

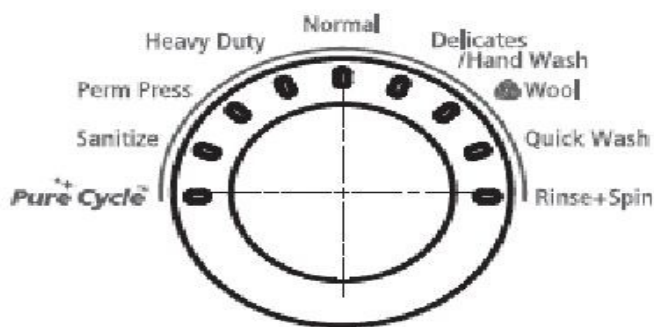


Fast Track Troubleshooting

Publication # **rsWF231** Revision Date 12/20/2011

Model:
WF231ANW

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.



Quick Test Mode



Note: This test erases all faults and memory:

To enter press **Soil, Spin, & 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 for a second then clears the EEprom. If EEEE is displayed the PCB ass'y is defective.
3. When the version is displayed, turn the Jog-Dial so that the version disappears. Each step of the Jog-Dial displays the following; cycle count, water level frequency, water temperature, EP condition, test, spin, version.

Press the following keys to test the various components.

Water valves: (lock the door first) Press **Temp Key** to cycle in this order: Bleach, Cold Main, Hot & then off.

Door Lock/Unlock: Press **Spin Key**.

Drain Pump: Press **Signal Key**.

Water heater: Press **Soil Level Key**.

Motor test: When either **Test** or **Spin** is displayed on the LCD, press **Start/Pause key**.

Test mode: You can test the clockwise and counter-clockwise movement of the motor. However, the water level must satisfy the heater water level (24300) to enter Test mode.

Spin mode: You can test the motor at a high rpm.

Demo mode: With power on press **Pure cycle** and **Extra rinse**. '----' is displayed.

Wash; press **Temp**. UASH is displayed. Press **Start** and agitator operates for 5 minutes without water.

Spin; press **Spin**. SPin is displayed. Press **Start** and unit spins to 1030 RPM for 4 minutes without water.

LED; press **Soil**. LED is displayed. Press **Start** and all LEDs are lit for 30 seconds.

Service Mode:

This mode allows more detailed operation tests and troubleshooting, to enter press **Delay Start & Spin** simultaneously with the power on.

While in Service Mode 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. **Note: Stay with the washer during this test, out of balance detection is bypassed and the door may not lock.** Press the Start/Pause button during the test to hold its spinning speed for 10 minutes before going back to Quick Spin Test Mode.

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

Fast Time Down = Start Cycle, then Service mode. Press the Temp button to advance to the next cycle

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 cycle # that the error occurred)

Peripheral (Main PCB) input Tests; Select Extra Rinse (display shows In)

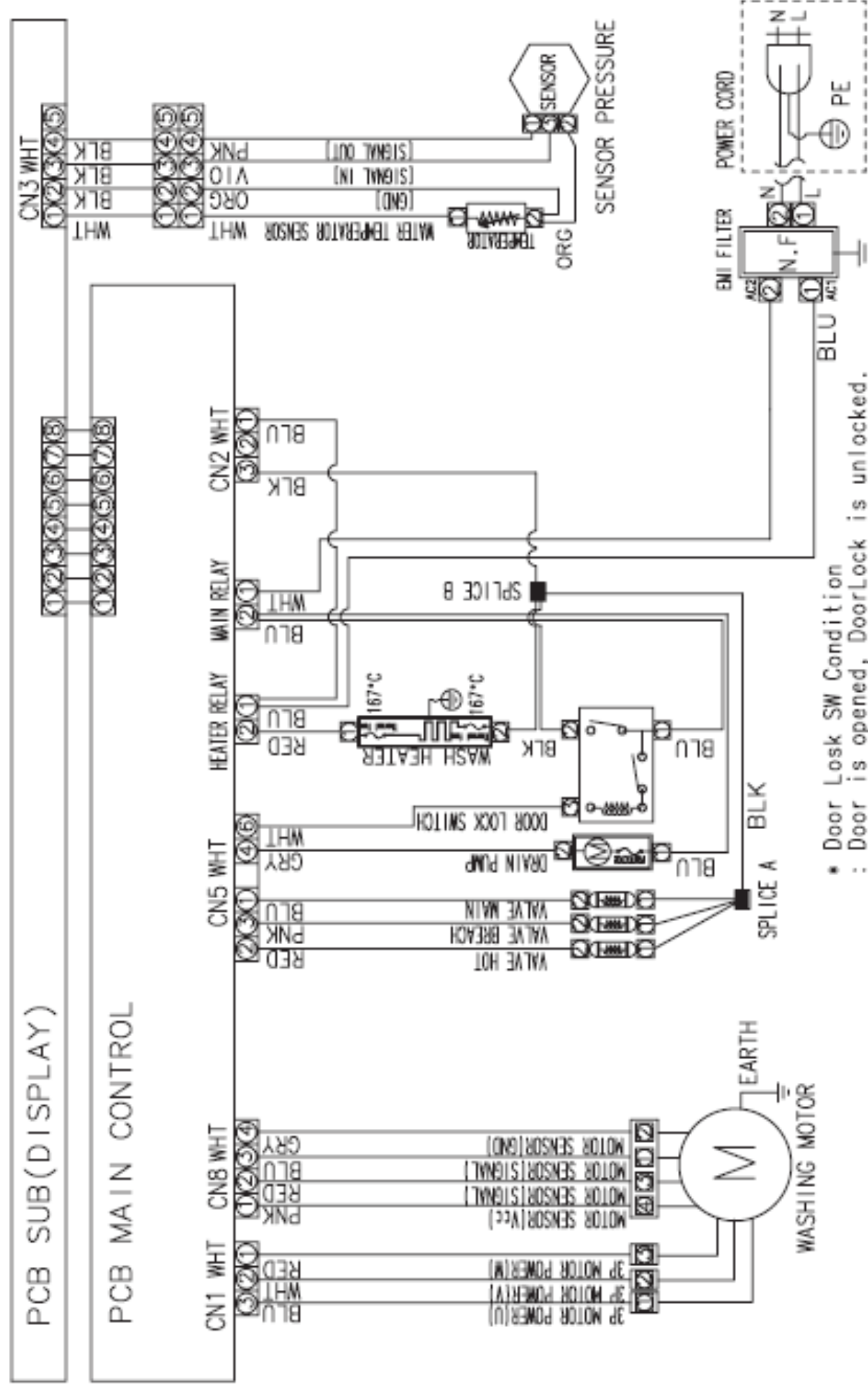
1. Water Temperature; Turn the Jog-Dial so that the **Heavy Duty LED** is turned on. The Water Temperature will be displayed in Fahrenheit.

2. Door status; 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. Door lock; 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. Water Frequency; Turn the Jog-Dial so that the **Pure Cycle LED** is turned on. The Water Frequency will be displayed.

SCHEMATIC DIAGRAM

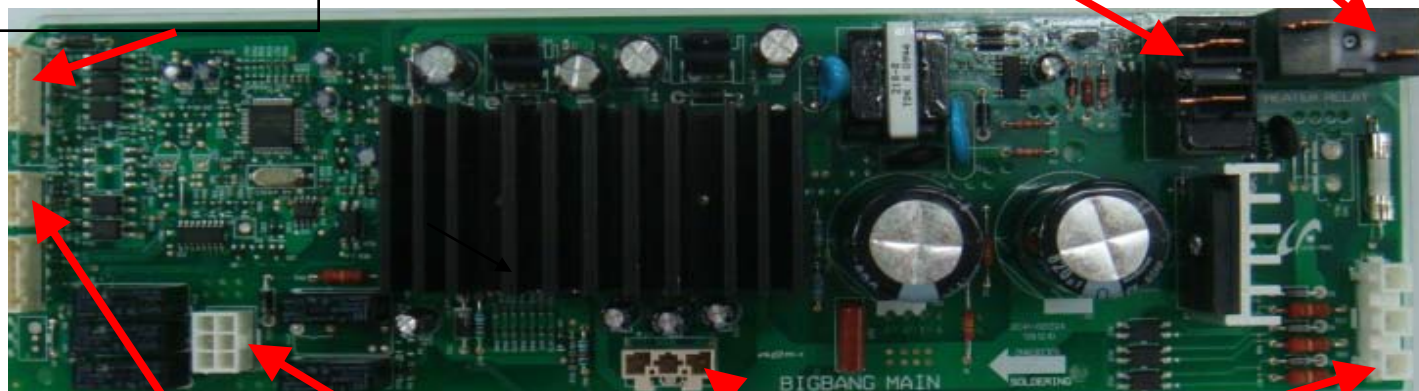


Washer Connector Checks

CN8 (Display Connector)
 1 T Comm Port (Blu)
 2 R Comm Port (Wht)
 3 Reset Signal (Yel)
 4 Ground (Org)
 5 +5 vdc (Pnk)
 6 +15 vdc (Red)
 7 NC
 8 Water level

RY1 Power Relay
 1 (Wht) (N)
 2 (Blu)

RY2 Washer Heater Relay
 1 (Blu) (L1)
 2 (Red)



CN8
 (Hall Sensor)
 1 +5 vdc (Pnk)
 2 Sensor Signal (Red)
 3 Sensor Signal (Blu)
 4 Ground (Org)

CN3
 1 Main Valve (Blu)
 2 Hot Valve (Red)
 3 Bleach Valve (Pnk)
 4 Drain Pump (Gry)
 6 Door Lock (Wht)

CN1
 1 Motor Pwr U Phase (Blu)
 2 Motor Pwr V Phase (Wht)
 3 Motor Pwr W Phase (Red)

CN2
 1 AC Pwr (L) (Blu)
 3 Valves (N), Lock Sw (Blk)
 (N) w/ door locked

Water Temperature Thermistor Check	Test 1	Test 2
Connector CN 3 Pin 1(white) and CN3 Pin 2(black)	Operating voltage at Room temperature	Operating Resistance at Room Temperature (Power off) Disconnect CN7
	4.2VDC (5VDC May indicate a connector issue)	50-57kΩ
Door Switch Check	Test 1	Test 2
Connector CN5 Pin 6 (white) and RY2 Pin 2 (blue)	NA	Operating Resistance with power off
		40-57Ω door closed.
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) Resistance: Connector CN 3 Pin 4 (Pink) and CN3 Pin 3 (Violet)	Operating voltage at no water in the drum-	Operating Resistance (Power off)
	2.5VDC	Pin 4 (Pink) and Pin 3 (Violet) 22- 24Ω
Hall Sensor Check	Test 1	Test 2
Connector CN8 Pin 4 (grey) and Pin 2 (Red) or Pin 4 (grey) 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 CN1 Pin 1 (Blue), Pin 2 (White) and Pin 3 (Red)	Power Off 11.5Ω across Pins 1-2, Pins 1-3, & Pins 2-3	300 to 400 Vac when running.
A/C Power Check	Test 1	Test 2
Connector CN 2 Pin 1 (blue) L and RY1, pin2 (blue) N	Power On 120VAC	N/A

Door Lock Check	Test 1	Test 2
Connector CN2, pin 1 (BLUE) and CN2 Pin 3 (BLACK)	When Door is Locked 120VAC Unlocked 0VAC	With Power Off, the resistance between these pins will be 0Ω when locked
Drain Motor Check	Test 1	Test 2
Connector RY1, pin 2 (Blu) and CN5 Pin 4 (grey)	120VAC with the pump On and 0VAC with the pump off	Power Off, the resistance should be 13.9Ω
Water Valve Check	Test 1	Test 2
Connector CN2 Pin 3 (black) to CN5 Pin 2 (Red), Pin 1 (Blue) or Pin 3 (Pink)	120VAC with the Valve On and 0VAC with the Valve off	Power Off, valve resistance is from 1202Ω - 1245Ω
Heater Relay Check	Test 1	Test 2
Connector CN2 Pin 3 (Blk) and RY3 (heater relay) Pin 2 (Red)	120VAC with the Heater On and 0VAC with the Heater off	Power Off, heater resistance is 16.6 Ω

EEPROM Clear Mode:

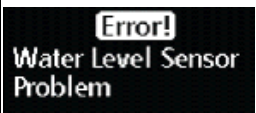
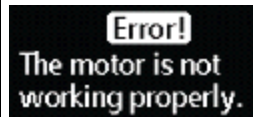
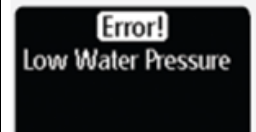
-All option settings are reset to default values.

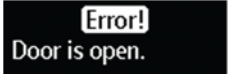
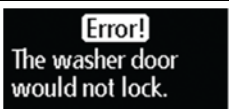
!! When Main PCB is replaced, EEPROM should be reset !!

How to Enter:

-The unit needs to be on.

-Press Delay Start and Power Keys at the same time.

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 E		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.
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.)
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.			

Foot Pad for Walking Washer, There is one in each package, so order 4



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

Red	Black	Blue
Hot	Bleach	Cold

Items Packed With Washer

BOLT-SPANER (10-13mm Wrench) DC60-40146A

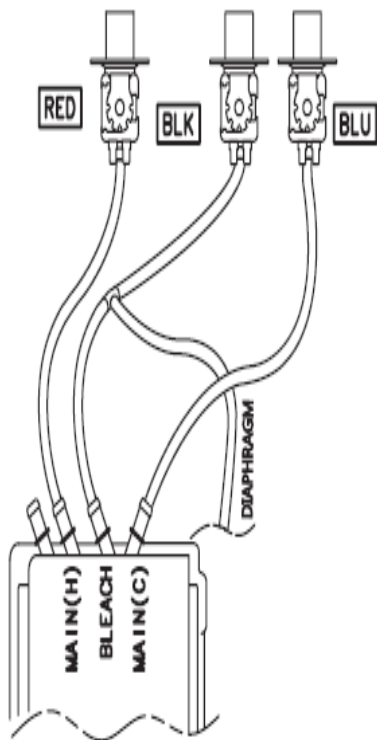
ASSY HOSE WATER DC97-15691A and DC97-15692A

MANUAL-BOOK DC68-02535A

CAP-FIXER DC67-00307A HOSE-HANGER DC62-10278A

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

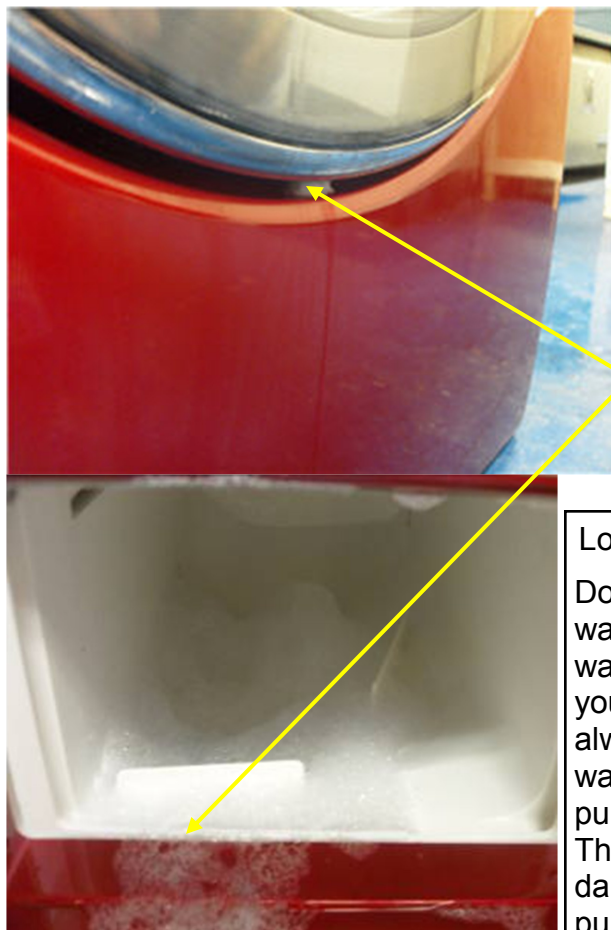
Samsung washers and dryers can be stacked to maximize usable space. An optional stacking kit is available for purchase from your Samsung retailer



It is normal for some water to 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

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



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.**

SUPPORT INFORMATION

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

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)