



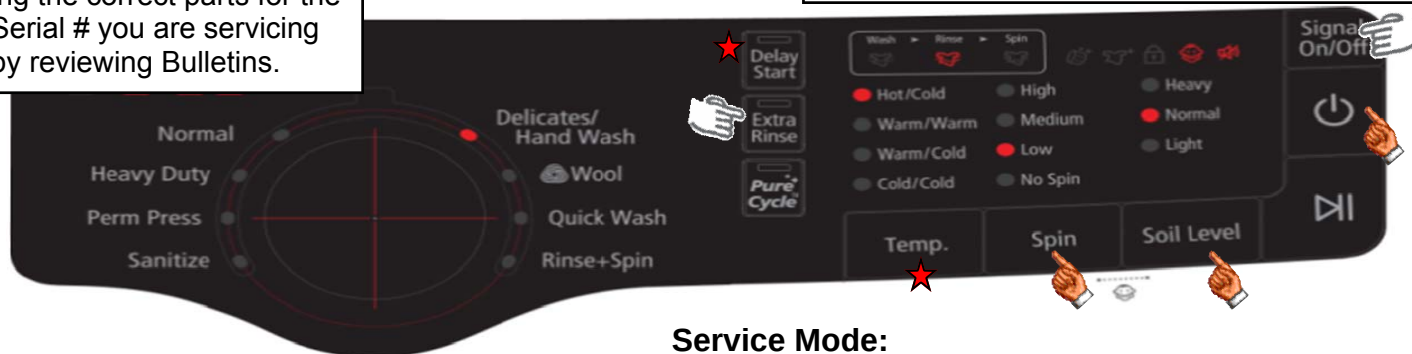
Fast Track Troubleshooting

Model: WF220ANW/XAA

Please Note: There are Serial # changes on this model, verify you are ordering the correct parts for the Serial # you are servicing by reviewing Bulletins.

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.

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Quick Test Mode:

To enter press **Spin, Soil, & Power** simultaneously with the power off.

1. All LED's light up and the washer beeps as it enters the Quick Test Mode.

2. The unit displays the software version.

3. After the displaying the software version, turn Jog dial CCW until version disappears.

Press **Spin** to test Door Lock/Unlock circuit.

Press **Temp Key (with door locked)** to cycle through the Water Valves circuit test in this order: Cold Main, Bleach, Hot, then off.

Press **Soil Key** to test the Heater

Press **Signal Key** to test the Pump

Spin Only option:

Power on, Press and hold **Spin** until display changes. Press **Spin** to select spin time.

Press **Start/Pause** to start cycle, Normal Cycle 10/12 minutes, Heavy Duty Cycle 11/13 minutes, Delicate Cycle 8 minute. Spin speed varies with cycle.

EEPROM Clear Check

Power off, Press Delay Start, and Power Key at the same time. Good = Goo Fail = FAI
All memory will be cleared, including Fault Codes
This should be done when a new Main PCB is installed

Fabric Softener Dispenser Test:

Start Rinse and Spin Cycle. After fill is completed remove detergent drawer, place towel below opening and within 3 minutes the dispenser will activate

Service Mode:

This mode allows more detailed operation tests and troubleshooting, to enter press **Signal & Extra Rinse** simultaneously with the power on.

While in Service Mode (the Service Mode can be entered while the unit is in a wash cycle) the following tests can be performed:

Quick Spin Test = Delay Start & Temp: This accelerates the drum motor from 0 to maximum RPM over a few minutes. Press the Start/Pause button during the ★ test to hold its spinning speed up to 10 min. before going back to Quick Spin Test Mode, return to spin with **Delay Start & Temp**.

Cycle Count = Press the **Signal** button to see how many times the unit was used

Soft Ware # = Press the **Soil Level** button to see the software version information

Fast Time Down = Press the **Temp** button to enter and **Temp** to advance to the next cycle

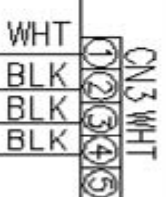
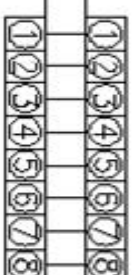
Fault Code Test = Press the **Spin** button to view the stored fault codes – then turn Dial to view error codes (Push Start/Pause while the code is displayed to view the number of cycles since the error occurred, push Start/Pause again to get back to faults)

Peripheral (Main PCB) input Tests, enter Service Mode & press Extra Rinse.

1. Turn the Dial CCW to **Normal**, Temperature will be displayed in Celsius.
2. Turn the Dial CCW to **Heavy Duty**, Temperature will be displayed in Fahrenheit.
3. Turn the Dial CCW to **Perm Press**, The door switch status will be displayed (CL if Closed, OP if Open).
4. Turn the Dial CCW to **Sanitize**, The door lock Switch status will be displayed (UL if unlocked, LO if locked).

Water Frequency/Water Sensor Testing Select a cycle & start the washer, enter Service Mode & press Extra Rinse. Turn the Dial so that the **Rinse+Spin** LED is turned on. Next, press the Start/Pause Key. The Water Frequency will be displayed. The frequency will change as the unit fills.

PCB SUB(DISPLAY)



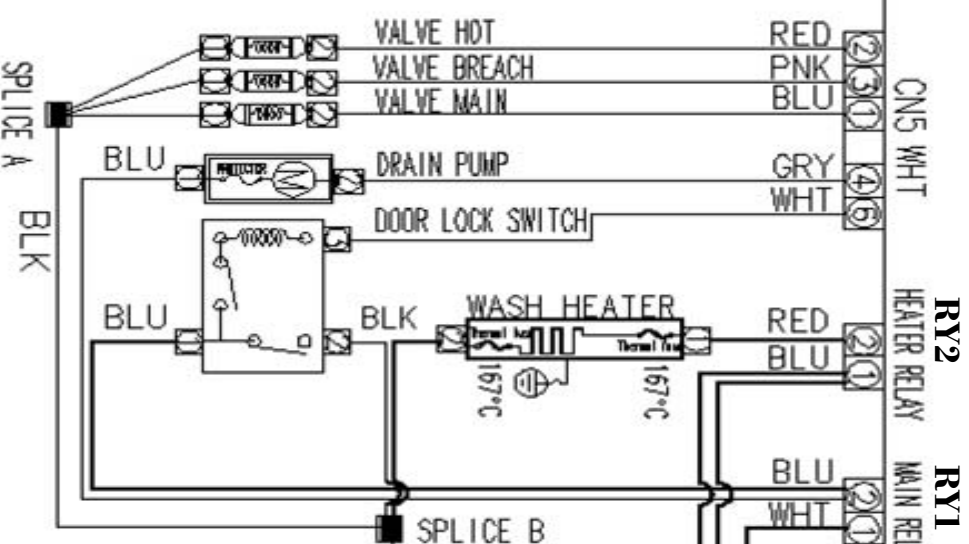
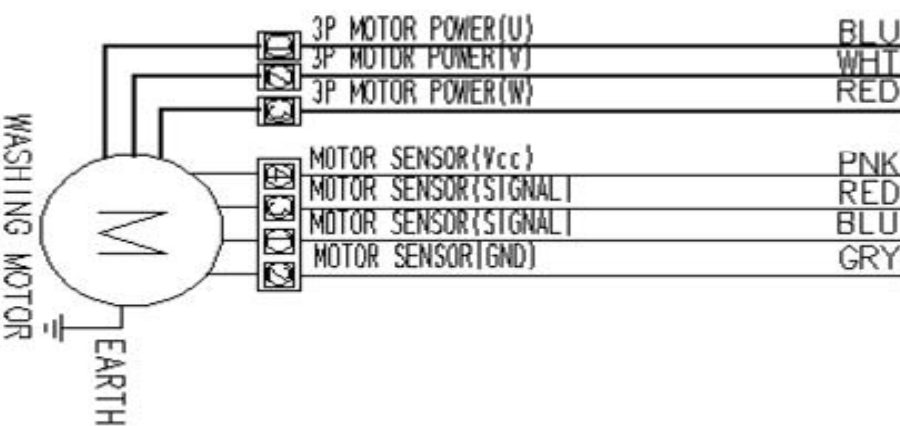
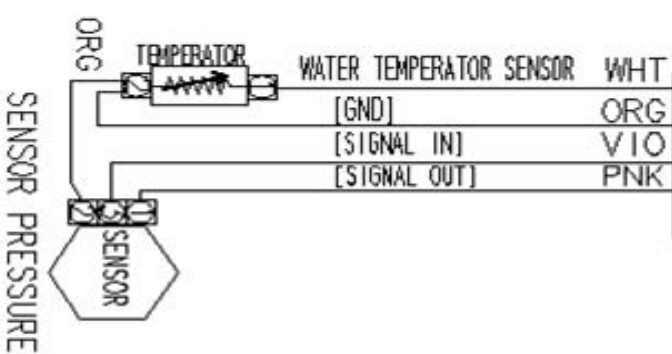
PCB MAIN CONTROL

CN1 WHT CN8 WHT

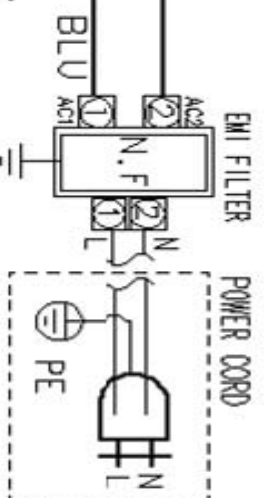
CN5 WHT

RY2
HEATER RELAY
RY1
MAIN RELAY

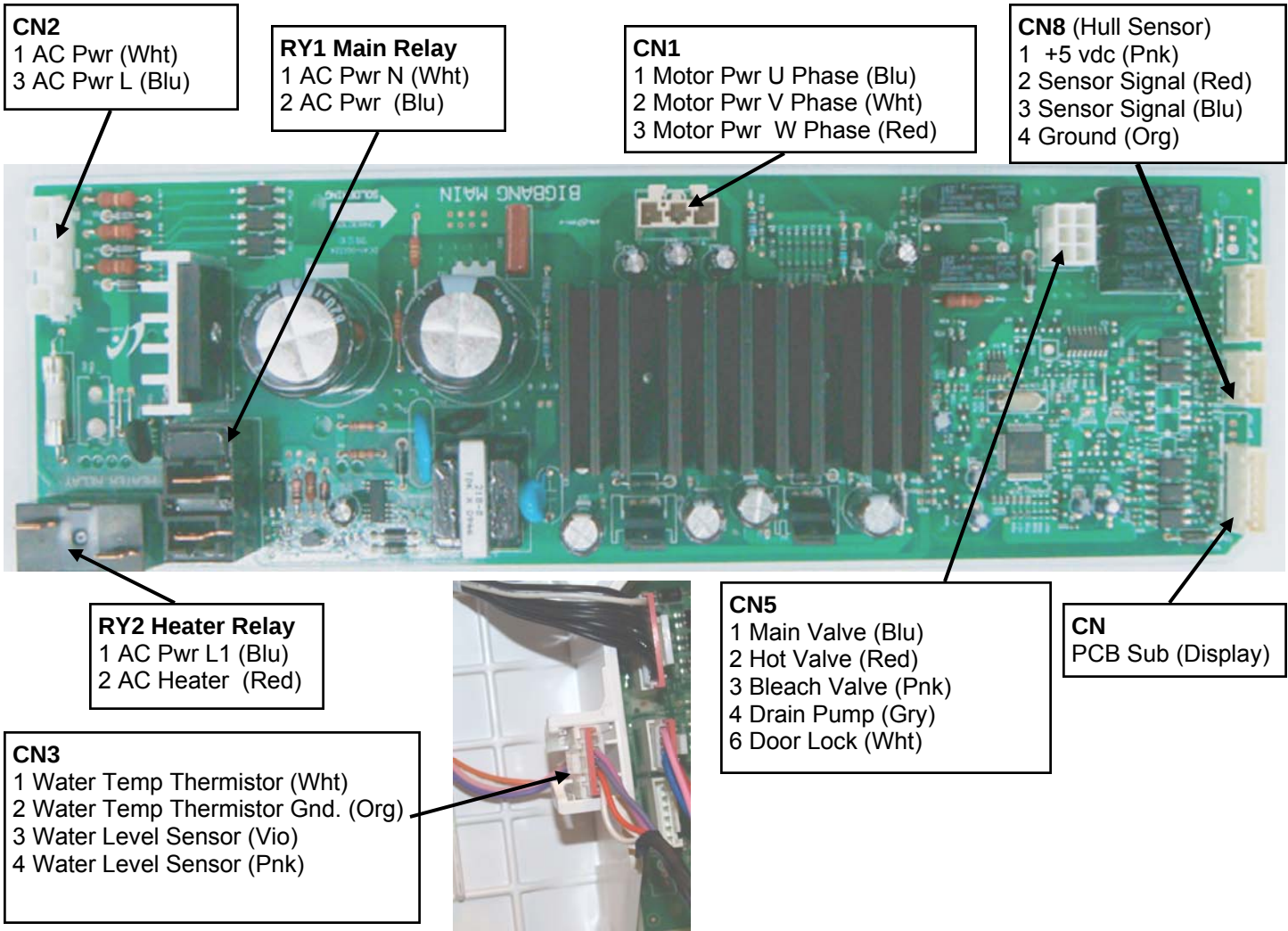
CN2 WHT



* Door Lock SW Condition
: Door is opened, Doorlock is unlocked.



Washer Connector Checks WF220



NOTICE

The unit sometimes will pause during Sanitize, or Pure Cycle, wash modes and appear not to be functional. The Sanitize and Pure Cycle wash cycles have target temperatures to assure washer performance. If the water temperature doesn't meet the target temperature during the wash cycle, the washer will automatically add extra time to allow the heater to bring the water up to the programmed, or target temperature. In this stage, the displayed time will pause and hold until the heating operation has been completed. It is at this point that the customer may feel that operation has stopped. (The maximum added programmed time is 30 minutes)

Water Level Sensor Check	Test 1	Test 2
Voltage: Connector CN 3 Pin 4 (Pink) and CN3 Pin 2 (Orange) And Connector CN 3 Pin 3 (Violet) and CN3 Pin 2 (Orange)	Operating voltage at no water in the drum-2.5VDC	Operating Resistance (Power off)
Resistance: Connector CN 3 Pin 8 (Pink) and CN3 Pin 7 (Violet)		Pin 8 (Pink) and Pin 7 (Violet) 22- 24Ω
Hall Sensor Check	Test 1	Test 2
Connector CN8 Pin 4 (Orange) and Pin 2 (Red) additionally Pin 4 (Orange) and Pin 3 (blue)	Manually spin the drum to see the voltage change, Power On. 0Vdc or 3.75Vdc	N/A
Motor Check	Test 1	Test 2
Connector CN9 Pin 1 (Blue), Pin 2 (White) and Pin 3 (Red)	Power Off 11.5Ω across Pins 1-2, Pins 1-3, & Pins 2-3	N/A

Door Lock Check	Test 1	Test 2
Connector CN Pin 3 (Blk) and RY1 Pin 2 (Blue)	When Door is Unlocked 6VAC When Door is Locked 0VAC	N/A
Heater Relay Check	Test 1	Test 2
RY2 pin 2 Red and CN2 pin 3 Blk	120VAC with the Heater activated	
Door Switch Check	Test 1	Test 2
Connector CN5 Pin 6 (Wht) and RY1 Pin 2(Blu)	48Ω Door Closed, ∞Ω Door Open	
A/C Power Check	Test 1	Test 2
Connector CN 2 Pin 1 (Blu) and RY1 Pin 1 (Wht) Connector CN 2 Pin 1 (Blu) and RY1 Pin 2 (Blu)	Power Off 120VAC Power Off 0VAC - Power On 120VAC	N/A
Drain Motor Check	Test 1	Test 2
Connector CN5 Pin 4 (Gry) and RY1 Pin 2 (Blu)	120VAC with the pump On and 0VAC with the pump off	Power Off, the resistance should be 14Ω
Water Valve Check	Test 1	Test 2
Connector CN2 Pin (Blu) to CN5 Pin 3 (Pink), Pin 2 (Red) , Pin 1 (Blue)	120VAC with the Valve On and 0VAC with the Valve off	Power Off, valve resistance is from 1202Ω - 1245Ω

Error Type	Error Code	Details
Water Level Sensor	LE 8	Check the Hose where the sensor is connected, may be loose, pinched, damaged or clogged. Also check the sensor it may be disconnected or defective. The Main PCB may also be defective
Water Level Sensor	1E	Water Level Sensor Trouble, Sensor out of range
Motor Drive Error or Hall Sensor error	3E , E3, bE , 25	Check the motor drive connector, it may be loose. The hall sensor may be disconnected, loose or damaged . Check for a foreign object inside the motor or motor damage. The stator might be loose or damaged. The drum might be overloaded from too many clothes or the relay or PCB might be defective.
Water Supply Error	nF 3	Check the water valve wiring harness. Check whether the water supply valve is clogged with foreign material and whether water is supplied properly. Check for reversed fill hoses Check water temperature, if sensed as higher than 50 °C in the Wool or Lingerie cycle it will create error. Check the relays, if they operate correctly replace the Main PCB.
Fill Hoses Reversed	nF1	Correct Hot/Cold hose connections
System Error	SF1, SF2, SF3	Replace the Main PCB

Error Type	Error Code	Details
Drain Error	nD 1	Check for Foreign material entering the pump or hoses. Check to make sure the wiring harness is connected properly. Check the water pump terminal .
Power Error	2E , 91, 92	Make sure to check the operating voltage. (An error occurs when under or over voltage is supplied.) Check whether a plug receptacle is used. When the connecting wires are too small (extension cord use), a momentary low voltage may drop up to 10 V Main PBA fault (sometimes)
	PF	Momentary Power Failure
Communication Error	AE	Check the wire connections and terminal contacts between the sub and main PBAs. Check for disconnected wires. Check whether the sub PCB is short circuited because of moisture. If the main PCB's communication circuit is faulty, replace it.
EEPROM Fault.	11	Go to "EEPROM Clear Mode" If display shows "FAiL", Replace Machine Control Board
Switch Error (Main Relay Error)	E2 15	Check whether either the Power switch or a tact switch (any button) is stuck down. Check whether the service PBA holding screws are fastened too tight pinching the contacts If the main PBA switching IC on/off error has occurred, replace the main PBA.
	SR	The "E2" error occurs if the main relay connections are incorrect. Check the connections. If there is no error in the connections, replace the main PBA
	dS 22 (Before operation)	Check the door switch and latch alignment . Check the latch for damage Check the wiring harness to the latch. Check the door switch. Replace if faulty. Check the main PBA door sensing circuit. Replace if faulty. Finally verify he operation of the Main PCB
Door Error	dL 18 (During operation)	
	LO 2 (Unlock Fail)	
	FL 4 (Lock Fail)	

Error Type	Error Code	Details
Heater Error	Hr 36 (Heater Relay)	This can be a short or a wire disconnected to the heater circuit. This can also be problem with the tub contacting the heater or if the water in the tub is frozen or there is no water. The error is triggered by temperatures above 145C. If the heater has no error, this occurs because of a PBA relay malfunction. Check the wiring harness to the heater. An Hr error occurs if the steam heater, is faulty, replace it.
	9E1	EMC Filter issue or a noise spike from an external device
Overflow error	OE 1E	Water is supplied continually because the water level detection does not work. - Verify the drain is working properly, the water level detection does not work and water is supplied continually. Verify the water valves shut off fully. Finally check the water level sensor.
Temperature Sensor Error	29 	The washing heater temperature sensor in the tub has an error. Check the connections for the washing heater temperature sensor connector.
Unbalance Error	dC 10	Check the type of laundry. Check whether it may cause an unbalanced situation.- Educate the consumer in this case, to press pause, reposition the load or remove a few items. Press start to continue and complete the wash cycle.
Silver Care Kit (Silver Care PCB) Failure.	7E	Check Silver Care PCB ,Main PCB & Wire-harness
Mems or Har-ness Failure	8E	Check MEMS PCB ,Main PCB & Wire-harness
Foaming Detected	SUdS, Sd, SUd	This occurs when too much foaming is detected. It is also displayed while foaming is removed. When the removal is finished, the normal cycle proceeds. (This is one of the normal operations. It is an error for preventing non-sensing faults.)

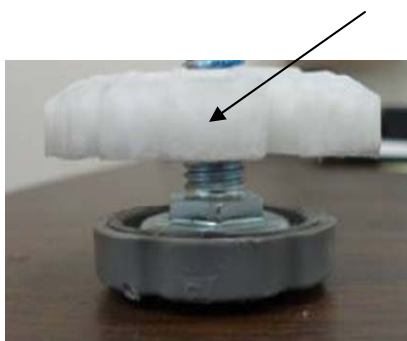
Check whether the washing machine is level to the floor with respect to the original position of the washing machine prior to service. Doing this now will reduce the need for a redo call and customer dissatisfaction.

✓ Vibrations can shorten the lifetime of the product.

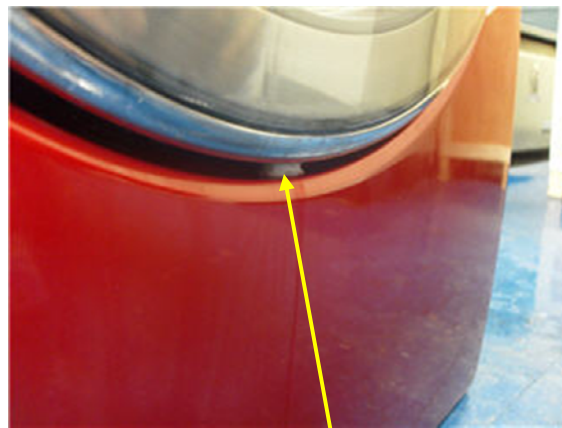
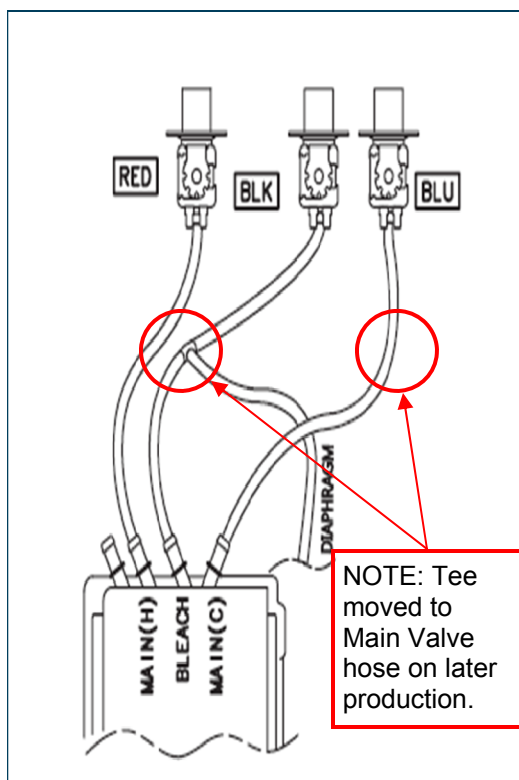
Location considerations

Do not install your washer in areas where water may freeze, since your washer will always maintain some water in its water valve, pump, and hose areas. This can cause damage the belts, the pump, hoses and other components. **Operating temperature should be above 60°F/16°C.**

When installing a washer and dryer on the first, or second floor, do not exceed this leg adjustment height for stability.



Water valve connections for the Detergent Drawer



When using non-HE detergents, or using too much detergent for the water hardness and soil level of the clothing, over sudsing will occur. When this happens there will be leaks out of the detergent drawer and door. Please advise consumer of proper detergent usage.



It is normal for some water remain in the Detergent Drawer after it completes washing. Bleach is usually flushed out into the tub at the beginning of the washing. Also, its compartment is washed again during the following rinse cycle, removing any remnants.

To unlock the door if washer is stuck in the door locked mode.

Remove top, remove console, remove screws for front panel, pull panel forward.

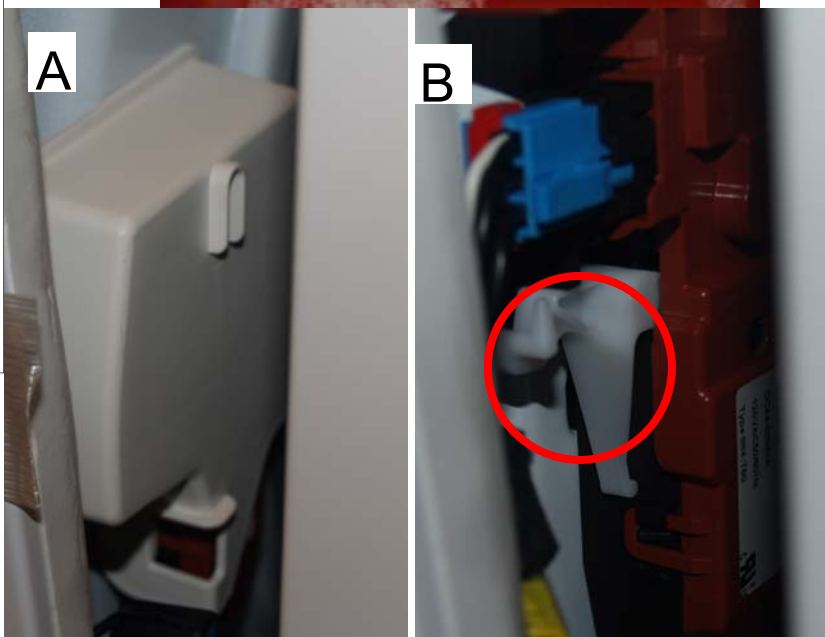
Picture "A" pull bottom of plastic cover away from front until it pops off.

Picture "B" pull down on plastic lever to release lock.

Remove lock ass'y to replace plastic cover.

Items Packed With Washer

BOLT-SPANNER (10-13mm Wrench) DC60-40146A
 ASSY HOSE WATER Cold DC97-15648A
 ASSY HOSE WATER Hot DC97-15648B
 CAP-FIXER DC67-00307A
 HOSE-HANGER DC62-10278A

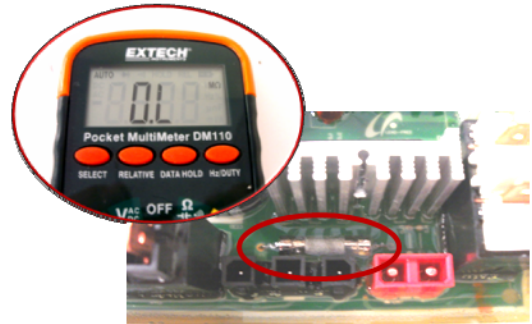


SUPPORT INFORMATION

Training — Plus One <http://my.plus1solutions.net/clientPortals/samsung/>
 Help — GSPN <http://service.samsungportal.com/>

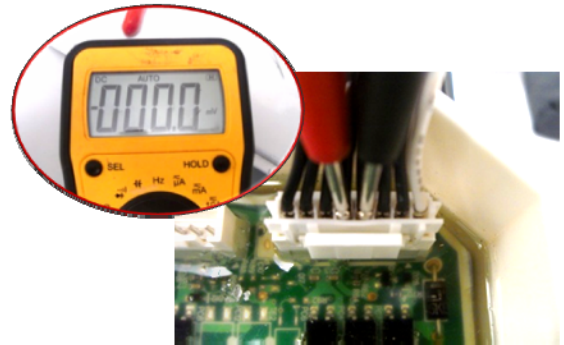
No Power or Dead Unit Troubleshooting

Check the fuse, If the Is bad replace the main PCB. If the fuse Is good check voltage from the CN7 connector.



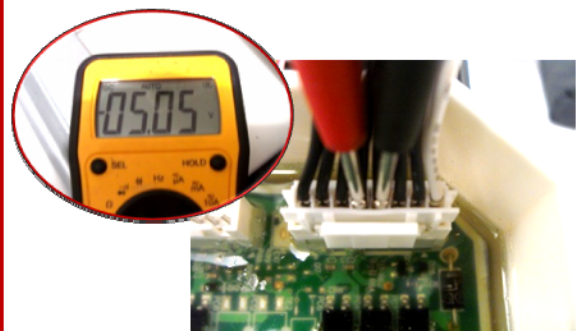
BAD FUSE READING REPLACE MAIN PCB

Check voltage from CN7 connector, PIn #4 and PIn #5, It should read around 5V. If not replace main PCB.



NO VOLTAGE BEING SUPPLIED REPLACE MAIN PCB

If the voltage from PIn #4 and PIn #5 IS reading around 5V, replace the sub PCB.



VOLTAGE BEING SUPPLIED REPLACE SUB PCB