

Training Manual

Washing Machine (Drum Type)

※ Basic :WF455ARG***



- ✓ The Largest Capacity
- ✓ Smart Care
- ✓ Power Foam™
- ✓ Speed Spray
- ✓ VRT plus™
- ✓ Deep Steam
- ✓ Pure Cycle™
- ✓ Stylish Design
- ✓ Diamond Drum™
- ✓ DD Motor

WF45H6***

WF42H5***

Contents

1.	<u>Product Introduction</u>	3
2.	<u>Changed Part List</u>	9
3.	<u>Disassembly and Reassembly</u>	20
4.	<u>Instruction of Function</u>	31
5.	<u>Test Mode & Error Check</u>	34
6.	<u>PCB Diagram</u>	50
7.	<u>Reference Information</u>	54

1. Product Introduction



		WF5000H		Potomac
Category		WF42H5700***	WF42H5200***	WF455ARG***
Main Spec	Capacity (cu.ft. IEC)	4.2cu.ft	4.2cu.ft	4.5cu.ft
	Motor type	DD Motor	DD Motor	DD Motor
	MAX RPM	1200	1200	1300
	VRT	Yes (VRT+)	Yes (VRT+)	Yes (VRT+)
	Heater (900W)	Yes	Yes	Yes
	Diamond Drum	Yes	Yes	Yes
	Washing Cycle #	13	13	13
	Delay Wash	24 hrs	24 hrs	24 hrs
	Tilted Drum	10°	10°	10°
	(Sound Levels)	Ave 58dBA↓	Ave 58dBA↓	Ave 56.3dBA↓
Target Performance	MEF	3.2	3.2	3.2
	WCF	2.9	2.9	2.99
	kWh/year	93 kWh/year	93 kWh/year	95 kWh/year
Design	Control Display	LED	LED	G.LED
	Dimension (W*D*H)	27.0X 32.3X 38.7"	27.0X 32.3X 38.7"	27 X 32.3 X 38.7"

1. Product Introduction : WF6000H / WF5000H



✓ The Leader of Premium Laundry with Utmost Smart Features

Key Features

- Washer 4.5cu.ft. / 4.2cu.ft
- Smart Care
- Smart-Grid Ready
- SpeedSpray
- PowerFoam™
- Steam clean (Wash)

Energy Performance

- Most Efficient
- CEE Tier 3

Launch

- Dec 2013



1. Product Introduction : Key Features

**4.2cu.ft.
Large Capacity**

Smart Care

- Self-Diagnosis



Error code: rd
Drainage error
Your washer is not draining. It could also mean that a small clog has been sensed.
Clean drain filter. Then check drain filter.



SpeedSpray technology

- 25% Shorter Cycle Time
- Faster Washing with Quality Cleaning



Conventional SpeedSpray

PowerFoam technology

- Detergent penetrates more quickly and evenly on big loads



1. Product Introduction : New Feature | SpeedSpray



Cleansing Shot *(water with dissolved detergent)*
Speeding up washing time

New SpeedSpray
Speeds cycle time with a quality clean

Rinsing Shot *(pure tap water)*
Speeding up rinsing time

1. Product Introduction : New Feature | SpeedSpray



✓ Spend less time doing more laundry

“Introducing Samsung’s new SpeedSpray technology reduces cycle time by 25% vs. conventional machines”



New **Speed Spray** technology provides shooting a powerful jet of water into clothes, speeds up the time it takes for the washing and rinsing and reduces overall cycle time by **25%** vs. conventional washers* (Normal Cycle 60 min to 45 min).

*Based on 8 pounds loads, Normal cycle, on previous and existing 4.3 cu.ft. Samsung front loading washers released until 2011 without SpeedSpray.

[Washing Process]



Conventional



SpeedSpray

[Rinsing Process]



Conventional



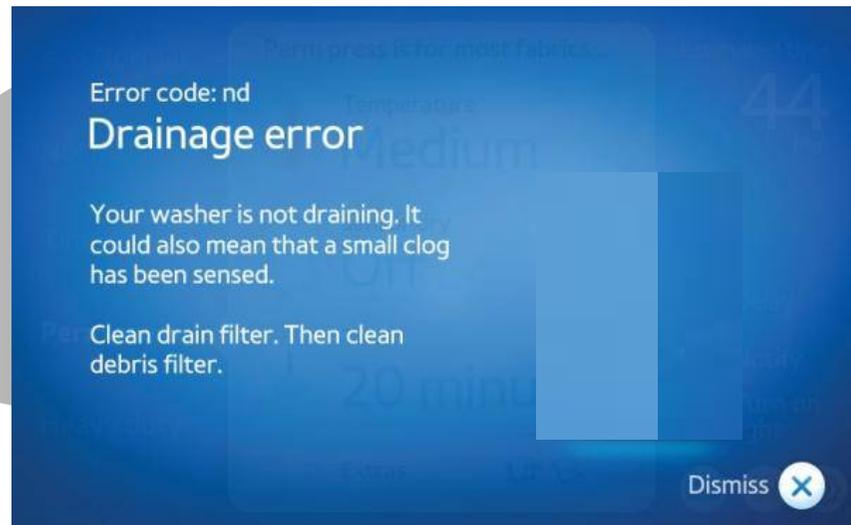
SpeedSpray

*Images : Not final version. Work in progress.

✓ Quick & easy solution for your problem

“Self-Diagnosis give s quick & easy solution, no need to call a repairman whenever you have a problem with the machine.”

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**.

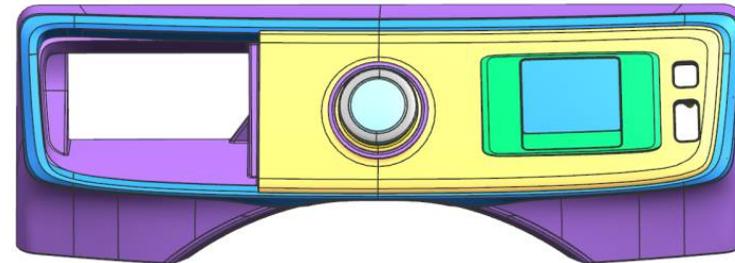


2. Changed Part List

Part	Basic Model [WF455AR]	WF6000H/WF5000H [WF]	Cause Changes	RISK	Test
Assy Panel Control [Best]	-Button, Jog Dial Type -Button : Rubber Button type	-Button type	- Design - USP	- Touch Malfuction - Button Malfuction	- Water - Button Durability



<Basic Model>



<WF6000H/WF5000
H>

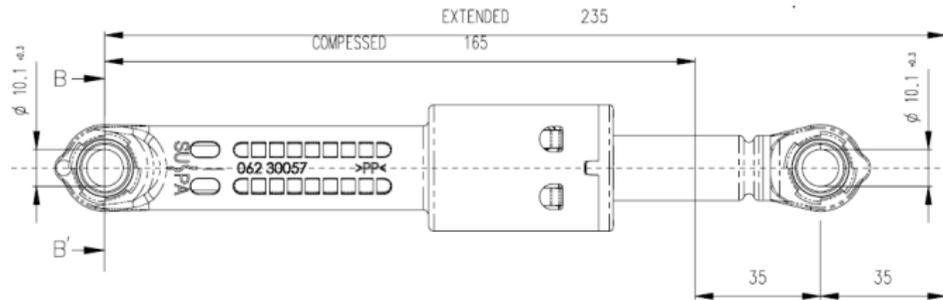
2. Changed Part List

Part	Basic Model [WF455AR]	WF6000H [WF]	Change Cause	RISK	Test
2nd Bubble Shot	-3 way Water Valve -Bubble kit	- Nozzle, Connecting Hose - Water Inverter Valve - 4 way Water Valve - Diaphragm Nozzle Insert - Hose/Frame Support Structure - Reflux Preventing Nozzle	- USP	-Performance -Water Intrusion -Noise	-Performance -Real using -Noise



2. Changed Part List

Part	Basic Model [WF455AR]	WF6000H/WF5000H [WF]	Change Cause	RISK	Test
Damper	- DC66-00470A 4ea Free-stroke 4mm	- DC66-00470A Front 2ea Free-stroke 4mm - DC66-00470B Rear 2ea Free-stroke 8mm	- Increased Floor Vibration - For Acquiring CU Vibration Rate Excellent	- Vibration - Noise	-Actual Use -Noise



CODE - NO.	CTF (1)	CTF (2)	STEEL BUSH	CAP COLOR	DELIVERY LENGTH
	DAMPING FORCE	FREE STROKE			
DC66-00470A	65±15 N	11±2mm	SIDE A,B	BLACK	200 -2 +6mm
DC66-00470B	65±15 N	16±2mm	SIDE A,B	WHITE	200 -2 +10mm

2. Changed Part List

Part	Basic Model [WF455AR]	WF6000H/WF5000H [WF]	Change Cause	RISK	Test
Spring	<ul style="list-style-type: none"> - DC61-01257E Stiffness : 0.92 kgf/mm Free Length : 183 mm Initial Force(@20mm) : 11.6 kgf (30 kgf) 	<ul style="list-style-type: none"> Stiffness: 1.20 kgf/mm Free Length : 182 mm Initial force (@20mm) : 5.0 kgf (29 kgf) 	<ul style="list-style-type: none"> - Exp,Dom Common Use - Noise - Modified Free Length 	<ul style="list-style-type: none"> - Noise - Vibration 	<ul style="list-style-type: none"> - Noise - Actual Use

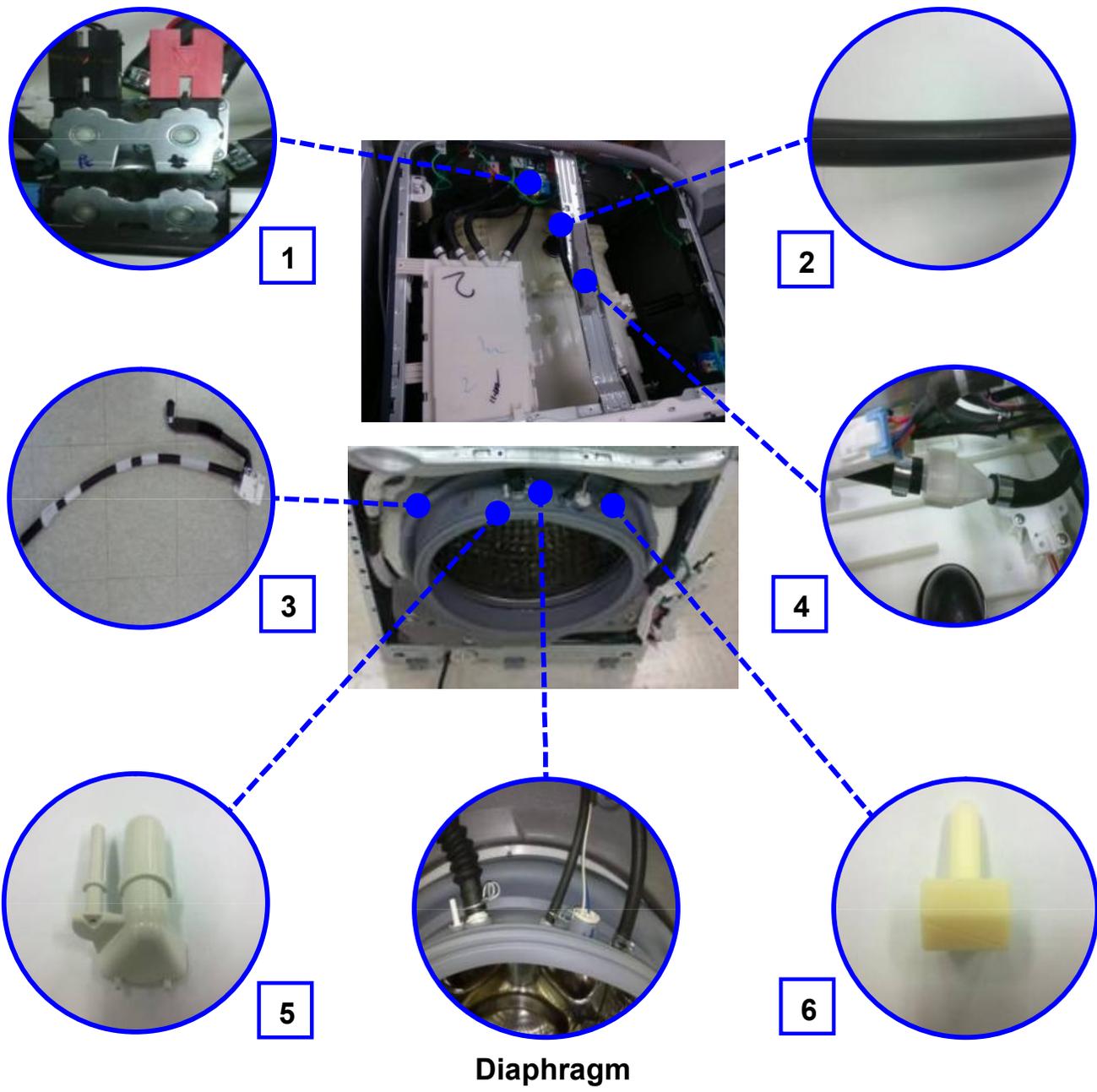


<Basic Model>



<WF6000H>

2. Changed Part List



Part List

	Part
1	4 Way Valve
2	Direct Hose
3	Assy' Hose Connector
4	Reflux Preventing Valve
5	Nozzle 1 st Bubble Shot
6	Nozzle 2 nd Bubble Shot

2. Changed Part List

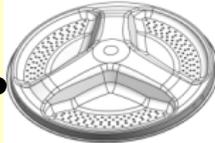


Assy Tub Change List

	Basic Model [WF455AR]	WF6000H/WF5000H [WF]	Change Parts																																																																	
Exploded View			<table border="1"> <thead> <tr> <th>No</th> <th>Part</th> <th>Usage</th> <th>Remark</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Door Diaphragm</td> <td>Common</td> <td>GRACE</td> </tr> <tr> <td>2</td> <td>Weight Balancer</td> <td>Common</td> <td>GRACE</td> </tr> <tr> <td>3</td> <td>Assy Heater</td> <td>Common</td> <td>GRACE</td> </tr> <tr> <td>4</td> <td>Damper</td> <td>Common</td> <td>GRACE</td> </tr> <tr> <td>5</td> <td>Tub Front</td> <td>Common</td> <td>GRACE</td> </tr> <tr> <td>6</td> <td>Hose Joint Air</td> <td>Common</td> <td>GRACE</td> </tr> <tr> <td>7</td> <td>Hose Drain</td> <td>Common</td> <td>GRACE</td> </tr> <tr> <td>8</td> <td>Packing Tub</td> <td>Common</td> <td>GRACE</td> </tr> <tr> <td>9</td> <td>Damper</td> <td>Common</td> <td>GRACE</td> </tr> <tr> <td>10</td> <td>Tub Back</td> <td>Common</td> <td>GRACE</td> </tr> <tr> <td>11</td> <td>Hose O.F</td> <td>Common</td> <td>GRACE</td> </tr> <tr> <td>12</td> <td>Housing Bearing</td> <td>Common</td> <td>GRACE</td> </tr> <tr> <td>13</td> <td>Bracket Tub</td> <td>Common</td> <td>GRACE</td> </tr> <tr> <td>14</td> <td>Motor</td> <td>Common</td> <td>GRACE</td> </tr> <tr> <td>15</td> <td>MEMS sensor</td> <td>Common</td> <td>Cost Reduction</td> </tr> </tbody> </table>	No	Part	Usage	Remark	1	Door Diaphragm	Common	GRACE	2	Weight Balancer	Common	GRACE	3	Assy Heater	Common	GRACE	4	Damper	Common	GRACE	5	Tub Front	Common	GRACE	6	Hose Joint Air	Common	GRACE	7	Hose Drain	Common	GRACE	8	Packing Tub	Common	GRACE	9	Damper	Common	GRACE	10	Tub Back	Common	GRACE	11	Hose O.F	Common	GRACE	12	Housing Bearing	Common	GRACE	13	Bracket Tub	Common	GRACE	14	Motor	Common	GRACE	15	MEMS sensor	Common	Cost Reduction	
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2. Changed Part List

Assy Drum Change List

	Basic Model [WF455AR]	WF6000H/WF5000H [WF]	Changed Parts																								
Exploded View			<table border="1"> <thead> <tr> <th>No.</th> <th>Part</th> <th>Cause Change</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Assy-F/Shaft (Ring-OG)</td> <td>Common</td> </tr> <tr> <td>2</td> <td>Assy-Balance (Rear)</td> <td>Common</td> </tr> <tr> <td>3</td> <td>Drum-Back</td> <td>Common</td> </tr> <tr> <td>4</td> <td>Drum-Wrapper</td> <td>Common</td> </tr> <tr> <td>5</td> <td>Drum-Lifter</td> <td>Common</td> </tr> <tr> <td>6</td> <td>Drum-Front</td> <td>Common</td> </tr> <tr> <td>7</td> <td>Assy-Balance (Front)</td> <td>Common</td> </tr> </tbody> </table>	No.	Part	Cause Change	1	Assy-F/Shaft (Ring-OG)	Common	2	Assy-Balance (Rear)	Common	3	Drum-Back	Common	4	Drum-Wrapper	Common	5	Drum-Lifter	Common	6	Drum-Front	Common	7	Assy-Balance (Front)	Common
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2. Changed Part List

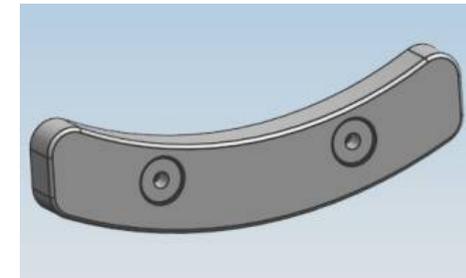
Part	Basic Model [WF455AR]	WF6000H/WF5000H [WF]	Change Cause	RISK	Test
Weight-Balance	- 9.6kg*2	- 9.6kg*2 + 3kg*1	- Recovering Weight due to Delete of Rear B/Balance		



<Basic Model>



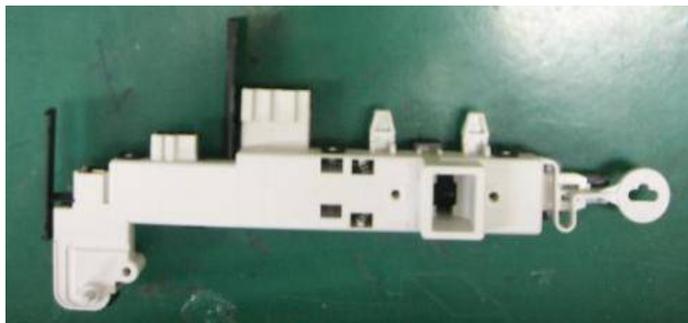
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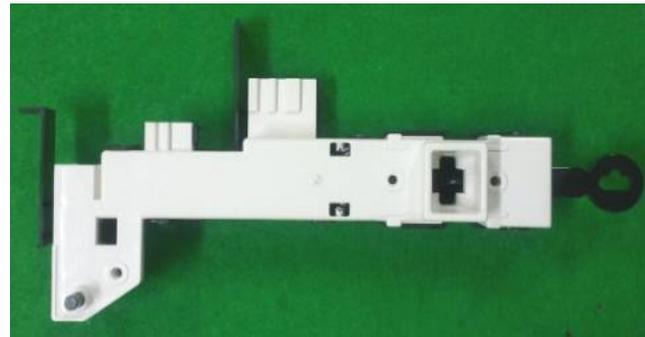
Weight-Balance(R)

2. Changed Part List

Part	Basic Model [WF455AR]	WF6000H/WF5000H [WF]	Change Cause	RISK	Test
Door-Lock S/W	- EMZ	- Dual-Mecha	- Cost Reduction		



<Basic Model>



<WF6000H/WF5000H>

2. Changed Part List



Part	Basic Model [WF455AR]	WF6000H/WF5000H [WF]	Change Cause	RISK	Test
ASSY PCB MAIN	<ul style="list-style-type: none"> - Main PBA - 2XSMPs,0.45W - Renesas 32bit/256k Micom - Sanyo 10A Dip IPM - Display PBA - Renesas 16bit/160k Micom - 3.5inch Dot LCD 	<ul style="list-style-type: none"> - Main PBA - 1XSMPs,0.45W - Toshiba 32bit/512k Mi-com - LSPS 15A Dip IPM - Display PBA(Better/Good LED) - Free scale 8bit/64k Mi-com - Dot LED - Sensor PBA(Best LCD) - Free scale 8bit/64k Mi-com - Power On/OFF Switch - Start/Stop Switch - Water Level, Temp. Sensor 	<ul style="list-style-type: none"> -Main PBA - Cost Reduction (SMPS,IPM) - Upgrade Mi-com ROM -LED PBA - Design -LCD PBA - Product Requirement -Sensor PBA - LCD PBA 	<ul style="list-style-type: none"> Durability Electronic Stress Thermal Stress 	<ul style="list-style-type: none"> Environment PBA HALT PBA ALT SLT,SLAT Stress Analysis

(Main PBA)



(Display PBA)



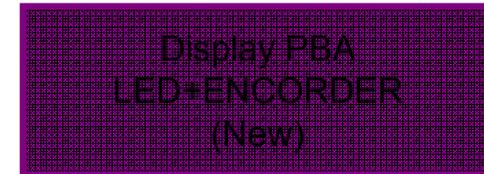
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<Basic Model>

(Best)->



(Better/Good)->

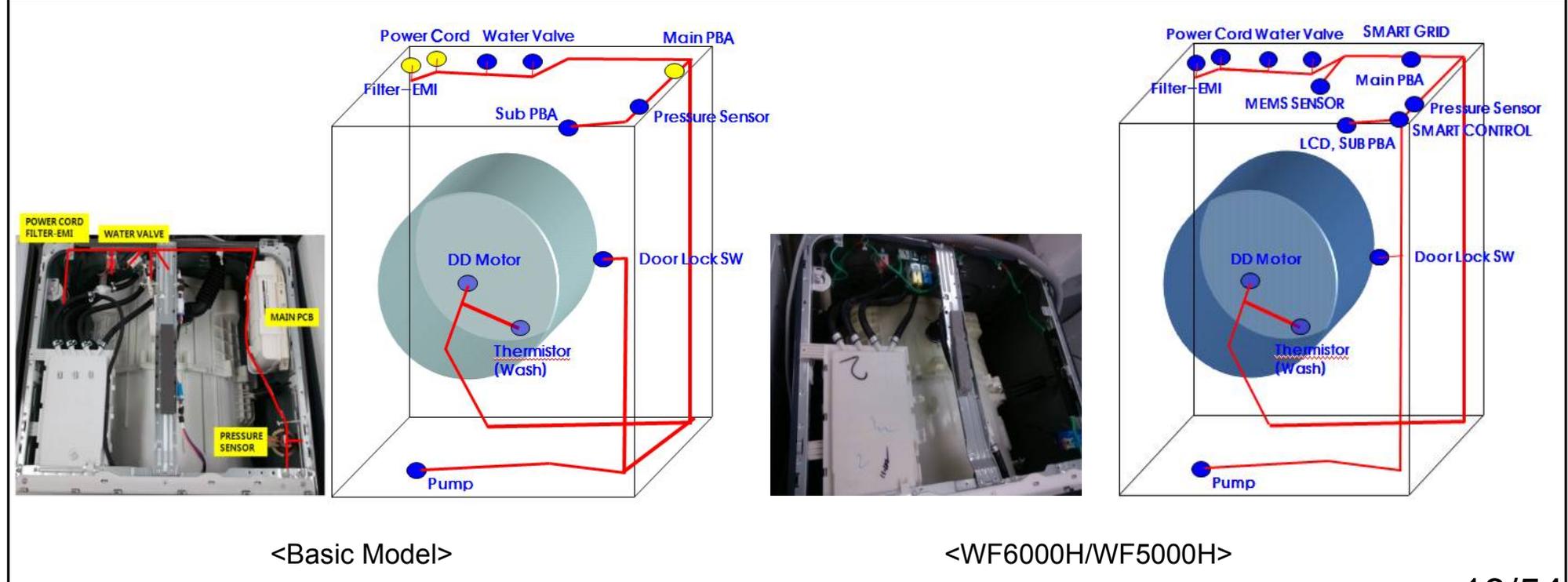


<WF6000H/WF5000H>

2. Changed Part List

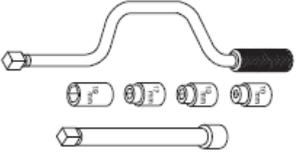
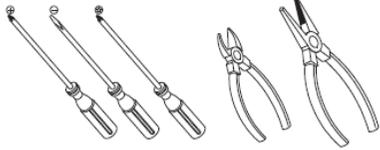


Part	Basic Model [WF455AR]	WF6000H/WF5000H [WF]	Change Cause	RISK	Test
ASSY M. Guide Wire Harness	- PCB Location : SET Right Up	- PCB Location : ARNO TYPE - BOTTOM WIRE Holder Deleted - Added Function : SMART GRID	- PCB 위치 변경 - Layout Changed	- Manufacture - Assembly	- EMI - Noise, Vibration



3. Disassembly and Reassembly

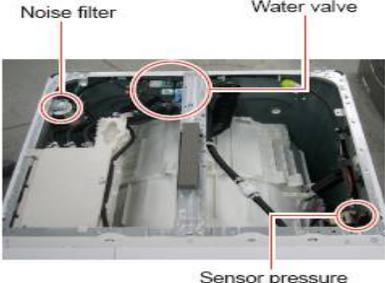
3-1. Tools for disassembly and reassembly

Tool	Type	Remarks
	Socket Wrench with 6" Extension	10mm 13mm 19mm Heater(1) Motor(1), Balance(5), 2holes of each left and right of the shock absorber 1 Pulley hole
	Open End wrench	10mm 13mm 19mm Replace able for the box driver. Since the bolt runs idle when the box driver is used, use the box driver 17mm.
	Vice pliers	Tool to protect the idle and abrasion of the bolt for the box driver.
	Others (Driver, Nipper, Longnose)	General tools for the after service.
	JIG for the Tub	1 (Disassemble and Assemble)

3. Disassembly and Reassembly

3-2. Standard disassembly drawings

► This is a standard disassembly diagram and may differ from the actual product. Use this material as a reference when disassembling and reassembling the product.

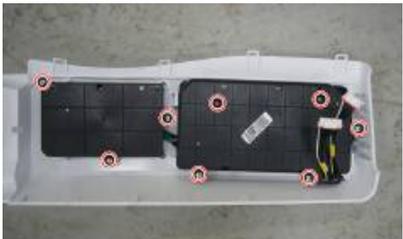
Part	Figure	Description
ASSY COVER TOP		1. Remove the two screws holding the Top Cover at the back of the unit.
		2. Remove the top-cover by lifting it up after pulling it back about 15mm.
		3. With the top cover removed you will now have access to service the Water pressure sensor, EMI Noise Filter, Hot and Cold Water Valves, Hose Draw ASSY.

3. Disassembly and Reassembly



3-2. Standard disassembly drawings

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Part	Figure	Description
MAIN-PCB AND SUB-PCB PANEL		1. Remove the 2 screws at the top of the ASSY-PANEL CONTROL.
		2. Hold the ASSY-PANEL CONTROL while pulling it upwards and release the hook to remove it.
		3. Carefully disconnect the two wiring connectors by hand.
		4. Remove the 8 screws holding the PCB and release the hooks on both sides to remove the PCB for repair / replacement.

3. Disassembly and Reassembly

3-2. Standard disassembly drawings

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Part	Figure	Description
FRAME FRONT		<ul style="list-style-type: none"> • Separate the Wire-Diaphragm with the Long-nose from the Front-Frame.
		<ol style="list-style-type: none"> 1. Remove the Diaphragm.
		<ol style="list-style-type: none"> 2. Remove the 4 screws holding the FRAME-FRONT.
		<ol style="list-style-type: none"> 3. Remove the 2 screws holding the bottom of the FRAME-FRONT.

3. Disassembly and Reassembly



3-2. Standard disassembly drawings

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Part	Figure	Description
FRAME FRONT		4. Untie the hose.
		5. Remove the 3 screws.
		6. Push the hook.
		7. Disconnect the terminal for the DOOR-LOCK switch.

3. Disassembly and Reassembly

3-2. Standard disassembly drawings

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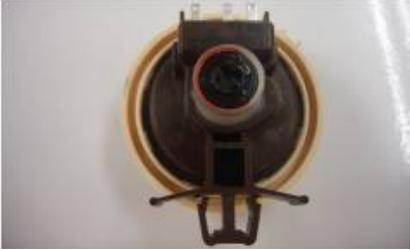
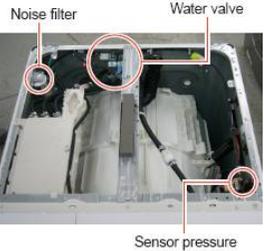
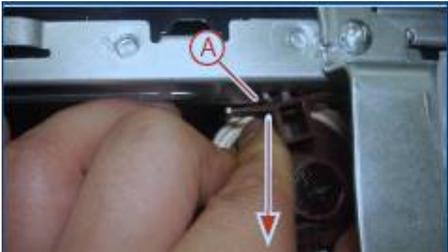
Part	Figure	Description
COVER-BACK		<ul style="list-style-type: none"> Remove the 2 screws holding the Back-Cover at the back of the washing machine
DD MOTOR		<ol style="list-style-type: none"> Remove the one bolt for the DD Motor.
		<ol style="list-style-type: none"> Remove the 6 screws.
WATER SUPPLY VALVE		<ol style="list-style-type: none"> Remove the Top Assy-Plate. Disconnect the water supply valve wire connector.
		<ol style="list-style-type: none"> Remove the 4 screws holding the water supply valve.

3. Disassembly and Reassembly



3-2. Standard disassembly drawings

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Part	Figure	Description
WATER LEVEL SENSOR (The Hook type)		<p>The Hook type water level sensor</p>
		<p>▶ Disassembly</p> <p>1. Separate the Top Assy-Plate.</p>
		<p>1. To remove the water level sensor, push it slowly in the direction of the arrow shown in the figure on the left.</p> <p>※ Since this disassembly method uses the elasticity of the water level sensor hook, imposing too strong a force may damage it.</p>
		<p>2. While a force is imposed on the water level sensor as directed in step 1, pull the hook (A) in the direction of the arrow until it is removed from the bracket spring.</p>

3. Disassembly and Reassembly



3-2. Standard disassembly drawings

▶ This is a standard disassembly diagram and may differ from the actual product. Use this material as a reference when disassembling and reassembling the product.

Part	Figure	Description
WATER LEVEL SENSOR (The Hook type)		3. Impose a force slowly in the direction of the arrow designated in the figure on the left until the hook B is removed. Then remove the water level sensor.
		▶ Assembly 1. Connect the pressure hose to the body of the water level sensor and lock it using the clamp. ※ When connecting the water level sensor to the set, make sure to connect it after draining water by operating the spin cycle.
		2. To fix the body of the water level sensor, insert the hook into the square hole of the bracket spring until a “click” sound is heard.

3. Disassembly and Reassembly



3-2. Standard disassembly drawings

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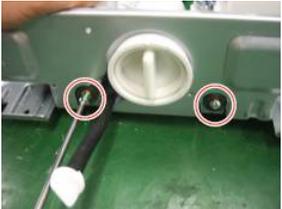
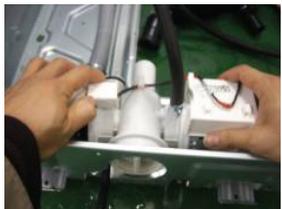
Part	Figure	Description
DOOR HINGE		1. Remove the 2 screws holding the Door Hinge and separate the door.
		2. Remove the 15 screws holding the Holder Glass, separate the Holder Glass and replace the hinge.
DRAIN PUMP		1. Push the Cover-Filter downwards to release the latch.
		2. Drain the remaining water through the drainage hose. ※ Be sure to use a small bowl to collect the water collected from the drain hose.
		3. Separate the Drain Filter by turning it counterclockwise. ※ Since the remaining water may flow out, place a bowl underneath it when separating the filter.

3. Disassembly and Reassembly



3-2. Standard disassembly drawings

► This is a standard disassembly diagram and may differ from the actual product. Use this material as a reference when disassembling and reassembling the product.

Part	Figure	Description
DRAIN PUMP (Continued)		4. Remove the 2 screws holding the Drain Pump.
		5. Drain the remaining water through the drainage hose.
		6. Disconnect the wire connector.
		7. Push it back and lift it up.
	<p>◆ Check Points for Troubleshooting</p> <ol style="list-style-type: none"> 1. Separate the Drain Filter and check if any alien substances are inside the pump (e.g. coins, buttons, etc.) → Remove these if found. 2. Check if the wire connector for the Drain Pump ASSY has come loose. Reconnect if necessary. 3. When water leaks, check the assembly status of the Clamp Hose, and Cap Drain → Take the relevant countermeasure if necessary. Turn the filter cap counterclockwise, clean and remove any material that has collected. 	

3. Disassembly and Reassembly



3-2. Standard disassembly drawings

▶ This is a standard disassembly diagram and may differ from the actual product. Use this material as a reference when disassembling and reassembling the product.

Part	Figure	Description
DOOR-LOCK S/W		<p>1. Separate the 3 bolts</p>
		<p>2. Separate the Connection Housing(3). Remove the nut holding the heater and the heater.</p>
		<p>3. Remove the heater from the Tub.</p> <div style="text-align: right;">  </div> <p>◆ Caution Make sure to insert the Heater into the correct position of the bracket inside the Tub when reassembling it. Otherwise, there is a risk of fire. Make sure to push it inwards until the packing part comes into the Tub completely when reassembling it so that the packing part is completely stuck to the Tub. Fasten the holding nut with a force of 5Kgf/ cm². If the nut is not fastened properly, there is a risk of water leaking.</p>

4. Instruction of Function

◆ Child Lock

This function prevents children from playing with your washer.

Activating the Child Lock function

Press and hold both the Spin and Soil Level buttons simultaneously for approximately 3 seconds.

- When you activate the Child Lock function, the door locks and the “Child Lock []” lamp illuminates.
- If you press the Start/Pause button after you have activated the Child Lock function, none of the buttons will work except for the Power button.
- If you press a button 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.

- If you pause the Child Lock mode temporarily, the door lock is released for 1 minute for user convenience. During this period, the “Child Lock []” lamp blinks.
- If you open the door after the minute is over, an alarm sounds for up to 2 minutes.
- If you close the door within the 2 minutes, the door is locked and the Child Lock function is reactivated.

If you close the door after the 2 minutes, the door is not locked automatically and no alarm sounds.

Deactivating the Child Lock function

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

◆ Spin Only

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

Then, press the Spin button repeatedly until the required spin level is selected, and then press the Start/Pause button.

4. Instruction of Function

◆ Interior Lamp

1. If the door is opened when the power is on, the Interior Lamp is automatically turned on.
2. If the door is closed when the power is on, the Interior Lamp is automatically turned off.
3. Press the Temp and the Spin buttons simultaneously or the Drum Light button to turn the Interior Lamp on or off.
4. If 4 minutes have passed after the Interior Lamp is turned on, the Interior Lamp is automatically turned off.

◆ Garment+

You can add or take out laundry items even after the wash has started, as long as the “Garment+” light is on. Pushing 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.

4. Instruction of Function

◆ My cycle

Allows you to activate your custom wash (temperature, spin, soil level, etc.) with one-button convenience.

By pushing the My Cycle button, you activate the settings used during the My Cycle mode. The “My Cycle” light will indicate activation.

You can select all options as follows in “My Cycle” mode.

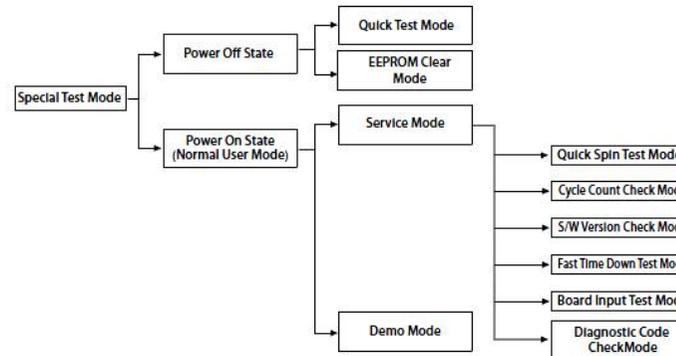
1. Select cycle using the Cycle Selector dial.
2. After cycle selection, set each option.
3. Then, you can start “My Cycle” by pushing the Start/Pause button in “My Cycle” mode. The cycle and options you select will be displayed the next time you choose “My Cycle”.

◆ Steam

The Steam Wash function injects steam directly into the laundry in the wash tub to increase the wash temperature and enhance the soak effect, thus improving the wash performance.

1. Load the washer.
2. Press the Power button.
3. Turn the Cycle Selector and select a steam cycle. (The Deep Steam cycle automatically selects the Steam Wash function.)
4. Press the Steam button.
5. Add detergent into the dispenser tray for a wash, and add fabric softener up to the marked line.
6. Press the Start/Pause button. : The washer automatically selects the optimal wash conditions by sensing the weight of the laundry.

5. Test Mode & Error Check : Test Mode



Definition of Quick Test Mode:

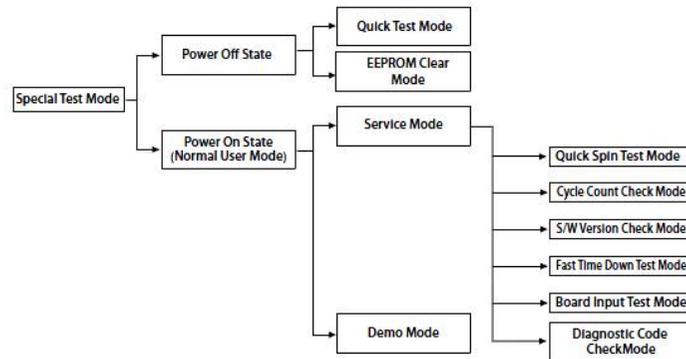
- Check operation of all LED's (Verify faulty LED).
- Check model and software version.
- Check different operating modes (e.g. water valve, motor, door, drain pump, etc.).

How to Enter:

Model : WF45H6*, WF42H5*

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

5. Test Mode & Error Check : Test Mode



Definition of Quick Test Mode:

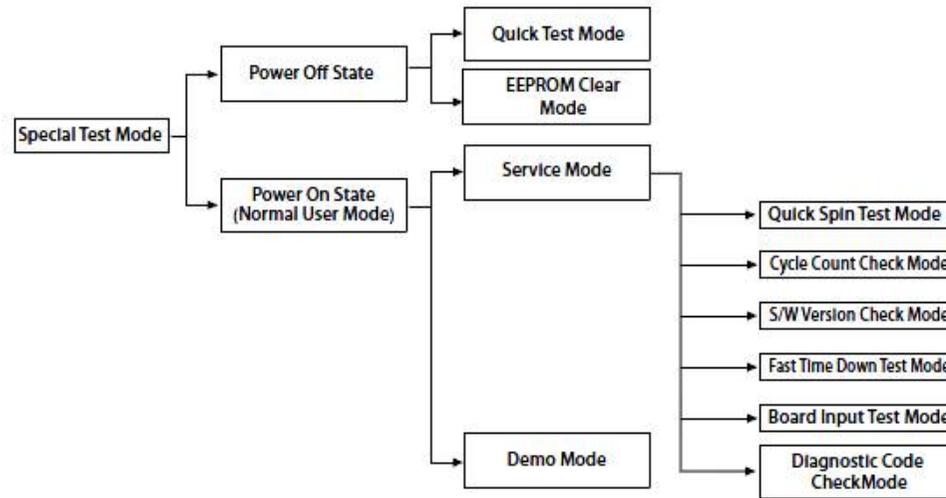
- Check operation of all LED's (Verify faulty LED).
- Check model and software version.
- Check different operating modes (e.g. water valve, motor, door, drain pump, etc.).

How to Enter:

Model : WF45H6*, WF42H5*

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

5. Test Mode & Error Check : Test Mode Diagram



5. Test Mode & Error Check : 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:

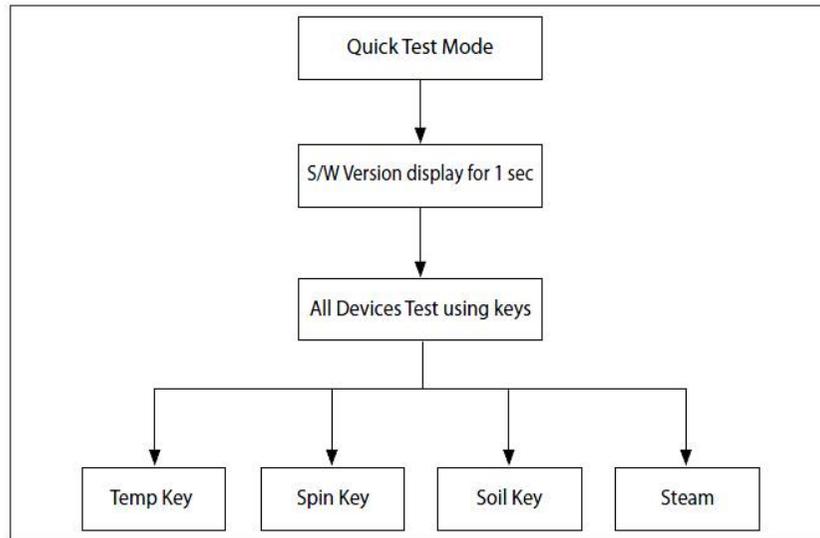
Model : WF45H6*, WF42H5*

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

5. Test Mode & Error Check : Quick Test Mode



Quick Test Mode:



Model : WF45H6*, WF42H5*

- 1. All LCD'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 49, 7-Segment will display dE49)**
- 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**
 - Steam : Drain Pump / Bubble Pump / Direct Valve Test**

5. Test Mode & Error Check :EEPROM Clear Check

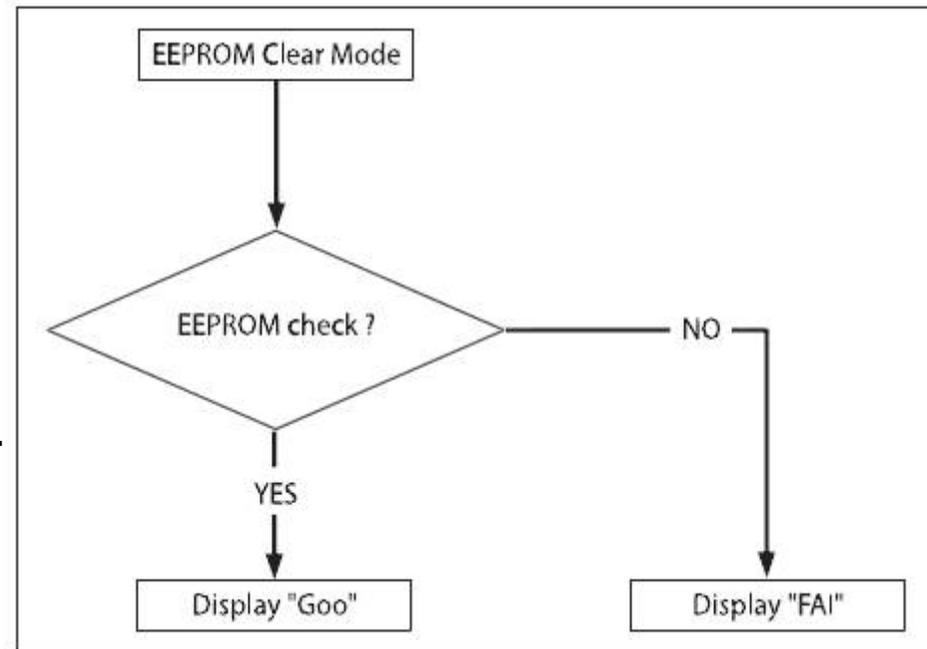
Definition of EEPROM Clear Mode:

- 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:

Model : WF45H6*, WF42H5*

- Plug in the unit.
- Press Delay End Key, and Power Key at the same time.



5. Test Mode & Error Check : Service Mode

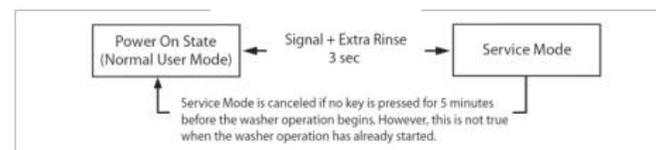
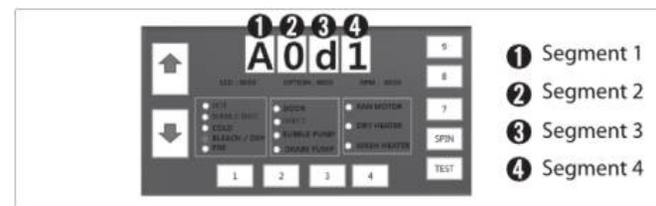
Definition of Service Mode:

- 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.

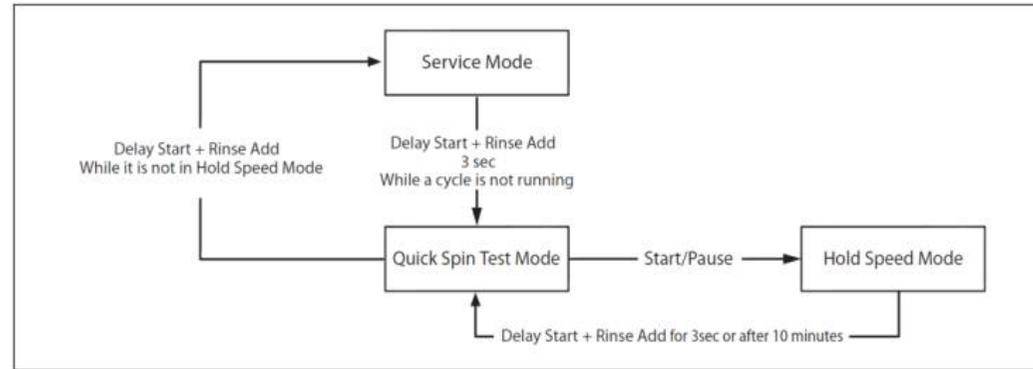
1. The washer must be on to go into the Service Mode.
2. The motor speed will be displayed when started (It displays 0 when the motor does not spin).
3. The present state of the machine will not be changed. (i.e., the current cycle in progress will not be interrupted and only the display will change)
4. Following Instructions To exit Service Mode.

Model : WF45H6*, WF42H5*

- Press Sound 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. If no key is operated during Service Mode for 5 minutes, the machine will return to normal user Mode.



5. Test Mode & Error Check : Quick Spin Test Mode



Definition of Quick Spin Test Mode:

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

How to Enter:

Model : WF45H6*, WF42H5*

- During Service Mode, press the Delay Start + Rinse Add Keys for 3 seconds to enter Quick Spin Test Mode.

- Cannot enter once the washing cycle has started.

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.

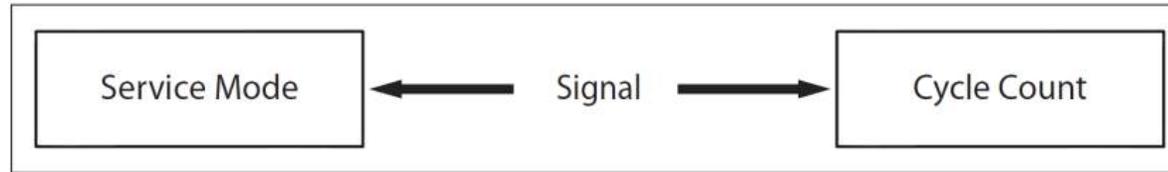
To hold Quick Spin Test Mode (entering Hold Speed Mode), press the Start/Pause button. If the Start/Pause button is pressed during Quick Spin Test Mode, it will stop accelerating and hold its spinning speed for 10 minutes before going back to Quick Spin Test Mode.

Also, to cancel the hold and allow Quick Spin Test Mode to continue, press the Delay Start + Rinse

Add Keys together for 3 seconds.

If you hold down the Delay End +Extra Rinse 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.

5. Test Mode & Error Check : 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:

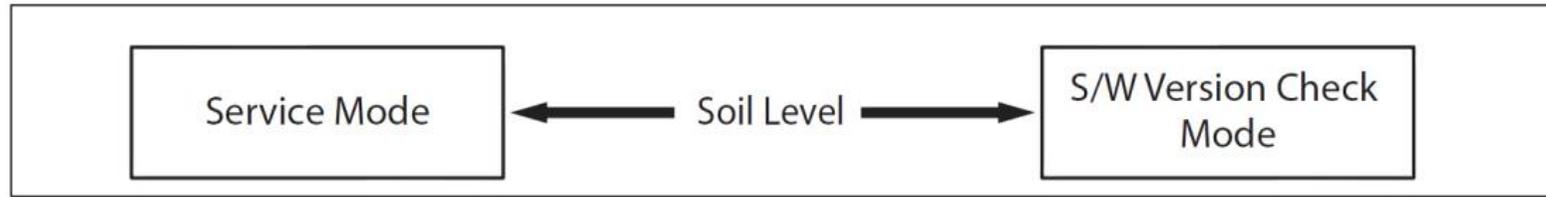
Model : WF45H6*, WF42H5*

- 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 LCD / LED will glow.
3. The maximum number of cycles will be 9999.
The counter will roll over to 0 and start counting again after 9999.
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 "Sound" key again.

5. Test Mode & Error Check : 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:

Model : WF45H6*, WF42H5*

-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 Version

EX) Generate dE49 at Version 49 (dE is Micom code, 49 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.

5. Test Mode & Error Check : Fast Time Down Test Mode



► This is a washer integrated error mode. For detailed information, refer to the general repair scripts.

Error Type	For USA	Causes	Remarks
Water Level Sensor	LE1	<ul style="list-style-type: none"> - The part of the hose where the water level sensor is located is damaged (punctured). - The hose is clogged with foreign material. - The hose is folded. - Too much lubricant has been applied to the insertion part of the air hose. 	
	1E	<ul style="list-style-type: none"> - Hose engagement error. (disengaged) - Part fault. (Faulty internal soldering) - The water level sensor terminal is disengaged. - Main PBA fault. 	
Motor Driving Error and Hall Sensor Error	3E	<ul style="list-style-type: none"> - The PBA connector terminal is not connected. - The motor spin net is not engaged. - The motor's internal coil is damaged. (short-circuited or cut) - The hall sensor terminal is not connected. - Foreign material (a screw) has entered the motor. - Motor overloaded due to too much laundry. (Non-sensing) - The motor hall sensor terminal is not connected. - PBA fault. 	This error occurs because of restrained revolutions.
	E3	<ul style="list-style-type: none"> - The motor driving error from the PBA is weak. : Unstable relay operation, etc. - This occurs due to erroneous operating signals from the motor hall sensor. 	This error occurs when an interference is generated due to too much laundry, etc.
	bE	<ul style="list-style-type: none"> - The IPM terminal of the main PBA is not connected. - The DD motor cover is out of place. - The PCB housing terminal is not connected. - PBA fault. - DD motor fault. 	
Water Supply Error	nF	<ul style="list-style-type: none"> - Foreign material is entering the water supply valve. - The water supply valve terminal is not connected. (Wire disconnected) - The warm water and rinse connectors are wrongly connected to each other. - This occurs if the PCB terminal from the drain hose to the detergent drawer is not connected. Check whether the transparent hose is folded or torn. 	
	nF1	<ul style="list-style-type: none"> - The cold and warm water supply hoses are wrongly engaged into each other. - The temperature of the water supplied through the dry valve during a dry cycle is sensed as higher than 70 °C. - The water temperature is sensed as higher than 50 °C in the Wool or Lingerie courses. 	The water supplied for 1 minute drying the drying cycle is 0.3 ~ 0.4 L.
Drain Error	nd	<ul style="list-style-type: none"> - The pump motor impeller is damaged internally. - The wrong voltage is supplied to the parts. - Part fault. - This occurs due to freezing in the winter season. - The drain hose is clogged. (Injection error, foreign material) - Clogged with foreign material. - The water pump terminal is not connected: rubber band, bills, cotton, hair pins, coins have collected inside the drain pump ASSY. 	

Error Type	For USA	Causes	Remarks
Power Error	2E	<ul style="list-style-type: none"> - Check the consumer's power conditions. <ul style="list-style-type: none"> : Make sure to check the operating voltage. Connect a tester to the internal power terminals during the Boil or Dry operations and observe the washing machine's operation carefully. : Check the voltages. (An error occurs when under or over voltage is supplied.) : Check whether a plug receptacle is used. When the connecting wire is 1m, a momentary low voltage may drop up to 10 V - Main PBA fault (sometimes) 	
	PF	<ul style="list-style-type: none"> - This error is not a fault but occurs during a momentary power failure. <ul style="list-style-type: none"> : When this error code is displayed, the operation restarts from the cycle that was stopped due to the power failure. : If the washing machine is not operating and this error code is displayed, it is displayed to notify that a power failure has occurred. 	
Communication Error	AE	<ul style="list-style-type: none"> - The signals between the sub and main PBAs are not sensed because of communication error. - Check the connector connections between the sub and main PBAs carefully. <ul style="list-style-type: none"> → Check for incorrect or loose connections, etc. - Remove the sub PBA C/Panel and check for any faulty soldering. 	
	AE3	<ul style="list-style-type: none"> - The signals between The DR Module and main PBAs are not sensed because of communication error. - Check The connector connections between The DR Module and main PBAs carefully. <ul style="list-style-type: none"> → Check for incorrect or loose connections, etc. - Remove The DR Module and Check for any faulty soldering. 	
	AE4	<ul style="list-style-type: none"> - The signals between The WIFI Module and main PBAs are not sensed because of communication error. - Check The connector connections between The WIFI Module and main PBAs carefully. <ul style="list-style-type: none"> → Check for incorrect or loose connections, etc. - Remove the WIFI Module and Check for any faulty soldering. 	
	AE5	<ul style="list-style-type: none"> - The signals between The LCD Module and main PBAs are not sensed because of communication error. - Check The connector connections between The LCD Module and main PBAs carefully. <ul style="list-style-type: none"> → Check for incorrect or loose connections, etc. - Remove The LCD Module and Check for any faulty soldering. 	
	E2	<ul style="list-style-type: none"> - The Power button is pressed continually. (for more than 12 seconds). - A switch is jammed or stuck due to be pressed unevenly due to deformation of the control panel or button. - This error may occur when the screws that hold the sub PBA in place are tightened too much. - A button other than the Power button is continually pressed. (for more than 30 seconds). - Deformation of an internal plastic injection part. - A screw for assembling the sub PBA is tightened too much. 	
	Sr	<ul style="list-style-type: none"> - The main relay of the PBA is short-circuited. - The main relay terminal is connected incorrectly. (The terminal is bent and contact cannot be made.) 	When the PBA motor relay does not operate

5. Test Mode & Error Check : Fast Time Down Test Mode



Error Type	For USA	Causes	Remarks
Door Error	dS (Before operation)	<ul style="list-style-type: none"> - A switch contact error because of a deformation of the door hook. - When the door is pulled by force. 	When the door is not opened after the door open operation.
	dL (During operation)	<ul style="list-style-type: none"> - This occurs in the Boil wash because the door is pushed due to a pressure difference from internal temperature changes. 	When the door is not locked after the door close operation.
	LO (Unlock Fail)	<ul style="list-style-type: none"> - The door lock switch terminal is connected incorrectly. - The door lock switch terminal is broken. 	
	FL (Lock Fail)	<ul style="list-style-type: none"> - This occurs intermittently because of an electric wire leakage - Main PCB fault. 	
Heater Error	Hr (Heater Relay)	<ul style="list-style-type: none"> - The washing heater is short-circuited or has a wire disconnected. - The washing heater in the tub has an error. (Contact error, temperature sensor fault) - If the water level sensor operates without water because water is frozen or for any other reason and the temperature sensor engaged at the bottom to prevent overheating for the washing heater detects a temperature of 100 to 150 °C, the washing machine turns the input power off. 	If the heater has no error, this occurs because of a PBA relay malfunction.
		<ul style="list-style-type: none"> - This error occurs when the red temperature sensor at the center of the dry heater operates (at a temperature higher than 145 °C) : Corrective action – Press the button at the center lightly. The washing machine will operate normally. Alternatively, replace the temperature sensor if the temperature sensing is unstable because of functional degradation. - This occurs when the steam function does not operate normally. - This error does not occur in existing drum products. Check whether the product is a steam model. 	
Water Leakage Error	LE	<ul style="list-style-type: none"> - Heater engagement fault. (out of place) - The air hose is out of place and water leakage occurs during the spin cycle. - The tub back at the safety bolts fixing part is broken. - Water leakage occurs at the front with foaming because of too much detergent. - Water leakage occurs because the connecting hose to the detergent drawer is connected incorrectly. - The drain pump filter cover is engaged incorrectly. - Water leakage occurs at the drain hose. - The duct condensing holding screws are worn. - The nozzle-diaphragm is engaged in the opposite direction or the rubber packaging is omitted. - Water leakage occurs because the screws that hold the tub back and front in place are fastened incorrectly. - The leakage sensor is faulty. 	
Overflow Error	OE	<ul style="list-style-type: none"> - Water is supplied continually because the water level detection does not work. - Because the drain hose is clogged and there is an injection error (at a narrow section), the water level detection does not work and water is supplied continually. - Water is supplied continually because of freezing or because there is foreign material in the water supply valve. - This error may occur when the water level sensor is degraded. 	This error occurs because the water level sensor terminal is out of place.

Error Type	For USA	Causes	Remarks
Temperature Sensor Error	IE	<ul style="list-style-type: none"> - The washing heater sensor in the tub has an error. (Contact error or temperature sensor fault) - The connector is connected incorrectly or is disconnected. - If the water level sensor operates without water because the water is frozen or for any other reason and the temperature sensor engaged at the bottom to prevent overheating for the washing heater detects a temperature of 100 to 150 °C, the washing machine turns the input power off. 	Heater sensor fault : When the connector is connected incorrectly or has a wire disconnected or contact error
Unbalance Error	dc	<ul style="list-style-type: none"> - As laundry causes this error, check the laundry. - Find the reason for the unbalance and solve it as directed in the user manual. 	
Foaming Detected	SUDS	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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.
	8E2		
	8E		

5. Test Mode & Error Check : 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:

Model : WF45H6*, WF42H5*

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

-Board Input Test Mode:

- If the product enters Board Input Test Mode, 'in' is displayed.

- The information that is displayed in the Board Input Test is as follows.

1. The Water Temperature in Celsius.
2. The Water Temperature in Fahrenheit.
3. The door status (OP if open, CL if closed).
4. The Door Lock Switch status (UL if unlocked, LO if locked).
5. The Water Level Pulse

5. Test Mode & Error Check : Diagnostic Code Check Mode



Definition of Diagnostic Code Check Mode:

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

How to Enter:

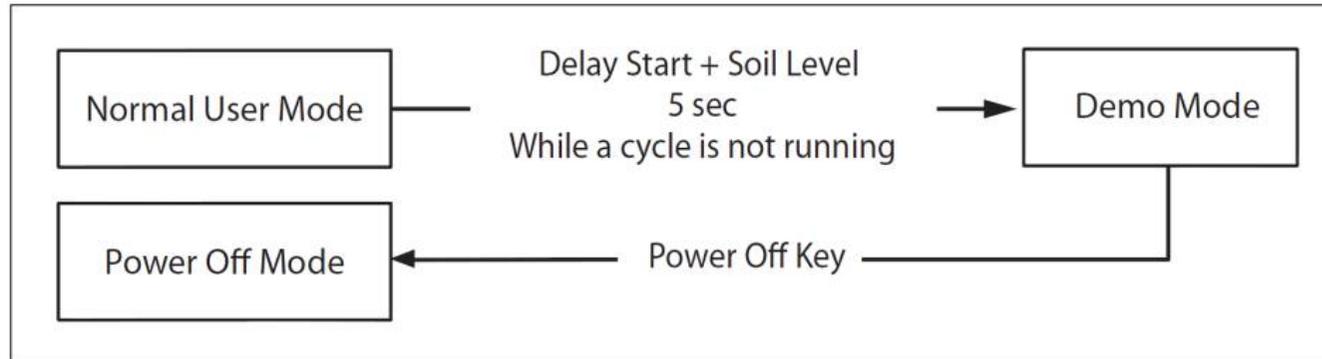
Model : WF45H6*, WF42H5*

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

Board Input Test Mode:

1. Activate the Service Mode first.
2. Press the “Spin key” key to start Error Code Check Mode with Code “d” flashing.
3. To cycle through the error codes, 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 error codes from the latest.
5. When turning it in the opposite direction, it shows the error codes in the reverse order.

5. Test Mode & Error Check : Demo Mode



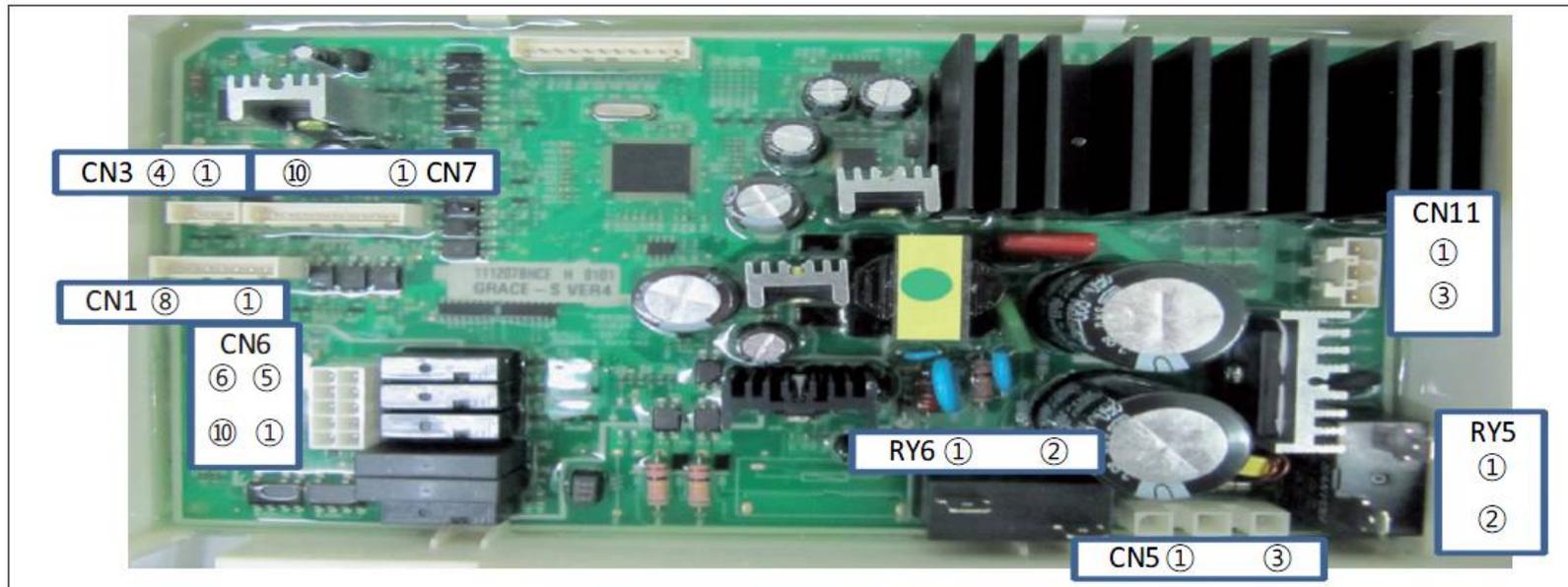
Model : WF45H6*, WF42H5*

- Demo mode is entered when the Delay Start + Soil Level buttons are held down for five (5) seconds simultaneously in the power on state.
- When entering Demo mode, the buzzer rings three (3) times and “- - -” is displayed on the 7 segment display and all other LCD’s / LED’s are turned off. (Initial Demo mode)
- Demo mode consists of WASH, SPIN and LCD / LED modes.
- If the Temp button is pressed during the initial Demo mode, “WASH” blinks on the 7 segment display and the washing machine enters WASH mode.
- If the Start/Pause button is pressed in WASH mode, the door is locked (Door Lock) and the motor rotates left and right at 45 RPM in a 7 sec on and 3-sec off cycle.
- WASH mode continues up to five (5) minutes once started. After the five (5) minutes have elapsed, “- - -” is displayed on the 7 segment display and the initial Demo mode is maintained.
- If the Start/Pause button is pressed during a WASH mode operation, “- - -” is displayed on the 7 segment display and the initial Demo mode is maintained.
- If the Spin button is pressed in the initial Demo mode, “Spin” blinks on the 7 segment display and the washing machine enters SPIN mode.
- If the Start/Pause button is pressed in the SPIN mode, the door is locked (Door Lock) and a spin is operated at 1150 RPM. When the speed reaches 0 RPM, the No Spin, Low, Medium, High, and Extra High LCD’s / LED’s are turned on.

5. Test Mode & Error Check : Demo Mode

- During a spin operation, the No Spin LCD / LED turns on when the speed is lower than 400 RPM. The Low LCD / LED turns on between 400 RPM and 700 RPM. The Medium LCD / LED turns on between 700 RPM and 900 RPM. The High LCD / LED turns on between 900 RPM and 1100 RPM. All spin speed LCD / LED turn off more than 1100 RPM.
- SPIN mode continues up to four (4) minutes once started. After the four (4) minutes have elapsed, “- - -” is displayed on the 7 segment display and the initial Demo mode is maintained.
- If the Start/Pause button is pressed during a SPIN mode operation, “- - -” is displayed on the 7 segment display and the initial Demo mode is maintained.
- If the Start/Pause button is pressed in LCD / LED mode, all LCD's / LED's are turned on. The LCD / LED mode continues up to thirty (30) seconds once started. After the thirty (30) seconds have elapsed, “- - -” is displayed on the 7 segment display and the initial Demo mode is entered.
- If the Start/Pause button is pressed during an LCD / LED mode operation, “- - -” is displayed on the 7 segment display and the initial Demo mode is entered.

6. PCB Diagram



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

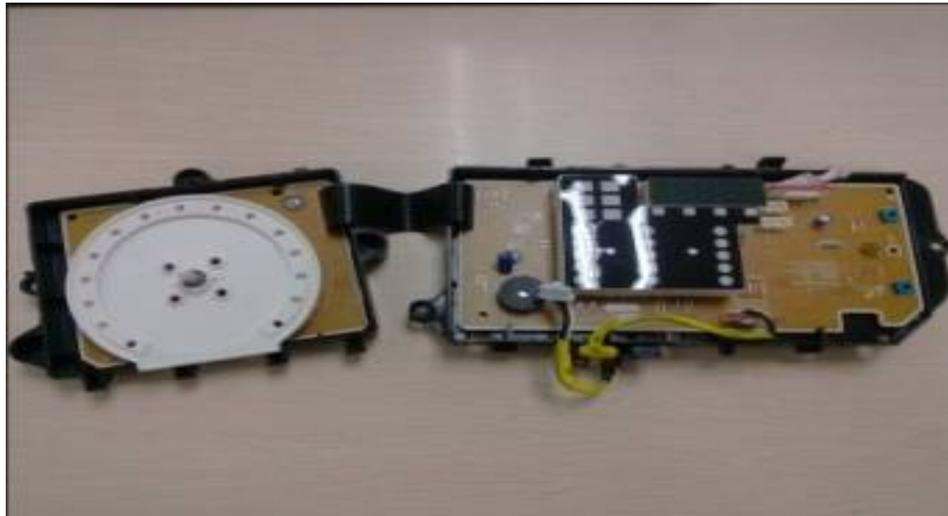
Check Voltage at Pin #1 of CN5 and #2 of POWER RELAY
Tester Check = AC 120V

Wash Heater Relay Check

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

PROBLEM CHECKING AND METHOD OF PCB

- If you plug in the power cord and turn Power S/W on, memorized data is displayed.
If any data is not displayed, check the followings.



Thermistor Check

Check Voltage at Pin #3 and #4 of CN6

Tester Check = DC 1.6V

If it reads 5V, check if its connector is engaged properly.

Water Sensor Check

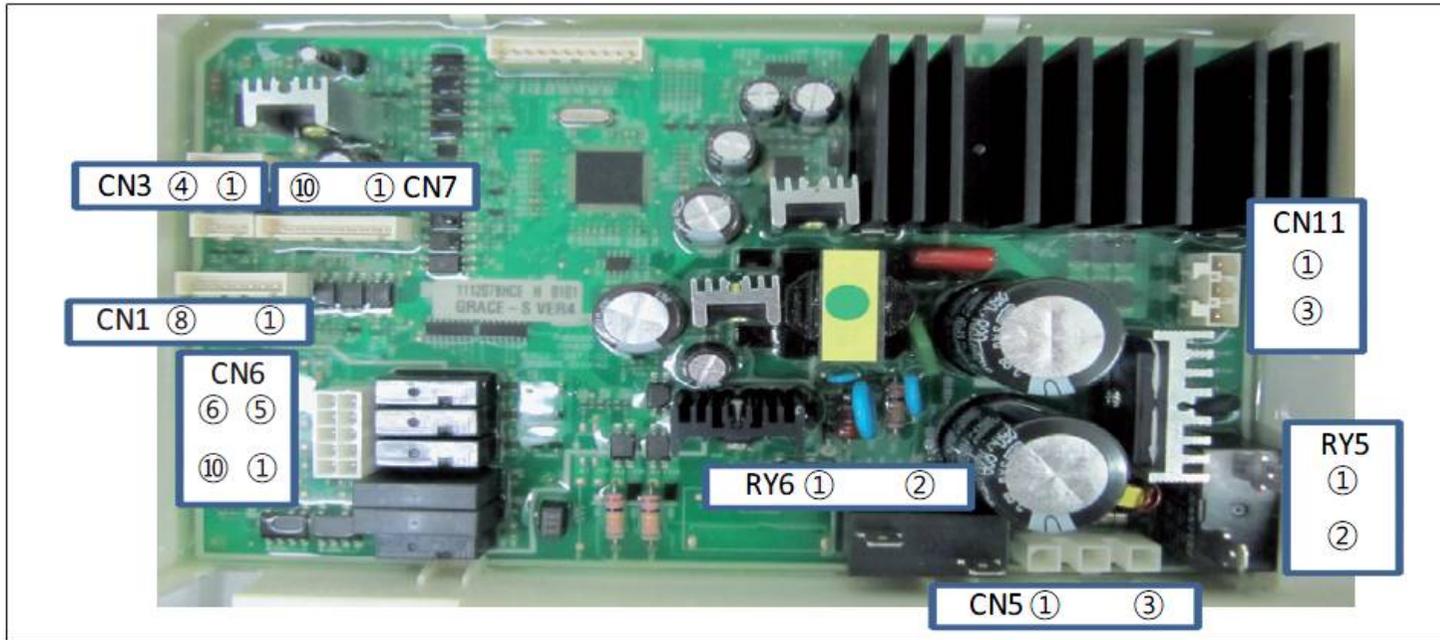
Check Voltage and Frequency at Pin #5 and #4 of CN6

Reset water level = DC1.6V, 26.0KHz

Check Voltage and Frequency at Pin #6 and #4 of CN6

Reset water level = DC1.6V, 26.0KHz

6. PCB Diagram



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

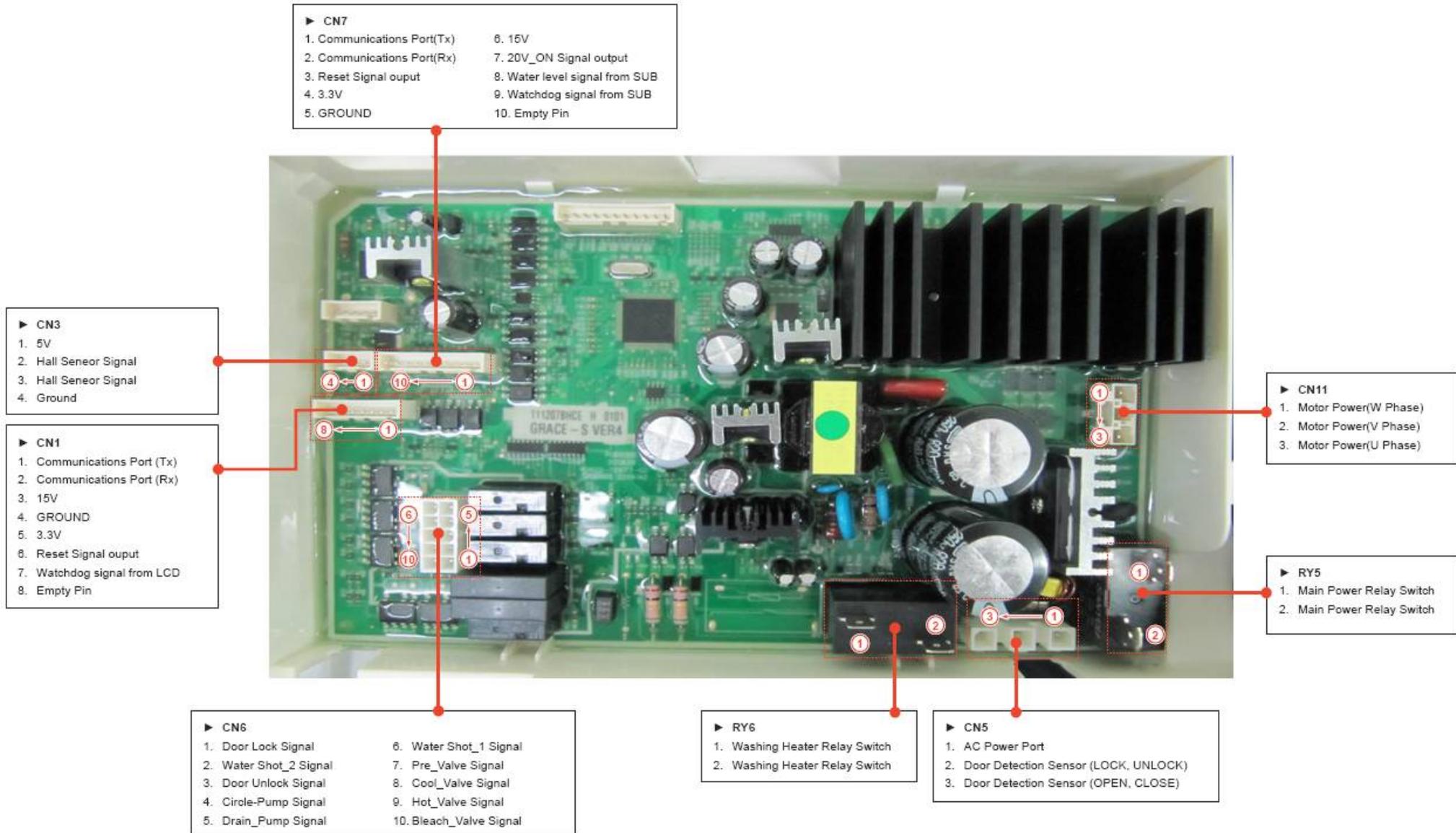
When Heater Relay operates = AC 120V

6. PCB Diagram



▶ WF45H6*, WF42H5* - CONNECTOR AND RELAY PORT PART DETAILED MANUAL (MAIN PCB)

▶ This Document can not be used without Samsungs authorization.



7. Reference Information



CHECK THESE POINTS IF YOUR WASHER...

PROBLEM	SOLUTION
will not start..	<ul style="list-style-type: none"> • Make sure the door is firmly closed. • Make sure your Washer is plugged in. • Make sure the water source faucets are open. • Make sure to press the Start/Pause Button to start your Washer. • Make sure Child Lock is not activated; see page 34. • Before your Washer starts to fill, it will make a series of clicking noises to check the door lock and do a quick drain. • Check the fuse or reset the circuit breaker
has no water or not enough water..	<ul style="list-style-type: none"> • Turn both faucets on fully. • Make sure the door is tightly closed. • Straighten the water inlet hoses. • Disconnect hoses and clean screens. Hose filter screens may be clogged. • Open and close the door, then press the Start/Pause Button.
has detergent remaining in the automatic dispenser after the wash cycle is complete.	<ul style="list-style-type: none"> • 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.
vibrates or is too noisy.	<ul style="list-style-type: none"> • Make sure your Washer is set on a level surface. If the surface is not level, adjust your Washer feet to level the appliance. • Make sure that the shipping bolts are removed. • Make sure your Washer is not touching any other object. • Make sure the laundry load is balanced.
stops	<ul style="list-style-type: none"> • Plug the power cord into a live electrical outlet. • Check the fuse or reset the circuit breaker. • Close the door and press the Start/Pause Button 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, it 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 the screens on the inlet hoses at the faucets for obstructions. Clean the screens periodically.

PROBLEM	SOLUTION
fills with the wrong temperature water.	<ul style="list-style-type: none"> • Turn both faucets on fully. • Make sure the temperature selection is correct. • Make sure the hoses are connected to the correct faucets. Flush water lines. • Check the water heater. It should be set to deliver a minimum 120° F (49° C) hot water at the tap. Also check the water heater capacity and recovery rate. • Disconnect the hoses and clean the screens. The 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 your Washer determines the temperature of the water.
door locked or will not open.	<ul style="list-style-type: none"> • Press the Start/Pause Button to stop your Washer. • Your Washer door will remain locked during the heating portion of the Sanitize Cycle • It may take a few moments for the door lock mechanism to disengage.
does not drain and/or spin.	<ul style="list-style-type: none"> • Check the fuse or reset the circuit breaker. • Straighten the drain hoses. Eliminate kinked hoses. If there is a drain restriction, call for service. • Close the door and press the Start/Pause Button. For your safety, your Washer will not tumble or spin unless the door is closed. • Make sure the debris filter is not clogged.
load is too wet at the end of the cycle.	<ul style="list-style-type: none"> • Use the High or Extra High spin speed. • Use high efficiency detergent to reduce over-sudsing. • Load is too small. Very small loads (one or two items) may become unbalanced and not spin out completely.
leaks water.	<ul style="list-style-type: none"> • Make sure the door is firmly closed. • Make sure all hose connections are tight. • Make sure the end of the drain hose is correctly inserted and secured to the drainage system. • Avoid overloading. • Use high efficiency detergent to prevent over-sudsing.
has excessive suds.	<ul style="list-style-type: none"> • Use high efficiency detergent to prevent over-sudsing. • Reduce the detergent amount for soft water, small or lightly soiled loads. • Non-HE detergent is NOT recommended.

Thank you