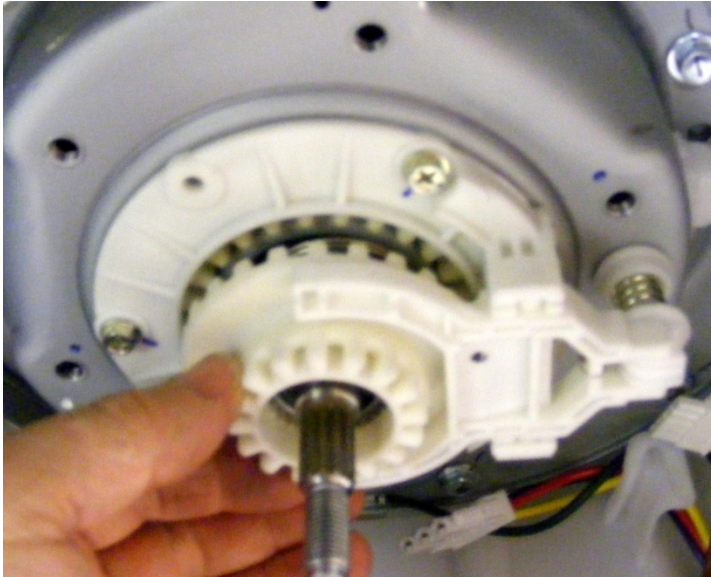
The clutch locks and unlocks the basket by engaging teeth on the inside of the rotor with teeth on the clutch coupler.



Rotor

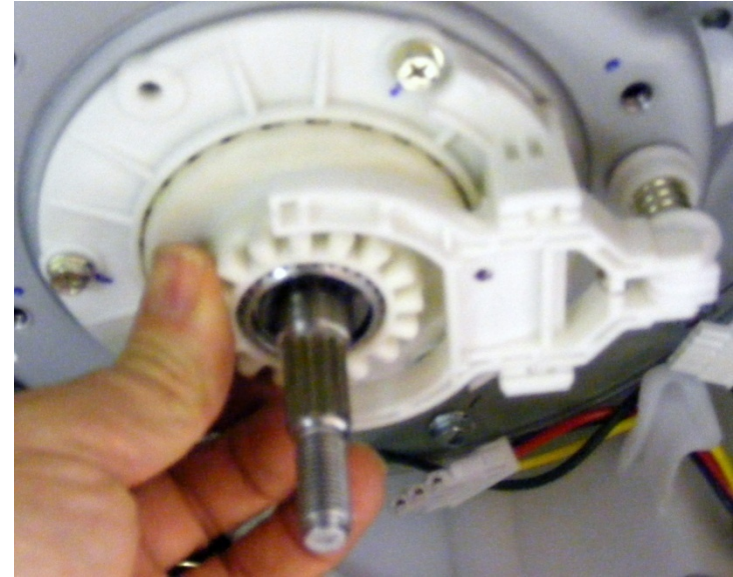
CLUTCH SHIFTER OPERATION

Locked Position



In the locked position, the clutch moves downward and engages the rotor and clutch coupler teeth allowing the basket to rotate with the pulsator.

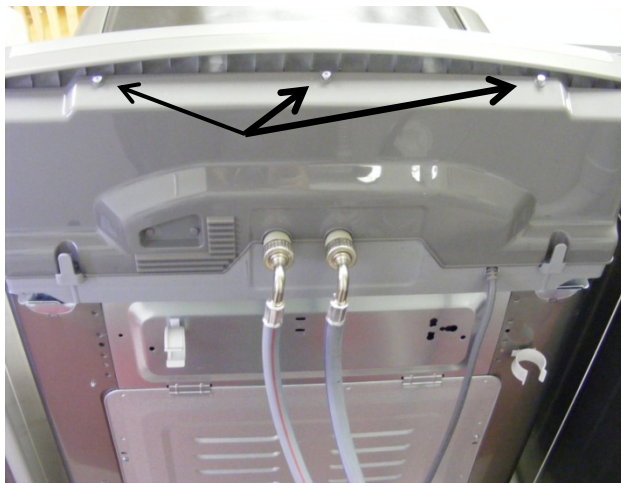
Unlocked Position



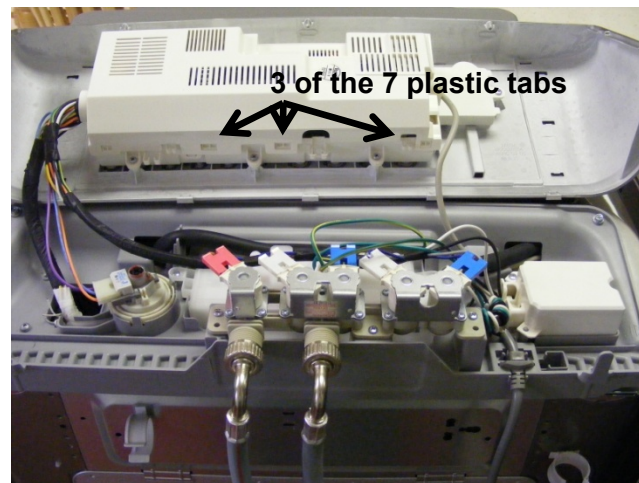
In the unlocked position, the clutch moves upward, disengaging the clutch coupler and rotor teeth, allowing the pulsator to rotate independently of the basket.

DISASSEMBLY INSTRUCTION

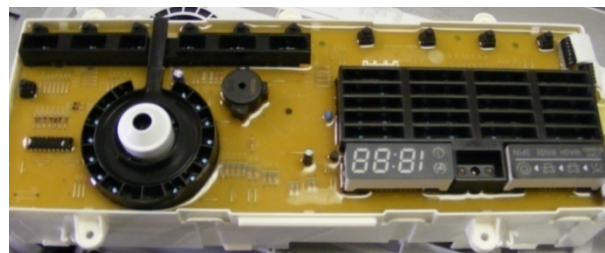
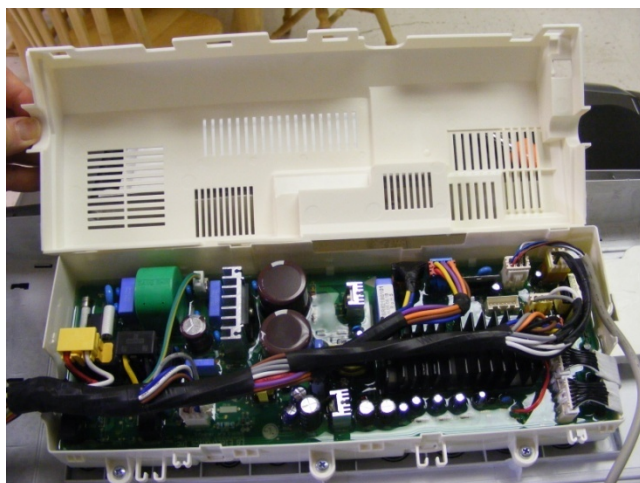
FRONT PANEL AND PCB ASSEMBLY.



1. Remove 3 screws from back side,.
2. Drop down front panel. *Use drop cloth to protect panel.*

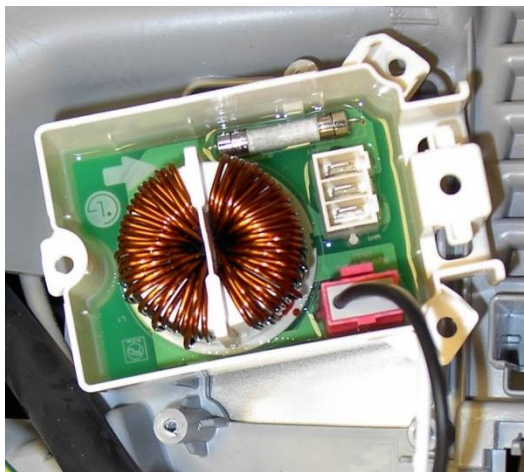


1. Depress 7 plastic tab to remove cover from PC Board.
2. Remove wire connectors off PCB.
3. Remove 8 screws to remove PCB from washer.



DISASSEMBLY INSTRUCTION

NOISE FILTER, POWER CORD, INLET VALVE, AND PRESSURE SWITCH

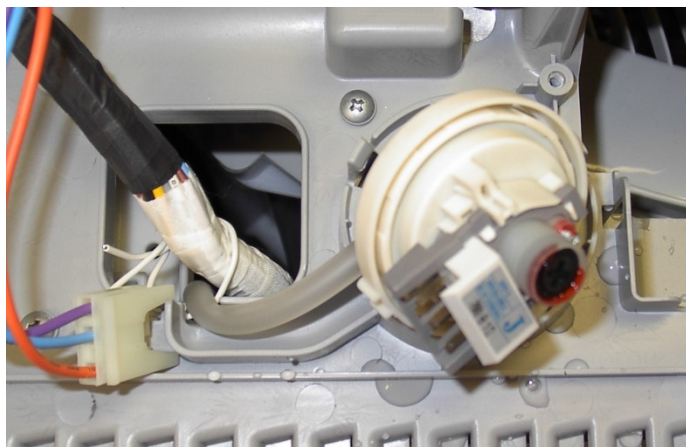
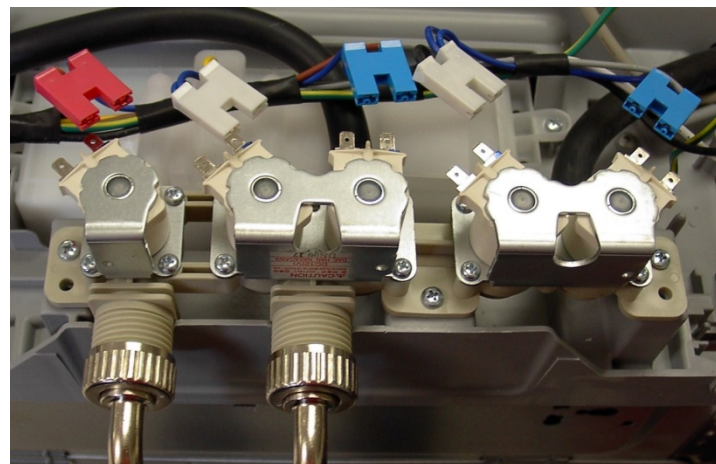


← Noise Filter

1. Remove 2 screws that secure the noise filter to the washer.
2. Disconnect the two connectors on noise filter.
3. Remove noise filter.

Inlet Valve →

1. Disconnect the fill hoses, 5 wire connectors.
2. Remove 3 inlet valve screws.
3. Separate the two hoses.
4. Remove Valve..



← Pressure Sensor

1. Remove the plug in connector to the pressure sensor.
2. Gently depress the 3 tabs that secure the pressure sensor to the washer.
3. Remove hose to pressure sensor.

DISASSEMBLY INSTRUCTION

Disassembly of top cover and lid.



1. Using a taped putty knife to prevent scratching to the top cover, locate the 2 spring clips on both sides of the top and depress them to release the top.

2. Top cover lifted and positioned back.

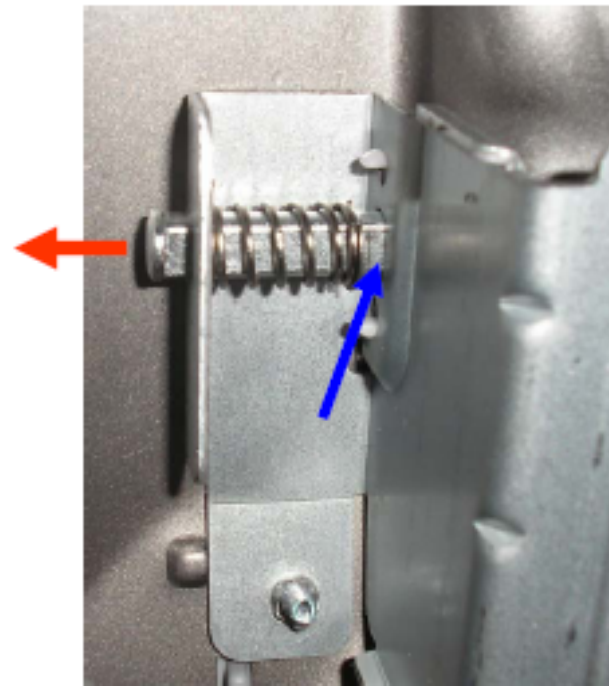


Spring clips

DISASSEMBLY INSTRUCTION

Removing the Lid

Using a putty knife, slide pin to the *far left* . If a *putty knife* doesn't work, use a pair of *side cutters* to pry the pin to the left. Be careful not to cut the spring. Use a pair of locking needle nose pliers to hold the pin to the left between the spring and hinge.. See the *BLUE* arrow for location for prying & holding the pin.



NOTE: The pin is flat on two sides.

DISASSEMBLY INSTRUCTION

When the left pin is depressed, lid can then be lifted from right hinge

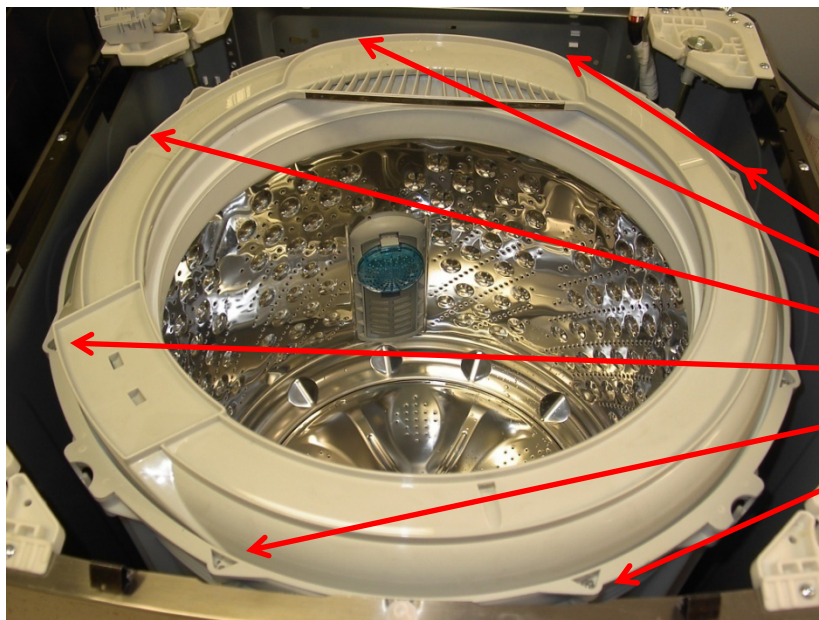
Close the lid before sliding the lid to the left and then lift the right side from the hinge.



NOTE: Flat sides must align

DISASSEMBLY INSTRUCTION

Disassembly of the Tub Cover and Pulsator



1. Remove the 8 screws that secure the Tub Cover .
2. Remove Tub Cover.

Remove
these 8
screws

3. Remove Pulsator Cap.
4. Remove Pulsator screw.
5. Remove Pulsator.



Pulsator Cap



DISASSEMBLY INSTRUCTION

Removing the tub nut



38mm Hub nut tool
(Local purchase)
Part # 306P4

Removing the Wash Basket

CAUTION: If the basket is not free to rotate damage to the clutch coupler can occur. Make sure the basket is free to move before attempting to remove.

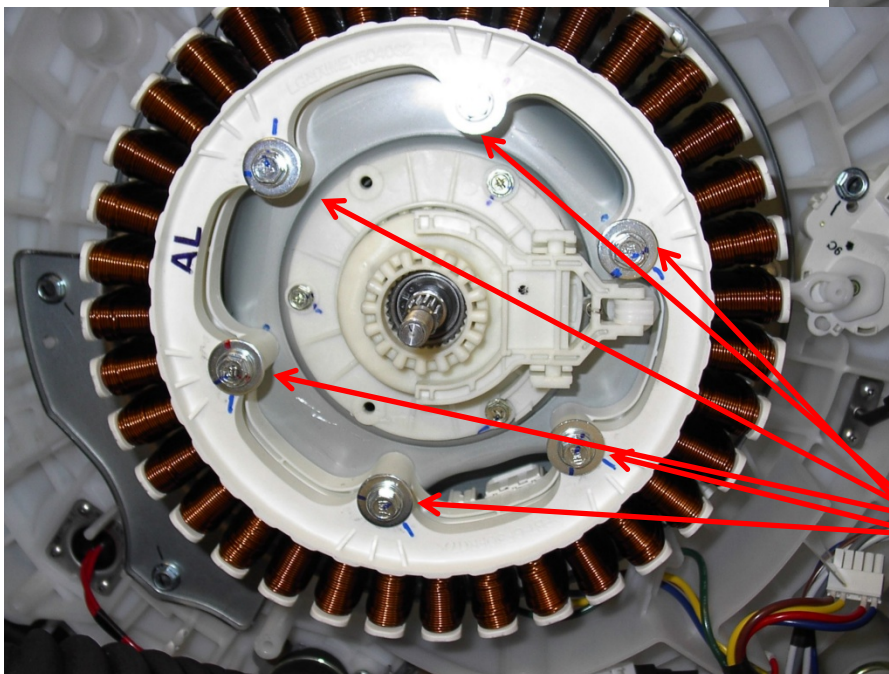
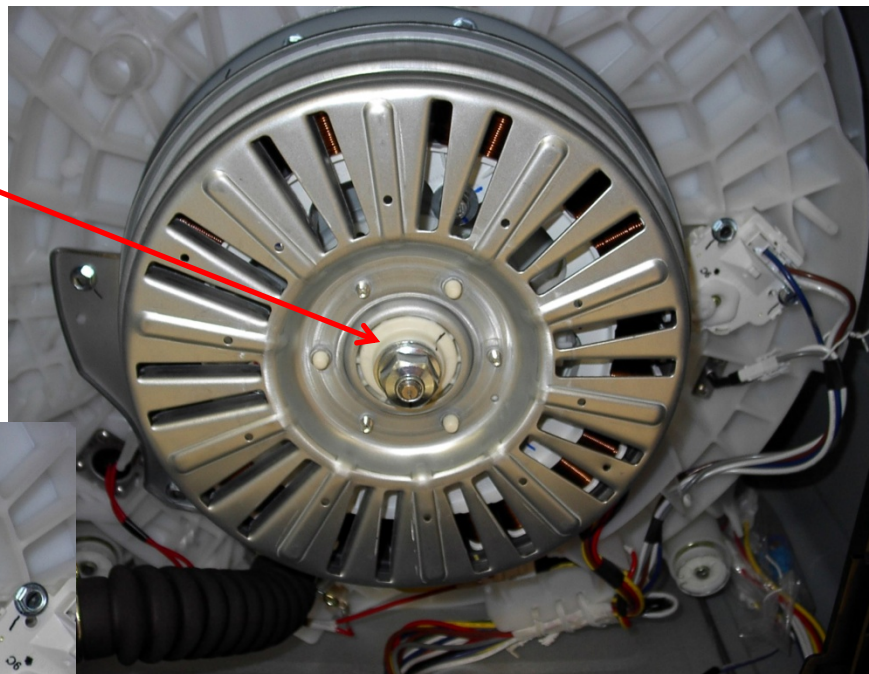
1. Follow the procedures' listed earlier about removing the top cover and outer tub cover.
2. Using a 38 mm socket or wrench, remove the tub nut.
3. Lift basket out.
4. Note: there is a washer under the nut and under the basket that must be reinstalled..



DISASSEMBLY INSTRUCTION

Disassembly of Rotor and Stator

1. Disassemble rotor nut with a 24 mm socket or spanner wrench. When reassembling nut, the torque specification is over 200kgf.cm.
2. Disassemble rotor by pulling forward.

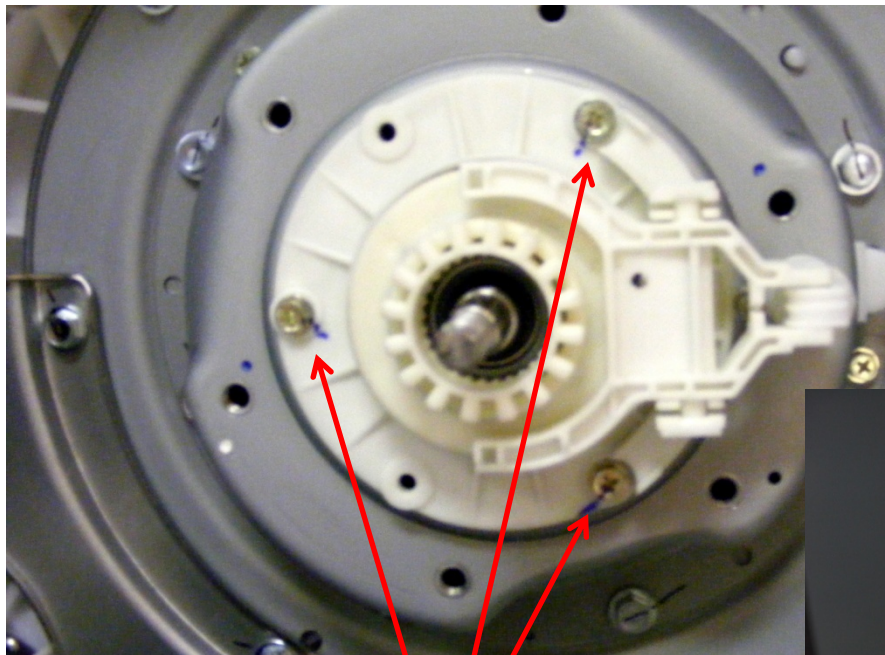


1. Disconnect the connector to the Hall Sensor and Stator Motor windings..
2. Remove 6 10 mm bolts. Remove Stator.

10 mm bolts

DISASSEMBLY INSTRUCTION

Removing the Clutch Shifter



Remove these 3 screws

CAUTION: There is a spring and a retainer washer behind the Clutch Shifter.



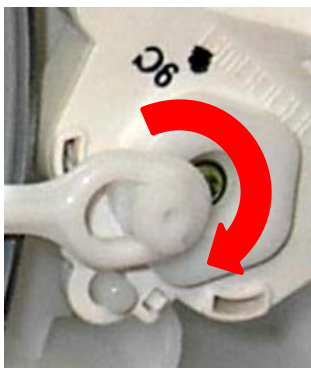
1. Remove the Rotor
2. Remove the three Phillips head screws from the clutch coupler plate.
3. Remove the clutch coupler plate.



DISASSEMBLY INSTRUCTION

Removing the Clutch Shifter Motor

1. Disconnect the wiring connector from the clutch motor.
2. Remove the two 10-mm hex head screws holding the clutch motor in place.
3. Remove the clutch coupler assembly.



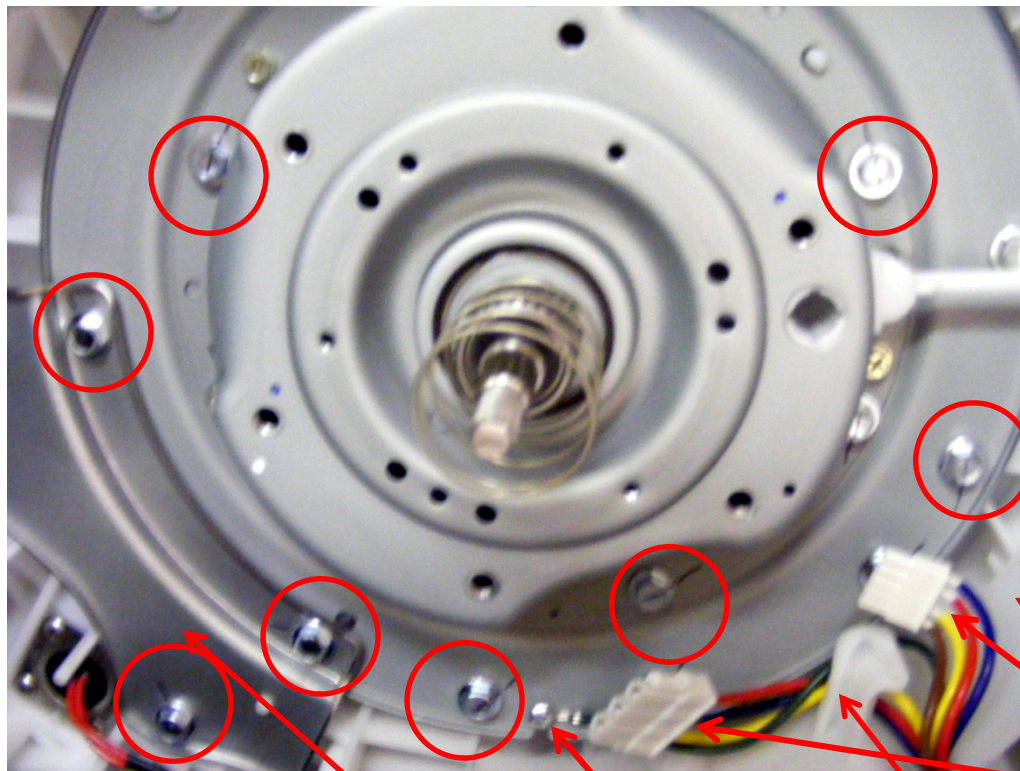
**TURN THE MOTOR TO
RELEASE THE MOTOR
FROM THE CLUTCH
COUPLER**



4. Clutch motor removed.

DISASSEMBLY INSTRUCTION

Removing Bearing Housing Assembly



The basket must be removed. Follow the steps on removing the tub cover, pulsator , and wash basket . Also follow the steps on removing the rotor , stator and clutch shifter.

1. Remove the screw that holds the ground wire,
2. Remove all the 10 mm hex- head bolts screws on the bearing housing assembly. (20 hex head screws)
- 3 Remove the plastic Guard on the right and the wire strain relief.
- 4 Remove bearing housing.

Plastic guard

NOTE: Make sure these wire connectors go behind the wire guard.

Wire Guard

Remove guard

Ground Wire

DISASSEMBLY INSTRUCTION

Disassembly of the Back Cover and Drain Pump



1. Remove the screws that attach the back cover and remove the back cover.

(Pictured with rear cover already removed).

2. Disconnect the leads and the drain hose from the drain pump.
3. Remove the screws that attach the pump to the washer.
4. Remove the pump assembly out of the washer.

**Note: The drain hoses need to be glued on.
Use Maxbond 218GK-TL
Which is a rubber adhesive, dark gray in color.**

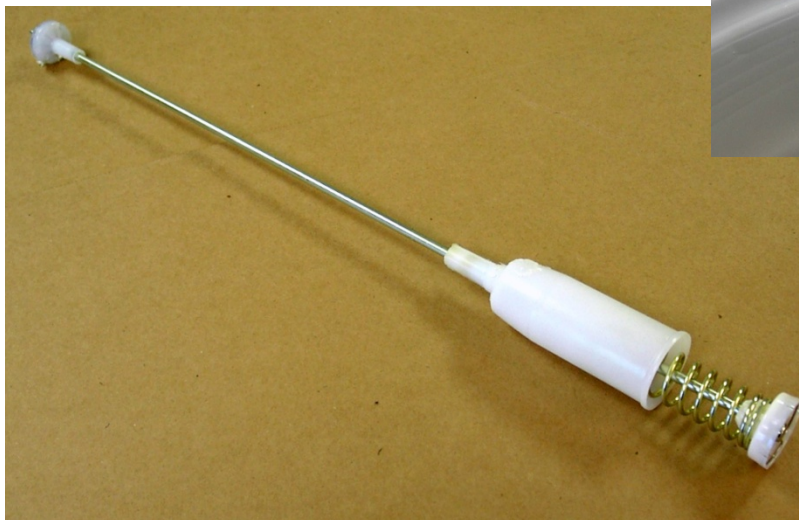


DISASSEMBLY INSTRUCTION

Disassembly of the Damper Assembly

1. Lift top up and support top assembly by propping top against the wall.
2. Lift damper up and remove upper damper rod through slot on damper support.
3. Drop down the damper rod to allow the rod to be removed from the outer tub support. There is a slot on the support that the rod on the damper can be slipped through.
4. Remove damper.

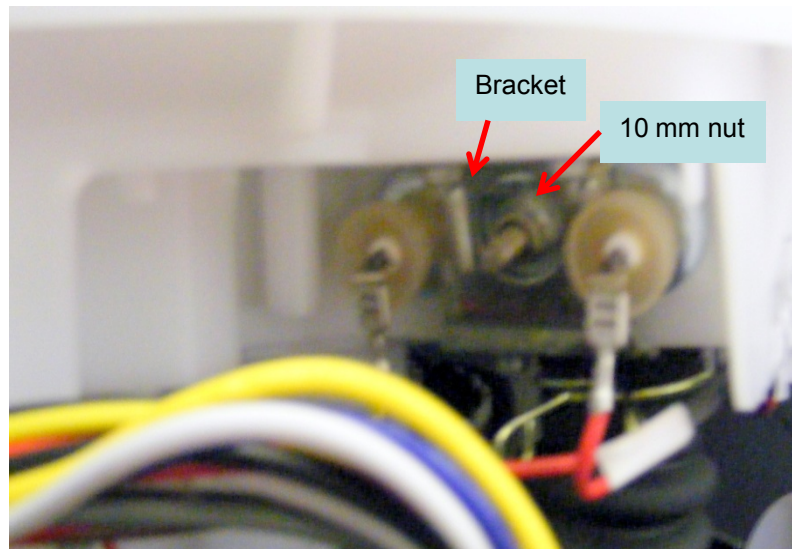
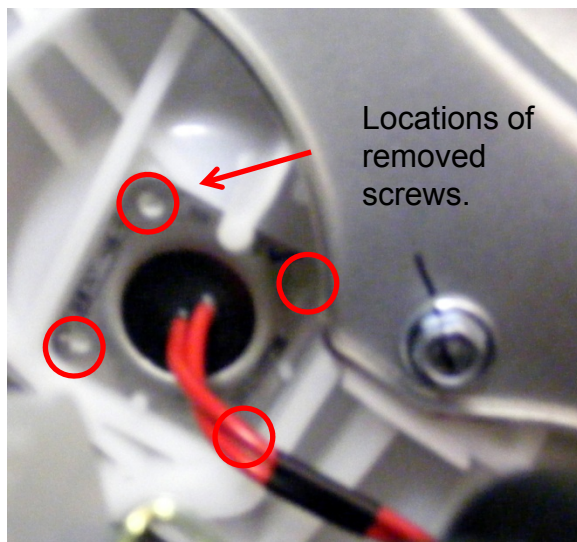
NOTE: The damper assembly must be replaced as an assembly.



DISASSEMBLY INSTRUCTION

Disassembly of the Heater and Heater HI limit Thermostat.

1. Remove 3 the screws on the bracket that secure the heater to the tub.
2. Looses the 10 mm nut on the heater.
3. Pry out heater.
4. Remove the heater leads
5. Remove the four screws that secure the thermostat to the tub.



Note :The thermostat can not be removed before the heater is removed because of the heat sink.



DISASSEMBLY INSTRUCTION

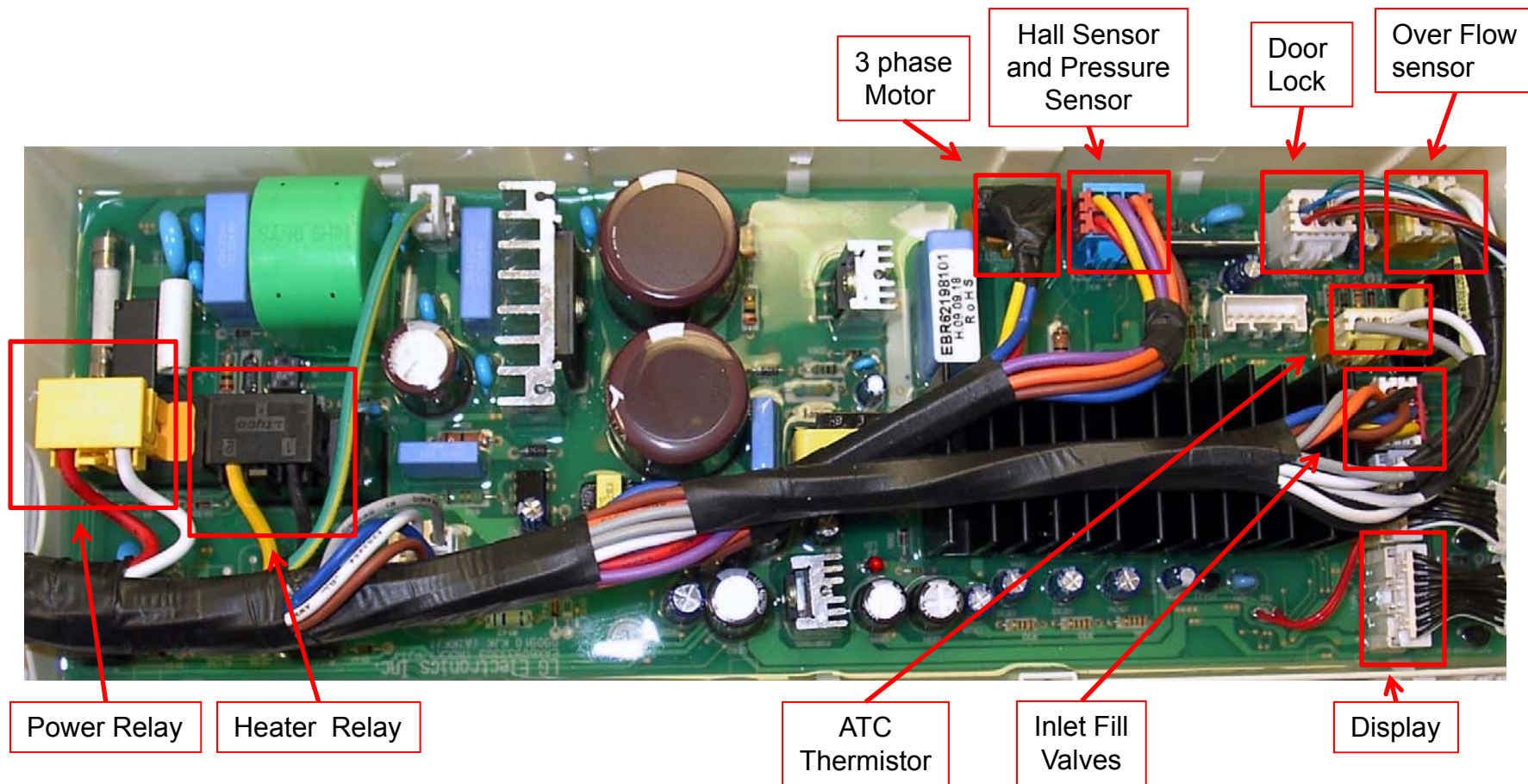
Disassembly of Thermistor



- 1 Remove the two screws that secure the thermistor to tub.
2. Disconnect the wire connector.

COMPONENT TESTING

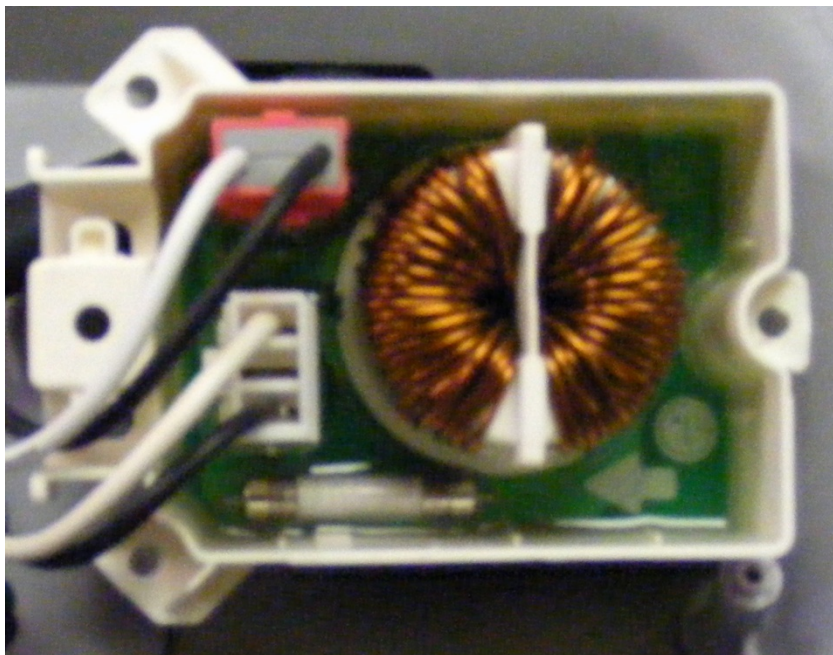
Main PC Board Terminal Location



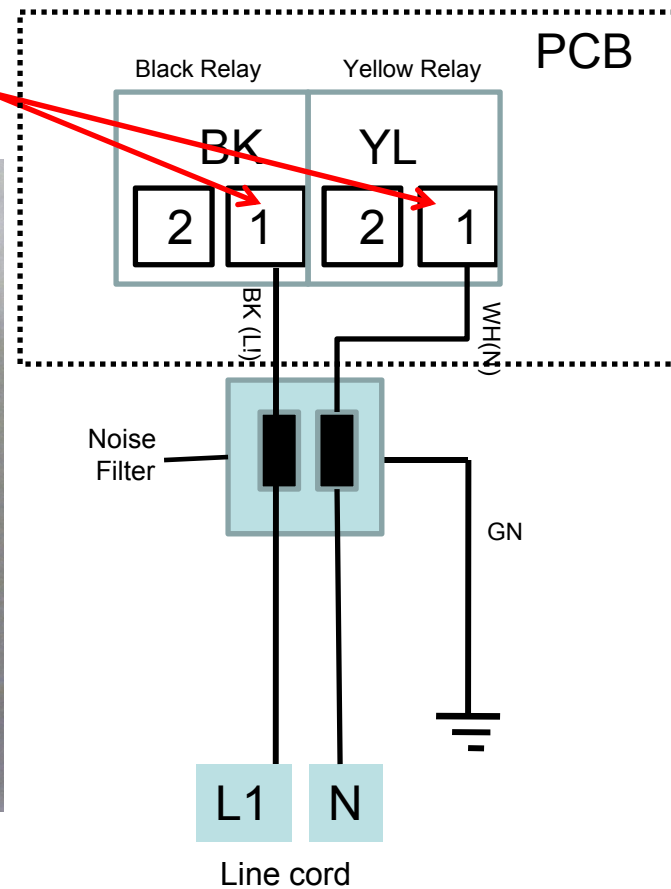
NOTE: With production changes, the location of the components may change as well as wire colors.

COMPONENT TESTING

Noise Filter



Check line voltage here.

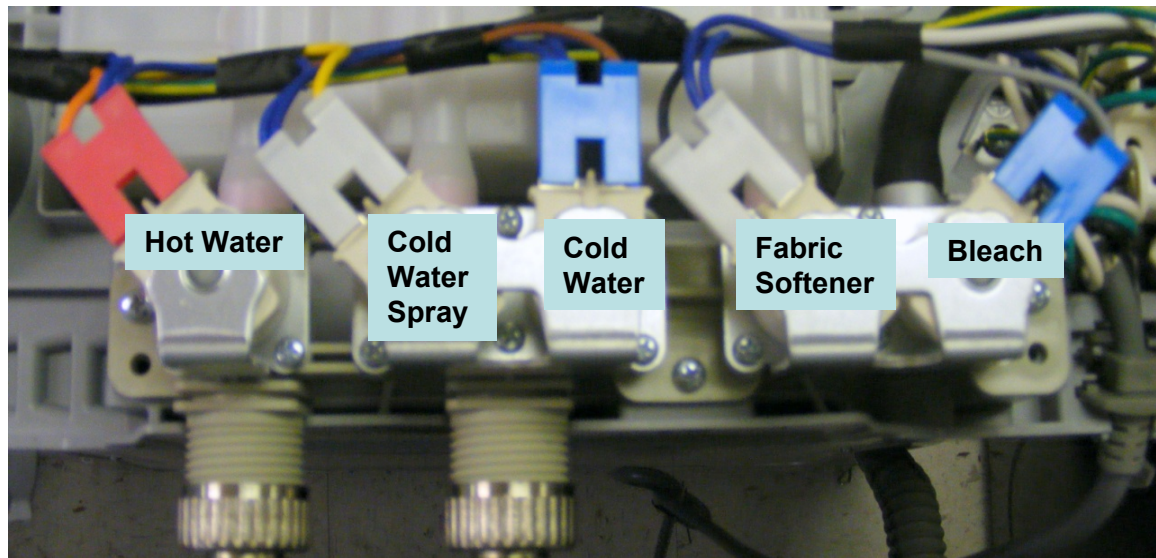


WH to BK Line Cord = 120VAC @60 Hz.

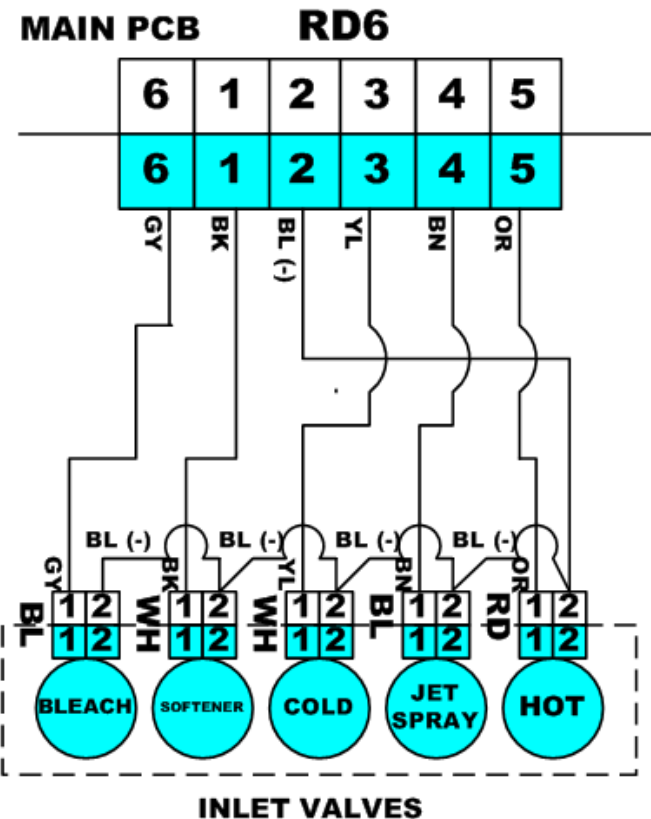
YL4 to BK 4 = 120 VAC @ 60 Hz.

COMPONENT TESTING

Inlet Fill Valves



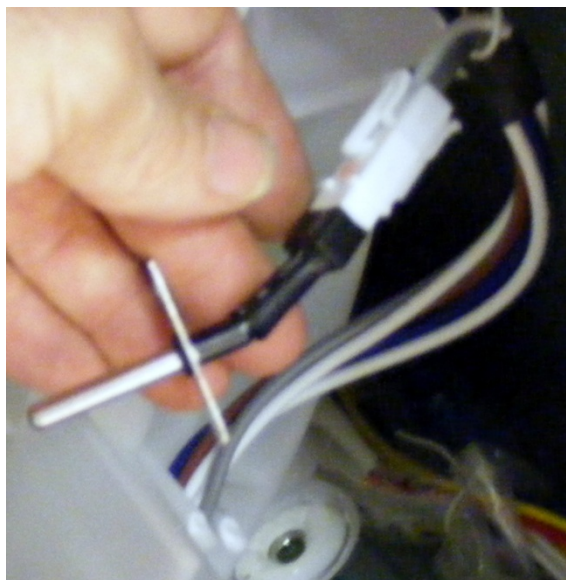
All Valve Solenoids are:
Approximately 12Vdc
25 to 35 OHMs



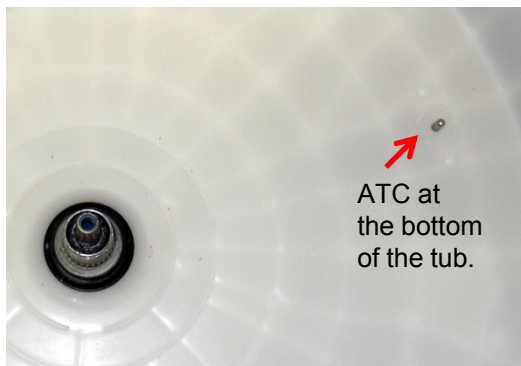
Hot / **orange/blue**
Cold water spray / **yellow /blue**
Jet spray / **brown/blue**
Fabric softener / **black/blue**
Bleach / **gray/blue**

COMPONENT TESTING

ATC (automatic temperature control)

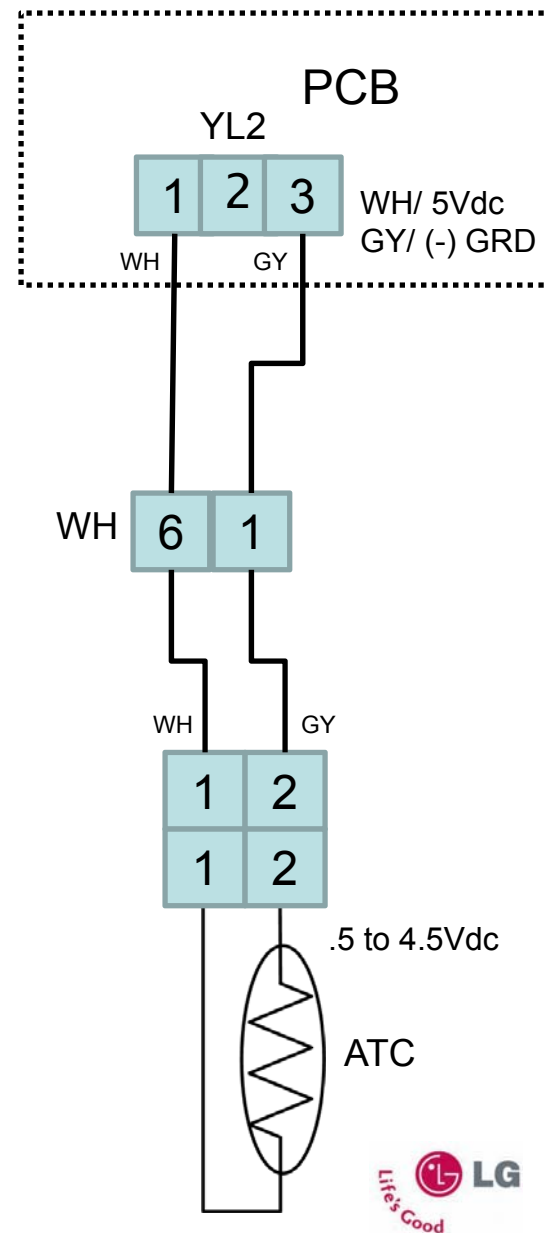


The ATC Thermistor is NTC (negative temperature Coefficient)
As the temperature goes up the resistance goes down.



The ATC that is located at the bottom of the outer tub. From the hermistor information water temperature can be maintained in the tub by opening and closing the hot and cold water valves.

Temperature F	Temperature C	Resistance
60F ⁰	16C ⁰	141KΩ
70F ⁰	27C ⁰	86KΩ
104F ⁰	40C ⁰	48KΩ
120F ⁰	49C ⁰	35KΩ



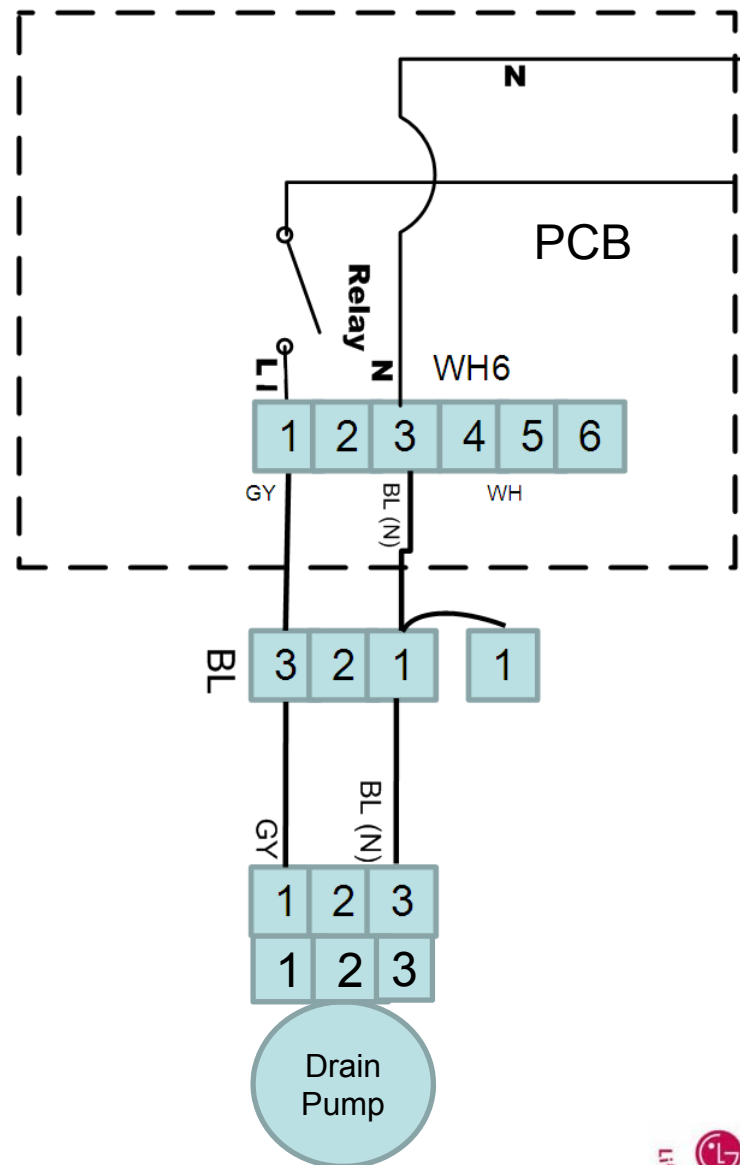
COMPONENT TESTING

Drain Pump



120VAC
85 Watts
13 to 17 OHMs

The drain hoses need to be glued on.



COMPONENT TESTING

Clutch Motor



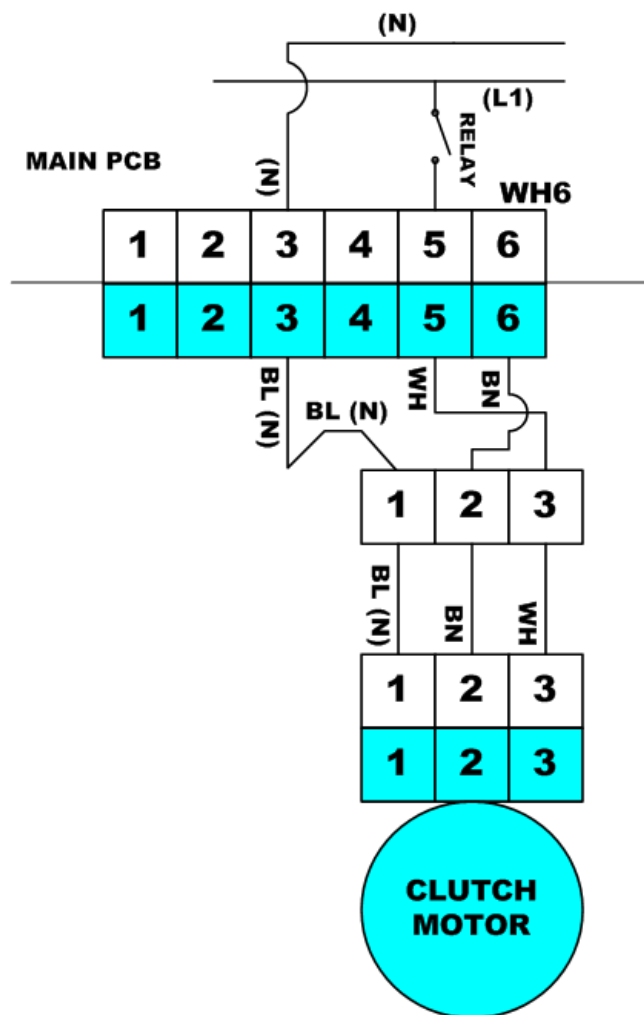
120Vac BL to WH

2K to 2.2K OHMs WH to BL

WH to BN is an internal switch located inside the motor.

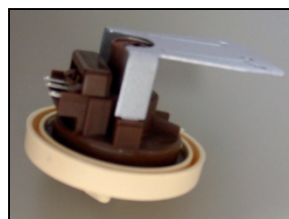
When the clutch is in the unlocked position **WH to BN** is closed.

When the clutch is in the locked position **WH to BN** is open.



COMPONENT TESTING

Pressure sensor operation



The Pressure Sensor or *Oscillator* determines the water Level and prevents tub over flow by way of *frequency*.

As the water level rises in the outer tub, air is trapped in the *Air Chamber*. The trapped air builds up pressure in the air *tube* and flexes the diaphragm. The movement of the diagram changes the position of core to the coil. Changes to the core in relation to the coil will generate different frequencies.

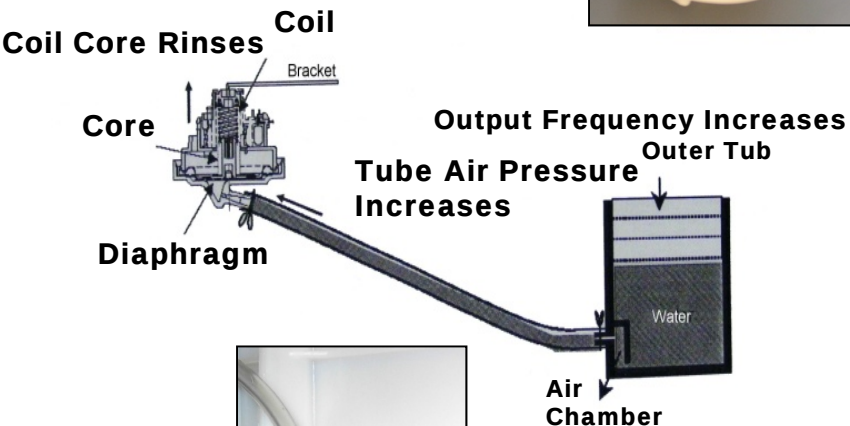
In simple terms air pressure changes in the *air tube* caused by water rising and lowering can change the frequency generated by the oscillator. Thus the washers MICON determines the water level by *frequency*.

As technicians avoid making general assumptions as to the cause of the fault. By this we mean, do not assume we have a defective *pressure sensor* on a washer *overfills* complaint..

A hole in the *air pressure tube* or lint accumulation in the *air chamber* can produce the same results, **a washer that is overfilling.**

Lint accumulation in the *air chamber* can also prevent the pressure sensor from detecting that the water has been drained, thus generating a no drain fault.

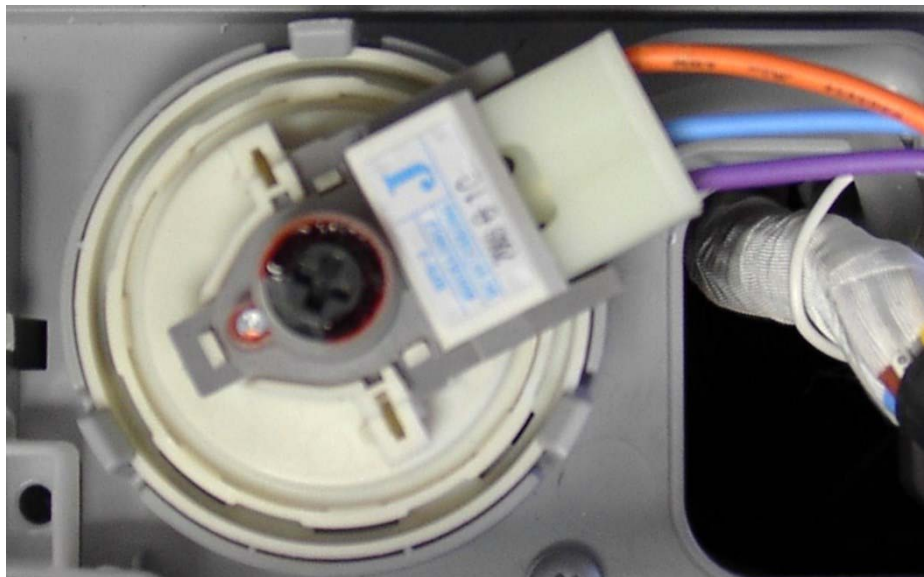
Remember the frequency of the sensor can always be verified in the **Service Mode..** (see section on **entering the service mode**).



Air Chamber

COMPONENT TESTING

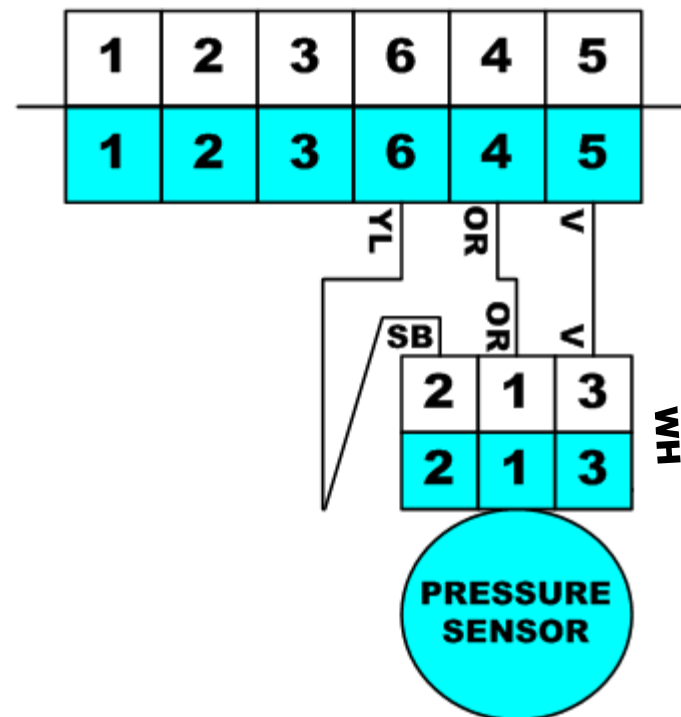
Pressure Sensor



SB to OR 2.5 to 3.0 VDC
SB to V 2.5 to 3.0 VDC
26 to 23 Hz OR to V
20 to 25 Ω OR to V

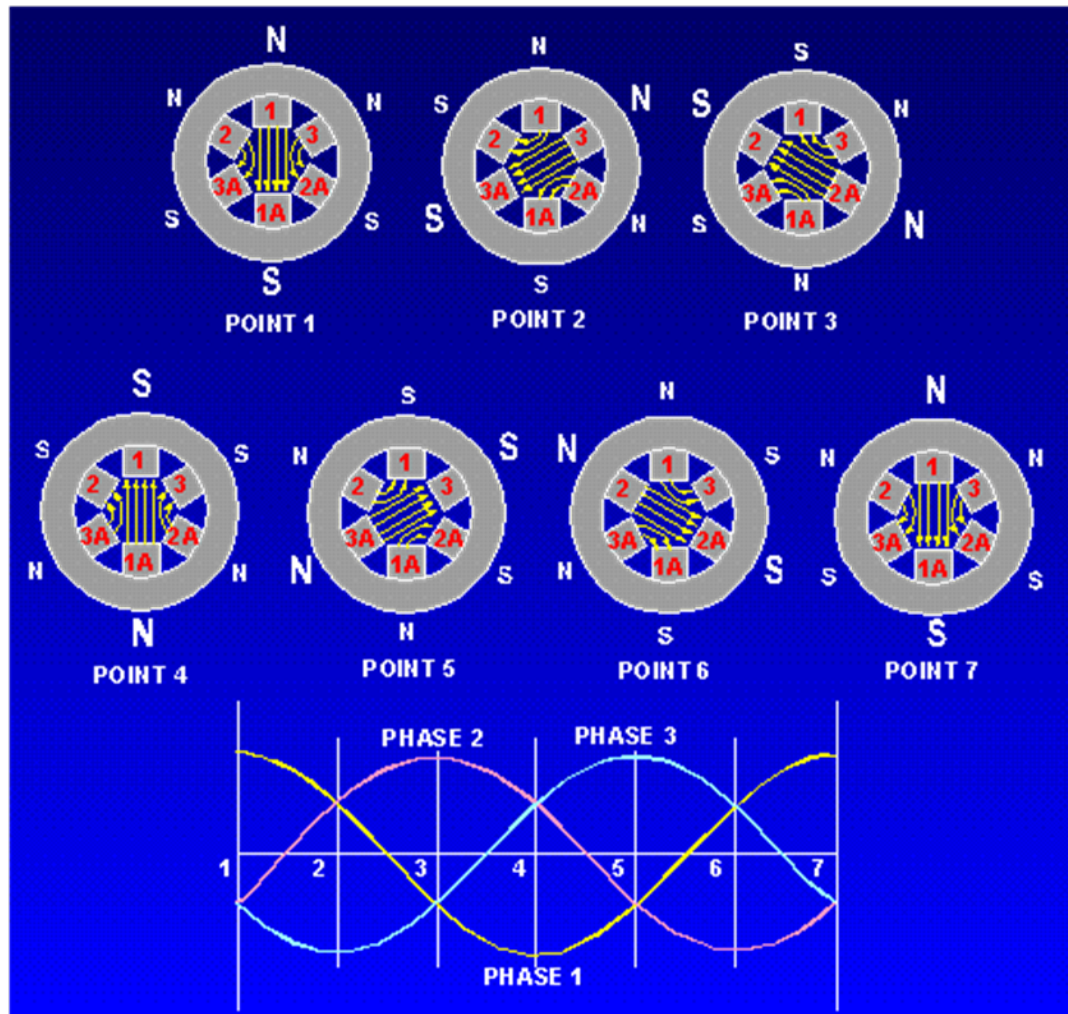
MAIN PCB

BL6



Approx. 24 Gallons per Max. Fill
23.3 Frequency 33 Display

THREE PHASE MOTORS



A three phase motor has three hot leads. This is to say that the peaks in the alternating current are closer together so that the motor has less time between each peak, therefore runs smoother and more efficiently. A three phase motor will last longer.

The windings are spaced 120 degrees apart. As they rotate through the magnetic field they generate power which is then sent out on three lines as in three phase power. If you give each of these lines its own winding in the motors field, then they will each take turns producing North and south magnetic fields. 1 north, 2 north, 3 north, 1 north, etc. The sequence or direction in which these step determines the direction in which the armature will be pulled to rotate. No brushes, no capacitors. If you want to change the direction that the motor rotates, swap two leads so the order becomes 1N, 3N, 2N, 1N, etc... The rotation heads the other way.

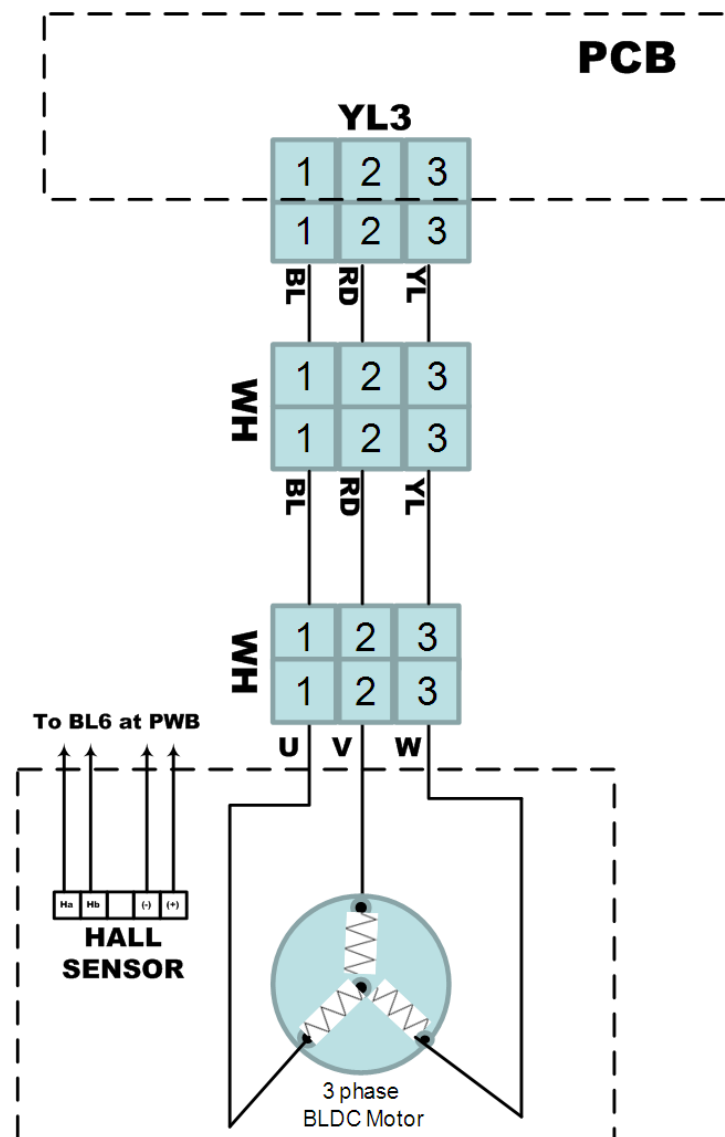
Three phase systems can provide 173% more power than the two conductors of a single-phase system.

COMPONENT TESTING

Three Phase Motor



BL to RD 8 Ohms
 BL to YL 8 Ohms
 RD to YL 8 Ohms



COMPONENT TESTING

Hall Sensor Operation

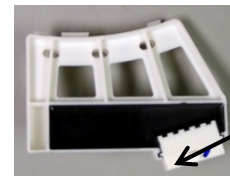
A *hall Sensor* is a transducer that varies its output voltage in response to changes in magnetic field. In its simplest form, the sensor operates as an analogue transducer, directly returning a voltage.

LG uses its *hall sensor* to transmit the motor speed and rotation to the MICON.

Understanding how the motor operates from the section on the three phase motor, we can appreciate how critical this information is, and how with out this information motor failure would be inevitable.

Without constant information on speed and rotation to the MICON correct timing and phasing sequence would be off causing a *locked rotor or abnormally high amp draw*. Without any other available *thermal overload protections* at its disposal, the *stator windings* would be short lived.

For this reason proper diagnoses of the *hall sensor is crucial*. Because the transmitted information consists of very low voltages, never rule out the fact that the circuit can be compromised *by loose or oxidized* terminal contacts.



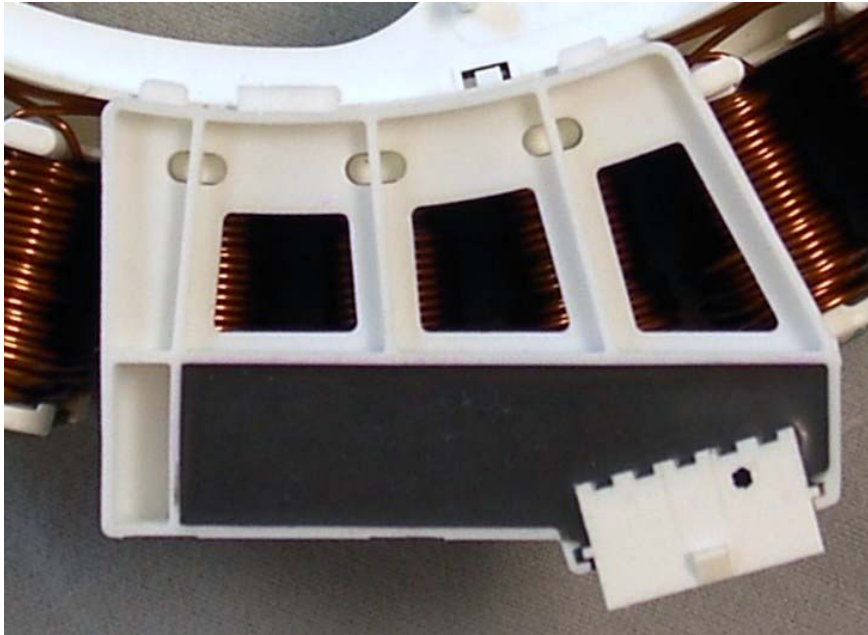
Terminal 1

A simple test can determine where the failure exists.

1. Unplug the washer from the wall outlet.
2. Insert meter leads at terminals 4 and 5 (BN & YL) at the Hall sensor. Plug in washer and hit power button. Do not hit the start button, You should measure 10 to 15 Vdc. If this voltage is present the Brown and Yellow wire going to the control board and control board are OK. If not check for 10 to 15 Vdc at connector BL6 on main board Pins 1 and 6. If not replace board.
3. To measure output signal voltage from the hall sensor, carefully move test leads to terminals 1 & 4 (BL & YL). Slowly rotate motor rotor by hand. You should read a pulsing 10Vdc. If 10Vdc is present hall sensor is OK. Move lead on terminal 1 to terminal 2 (red). Repeat last test. Should have a pulsing 10Vdc. If 9 to 10Vdc is present and is not pulsing in either test Hall sensor is defective.

COMPONENT TESTING

Hall Sensor

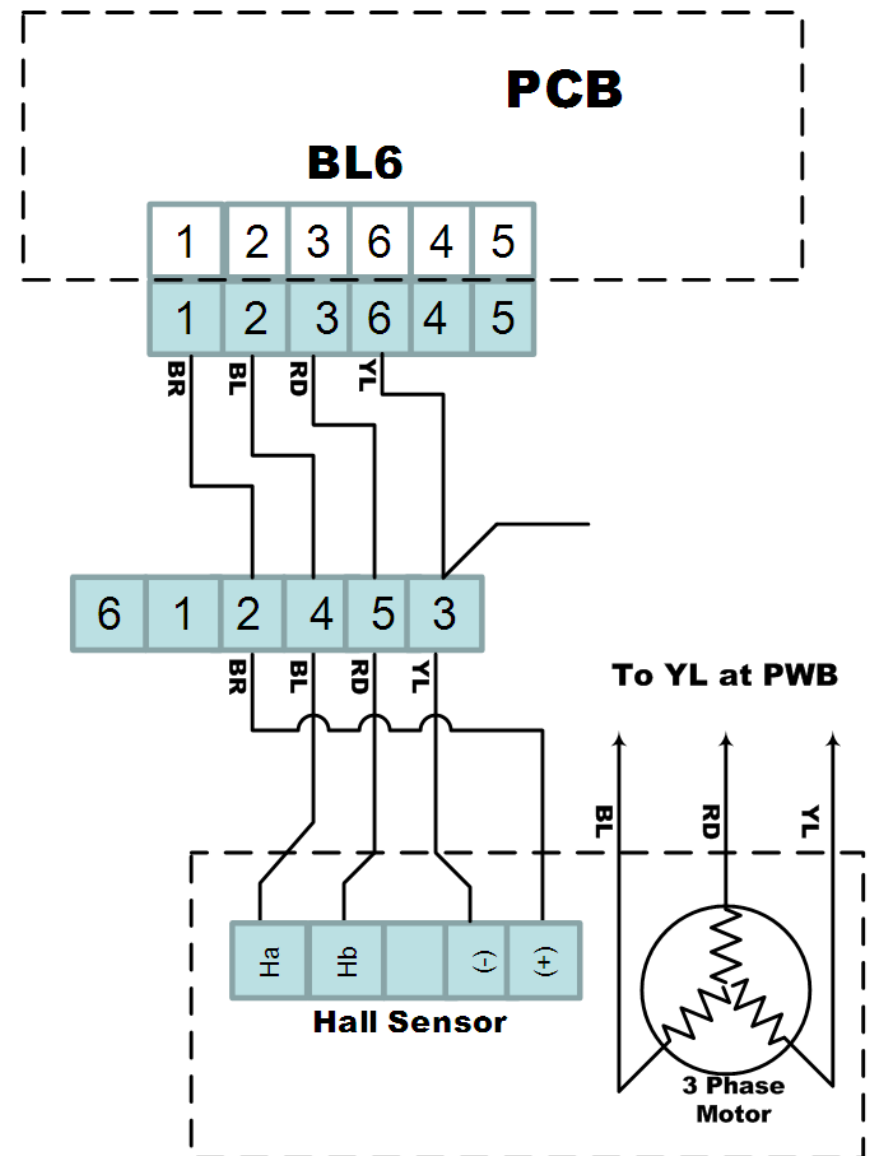


BR to YL 10 to 15 Vdc

OHMS

BN to RD 8k to 10k ohms

BN to BL 8k to 10k ohms

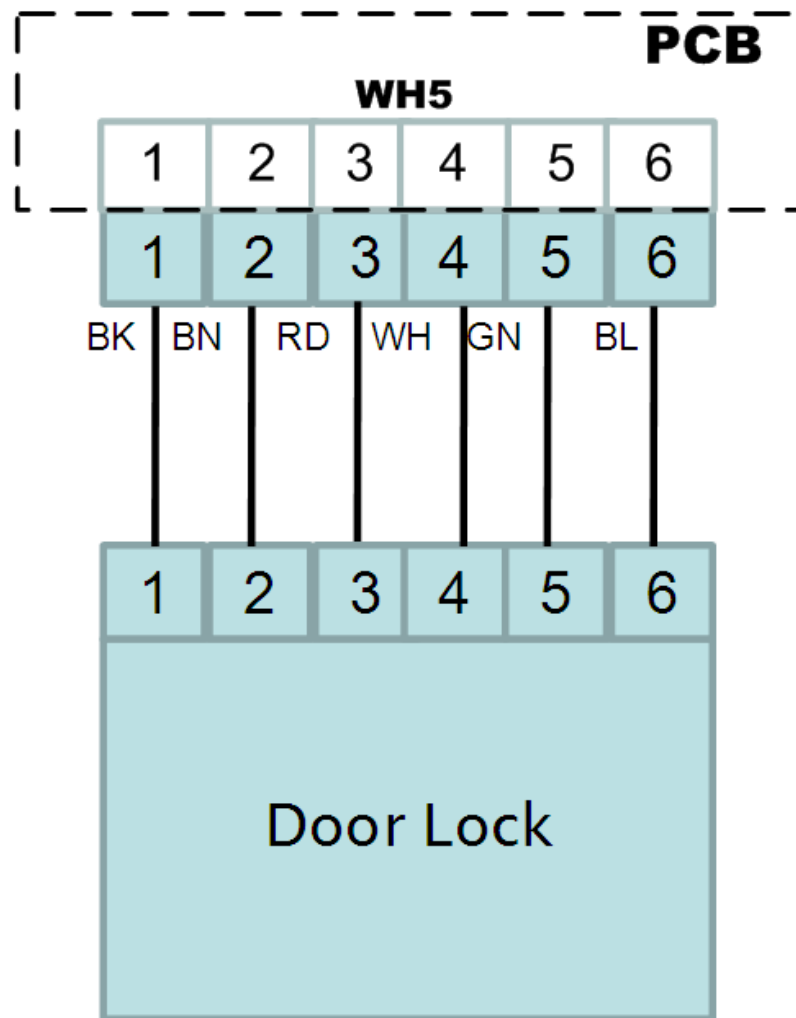


COMPONENT TESTING

Door Lock

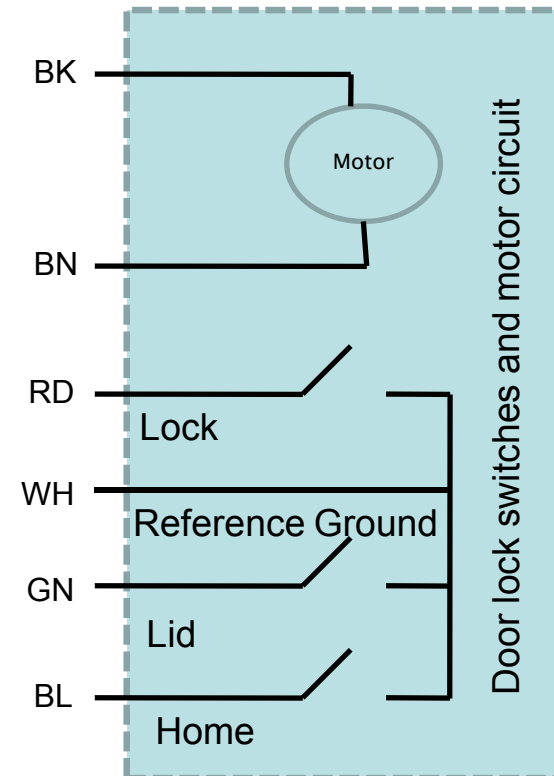
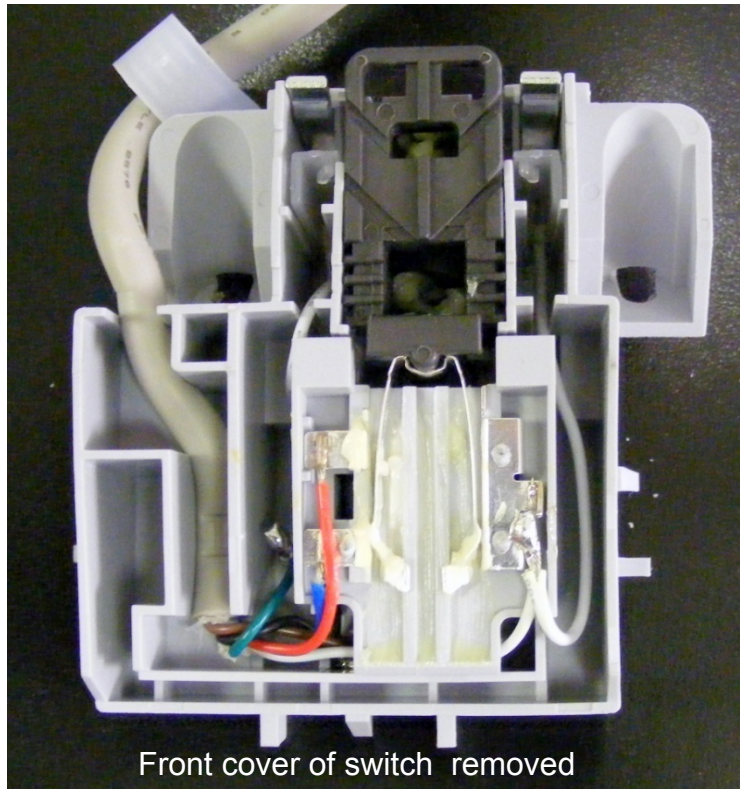


Motor Circuit 12Vdc
Lid and Lock Circuit 5Vdc



COMPONENT TESTING

Door Lock Circuit



The 12 Vdc motor is activated through the BK and BN terminals. Depending on which contact is energized, will determine if the motor will turn clockwise or counter clockwise.

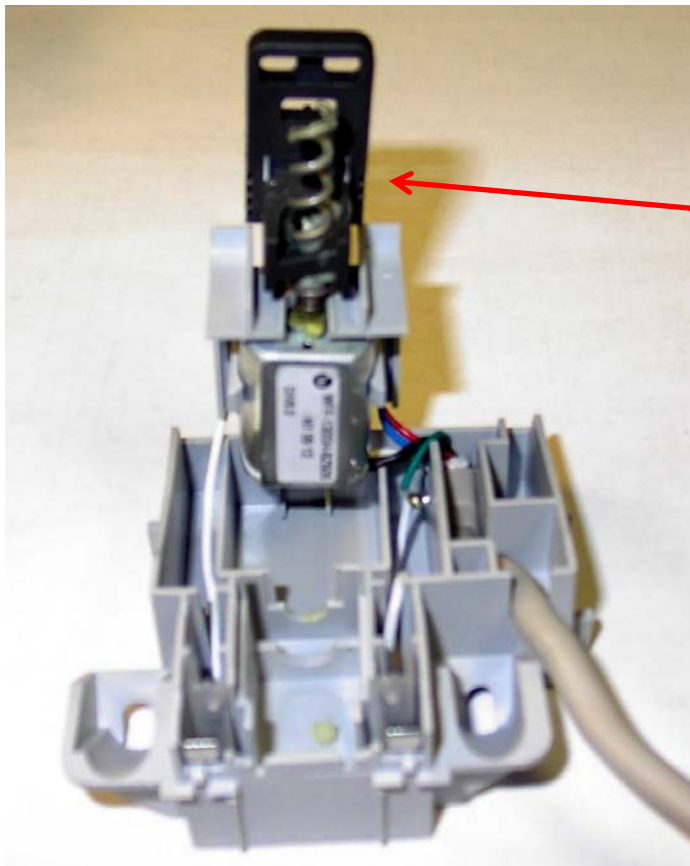
BL is the home circuit. BL to WH will be closed when the lid lock is open.

RD is the lock circuit. RD to WH will be closed when the lid is locked.

GN is the lid circuit. GN to WH will be closed when the lid is down. GN is activated by a *reed switch*.

COMPONENT TESTING

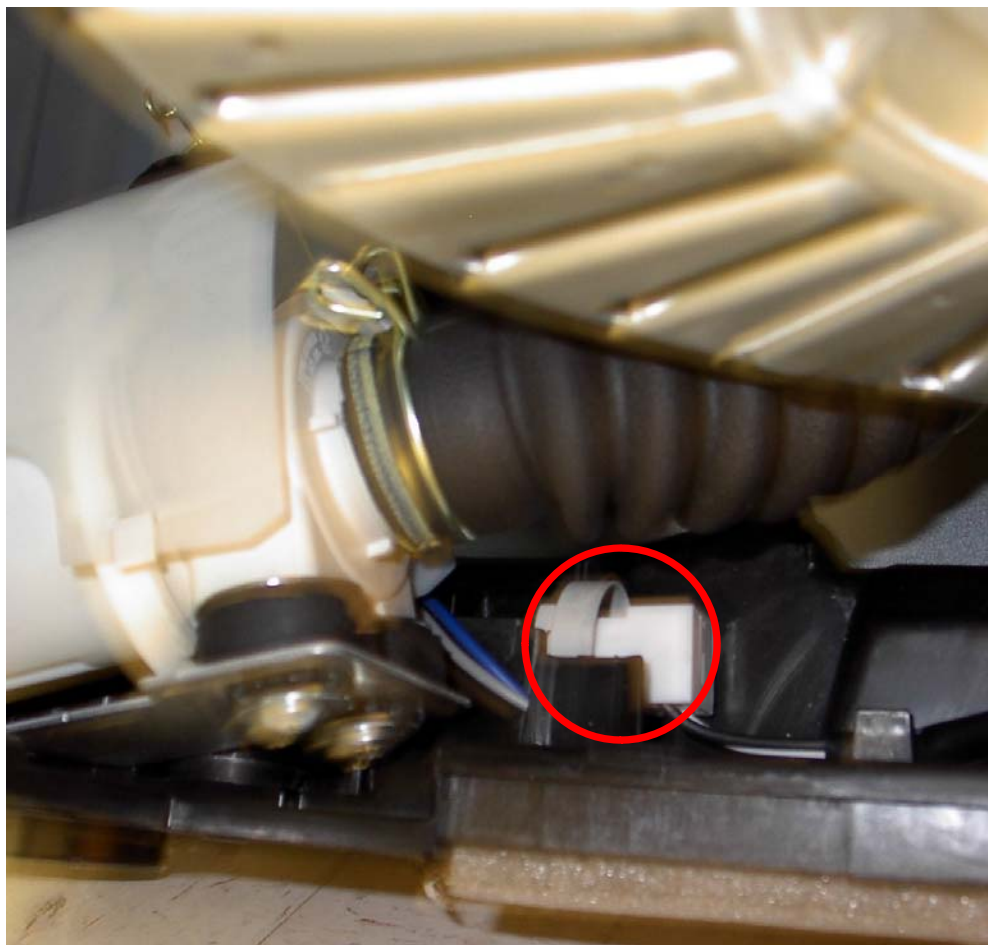
Door Lock Assembly Motor and Lock Bolt.



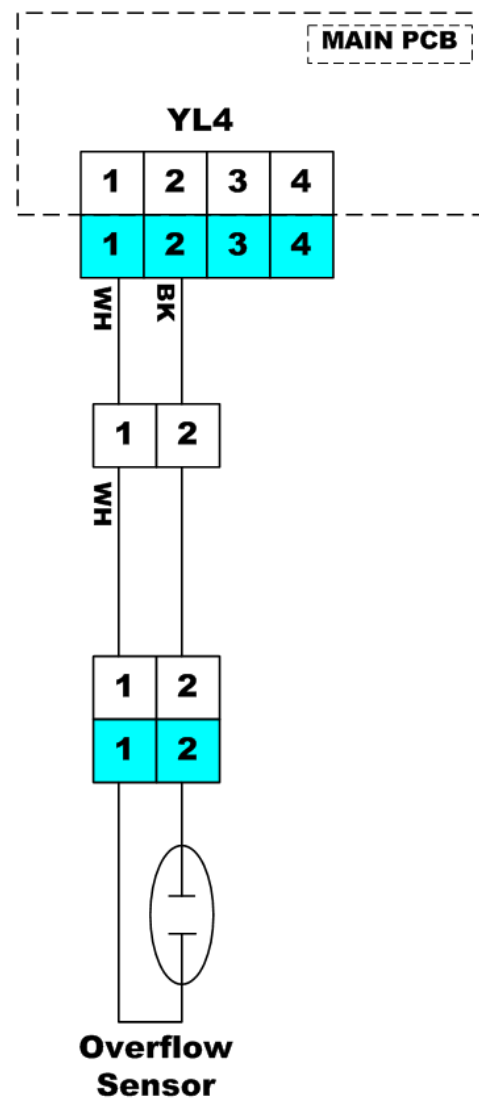
The tiny DC motor can quickly ride the lock bolt backward and forward on a tiny corkscrew.

COMPONENT TESTING

Overflow sensor

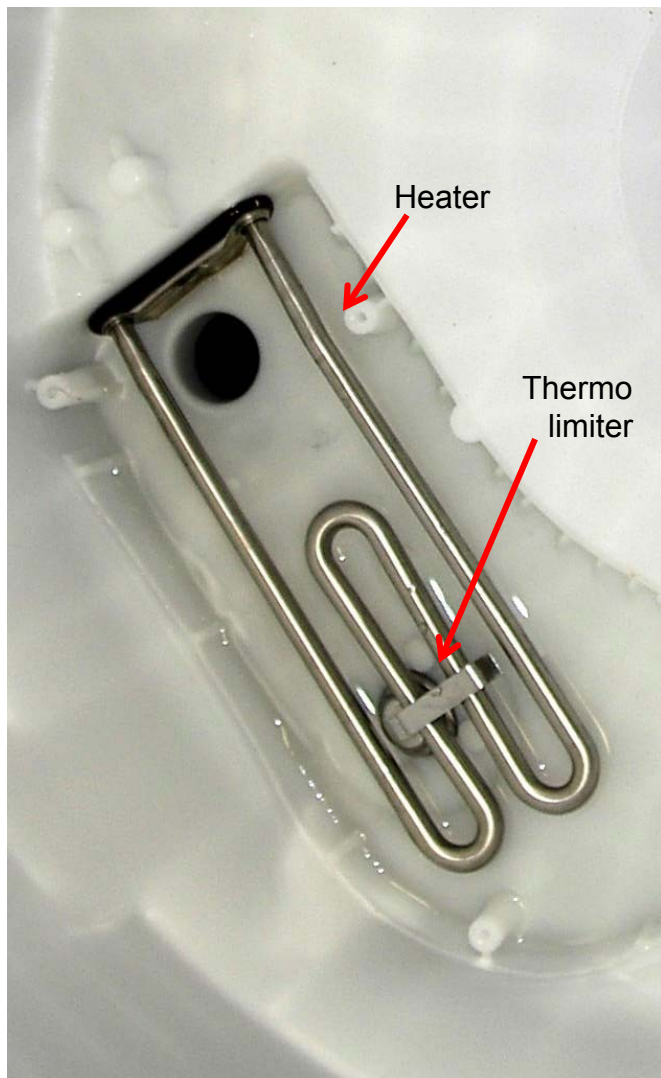


1.4 Vac Dry – 1.0 Vac Wet
Variable Hz 8Khz to 20Khz
Dependent upon moisture concentration

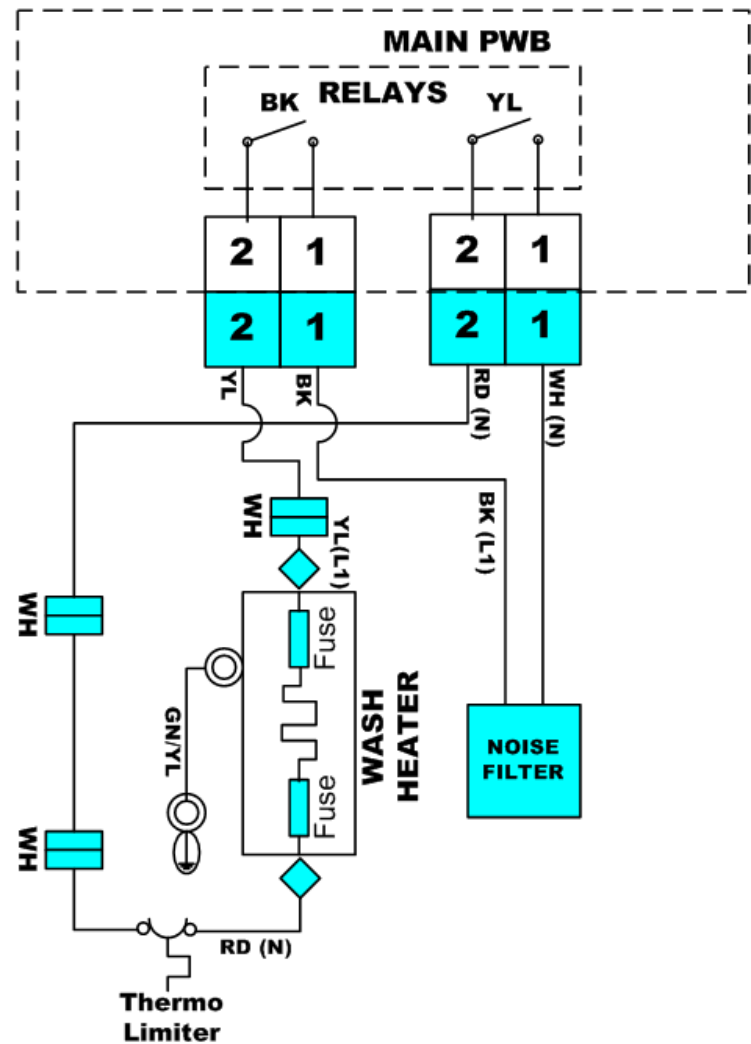


COMPONENT TESTING

Tub Heater and Thermo Limiter



Tub heater 120Vac
12Ω 1200W





ERROR MESSAGES

Some of the Error Messages

DE

DRAINAGE: Water is not drained completely within 12 minutes.

UE

UNBALANCE: Laundry unbalanced during spin.

PE

PRESSURE SENSOR: Pressure switch has a bad connection or the switch has failed.

FE

OVERFLOW: The MICON has detected that the water level is above normal..

LE

MOTOR ERROR: The MICON has determined there is a problem with the motor.

ERROR MESSAGES CONTINUED

Some of the Error Messages

tE

THERMISTOR ERROR : There is an error with the thermistor circuit.

dE

DOOR NOT CLOSING

E6

CLUTCH ERROR

dL

DOOR LOCK ERROR

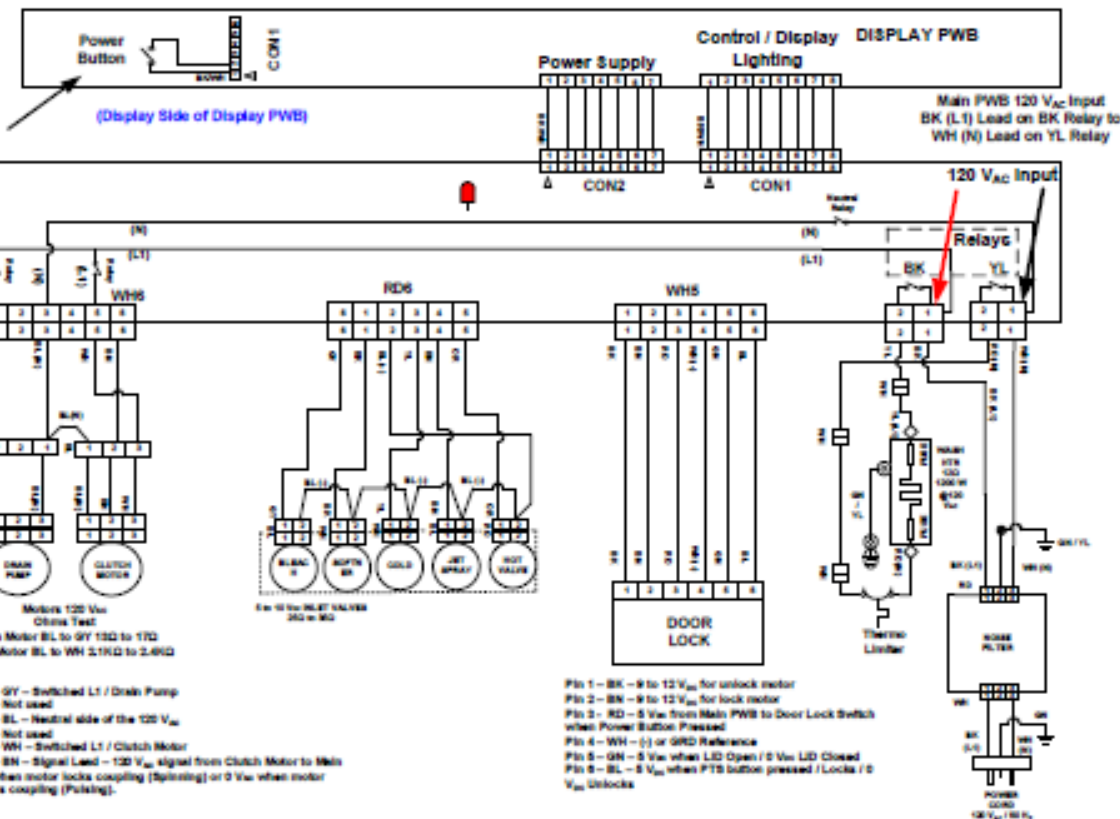
WT5101 WIRING DIAGRAM

WT5101** Wiring Diagram

CON 2 Main PWB
5 V_{CC} - Pin 1 to Pins 4, 6, & 7 / Regulated Power
12 V_{CC} - Pin 1 to Pin 5 / Power ON / RED LED ON
2 V_{CC} - Pin 1 to Pin 2 / Power ON / 735Hz to 900Hz

CON 1 Main PWB
2.5 V_{CC} - Pin 1 to Pins 8, 5, & 4
1.8 V_{CC} - Pin 1 to Pin 3
1.3 V_{CC} - Pin 1 to Pin 2

Display Board Power Button is a Normally Open (N.O.) Switch. Test with Ohm meter leads from Pin 1 to 2 In CON1. Press Button and continuity should be seen!



NOTES

- Test Mode
- Press & Hold WASH/RINSE & SOIL LEVEL
- Press POWER
- Press START / PAUSE to cycle thru tests
- Component Tests
- Voltage Tests with connectors installed
- Ohm Tests with connectors removed

Color / Abbreviations Legend

- | | |
|--|-----------------------------|
| BK - Black | BL - Blue |
| BN - Brown | GN - Green |
| GY - Gray | YL - Yellow |
| NA - White | RD - Red |
| SB - Sky Blue | V - Violet |
| WH - White | |
| GN/YL - Green w/ Yellow Trace | |
| (L1) - Line | (N) - Neutral |
| M - Motor | V _{AC} - Volts A/C |
| V _{DC} - Volts D/C | Hz - Frequency |
| TH - Thermostat | PS - Pressure Switch |
| COND. - Condensing | F - Fahrenheit |
| C - Celsius | Φ - Phase |
| V - Volts | CONN - Connector |
| NTC - Negative Temperature Coefficient | |

TEST MODE

- Press and hold the WASH / RINSE and SOIL LEVEL buttons; then press the POWER button. The buzzer will sound twice.
- Press the Start/Pause button to advance to the subsequent test mode step.

Number of times the START/PAUSE button is pressed	Check Pont	Display Status
None	Turns on all LED	T1 and Main Program Version
1 time	Button Check	T2 and Display Program Version
2 time	None	T3
3 time	Inlet valve for Bleach Detergent turns on. (Cold Water)	A and Water level frequency (1~10 Level)
4 time	※ On :67~33(26.7kHz~23.3kHz) Inlet valve for Softener Dispenser turns on. (Hot Water)	※ The meaning of 67~33 number is 26.7kHz~23.3kHz really B and Water level frequency (1~10Level)
5 time	Inlet valve for J-Dispenser turns on. (Cold Water)	C and Water level frequency (1~10Level)
6 time	Heater check	T4 and the coefficient of flood sensing
7 time	Wave force check	T5 and the coefficient of load sensing
8 time	Drain pump check	T6 and Water level frequency
9 time	Pulsator operates for 3 minutes.	T7 and the coefficient of load sensing
10 time	High speed spin	T8 and RPM
11 time	Off . Unlocks the door . Turns off all LED	None

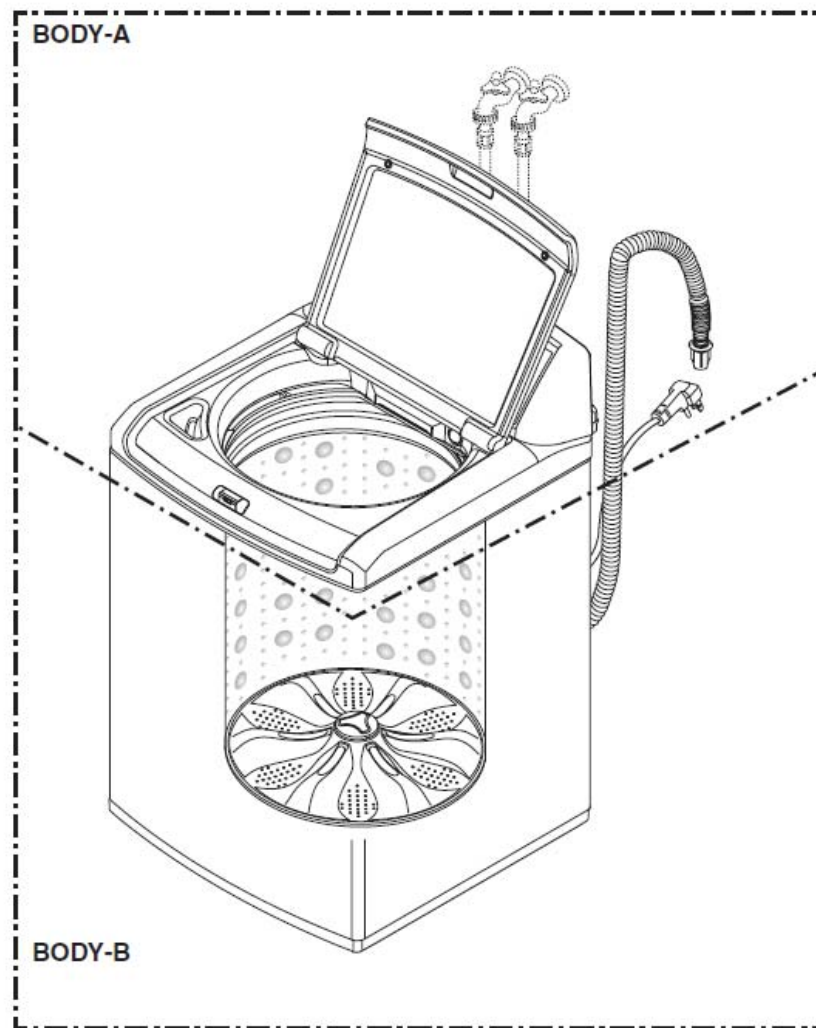
HIDDEN FEATURE

To Display RPMs:

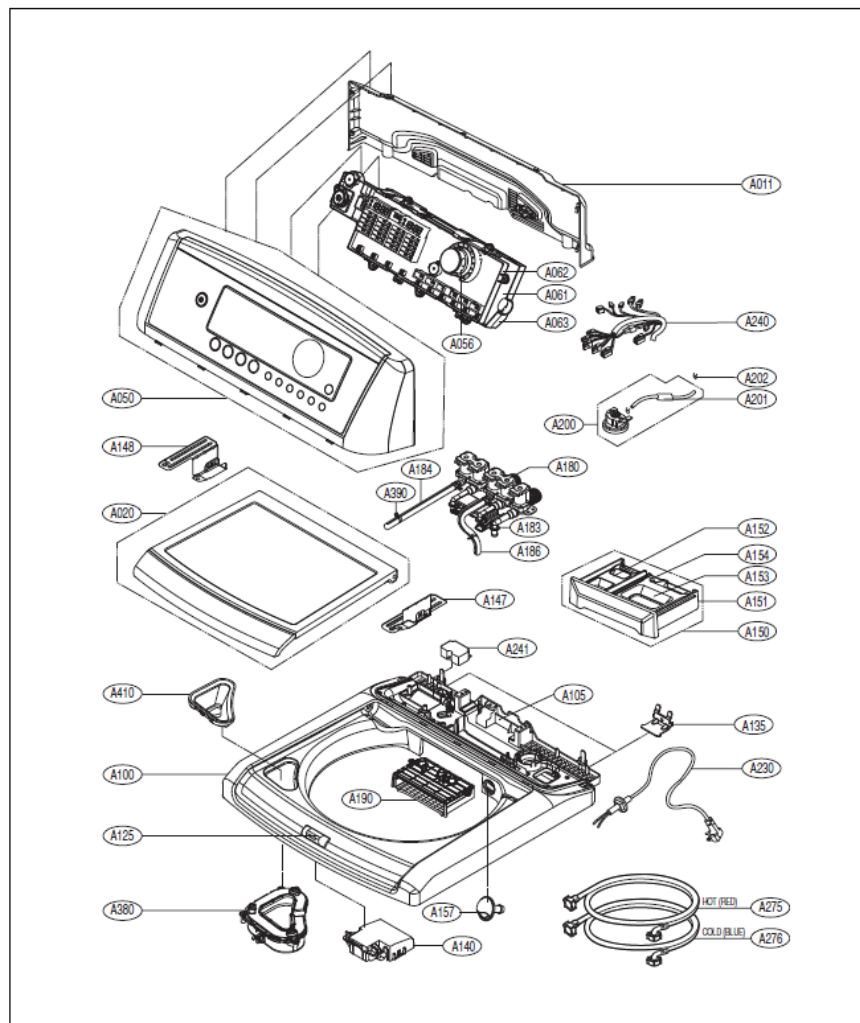
Press and hold the **SOIL LEVEL & CUSTOM PROGRAM** button during the cycle.



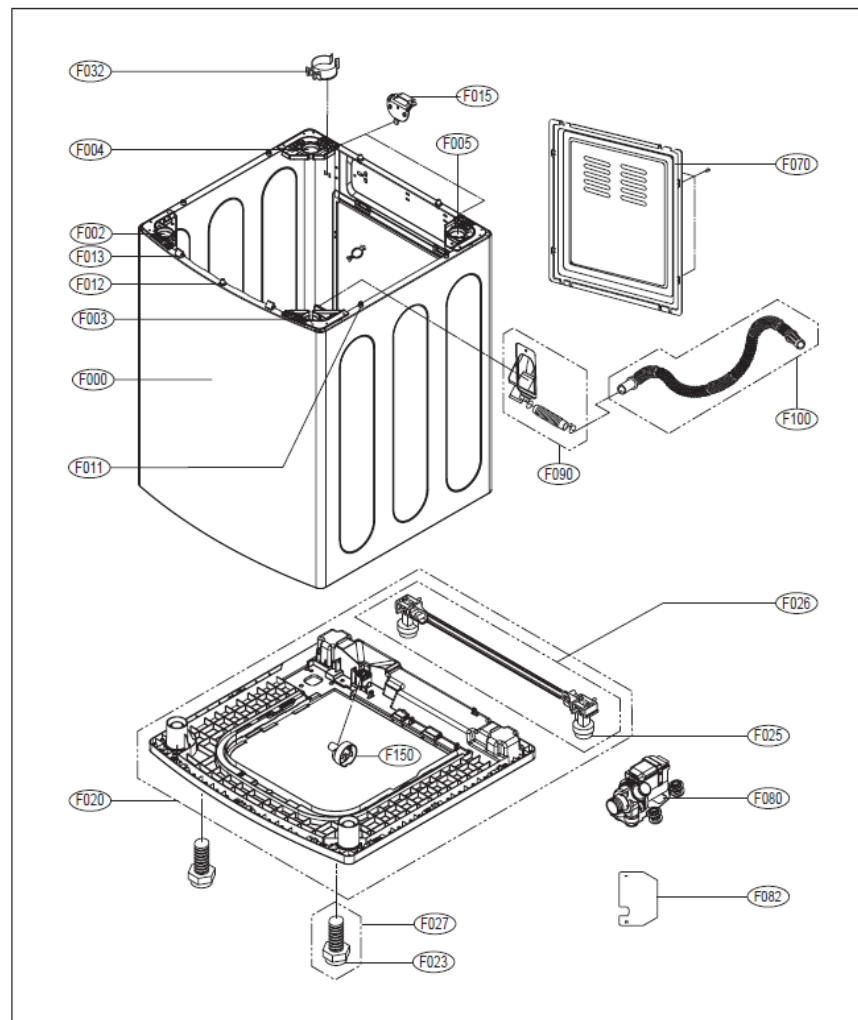
EXPLODED VIEW



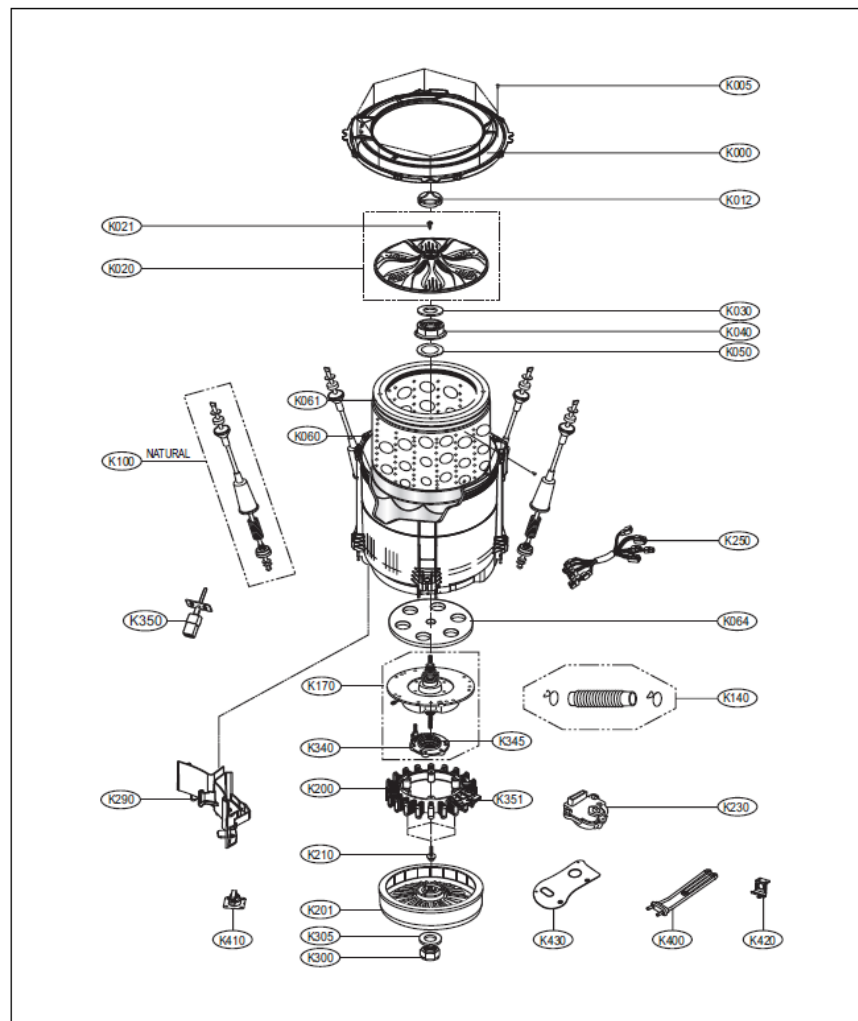
EXPLODED VIEW OF TOP COVER ASSEMBLY



EXPLODED VIEW OF OUTER CASE ASSEMBLY



EXPLODED VIEW OF TUB ASSEMBLY





NOTES
