Fast Track Troubleshooting

Model: WF42H5200

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.

Bulletins:

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Support Information:
HELP: 1-888-751-4086 (Tech Sup. – ASC/SSD) - 1-866-894-0637 (Tech Sup. - FE/ME)
GSPN: http://gspn3.samsungcsportal.com/main.jsp
PLUS ONE: http://my.plus1solutions.net/clientPortals/samsung

QUICK TEST MODE: WITH POWER OFF - PRESS: Spin + Soil Level + POWER

TEST	FUNCTION	PRESS to enter or exit
1	Water Valve Test	**TEMP** **Door Lock Must be Activated 1st before running Component **
2	Door Lock	**SPIN**
3	Heater	**SUPER SPEED**
4	Drain Pump /Bubble Pump	**SOIL**
5	EEPROM MEMORY CLEAR	**DELAY END + POWER** *(with POWER OFF)*

***Test Mode** With the Power Off*

Touch sensitive keys on these models make it difficult to enter. Multiple attempts might be necessary , make sure fingers are clean and dry.

SERVICE MODE: WITH POWER ON - PRESS: Soil Level + Delay End

TEST	FUNCTION	PRESS to enter or exit
1	Cycle Count	**Temp**
2	Version	**Soil Level**
3	**Board Input Test** *(Move Jog dial to check LED) (See Chart at bottom)*	**Delay End**
4	**DIAGNOSTIC ERROR CODE CHECK** ***(See Below)***	**SPIN -** Turn dial either clockwise (c.w) or counter c.w.
5	**SPIN TEST (RPM)** *(ref: NB***)*	**Delay end + Temp** for 3sec. (*To Pause: press* - **START/PAUSE**)

*NB*** Spin Test will NOT test Hall Sensor in this mode. NOTE: ALWAYS remember to offset counter weight when spin testing an empty machine*

FACT: It is NORMAL for this unit to be unbalanced until 350-400 RPM – counter weights will only align correctly after this RPM is reached

With the Power On

Service mode Option 3:
Board Input Test Chart

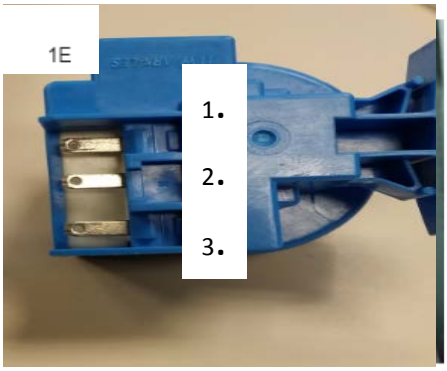
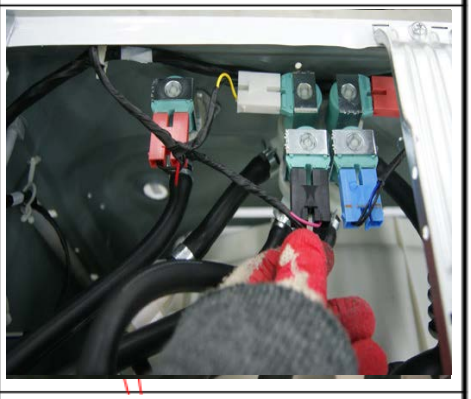
LED	1st LED is on	2nd LED is on	3rd LED on	4th LED On	5th LED on
Display	Water Temp C	Water Temp F	Door Status OP=Open CL=Closed	Door lock sw Status UL= unlocked LO=Locked	Water Frequency

✓ *Use the Board input test under service mode to test water temp, during normal wash operation.*

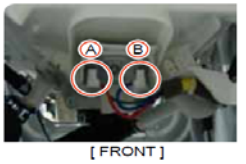
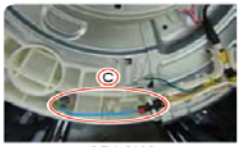
Service mode Option 4:
DIAGNOSTIC ERROR CODE CHECK

- Activate the **SERVICE MODE** first (ref: above).
- Press the **SPIN** key to start **DIAGNOSTIC CODE** check mode. **"d"** will start flashing.
- To cycle through the diagnostic codes (d1, d2, d3, etc.), turn the rotary cycle selector (knob) either clockwise or counter clockwise.
- When turning the rotary selector key (knob) in one direction, it shows diagnostic codes from the latest (d1).
- Now when turning the knob in the opposite direction it shows the diagnostic codes in the reverse order. E.g. When it stops at "d5" and then turn backwards, it shows from "d4" to "d". (Refer to Diag. Code interpretation).

Components Check

Door Lock S/W	Water Level Sensor	Water Valve
		
1.Check the door switch resistance. 2.Check the resistance after the power is off. 3.The resistance across No.1 and No.3 of the Door Lock Switch must be approximately 40 to 57Ω.	1. Check the water level sensor frequency. Frequency should be approx 25.5 – 26.5 when empty. Approx 24.5 when full 2. Disconnect the connector and check resistance Pin 1 & 2 / 2 & 3 should be OPEN, if resistance is read between these points you have a short replace sensor switch. Pin 1 & 3 resistance is normal.	1.Check the resistance for the water supply valve. Resistance: 1.0K to 1.2K ohms 2.Check whether there is foreign material in the water supply valve diaphragm. 3.If above test is ok, activate the ''water valve test'' and check the voltage of each valve for 110V. If voltage is NG change main pcb.

Drain Motor	Drum Motor
	
Resistance : Approximately 174Ω between the terminals for the Water Supply Valve.	Plug out the connector and read resistances at any two of the three terminals on Motor : Should be 15 Ω

Error Type	Error Mode	Causes	Corrective Actions	Description of Photo
Water Level Sensor	1E	• Water level sensor fault • Incorrect connections of the water level sensor terminal • The hose part for the water level sensor is folded. • Main PCB fault	• Check the water level sensor terminal connections and contacts. • An error occurs if an incorrect water level sensor is used. Make sure to check the material code. (Abnormal operation) • If the water level sensor is faulty, replace it. • If the error persists despite taking the action above, replace the PBA.	 Check the water level sensor frequency. - Check it after the water level sensor and the connector are connected. Checking Part : White Color Wire Orange Color Wire. - Frequency : Approx. 25.5 KHz with no load
Washing Motor Error and Hall Sensor Error	3E E3 bE	• Washing motor fault • Washing motor hall sensor fault • Incorrect connections of the washing motor/hall sensor connector • Washing motor rotor and stator fault • Main PCB fault	• Check the motor connector terminal connections and contacts. • 3E is displayed because overloading occurs due to too much laundry. • If the hall sensor terminal is faulty, replace the hall sensor. • Check whether the stator of the motor cover is damaged. • Check for coil disconnections due to foreign material. • If the PBA control circuit is faulty, replace the PBA.	 ► Check the motor Winding Coil Plug out the connector and read resistances at any two of the three terminals on Motor : Should be 6.0 Ω (at 25°C)  ► Check the motor Hall Sensor Check the resistance on the main PCB motor (Between pins 1 and 3, and 1 and 4 of the four (4) pins) - Resistance : Approx. 2 to 4 MΩ - Check the voltage when the power is on.
Water Supply Error	nF	• Water supply value fault • Main PCB fault • Freezing in the winter season	• If the water supply valve has a wire disconnected, replace it. • Check whether the water supply valve is clogged with foreign material and whether water is supplied continually. • Check whether no water is supplied because of freezing in the winter season. • If the PBA relay operates abnormally, replace the PBA.	  1. Check the resistance for the water supply valve. - Resistance: 113.5Ω ~ 16.5Ω between the terminals of the water supply valve. 2. Check whether there is foreign material in the water supply valve filter. 3. If the water supply valve filter is clogged, clean filter.
Drain Error	nd	• Freezing in the winter season • Foreign materials in the drain pump • Poor physical connection • Drain pump fault • Main PCB fault	• If the drain pump revolutions are restrained due to freezing in the winter season, check the method to remove the freezing and remove as directed. • Check whether the revolutions of the drain pump motor are restrained by foreign material, and remove as directed. • Check the wire connectors on Main PCB and Drain Pump ASSY. The connector or wire may have poor physical connection. • Check the drain pump resistance.	 Check the drain pump resistance. - Drain : Resistance : 13.5Ω ~ 16.5Ω - Bubble : Resistance : 18.75Ω ~ 22.75Ω
Communication Error	AE	• The signals between the sub and main PBAs are not sensed. • Incorrect wire connections between the sub and main PBAs.	• Check the wire connections and terminal contacts between the sub and main PBAs. • Check for disconnected wires. • Check whether the sub PBA is short-circuited because of moisture. • If the main PBA's communication circuit is faulty, replace it.	-
Door Error	dS dL LO	• Door switch fault • Main PCB fault	• If a dS error occurs, check whether it occurs during the Boil cycle. - If it is detected that the door is open, close the door. • The 120V is directly connected to the door. Check and repair the power wire connections and insulation state. • Check the door switch. Replace if faulty. • Check the main PBA door sensing circuit. Replace if faulty.	 ► TYPE 1 Check the door switch Resistance. The resistance of 1 and 3 Pin Must be approximately 125Ω.
Heater Error	Hr	• Disconnection wire • Heater falut • Wash-thermistor fault	• Check for connection between wire and heater. • If wash heater is faulty, replace it. - Refer the TYPE 1 • If it is not problem in heater, replace wash-thermistor - Refer the TYPE 2	 [FRONT] ► TYPE 1 Check the resistance between A and B. It should be 16.05±0.65Ω.  [BACK] ► TYPE 2 If TYPE 1 is OK, Change a wash-thermistor at back of Tub.

Error Type	Error Mode	Causes	Corrective Actions	Description of Photo
Water Leakage Error	LE	• Check for any leakage. • Foreign material in the DV case • Fault of a hose or incorrect part engagement in the product	• Check for any leakage on the base, Hose, Valve and Tub connections and take any required action. • During natural draining, this error occurs because the drain bellows are clogged with foreign material. Remove the foreign material. • Check the drain motor operation. Replace if it does not operate normally.	  ► DRAIN PUMP TYPE (Automatic Drainage) Check whether there is any foreign material in the bellows. Check for any foreign material, such as underwear wires or coins.  ► PUMP TYPE Check for any leakage on the base, Hose, Valve and Tub connections.
Overflow Error	OE	• Water level sensor fault • Freezing in the winter season	• If the water level sensor has a functional error, replace it. • Check the hose. This error occurs if it is torn or has a hole. • This error occurs if water is frozen in the winter season. Use hair dryer to defrost hose. Consider relocating the unit to warmer location.	 Check the hose connected to the water level sensor. Check whether the hose is folded, cut, or damaged.
Temperature Sensor Error	tE	• Washing temperature sensor fault • Dry temperature sensor fault • Faulty and incorrect connections of the dry condensing sensor • Main PCB fault • Freezing in the winter season	• Check the connections for the washing heater temperature sensor connector. • If the washing heater temperature sensor has a functional error, replace it. - A tE error occurs. • Check the connections for the dry heater temperature sensor connector. • If the dry heater temperature sensor has a functional error, replace it. • Check the connections for the duct condensing temperature sensor connector. • If the duct condensing temperature sensor has a functional error, replace it.	-
Unbalance Error	dc	• Motor hall sensor fault • Caused by the laundry contents	• Check the type of laundry. Check whether they may cause an unbalanced situat ion. - Educate the consumer in this case is to press pause reposition the load or remove a few items. Press start to continue and complete the wash cycle.	-

Note: Some errors do not display or get recorded to memory until running a cycle 3 times!
(Drain pump will run for 3mins but stops, screen remains on but washing does not continue) If this is happening press ***start*** to run again, during the 3rd attempt the error will display on the screen and get recorded to memory.

Additional Error codes

nFI	The hot/cold water hose connection is not correct.	Please connect the hot/cold water hose connection correctly.
PE (Clutch Motor Error)	This error occurs when the position of the clutch is not detected. - If the position detection signal is not received 15 seconds after the clutch motor starts, the spin drum is shaken left and right and then the motor is restarted. If the motor position signal is not received even after 3 reattempts, a PE error occurs.	1. Check the clutch motor. 2. Check the assembly status of the clutch motor. 3. Check the wire connector terminals.
PEI (clutch hall sensor error)	After the completion of the clutch position detection, and the clutch hall signal is invalid, the spin drum is shaken left and right and then the clutch hall signal is evaluated again. This, if the clutch hall signal is still invalid, the clutch position switching status is checked and then the operation is restarted. (If the 15 reattempts fail, this error occurs.)	1. Check the clutch hall sensor. 2. Check the wire connector terminals. 3. Check the clutch switching status. - Check the coupling assembly and disassembly status.

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. "Sud" or "SUdS" is displayed when too much foaming is detected and "End" is displayed when the removal of the foaming is finished. (This is one of the normal operations. It is an error for preventing non-sensing faults.)	
Mems PBA Error Detected	8E1 8E2 8E	- Error detected in the Mems PBA or data error detected. Check the wire connections. Replace if necessary. 1. Check the wire connections. 2. Replace the Mems PBA.	
System Error	SF1 SF2 SF3	- Micro Controller Operation Fail.	Replace Assy PCB.

Problem	What To Do
Will Not Lock	• Door is not aligned or closed properly. • Perform ***Quick Test Mode***. Check Door Lock. Check the output voltage of Door Lock Coil. If it reads 120V, change PCB, and if not, change Door Lock Connector. (Refer to PCB Connector Check.) • Read Lock Switch and PCB (CN1). (Refer to PCB Connector Check.)

Problem	What To Do
Will Not Spin	• Make sure to close the door completely. • Check for water left inside the washer. If so, go to ***"Will Not Drain"***. • Perform ***Quick Test Mode or Quick Spin Test***. Does the washer spin? (Before the test, empty the unit inside.) If it doesn't tumble after the above, change PCB. When the problem persists, change the motor. • Check motor windings resistance. (CN8 Pin1&3 = 11.6 ohms (at ±7% 20°C/68°F), Pin1&2 = 11.6ohms (at ±7% 20°C), Pin2&3 = 11.6 ohms (at ±7% 20°C))

Problem	What To Do
No Key Operation	• Each washing selection deactivates some buttons. • Child Lock is being activated. To exit, hold down Soil Level Key and Signal Key simultaneously until it sends out a beeping sound. • When "End" illuminates on the display, only the Power button works.

Problem	What To Do
Excessive Suds	• Go to ***"Will Not Drain"*** and ***"Will Not Spin"*** and check the draining. • Check PCB and Drain Pump for any loose wire connection. • Perform Quick Test Mode or Board Output Test to drain. • Use HE (High-Efficiency) or low sudsing detergent specially formulated for front load washers. • Reduce the amount of detergent for that specific load size and soil level. Keep in mind that towel creates more suds generally. • Reduce the amount of detergent when water is soft, or laundry is small or lightly soiled. • Do one more washing cycle with cold water and a table spoon of salt without detergent.

Problem	What To Do
Leaks water.	•Make sure there is no leakage in the inlet hose connections. • Check for rubber gasket damage due to over-tightening. • Check standpipe for leakage. Check if the standpipe contributes the leakage. If so, the standpipe is under-capacity. In this case, make sure to seal its opening tightly. • Check waster hose connections. (Water Supply/ Drain/ Dispenser Hose & Clamp) • Check if rubber boot is water-tight. • Check for any kink on the water hoses.

Problem	What To Do
Load is too wet at the End of the cycle.	• Unbalance due to not enough load. Put additional load. • Due to excessive suds by using general detergent. Use HE (High-Efficiency) or reduce its quantity. • Low Spin Speed or Drain Only was selected. • Go to **" Will Not Spin".**

Problem	What To Do
Will Not Drain	• Check for any kink on the drain hose. If any, straight it out. • Check for any restriction in the drain hose. • Close the door and press the Rotary Cycle Selector. For safety reasons, the washer does not tumble or spin with the door open. • When it is freezing outside, check if it is frozen inside the drain hose. • Check if the water level signal input is correct. Go to ***Board Input Test Mode***. • Go to ***Quick Test Mode*** and do Drain Pump Test. • Check if there is any twist in the hose (the one between Tub and Drain Pump). • Check if it reads AC 120V at the pump when a spin cycle is selected. • Read the winding resistance of the pump motor. (14.2 ± 7% Ohms) • Check the pump at CN1(Pin3) on PCB. It should read AC 110~120V. (Refer to PCB Connector Check)

Problem	What To Do
Will Not Unlock	• Check if the door is being pushed out, which may keep it from unlocking. • Door locks itself when the water level is too high (Drain the unit). • Check the following with ***Board Input Test Mode***. Water Level (frequency): Over 23.80 KHz. → If so, refer to "Will Not Drain". Temperature (Inside Drum): Higher than 60°C/140°F. → If so, wait until it drops. When everything is normal, check PCB connectors and Door Lock Switch. • Drain manually after removing the plastic drain hose holder. • Display shows ***"LO"***. Turn off and on the unit. If ***"LO"*** keeps illuminating, check PCB and Door Lock Switch. • Perform ***Quick Test Mode***. Check Door Lock. Check the output voltage of Door Lock Coil. If it reads 120V, change Door Lock Switch, and if not, change PCB. (Refer to PCB Connector Check.)

Problem	What To Do
Fills with the wrong temperature water.	Turn both faucets on fully . Make sure temperature selection is correct. . Make sure hoses are connected to correct faucets. Flush water lines. Check the water heater. It should be set to deliver a minimum 120°F(49°C) hot water ate the tap. Also check water heater capacity and recovery rate. . Disconnect hoses and clean screens. Hose filter screens may be plugged. . As your Washer is filling, the water temperature may change as the automatic temperature control feature checks incoming water temperature. This is normal. While your Washer is filling, you may notice just hot and/or just cold water going through the dispenser when cold or warm wash temperatures are selected. This is a normal function of the automatic temperature control feature as you Washer determines the temperature of the water.

Problem	What To Do
Will Not Start	. Plug the unit into the wall outlet. Check for proper voltage. • Check fuse or reset circuit breaker. • Push any key to turn on the washer and press the Start/Pause key to run the washer. • Close door and push the Start/Pause key to run the washer. • Check if washer is in a pause, soak or suds process. Wait briefly and it may start. (If the washer is in suds period, Suds will light up instead of remaining time.) • Check for restricted drain system. (If there is electrical problem in drain system, ***"nd"*** error will occur after 15 minutes.) • Check Water Supply. • Check the line or water valve screen filter. • Check if PCB connectors are assembled properly. • Check if CN6 terminals on PCB are in good condition. (Refer to PCB Connector Check.) • Replace PCB.

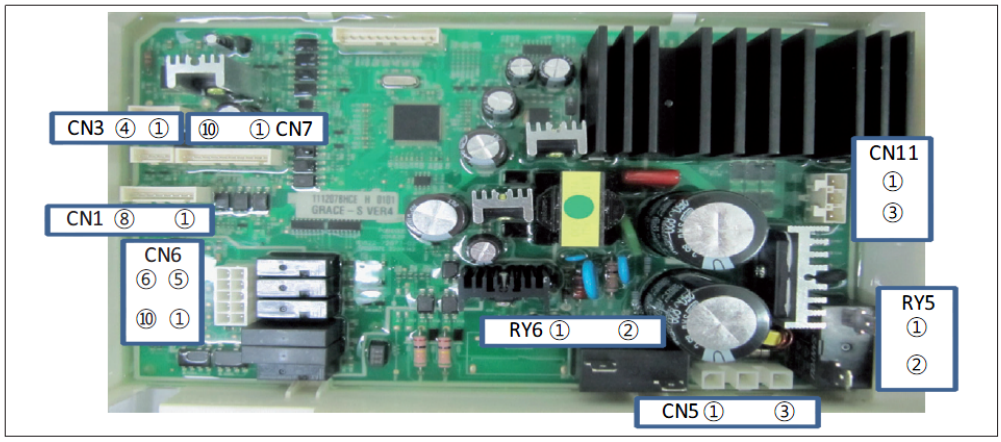
Problem	What To Do
Stops	• Plug cord into live electrical outlet. . Check fuse or reset circuit breaker. . Close door and press the Cycle Selector dial to start your Washer. For your safety, your Washer will not tumble or spin unless the door is closed. . Before your Washer starts to fill, ti will make a series of clicking noises to check the door lock and do a quick drain. . There may be a pause or soak period in the cycle. Wait briefly and it may start. . Check screens on inlet hoses at the faucets for obstructions. Clean screens periodically.

Problem	What To Do
Vibrates or is too noisy	Check if the washer is leveled and the lock nuts are tightened up on the bottom plate. • Check if all of the shipping bolts and spacers are removed from the back panel. • Check if load is big enough and there is no unbalance. If there is not enough load, put in a few towels to balance it. • Check if the motor is fastened enough. • Remove various trouble contributors (such as dust coat on the floor) . Check if Washer is touching other object.

Problem	What To Do
Has detergent remains In the automatic dispenser After the wash cycle is complete.	. Make sure your Washer is running with sufficient water pressure. . Make sure the Detergent Selector dial is in the upper position when using granular detergent.

Problem	What To Do
Has no water Or not enough water..	. Perform ***Quick Test Mode***. Check all of Water Valves visually. Or, check Water Valves with hands on them. When they work, you can feel vibrations. If not, no vibrations. • Check if water taps are turned on fully. • Check Water Valves and Water Level Sensor (Refer to PCB Connector Check) • Check if there is any kink in inlet hoses. • Check if inlet screens are clogged up. • Check if water has enough pressure. If so, find out its contributors. • Check if there is any frozen area in the unit (Drain Hose, etc) • Measure the resistance of Water Valve Coil. (It should read 1.18K ohms. Check Pin#1 of CN5 and PIN#1,2,3,4 of CN10) • Check Pressure S/W and PCB for loose connections. (Refer to PCB Connector Check.)

Main PCB



Hall Sensor Check
Check Voltage at Pin #4 and #2 of CN3
Tester Check = DC 0V or 1.3V
Check Voltage at Pin #4 and #3 of CN3
Tester Check = DC 0V or 1.3V

Motor Check
Resistance at Pin #1 and #2 of CN11 = 12Ω
Resistance at Pin #1 and #3 of CN11 = 12Ω
Resistance at Pin #2 and #3 of CN11 = 12Ω

Door Lock Check
Check Voltage at Pin #1 of CN6 and Pin #2 of RY5
When Door Lock = AC 120V

Drain Motor Check
Check Voltage at Pin #5 of CN6 and Pin #2 of RY5
When Drain Motor operates = AC 120V

CIRCLE Motor Check
Check Voltage at Pin #4 of CN6 and Pin #2 of RY5
When Circulation Motor operates = AC 120V

Water Valve Check
Check Voltage at Pin #2,6,7,8,9,10 of CN6 and Pin #2 of RY5
When each valve operates = AC 120V

AC Power Check
Check Voltage at Pin #1 of CN5 and #2 of POWER RELAY
Tester Check = AC 120V

Wash Heater Relay Check
Check Voltage at Pin #2 of RY6 and PIN #2 of RY5
When Heater Relay operates = AC 120V

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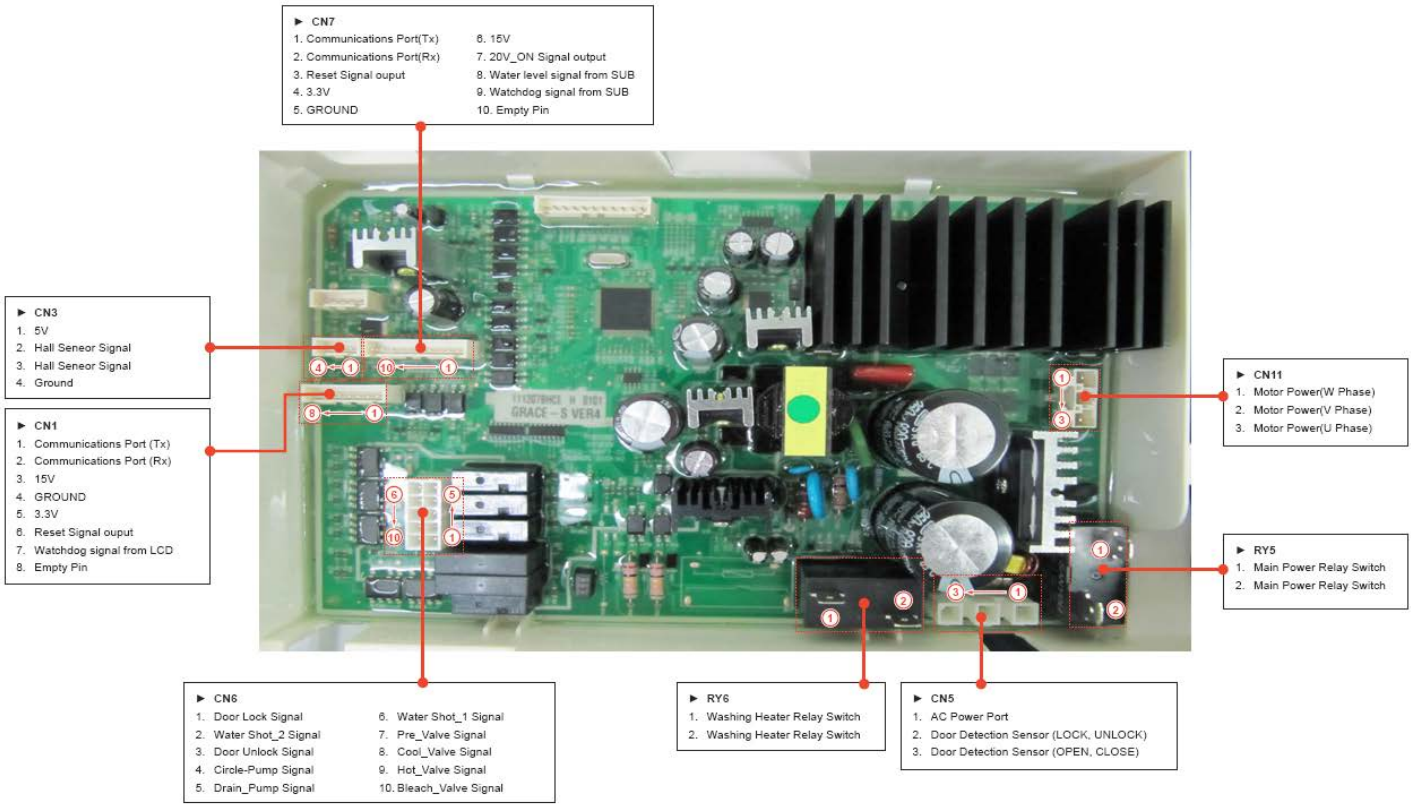
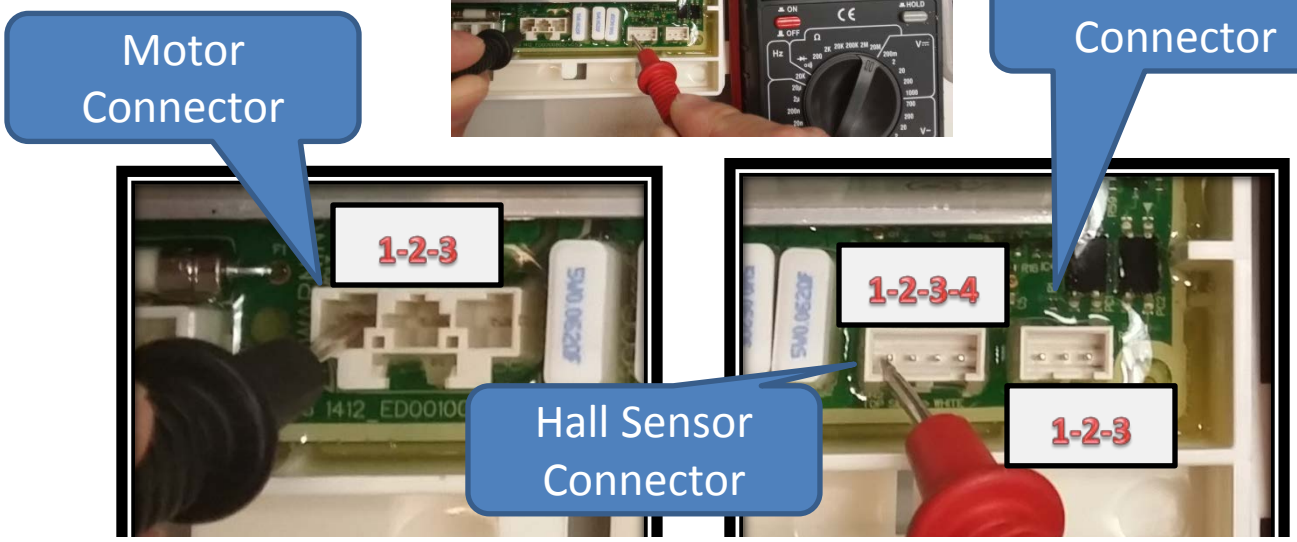
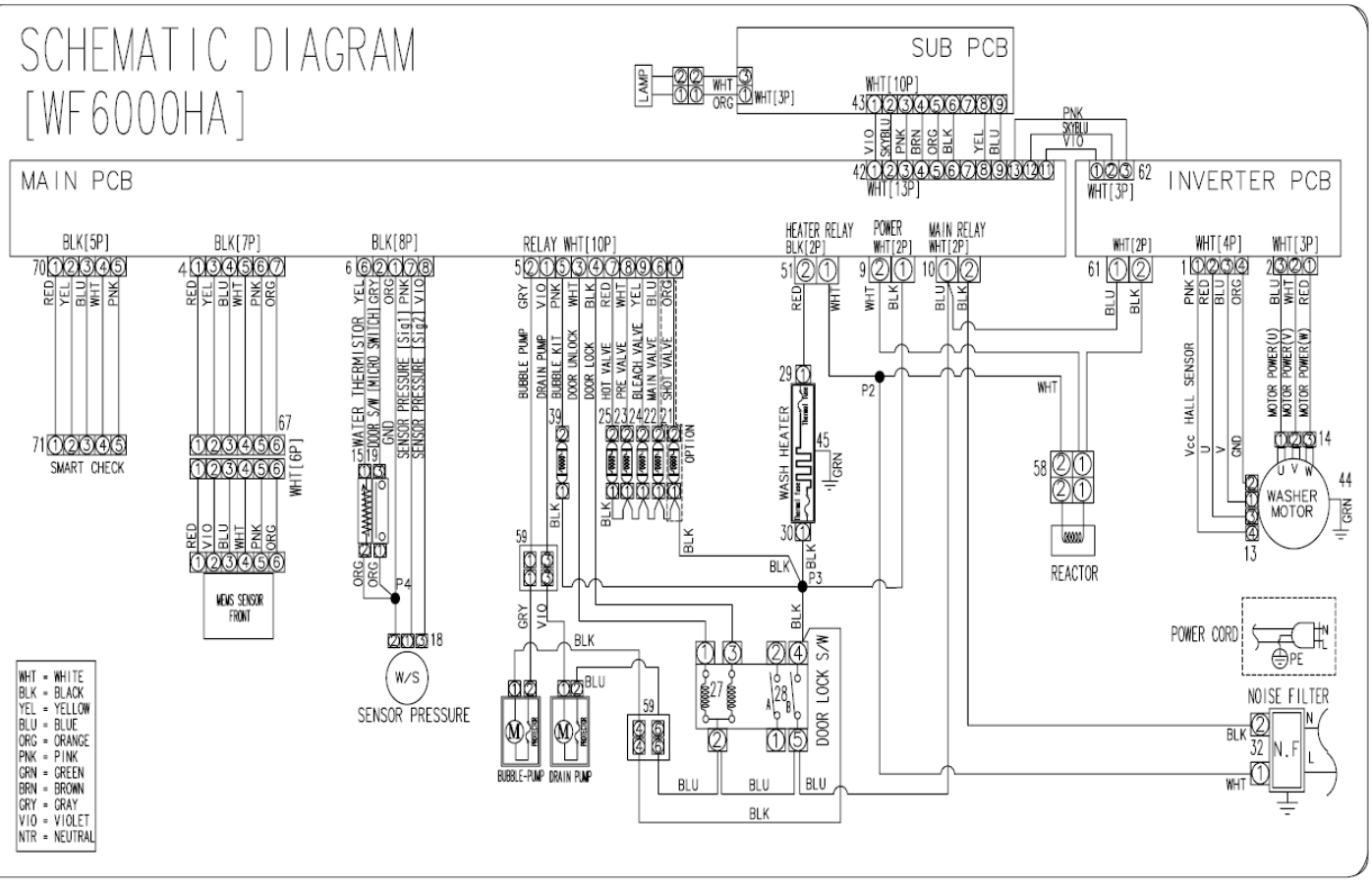


Checking the Inverter Board Test 1



Step 1: Put your **black** lead on the stator motor CN6 Pin1 and **Red** lead measure CN2 pin 1- 2 -3 -4 all measurements should be approx 4.6.
Step 2: Put your **black** lead on the stator motor CN6 Pin 1 and **Red** lead measure CN1 pin 1-2-3 all measurements should be approx 4.6.
Step 3: Move the **black** lead to CN6 Pin2 and repeat steps above.
Step 4: Move the **black** lead to CN6 Pin3 and repeat steps above.
All measurements should be around 4.6 ohms.

SCHEMATIC DIAGRAM
[WF6000HA]



Features	Description
The Largest Capacity	• Samsung's extra-large capacity laundry machine can wash a full set of your Bedding PLUS, a kingsize comforter, or up to 31 bath towels in a single load. Since you don't have to do as many loads, you save time, money, water and energy.
8" LCD Touch Screen Display	• The brilliant 8" Color LCD Touch Screen displays cycle information, settings, options, and more. The easy-to-use interface allows you to scroll through all wash cycles with the slightest touch.
Smart Control	• Samsung's innovative Smart Control technology enables you to control your washer through personal technologies such as smart phones. You don't have to be on standby until the cycle ends. Smart Control allows you to monitor the washing process and let you know when the cycle is complete.
Smart Care	• Samsung's Smart Care, an automatic error-monitoring system, detects and diagnoses problems at an early stage and provides a quick and easy solution through LCD navigation. With the innovative Smart Control technology, you can also be alerted when the problem occurs via your smart phones.
PowerFoam™	• Samsung's effective PowerForm delivers improved cleanliness with advanced fabric care. • PowerFoam allows detergent to disperse evenly and penetrate fabrics faster and deeper.
SpeedSpray	• Samsung's new SpeedSpray technology saves you up to 25%* more time when doing laundry by shortening wash times while still keeping all segments of the washing process and getting your clothes clean. * Based on 8 pounds loads, Normal cycle, on previous and existing 4.3 cu.ft. Samsung front loading washers released until 2011 without SpeedSpray.
VRTplus™ (Vibration Reduction Technology)	• This Samsung washer minimizies noise and vibration with dual 3D vibration sensors and smart control technology, ensuring quiet operation.
Deep Steam	• The Deep Steam feature boosts cleaning performance and loosens grime and dirt, thus providing superior cleaning results.
Pure Cycle™ (Tub Cleaning cycle)	• Clean your drum with one button! This Pure Cycle is specially designed to remove detergent residue and dirt buildup in the tub, diaphragm, and on the door glass without the need for special chemical detergents.
Stylish Design	• The stylish design of this washer blends well with your environment.
Diamond Drum™	• Takes gentle care of your fabrics. With inside holes 36% smaller than those of conventional drums,the diamond drum prevents fabrics from sticking out through the holes and consequently being damaged.
DD Motor	• The power to handle anything! Our direct-drive inverter motor delivers power right to the washer tub from a variable speed, reversible motor. A beltless direct-drive motor generates a higher spin speed of 1,300 rpm for more effective, quiet operation. The washer also has fewer moving parts, meaning fewer repairs.