

SAMSUNG Clothes Washer

BIGBANG - PJT TRAINING MANUAL



WF361BVBWR



May. 2012

Digital Appliances Division

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1.Product Introduction

1-1. Concept

- ▶ V.R.T (Vibration Reduction Technology)
 - : the lowest vibration & noise level
- ▶ Extra-Capacity (3.6 cu.ft. DOE)
- ▶ Stylish Design



Main Feature


- ▶ Vibration Reduction Technology
- ▶ Extra-Capacity (3.6 cu.ft. DOE)
- ▶ Direct Drive Inverter motor
- ▶ Tender Drum

Sub. Feature

- ▶ Delay Start: up to 19 hours
- ▶ Child Lock
- ▶ Sanitize
- ▶ Pure Cycle
- ▶ Steam (WF363, WF365)

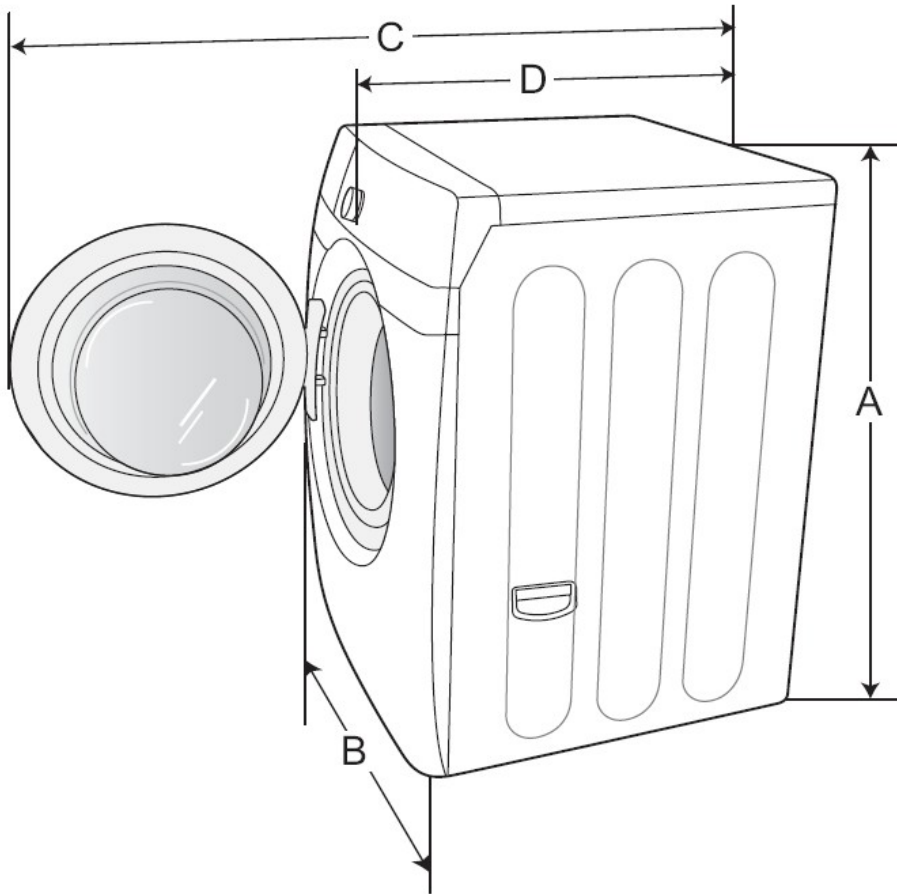
1.Product Introduction

1-2. Sales Point & Product Positioning

Brand		Samsung (Big Bang)	LG	Whirpool
Design				
Model		WF361ANW	WM2250CW	WFW9050XW
Retail price (white)		\$ 799	\$799	\$749
Key Sales point		VRT™	Direct Drive System	Direct Drive System
USP & Spec	Capacity	3.6 cu.ft	3.6 cu.ft	3.5 cu.ft
	MEF	3.0 ↑	3.0	3.0
	WCF	3.3 ↓	3.3	3.3
	kWh/year	97kWh/year ↓	97kWh/year	137kWh/year
	VRT	Yes	-	-
	RPM	1,100	1,200	1,100
	Motor	DD motor	DD motor	DD motor
	Cycle #	8	7	6
	Heater(900W)	YES	YES	YES
Des-ign	Display	18:88 seg.	18:88 seg.	Led
	Color	White	White	White
	Door	White	Silver	White
	W X D X H	27 X 31.5 X 38.7"	27 X 29.7 X 38.7"	27 X 30.5 X 36"

1.Product Introduction


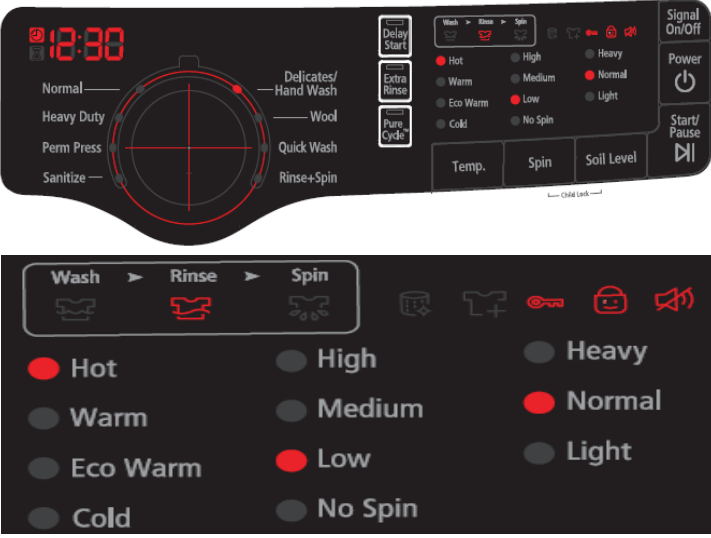
1-3. Product Dimension



Dimension	Inch (Cm)
Height-Overall (A)	38.7" (98.4)
Width (B)	27" (68.6)
Depth with Door Open at 90 Degrees (C)	50.8"(129)
Depth (D)	31.5"(80)



2.Changed Part List

2-1. ASSY PANEL CONTROL

Div	Basic (Big Bang)	Big Bang
Shape	<p style="text-align: center;">WF220ANW</p> 	<p style="text-align: center;">WF361BVB</p> 
	<p>Features</p> <ol style="list-style-type: none"> 1) Wool Mark : Yes 2) Temp : Cold/Cold – Warm/Cold - Warm/Warm – Hot/Cold 3) Icon : Old Version 	<p>Features</p> <ol style="list-style-type: none"> 1) Wool Mark : No 2) Temp : Cold – Eco Warm - Warm – Hot 3) Icon : New Version

2.Changed Part List

2-2. ASSY DRAWER

Div	Basic (Big Bang)	Big Bang
Shape	WF220ANW	WF361BVB
		
Features	1) Location of LOGO : Top	1) Location of LOGO : Center

2.Changed Part List

2-3. ASSY DRUM

Div	Basic (Big Bang)	Big Bang
Shape	WF220ANW	WF361BVB
		
Features	1) Capacity (DOE) : 3.5 CU. FT 2) The shape of Drum-Back : Old	1) Capacity (DOE) : 3.6 CU. FT 2) The shape of Drum-Back : New

2.Changed Part List

2-4. ASSY DOOR

Div	Basic (Big Bang)	Big Bang
Shape	WF220ANW	WF361BVB
		
Features	1) Color : Silver	1) Color : White

2.Changed Part List

2-5. ASSY KNOB ENCODER

Div	Basic (Big Bang)	Big Bang
Shape	WF220ANW	WF361BVB
	 A top-down view of a circular, metallic knob encoder with a brushed metal finish and a central circular depression.	 A side view of a cylindrical, metallic knob encoder with a brushed metal finish and a white plastic base.
Features	1) Shafe : Old	1) Shafe : New

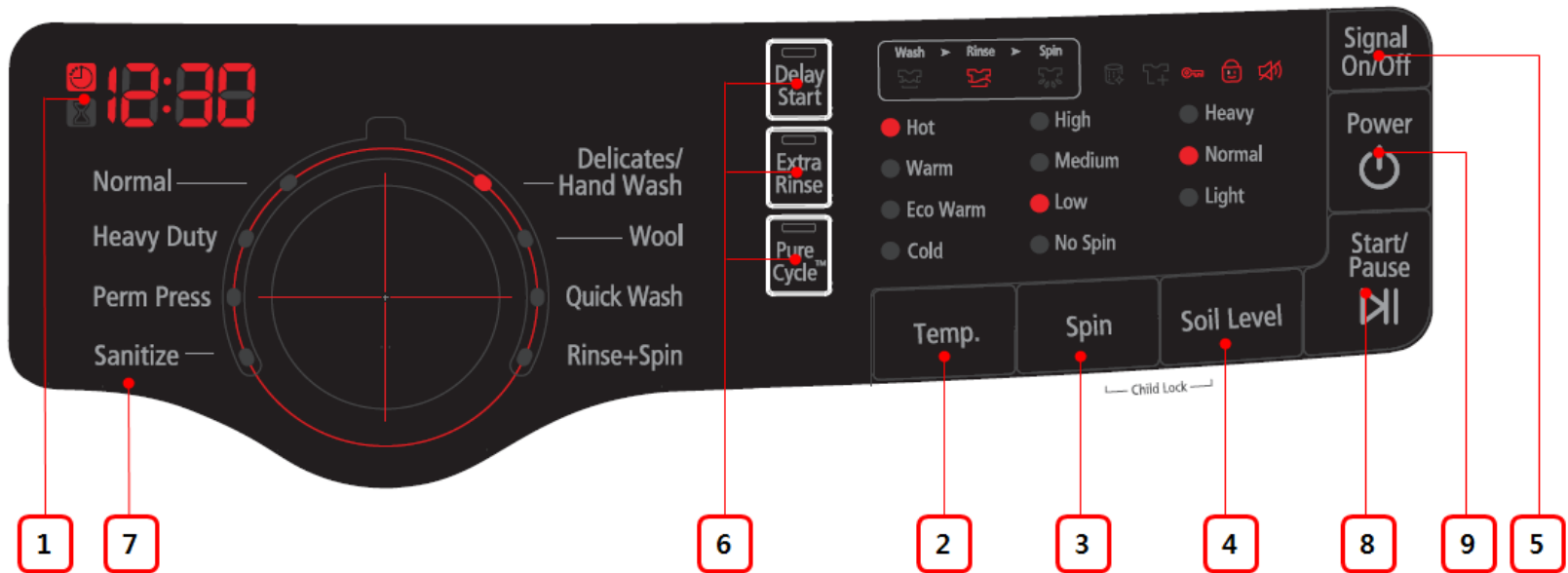
2.Changed Part List

2-8. Software

Div	WF220ANW	WF361BVBWR
Display Method	Graphic LED	Graphic LED
Course	8	8
Option	Pure Cycle™	Pure Cycle™
	Extra Rinse	Extra Rinse
	Delay Start	Delay Start

3. Instruction of Function

3-1. Control Panel



1. Digital graphic display

Displays the remaining cycle time, all cycle information, and error messages

2. Temperature Selection Button

Press the button repeatedly to cycle through the different water temperature options.

Hot : Whites and heavily soiled, colorfast items.

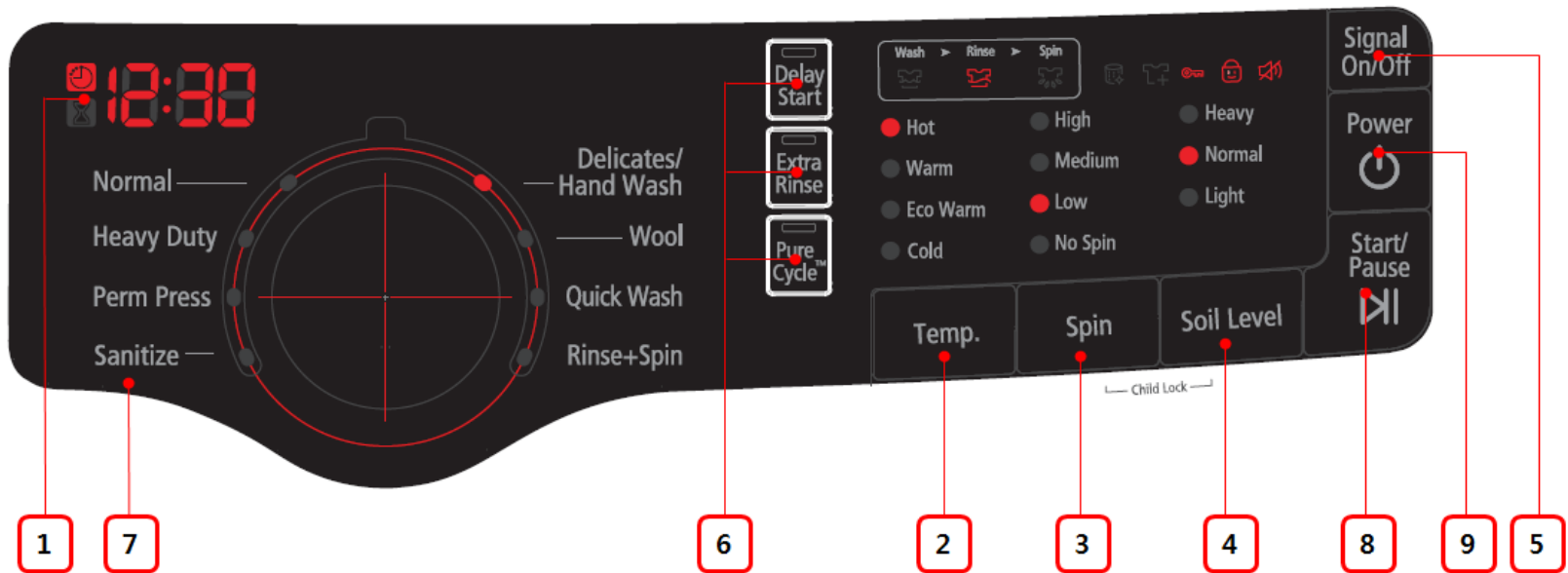
Warm : Colorfast items. When warm rinse is selected, only the final rinse will be warm.
The other rinses will be cold to conserve energy.

Eco Warm : Moderately soiled, colorfast items; most wrinkle-free items.

Cold : Brightly colored, very lightly soiled items.

3. Instruction of Function

3-1. Control Panel



3. Spin Selection Button

Press the button repeatedly to cycle through the different spin speed options.

High : Use for underwear, t-shirts, jeans and sturdy cottons.

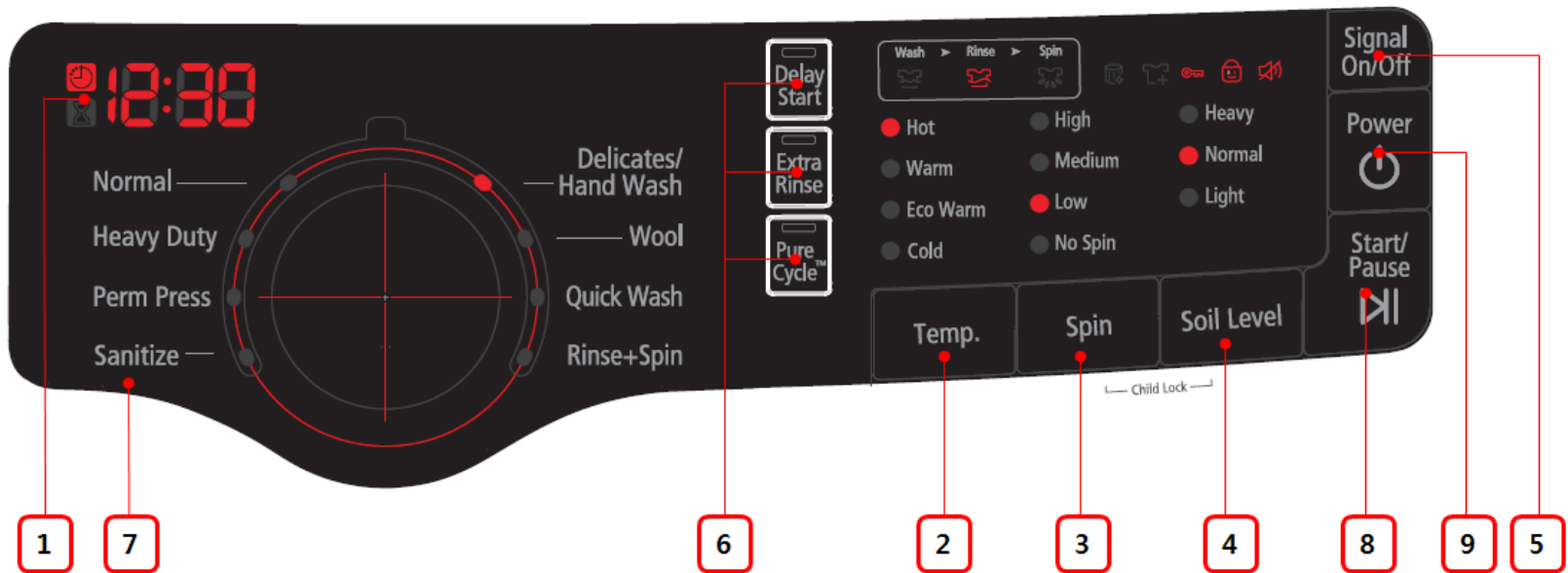
Medium : Use for jeans, wrinkle-free or wash-and-wear items and synthetics.

Low : Use for delicate items needing a slow spin speed.

No Spin : Drains your Washer without spinning. Use for extremely delicate items that cannot tolerate any spin.

3. Instruction of Function

3-1. Control Panel



4. Soil Level Selection Button

Press the button to select the Soil Level/washing time.

Heavy - For heavily soiled loads.

Normal - For moderately soiled loads. This setting is the best for most loads.

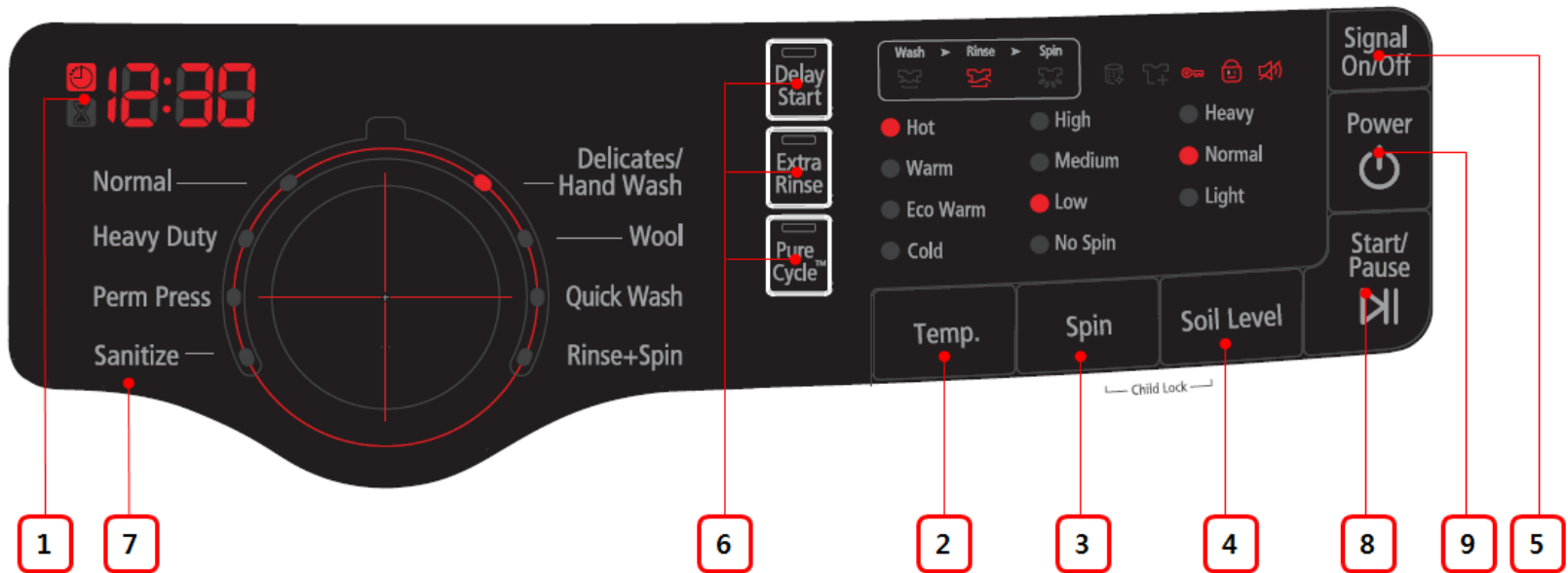
Light - For lightly soiled loads.

5. Signal Selection Button

Press the button to increase or decrease the end of cycle signal volume or turn off the signal.

3. Instruction of Function

3-1. Control Panel

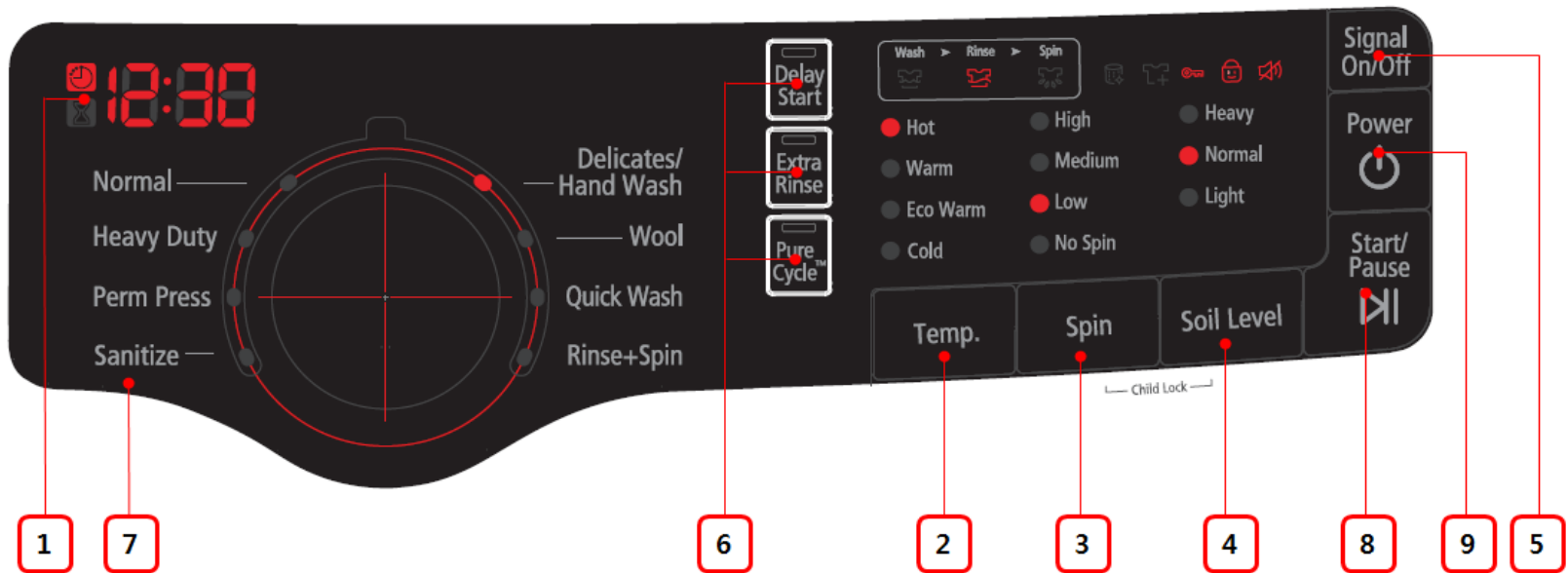


6. Select Cycle Option

- Delay Start** - Any cycle can be delayed for up to 19 hours in one-hour increments.
- Extra Rinse** - Add an additional rinse at the end of the cycle to more thoroughly remove laundry additives and perfumes.
- Pure Cycle** - Use for drum cleaning. It cleanses drum of dirt and bacteria. Regular use (after every 40 washes) is recommended. No detergent or bleach needed.

3. Instruction of Function

3-1. Control Panel



7. Cycle Selector

Select the appropriate cycle for the type of load. This will determine the tumble pattern and spin speed for the cycle.

Normal - For most fabrics including cottons, linens and normally soiled garments.

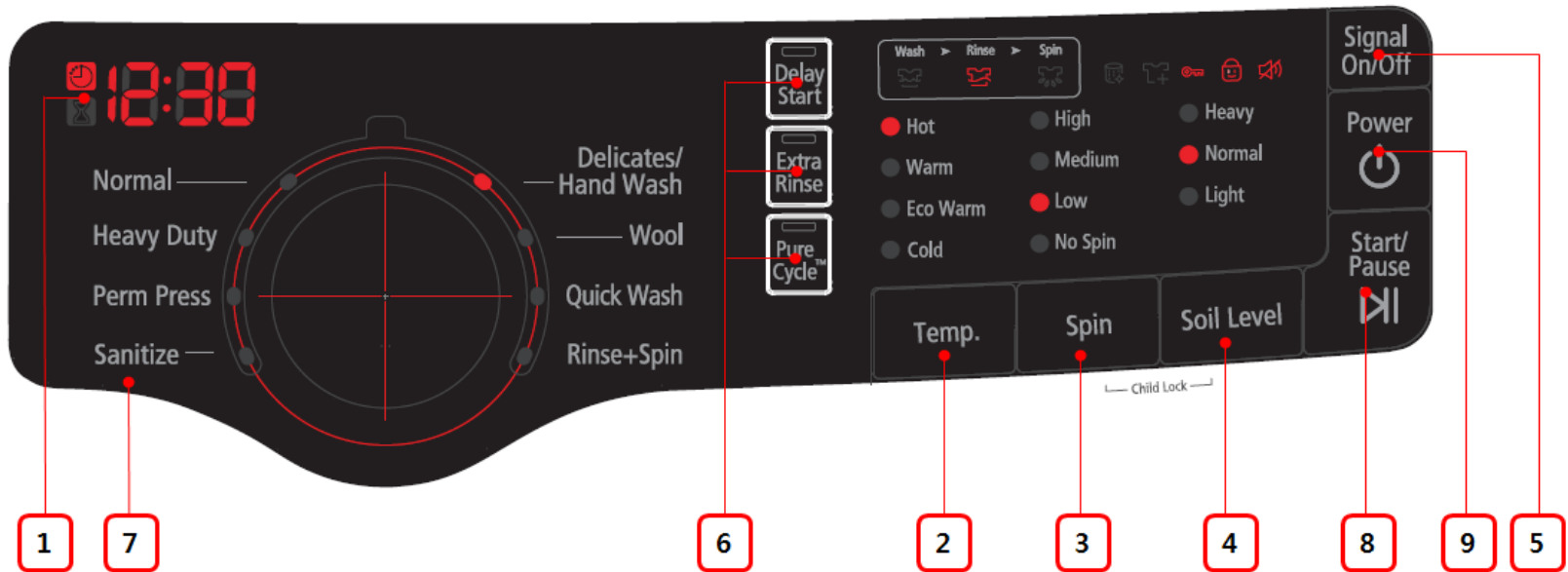
Heavy duty - For sturdy, colorfast fabrics and heavily soiled garments.

Perm Press - For wash-and-wear, synthetic fabrics and lightly to normally soiled garments.

Sanitize - For heavily soiled, colorfast garments. This cycle heats the water to 150°F to eliminate bacteria.

3. Instruction of Function

3-1. Control Panel



7. Cycle Selector

Delicates/Hand Wash - For sheer fabrics, bras, lingerie silk and other handwash-only fabrics.
For best results, use liquid detergent.

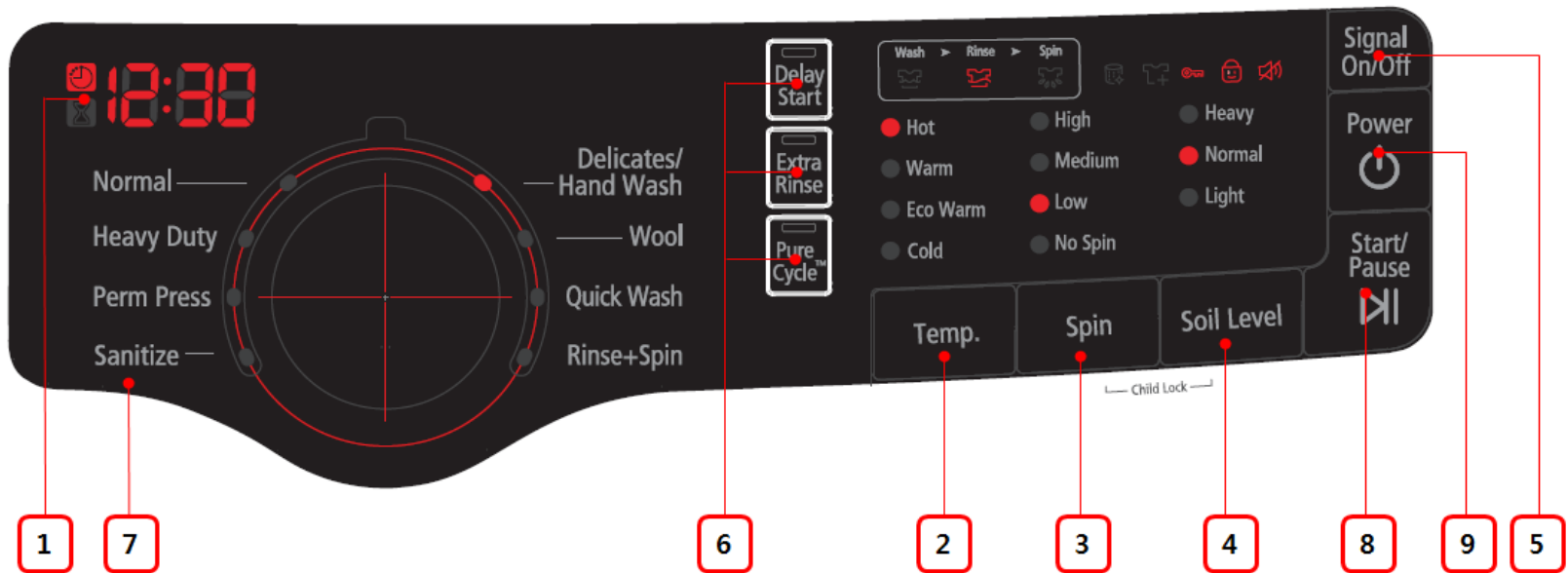
Wool - The machine-washable wool. Loads should be under 8 pounds.

Quick Wash – For lightly soiled garments needed quickly.

Rinse+Spin – Use for loads that need rinsing only or to add rinse-added fabric softener to a load.

3. Instruction of Function

3-1. Control Panel



8. Start/Pause Selection Button

Press to pause and restart programs.

9. Power Button

Press once to turn your washer on, press again to turn your washer off.

If the washer is left on for more than 10 minutes without any buttons being touched, the power automatically turns off.

3. Instruction of Function

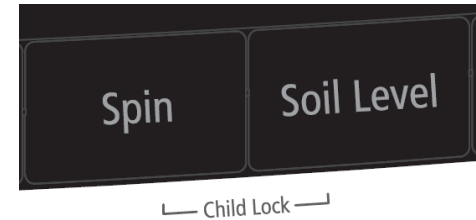
3-2. Child Lock

This function prevents children from playing with your washer.

Activating

Press and hold both Spin and Soil Level buttons at the same time for 3sec.

1. If the Child Lock function is activated, the door is locked and the “Child Lock” lamp is lit.
2. If the Start/Pause button is pressed after the Child Lock function is activated, none of the buttons will work except for the Power button.
3. If a button is pressed when the buttons are locked, the “Child Lock” lamp blinks.



Pausing the Child Lock function

When the door is locked or the buttons are locked by the Child Lock function, you can pause the Child Lock operation for 1 minute by pressing and holding both the Spin and Soil Level buttons simultaneously for approximately 3 seconds.

1. If Child Lock mode is paused temporarily, the door lock is released for 1 minute for user convenience. During this period, the “Child Lock” lamp blinks.
2. If the door is opened after the minute is over, an alarm sounds for up to 2 minutes.
3. If the door is closed within the 2 minutes, the door is locked and the Child Lock function is reactivated. If the door is closed after the 2 minutes, the door will not be locked automatically and no alarm will be heard.

Deactivating

Press and hold both the Spin and Soil Level buttons simultaneously for approximately 6 seconds.

3. Instruction of Function

3-3. Spin Only

If you press the Power button and then press and hold the Spin Only button for 2 seconds, the spin time is displayed on the display panel.

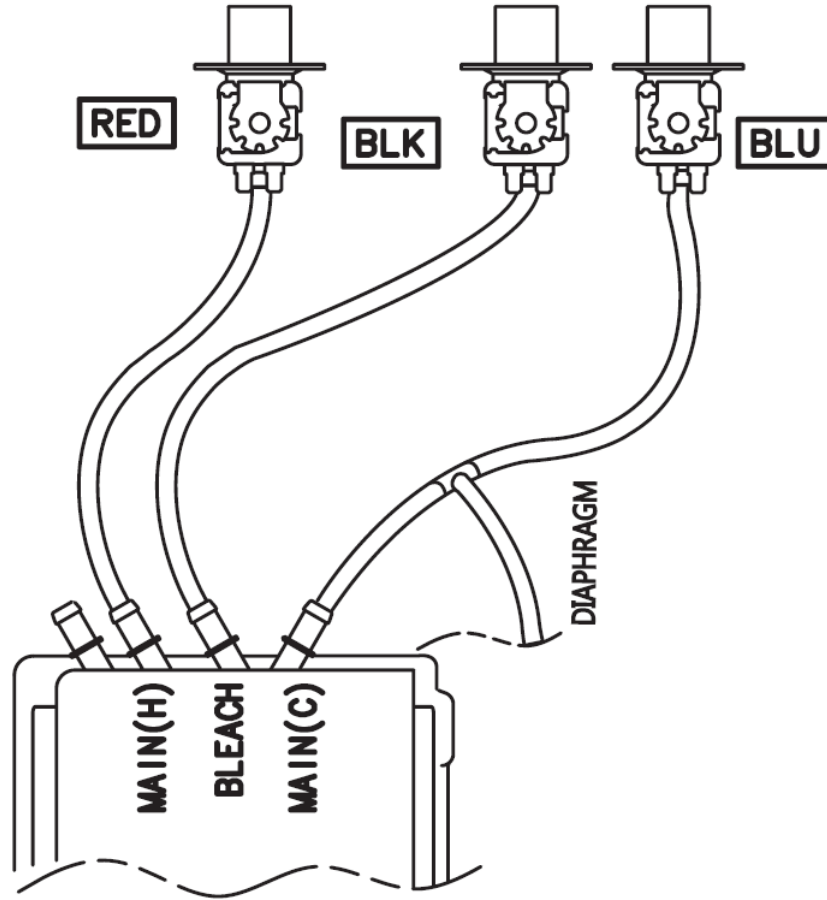
Then repeat pressing the Spin Only button until the required spin level is selected and press the Start/Pause button.

3-4. Garment+

You can add or take out laundry items even after the wash has started, as long as the “Garment+” light is turned on. Pressing the Start/Pause button unlocks the door, unless the water is too hot or if there is too much water in your washer. If you are able to unlock the door and wish to continue the wash cycle, close the door and press the Start/Pause button.

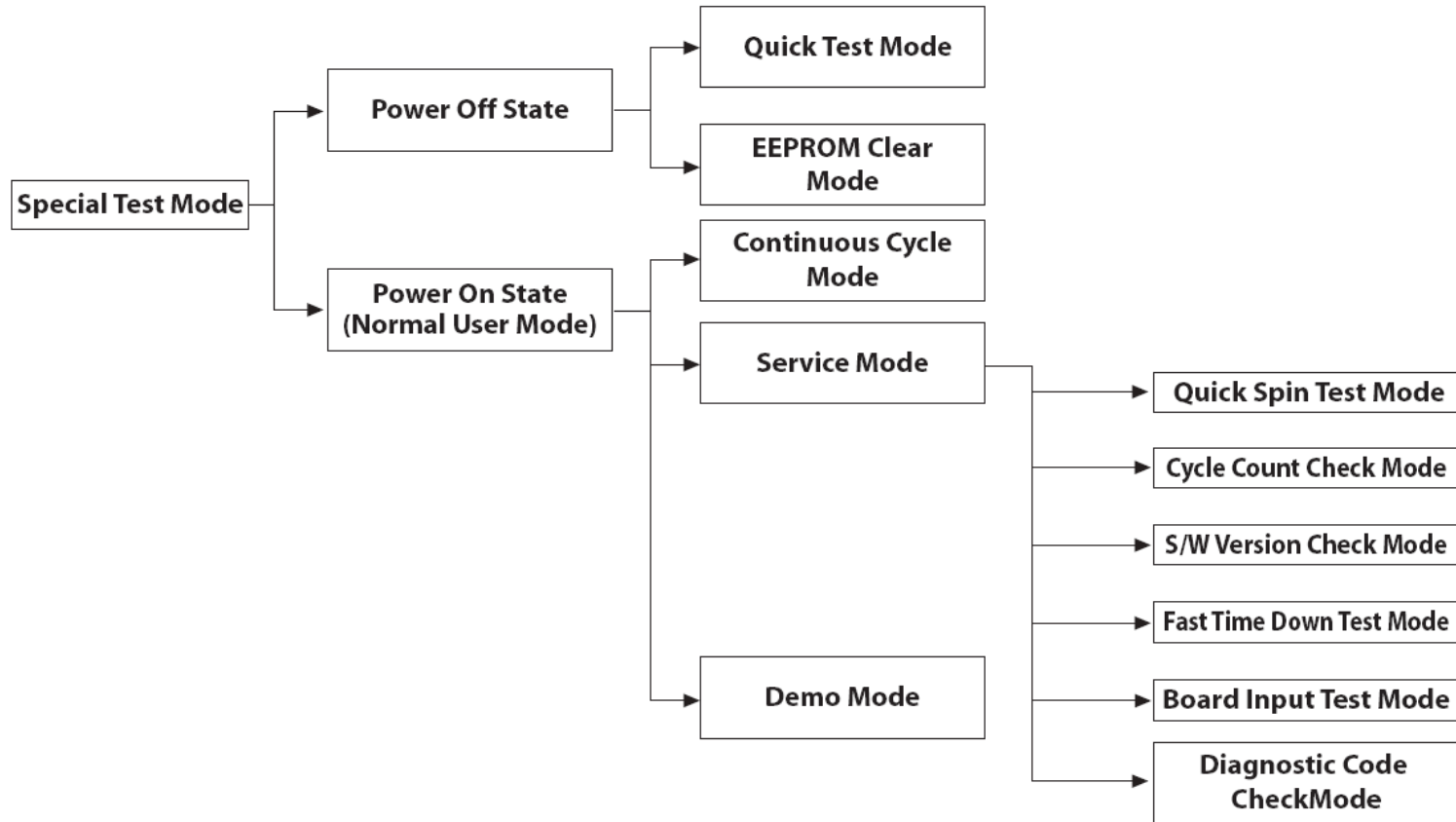
3.Instruction of Function

3-5. Water Flow



4. Test Mode & Error Check

4-1. Test Mode

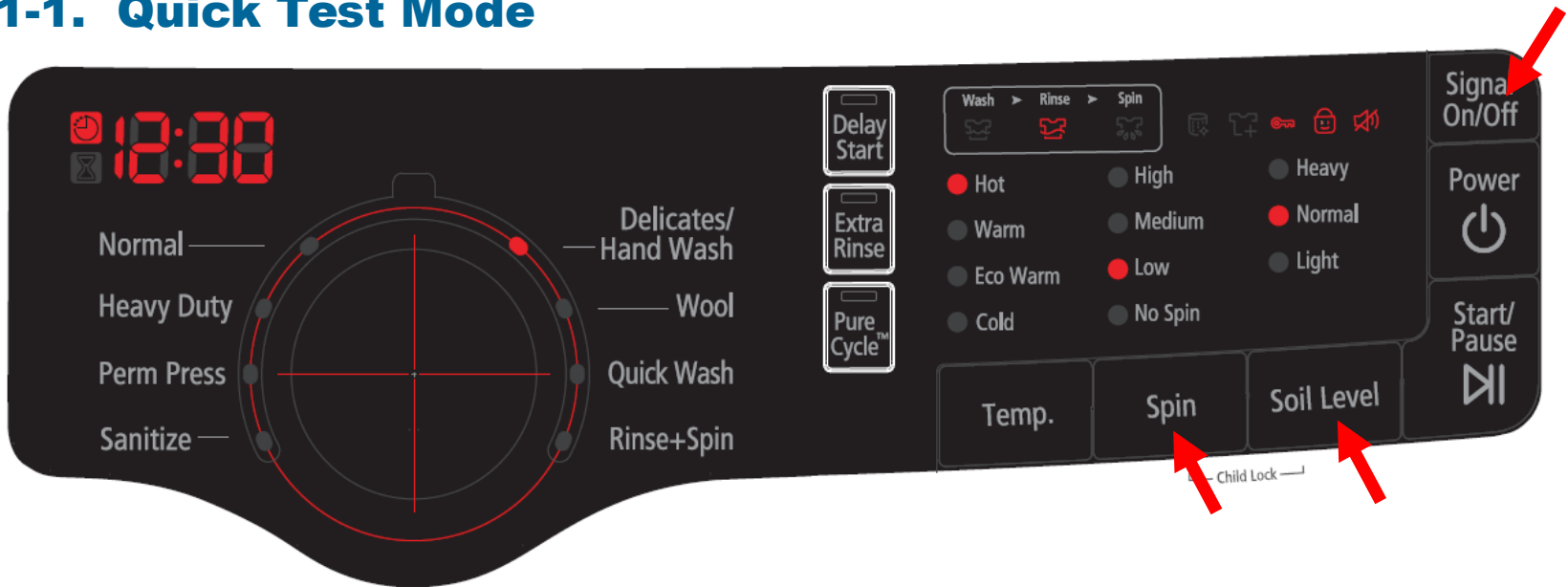


Test Mode:

Each Test Mode for the BIGBANG is as follows in the coming pages. The test modes indicated by the red arrows are modes unable to get an access once the washing cycle has started due to safety reasons.

4. Test Mode & Error Check

4-1-1. Quick Test Mode



Definition of Quick Test Mode:

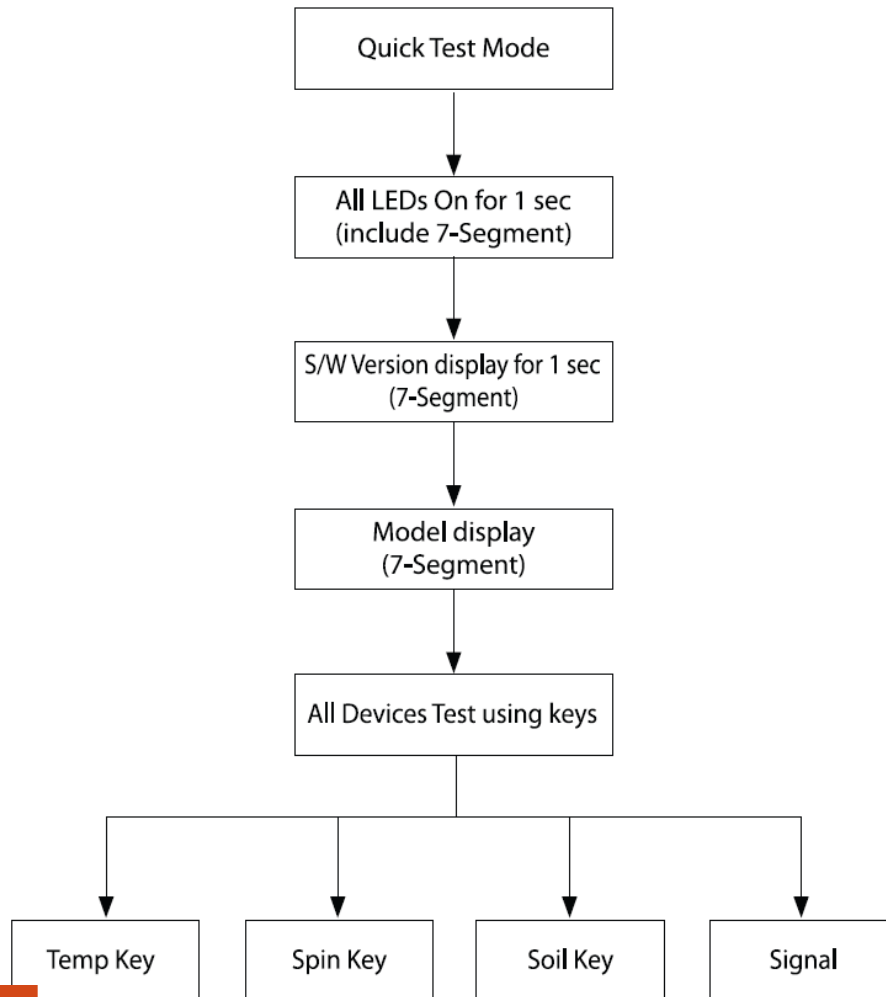
- Check operation of all LED's (Verify faulty LED).
- Check model and software version.
- Check different operating modes (e.g. water valve, motor, door, drain pump, etc.).

How to Enter:

- Plug in the unit.
- Press Soil Key, Spin Key and Power Key at the same Time.

4. Test Mode & Error Check

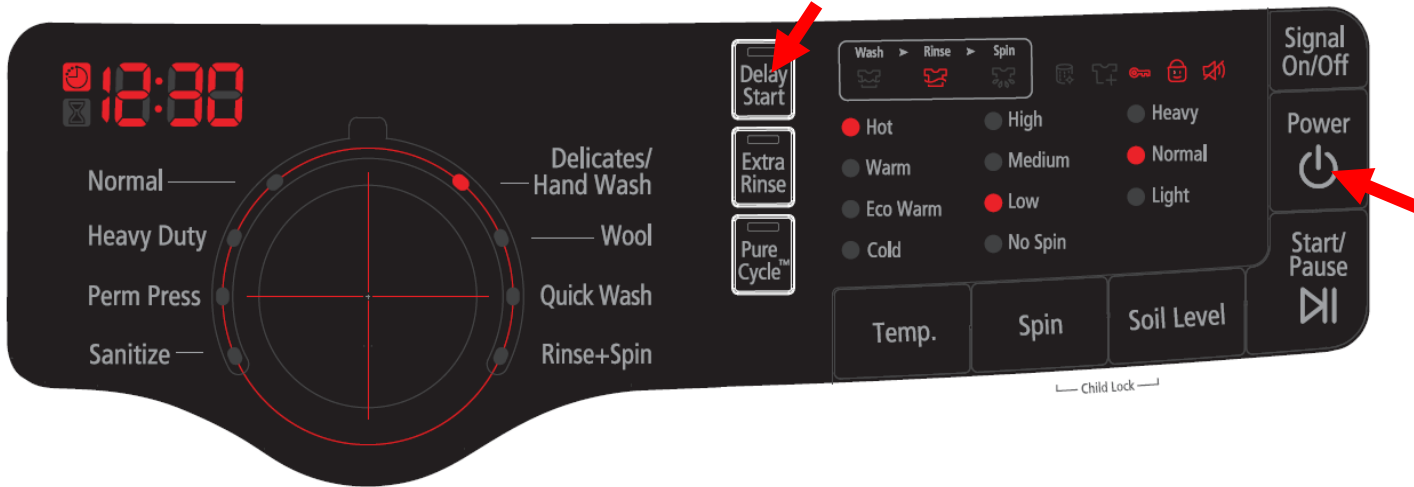
4-1-1. Quick Test Mode



1. All LED's light up and it sends out Beep Sound when it enters into the Quick Test Mode. (Including 7-Segment)
2. Displays software version for a sec and Clear EEprom. (Ex. If S/W Version is 04, 7-Segment will display Ud04)
3. When the version is displayed, turn the Jog-Dial so that the version disappears. Press the following keys to test the various components.
 - Temp Key : Water Valve Test
 - Spin Key : Door Lock/Unlock Test
 - Soil Key : Water Heater Test
 - Signal : Drain Pump Test

4. Test Mode & Error Check

4-1-2. EEPROM Clear Check

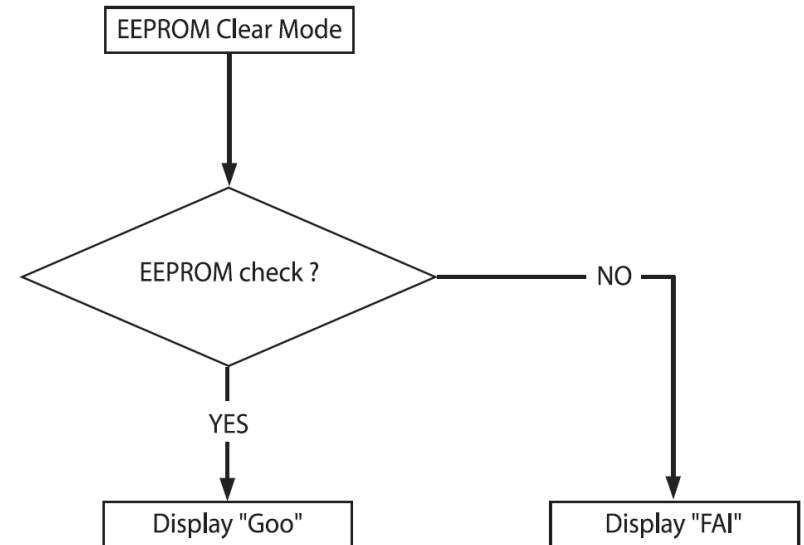


Definition of EEPROM Clear Mode:

- EEPROM initialization.
- All course/option settings are to be reset to default values after EEPROM initialization.
- When Service arises and it needs PCB replacement, EEPROM should be reset.

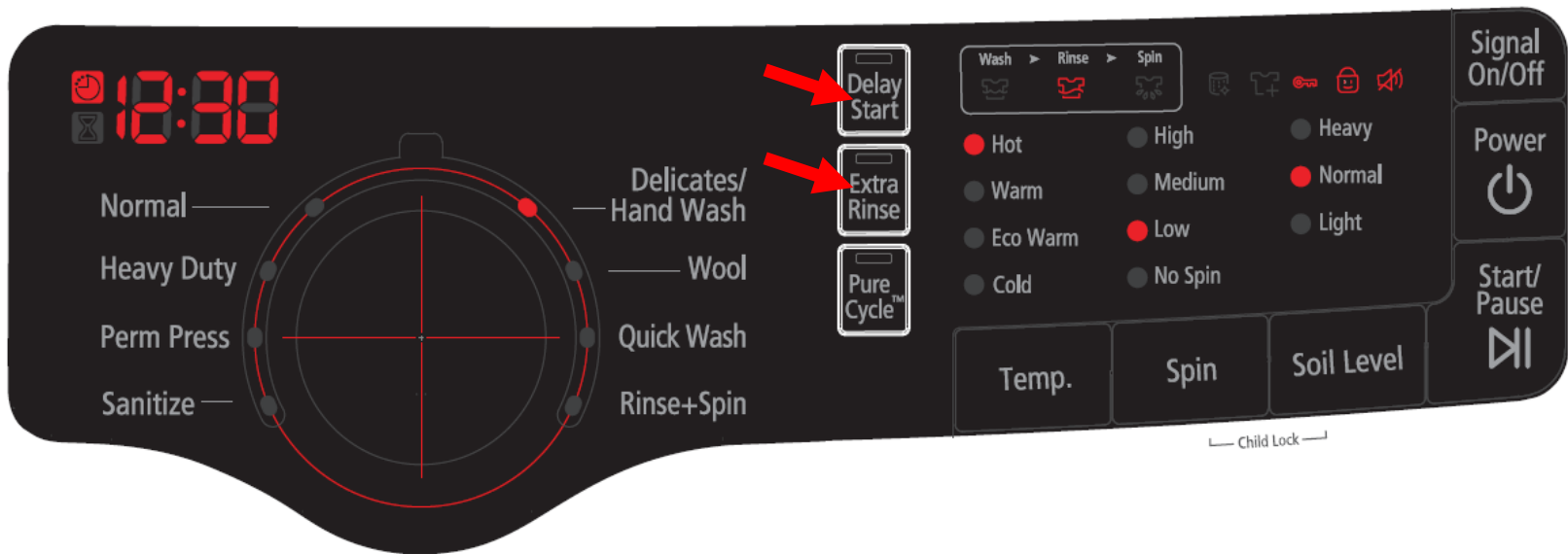
How to Enter:

- The unit needs to be on.
- Press Delay Start Key, and Power Key at the same time.



4. Test Mode & Error Check

4-1-3. Continuous Run Mode



Definition of Continuous Run Mode:

- Will continuously repeat the current cycle until the Continuous Run Mode is cancelled.

How to Enter:

- Press Delay Start Key and Extra Rinse Key together for 7 sec.

4. Test Mode & Error Check

4-1-3. Continuous Run Mode

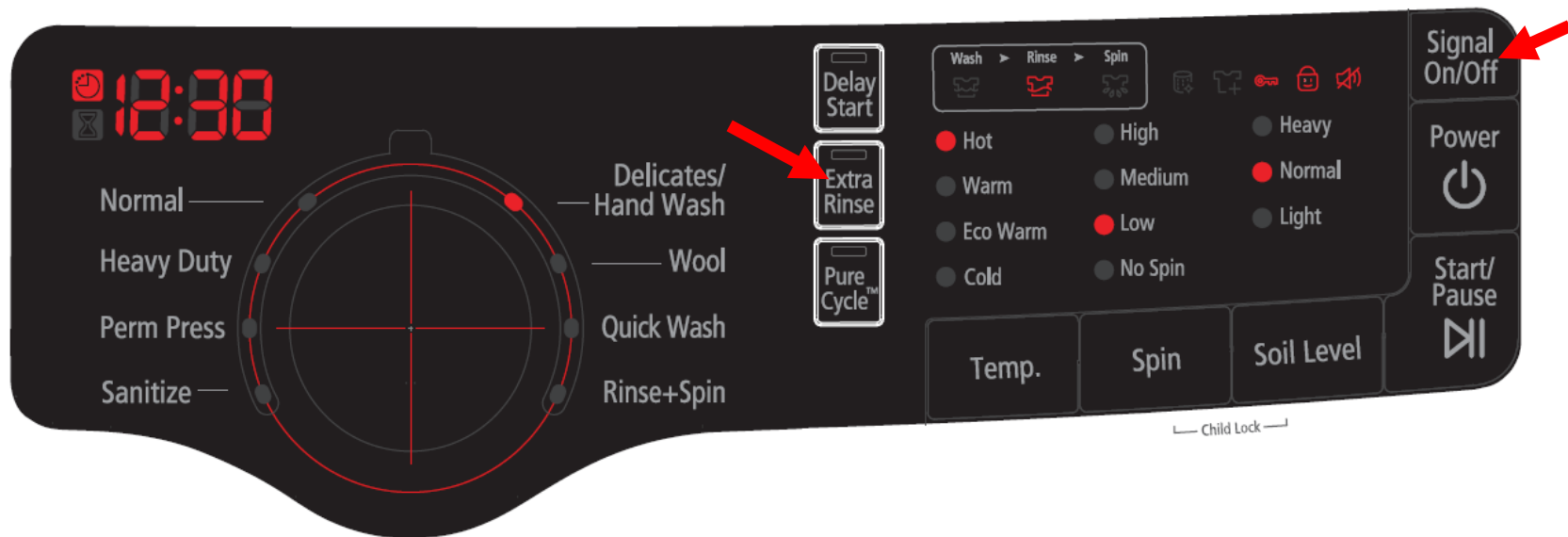


Continuous Run Mode:

1. Press Delay Start + Extra Rinse Key for 7 sec during Power On State (Normal User Mode) .
2. Once in Continuous Run Mode, The seven segments will no longer display “0000” and will alternate between displaying the number of cycles of the completed course and the remaining time of the course.
3. The Continuous Run Mode will repeat the previous cycle until continuous run mode is cancelled.
4. During Continuous Run Mode, press Delay Start + Extra Rinse Key for 7 sec to return to normal user mode. The seven segments will no longer display the number of cycles and will display the maintenance time only.
5. If you exit Service Mode after entering it from Continuous Mode, the washing machine returns to Continuous Mode.
6. If power is lost in Continuous Run Mode (that is, when the power plug is disconnected or the Power key is pressed turning the washing machine off), the mode is released when the washing machine is turned on again.

4. Test Mode & Error Check

4-1-4. Service Mode



Definition of Service Mode:

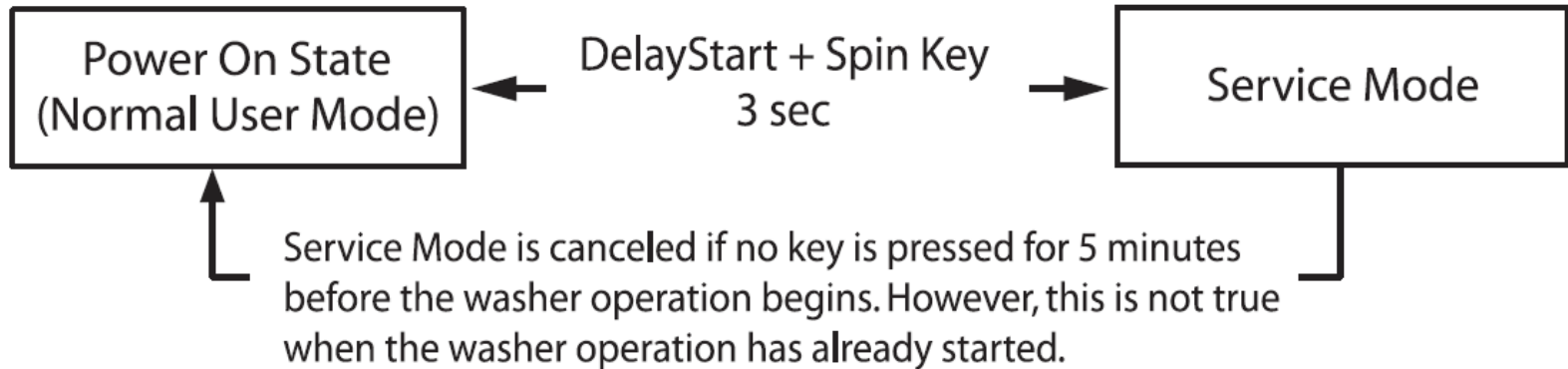
- Service Mode enables service technicians to verify the operation of the washing machine and do troubleshooting.
- Service Mode can be entered during all washing cycle without interrupting the cycle except some of test modes.
- Various tests can be done with Service Mode. So, troubleshooting can be done based on the resulting diagnostic codes.

How to Enter:

- To enter the Service Mode, press the Signal and Extra Rinse Keys for 3 seconds or until the unit sends out beeping sounds.

4. Test Mode & Error Check

4-1-4. Service Mode



Special Test Mode:

1. The washer must be on to go into the Service Mode.
2. The motor speed will be displayed when started (It displays 0 when the motor does not spin).
3. The present state of the machine will not be changed. (i.e., the current cycle in progress will not be interrupted and only the display will change)
4. To exit Service Mode, press Signal and Extra Rinse Keys for 3 second again, or Power Key. If no key is operated during Service Mode for 5 minutes, the machine will return to normal user mode.

4. Test Mode & Error Check

4-1-5. Quick Spin Test Mode



Definition of Quick Spin Test Mode:

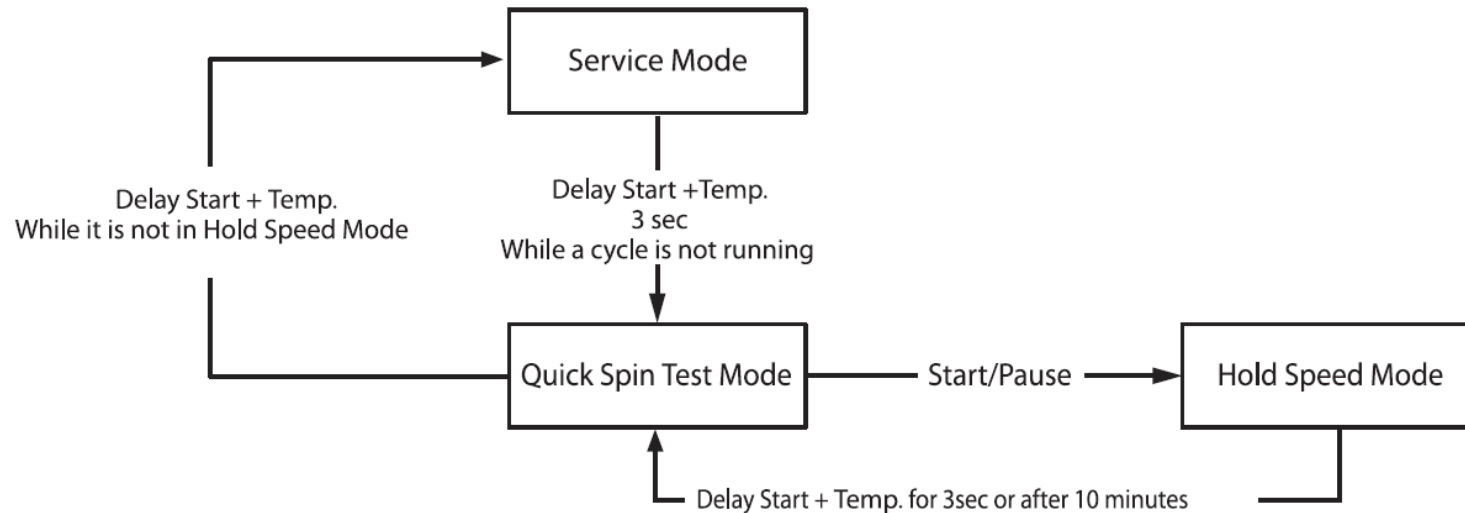
- Quick Spin Test Mode is to do Spin Check. (High RPM)

How to Enter:

- During Service Mode, press the Delay Start and Temp. Keys for 3 seconds to enter Quick Spin Test Mode.
- Cannot enter once the washing cycle has started.

4. Test Mode & Error Check

4-1-5. Quick Spin Test Mode



Quick Spin Test Mode:

As it enters into the Quick Spin Test Mode, it starts spinning and reaches to its maximum RPM.

Once the Spin speed reaches the maximum RPM, the speed drops immediately.

To hold Quick Spin Test Mode (entering Hold Speed Mode), press the Start/Pause button. If the Start/Pause button is pressed during Quick Spin Test Mode, it will stop accelerating and hold its spinning speed for 10 minutes before going back to Quick Spin Test Mode.

Also, to cancel the hold and allow Quick Spin Test Mode to continue, press the Delay Start and Temp Keys together for 3 seconds.

If you hold down the Delay Start and Temp. keys for three (3) seconds when the washing machine is not in Hold Speed Mode, Quick Spin Mode is exited and Service Mode is restored.

4. Test Mode & Error Check

4-1-6. Cycle Count Check Mode



Definition of Cycle Count Check Mode:

- Cycle Count Check Mode is to tally up the number of washings.

How to Enter:

- To enter the Cycle Count Check Mode, press the Signal Key during Service Mode.

Cycle Count Check Mode:

1. Activate the Service Mode in advance.
2. When the Signal key is pressed, the total number of washings will light up and a signal LED will glow.
3. The maximum number of cycles will be 1999. The counter will roll over to 0 and start counting again after 1999.
4. The counting will be carried out at the end of the normal cycle. (For normal and Continuous Run cycles, the count is carried out at the end of the cycles.)
5. To exit the Cycle Count Check Mode, press the "Signal" key again.

4. Test Mode & Error Check

4-1-7. S/W Version Check Mode



Definition of S/W Version Check Mode:

- S/W Version Check Mode is to bring up S/W Version information.

How to Enter:

- To enter the S/W Version Check Mode, press the Soil Level Key during Service Mode.

S/W Version Check Mode:

1. Activate the Service Mode in advance.
2. Press the Soil Level Key to bring up its software VersionEX) Generate Ud04 at Version 04
(Ud is Micom code, 04 is it's software version)
3. To exit the S/W Version Check Mode, press the Soil Level S/W once again. Then, it returns to the Service Mode with motor RPM illuminating.

4. Test Mode & Error Check

4-1-8. Fast Time Down Test Mode



Definition of Fast Time Down Test Mode:

- Fast Time Down Test Mode is to forward the program to the next cycle stage.

How to Enter:

- To enter the Fast Time Down Test Mode, press the Temp key during Service Mode.

Fast Time Down Test Mode:

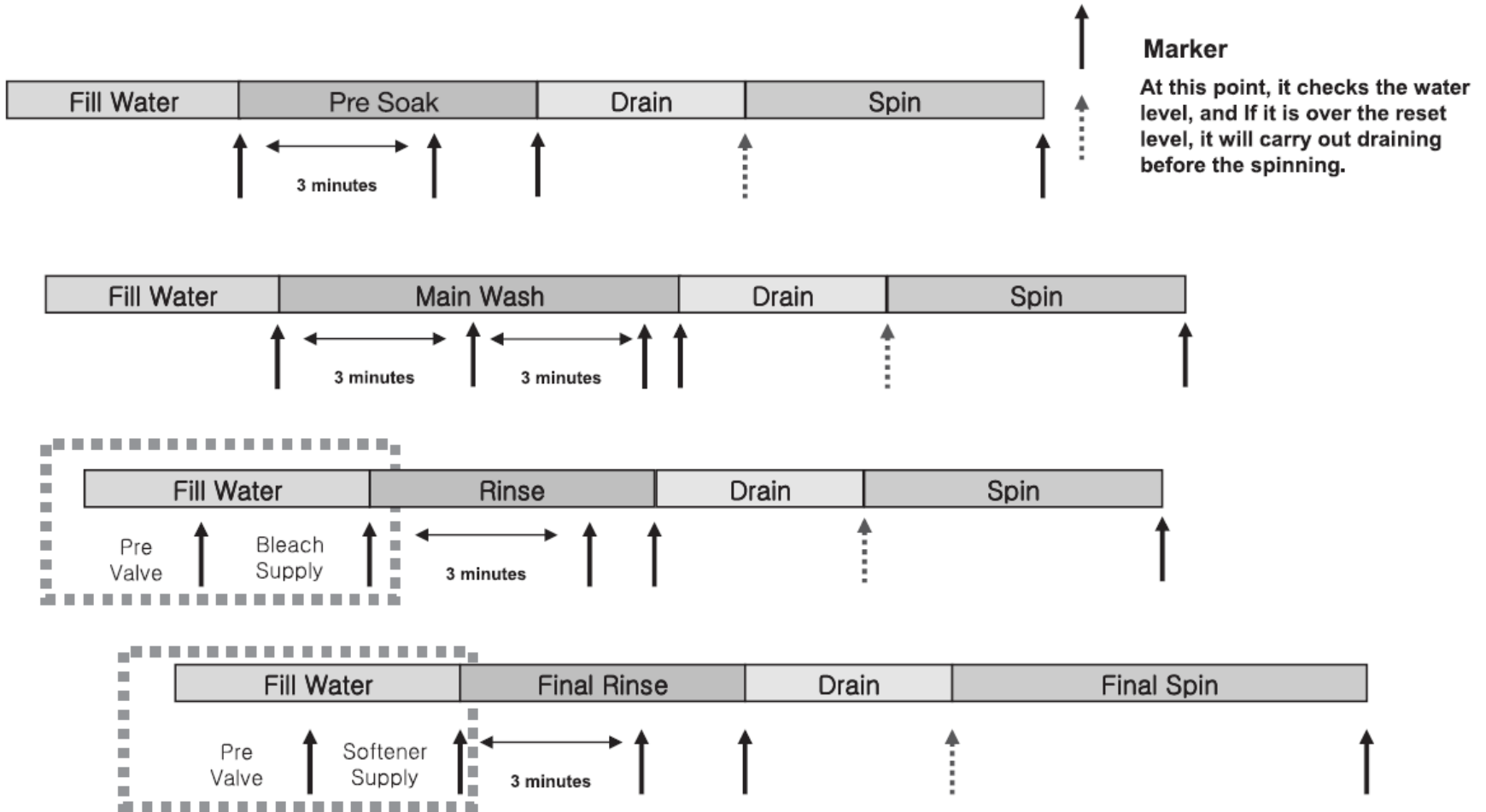
1. Activate the Service Mode in advance.
2. To forward the program to the next cycle stage, press the Temp key.

Each stage is located at key points of a complete cycle as follows:

- End of Each Fill (Beginning of Wash or Rinse Tumble Session)
Caution: Check if the current water level is higher than the Reset water level and then perform the Fast time down test.
- Beginning of Drain Session
- Beginning of Spin Session (Here, it checks the water level. So, if it is over the reset level, it carries out draining before the spinning.)
- Beginning of Fill Session
- Beginning of Bleach Fill
- Beginning of Fabric Softener Fill
- Every 3 minutes during Wash and Rinse Tumble Session

4. Test Mode & Error Check

4-1-8. Fast Time Down Test Mode



4. Test Mode & Error Check

4-1-9. Board Input Test Mode



Definition of Board Input Test Mode:

- Board Input Test Mode is to displays a specified input after a key press.

How to Enter:

- To enter the Board Input Test Mode, press the Extra Rinse key during Service Mode.

Board Input Test Mode:

1. Activate the Service Mode first.
2. Press the key to start Board Input Test.
3. Turn the Jog-Dial so that the normal course LED is turned on, and The Water Temperature will be displayed in Celsius.
4. Turn the Jog-Dial so that the LED is turned on, The Water Temperature will be displayed in Fahrenheit.
5. Turn the Jog-Dial so that the LED is turned on, The door status will be displayed (OP if open, CL if closed).
6. Turn the Jog-Dial so that the LED is turned on, The Door Lock Switch status will be displayed (UL if unlocked, LO if locked).

4. Test Mode & Error Check

4-1-10. Diagnostic Code Check Mode



Definition of Diagnostic Code Check Mode:

- Diagnostic Code Check Mode is to bring up the stored diagnostic codes (refere codes for service technicians).

How to Enter:

- To enter the Diagnostic Code Check Mode with code "d" flashing, press the Spin key during Service Mode.

4. Test Mode & Error Check

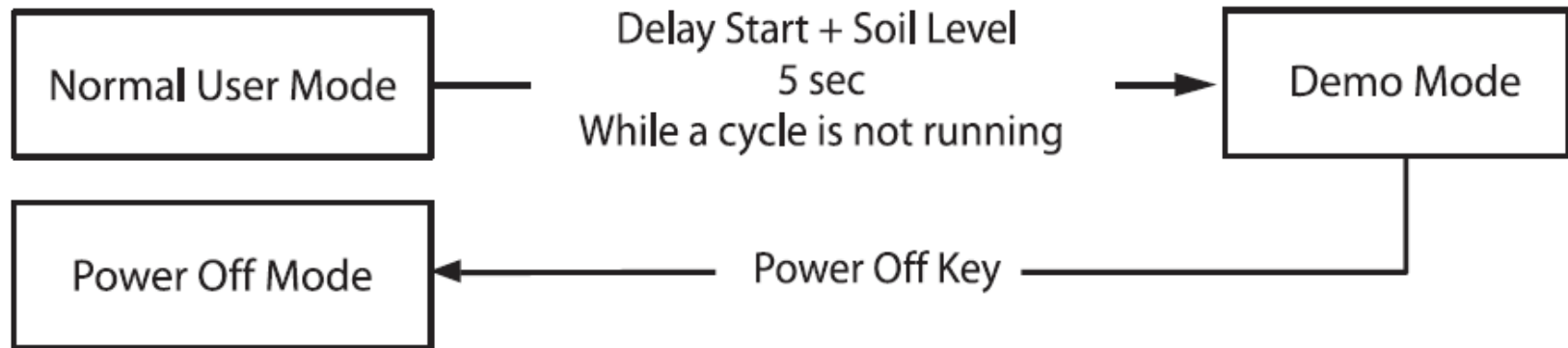
4-1-10. Diagnostic Code Check Mode

Board Input Test Mode:

1. Activate the Service Mode first.
2. Press the “Spin key” key to start Diagnostic Code Check Mode with Code “d” flashing.
3. To cycle through the diagnostic codes (d1,d2,d3~d9), turn the Rotary Cycle Selector in one direction (either Clockwise or Counterclockwise).
4. Now, when turning the Rotary Selector Key in the same direction, it shows diagnostic codes from the latest (d1).
5. When turning it in the opposite direction, it shows the diagnostic codes in the reverse order. Ex) When it stops at d5 and turns backward, it shows from d4 down to “d”. Refer to Diagnostic Code.

4. Test Mode & Error Check

4-1-11. Demo Mode



How to Enter:

To enter the Demo Mode, Press Delay Start + Soil Level Key for 5 Sec While a cycle is not running.

4. Test Mode & Error Check

4-2. Diagnostic Code & Corrective Action

NO	Error Code	Description	Corrective Action
1	nd	The water level fails to drop below the Reset Water Level within 15 minutes.	Go to “ Will Not Drain” Troubleshooting Section.
2	LO	Door fails to unlock after 7 attempts.	Go to “ Will Not Unlock” Troubleshooting Section.
3	nF	When the filling continues for more than 40 minutes or there is no change of water level for 6 minutes.	Go to “No Water Fill” Troubleshooting Section.
4	FL	Door fails to lock after 7 attempts.	Go to “ Will Not Lock” Troubleshooting Section.
5	LE	A water level lower than the Reset water level is detected for 5 seconds during the Wash/Rinse cycle.	Go to “No Water Fill” Troubleshooting Section.
6	1E	Water Level Sensor Trouble. (When the input signal from the water level sensor is out of range, the unit will send out beeping sounds and halts the cycle.)	Go to “No Water Fill” Troubleshooting Section.

4. Test Mode & Error Check

4-2. Diagnostic Code & Corrective Action

NO	Error Code	Description	Corrective Action
7	OE	A fault is detected in the water level sensor. Data (frequency) shows the water level is at or above the overflow water level. (When this condition is detected, the machine will automatically starts draining water until the water level falls below the reset water level)	First check to see that all of water valves are not stuck. If water valves are OK, check water level.
8	dc	Unbalance or cabinet bump is detected during final spin, which prevents the drum from spinning over 150 rpm. (Never exceeds 150 RPM due to unbalanced load)	Go to "Wet Clothes" Troubleshooting Section.
9	E2	Jammed Key.(When key input signals are coming out for more than 30 seconds, it is regarded as a jam.)	Check all of keys. If A key is sensed to be pressed, all keys will do not respond.

4. Test Mode & Error Check

4-2. Diagnostic Code & Corrective Action

NO	Error Code	Description	Corrective Action
10	ds	Door is detected as open while it is trying to lock the door.	Go to “Quick Test Mode” and then do Door Lock/Unlock Test
11	tE	Abnormal high/low temperature or resistance (Thermal sensor or PBA resistance).	Go to “ Board Input Test” and check Water Temperature. Check loose or pinched wires. Replace PCB or thermistor.
12	3E	MICOM is attempting to drive the motor but is not getting any response signals from the hall sensor. Visual check shows motor is not running. (Locked, Defective Hall Sensor or Overload)	Evaluate wire harness for loose or unhooked connections. Go to “ Quick Test Mode” and test Motor.

4. Test Mode & Error Check

4-2. Diagnostic Code & Corrective Action

NO	Error Code	Description	Corrective Action
13	Sr	System Relay (Main Relay) Failure. (PCB does not notice the relay operation when there should be.)	Replace PCB.
14	Hr	Heater Relay Failure (No Heater Relay Check Signal)	Replace PCB
15	nF1	The hot/cold water hose connection is not correct.	Please connect the hot/cold water hose connection correctly.

4. Test Mode & Error Check

4-2. Diagnostic Code & Corrective Action

NO	Error Code	Description	Corrective Action
16	2E	Voltage for motor control bus is over or under specified limit.	Replace PCB
17	suds	Suds is detected during the washing session. ("SUdS" is not an error. If the washer is in suds period, "SUdS" will light up instead of remaining time.)	Guide a user to reduce amount of detergent usage.
18	AE	Communication error between SUB PBA and MAIN PBA	Check Main PBA, SUB PBA & Wire-harness. Replace PCB
19	SF	System Error	Replace PCB

5.SVC Information (Troubleshooting)

Problem	What To Do
<p>Will Not Start</p>	<ul style="list-style-type: none"> • 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 CN2 terminals on PCB are in good condition. (Refer to PCB Connector Check.) • Replace PCB.
<p>Leaking</p>	<ul style="list-style-type: none"> • Make sure inlet hose connections are not leaking. Check for rubber gasket damage due to over tightening. • Check standpipe for leak. Wrap a dry rag around the standpipe opening. If rag becomes wet, leak is fault of home plumbing. Be sure the standpipe is capable of accepting the flow of water from the washer. • Make sure end of drain hose is correctly inserted and secured to drain standpipe. • Check internal hose connections (fill, drain systems, dispenser hoses & clamps). • Check rubber boot. Remove, reposition and reinstall, if necessary. • Check for possible kinked dispenser to outer tub hose. Hot water pressurization may force door open.

5.SVC Information (Troubleshooting)

Problem	What To Do
<p>No Tumble</p>	<ul style="list-style-type: none"> • Start normal cycle with an empty machine and allow a fill to check tumble. • Perform Quick Spin Test. (Before test, make sure that the tumbler is empty.) • Check for loose connections at Machine Control Board, Pressure Switch, Motor, Tach Harness and Motor Control. (Refer to the component testing procedure) • Check motor windings resistance. CN5 pins 1 & 3 = 11.6ohms ±7%, Pins 1 & 2 = 11.6ohms ±7%, Pins 2 & 3 = 11.6 ohms ±7% • Faulty Main Control Board. • Faulty motor.
<p>Will Not Spin</p>	<ul style="list-style-type: none"> • 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. • Perform Quick Test Mode or Quick Spin Test. Does the washer spin? If it does, Check Possible unbalanced load scenario in normal mode. • Check for loose connections at PCB, Water Level Sensor, Motor, Hall Sensor Wire Harness. (CN7,CN5,CN6) (Refer to the Component Testing Procedure.) • Check motor windings resistance. (CN5 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))

5.SVC Information (Troubleshooting)

Problem	What To Do
<p>No water Fill</p>	<ul style="list-style-type: none"> • Perform Quick Test Mode. Check all of Water Valves visually. (Pre Wash Valve, Cold Water Valve, Bleach Water Valve, Softener dispenses using Cold & Bleach Water Valve, and Hot Water Valve.) • 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 CN2 and PIN#1,2,7,8,9 of CN3) • Check Pressure S/W and PCB for loose connections. (Refer to PCB Connector Check.)
<p>Tub Full of Suds</p>	<ul style="list-style-type: none"> • 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.

5.SVC Information (Troubleshooting)

Problem	What To Do
<p>Wet Clothes</p>	<ul style="list-style-type: none"> • 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”.
<p>Will Not Lock</p>	<ul style="list-style-type: none"> • 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 Door Lock Switch, and if not, change PCB. (Refer to PCB Connector Check.) • Read Lock Switch and PCB (CN3). (Refer to PCB Connector Check.) • Try Door Lock and check for 120V to Door Lock Connector. If 120V present, change Main Control Board and if not, change Door Lock switch.
<p>Will Not Unlock</p>	<ul style="list-style-type: none"> • Check if the door is being pushed out, which may keep it from unlocking. • Door locks itself when the water level is too high. Opening door will result in water draining from door opening. • 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. • Read Lock Switch and PCB (CN2 & CN3). (Refer to PCB Connector Check.) • 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.)

5.SVC Information (Troubleshooting)

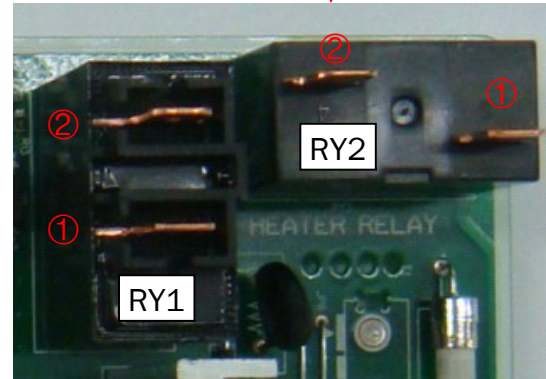
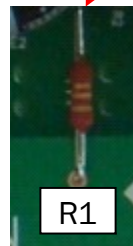
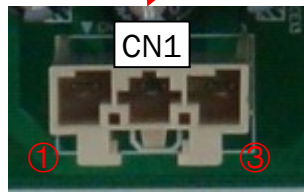
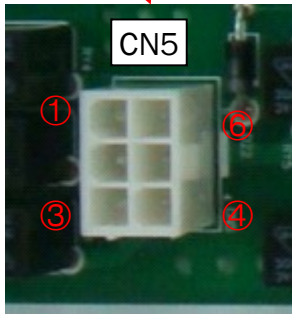
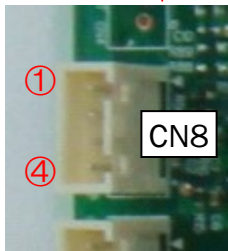
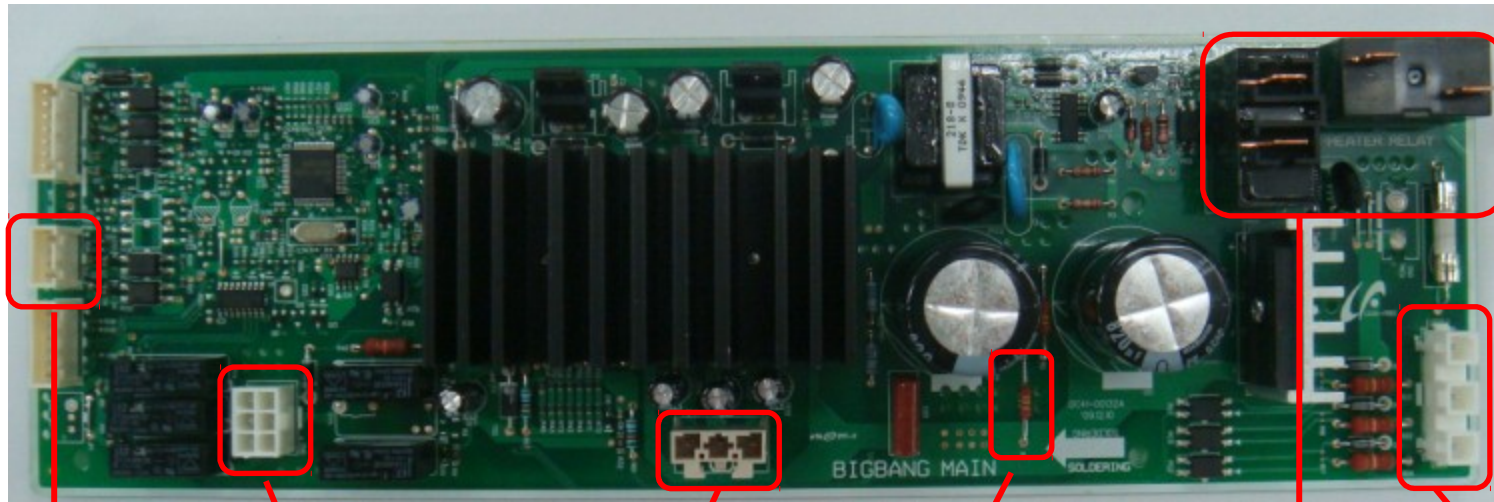
Problem	What To Do
<p>No Key Operation</p>	<ul style="list-style-type: none"> • Option and Function buttons respond differently according to each cycle. • Child Lock is being activated. To exit, hold down Soil Level Key and Signal Key simultaneously until it sends out a beeping sound. • When “End“ illuminates on the display, only Power button works. Press Power button and make new cycle selections.
<p>Will Not Drain</p>	<ul style="list-style-type: none"> • 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 Start/Pause Button. 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 CN3(PIN3) on PCB. It should read AC 110~120V. (Refer to PCB Connector Check)
<p>Wrong Water Temperature</p>	<ul style="list-style-type: none"> • Check if both of the water taps are fully open. • Make sure the domestic water heater is set to deliver water lower than 120°F (49°C) hot water at the tap. Also check water heater capacity and recovery rate. • If the water heater is located far from the washer, screw out the hot water tap and let its water pass until you get hot water. • Too Hot/Too Cold: Reduced amount of water is supplied while PCB controls the influx to regulate the actual temperature of the water in the tub. This may appear to be significantly hotter/colder than expected. • Check if the temperature selection is correct. • Disconnect inlet hoses from the Water Valve and remove any residue in the inlet screens.

5.SVC Information (Troubleshooting)

Problem	What To Do
Noisy and/or Vibration/Walking	<ul style="list-style-type: none">• 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).
Rubber Feet Leaving Marks on Floor	<ul style="list-style-type: none">• Use a pencil eraser to remove mark.• Walk washer into location, do not drag.
Additive Cups Full of Water	<ul style="list-style-type: none">• Small amount of water in bottom of additive cups is normal.• Remove and wash Dispenser Tray, removable Cup, and Rinse Cap.• Level washer.
Buttons do not Respond	<ul style="list-style-type: none">• Option and Function buttons respond differently according to each cycle.• Child Lock feature has been selected. To disable feature press and hold Temp and Spin simultaneously until a beep is heard.• When display shows “End”, only the Power button will function. Press Power and make new cycle selections.

6.Reference Information

6-1. PCB Connector Check



6.Reference Information

6-1. PCB Connector Check

Hall Sensor Check

Check Voltage at Pin #4 and #3 of CN8

Tester Check = DC0.6V or 1.3V

Check Voltage at Pin #4 and #2 of CN8

Tester Check = DC0.6V or 1.3V

Motor Check

Resistance at Pin #1 of CN1 and R1-GND

= 280 k Ω or 470 k Ω

Resistance at Pin #2 of CN1 and R1-GND

= 280 k Ω or 470 k Ω

Resistance at Pin #3 of CN1 and R1-GND

= 280 k Ω or 470 k Ω

Door Lock Check

Check Voltage at Pin #1 of CN2 and Pin #6 of CN5

When Door Lock = AC 120V

Drain Motor Check

Check Voltage at Pin #1 of CN2 and Pin #4 of CN5

When Drain Pump operates = AC 120V

Water Valve Check

Check Voltage at Pin #1 of CN2 and Pin #1,2,3 of CN5

When Drain Pump operates = AC 120V

Heater Relay Check

Check Voltage at Pin #1 of CN2 and Pin #1 of RY2

When Heater Relay operates = AC 120V

AC Power Check

Check Voltage at Pin #1 and #3 of CN2

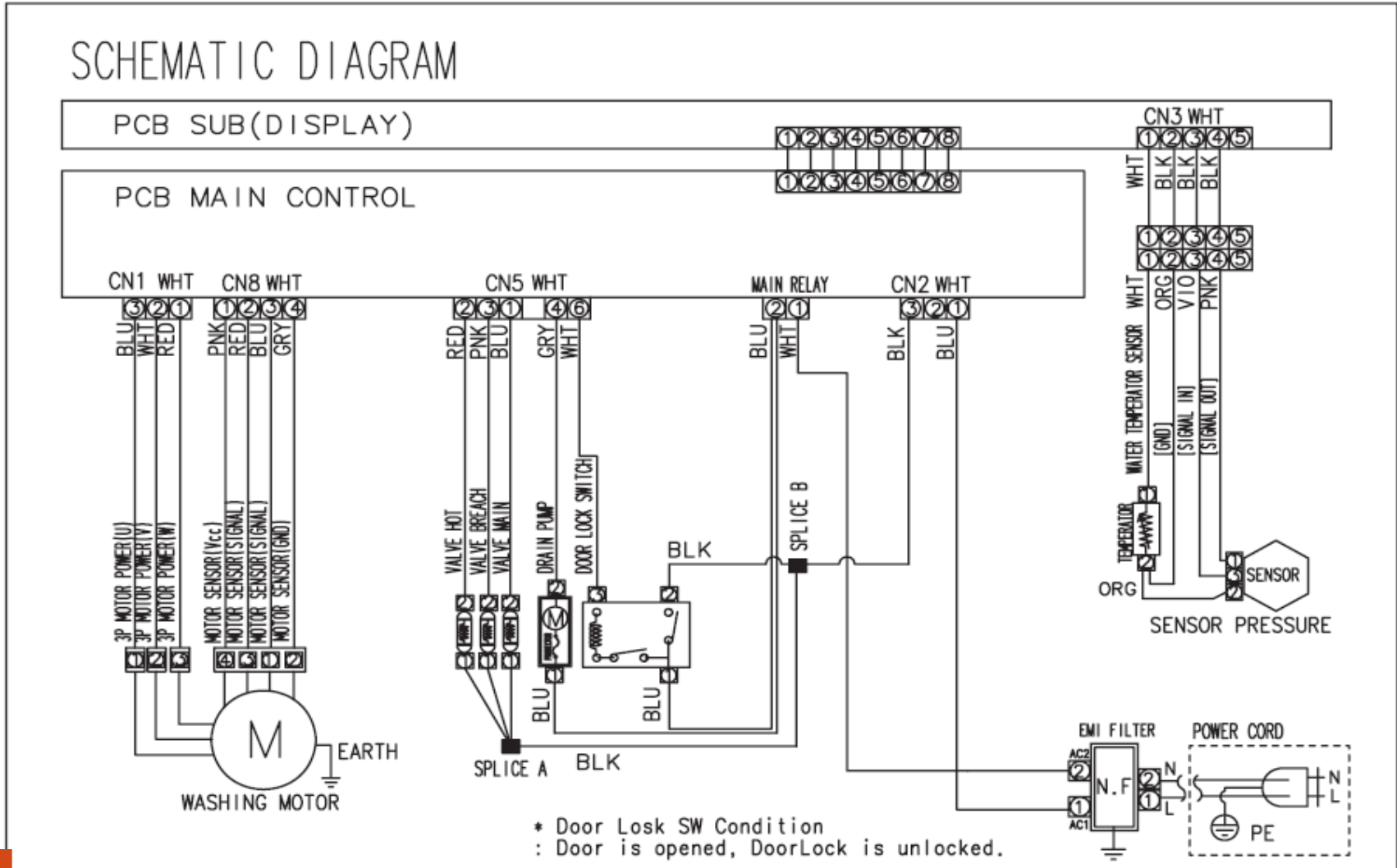
Check Voltage at Pin #1 of CN2 and Pin #1 of RY1

Tester Check = AC 120V

6. Reference Information



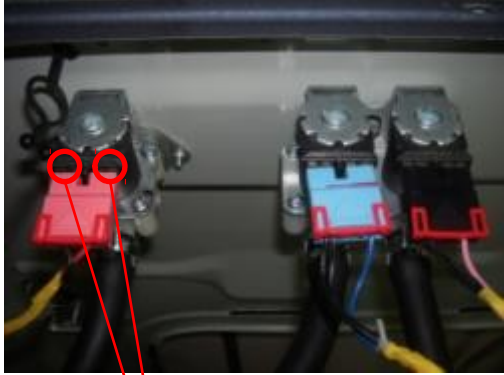
6-2. Wiring Diagram

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6.Reference Information

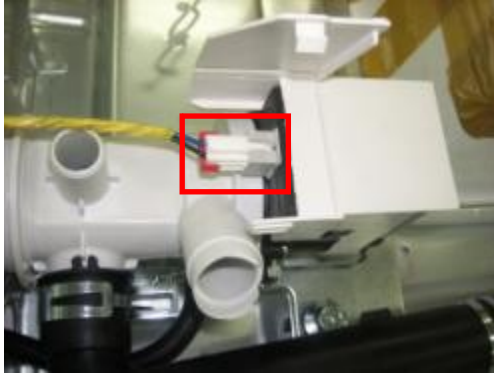
6-3. Components Check

Door Lock S/W	Water Level Sensor	Water Valve
		
<ol style="list-style-type: none">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.	<ol style="list-style-type: none">1.Check the water level sensor frequency.2.Check it after the water level sensor and the connector are connected.3.Frequency: Approx. 26.4 kHz with no load.	<ol style="list-style-type: none">1. Check the resistance for the water supply valve. Resistance : 1.0k to 1.2kΩ2. Check whether there is foreign material in the water supply valve diaphragm.

6.Reference Information

6-3. Components Check

Drain Motor



Resistance : Approximately 174Ω between the terminals for the Water Supply Valve.

Drum Motor

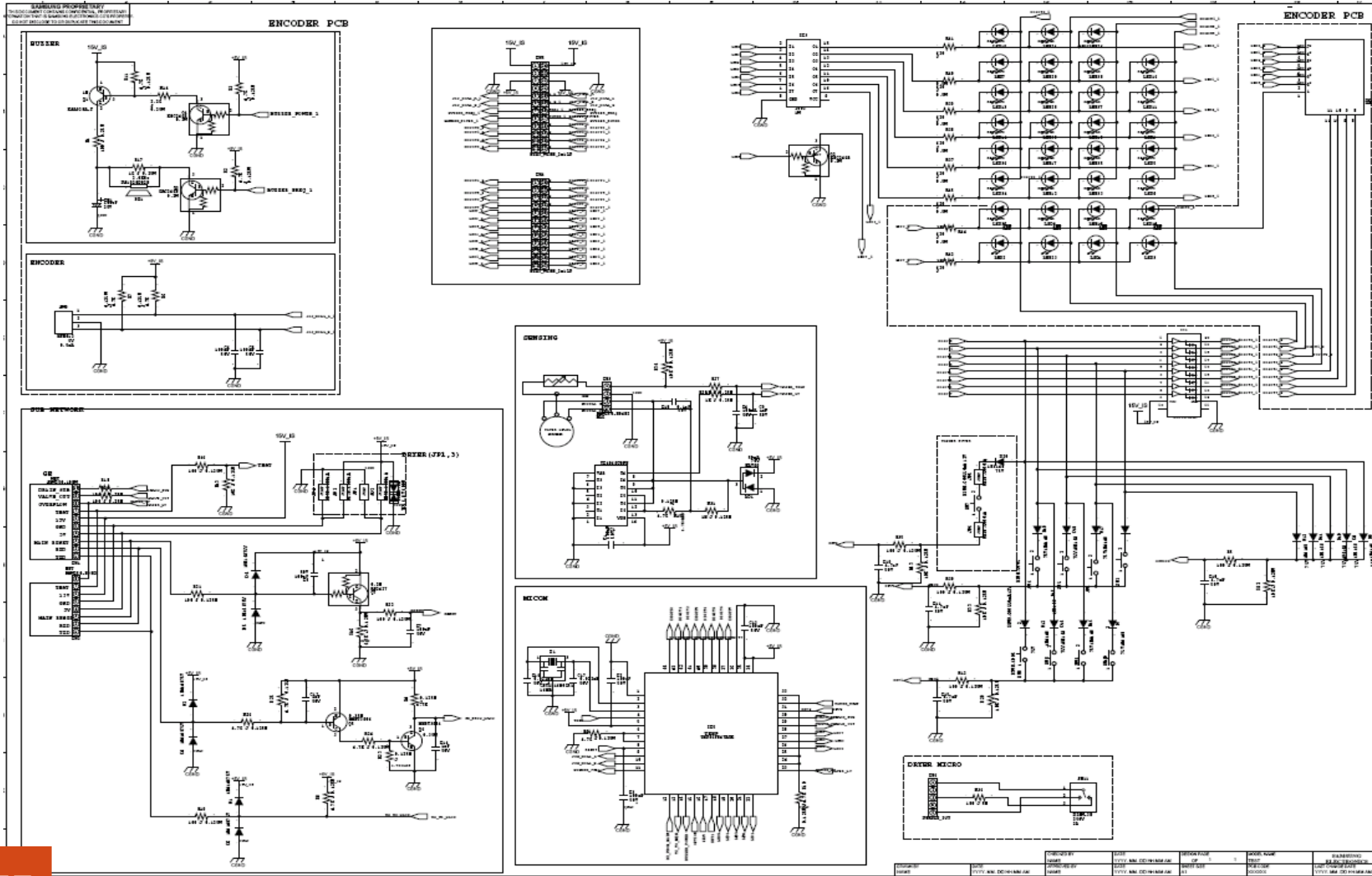


Plug out the connector and read resistances at any two of the three terminals on Motor : Should be 15Ω

6. Reference Information

6-4. Schematic Diagram (Sub PCB)

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REV	DATE	BY	CHK	APP	DESCRIPTION
1	2011.04.28	Y. KIM	S. KIM		ENCODER PCB
2	2011.04.28	Y. KIM	S. KIM		ENCODER PCB
3	2011.04.28	Y. KIM	S. KIM		ENCODER PCB

6.Reference Information

6-5. Q & A





<p>Q. How long does it take for the door to unlock?</p>	<p>A. It takes approximately 2-3 seconds for the door to unlock.</p>
<p>Q. The cycle is complete and “End” is displayed. How do I set another cycle?</p>	<p>A. When “End” is displayed, the Power button should be pressed or door should be opened before selecting another cycle. The display will show “End” until washer is turned off. To turn off washer, the Power button should be pressed or the door should be opened</p>
<p>Q. What should I do when Information Code (“dc”) lights up?</p>	<p>A. When the Information Code is displayed, press the Start/Pause dial and then restart the cycle. For more information, refer to the Owner’s Manual</p>
<p>Q. There is a small amount of water left in Detergent Drawer after the load is complete. Is this normal?</p>	<p>A. 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.</p>

6.Reference Information




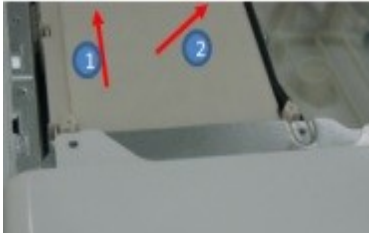
6-5. Q & A

<p>Q. When I went back to my washer, it was turned off. What happened?</p>	<p>A. Power button may have been accidentally bumped or pushed. Reset the cycle and start the washer. Make sure the unit is plugged into a live electrical outlet. Check house fuse or circuit breaker.</p>
<p>Q. The washer door gets locked after a power failure. How can I open it?</p>	<p>A. If the power fails while the door is locked, the door will remain locked until the power comes back on. If the power comes back on while the door is still locked, the cycle will resume where it left off. If the door is unlocked, “PF” will display and the washer will pause. Press Power Off and restart the cycle.</p>
<p>Q. The washer door does not unlock when there is water in the tub. How can I open it?</p>	<p>A. The water must be drained from the tub for the door to be opened. Set the rotary dial to Spin Only and press the Start/Pause dial. The door will open 2-3 seconds after the Spin or Drain cycle is completed.</p>


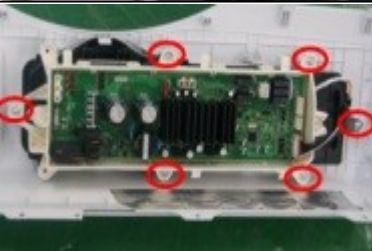

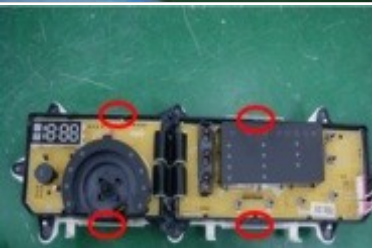
7. Disassembly & Reassembly

Part	Figure	Description
Disassembling and Repairing the MOTOR		<ol style="list-style-type: none"> 1. Remove the 2 screws holding the Back-Cover at the back of the washing machine and separate the Back-Cover pushing it downwards. (Assemble it by lifting it upwards.)
		<ol style="list-style-type: none"> 2. After separating the Back-Cover, remove the M19 nut holding the Motor. <ul style="list-style-type: none"> ⚠ To remove it, turn it counter-clockwise. Since if you turn it slowly, the Motor also rotates, torque it quickly and firmly in a single action. ☑ Do not remove the nut by inserting a screwdriver into the Motor, as this result in a problem with the motor.
		
		<ol style="list-style-type: none"> 3. Remove the M19 nut and washer and then separate the Rotor. <ul style="list-style-type: none"> ⚠ Since removing the rotor requires a lot of strength due to the magnetic force of the Rotor and it may come off suddenly, your hand or arm may be injured by the edge of the Stator or Frame. Therefore take care when separating it. ☑ You can separate the connector by pressing the navel of the Housing and pulling it inwards.




7. Disassembly & Reassembly

Part	Figure	Description
Disassembling and Repairing the COVER-TOP & PANEL-CONTROL		1. Remove the 2 hexagon screws, which are at the back, fixing the COVER-TOP.
		2. Disassemble the COVER-TOP by sliding it backwards and remove the 4 screws on the PANEL-CONTROL.
		3. Press the Separate button to separate the ASSY DRAWER.
		4. Disassemble the HOUSING-DRAWER from the PANEL-CONTROL. (Push back and then push Housing-drawer upside to separate)





7. Disassembly & Reassembly

Part	Figure	Description
Disassembling and Repairing the COVER-TOP & PANEL-CONTROL		5. Pull the PANEL-CONTROL towards and then lift it upwards to separate.
		6. Disassemble the WIRE-HARNESS connected to the ASSY PCB.
		7. Remove the 6 screws and separate the ASSY PCB. (Separate the ASSY KNOB ENCODER at first)
		8. Disassemble MAIN-PCB and SUB-PCB from the ASSY PCB by pressing on the hook.




7. Disassembly & Reassembly

Part	Figure	Description
Disassembling and Repairing the DOOR		<ol style="list-style-type: none">1. Remove the 2 screws holding the HINGE-DOOR and the FRAME-FRONT.2. Disassemble the ASSY DOOR lifting it up slightly.
		<ol style="list-style-type: none">3. Remove the 15 screws fixing the HOLDER-GLASS(including the 2 blue screws holding the LEVER-DOOR).
		<ol style="list-style-type: none">4. Disassemble the HOLDER-GLASS from COVER-DOOR.5. Remove the 8 screws to separate the HINGE-DOOR.




7. Disassembly & Reassembly

Part	Figure	Description
Disassembling and Repairing the FRAME-FRONT		1. Pull the DIAPHRAGM upside, and finish disassembling along the circle.
		
		2. Remove the 2 screws to separate the DOOR LOCK S/W.
	3. Remove the 4 screws at the top of FRAME-FRONT. * To assemble, hook the FRAME-FRONT onto the BOTTOM-PLATE and then insert the assembly hook into the hole.	



7. Disassembly & Reassembly

Part	Figure	Description
Disassembling and Repairing the FRAME-FRONT		4. Push the lever and pull it towards to open the COVER-FILTER.
		5. Separate the remaining WATER REMOVAL HOSE(BLUE) from the hook and remove the 2 screws(RED).
		6. Press the UPPER-PLATE slightly with the screwdriver to separate the FRAME-FRONT






7. Disassembly & Reassembly

Part	Figure	Description
Disassembling and Repairing the VALVE		1. Separate the COVER-TOP and then separate the wire connected to the valves.
		2. Remove the 4 screws fixing the valves.
		3. Remove the hose connected to the valves. (Use the plier to remove the hose)





7. Disassembly & Reassembly

Part	Figure	Description
Disassembling and Repairing the WATER LEVEL SENSOR	 <p data-bbox="436 748 964 801">Use the long nose piler</p>	<ol style="list-style-type: none"><li data-bbox="981 468 1845 535">1. Separate the wire connected the PRESSURE-SENSOR.
		<ol style="list-style-type: none"><li data-bbox="981 763 1845 902">2. Adjust the plastic clip(of pressure sensor) between two nose of plier, then grip and pull the plastic clip with caution(Use the long nose plier to push the hook).
		<ol style="list-style-type: none"><li data-bbox="981 1145 1806 1178">3. Remove the hose from the PRESSURE-SENSOR

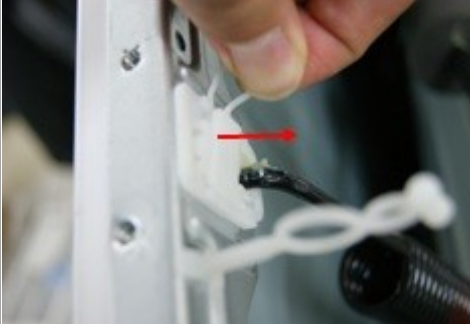


7. Disassembly & Reassembly

Part	Figure	Description
Disassembling and Repairing the PUMP MOTOR		1. Separate the FRAME-FRONT and then remove the 2 screws fixing the PUMP.
		2. Separate the Clamp of the hose connected to the PUMP and then pull the DRAIN-HOSE.
		3. Separate the Clamp of the hose connected to the PUMP and then pull the HOSE-AIR.
		4. Separate the Clamp of the hose connected to the PUMP and then pull the HOSE-DRAIN.
		5. Separate the wire connected to the PUMP.




7. Disassembly & Reassembly

Part	Figure	Description
Disassembling and Repairing the TUB		1. Remove the 2 screws fixing GUIDE-WIRE, 6 screws fixing FRAME-PLATE(U).
		2. Remove the 4 bolts fixing WEIGHT BALANCER and then pull it towards with caution.
		3. Remove the 4 bolts fixing DAMPER to take ASSY TUB out.
		4. Remove all wire and hose connected the ASSY-TUB.

7. Disassembly & Reassembly

Part	Figure	Description
Disassembling and Repairing the TUB		5. Open the cap of SPRING-HANGER to take ASSY-TUB out.
		6. Lift the ASSY-TUB with two people careful with holding SPRING-HANGER .
		7. Remove the M10 bolt from the middle of the TUB and separate the TUB-FRONT and TUB-BACK .

7. Disassembly & Reassembly

Part	Figure	Description
Disassembling and Repairing the DRUM		1. Separate the ASSY DRUM from TUB, remove the M10 bolt from the upper ASSY DRUM, disassemble the ASSY FLANGE SHAFT.
		2. Remove the screws from the outer sides and then remove the two upper and lower BALL BALANCERS.
		3. Remove the screws from the outer sides and then remove the 3 DRUM-LIFTERS.

8. Nomenclature

Type		Capacity		Feature 1	Feature 2	Feature 3	Platform or Series	Sub-Plat or Ver.	Color		Plate	
W	F	3	6	1	B	V	B	E	W	R	/	A 1

Type		
Drum-Washer	W	F
Drum-Combo	W	D
Dryer	D	V

용량	
36	3.6 cu.ft
40	4.0 cu.ft

Feature 1	Code
Prestige	9
Best	7
Better	5
Good	3
Basic	1

Feature 2	Code
Bubble/Inverter	U
Bubble/Water Shot/Inverter	S
Inverter	B
Bubble/Dual Shot(美 Water Shot)/Inverter	A

Feature 3	Code
VRT	V
Steam/VRT	T

Project	Code
B/B-AD	BE
B/B2-AD	BV

Color	Code
Neat White	WR
Haze Blue	UF
Tango Red	RA

생산지	Code
SEC	A1
SSEC	A2
SEM	A3



THANK YOU