

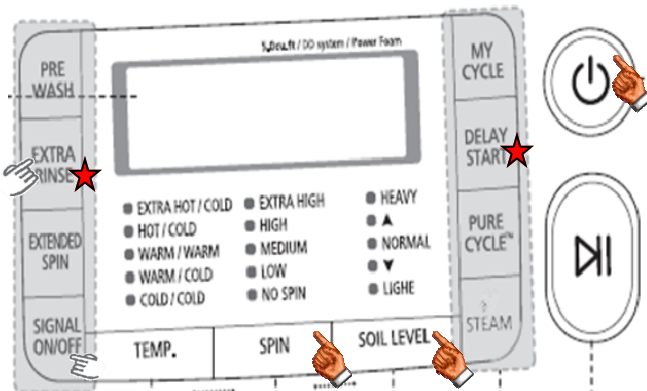
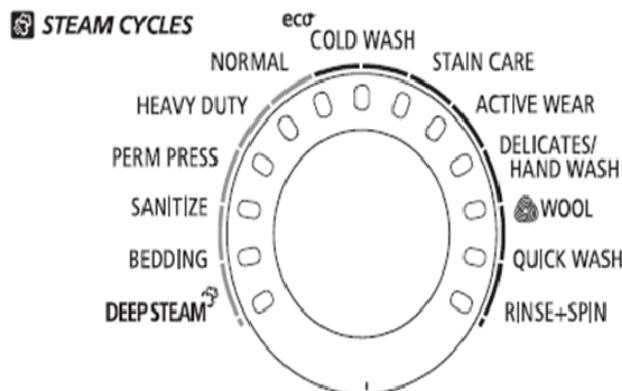


Fast Track Troubleshooting

Model:
WF520ABP/XAA
WF520ABW/XAA

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.

Publication # **nwWF520** Revision Date **06/18/2013**



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. After the displaying the software version, LCD will display Model information. If EEEE is displayed the PCB ass'y is defective.
4. When the version is displayed, turn the Jog-Dial CCW so that the version disappears. Press the following keys to test the various components:

Press **Temp Key** to cycle through the Water Valves circuit test (lock the door first) in this order: Pre-Wash, Bleach, Cold Main, Hot, & Steam, then off.

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

Press **Steam Level Key** to test Circulation/Drain Pump.

Press **Soil Key** to test the Water/Steam Heater.

When either **Test** or **Spin** is displayed on the LCD, press **Start/Pause key** to conduct the motor test. In **Test mode**, you can test the clockwise and counter-clockwise movement of the motor. In **Spin mode**, you can test the motor at a high rpm.

EEPROM Clear Check

Power off, Press Delay Start, Signal and Power Key at the same time. Good = Good Fail = FAIL

All memory will be cleared, including Fault Codes

This should be done when a new Main PCB is installed

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 following tests can be performed:

Quick Spin Test = Delay Start & Extra Rinse: This accelerates the drum motor from 0 to maximum RPM over a few minutes. Note: Stay with the washer during this test, out of balance detection may be bypassed. Press the Start/Pause button during the test to hold its spinning speed for 10 minutes before going back to Quick Spin Test Mode. Press and hold the Delay Start & Extra Rinse button to continue.

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

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

Fault Code Test = Press the Spin button to view the stored fault codes – then turn Jog 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 to go back to faults)

Peripheral (Main PCB) input Tests

1. Select Extra Wash. Then turn the Jog-Dial so that the **Heavy Duty LED** is turned on. Next, press the Start/Pause Key. The Water Temperature will be displayed in Fahrenheit.

2. Select Extra Wash. Then turn the Jog-Dial so that the **Permanent Press LED** is turned on. The door status will be displayed (OP if open, CL if closed).

3. Select Extra Wash. Then turn the Jog-Dial so that the **Sanitize LED** is turned on. The door lock Switch status will be displayed (UL if unlocked, Lo if locked).

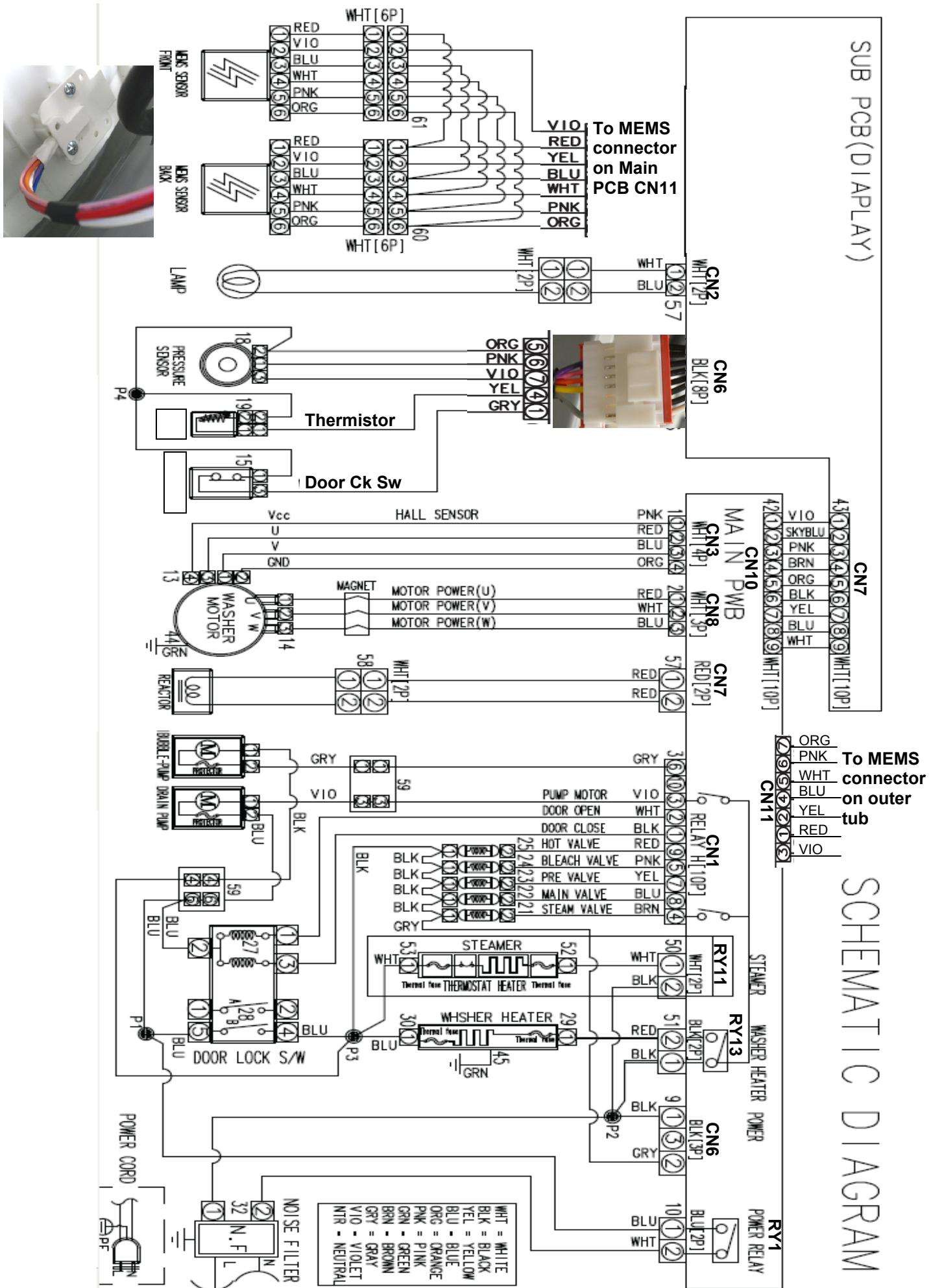
4. Select Extra Wash. Then turn the Jog-Dial so that the **Bedding LED** is turned on. The Water Frequency will be displayed.

SUPPORT INFORMATION

Training — Plus One <http://my.plus1solutions.net/clientPortals/samsung/>

Help — GSPN <http://service.samsungportal.com/>

SCHEMATIC DIAGRAM



Washer Connector Checks WF520

CN11 Mems Boards

- 1 3.3vdc (Red)
- 2 Chip Select 1 (Yel)
- 3 Chip Select 2 (Vio)
- 4 Output Signal (Blu)
- 5 Input Signal (Wht)
- 6 Clock Signal (Pnk)
- 7 DC Common (Org)

CN10

- | | |
|-----------------------------|-------------------------|
| 1 Tx Disp pcb(Vio)CN7 | 2 Rx Disp pcb(S/Blu)CN7 |
| 3 Reset Signal Disp(Pnk)CN7 | 4 5vdc (Brn) CN7 |
| 5 DC Common (Org) CN7 | 6 15vdc (Blk) |
| 7 Main Reset (Yel) | 8 Water Level (Blu) |
| 9 Watchdog Signal (Wht) | |

CN6

- 1 AC Pwr (L1) (Blk)
- 2 Door Lock Detection (Gry)

CN8

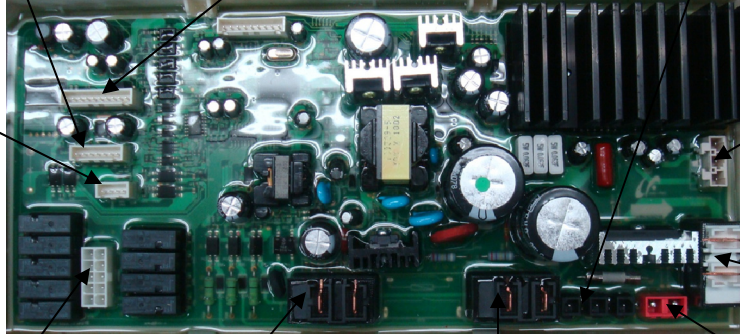
- 1 Motor Pwr U Phase (Red)
- 2 Motor Pwr V Phase (Wht)
- 3 Motor Pwr W Phase (Blu)

CN3 (Hall Sensor)

- 1 +5 vdc (Pnk)
- 2 Sensor Signal (Red)
- 3 Sensor Signal (Blu)
- 4 Ground (Org)

CN1

- 1 Door Lock Close (Blk)
- 2 Door Lock Open (Wht)
- 3 Drain Pump (Vio)
- 4 Steam Valve (Brn)
- 5 Bleach Valve (Pnk)
- 6 Bubble Pump (Gry)
- 7 Pre Valve (Yel)
- 8 Main Valve (Blu)
- 9 Hot Valve (Red)



RY1 Power Relay

- 1 (Blu)
- 2 (Wht)

RY11 Steam Htr Relay

- 1 Heater (Wht)
- 2 L1 (Blk)

RY13 Washer Htr Relay

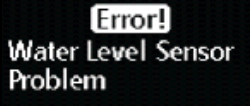
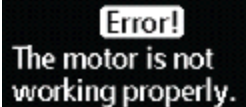
- 1 L1 (Blk)
- 2 Heater (Red)

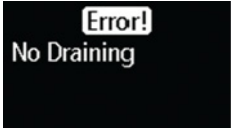
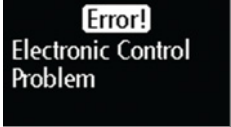
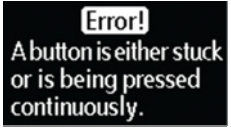
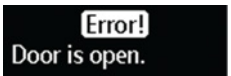
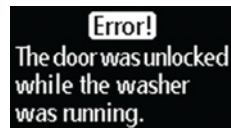
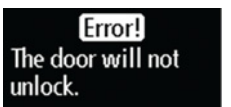
CN7

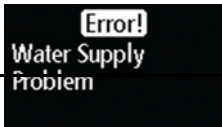
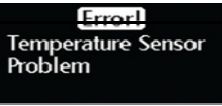
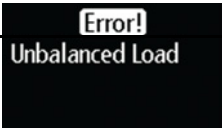
- 1 Reactor Connector Port (Red)
- 2 Reactor Connector Port (Red)

Steam Heater Relay Check	Test 1	Test 2
Connector CN6 Pin 2 (Gray) and RY11 (heater relay) Pin 1 (White)	120VAC with the Heater On and 0VAC with the Heater off	Power Off, heater resistance is 15.6 Ω
Heater Relay Check	Test 1	Test 2
Connector CN6 Pin 2 (Gray) and RY13 (heater relay) Pin 2 (Red)	120VAC with the Heater On and 0VAC with the Heater off	Power Off, heater resistance is 16.6 Ω
Hall Sensor Check	Test 1	Test 2
Connector CN3 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	N/A
	0Vdc or 3.75Vdc	
Motor Check	Test 1	Test 2
Connector CN8 Pin 1 (Red), Pin 2 (White) and Pin 3 (Blue)	Power Off 11.5Ω across Pins 1-2, Pins 1-3, & Pins 2-3	N/A
A/C Power Check	Test 1	Test 2
Connector CN 6 Pin 1 (Black) and RY1 Pin 1 (Blu)	Power On 120VAC	N/A

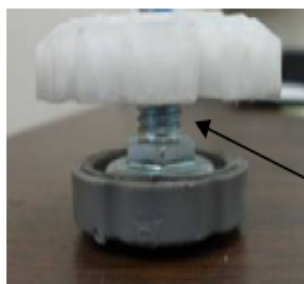
Door Lock Check	Test 1	Test 2
Connector CN6 Pin 2 (Gray) and CN1 Pin 1 (Black)	When Door is Locked or Unlocked there is a pulse of 120VAC for a few milliseconds.	With Power Off, the resistance between CN1 Pin 1 (Blk) and Power Relay pin 2 (Blu) will be between 47 - 57Ω
Door Unlock Check	Test 1	Test 2
Connector CN6 Pin 2 (Gray) and CN1 Pin 2 (White)	When Door is Locked or Unlocked there is a pulse of 120VAC for a few milliseconds.	With Power Off, the resistance between CN1 Pin 2 (Wht) and Power Relay pin 2 (Blu) will be between 47 - 57Ω
Drain Motor Check	Test 1	Test 2
Connector CN1 Pin 3 (Vio) and RY1 Pin 1 (Blu)	120VAC with the pump On and 0VAC with the pump off	With Power Off, the resistance between CN1 Pin 3 (Vio) and Power Relay pin 2 (Blu) should be 13.9Ω
Water Valve Check	Test 1	Test 2
Connector CN6 Pin 2 (Gray) to CN1 Pin 5 (Pink), Pin 4 (Brown) , Pin 7 (Yellow), Pin 8 (Blue), Pin 9 (Red)	120VAC with the Valve On and 0VAC with the Valve off	Power Off, valve resistance is from 1202Ω - 1245Ω

Error Type	Error Mode		Details
	LED	LCD	
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
			
Motor Drive Error or Hall Sensor error	3E		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.
	E3		
	bE 25		
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 PCB

Error Type	Error Mode		Details
	LED	LCD	
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 . Check for freezing
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. 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
	SR		
	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 the operation of the Main PCB
Door Error	dL 18 (During operation)		
	LO 2 (Unlock Fail)		
	FL 4 (Lock Fail)		

Error Type	Error Mode		Details
	LED	LCD	
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		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.)
	8E1		Front MEMS Sensor problem: Restart the cycle If the error continues, Replace Mems sensor
	8E2		Rear MEMS Sensor problem: Restart the cycle If the error continues, Replace Mems sensor
Check whether the was  floor with respect to the original position of the washing machine prior to service. Doing this n redo call and customer dissatisfaction. ✓ Vibrations can shorten the lifetime of the product.			

INSTALLERS.....To Test the leveling of the washer turn power on press and hold the “**SPIN BUTTON**” for 3 seconds. The display will change for a spin only mode



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

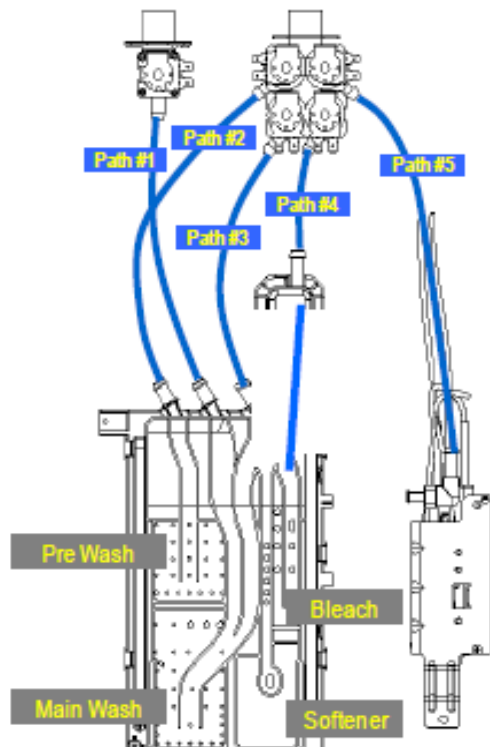


Water valve connections for the Detergent Drawer

V#1	V#2	V#3	V#4	V#5
MAIN(H)	PRE WASH	BLEACH	MAIN(C)	STEAM

Items Packed With Washer

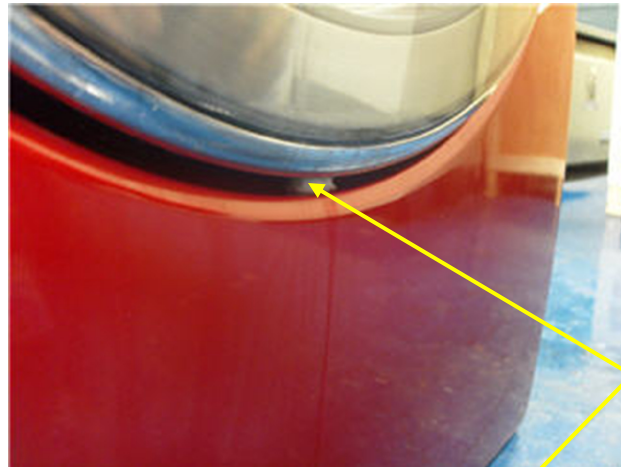
BOLT-SPANER (10-13mm Wrench) DC60-40146A
 ASSY HOSE WATER HOT DC97-15648B
 ASSY HOSE WATER COLD DC97-15648A
 MANUAL-BOOK DC68-02838A
 CAP-FIXER DC67-00307A
 HOSE-HANGER DC62-10278A



It is normal for a small amount of water remaining in 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.

Stacking Kit : (Model No : SK-5A/XAA)

Samsung washers and dryers can be stacked to maximize usable space. An optional stacking kit is available for purchase from your Samsung retailer



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.



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.**

Laundry Touch Up Paints

TOUCH UP PAINT, BLUE ONYX	DH81-11980A
TOUCH UP PAINT, IMPERIAL SILVER	DH81-11981A
TOUCH UP PAINT, NEAT WHITE	DH81-11982A
TOUCH UP PAINT, STRATUS GRAY	DH81-11983A
TOUCH UP PAINT, TANGO RED	DH81-11984A