website : http://biz.lgservice.com
e-mail : http://LGEservice.com/techsup.html

WASHING MACHINE SERVICE MANUAL

CAUTION

READ THIS MANUAL CAREFULLY TO DIAGNOSE PROBLEMS CORRECTLY BEFORE OFFERING SERVICE.

BEFORE SERVICING THE WASHING MACHINE, UNPLUG THE POWER CORD TO AVOID THE RISK OF AN ELECTRIC SHOCK.

WHEN SERVICING INTERNAL PARTS ,
USE ONLY SERVICE PARTS SUPPLIED FROM LG.
AFTER SERVICING THE ELECTRIC WIRE, INSURE THAT INSULATION TAPE IS APPLIED TO PREVENT AN ELECTRICAL SHORT.

MODEL :

F*V3*GP(0~9)

CONTENTS

1. SPECIFICATION

ITEM		Refer to 1 page
POWER SUPPLY		220 V ~, 60Hz
PRODUCT WEIGHT		71kg
ELECTRICITY CONSUMPTION	WASHING	190W
	SPIN	450W
	DRAIN MOTOR	32 W
	WASH HEATER	1250 W
	DRY HEATER	1600 W
REVOLUTION SPEED	WASH	46 rpm
	SPIN	F4V******* : No Spin / 400 / 800 / 1000 / 1200 / 1400
		F2V******* : No Spin / 400 / 800 / 1000 / 1100 / 1200
OPERATION WATER PRESSURE		0.1 ~ 1.0 MPa (1.0 kgf / cm ^{2} ~ 10.0 kgf / cm^2)
CONTROL TYPE		Electronic
WASH & DRY CAPACITY		Refer to the Rating Label
DIMENSION		600mm x 560mm x 850mm
WASH PROGRAM		Cotton , Cotton+, Mixed Fabric, Easy Care, Silent Wash, Allergy Care, Baby Steam Care, Delicates, Hand/Wool, Speed 14, Dry Only, Wash+Dry(7kg), Tub Clean, Rinse+Spin
RINSE		Rinse$^+$
DOOR SWITCH TYPE		PTC+Solenoid
WATER LEVEL		by Pressure Sensor S/W
RESERVATION		From 3 hours to 19 hours
SENSING LAUNDRY AMOUNT		Adapted
FUZZY LOGIC		Adapted
DISPLAY REMAINING TIME		Adapted
ERROR DIAGNOSIS		15 items
POWER AUTO OFF		Adapted
CHILD LOCK		Adapted
AUTO RESTART		Adapted
TIME SAVE		Adapted
SMART		NFC

⚠ WARNING

- To reduce the risk of personal injury, adhere to all industry recommended safety procedures including the use of long sleeved gloves and safety glasses.
  Failure to follow all of the safety warnings in this manual could result in property damage, personal injury or death.

2. FEATURES & TECHNICAL EXPLANATION

2-1. Product Features

- **Inverter Direct Drive system**
  The advanced Brushless DC motor directly drives the drum without belt and pulley.

MOTION

- **6 Motion**
  Washer is able to perform various drum actions or a combination of different actions depending on the wash program selected.
  Combined with a controlled spin speed and the ability of the drum to rotate both left and right, the wash performance of the machine is greatly improved, giving you perfect results every time.

- **Turbo Wash**
  Wash the laundries in 1 hour with energy and water saving.

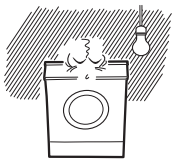
SmartThinQ™

- **Smart ThinQ**
  This feature lets you use various functions of the product, e.g., remote control, smart alert, mode download, and smart self-diagnosis via the smartphone app.

- **More economical with Intelligent Wash system**
  Intelligent Wash System detects the size of load and water temperature, and then determines the optimum water level and washing time to minimize energy and water consumption.

- **Child Lock**
  The Child Lock prevents children from pressing any button to change the settings during operation.

- **Low noise speed control system**
  By sensing the amount of load and balance, it evenly distributes load to minimize the spinning noise level.



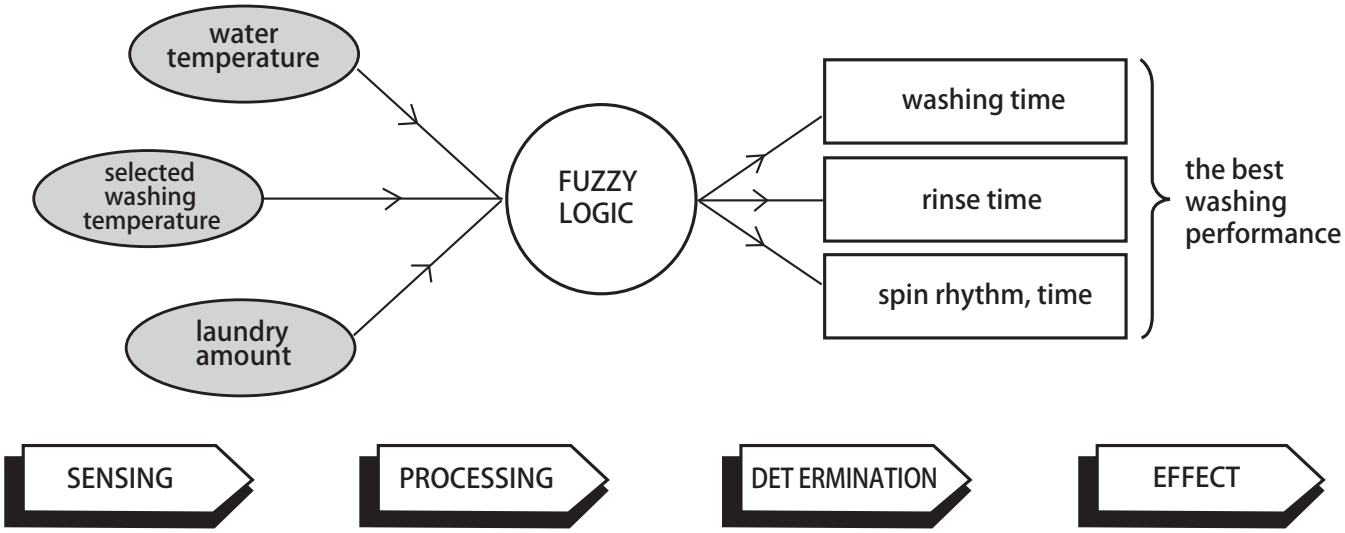
- **Auto Restart**
  Auto Restart allows the program to restart all by itself in case of power failure. It does from the stage where it stopped.

Smart Diagnosis™

- **SmartDiagnosis™**
  Should you experience any technical difficulty with your washing machine, it has the capability of transmitting data by phone to the Customer Information Center. The call center agent records the data transmitted from your machine and uses it to analyze the issue, providing a fast and effective diagnosis.

2-2. DETERMINE WASHING TIME BY FUZZY LOGIC

To get the best washing performance optimal time is determined by sensing the water temperature, selected washing temperature and laundry amount.



2-3. WATER LEVEL CONTROL

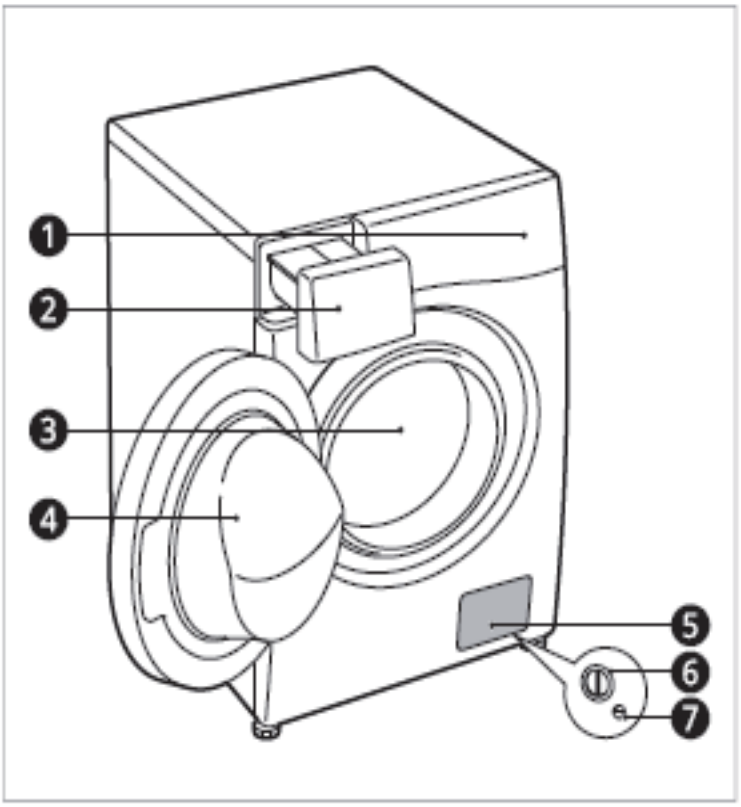
- This model adopts a pressure sensor which can sense the water level in the tub.
- Water supply is stopped when the water level reach the preset level, then washing program proceeds.
- Spinning does not proceed until the water in the tub reduces to a certain level.

2-4. THE DOOR CAN NOT BE OPENED

- While program is operating.
- While Door Lock light is on.

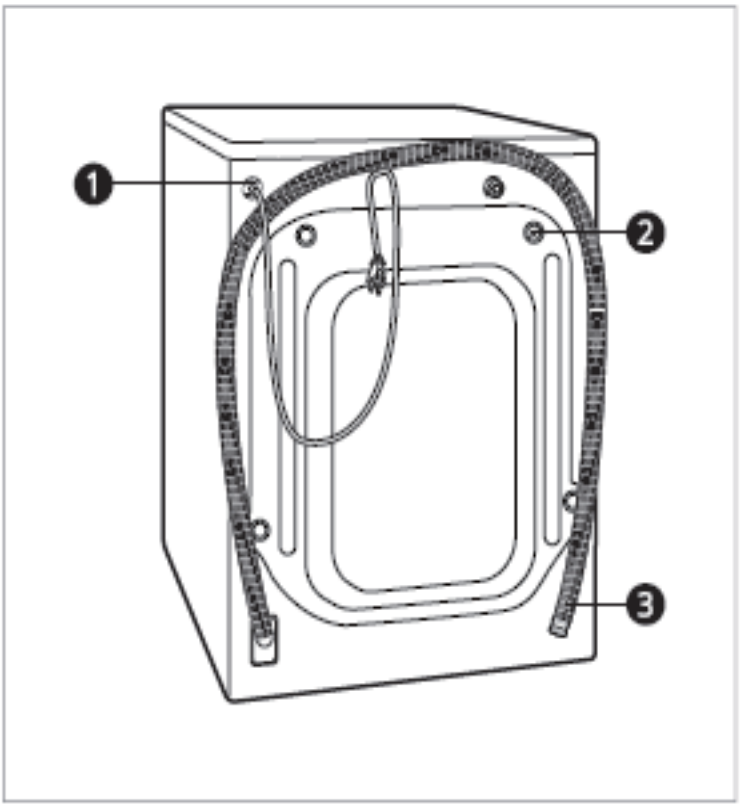
3. PARTS IDENTIFCATION

Front View



1. Control panel
2. Detergent dispenser drawer
3. Drum
4. Door
5. Cover cap
   (Location may vary depending on products)
6. Drain pump filter
7. Drain plug
8. Adjustable feet

Rear View

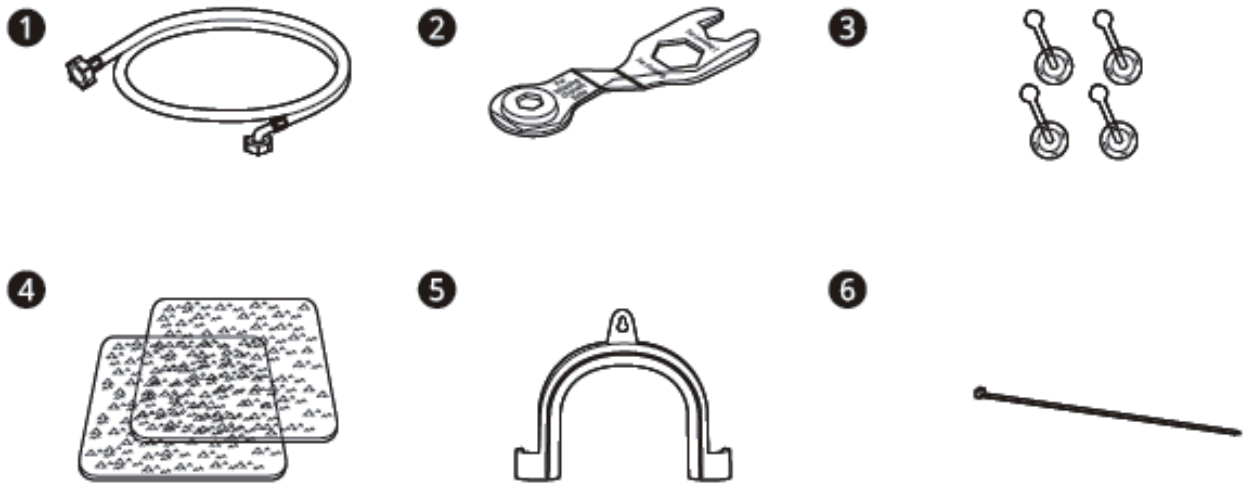


1. Power plug
2. Transit bolts
3. Drain hose

3. PARTS IDENTIFCATION

Accessories

* This feature may vary depending on the model purchased.



❶ Cold water inlet hose*
❷ Spanner
❸ Caps for covering transit bolt holes*
❹ Anti-slip sheets*
❺ Elbow bracket for securing drain hose*
❻ Tie strap*

Specifications

Model	F*V3*GP(0~9)
Wash Capacity	**11 kg (Wash) / 7 kg(Dry)**
Power Supply	220V~, 60Hz
Dimension (Width x Depth x Height)	600 mm X 560 mm X 850 mm
Product Weight	71 kg
Permissible Water Pressure	100 - 1000 kPa (1.0 - 10.0 kgf / cm^2)

- No further backflow protection required for connection to the water inlet.

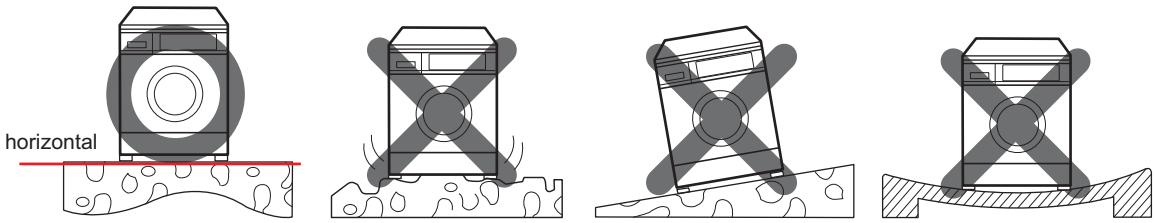
4. INSTALLATION

■ INSTALLATION

The appliance should be installed as follows.

1 Check the conditions of installation area.

1. Check level ground.



On raised foundations or upper level homes, the **vibrations** can be caused by the type of flooring. It may be **necessary to move** the **machine** to a different area in the home or have the floor reinforced to properly support the operation of the unit.

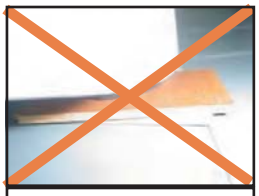
2. Check for humidity or any foreign objects under the feet.

Clean the floor, there should be no foreign objects under the feet.
If the unit has foreign objects underneath the feet, this will prevent the unit from being leveled properly and will cause **vibrations** and **slipping**.
Remove any foreign objects, if any from underneath the machine and level unit properly.
See below for examples of foreign objects.

Purchased stopper

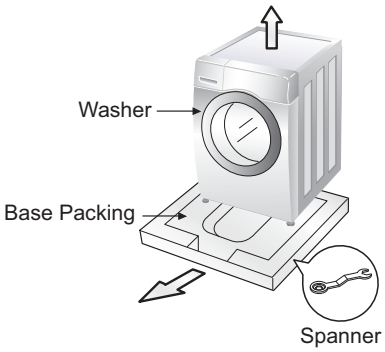
Carpet

Paper



Laminated paper

2 Open the box and check appliance condition.



This leveling (or spanner) wrench must be used to remove the shipping bolts and level the unit. This should be kept for future use.

3 Use spanner to remove transit bolts.

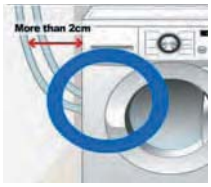
Transit bolts

X 4 EA

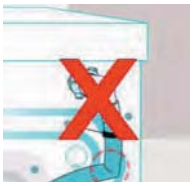
※ Without removal of transit bolts
▶ **Spin noise** and **shaking**.

4 Confirm the distance between the appliance and the wall.

More than 2cm



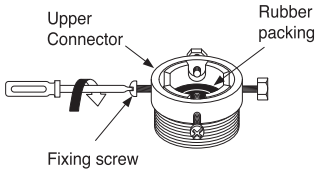
※ If the distance is less than 2cm, the water supply hose will **kink** or **fold**.



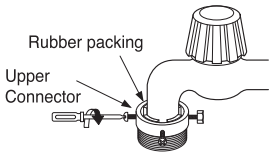
5 The tap connection and hose connection must be parallel.

1. Normal Tap without thread & screw type inlet hose.

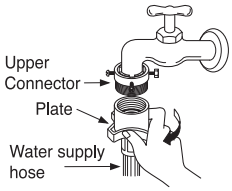
1. Unscrew the fixing screw to attach the tap.



2. Push the connector up till the rubber packing is in tight contact with the tap. Then tighten the 4 screws.

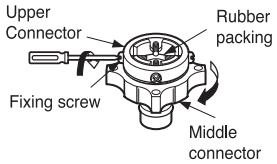


3. Push the water supply hose vertically upwards so that the rubber packing within in the hose can adhere completely to the tap and then tighten it by screwing it to the right.

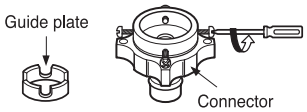


2. Normal Tap without thread & one touch type inlet hose (Single inlet models)

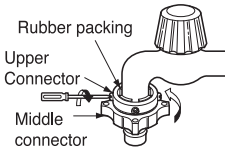
1. Untighten the upper connector screw.



ï In case the diameter of the tap is large remove the guide plate.

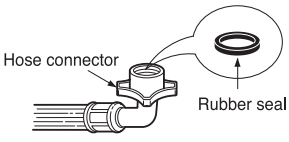


2. Push the upper connector up till the rubber packing is in tight contact with the tap. Then tighten the 4 screws.

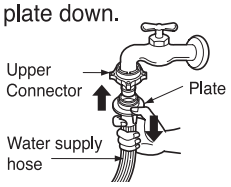


ï Turn the middle connector not to have water leaked.

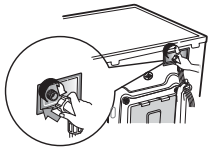
ï Make sure that the rubber seal is inside the hose connector.



3. Connect the water supply hose to the middle connector, pushing the plate down.



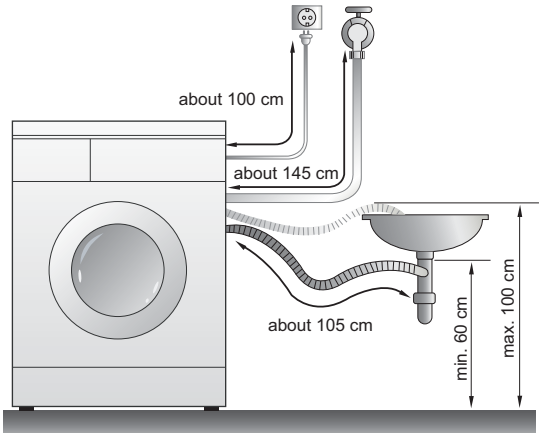
ï To separate the water supply hose from the middle connector shut off the tap.
Then pull the inlet hose down, pushing the plate down.

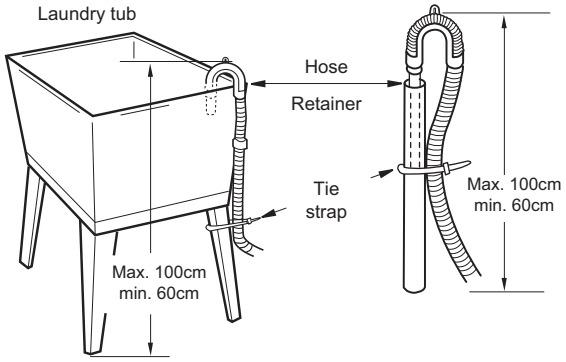


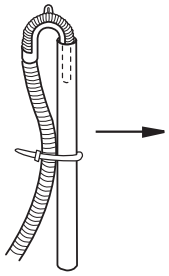
ï Make sure that there are no kinks in the hose and that it is not crushed.

6 Connect Drain Hose.

If the drain hose is not installed properly, the unit will not drain properly.
This allows water to back flow into the unit which can cause odors.
Refer to Owner Manual for proper drain hose installation.
The odor could also be coming from the home's drain to which the drain hose is attached.



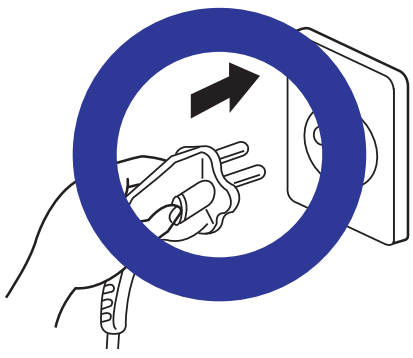




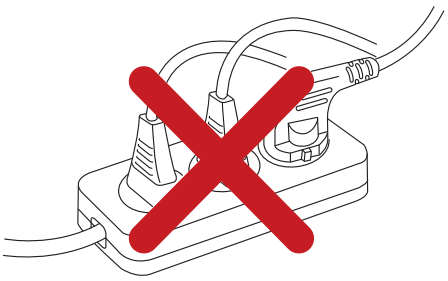
In this type of drain hose installation, the odor could be coming from the standpipe.
This odor can come up the drain hose and into the unit.
Pour a cup or two of bleach or vinegar down the home drain
and let it sit for 24 hours before running another cycle.
This will help eliminate odor from the home drain.
If a cycle is started too soon after doing this, it will not help the issue.

7 Connect power plug.

Connect the power plug to the wall outlet.



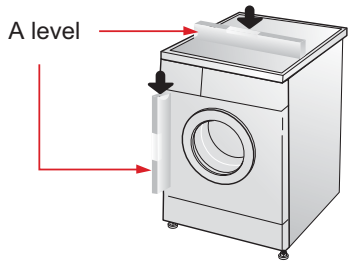
Avoid connecting several electric devices,
it may be the cause of a fire.

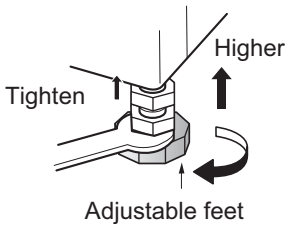


8 Check the horizontality with a level (Gage).

Step 1

If washing machine legs are loose or not Screwed in, then **tighten** with the spanner wrench.
Using the level, level the washing machine from front to back and side to side.





Step 2

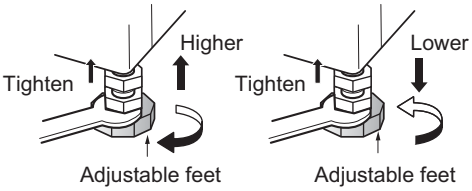
Use the spanner wrench to adjust Legs until level and try the **Diagonal test**.

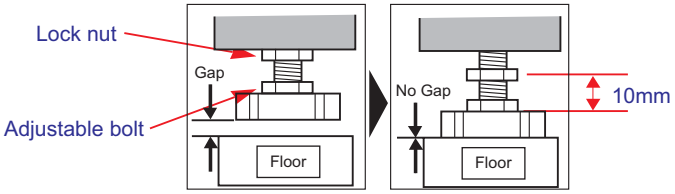
Diagonal test

※ **How to perform a diagonal test:**

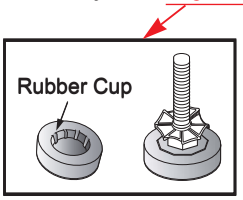
Place your right hand on the back, right corner and your left hand on the front, left corner of the unit, then attempt to rock the unit from corner to corner.
Then, move your right hand to the front, right side and your left hand to the back, left corner and attempt to rock the unit from corner to corner.

If the unit is level, it will not rock. However, if the unit is not level, it will rock.
If the unit rocks, it will be necessary to adjust the leveling feet of the unit.
Adjust the foot under the hand that is on the front of the machine.

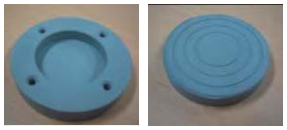




Lower the foot until there is no gap between floor and foot.
And only use **adjustment rubber** when difference at the leg adjustment is more than **10mm**.



4620ER4002A
(Black)
for Tile floors



4620ER4002B
(Gray)
for Wooden floors

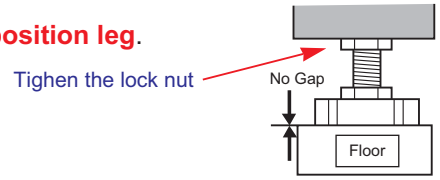
Step 3

Perform a Rinse and Spin with some clothing in the machine.

To do this, put 2~3kg of clothing in the unit, turn on the unit, Select the Rinse+Spin and then start. When the unit reaches the spin cycle, watch for vibrations.
If the unit is vibrating, make small adjustments to the leg until they subside. (Repeat step 2)

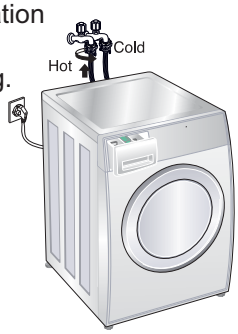
Step 4

Tighten the lock nut against the base of the machine to **lock** the **position leg**.



9 Test operation

1 Preparation for washing.



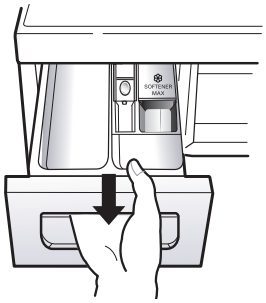
- Connect the power plug to the outlet.
- Connect the inlet hose.

2 Press the power button.

3 Press the START/PAUSE button.

- In case of Coloreds program.

4 Check the water supply.



- Check if water is supplied through the detergent dispenser.

5 Check automatic reverse turn.

- Check if the drum rotates clockwise and counterclockwise.

6 Check the water heating.

- Touch the Temp and Medic Rinse button simultaneously and the present temperature will be displayed. ☞Page 20

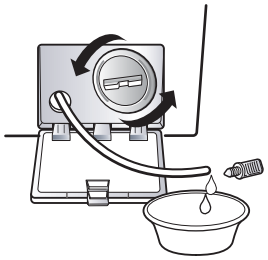
7 Check the drain and spin functions.

- Turn power off and then power on.
- Select the spin rpm
- Press the START PAUSE button.
- Check the spin and drain functions.

8 Turn power off and open the door.

- Turn power off and then power on.
- Listen for a click to determine if the door is unlocking.

9 Water removal.

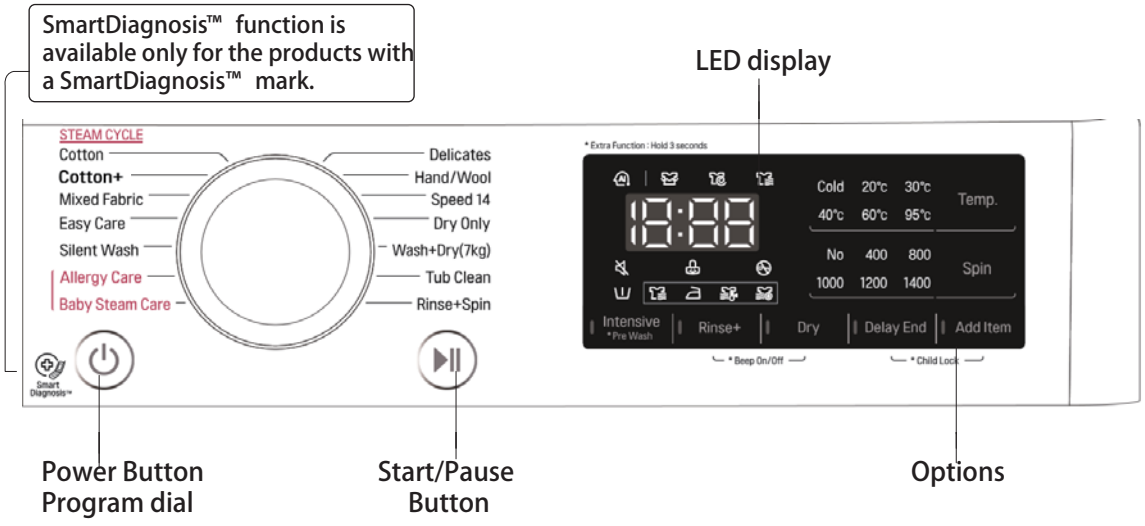


- If SVC is needed during check, remove the remaining water by pulling out the hose cap.

5. OPERATION

How to use washer

■ Control panel



Power

Press the Power button to turn power on and off.

To cancel the Time Delay function, the power button should pressed.

Program Dial

Programs are available according to the laundry type.

Lamp will light up to indicate selected program.

Start/Pause

This Start/Pause button is used to start wash cycle or pause the wash cycle.

If temporary stop of wash cycle is needed, touch theStart/Pause button.

When in Pause, the power is turned off automatically after 4 minutes.

LED display

The display shows the settings, estimated time remaining, options, and status messages for your washer.
The display will remain on through the cycle.

Options

This allows you to select an additional cycle and will light when selected.

Use thise buttons to select the desired cycle options for the selected cycle.

How to use washer

■ Options

• Intensive ( ): If the laundry is normal and heavily soiled, "Intensive" option is effective.

• Rinse + ( ) : Add rinse once.

• Dealy End :

You can set a time delay so that the washing machine will start automatically and finish after a specifed time interval.

NOTE

- The delay time is the time to the end of the programme, not the start. The actual running time may vary due to water temperature, wash load and other factors.
- To cancel the function, the power button should be pressed.
- Avoid using liquid detergent for this option.

1. Touch the Power button.
2. Select a washing programme.
3. Touch the Time Delay button and set time required.
4. Touch the Start/Pause button.

How to use washer

Temp.

By touching the Temp. button the water temperature can be selected.

- Cold
- 20° C, 30° C, 40° C, 60° C, 95° C

Water temperature can be selected according to the program.

Spin ( )

Spin Speed level can be selected by touching 'Spin' button repeatedly.

Spin Only

1. Touch the Power button.
2. Touch the Spin button to select RPM.
3. Touch the Start/Pause.

NOTE

When you select , it will still rotate for a short time to drain quickly.

Pre Wash

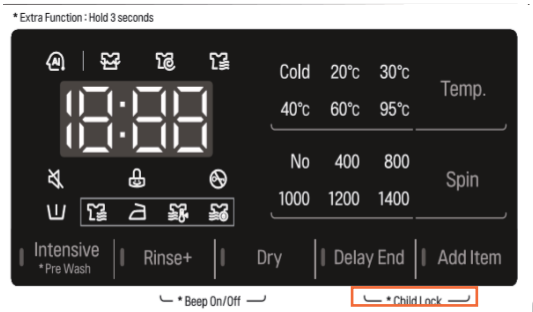
If the laundry is heavily soiled, "Pre Wash" course is effective.

1. Touch the Power button.
2. Select a cycle.
3. Touch the Pre Wash button.
4. Touch the Start/Pause button.

How to use washer

■ Child Lock

Select this function to lock the buttons on the control assembly to prevent tampering.
"Child Lock" can be set only during the washing cycle.

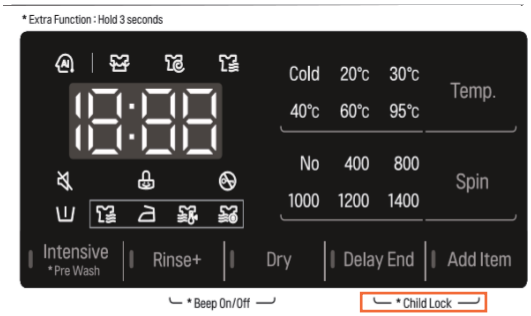


Locking the control panel

1. Touch and hold the Child Lock button for 3 seconds.
2. A beeper will sound, and ' CL ' will appear on the LED display.
   When the child lock is set, all buttons are locked except the Power button.

NOTE

Turning off the power will not reset the child lock function. You must deactivate child lock before you can access any other functions.

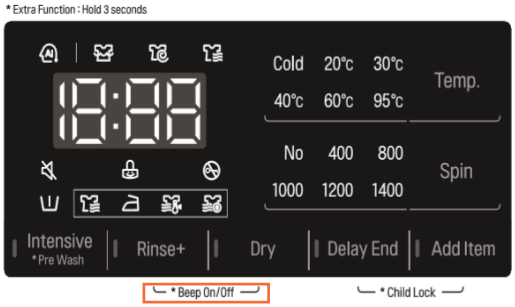


Unlocking the control panel

1. Touch and hold the Child Lock button for 3 seconds.
2. A beeper will sound and the remaining time for the current programme will reappear on the LED display.

■ Beep On / Off

The Beep on/off function can be set only during the washing cycle.



1. Touch the Power button.
2. Touch the Start/Pause button.
3. Touch and hold the Rinse+ & Dry button three seconds to set Beep on/off function.

Once the Beep on/off function is set, the setting is memorized even after the power is turned off.

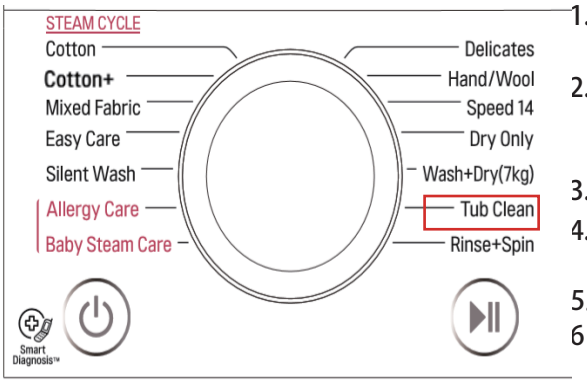
NOTE

If you want to turn the Beeper off, simply repeat this process.

How to use washer

■ Tub Clean

Tub Clean is a special cycle to clean the inside of the washing machine.
A higher water level is used in this cycle at higher spin speed . Perform this cycle regularly.



1. Remove any clothing or items from the washer and close the door.
2. Open the dispenser drawer and add Anti limescale(e.g. Calgon) to the main wash compartment.
3. Close the dispenser drawer slowly.
4. Power On and select the Tub Clean .Then tcL will be displayed on the display.
5. Touch the Start/Pause button to start.
6. After the cycle is complete, leave the door open to allow the washer door opening, flexible gasket and door glass to dry.

NOTE

Do not add any detergent to the detergent compartments.
Excessive suds may generate and leak from the washer.

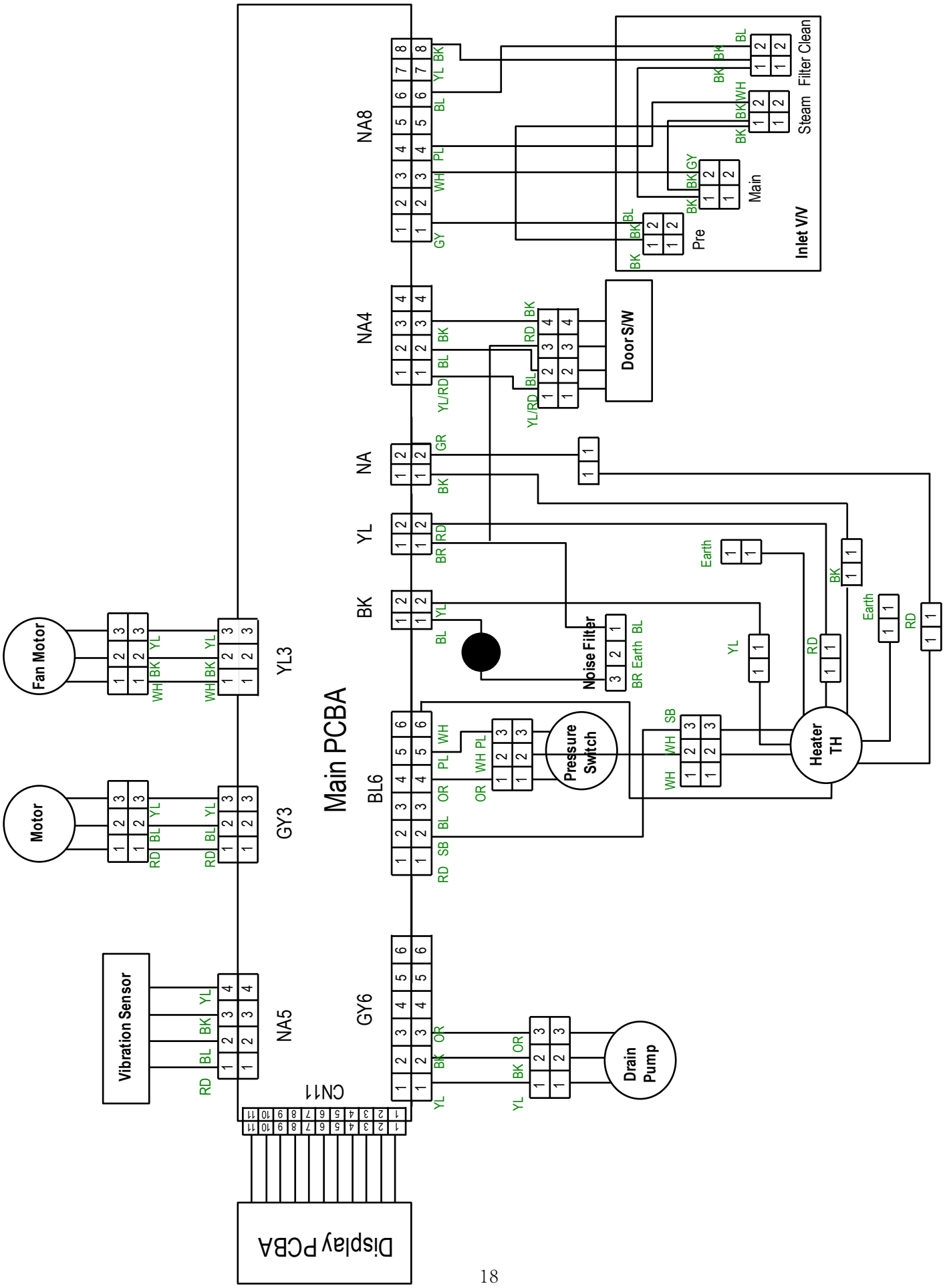
CAUTION

If there is a child, be careful not to leave the door open for too long.

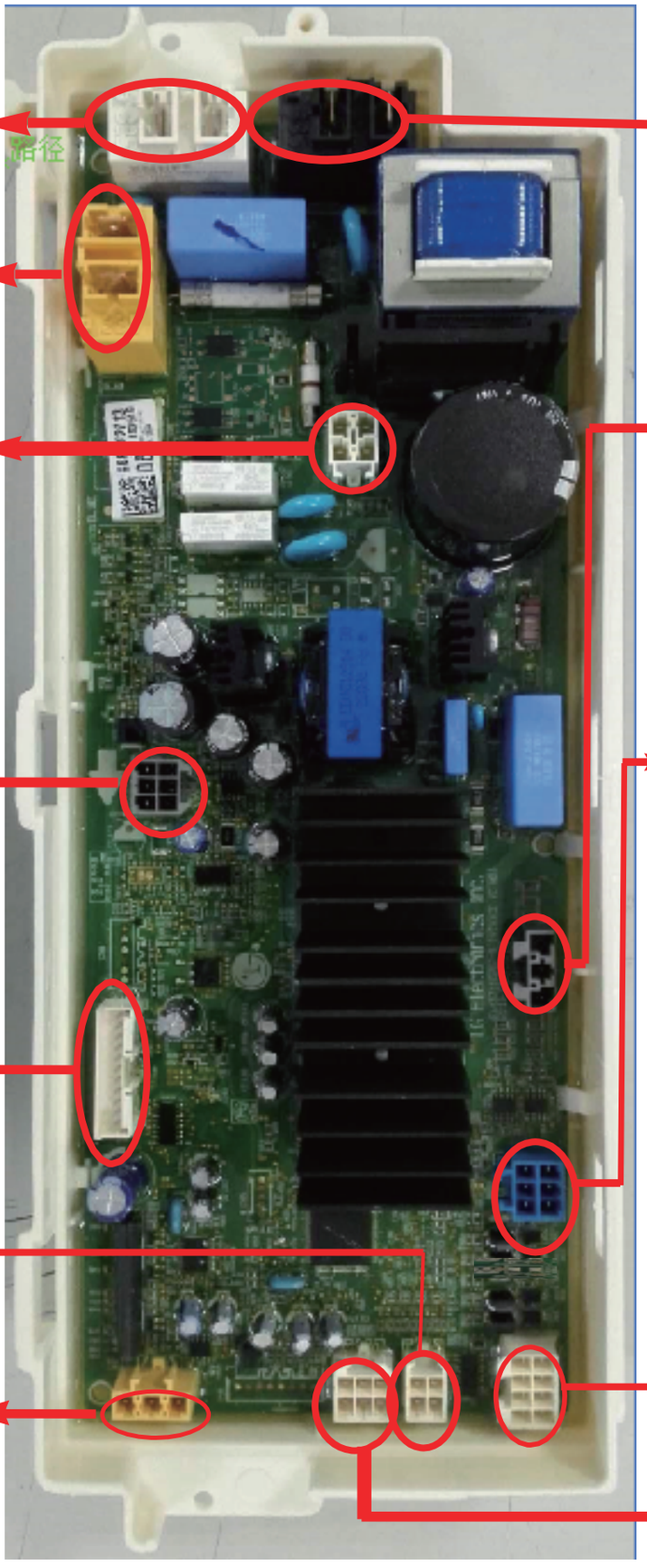
■ Door Lock & Detecting

Ⓐ "Door Lock" - For safety reasons, the door will lock while machine is in use and the "Door Lock" icon will light up. You can safely open the door after the "Door Lock" icon turns off.
Ⓑ While "Detecting" is shown on the display the washing machine rotates slowly and detects how much laundry is loaded in the drum.
It will take a short time.

6. WIRING DIAGRAM/PCB LAYOUT



■ PCB Layout (Main)



Dry Heater

Wash Heater

PCB POWER

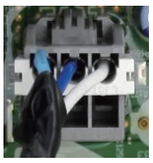
Door Switch

yellow&red:door switch
Blue:door switch
Black:door switch

Moter Stator Control

V-U/U-W
/W-V
→R:8~11Ω

Drain Pump motor



BLDC pump
white:U
Blue:V
Skyblue:W

Pressure Switch

Purple&White: common
Sky Blue: pressure switch
White&Red: pressure switch

Display PCB

Vibration Sensor

Inlet Valve

Gray: Pre Wash
White: Main Wash
Purple: Dry Valve
Blue: Fileter Clean Valve
Yellow: Flow meter,No use
Black: common

Dry Fan motor

White: U
Black:V
Yellow: W

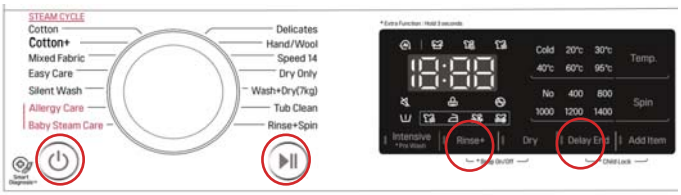
Thermistor

7. TROUBLESHOOTING

7-1. CHECK BEFORE SERVICE

① Before servicing ask the customer what the trouble is.
② Check the adjustments. (Power supply :220V-, Removal of transit bolts etc..)
③ Check the troubles referring to the troubleshooting.
④ Decide service steps referring to disassembly instructions.
⑤ Then, service and repair.
⑥ After servicing, operate the appliance to see whether it works OK or NOT.

7-2. LOAD TEST MODE

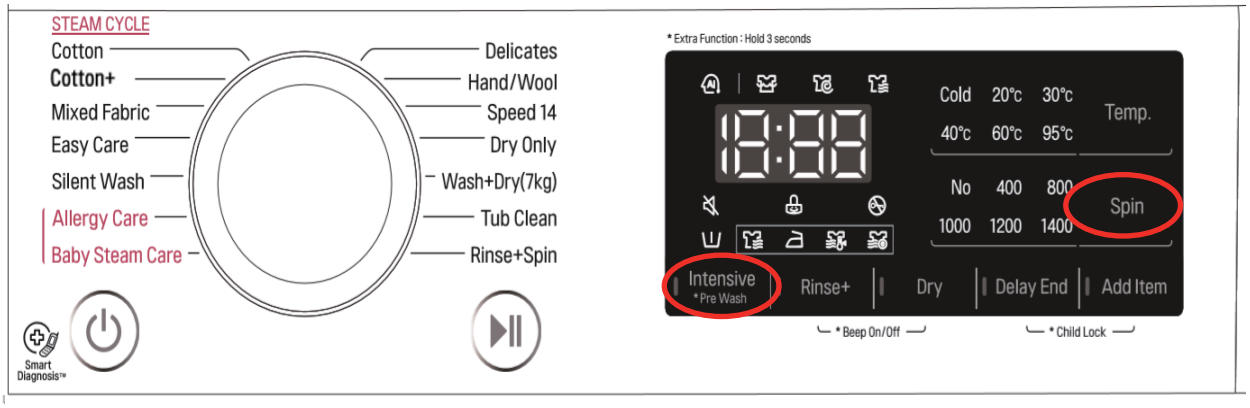


① Turn on, and touch ‘ Rinse+ ’ and ‘Delay End’ at the same time in 1 second.
② The washer must be empty and the controls must be in the off state.
③ Press Power with above two buttons pressed and then buzzer will sound.
④ Press the Start/Pause button repeatedly to cyclethrough the test modes

Numbers	Check Point	Display Status	Remark
0	Turns on all light and locks the door.	PGM Version Information	
1	Tumble clockwise	rpm(42~50)	
2	Low speed spin	rpm (55~65)	
3	High speed spin	rpm (Max RPM)	
4	Inlet valve for prewash turns on.	Water level frequency	
5	Inlet valve for main wash turns on.	Water level frequency	
6	Inlet valve for hot water turns on.	Water level frequency	For Hot&Cold Model
7	Inlet valve for atomizing turns on.	Water level frequency	
8	FilterClean valve turns on.	Water level frequency	
9	Tumble counterclockwise	rpm(42~50)	
10	Washing heater turns on .	Water temperature	
11	Circulate pump turns on.	Water level frequency	
12	Drain pump turns on.	Water level frequency	
13	Drying heater turns on .	Duct temperature	
14	Off	-	

7-3. HOW TO CHECK THE WATER LEVEL FREQUENCY

Touch the Spin and Intensive button simultaneously.
Keeping touch, the digits indicate the water level frequency.



7-4. ERROR DISPLAY

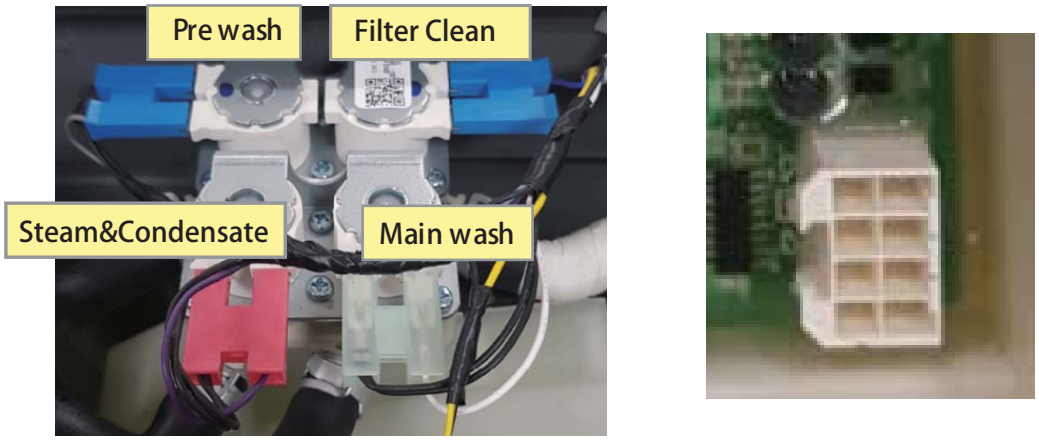
- If you press the Start/Pause button in error condition, any error except 『PE』 will disappear and the machine will change into the pause status.
- In case of 『PE』, 『tE』, if the error is not resolved within 20 sec., and in case of all other errors, if the error is not resolved within 4 min., the power will turn off automatically and the error only will blink. But in the case of 『FE』, the power will not turn off.

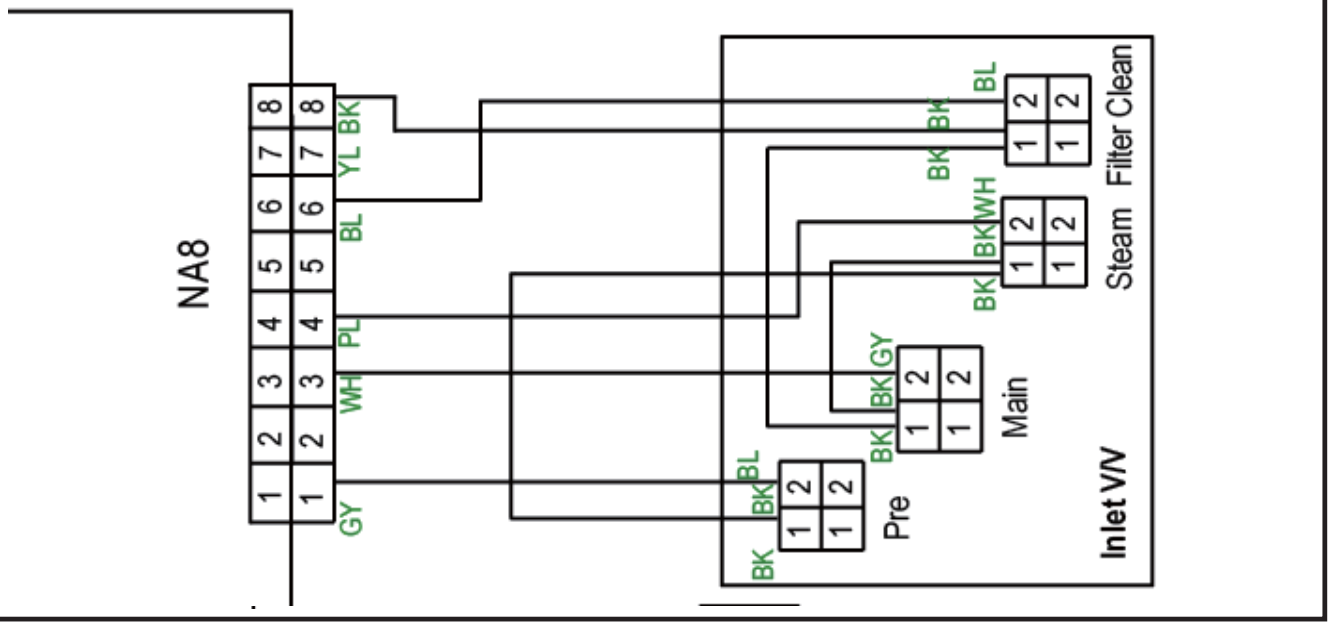
	ERROR	SYMPTOM	CAUSE
1	WATER INLET ERROR		☒Not reached the water level(248) within 10 minutes after water supplied or not reached to the preset water level within 25 minutes. ☞ Page 24
2	WATER OUTLET ERROR		☒Not fully drained within 10 minutes. ☞ Page 26
3	OVERFLOW ERROR		☒Water is overflowing (under 21.3kHz). ※ If " FE " is displayed, the drain pump operates to drain the water automatically. ☞ Page 28
4	PRESSURE SENSOR S/W ERROR		☒The pressure sensor switch is out of order. ☞ Page 29
5	DOOR OPEN ERROR		☒In case of operating the reservation function or the other function with door opened. Close the door, then the error display is resolved. ☒The door switch is out of order. ☞ Page 31 ☒Door sensor has malfunctioned.
6	UNBALANCE ERROR		☒The appliance is tilted. ☒Laundry is gatherd to one side. ☞ Page 25
7	THERMISTOR(HEATING) ERROR		☒The THERMISTOR is out of order. ☞ Page 33

	ERROR	SYMPTOM	CAUSE
8	MOTOR LOCKED ERROR		☒The connector in the LEAD WIRE ASSEMBLY is not connected to the connector of STATOR ASSEMBLY. ☞Reconnect or repair the connector. ☞ Page 36
9	POWER FAILURE		☒The washer experienced a power failure ☞ Press the start/pause button
10	FROZEN FAILURE		Supply warm water into the drum and unfreeze drain hose and drain pump. Wet a towel in warm and apply to supply hose.
11	VIBRATION SENSOR ERROR		☒Malfunction of vibration sensor
12	DRY HEATER E RROR		☒ The Dry Heater is out of orde ☒ The Connector of the Dry Heater is not connecte properly to the connector in the Main PWB ASSEMBLY ☒ The Dry fan motor is out of orde
13	WATER LEAKAGE		☒ Water leaks ☒ Call for service
14	Main PCB IPM ERROR		☒ The current calibration value of Main PCB IPM is not within the normal range . ☒ The resistance of the Main PCB IPM has been damaged.
15	Main PCB IPM ERROR		☒The voltage calibration value of Main PCB IPM is not within the normal range . ☒ The resistance of the Main PCB IPM has been damaged.

7-5. TROUBLESHOOTING WITH ERROR

Symptom	Check Point
1.INLET VALVE ERROR	1.Check Electric Wiring. 2.Check Inlet valve' s Resistance. 3.Check Inlet valve clogged. 4.Voltage of the inlet valve' s connector. - LQC mode : Valve running with 13.6V ± 10% - In normal cycle : Valve running with 7V±10% Need to check 2s later from valve start to running





Water Inlet Error (IE)

[Note] Environmental safety check list

1. No water tap leakage or freeze
2. No water shortage.
3. The inlet filter is not cloggeed.
4. No entanglement of water supply hose.
5. No water supply hose leakage

Is the water tap closed ?

YES → Check the Water tap and open it fully.

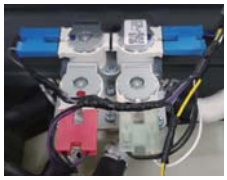
NO

When there is water in the tub, is the water level frequency over 26.0khz ?

YES → Check the Air Chamber and the Tube (clogged)
Check the water level frequency again,
if it is over 26.2KHz, replace the Pressure switch.

NO

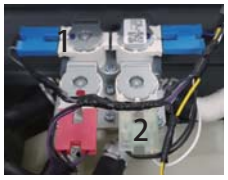
Is the Connector connected correctly to the Main PCB and the Inlet Valve ? is the Harness alright ?



NO → Reconnect or repair the Connector .
Or replace the Harness .

YES

Is the resistance of each Inlet valve within 20~30 Ω ?



1 Pre Valve
2 Main Valve

NO → Replace the Inlet Valve .

YES

When the washing machine is started, is the inlet valve operating?

NO → Replace the Main PCB .

Unbalanced Error (UE)

Does the load lean toward **one side**, or is the load a **few items**?

YES →

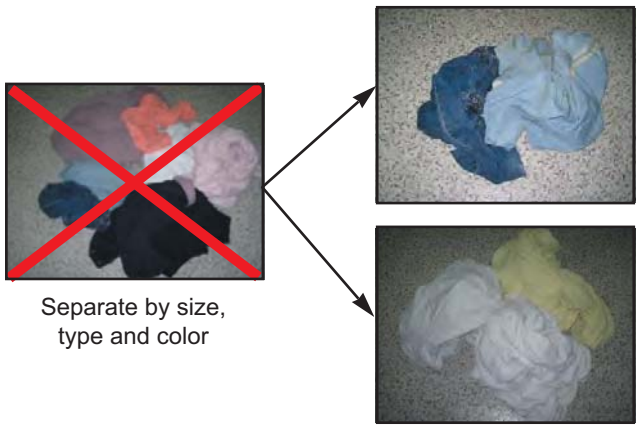
The few items of clothing will clump together
and their weight will be in one place on the drum,
throwing the weight off during spin mode.
So add some laundry to overcome UE error.
And rearrange load to allow proper spinning.

NO ↓

Is the laundry **mixed**?

YES →

Try **rearranging** the laundry in drum
Or the laundry is **separated** by size, type, and color.



Separate by size,
type and color

NO ↓

Is the washing machine **installed** at an **angle**?

YES ↓

Adjust the height of washing machine to be kept **horizontally**. (☞Page 7)

Water Outlet Error (OE)

Is the drain hose kinked ?

YES

Check drain hose for kink and **straighten the Hose**.

Drain Hose

NO

Is the **Pump filter** clogged ?

YES

Check & Clean **Pump Filter**.

This kind of accumulation on the drain filter not only prevents proper drainage, but also will promote bacteria growth and cause odors.
This drain filter should be cleaned once a month.

NO

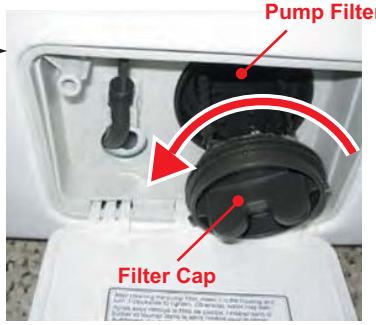
Next Page

* How to disassemble and clean pump filter

Open the Cover by coin or finger(only new model)

Drain water by removing the hose cap.

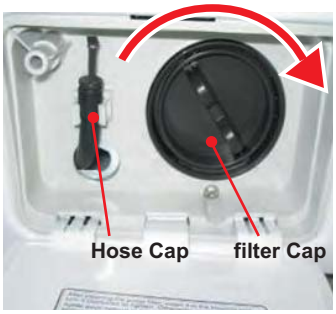
Disassemble the pump filter by turning the filter cap counterclockwise.



Clean the filter

Filter clogged by foreign objects

Assemble & close cap



Is the Standpipe Height greater than 1.0 m above the floor?

YES → Observe Standpipe Height requirements of 1.0m maximum.
- Your washer will not be able to drain out water adequately, if the standpipe exceeds 1.0 m. In this case, water may flow back into the washer.

NO

When there is no water in the pump casing, is the water level frequency over 26.0khz ?

NO → Check the Air Chamber and the Tube (clogged). Check the water level frequency again, if it is over 25.5KHz, replace the If it is clogged, Pressure switch.

YES

Is the Connector connected correctly to the Main PCB and the Pump Motor ? Or is the Harness alright ?

NO → Reconnect or repair the Connector . Or replace the Harness .

YES

Or is the Impeller operating normally?

Binding

YES → Replace the Pump Motor.

NO

Does the Pump motor start, when the spin mode starts?

NO → Replace the Main PCB .

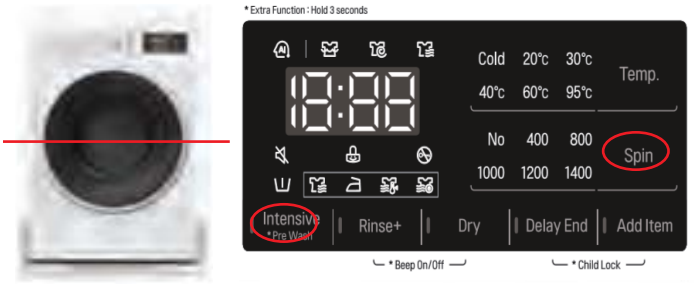
YES

If the drain hose blocked?

YES → Clean the drain hose.

FE (Overflow Error)

Power off for 10sec. Then power on.
Is the water level over reference line and is the water level f requency under 21.3kHz?



* Water level frequency
- Touch and Hold 'Spin' & 'Intensive' simultaneously.

NO

Is water continuously coming into the drawer?

YES

Replace the Inlet Valve assembly.

NO

Replace the Main PCB.

YES

Drain out the water and then check the Air Chamber and the Tube (clogged).

If FE is displayed again, then replace thePressure Switch .

If FE is displayed again, then replace theMain PCB .

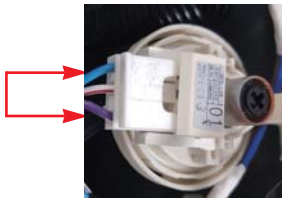
Pressure Sensor S/W Error (PE)

Is the Connector connected correctly to the Main PCB and the Pressure Switch ?
Is the Harness alright ?

NO → Reconnect or repair the Connector .
Or replace the Harness .

YES ↓

Is the resistance of the Pressure Switch out of range?
[Pin1 ~ Pin3]
→21~23Ω)



YES → Replace the Pressure Switch .

NO ↓

Is the air chamber and the tube clogged?

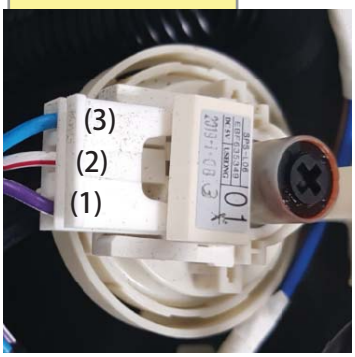
YES → Check air chamber and remove foreign material.

NO ↓

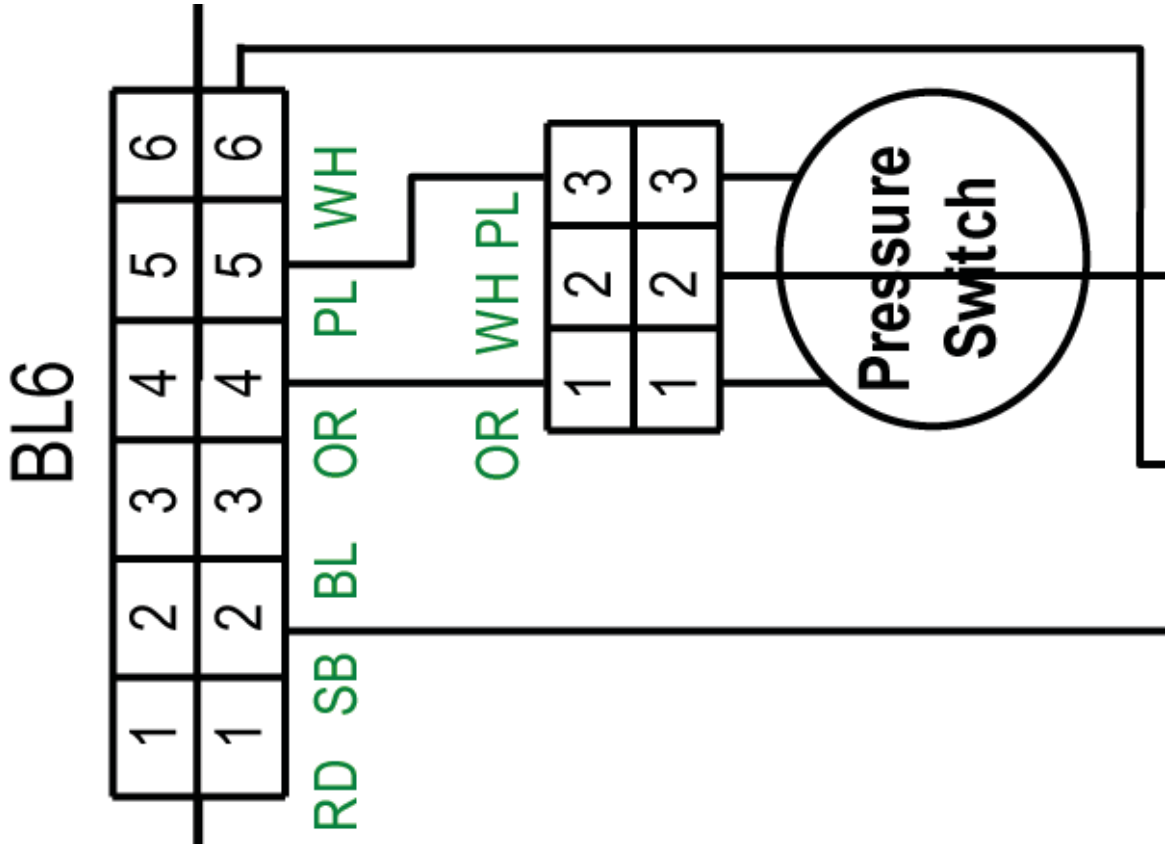
Replace the Main PCB .

Symptom	Check Point
1.PRESSURE SENSORERROR(PE)	1.Check Electric Wiring. 2.Check Pressure sensor′ s Resistance. 3.Check Air Chamber and Tubeclogged.

Pressure Sensor



Circuit in the MAIN PWB / Wiring Diagram



Door Open Error (dE2)

Is the door closed?

NO → Close the door fully.

YES ↓

Is the Door assembly in line with door switch ?

Scratch by Latch Hook

or

Touching

YES → Lift up & Close the door.
If the dE is displayed, Replace the **Door Bracket**.

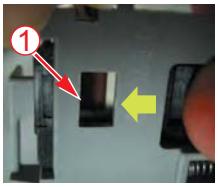
NO ↓

Does the **Spring** of **Latch Hook** actuate?

NO → Replace the **Spring**

YES ↓

Does the **Door Switch** operate as follows?



* Door Locking time : 1~8 sec.
Check the time between from input the power to parts move up, then Door locked.①

* Door Releasing time : 25~100 sec.
Check the time between from off the power to parts move down, then Door ① released.

NO → Replace the **Door switch**.

Door Switch Error (dE1)

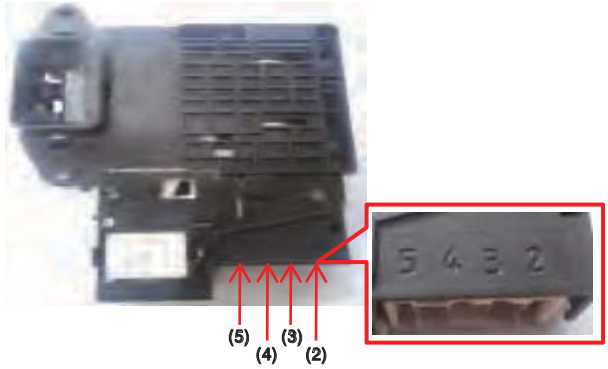
Is the **Connector** connected correctly to the **Main PCB** and the **Door Switch**?
Is the **Harness** alright ?

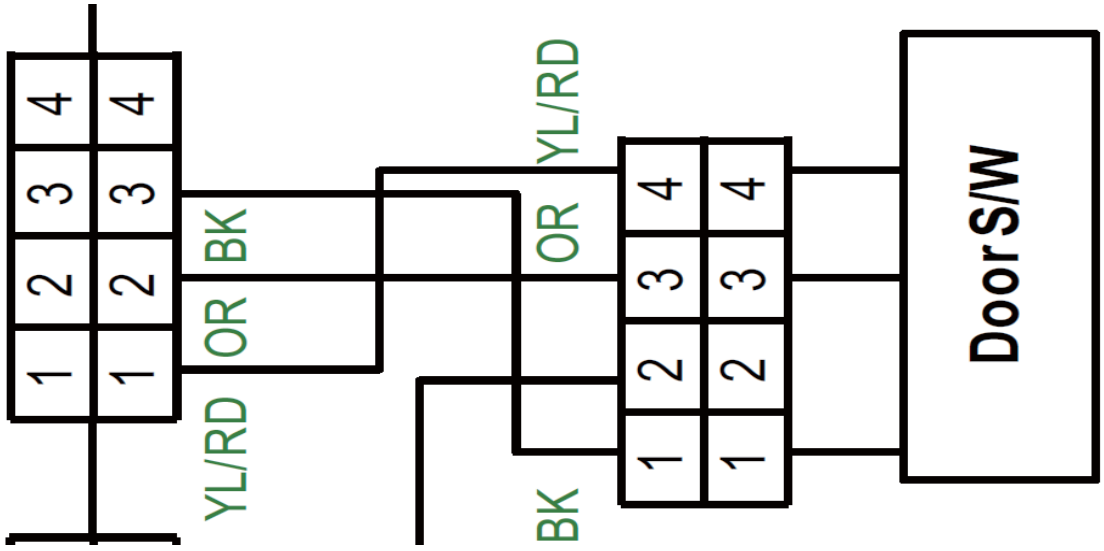
NO → Reconnect or repair the **Connector**.
Or replace the **Harness**.

YES ↓

Is there clicking sound once or twice when the START/PAUSE button is pressed to start the cycle? No➡Replace the MAIN PWB ASSEMBLY.

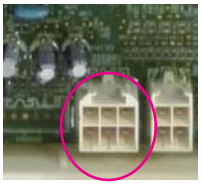
Symptom	Check Point
1. DOOR OPEN ERROR(dE)	1.Check Electric Wiring. 2.Check latch hook sping.(Cracked) 3.Check Door switch' s Resistance. 4.Check Voltage of Door switch' s connector.





Thermistor (Heating) Error (tE)

Is the Connector connected correctly to the Main PCB and the Thermistor and the Heater? Is the Harness alright ?


Heater for Washing

YES → Reconnect or repair the Connector . Or replace the Harness .

NO

Is the resistance of the Thermistor out of range44 ~ 53 K at 25° C? (Page 36)

YES → Replace the Thermistor .

NO

Is the resistance of the Heater out of range24.8 ~ 28.05 (for Washing) ? (Page 35)

YES → Replace the Heater.

NO

Replace the Main PCB .

[Note] Thermistor Spec

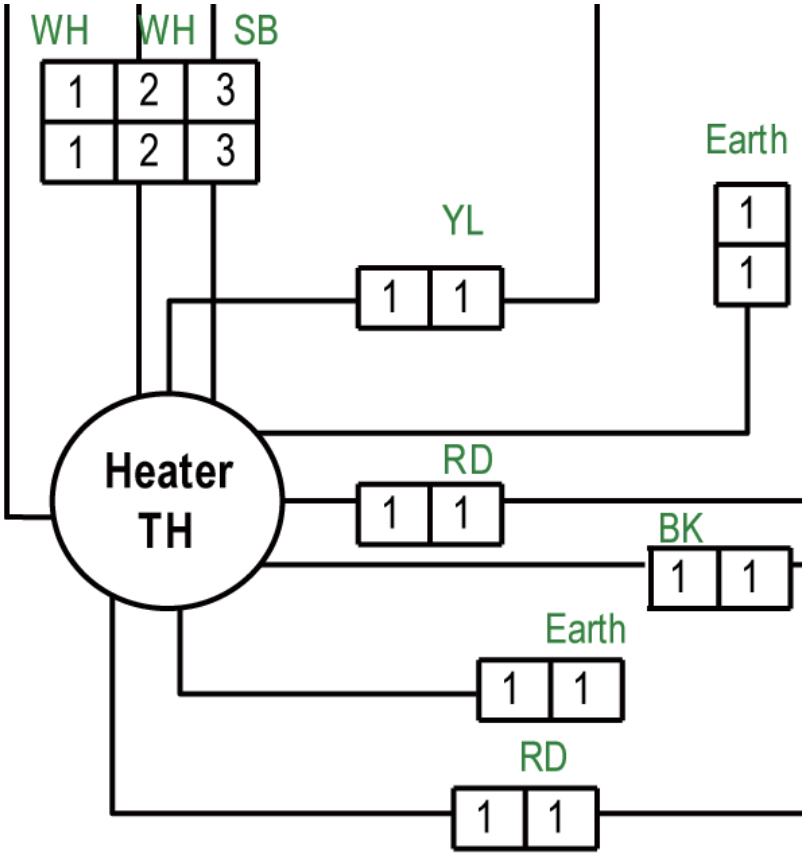
SPEC	Temp	Resistance (kΩ)		
		MIN	STD	MAX
	30 ° C	36.35	39.45	42.72
	40 ° C	24.20	26.05	27.97
	60 ° C	11.43	12.12	12.82
	70 ° C	8.088	8.514	8.940
	95 ° C	3.544	3.791	4.045

Symptom	Check Point
1.HEA TING ERROR(tE)	1.Check Electric Wiring. 2.Check Heater′ s Resistance. 3.Check Thermistor′ s Resistance. 4.Water Leaked into the Thermistor′ s Connector.

Wash Heater

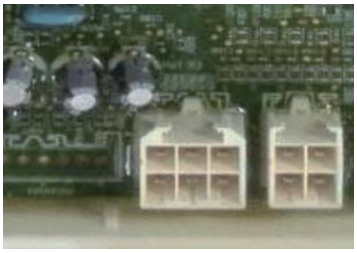
WH BK

Heater	Main PWB	Resistance [Ω]
Wash Heater (1) ~ (2)	BK 3 th ~ YL 3 th	24.8 ~ 28.05



Wash Thermistor

WH6



Thermistor	Main PWB	Resistance [kΩ]	Remarks °F (℃)
Wash Thermistor (1) ~ (2)	NA3 4th ~ NA3 5th	39.5	86(30)
		26.1	104(40)
		12.1	140(60)
		8.5	158(70)
		3.8	203(95)
		2.8	221(105)

Motor Locked Error (LE)

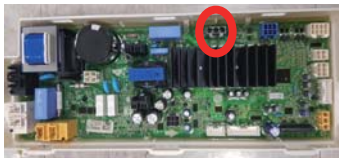
[Pre Check]

- Gentle wash cycles, such as Perm Press, Delicates, Hand Wash, and Wool/Silk should only be used for smaller loads. Because these cycles are more gentle in tumbling and spinning, putting too much in the drum can register an issue with the motor. Remove items, reset unit and test with a Rinse/Spin cycle.

Press the Power button &Start / Pause button.
Does the Drum stop when the start/pause button is pr essed to start the cycle ?
Or Sometimes does the Drum rotateweakly (under 15rpm)?

YES

Is the Connector connected correctly to the Main PCB and the Motor?
Is the Harness alright ?



NO → Reconnect or repair the Connector .
Or replace the Harness .

YES

Disassemble the Rotor.
Is the Magnet of rotorcracked or broken?

YES → Replace the Rotor.

NO

Is the resistance the same between Stator points?
※ V~U / U~W / W~V : 8~11Ω

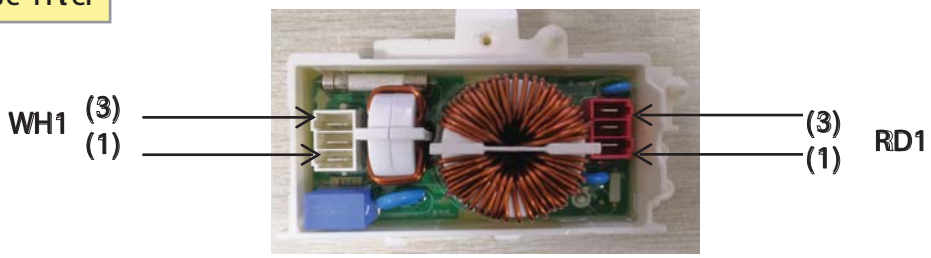
NO → Replace the Stator.

YES

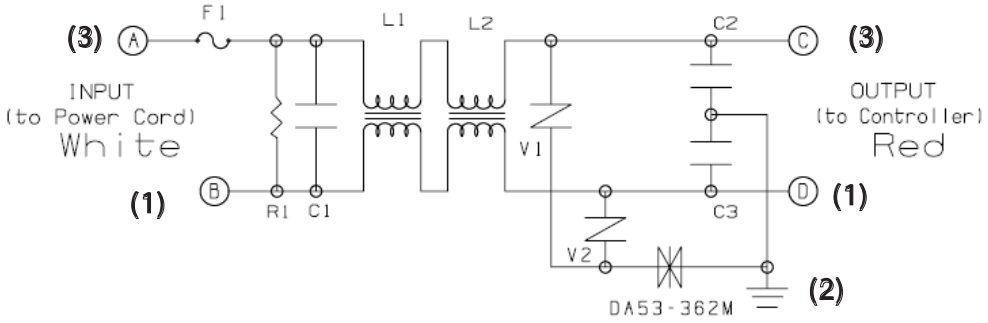
Replace the Main PCB .

Symptom	Check Point
1. NO POWER	1.Check Electric Wiring. 2.Check the Customer's outlet. 3.Check Noise Filter. 4.Check LED on in Main PWB

Noise Fiter



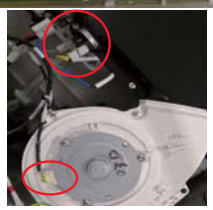
Circuit in the MAIN PWB / Wiring Diagram



Noise Filter	Resistance [Ω]
WH1 (1) ~ RD1 (3)	0
WH1 (3) ~ RD1 (1)	0

Dry Heater Error (dHE)

Is the Connector connected correctly to the Main PCB and the Dry Heater or Fan Motor? Or is the Harness alright?

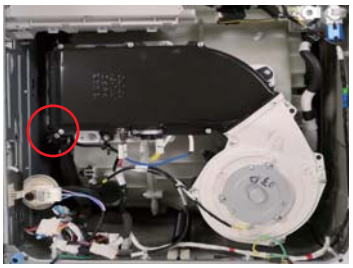


NO → Reconnect or repair the Connector . Or replace the Harness .

YES

Is the resistance of the Thermistor out of range 2.5 ~ 180KΩ at 105 ~ 0° C

NO → Replace the Thermistor .



YES

Check for Dry Heater trouble. ☞ Page 40

YES

Check for Dry Fan Motor trouble. ☞ Page 41

YES

Disassemble the Cabinet cover and Condensing Bellows. Is there any foreign object in Condensing Bellows ?

YES → Clean the Bellows .

NO

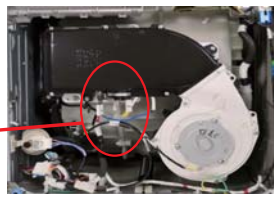
Disassemble the Dry Fan Assy and Dry Duct Upper, and clean foreign object in Duct and Fan.

[Note] Thermistor Spec

SPEC	Temp	Resistance (kΩ)		
		MIN	STD	MAX
	30 ° C	36.35	39.45	42.72
	40 ° C	24.20	26.05	27.97
	60 ° C	11.43	12.12	12.82
	70 ° C	8.088	8.514	8.940
	95 ° C	3.544	3.791	4.045

Dry Heater Trouble

After power off, is the resistance of Dry Heater out of range 31.464 ~ 34.776 Ω ?



NO → Replace the Dry Heater .

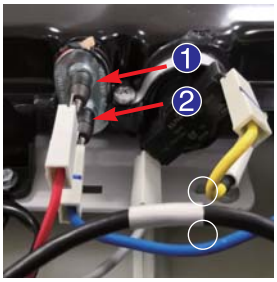
YES

Is Thermostat closed ?

NO → Replace the Thermostat.

YES

When checking voltage betweenconnectors(1,2) on drying, is the voltage AC 230V as the figure ?



NO → Replace the PWB assembly (main).

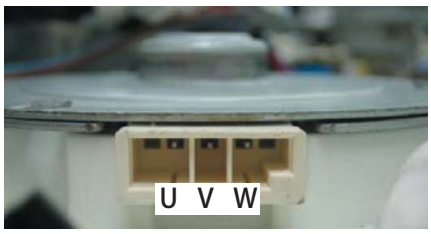
Dry Fan Motor Trouble

Is the Connector connected correctly to the Main PCB and the Dry Heater or Fan Motor ? Or is the Harness alright?

NO → Reconnect or repair the Connector . Or replace the Harness .

YES

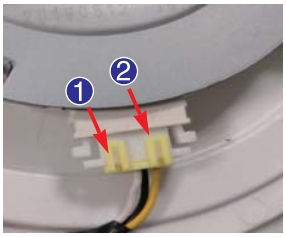
Are the resistance same between terminal points?
※V~U / U~W / W~V : 2~5Ω



NO → Replace the Dry Fan Motor .

YES

When checking voltage betweenconnectors(1,2) on drying, is the voltage DC 20~30V as the figure ?



NO → Replace the PWB assembly (main).

8. TROUBLESHOOTING WITHOUT ERROR CODES

PF (Power Failure or no power)

Is the Power Plug connected firmly to the power outlet? And is the supply voltage 220V~ AC?

NO → Reconnect Power Plug firmly. Check the fuse or reset the circuit breaker.

YES ↓

Is Multi-plug socket used ?

YES → Don't use Multi-plug socket. Use Single Plug socket for washing machine.

NO ↓

Is the Connector connected correctly to the Main PCB and the Noise Filter ? Is the Harness alright ?

Noise Filter

PCB

NO → Reconnect or repair the Connector . Or replace the Harness .

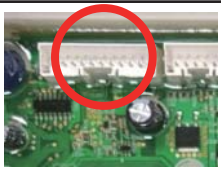
YES ↓

Is Red LED ON while power supplied ?

NO → Check and replace Main PCB .

YES ↓

Is the connectors connected Correctly to the Display PCB?

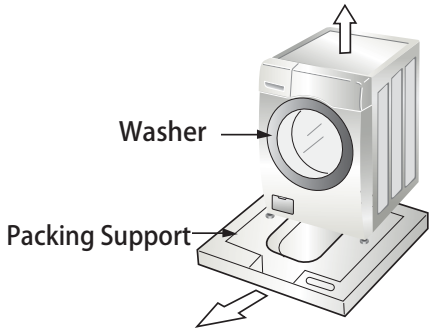


Main PCB

YES → Check connectors otherwise. Replace Display PCB .

Vibration & Noise During Spin

Have all the Transit Bolts been removed?



NO → Remove the Transit Bolts

YES

Refer to INSTALLATION . (Page 7)

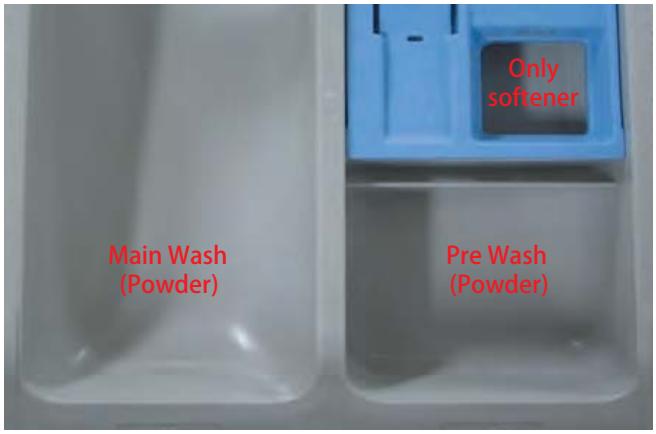
Detergent & Softener does not flow in

Is water supplied?

NO → Refer to [Water Inlet Error (IE)] ☞ (page 23)

YES

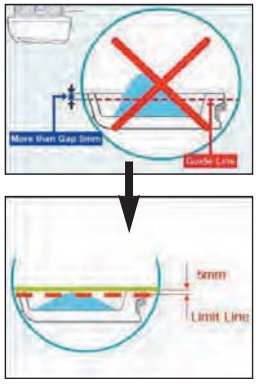
Is detergent & softener put in the correct compartment of the drawer?



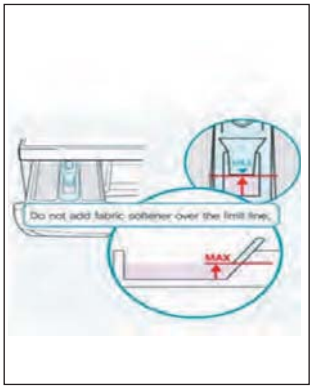
NO → Put it in the Correct Position .

※ Reference (Amount of Detergent & Softener)

Detergent



Softener



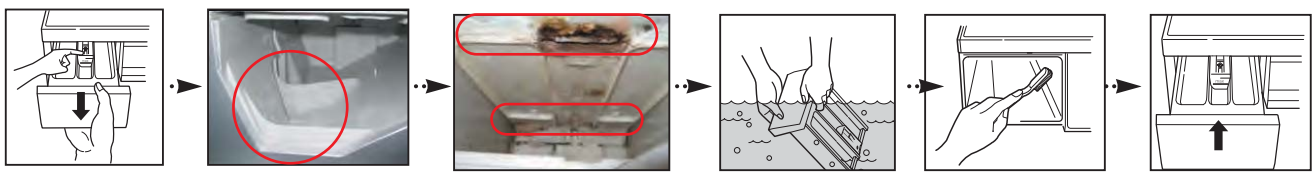
YES

Is the Detergent caked or hardened?

YES

Clean the drawer and dispenser.

※ Check point



Water Leak

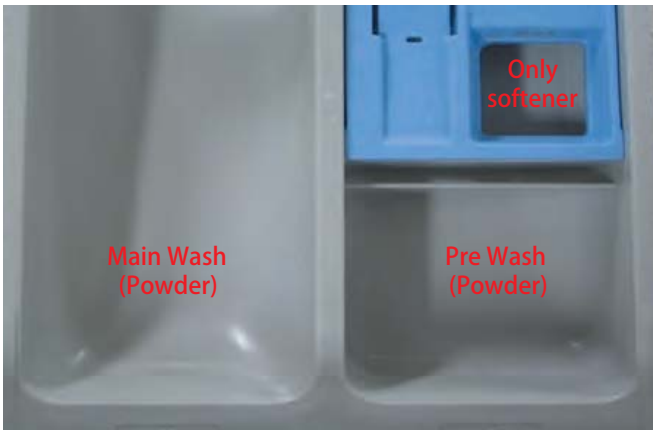
1. Water Leak from Dispenser

Is the Dispenser Tray Damaged or warped?

YES → Replace the Dispenser Tray .

NO

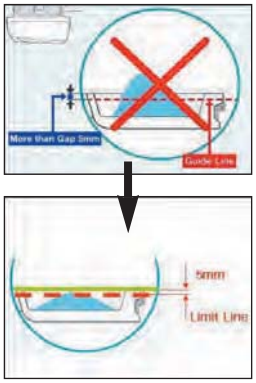
Is detergent & softener put in
the correct compartment of the drawer?



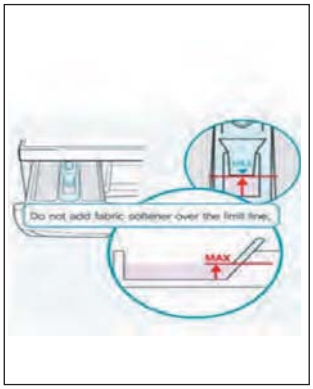
NO → Put it in theCorrect Position .

※ Reference (Amount of Detergent & Softener)

Detergent



Softener



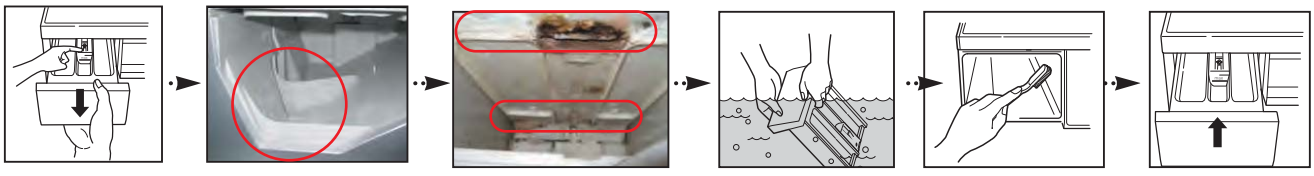
YES

Is the Detergent caked or hardened?

YES

Clean the drawer and dispenser.

※ Check point



2. Water Leak from Dispenser

Are the gasket (seal) and door cleaned regularly?

NO → Clean the periphery of Gasket and Door regularly.

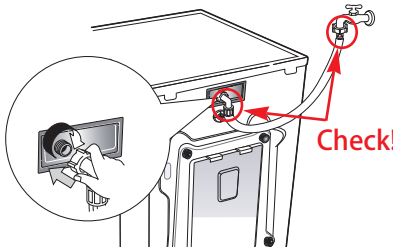
YES ↓

Is the door or gasket damaged?

YES → Replace the damaged parts.

3. Unknown – Water on Floor

Are the inlet hoses loose or cracked/split?



YES → Replace the Inlet Hoses .

NO ↓

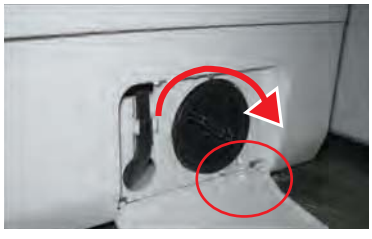
Is the washer horizontal ?

NO → Adjust the height of washing machine to be kept horizontally. (Page 7)

YES ↓

Are the drain filter and manual drain hose open?

NO → Turn the filter cap clockwise to close.



Using the Smart Diagnosis™ Function

Should you experience any problems with the appliance, it has the capability of transmitting data to a smart phone using the LG Smart ThinQ application or via the phone to the LG Customer Information Centre.

Smart Diagnosis™ can not be activated unless the appliance is turned on by pressing the **Power** button. If the appliance is unable to turn on, then troubleshooting must be done without using Smart Diagnosis™.

Smart Diagnosis™ Using a Smart Phone

1 Open the LG Smart ThinQ application on the smart phone.

2 Select the appliance and then the menu on upper right side.

3 Select the **Smart Diagnosis**, then press **Start Smart Diagnosis** button.

NOTE

- If the diagnosis fails several times, use the following instructions.

4 Select the **Try Again** or **Audible Diagnosis**.

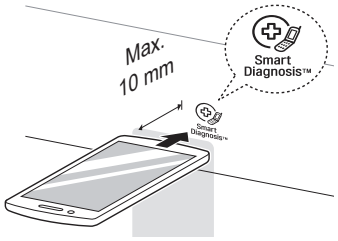
5 Follow the instructions on the smart phone.

6 Keep the phone in place until the tone transmission has finished. View the diagnosis on the phone.

Smart Diagnosis™ Through the Customer Information Centre

1 Press the **Power** button to turn on the washing machine. Do not press any other buttons or turn the programme knob.

2 When instructed to do so by the call center, place the mouthpiece of your phone close to the Power button.



3 Press and hold the **Temp.** button for 3 seconds, while holding the phone mouthpiece to the icon or Power button.

4 Keep the phone in place until the tone transmission has finished. Time remaining for data transfer is displayed.

- For best results, do not move the phone while the tones are being transmitted.
- If the call centre agent is not able to get an accurate recording of the data, you may be asked to try again.

5 Once the countdown is over and the tones have stopped, resume your conversation with the call centre agent, who will then be able to assist you using the information transmitted for analysis.

NOTE

- The Smart Diagnosis™ function depends on the local call quality.
- The communication performance will improve and you can receive better service if you use the home phone.
- If the Smart Diagnosis™ data transfer is poor due to poor call quality, you may not receive the best Smart Diagnosis™ service.

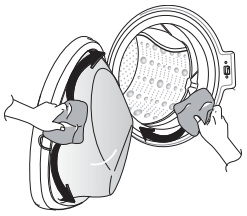
⚠ WARNING

- Unplug the washing machine before cleaning to avoid the risk of electric shock. Failure to follow this warning may result in serious injury, fire, electric shock, or death.
- Never use harsh chemicals, abrasive cleaners, or solvents to clean the washing machine. They may damage the finish.

Cleaning Your Washing Machine

Care After Wash

- After the cycle is finished, wipe the door and the inside of the door seal to remove any moisture.
- Leave the door open to dry the drum interior.
- Wipe the body of the washing machine with a dry cloth to remove any moisture.



Cleaning the Exterior

Proper care of your washing machine can extend its life.

Door:

- Wash with a damp cloth on the outside and inside and then dry with a soft cloth.

Exterior:

- Immediately wipe off any spills.
- Wipe with a damp cloth.
- Do not press the surface or the display with sharp objects.

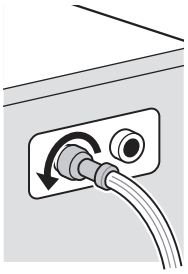
Cleaning the Interior

- Use a towel or soft cloth to wipe around the washing machine door opening and door glass.
- Always remove items from the washing machine as soon as the cycle is complete. Leaving damp items in the washing machine can cause wrinkling, colour transfer, and odour.
- Run the Tub Clean programme once a month (or more often if needed) to remove detergent buildup and other residue

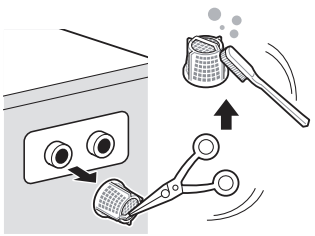
Cleaning the Water Inlet Filter

- Turn off the supply taps to the machine if the washing machine is to be left for any length of time (e.g. holiday), especially if there is no floor drain (gully) in the immediate vicinity.
- IE icon will be displayed on the control panel when water is not entering the detergent drawer.
- If water is very hard or contains traces of lime deposit, the water inlet filter may become clogged. It is therefore a good idea to clean it occasionally.

1 Turn off the water tap and unscrew the water supply hose.



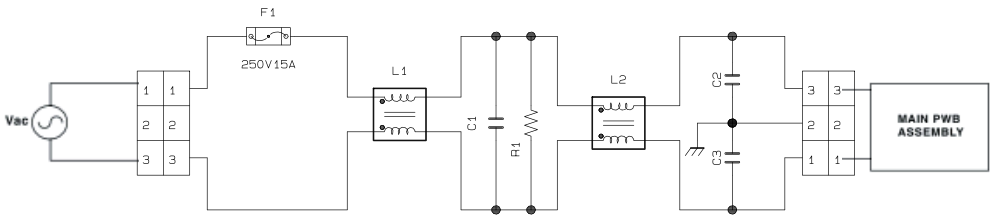
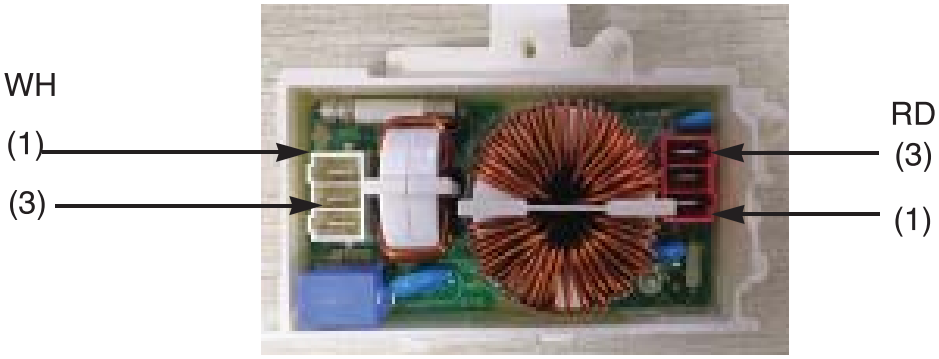
2 Clean the filter using a hard bristle brush.



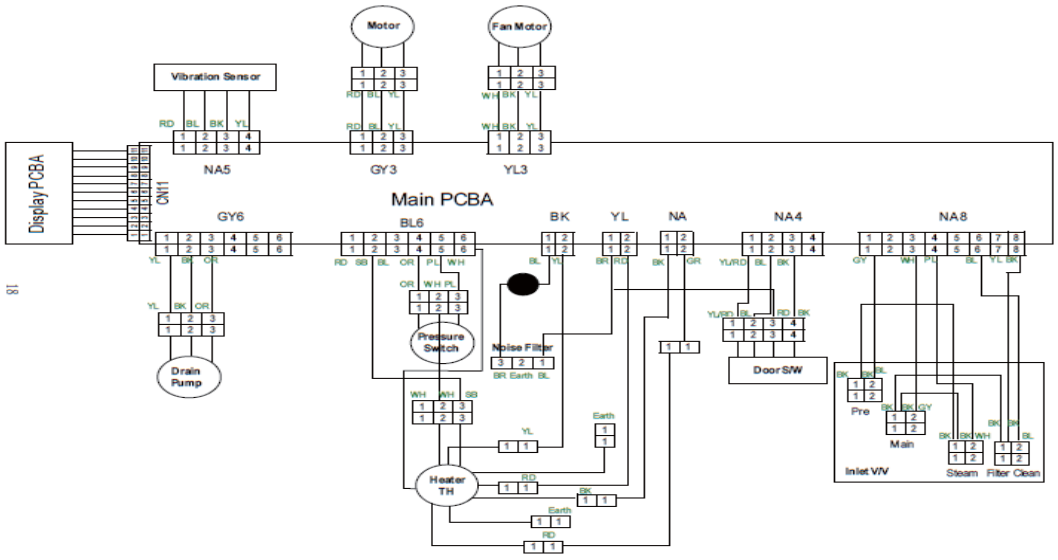
9. Part inspection

⚠ WARNING When Resistance (Ohm) checking the Component, be sure to turn the power off, and do voltage discharge sufficiently.

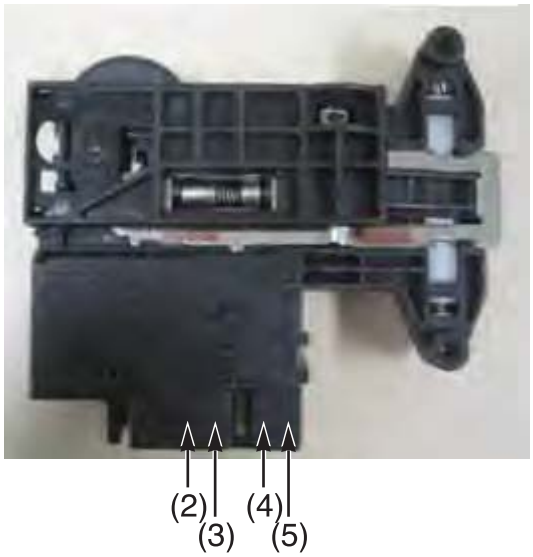
9-1. FILTER ASSEMBLY (LINE FILTER)

Wiring diagram	**Circuit in the MAIN PWB / Wiring Diagram** 
Test points and Result	 Test Points / Result WH (1) to RD (3) — 0 Ω WH (3) to RD (1) — 0 Ω

9-2. DOOR LOCK SWITCH ASSEMBLY

Wiring diagram	**Circuit in the MAIN PWB / Wiring Diagram** 
Function	The Door Lock Switch Assembly consists of a Heating PTC, a Bimetal, a Protection PTC, and a Solenoid. It locks the door during a wash cycle. 1. Operation for door closing - After the system turns on, PTC heating starts up through terminal 2~4's authorizing the power on. - After PTC heating starts up and before solenoid operation is driven, force the system to the off position through CAM. ⇒ Door close - Authorizing one impulse through terminal 3~4 (PTC & solenoid) will make the door lock. - Door lock is detected when switches in terminal 4~5 are set closed. ⇒ CAM rotation will forcibly clear off the connection. The maximum, allowable number of impulse authorizations is 2. ⇒ Upon the third authorization of the impulse, the position of CAM goes back to the door-open position. - Authorizing the impulse occurs in 4.5 seconds upon input for max performance and two authorization processes are allowed at most. ⇒ Normal operation period of PTC heating: 1.5 – 5 seconds. (Defects from the development process.) 2. Operation for door opening - With a temporary stop, door automatically opens by CAM rotations after authorizing the impulse from the terminal 3 ~ 4 and the power turns off – maximum of 3 times of the authorizing period. - Upon the fourth authorization of the impulse, the position of CAM goes back to the door-close position.

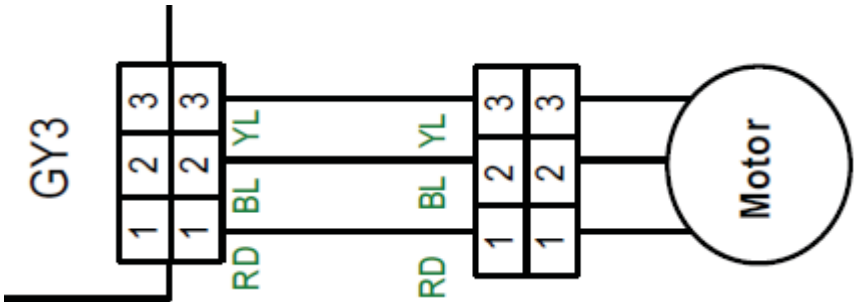
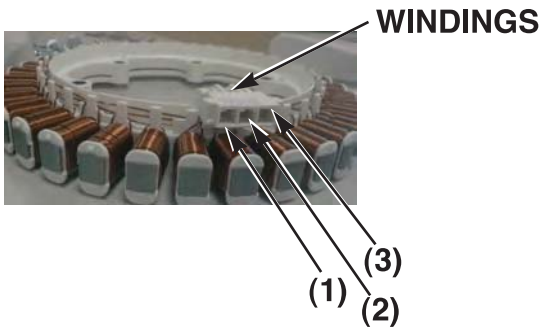
Test points



Result

Test Points	Result	Remarks
(2) to (4)	700-1500 Ω	At 77°F (25°C)
(3) to (4)	60-90 Ω	At 77°F (25°C)
(4) to (5)	Infinity	
(2) to (4)	220 Vac	Voltage Input

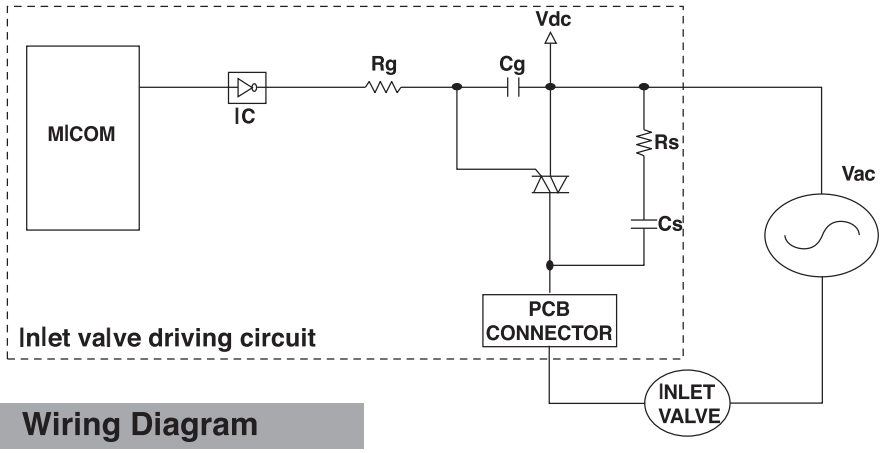
9-3. STATOR ASSEMBLY

<table>
<tr><td>Wiring diagram</td><td>Circuit in the MAIN PWB / Wiring Diagram
 
</td></tr>
<tr><td>Function</td><td>The DD motor can be driven from stopped to maximum speed in infinite steps in either direction.
There are 36 poles on the stator; 12 permanent magnets spaced around the rotor. There are no brushes to wear out. Unlike a more traditional brushless motor, the rotor surrounds the stator rather than being attached to it.</td></tr>
<tr><td>Test points (Windings)</td><td> 
</td></tr>
<tr><td>Result (Windings)</td><td><table>
<tr><th>Test Points</th><th>Result</th></tr>
<tr><td>(1) to (2)</td><td>5-15 Ω</td></tr>
<tr><td>(2) to (3)</td><td>5-15 Ω</td></tr>
<tr><td>(3) to (1)</td><td>5-15 Ω</td></tr>
</table></td></tr>
</table>

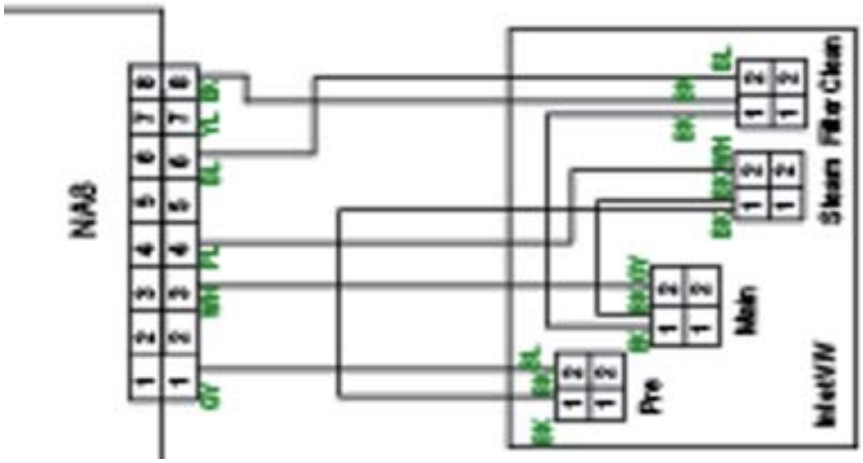
9-5. INLET VALVE ASSEMBLY

Wiring diagram

Circuit in the MAIN PWB



Wiring Diagram



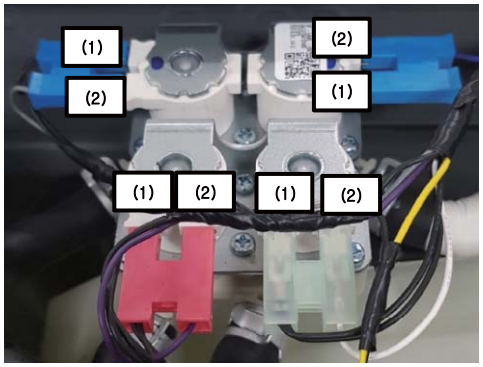
* All load circuits in wiring diagram are all the same.

Function

Depending on the cycle and water temperature, the controller will energize the hot or cold water valve solenoids to meet the selected water temperature.

Test points and Result

After pull out the connector of defective valve, check the resistance.



Test points	(1)-(2)
Result	20~30 Ω

10. DISASSEMBLY INSTRUCTIONS

* Remove the power cord from the outlet before disassembling or repairing the unit.

CONTROL PANEL ASSEMBLY

Screws

① Unfasten the screws from the parts displayed in the fig.

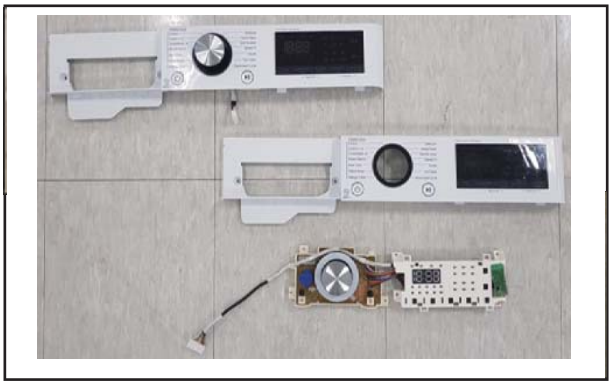
② Disassemble the top plate assembly by sliding it back and then lifting it up.

③ Pull the drawer panel assembly out.

④ Unfasten the screws from the parts displayed in the fig.

⑤ Unfasten the screws from the parts displayed in the fig.

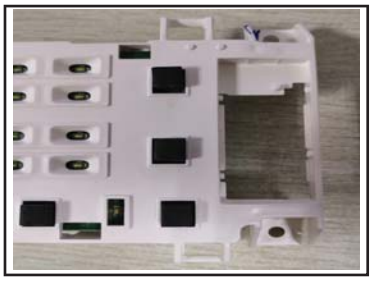
⑥ Disconnect the wiring connectors between the multi harness and the control panel assembly.



⑦ Disassemble the control panel assembly.

⑧ Disassemble the display PCB assembly from the control panel assembly by unfastening the screws.

*When re-assemble should fasten by screw (4EA)



⑨

⑩ Disconnect the wiring connector between the Display PCB assembly and the NFC PCB assembly.

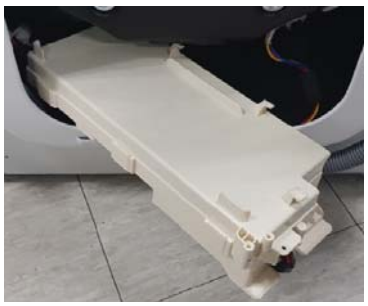
PWB ASSEMBLY(MAIN)

① Unscrew four screws.

② Disassembly back cover assembly.

③ Unscrew the screw.

④ Pull the PWB assembly in direction of red arrow.



⑤ Disassembly PWB like the picture.

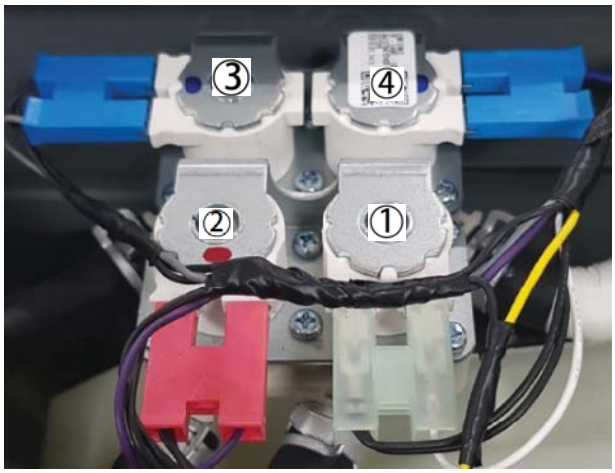
DISPENSER ASSEMBLY

① The plate assembly(Top) are disassembled.
② Pull the drawer to arrow direction.
③ Two screws are unscrewed.

④ Clamp

⑤ Cutting cable ties and the ventillation hose are disassembly on the dispenser

INLET VALVE



① Disconnect the wiring connector.

② Remove the valve by two screws of the valve holder.

※ When reconnecting the connector

VALVE ① (Main Wash)	White/Black
VALVE ② (Steam)	Purple/Black
VALVE③(Pre Wash)	Gray/Black
VALVE ④ (Filter Clean)	Blue/Black

- Rating : 12V
- Resistant : 20~30 Ω

DOOR

① Open the door completely.

② Remove the three screws from the hinge.

※ When removing the Door Assembly, it is necessary to hold the Bracket that is inner of the Cabinet Cover.

Removing method of remained water

Pull it out from hose.

※ First, prepare a bucket to put in the remained water.

CAP(REMAING HOSE)

CABINET COVER

① The plate assembly(Top) is disassembled.

② Pull out the drawer and unscrew 2 screws.

③ Lift the side the Control Panel Assembly and pull it out

① Two screws are unscrewed.

② Push out PANEL ASSEMBY, CONTROL after Push the hook(①, ②) below.

③ Unscrew the screws from the lower cover.

② Disassembly cap cover and pump case.

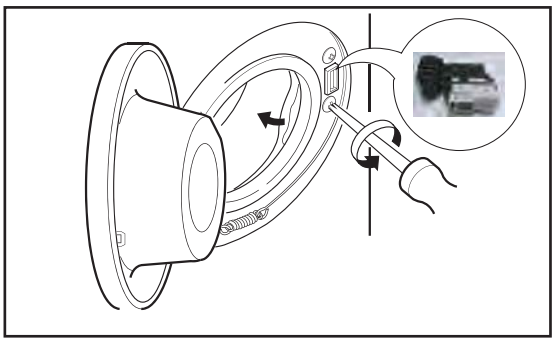
③ Unscrew the screw from the CABINET COVER.

④ Remove gasket clamp and release gasket from cabinet cover.

④ Lift and separate the cabinet cover.

※ NOTE : When assembling the CABINET COVER, connect the Door S/W connector.

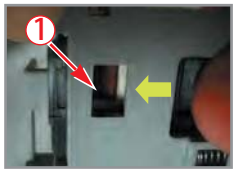
SWITCH ASSY, DOOR LOCK



① Two screws are unscrewed and disassembly cabinet cover.

② The Door Lock S/W is disconnected form the wiring connector and the strap.

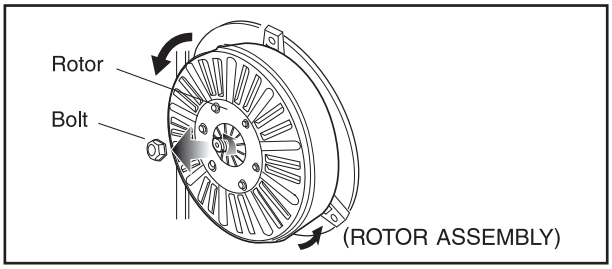
- Just check cut-off.
- Check the operating time.



* Door Locking time : 1~8 sec.
Check the time between from input the power to part① move up, then Door locked.

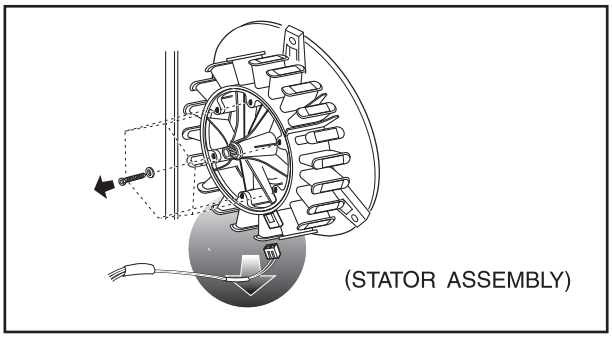
* Door Releasing time : 25~100 sec.
Check the time between from off the power to parts①
move down, then Door released.

ROTOR ASSEMBLY, STATOR ASSEMBLY, FRICTION DAMPER



① Remove the back cover.

② After loosening the bolt, Rotor, pull out the rotor.

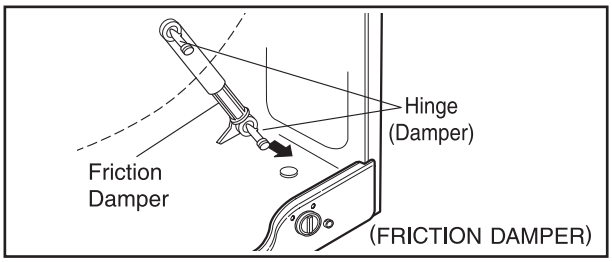


① Remove the 6 bolts from the stator.

② Disconnect the 2 connectors.

Motor Stator

V ~ U (8~11)
U ~ W (8~11)
W ~ V (8~11)



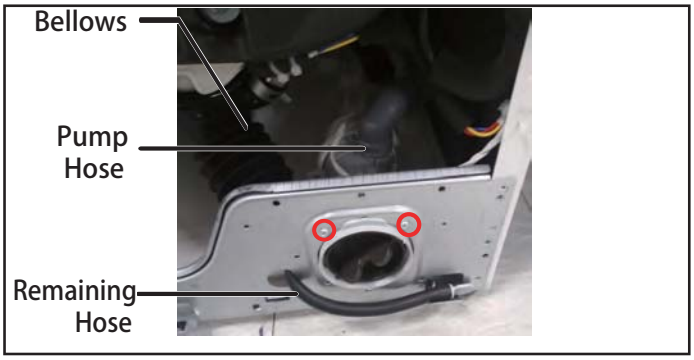
① Remove the hinges (Damper) at the Tub.

② The Hinge(Damper) at the base is pulled off by pressing on the snaps at the sharp end.

③ The hinge at the base is pulled off.
(In directions of the arrow)

PUMP

① Disassembly Top Plate, Control Panel, Drawer Panel Assembly, Cabinet Cover Assembly, Lower Cover Assembly



④ Remove pump outlet hose.

⑤ Remove tub pump bellows.

⑥ Remove cap(Remaining Hose).

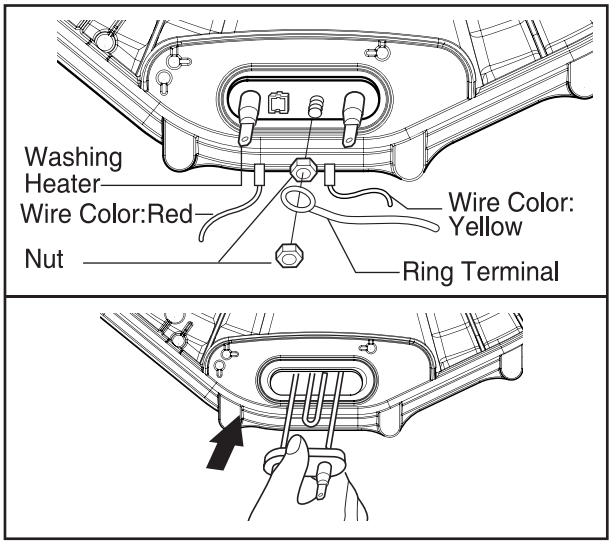
⑦ Disconnect the wiring.

⑧ Three screws are unscrewed from the cabinet.

⑨ Remove the pump to arrow direction.

- Rating : 26V
- Resistant : 3.46~3.98 Ω

HEATER



① Loosen the nut.

② Remove washing heater by pulling out.

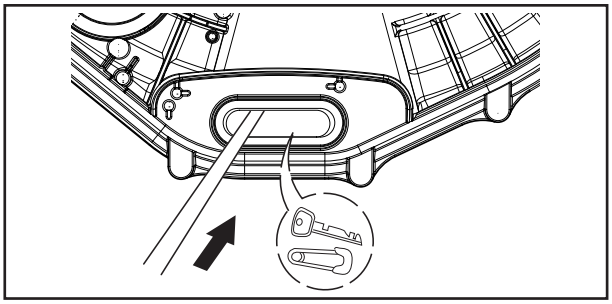
< Heater for Washing>

- Rating : 230V 2000W
- Resistant : 24.8~28.05Ω

CAUTION

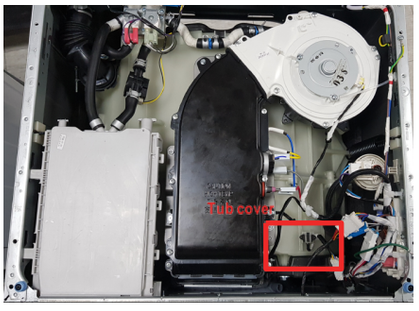
When assembling the washing heater, insert the heater to heater clip on the bottom of tub and check the position of wire color.

WHEN FOREIGN OBJECT STUCK BETWEEN DRUM AND TUB



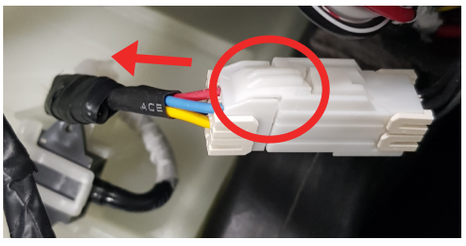
① Remove washing heater.
② Remove the foreign object(wire,coin,etc) by inserting long bar in the hole.

How to disassemble Vibration sensor (Only for Vivace 550 model)

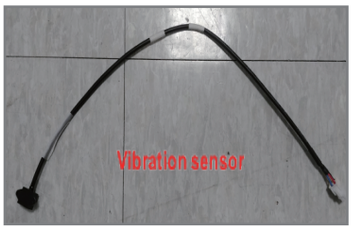


① Open the top plate by removing 2ea screws.

②Cut cable ties from tub cover.

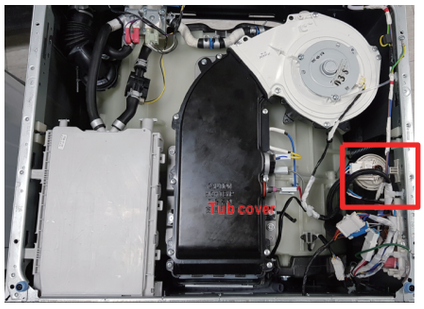


③ Remove the vibration sensor housing from the Harness

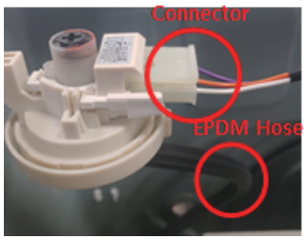


④ Remove the vibration sensor from tub cover.

How to disassemble Pressure sensor(for Vivace 460, 550 model)

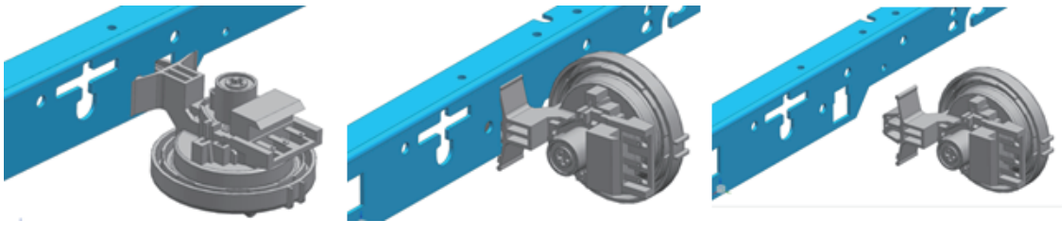


① Open the top plate by removing 2ea screws.

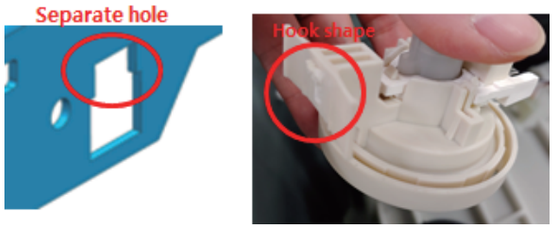


② Remove the EPDM hose and connector from the pressure sensor.

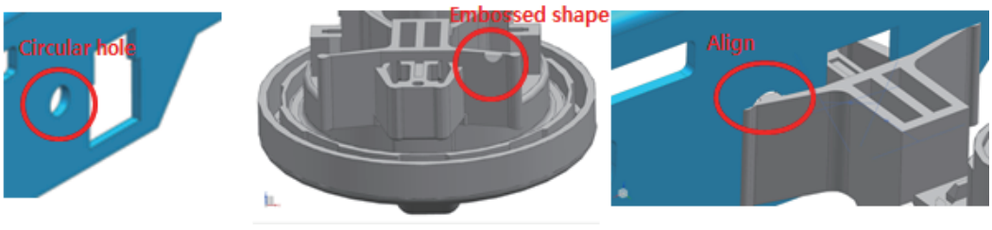
③ Turn the pressure sensor 90 degrees counterclockwise. And remove it



※If there is no separate hole, the hook shape of pressure sensor should be broken and separated.(Replace with new one)

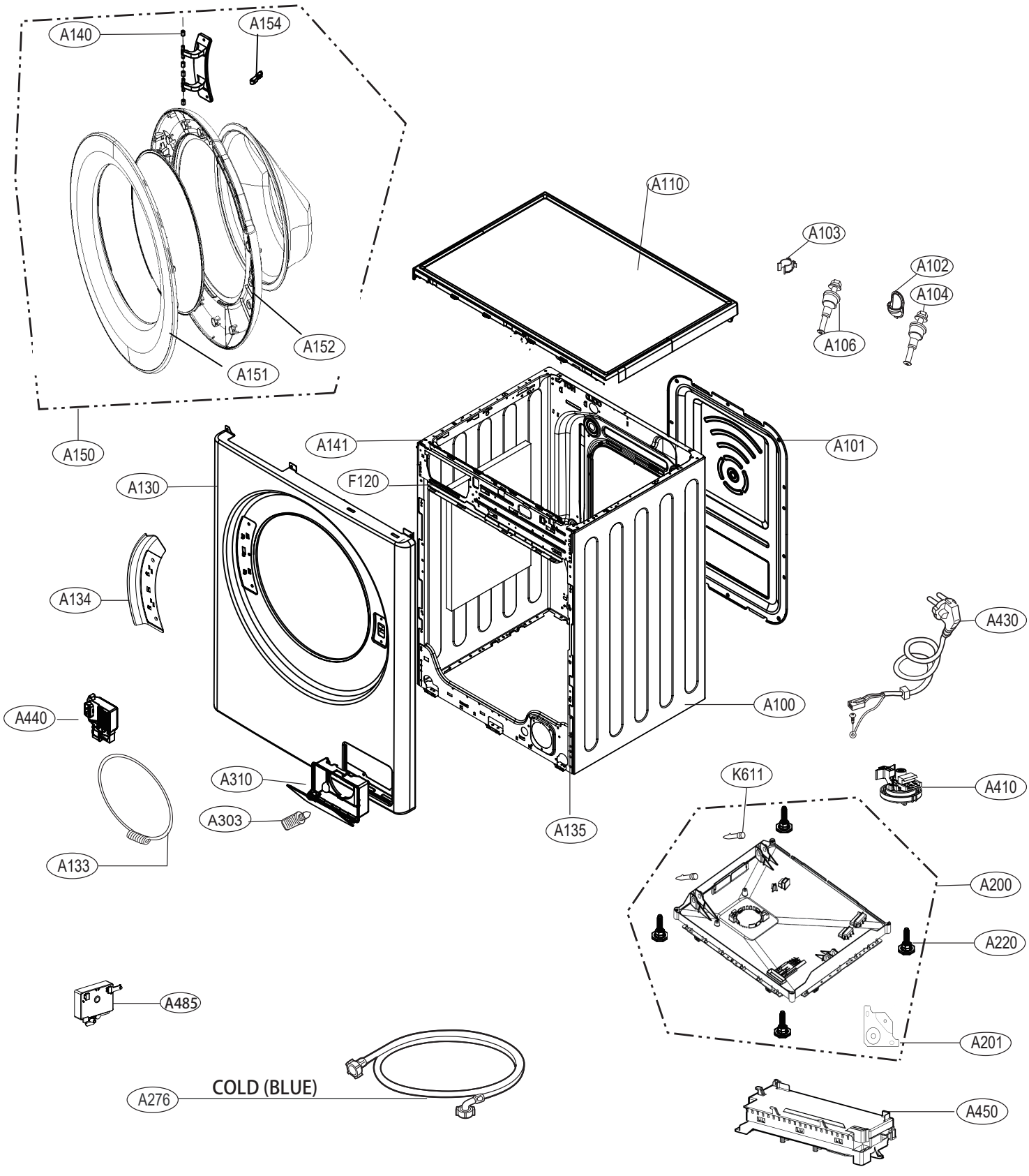


※When assembling, the embossed shape of the hook should be aligned in the circular hole.(For horizontal fixing)

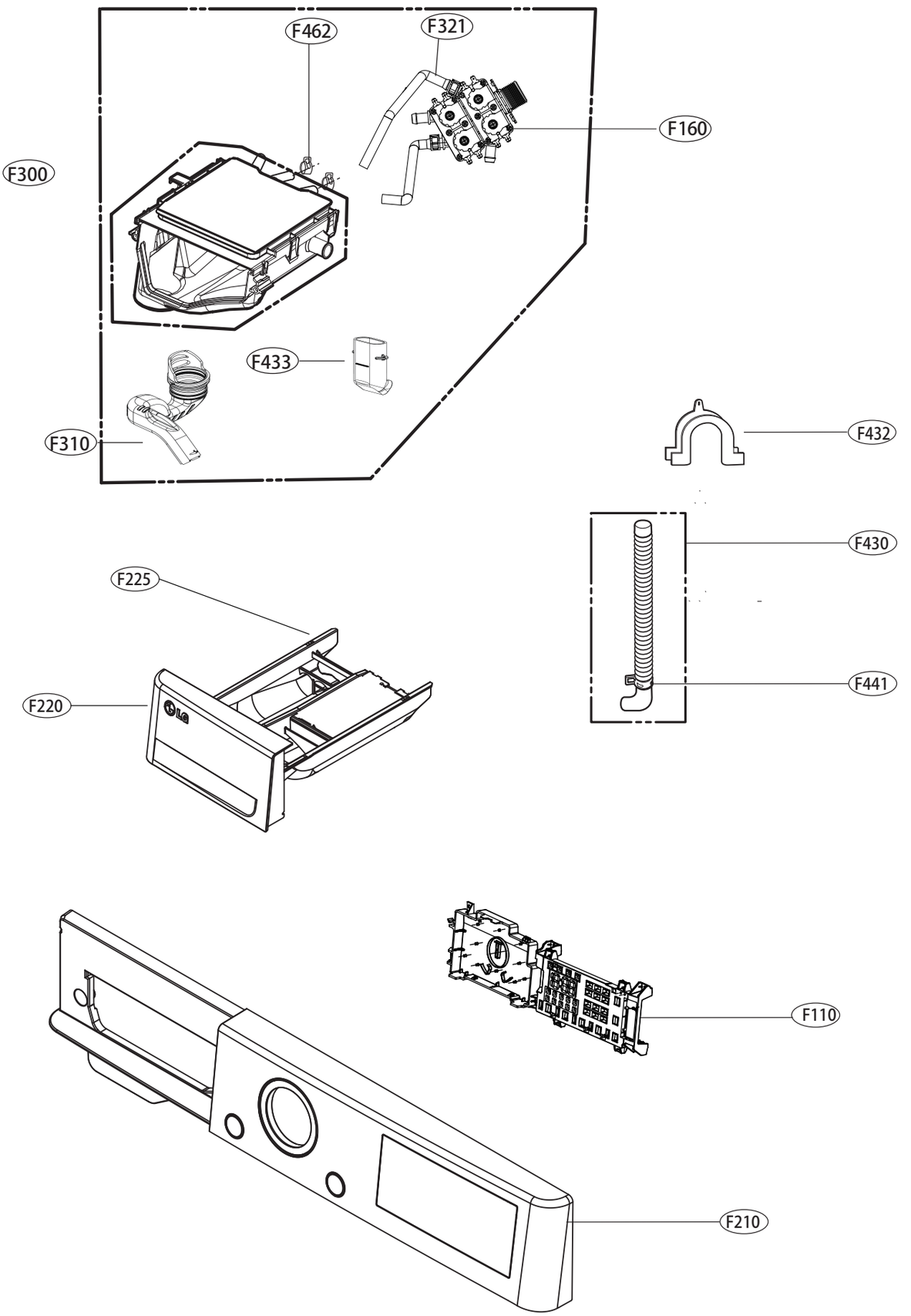


EXPLODED VIEW AND PART LIST

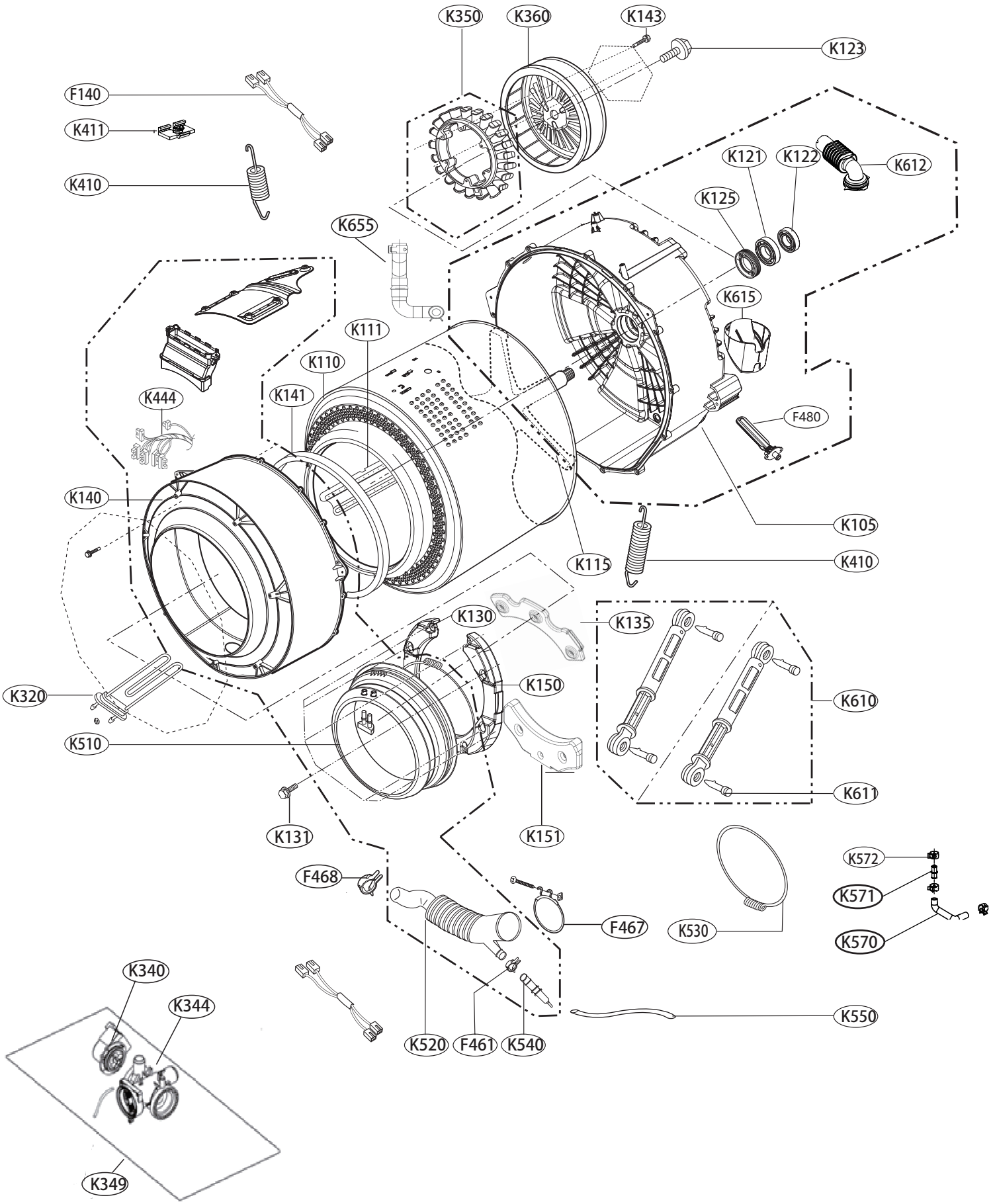
THE PART L IST OF CAB INET ASS EMBLY



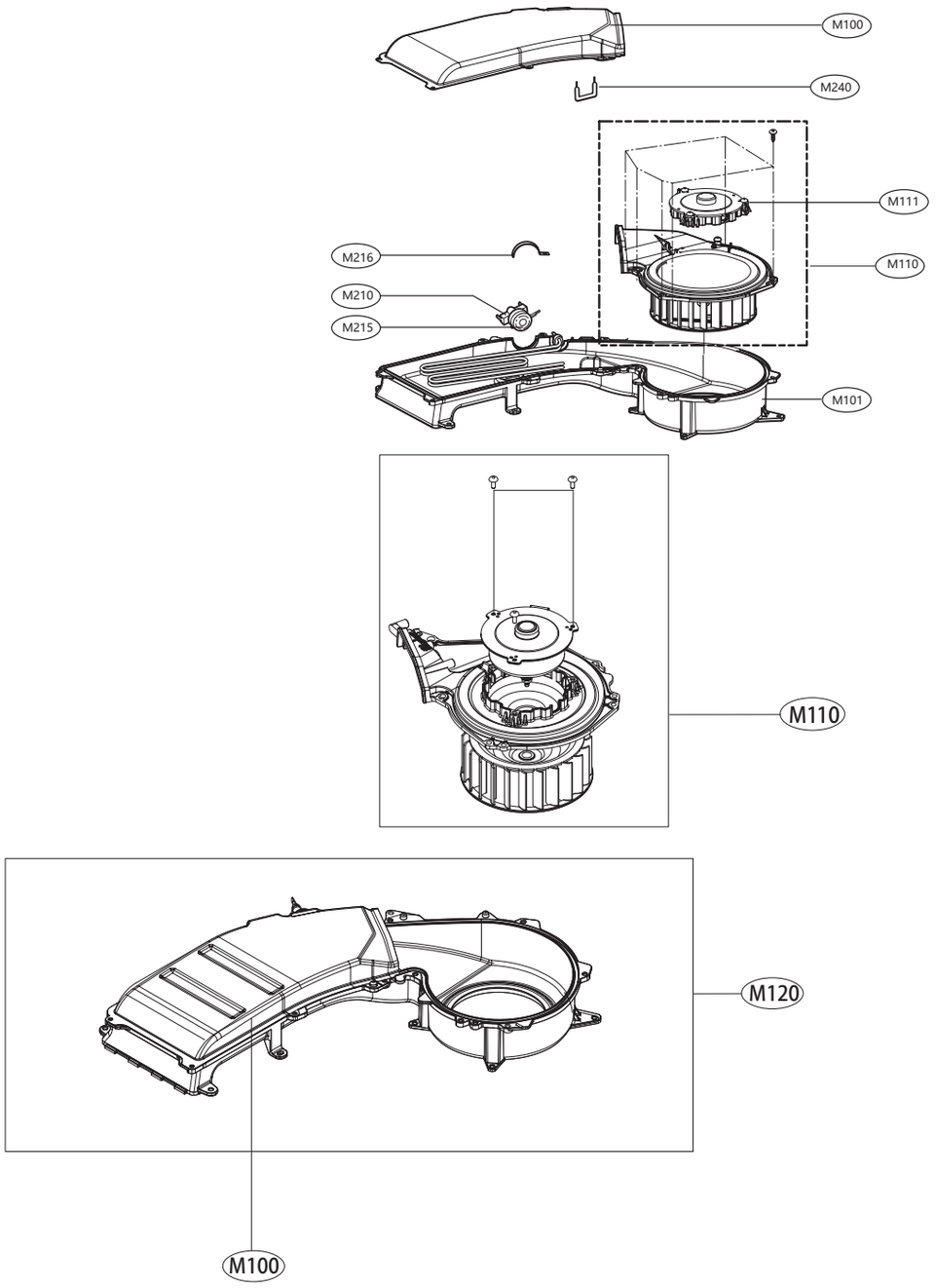
THE EXPLODED VIEW OF CONTROLANEL & DISPENSER ASSEMBLY



THE EXPLODED VIEW OF DRUM & TUB ASSEMBLY



THE EXPLODED VIEW OF DRYER



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