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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 : F14A8YD(1~9) / S44A8YD

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2. FEATURES & TECHNICAL EXPLANATION

2-1. FEATURES



■ Inverter Direct Drive system

The advance Brushless DC motor directly drives the drum without belt and pulley.



■ 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.



■ Direct Drive System

The advanced Brushless DC motor directly drives the drum without belt and pulley.



■ Built-in Heater

Internal heater automatically heats the water to the best temperature on selected cycles.



■ More economical by Intelligent Wash System

Intelligent Wash System detects the amount 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 Buttons 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.

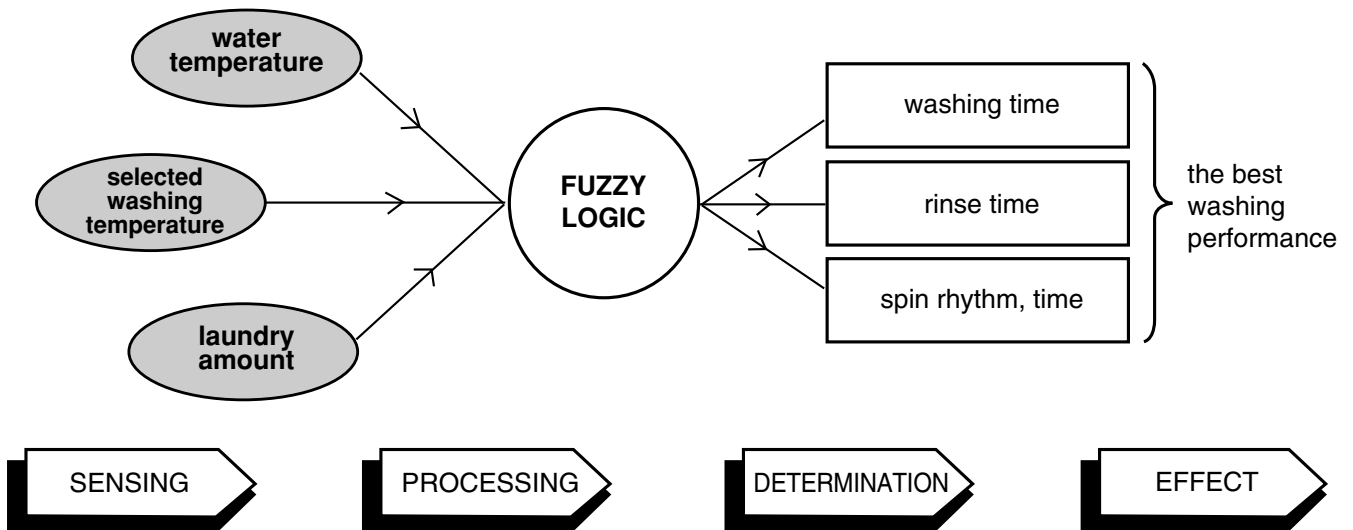
ITEM		F14A8YD(1~9) / S44A8YD
POWER SUPPLY		220 – 240 V~, 50 Hz
PRODUCT WEIGHT		72 kg
ELECTRICITY CONSUMPTION	WASHING	190 W
	SPIN	380 W
	DRAIN MOTOR	30 W
	WASH HEATER	2120 W
	DRY HEATER	1550 W
REVOLUTION SPEED	WASH	46 rpm
	SPIN	1400 RPM : No Spin / 400 / 800 / 1000 / 1400
OPERATION WATER PRESSURE		100 ~ 1000 kPa (1.0 kgf / cm ² ~ 10.0 kgf / cm ²)
CONTROL TYPE		Electronic
WASH CAPACITY		Refer to the Rating Label
DIMENSION		600 mm (W) x 640 mm (D) x 850 mm (H)
WASH PROGRAM		Cotton, Cotton Eco, Mix, Easy Care, Duvet, Baby Care, Skin Care, Sports Wear, Wool, Quick 30, Silent Wash, Rinse+Spin, Dry Only, Wash+Dry
RINSE		Normal, Rinse ⁺ , Rinse ⁺⁺ , Rinse ⁺ +Hold, Normal+Hold
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		10 items
POWER AUTO OFF		Adapted
CHILD LOCK		Adapted
AUTO RESTART		Adapted
TIME SAVE		Adapted

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.

2-2. 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.



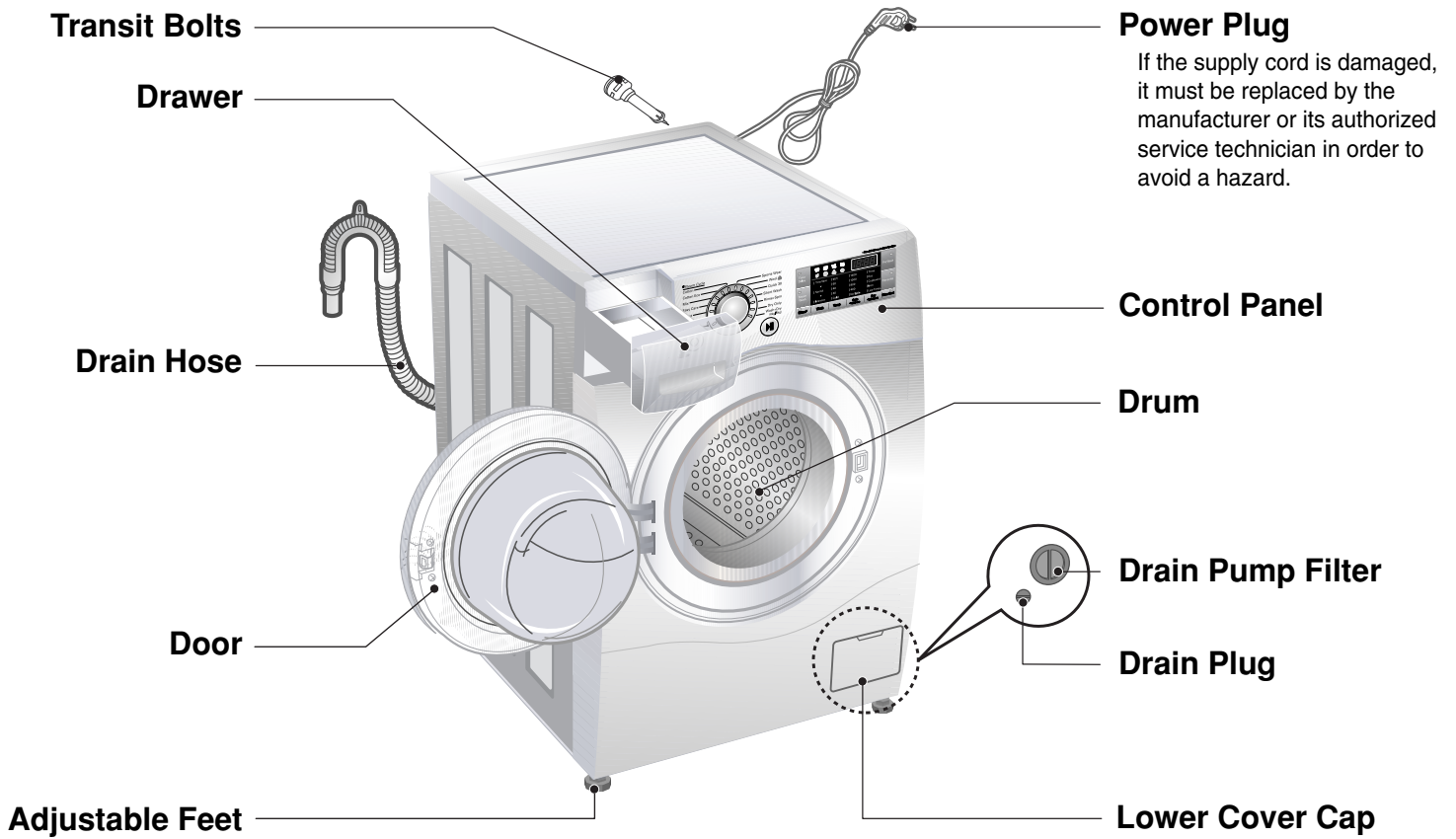
2-3. WATER LEVEL CONTROL

- 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.

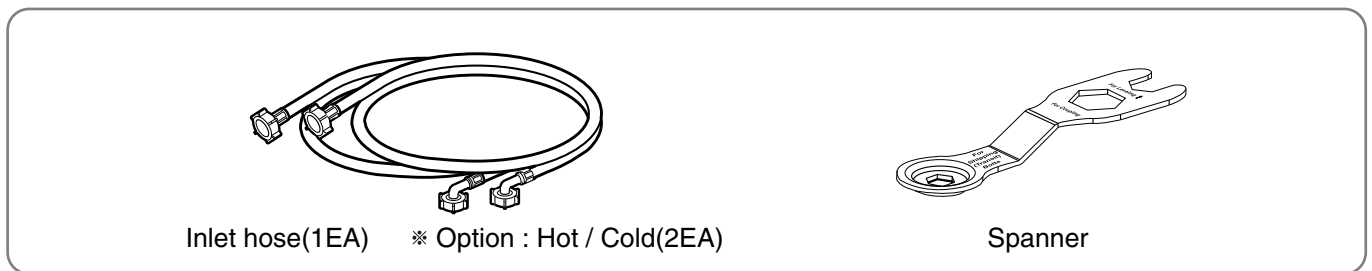
2-4. THE DOOR CAN NOT BE OPENED

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

3. PARTS IDENTIFICATION



■ ACCESSORIES



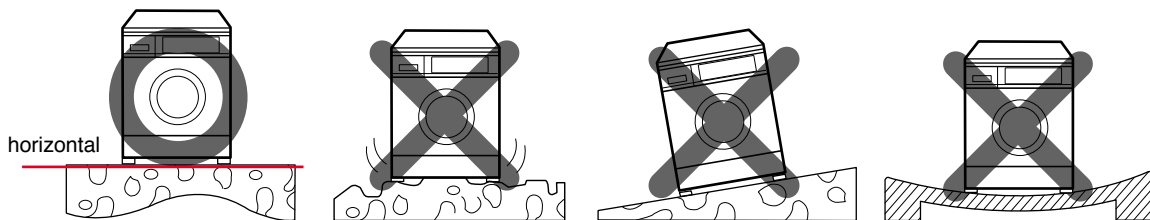
4. INSTALLATION

■ 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.



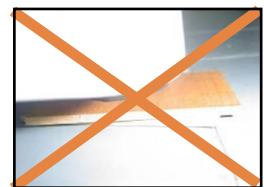
Purchased stopper



Carpet

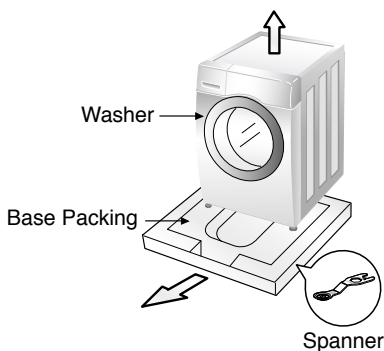


Paper



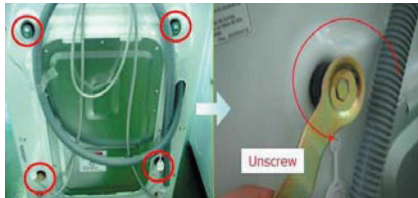
Laminated paper

2 Open the box and check appliance condition.



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

3 Use spanner to remove transit bolts.



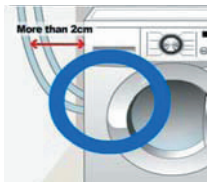
X 4 EA

Transit bolts

※ 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**.

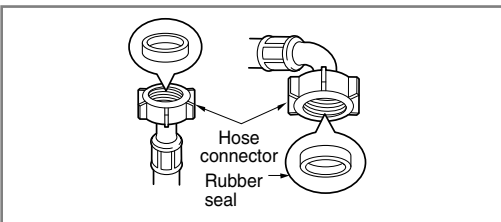


5 The tap connection and hose connection must be parallel.

■ Connecting water supply hose

- Water supply pressure must be between 100 kPa and 1000 kPa (1.0 ~ 10.0 kgf / cm²)
- Do not strip or crossthread when connecting Inlet hose to the valve.
- If the water supply pressure is more than 1000 kPa, a decompression device should be installed.
- Periodically check the condition of the hose and replace the hose if necessary.

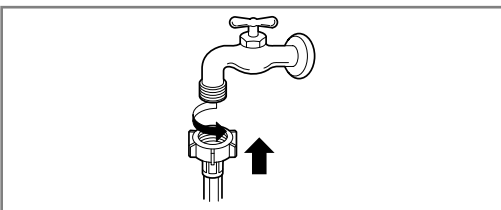
▶ Step1 : Check rubber seal inlet hose



- Two rubber seals are supplied with the water inlet hoses.
They are used for preventing water leaks. Make sure the connection to taps are sufficiently tight.

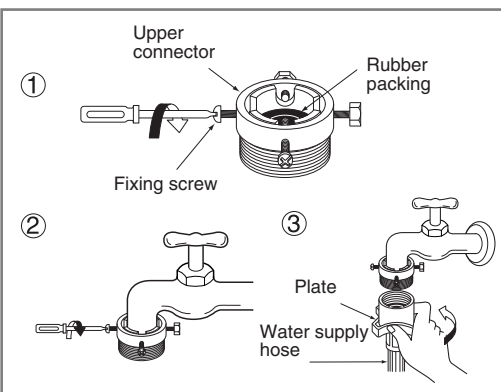
▶ Step2 : Connect hose to water tap

Type-A : Connecting Screw-type hose to tap with thread



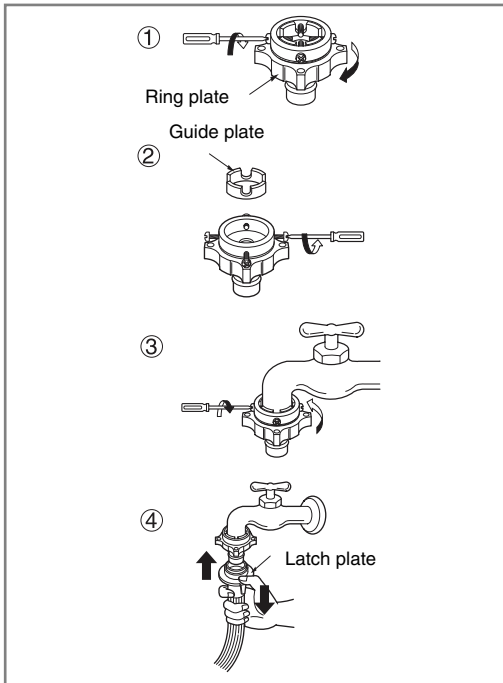
- Screw the hose connector onto water supply tap.

Type-B : Connecting Screw-type hose to tap without thread



1. Unscrew the adapter ring plate and the 4 adapter retaining screws.
2. Push the adapter onto the end of the tap so that the rubber seal forms a watertight connection. Tighten the adapter ring plate and 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.

Type-C : Connecting one touch type hose to tap without thread

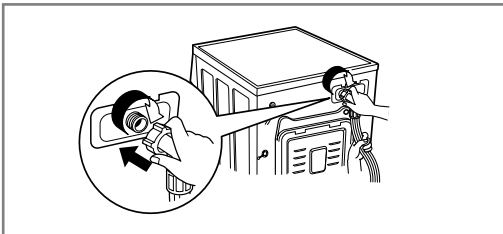


1. Unscrew the adapter ring plate and the 4 adapter retaining screws.
2. Remove the guide plate if the tap is too large to fit the adapter.
3. Push the adapter onto the end of the tap so that the rubber seal forms a watertight connection. Tighten the adapter ring plate and the 4 screws.
4. Pull the connector latch plate down, push the inlet hose onto the adapter, and release the connector latch plate. Make sure the adapter locks into place.

NOTE

After connecting inlet hose to water tap, turn on the water taps to flush out foreign substances (dirt, sand or sawdust) in the water lines. Let water drain into a bucket, and check the water temperature.

► Step3: Connect hose to washer



- Make sure that there are no kinks in the hose and that they are not crushed.
- **When your washer has two valves.**
- The Inlet hose With the red connector is for the hot water tap.
- If the washer has two valves, energy is saved by using the hot valve.

NOTE

After completing connection, if water leaks from the hose, repeat the same steps. Use the most conventional type of faucet for water supply. In case the faucet is square or too big, remove the spacing ring before inserting the faucet into the adaptor.

Please use the horizontal tap



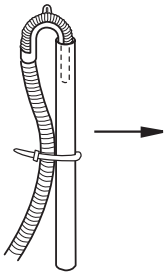
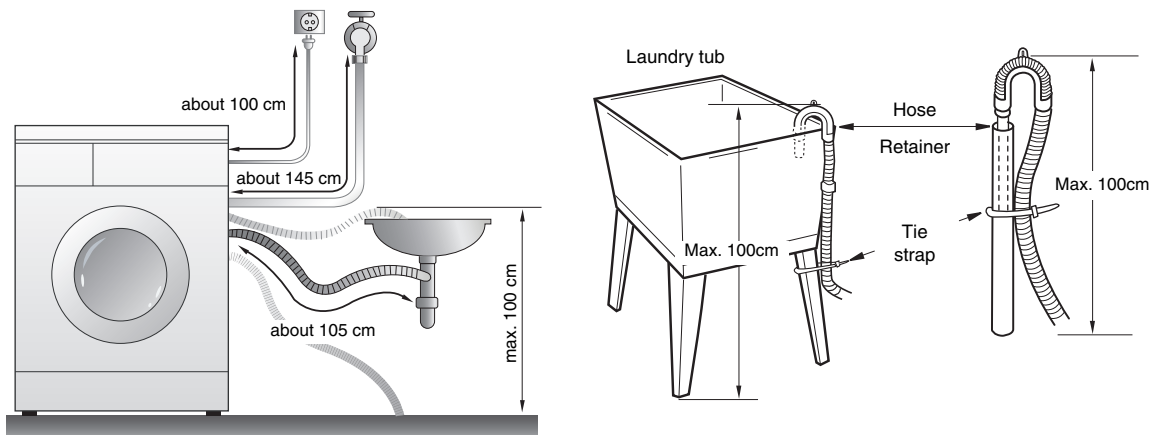
6 Connect Drain Hose.

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.

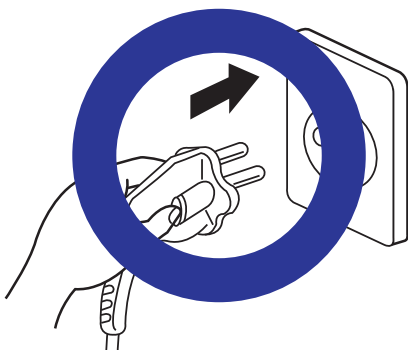
Pour a cup or two of bleach or vinegar down the home drain and let it sit for 24 hours before running another cycle.

This will help eliminate odor from the home drain.

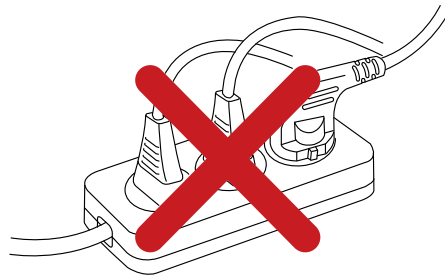
If a cycle is started too soon after doing this, it will not help the issue.

7 Connect power plug.

Connect the power plug to the wall outlet.



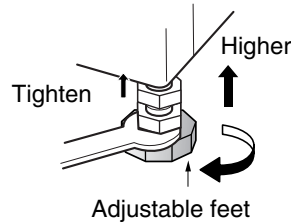
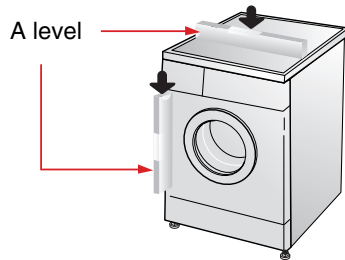
Avoid connecting several electric devices, it may be the cause of a fire.



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

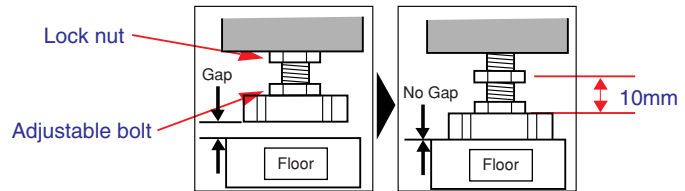
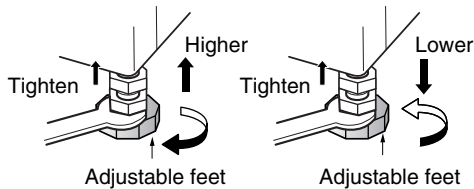
Use the spanner wrench to adjust Legs until level and try the **Diagonal test**.

Diagonal test



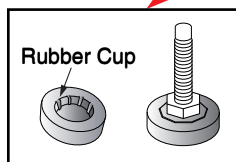
※ How to perform a diagonal test:

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**.



Step 3

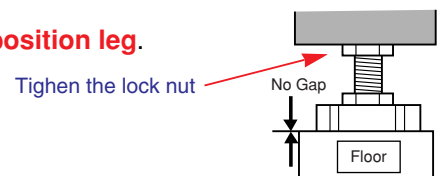
Perform a Rinse and Spin with some clothing in the machine.

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)

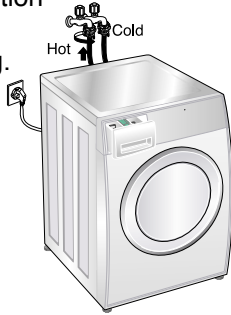
Step 4

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.

6 Check the water heating.



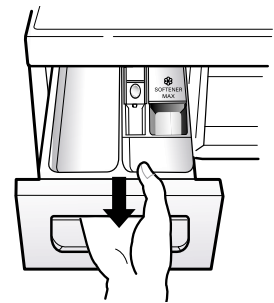
- Press the left Option + temp button simultaneously and the present temperature will be displayed.  Page 22

5 Check automatic reverse turn.



- Check if the drum rotates clockwise and counterclockwise.

4 Check the water supply.



- Check if water is supplied through the detergent dispenser.

7 Check the drain and spin functions.

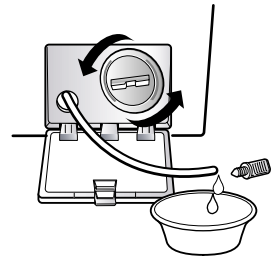
- Turn power off and then power on.
- Select the spin rpm
- Press the START PAUSE button.
- Check the spin and drain functions.

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

Cycle Selector

- Rotate the **Cycle selector knob** designed for different types of fabric and soil levels.

Additional programs

- Time Delay : Allows the start of any cycle to be delayed for 3~19 hours.
- Medic Rinse : For best results or for cleaner rinsing, you can choose
- Favorite : Favorite program allows you to store a customized wash cycle for future use.
- Pre Wash : Use this option for load that needs pretreatment. Adds 19minutes pre wash and drain.

Power

- Use this button to turn the power **On/Off**.

Start/Pause

- Use this button to Start/ Pause the wash

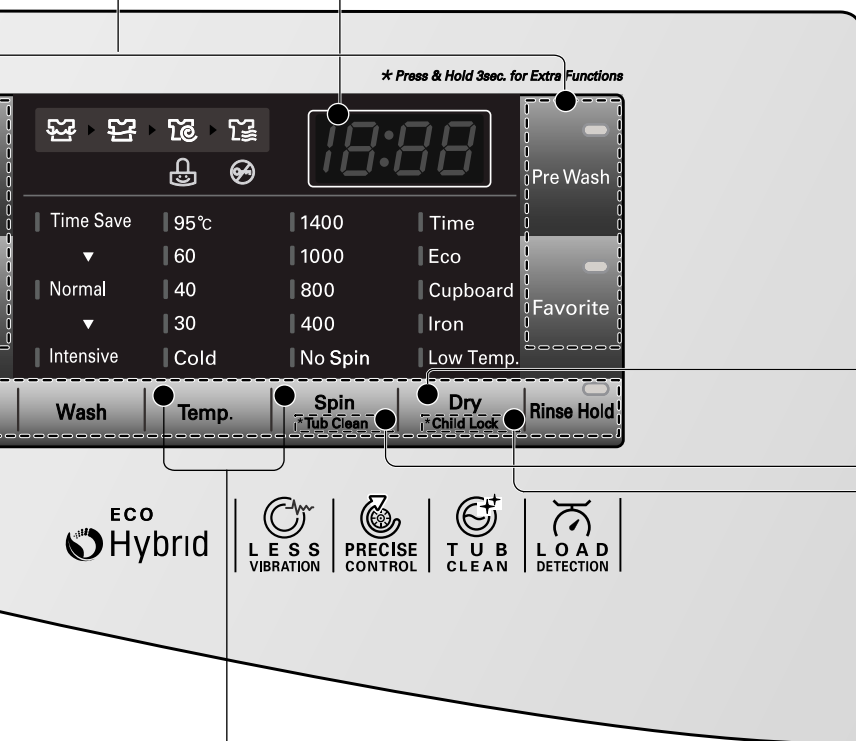


Option Button

- Rinse+ : Used to additional rinse, which may assist in removing traces of detergent residue.
- Time Save : This option can be used to reduce the time of a wash program.
To use this option press option button before wash program is started.
- Intensive : If the laundry is heavily soiled, intensive option is effective.
- Temp. : Select a water temperature based on the type of load you are washing.
- Spin : To change the spin speed, Press the Spin button to cycle through available options.
- Rinse Hold : - Rinse Hold is selected by pressing the spin button repeatedly this function leaves clothes in the machine; suspended in the water after the last rinse without entering into spin.
- To proceed through to a drain or spin,once the rinse hold function is completed using to Program dial and Spin button to the required program. (Spin)

EST. Time remaining

- This display shows:
 - a) the estimated time remaining in the cycle when operating.
- In case of abnormal operation, error indications are displayed.
(IE, OE, UE, dE, tE, FE, PE, LE, dHE, PF)
- see troubleshooting



Dry

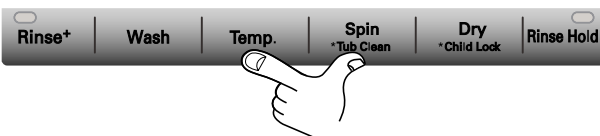
- Dry programs selected by rotating dry button.
[Lower Temp. - Iron - Cupboard - Eco - Time] can be selected.

Tub Clean

- Tub Clean course can be set by pressing and holding Rinse button simultaneously.
- Tub Clean is a special cycle to clean the inside of the washer.

Beep on/off

The Beep on/off function can be set by pressing and holding the Temp. and Spin button simultaneously.

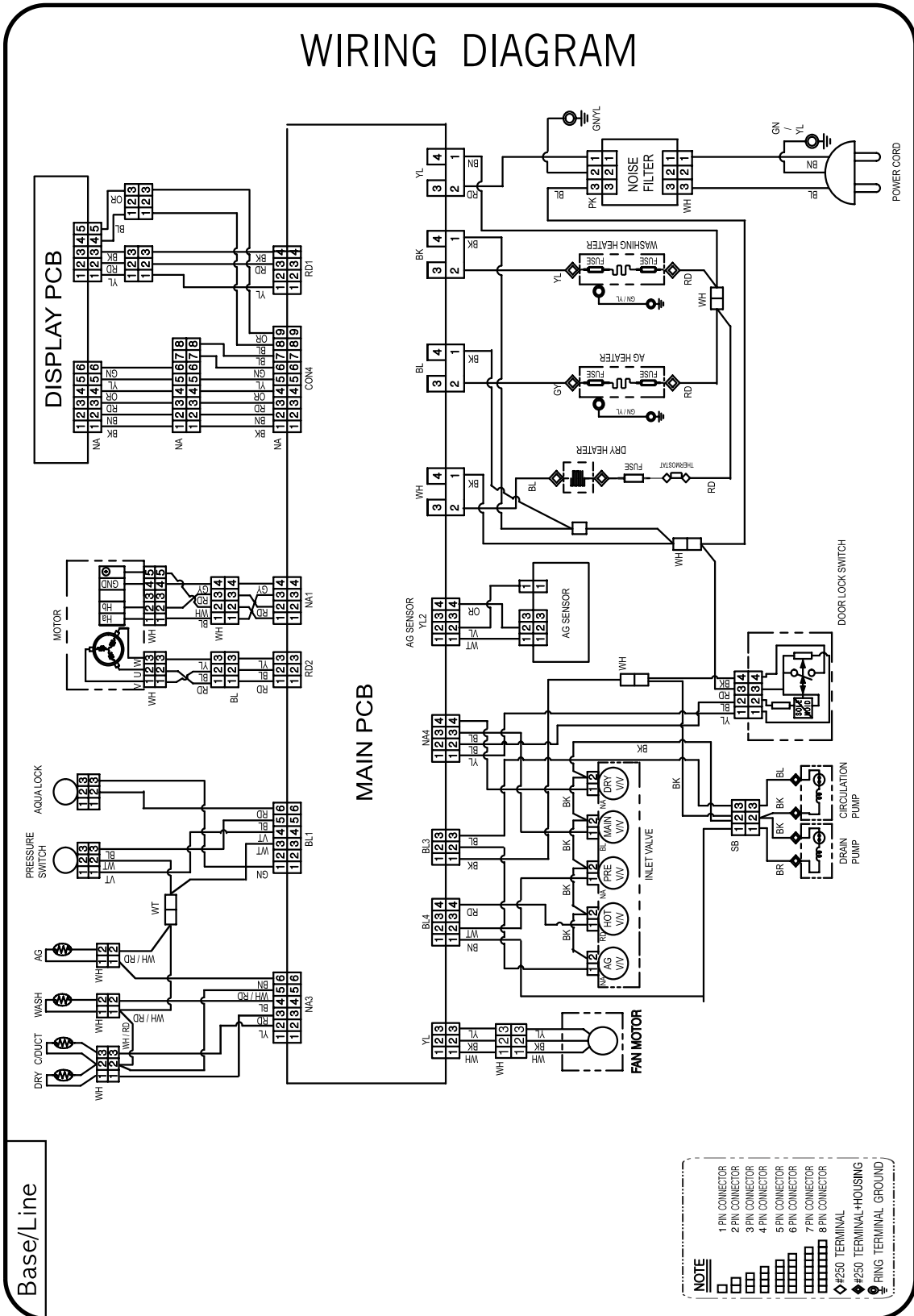


Child Lock

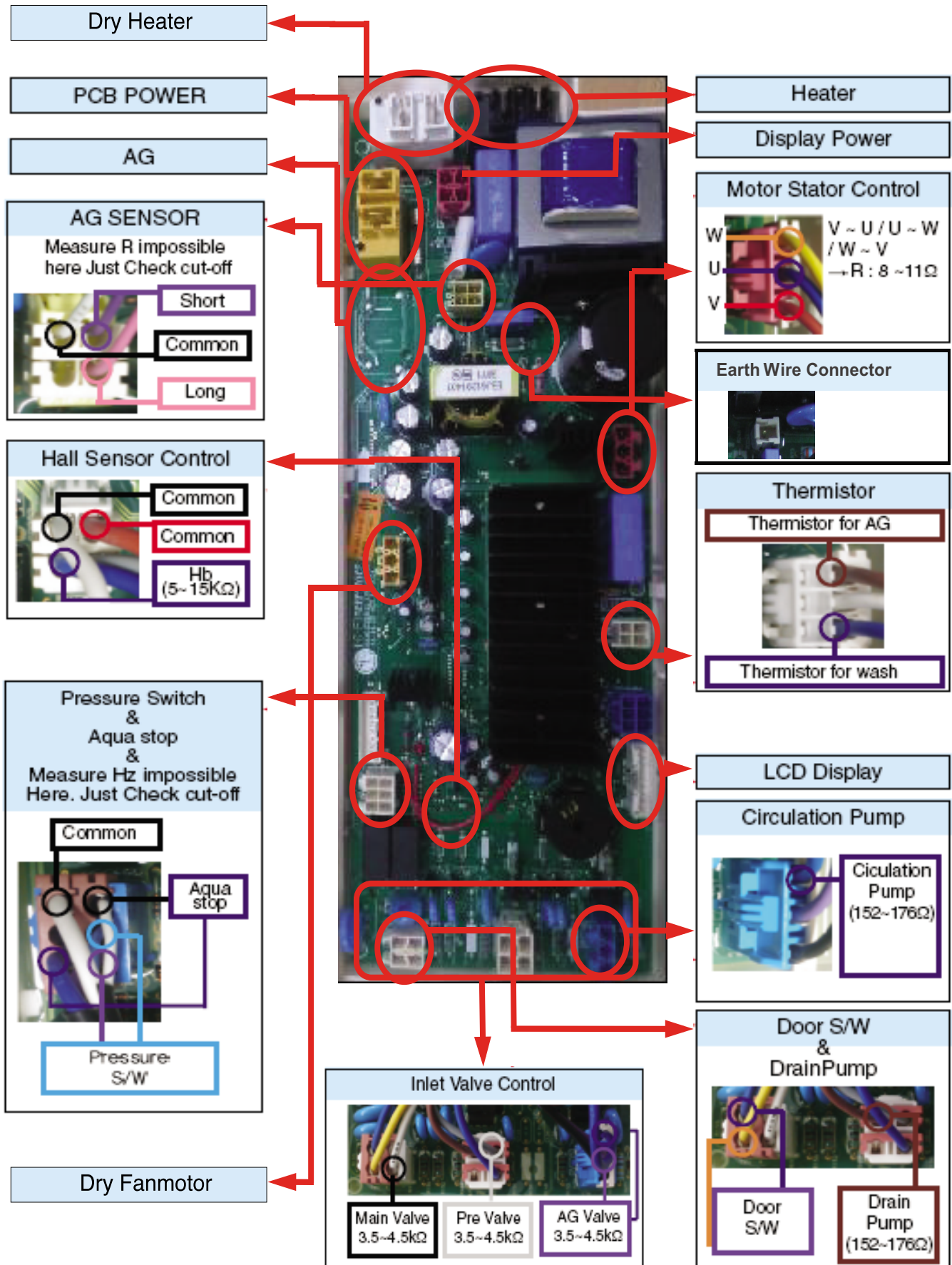
- Use this option to prevent unwanted use of the washer. Press and hold Spin button for 3 seconds to lock/unlock control.
- When Child lock is set, CHILD LOCK lights and all buttons are disabled except the Power button. You can lock the washer while it is operating.

6. WIRING DIAGRAM / PCB LAYOUT

■ Wiring Diagram



■ PCB Layout (Main)



7. TROUBLESHOOTING

7-1. CHECK BEFORE SERVICE

- ① Before servicing ask the customer what the trouble is.
- ② Check the adjustments. (Power supply :220-240V~, 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

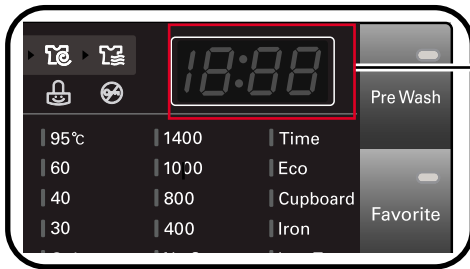


- ① Touch and Hold 'Wash' & 'Spin' buttons and then press 'Power' button.
- ② The washer must be empty and the controls must be in the off state.
- ③ Press Power with above two buttons pressed and then buzzer will sound.
- ④ Press the Start/Pause button repeatedly to cycle through the test modes

Number of times the Start/Pause button is pressed	Check Point	Display Status
None	Turns on all lamps and locks the door.	QC TEST MODE
1 time	Tumble clockwise.	rpm (42~50)
2 times	Low speed Spin.	rpm (55~65)
3 times	High speed Spin.	rpm (125~155)
4 times	Inlet valve for prewash turns on.	Water level frequency (25~65)
5 times	Inlet valve for main wash turns on.	Water level frequency (25~65)
6 times	Inlet valve for hot water turns on.	Water level frequency (25~65)
7 times	Inlet valve for dry turns on.	Water level frequency (25~65)
8 times	Inlet valve for steam turns on.	Water level frequency (25~65)
9 times	Tumble counterclockwise.	rpm (42~50)
10 times	Heater turn on for 3 sec	Water temperature
11 times	Circulation pump turn on.	Water level frequency (25~65)
12 times	Drain pump turns on.	Water level frequency (25~65)
13 times	Water level Sensor for Steam	Water level frequency of TSG (0~255)
14 times	Steam Heater turns on for 1.2 sec	TSG temperature
15 times	Dry Fan / Dry Heater turn on.	Dry Fan / Dry Heater 6min
16 times	Off	-

7-3. HOW TO CHECK THE WATER LEVEL FREQUENCY

Touch the **Rinse+** and **Temp** button simultaneously.

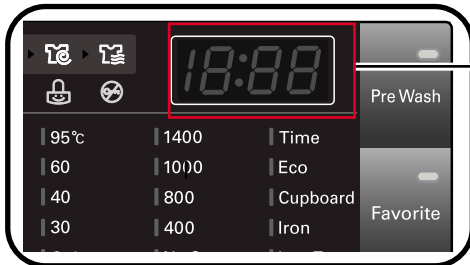


- The digits indicate the water level frequency. For example, if 255 is displayed the water level frequency is 25.5kHz (255X0.1)



7-4. HOW TO CHECK THE TEMPERATURE OF EACH THERMISTOR AT OPERATING CONDITION.

Touch the **Temp.** and **Rinse Hold** button simultaneously.

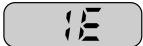


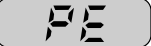








- Thermistor in tub temperature



7-5. 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』, 『UE』, 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		<ul style="list-style-type: none"> • Not reached the water level(248) within 10 minutes after water supplied or not reached to the preset water level within 25 minutes. ☞ Page 26
2	WATER OUTLET ERROR		<ul style="list-style-type: none"> • Not fully drained within 10 minutes. ☞ Page 28
3	OVERFLOW ERROR		<ul style="list-style-type: none"> • Water is overflowing (under 21.3kHz). <ul style="list-style-type: none"> ※ If " FE " is displayed, the drain pump operates to drain the water automatically. ☞ Page 30
4	PRESSURE SENSOR SW ERROR		<ul style="list-style-type: none"> • The pressure sensor switch is out of order. ☞ Page 31
5	DOOR OPEN ERROR		<ul style="list-style-type: none"> • 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 32
6	UNBALANCE ERROR		<ul style="list-style-type: none"> • The appliance is tilted. • Laundry is gathered to one side. ☞ Page 27
7	THERMISTOR(HEATING) ERROR		<ul style="list-style-type: none"> • The THERMISTOR is out of order. ☞ Page 33

	ERROR	SYMPTOM	CAUSE
8	MOTOR LOCKED ERROR		<ul style="list-style-type: none"> The connector in the LEAD WIRE ASSEMBLY is not connected to the connector of STATOR ASSEMBLY. <ul style="list-style-type: none"> Reconnect or repair the connector. The hall sensor is out of order/defective. <ul style="list-style-type: none"> Replace the STATOR ASSEMBLY Page 34
9	POWER FAILURE		<ul style="list-style-type: none"> The washer experienced a power failure <ul style="list-style-type: none"> Press the start/pause button
10	DRY HEATER ERROR		<ul style="list-style-type: none"> The Dry Heater is out of order The Connector of the Dry Heater is not connected properly to the connector in the Main PWB ASSEMBLY The Dry fan motor is out of order Page 37

NOTE

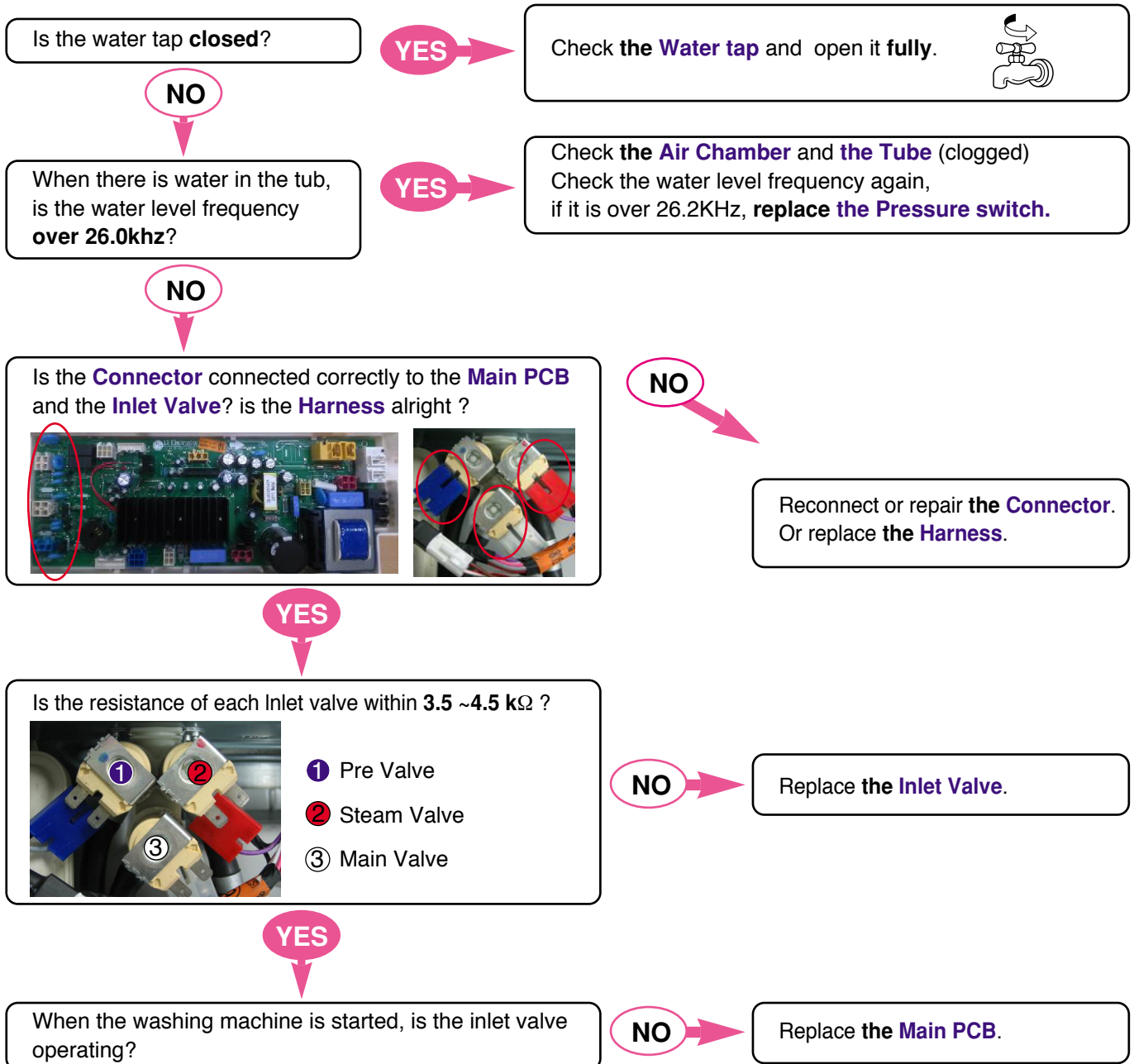
When you paused the machine under drying cycle, drying fan motor can be operated to save itself for 30 seconds. And then the machine displays “LF” on the panel.

7-6. TROUBLESHOOTING WITH ERROR

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 clogged.
4. No entanglement of water supply hose.
5. No water supply hose leakage



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 8)

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)



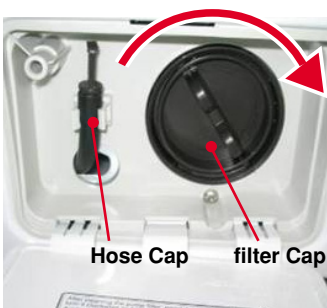
Drain water by removing the hose cap.



Disassemble the pump filter by turning the filter cap counterclockwise.



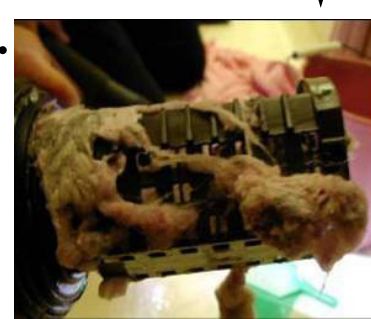
Assemble & close cap

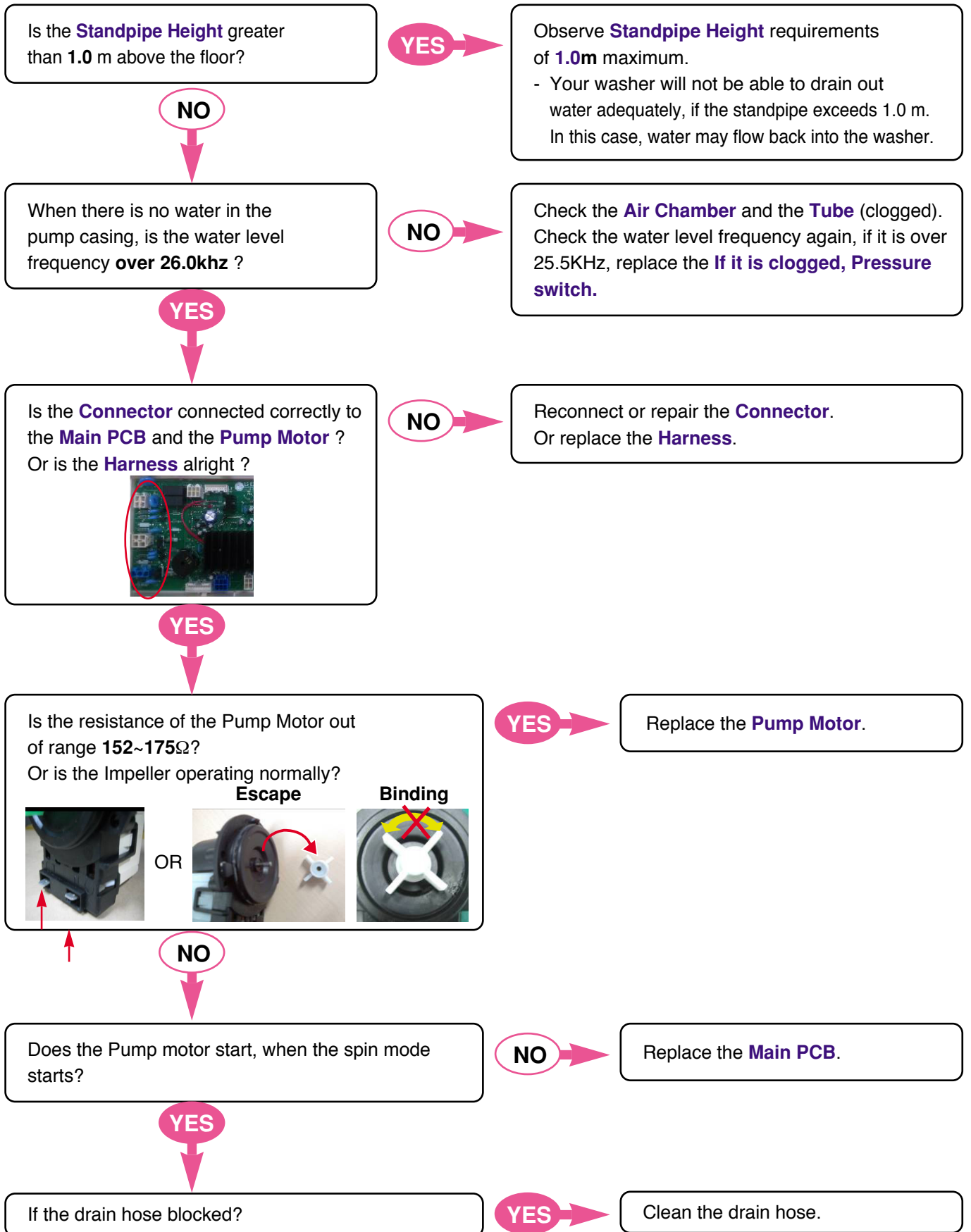


Filter clogged by foreign objects



Clean the filter





Overflow Error (FE)

Power off for 10sec. Then power on.

Is the water level over reference line and is the water level frequency under 21.3kHz?



* Water level frequency

- Touch and Hold 'Rinse+' & 'Temp.'
simultaneously.

NO

YES

Is water **continuously**
coming into the drawer?



YES

NO

Replace the **Main PCB**.

Replace the **Inlet Valve** assembly.

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

If FE is displayed again,
then replace the **Pressure Switch**.

If FE is displayed again,
then replace the **Main PCB**.

Pressure Sensor S/W Error (PE)

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

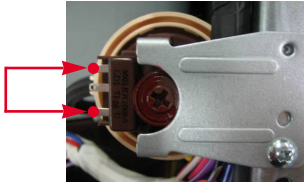


NO

Reconnect or repair the **Connector**.
Or replace the **Harness**.

YES

Is the resistance of the **Pressure Switch** out of range?
[Pin1 ~ Pin3
→ $21 \sim 23 \Omega$)]



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**.

Door Open Error (dE)

Is the door closed?

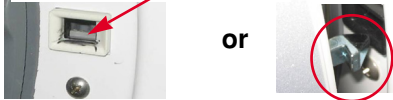
NO

Close the door fully.

YES

Is the Door assembly in line with door switch ?

Scratch by Latch Hook Touching



or

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

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



NO

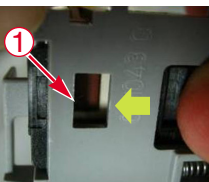
Reconnect or repair the **Connector**.
Or replace the **Harness**.

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.

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**.

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

Heater for Steam

YES

Reconnect or repair the **Connector**.
Or replace the **Harness**.

NO

Is the resistance of the **Thermistor** out of range **44 ~ 53 KΩ at 25°C**? (Page 23)

YES

Replace the **Thermistor**.

NO

Is the resistance of the **Heater** out of range **24.5 ~ 28.5Ω** (for Washing) or **42.5 ~ 49.5Ω** (for Steam) ?
(Page 25)

YES

Replace the **Heater**.

NO

Replace the **Main PCB**.

[Note] Thermistor Spec

S P E C	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
	105 °C	2.617	2.816	3.023

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.
- Don't replace the PCB, when the hall sensor is replaced.
Replace the PCB, when the LE is displayed after replacing the hall sensor.

Press the **Power** button & **Start / Pause** button.

Does the **Drum stop** when the start/pause button is pressed to start the cycle ?
Or Sometimes does the **Drum rotate weakly** (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 rotor **cracked** or **broken**?

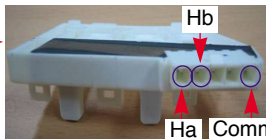


YES

Replace the **Rotor**.

NO

Are the resistance of the **Hall Sensor** 5~15kΩ?



- Ha ~ Common : 5 ~ 15 kΩ
- Hb ~ Common : 5 ~ 15 kΩ

NO

Replace the **Hall Sensor**.
→ Disassemble **hall sensor** carefully.
(Next page)

YES

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**.

1 Disassemble the Hall Sensor

1) Disassemble the hook of Hall Sensor by (-) driver.



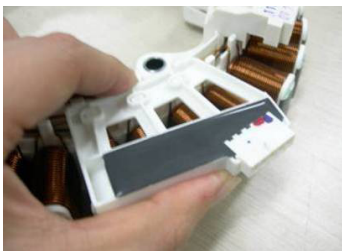
2) Pull up Hall Sensor slowly as shown in picture.



☆ Caution

If you disassemble by force, not following the directions, the hooks of stator (red circled) might break. Hence need change of stator assembly.

So disassemble cautiously.



2 Assemble the Hall Sensor

1) Adjust the hole of Hall Sensor to the hooks of stator as shown in red circle



2) Push down the Hall sensor, and assemble to the hook securely.



[Note]

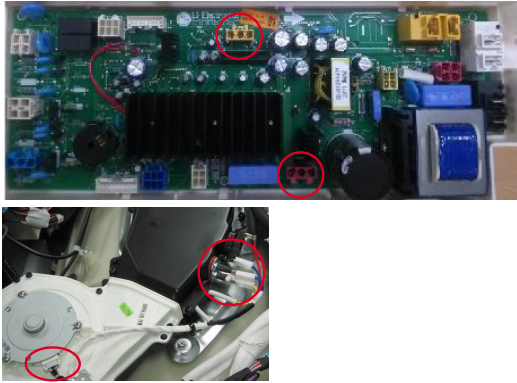
Hall Sensor Part No.

• 24" / 25" : 6501KW2001A

• 27" : 6501KW2002A

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?

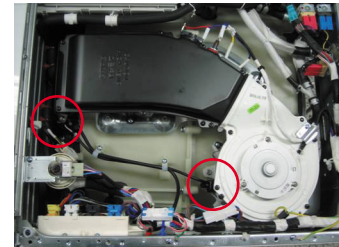
NO

Replace the **Thermistor**.

YES

Check for **Dry Heater** trouble.

👉 **Page 38**



Check for **Dry Fan Motor** trouble.

👉 **Page 39**

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

YES

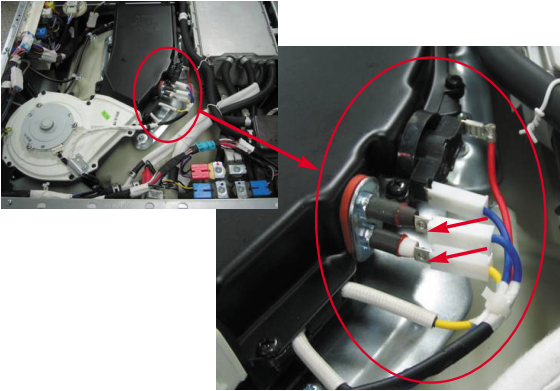
Clean the **Bellows**.

NO

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

Dry Heater Trouble

After power off, is the resistance of **Dry Heater** out of range 33 ~ 37Ω?

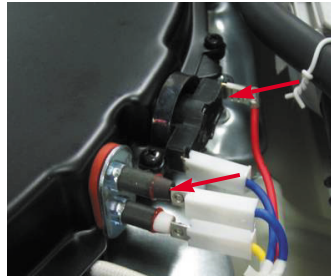


NO

Replace the **Dry Heater**.

YES

Is **Thermostat** closed ?

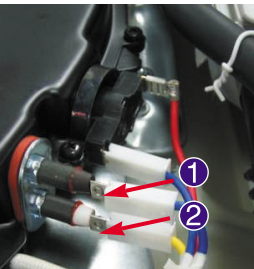


NO

Replace the **Thermostat**.

YES

When checking voltage between **connectors(1,2)** on drying, is the voltage AC 220-240V as the figure ?

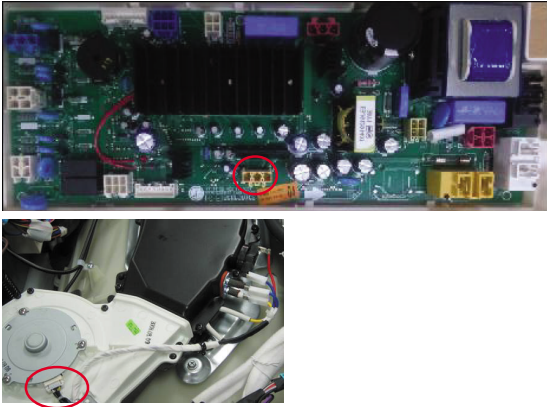


NO

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?

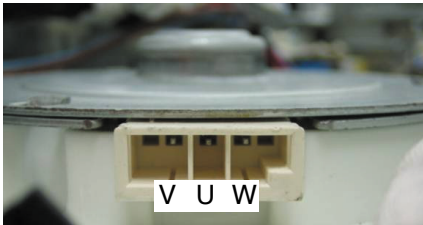


YES

NO

Reconnect or repair the **Connector**.
Or replace the **Harness**.

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

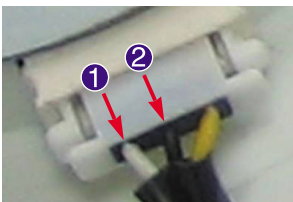


YES

NO

Replace the **Dry Fan Motor**.

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




NO

Replace the **PWB assembly (main)**.

8. TROUBLESHOOTING WITHOUT ERROR CODES

PE (Power Failure or no power)


Is the Power Plug connected firmly to the power outlet?
And is the supply voltage 220~240V AC?



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

YES

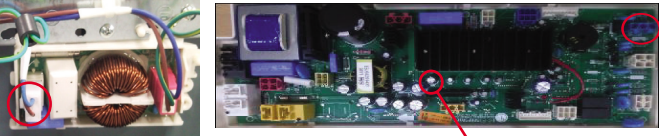
Is Multi-plug socket used ?



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 ?



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

YES

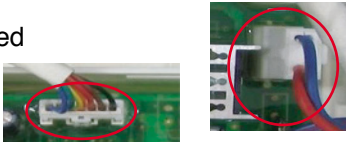
Is **Red LED ON** while power supplied ?



NO → Check and replace **Main PCB**.

YES

Is the connectors connected Correctly to the Display PCB?



YES → Check connectors otherwise.
Replace **Display PCB**.

No Power

Is the Power Plug connected firmly to the power outlet?
And is the supply voltage 220~240V AC?



NO

Reconnect **Power Plug** firmly.
Check the fuse or reset the circuit breaker.

YES

Is Multi-plug socket used ?

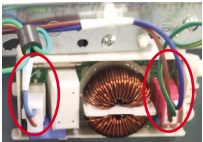


YES

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



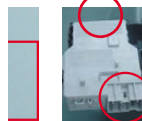
PCB

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

Are the connectors connected Correctly to the Display PCB?



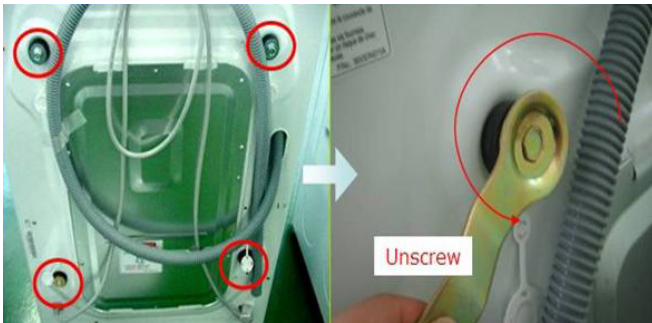
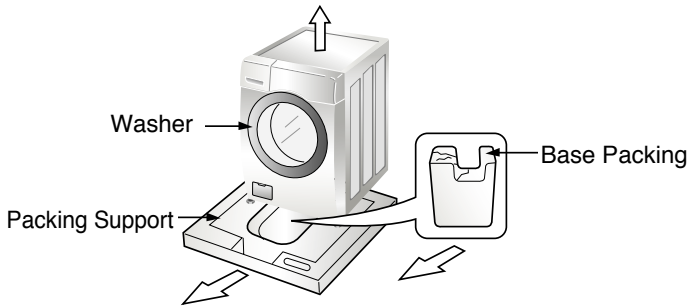
Main PCB

YES

Check connectors otherwise.
Replace **Display PCB**.

Vibration & Noise During Spin

Have all the **Transit Bolts** and the **Base Packing** been removed?



NO

Remove the **Transit Bolts** and the **Base Packing**.

YES

Refer to **INSTALLATION**. (Page 8)

Detergent & Softener does not flow in

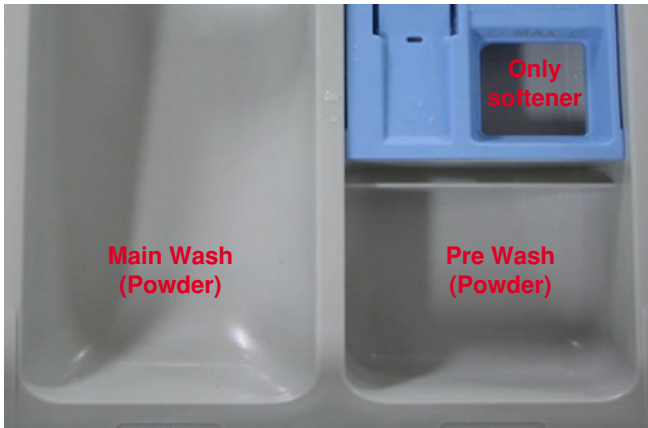
Is water supplied?

NO

Refer to [Water Inlet Error (IE)]
 (page 26)

YES

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



NO

Put it in the **Correct Position**.

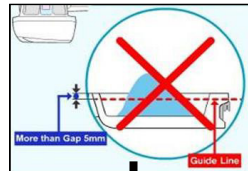
YES

Is the **Detergent** caked or hardened?

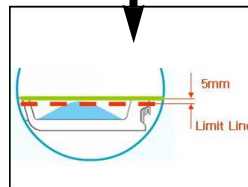
※ Reference (Amount of Detergent & Softener)

Detergent

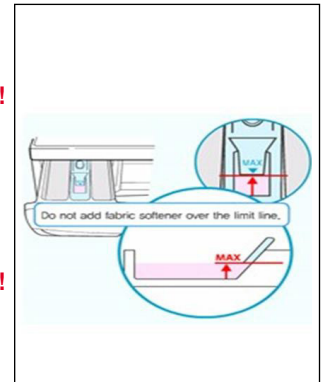
Softener



NO!!



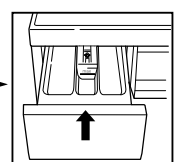
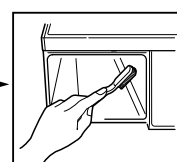
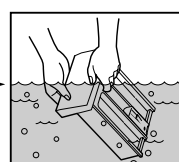
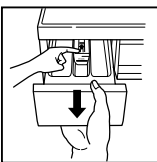
OK!!



YES

Clean the drawer and dispenser.

 ※ Check point



Water Leak

1. Water Leak from Dispenser

Is the **Dispenser Tray** Damaged or warped?

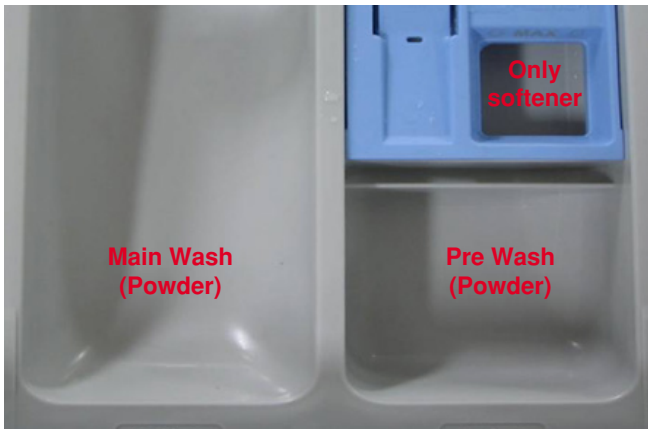


YES

Replace the **Dispenser Tray**.

NO

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



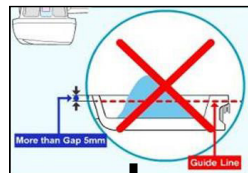
NO

Put it in the **Correct Position**.

YES

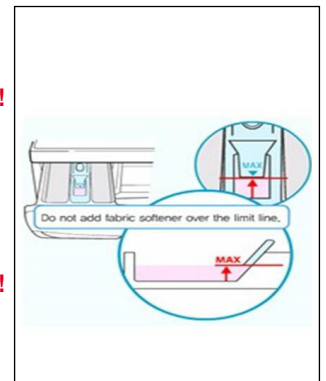
※ Reference (Amount of Detergent & Softener)

Detergent



NO!!

Softener



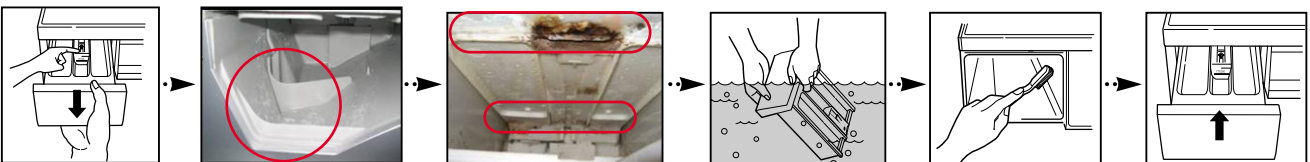
OK!!

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

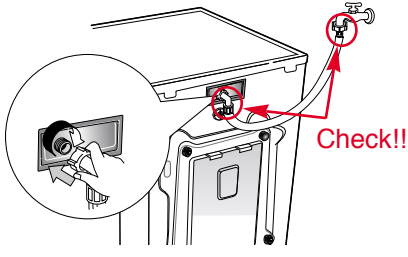
Replace the damaged parts.

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 8)

YES

Are the drain filter and manual drain hose open?

NO

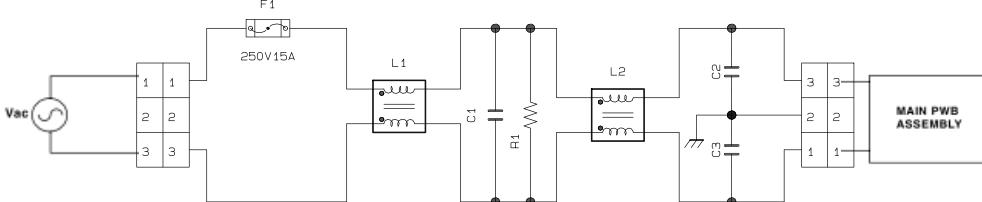
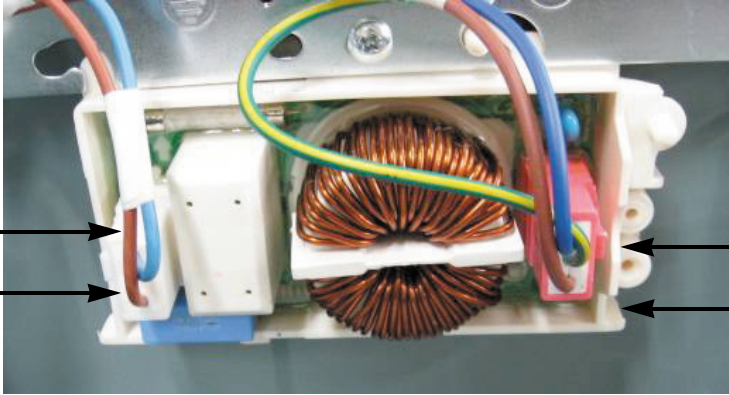
Turn the filter cap clockwise to close.



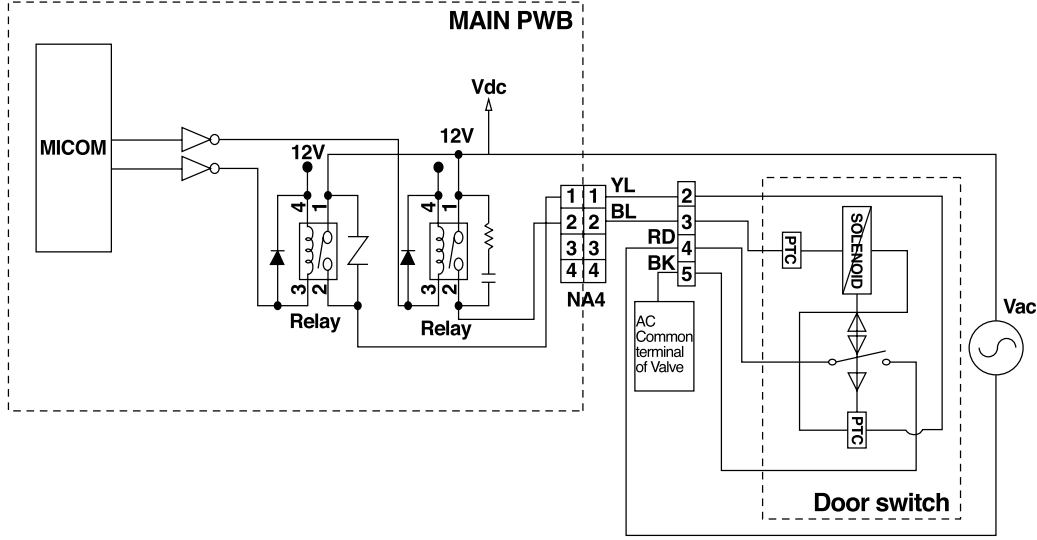
9. PART INSPECTION

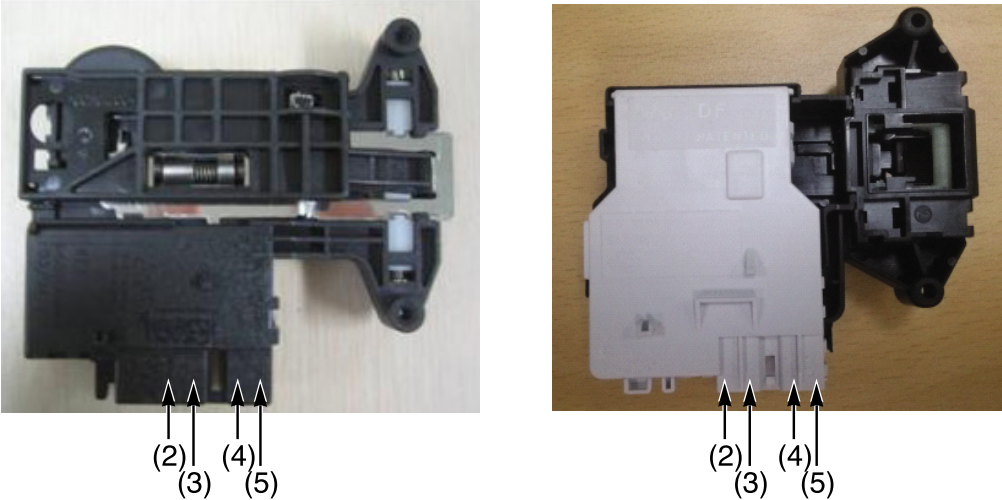
▲ WARNING When Resistance (Ohm) checking the Component, be sure to turn the power off, and do voltage discharge sufficiently.

9-1. FILTER ASSEMBLY (LINE FILTER)

<p>Wiring diagram</p>	<p style="text-align: center;">Circuit in the MAIN PWB / Wiring Diagram</p> 						
<p>Test points and Result</p>	 <table border="1" data-bbox="616 1532 1094 1688"> <thead> <tr> <th>Test Points</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>WH (1) to RD (3)</td> <td>0 Ω</td> </tr> <tr> <td>WH (3) to RD (1)</td> <td>0 Ω</td> </tr> </tbody> </table>	Test Points	Result	WH (1) to RD (3)	0 Ω	WH (3) to RD (1)	0 Ω
Test Points	Result						
WH (1) to RD (3)	0 Ω						
WH (3) to RD (1)	0 Ω						

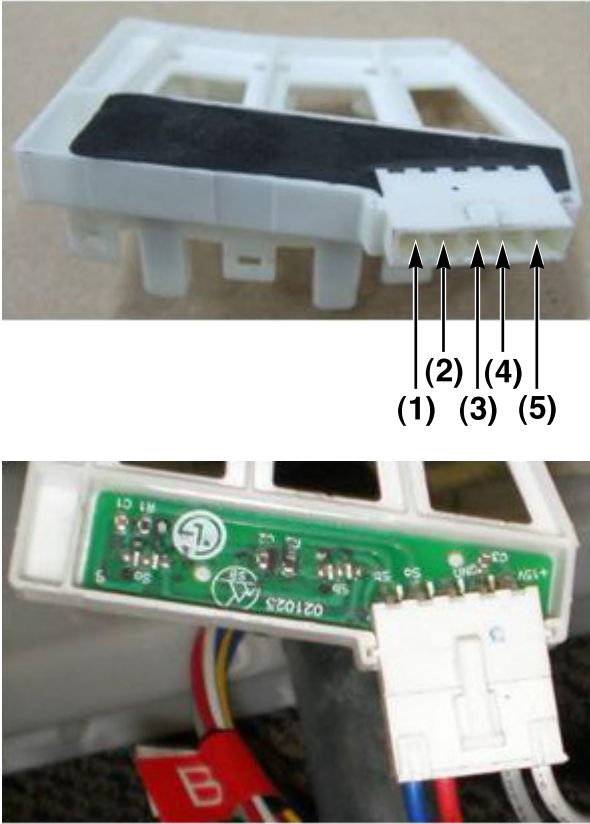
9-2. DOOR LOCK SWITCH ASSEMBLY

<p>Wiring diagram</p>	<p style="text-align: center;">Circuit in the MAIN PWB / Wiring Diagram</p> 
<p>Function</p>	<p>The Door Lock Switch Assembly consists of Heating PTC, a Bimetal, a Protection PTC, and a Solenoid. It locks the door during a wash cycle.</p> <ol style="list-style-type: none"> 1. Operation for door closing <ul style="list-style-type: none"> - 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 (or Slider return spring) ⇒ 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 (or Positioning slider return spring) will forcibly clear off the connection. The maximum, allowable number of impulse authorization is 2. ⇒ Upon the third authorization of the impulse, the position of CAM (or Slider return spring) goes back to the door-open position. - Authorizing the impulse occurs in 5 seconds upon input for max performance and two authorization processes are allowed at most ⇒ Normal operation period of PTC heating : 1-5 seconds. 2. Operation for door opening <ul style="list-style-type: none"> - With a temporary stop, door automatically opens by CAM rotations (or positioning slider return spring) after authorizing the impulse from the terminal 3~4 and power turns off – maximum of 3 times of the authorizing period. - Upon the fourth authorization of the impulse, the position of CAM (or Slider return spring) goes back to the door-close position.

<p>Test points</p>																							
<p>Result</p>	<table border="1"> <thead> <tr> <th rowspan="2">Test Points</th> <th colspan="2">Result</th> <th rowspan="2">Remarks</th> </tr> <tr> <th>110-120V</th> <th>220-240V</th> </tr> </thead> <tbody> <tr> <td>(2) to (4)</td> <td>700 -1500 Ω</td> <td>700 -1500 Ω</td> <td>At 77°F (25°C)</td> </tr> <tr> <td>(3) to (4)</td> <td>60 -100 Ω</td> <td>160 -230 Ω</td> <td>At 77°F (25°C)</td> </tr> <tr> <td>(4) to (5)</td> <td>Infinity</td> <td>Infinity</td> <td></td> </tr> <tr> <td>(2) to (4)</td> <td>120Vac</td> <td>240Vac</td> <td>Voltage Input</td> </tr> </tbody> </table>	Test Points	Result		Remarks	110-120V	220-240V	(2) to (4)	700 -1500 Ω	700 -1500 Ω	At 77°F (25°C)	(3) to (4)	60 -100 Ω	160 -230 Ω	At 77°F (25°C)	(4) to (5)	Infinity	Infinity		(2) to (4)	120Vac	240Vac	Voltage Input
Test Points	Result		Remarks																				
	110-120V	220-240V																					
(2) to (4)	700 -1500 Ω	700 -1500 Ω	At 77°F (25°C)																				
(3) to (4)	60 -100 Ω	160 -230 Ω	At 77°F (25°C)																				
(4) to (5)	Infinity	Infinity																					
(2) to (4)	120Vac	240Vac	Voltage Input																				

9-3. STATOR ASSEMBLY

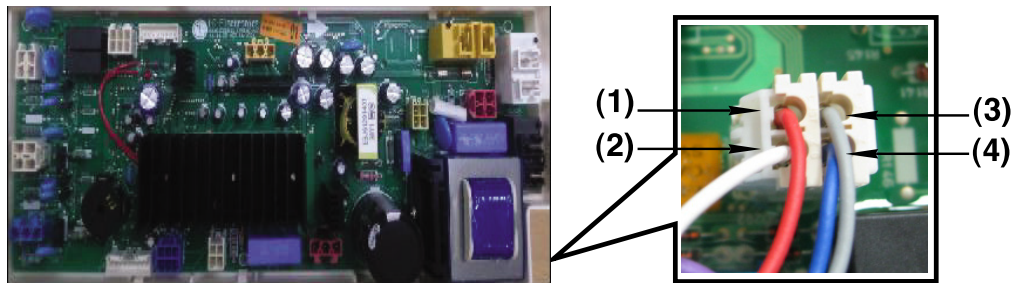
<p>Wiring diagram</p>	<p style="text-align: center;">Circuit in the MAIN PWB / Wiring Diagram</p>								
<p>Function</p>	<p>The DD motor can be driven from stopped to maximum speed in infinite steps in either direction.</p> <p>There are 36 poles on the stator; 12 permanent magnets spaced around the 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.</p>								
<p>Test points (Windings)</p>									
<p>Result (Windings)</p>	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Test Points</th> <th>Result</th> </tr> </thead> <tbody> <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> </tbody> </table>	Test Points	Result	(1) to (2)	5-15 Ω	(2) to (3)	5-15 Ω	(3) to (1)	5-15 Ω
Test Points	Result								
(1) to (2)	5-15 Ω								
(2) to (3)	5-15 Ω								
(3) to (1)	5-15 Ω								

	<p>The hall sensor determines the speed and direction of the motor. It also can read that the load is off balance when the drum speed fluctuates.</p>
<p>Test point and Result (Hall Sensor)</p>	<p>- Voltage Testing Hall Sensor at Stator</p> <div style="text-align: center;">  </div> <p>If measuring voltage from the Main PCB Assembly to the Hall Sensor, use the following steps:</p> <ol style="list-style-type: none"> 1. Unplug power cord. 2. Remove rear washer panel. 3. Locate Hall sensor connector on the stator behind the rotor. 4. Place meter leads on terminals 5 to 4, white to gray. 5. Plug in power cord, close door, and press power button. DO NOT PRESS START! 6. You should measure 10 to 15 Vdc. If 10 to 15 Vdc is present, control board, white wire, and gray wire are OK! If not follow testing output voltages on control board in next section.

7. To measure output signal voltage from the hall sensor, carefully move test leads to terminals 1 to 4, blue and gray. Slowly rotate motor rotor by hand. You should read a pulsing 10 Vdc. If 10 Vdc is measured from 1 to 4, move lead on blue wire to red wire, terminal 2. Repeat rotating motor rotor by hand. You should read a pulsing 10 Vdc from red to gray.
8. If pulsing 10 Vdc is measured from 1 to 4 and 2 to 4, hall sensor is OK! If either test netted only 9 to 10 Vdc without changing (no pulsing) the hall sensor is likely defective. Disconnect power by unplugging washer and ohm check hall sensor to verify failure of the hall sensor.

**Test Point
and
Result
(Hall
Sensor)**

- Voltage Testing Hall Sensor from the Main PCB Assembly



1. Unplug power cord.
2. Remove rear panel.
3. Remove Washer Top.
4. Remove Main PCB Assembly cover as shown in Figure below.
5. Locate the white Hall Sensor 4 wire connector using wiring diagram wire colors as your guide.
6. Plug in power cord, close door, and press power button. **DO NOT PRESS START!**
7. Place meter leads on White & Gray wires. You should read 10 to 15 Vdc output from the Main PCB Assembly to the Hall sensor. If no 10 to 15 Vdc is measured the control board is defective.
8. Place meters leads on Blue to Gray. Turn motor rotor slowly by hand. You should measure a pulsing 10 Vdc. Place meter leads on Red to Gray. Turn motor rotor slowly by hand. You should measure a pulsing 10 Vdc. If both tests measure a pulsing 10 Vdc, hall sensor and harness OK. If either or both tests measures 9 to 10 volts, but does not pulse or change, Hall sensor has failed and must be replaced. IF zero (0) voltage is measured on either test, check red & blue wires for continuity. Repair or replace harness as needed.

Test Points	Result	Remarks
(1) to (2)	8-12 kΩ	
(1) to (3)	8-12 kΩ	
(1) to (4)	10-15 Vdc	Voltage Input
(2) to (4)	10 Vdc	Pulsing Signal
(3) to (4)	10 Vdc	Pulsing Signal

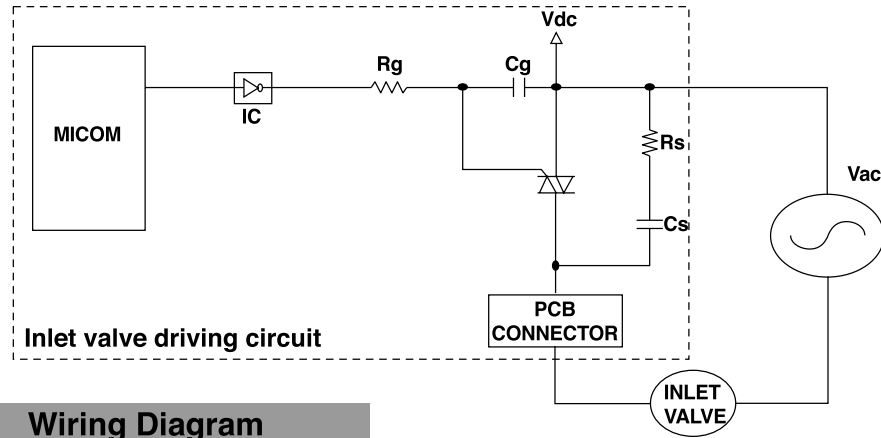
9-4. PUMP MOTOR ASSEMBLY

<p>Wiring diagram</p>	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 5px; background-color: #e0e0e0; text-align: center;"> Circuit in the MAIN PWB </div> <div style="border: 1px solid black; padding: 5px; background-color: #e0e0e0; text-align: center;"> Wiring Diagram </div> </div> <p style="text-align: center;">* Each circuits of loads in wiring diagram are all same.</p>				
<p>Object</p>	<p style="text-align: center;">For Drain</p>				
<p>Function</p>	<p>Two pump motors are used to drain the tub and to circulate the water / detergent solution.</p>				
<p>Test points</p>	<p style="text-align: center;">Drain Pump</p>				
<p>Result</p>	<p style="text-align: center;">Drain Pump</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Test Points</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>(1) to (2)</td> <td>10-20 Ω</td> </tr> </tbody> </table>	Test Points	Result	(1) to (2)	10-20 Ω
Test Points	Result				
(1) to (2)	10-20 Ω				

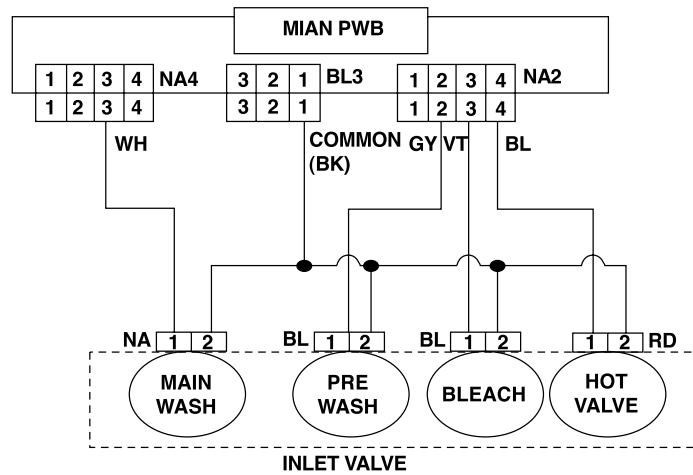
9-5. INLET VALVE ASSEMBLY

Wiring diagram

Circuit in the MAIN PWB



Wiring Diagram



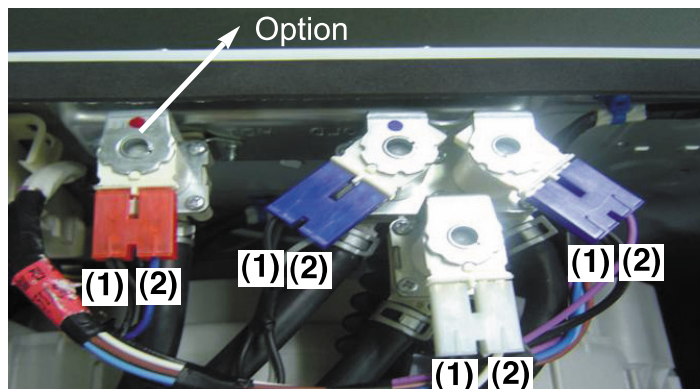
* All load circuits in wiring diagram are all the same.

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.



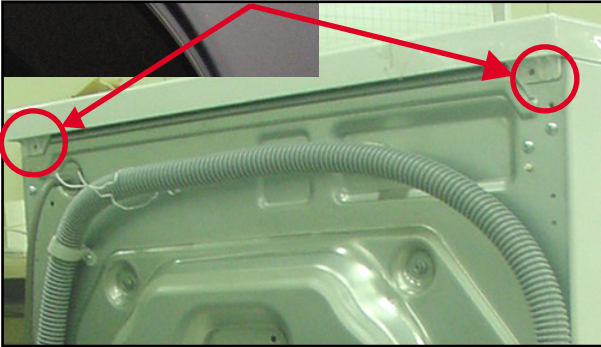
Test points	(1)-(2)
Result	0.8-1.2 kΩ

10. DISASSEMBLY INSTRUCTIONS

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

CONTROL PANEL ASSEMBLY

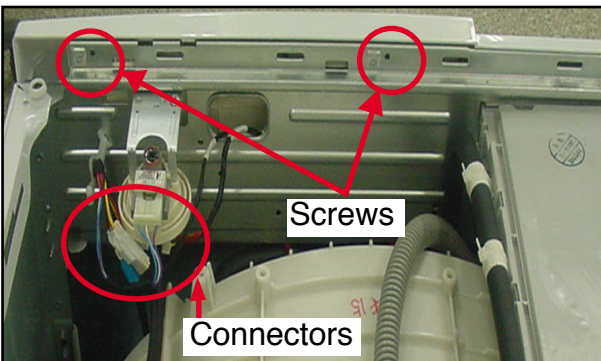
Screws



- 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.

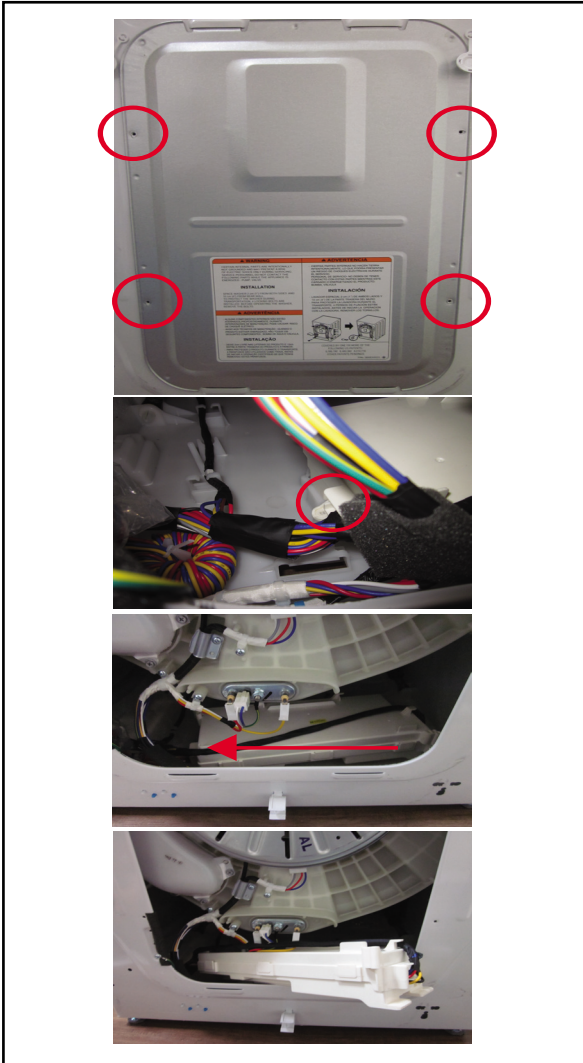


- ⑤ Unfasten the screws from the parts displayed in the fig.
- ⑥ Disconnect the wiring connectors between the multi harness and the control panel assembly.



- ⑦ Disassemble the control panel assembly.
- ⑧ Disassemble the display PCB assembly from the control panel assembly by unfastening the screws.

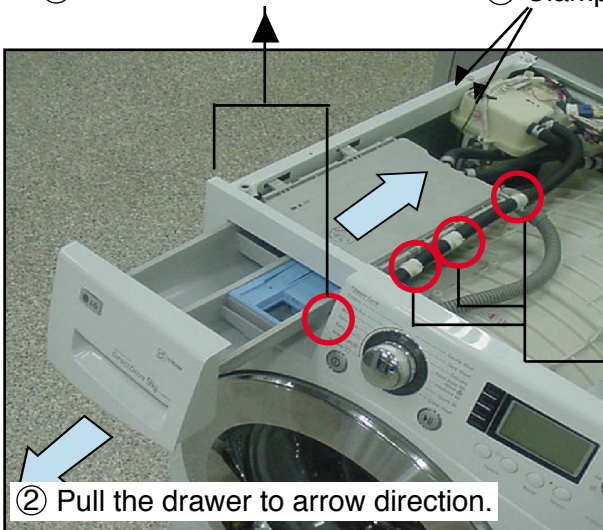
PWB ASSEMBLY(MAIN)



- 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

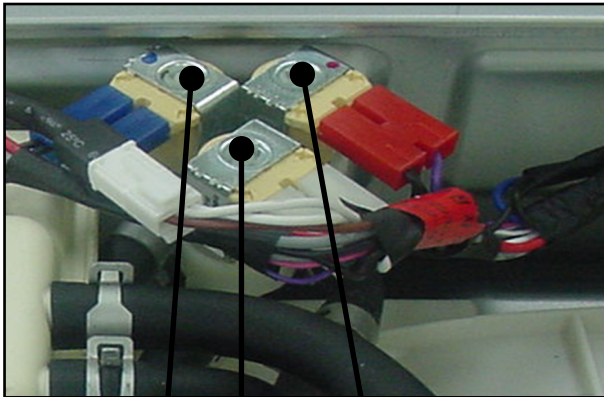
- ③ Two screws are unscrewed.
- ④ Clamp



- 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

- ② Pull the drawer to arrow direction.

INLET VALVE



② ③ ①

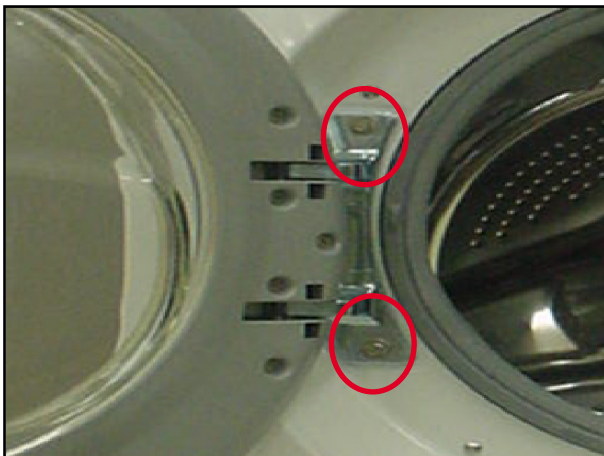
- ① Disconnect the wiring connector.
- ② Remove the valve by two screws of the valve holder.

※ When reconnecting the connector

VALVE ① (STEAM)	VIOLET/BLACK-BLACK
VALVE ② (PRE-WASH)	WHITE/BLACK-BLACK
VALVE ③ (NORMAL-WASH)	GRAY/BLACK

- Rating : 220/240V 50/60Hz
- Resistant : 3.5~4.5kΩ

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.

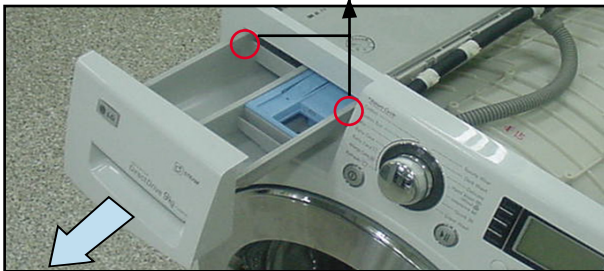
※ First, prepare a bucket to put in the remained water.



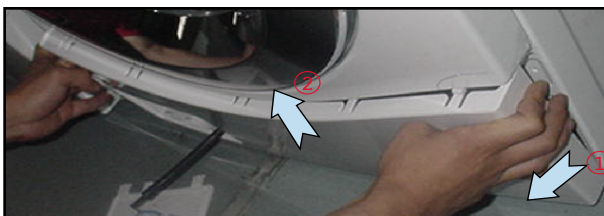
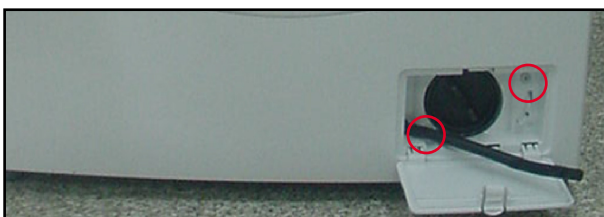
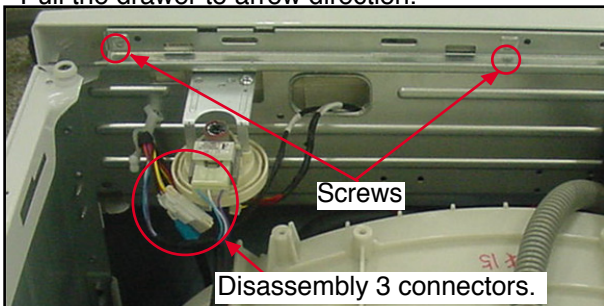
→ CAP(REMAING HOSE)

CABINET COVER

Two screws are unscrewed



Pull the drawer to arrow direction.



- 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 ASSEMBLY, CONTROL after Push the hook(① , ②) below.

- ③ Unscrew the screws from the lower cover.

- ② Disassembly lower cover assembly.

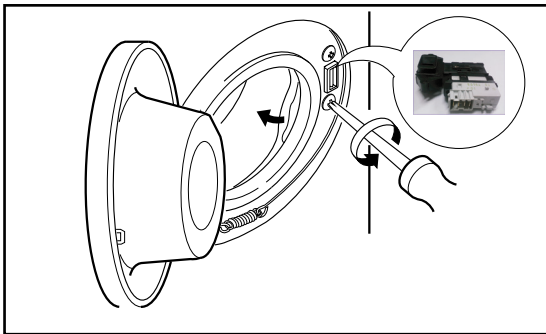
- ③ Unscrew the screw from the CABINET COVER.



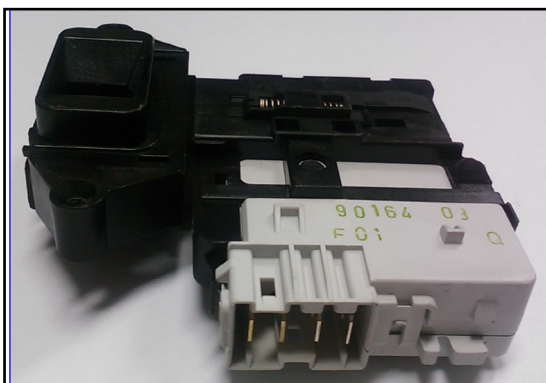
④ Lift and separate the cabinet cover.

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

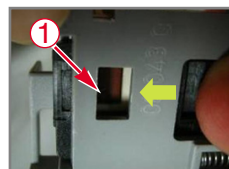
SWITCH ASSY, DOOR LOCK



- ① Two screws are unscrewed and disassembly cabinet cover.
- ② The Door Lock S/W is disconnected form the wiring connector and the strap.

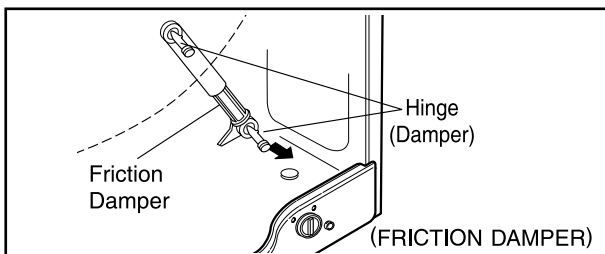
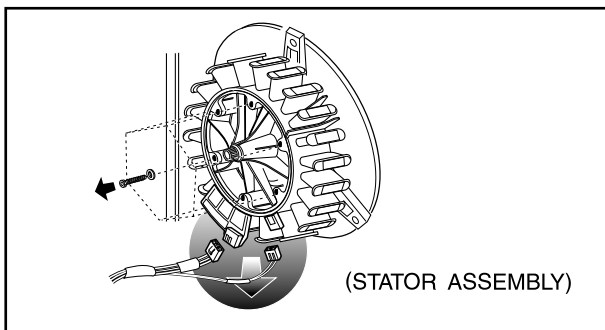
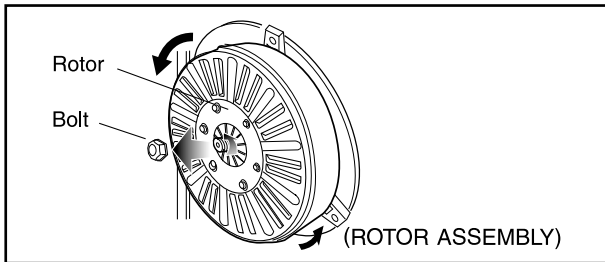


- Just check cut-off.
- Check the operating time.



- * Door Locking time : 1~8 sec.
Check the time between from input the power to parts ① move up, then Door locked.
- * Door Releasing time : 25~100 sec.
Check the time between from off the power to parts ① move down, then Door released.

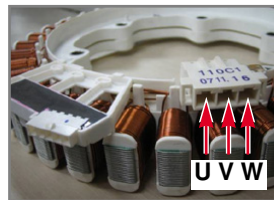
ROTOR ASSEMBLY, STATOR ASSEMBLY, FRICTION DAMPER



- ① Remove the back cover.
- ② After loosening the bolt, Rotor, pull out the rotor.

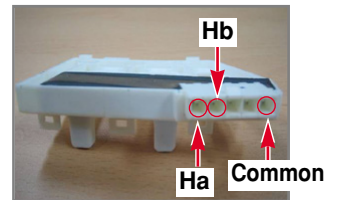
- ① Remove the 6 bolts from the stator.
- ② Disconnect the 2 connectors.

Motor Stator



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

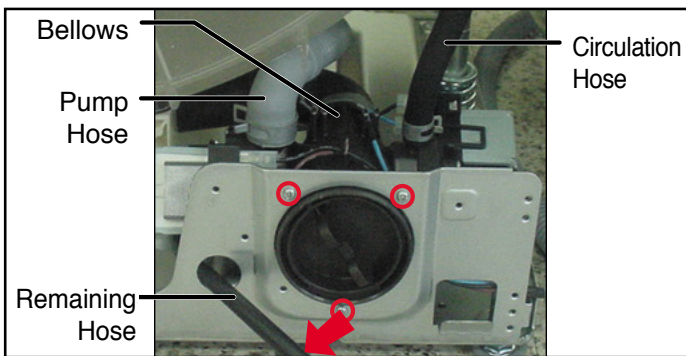
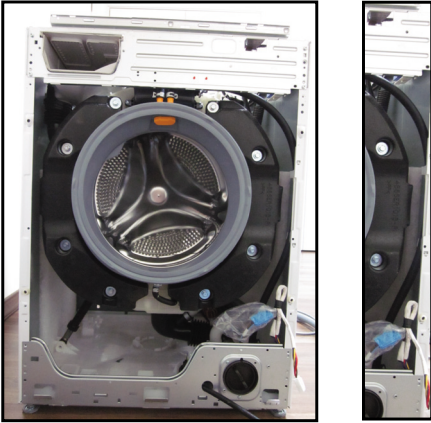
Hall Sensor



- Common ~ Ha (5~15kΩ)
- Common ~ Hb (5~15kΩ)

- 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)

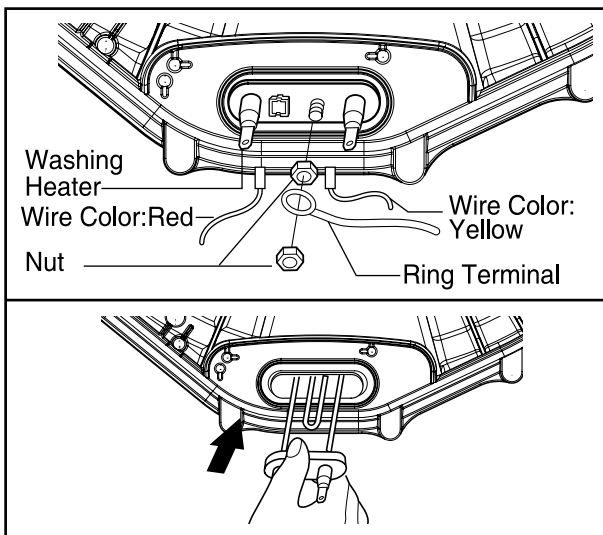
PUMP



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

- ② Remove pump outlet hose.
- ③ Remove tub pump bellows.
- ④ Remove cap (remaining Hose).
- ⑤ Disconnect the wiring.
- ⑥ Unscrew three screws from the cabinet.
- ⑦ Remove the pump to arrow direction.
 - Rating : 220V 50 Hz
 - Resistant : 162~176Ω

HEATER



- ① Loosen the nut.
- ② Remove washing heater by pulling out.

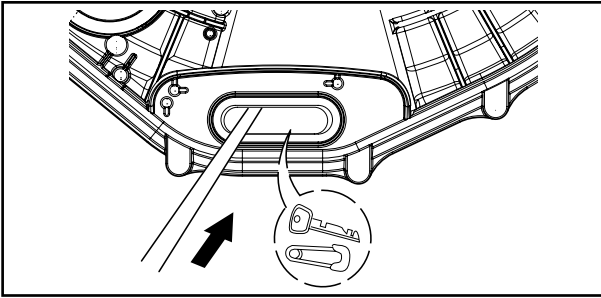
< Heater for Washing >

- Rating : 230V 2000W
- Resistant : 24.5~28.5Ω

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

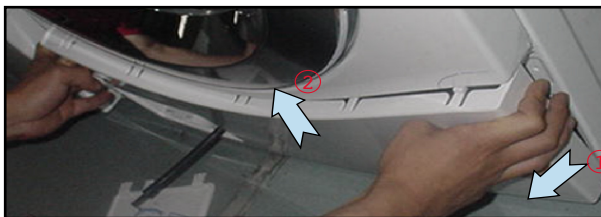


- ① Remove washing heater.
- ② Remove the foreign object(wire,coin,etc) by inserting long bar in the hole.

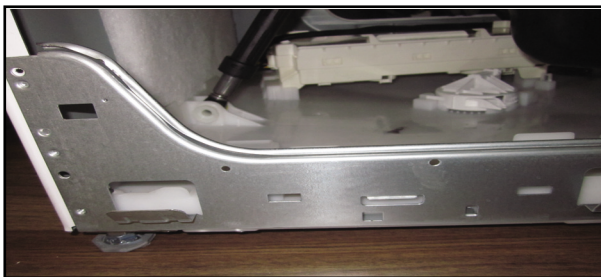
SWITCH ASSEMBLY, SAFETY



- ① Disassembly lower cover assembly.



- ② Disconnect the wiring connector.
First, Press hook and turn the safety switch assembly.

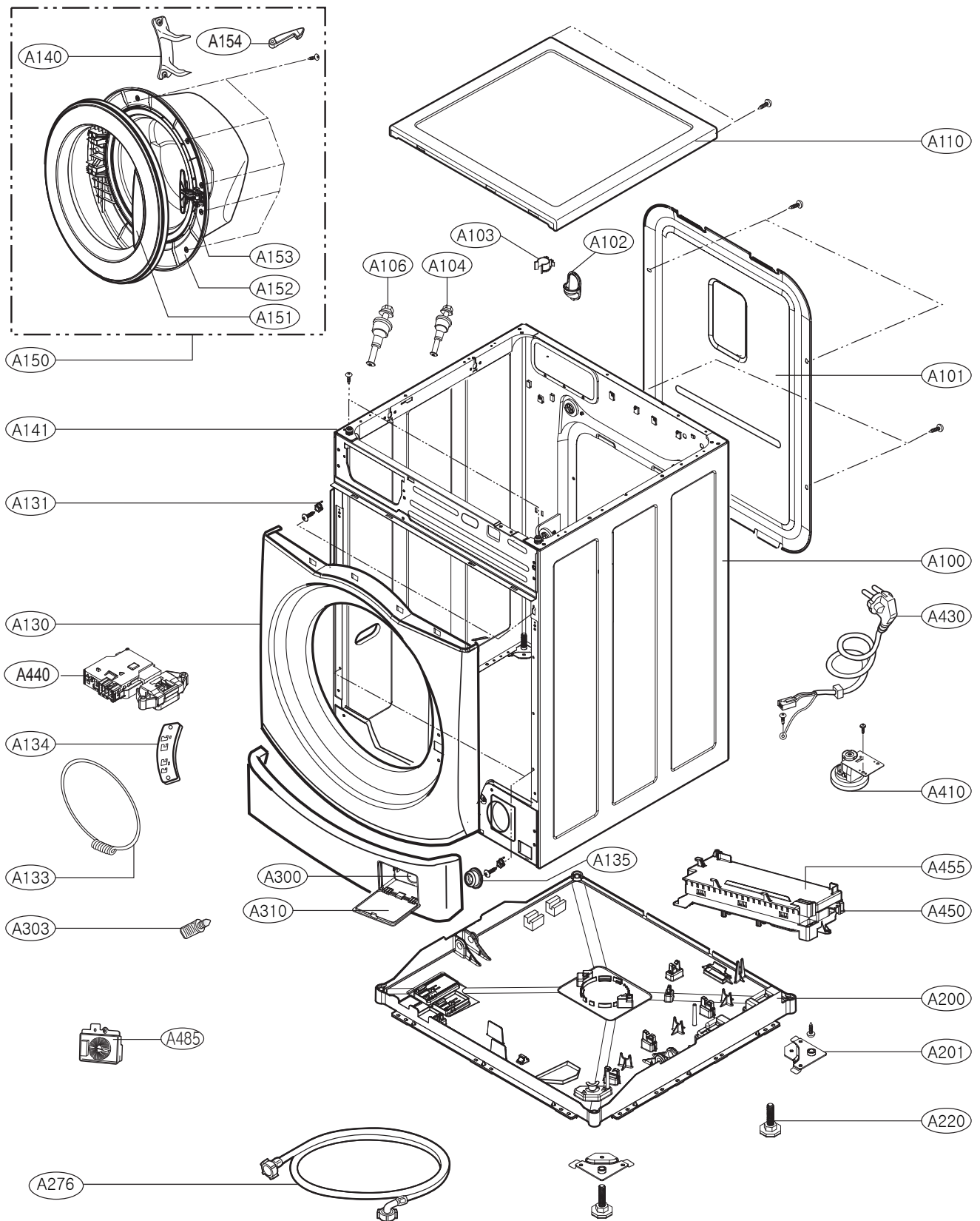


- ③ Disassembly the safety switch assembly from the base assembly.

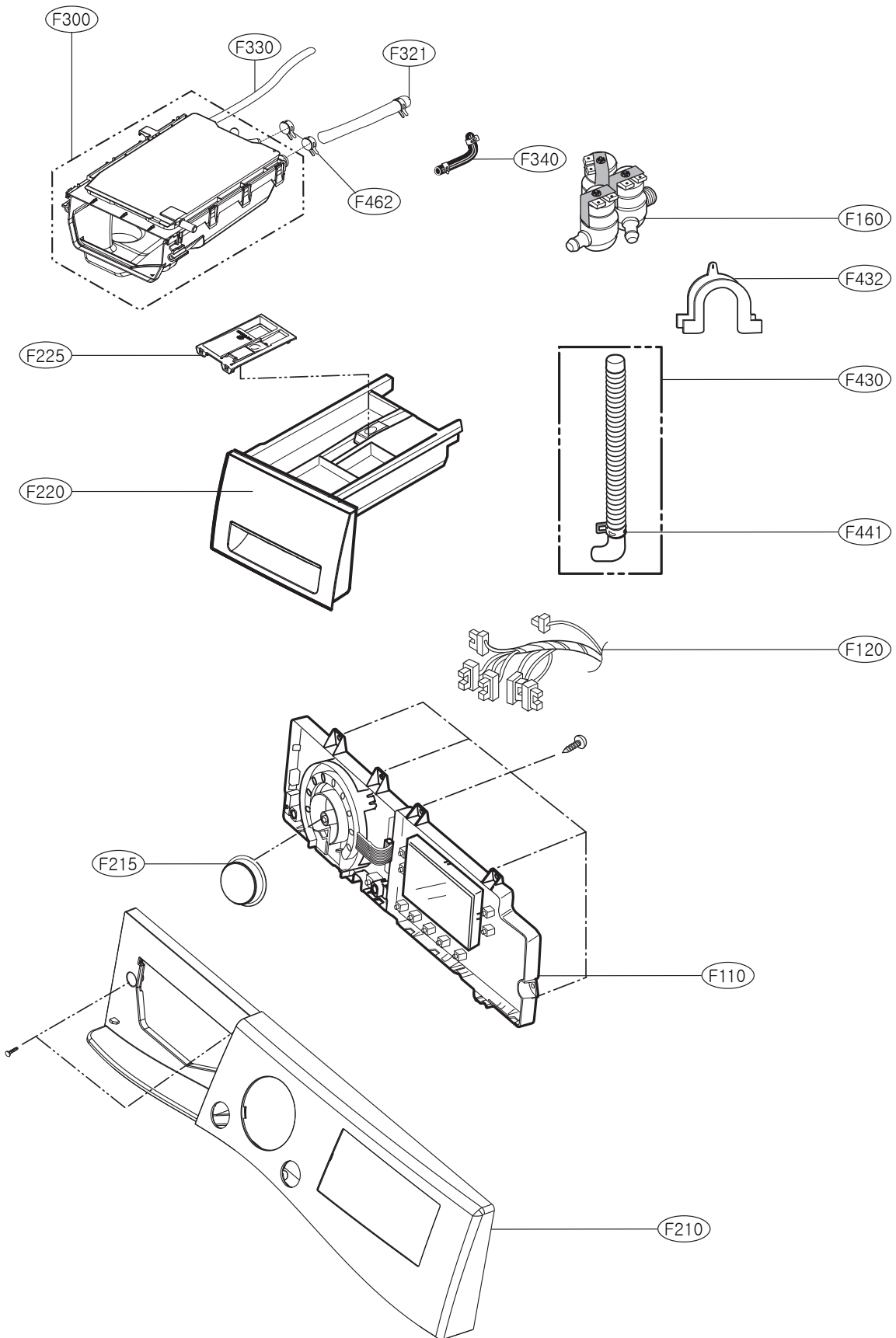


11. EXPLODED VIEW AND PART LIST

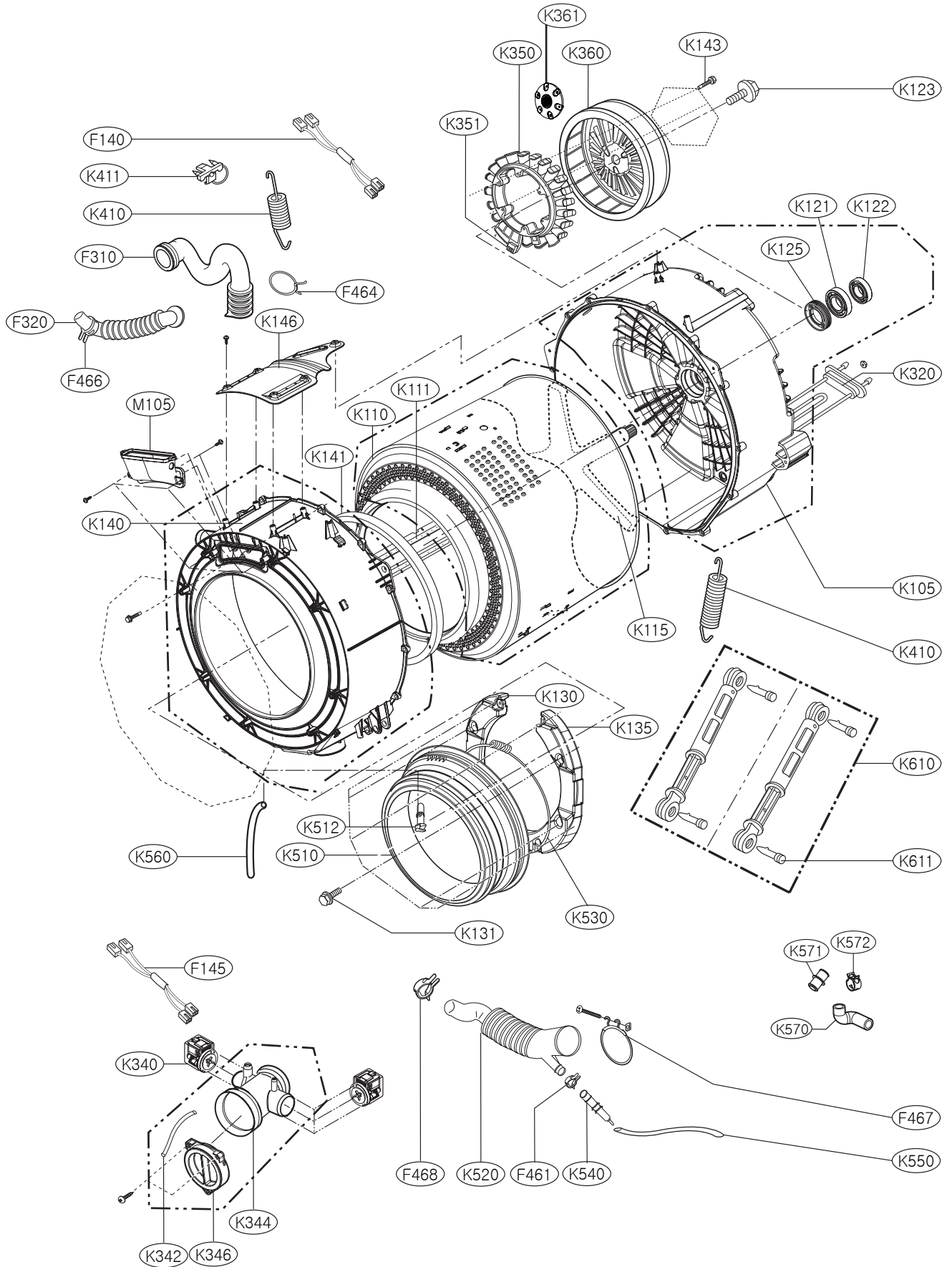
11-1. THE PART LIST OF CABINET ASSEMBLY



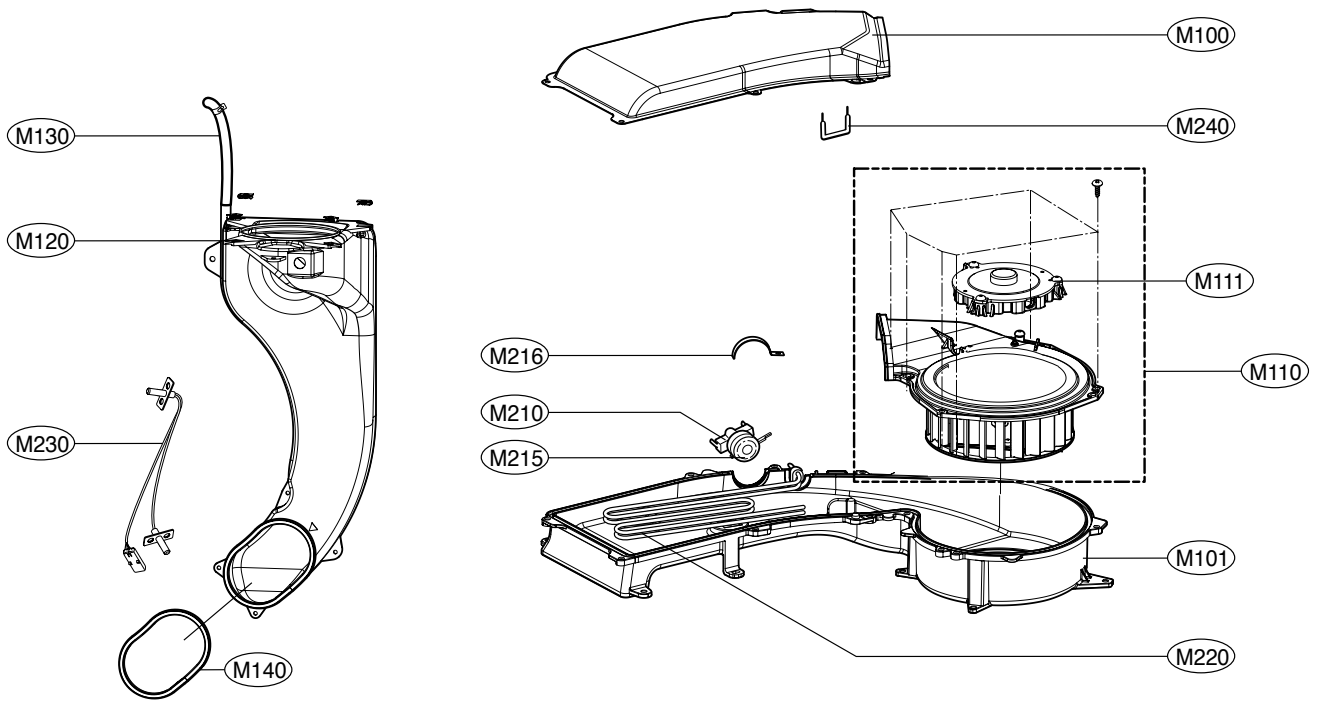
11-2. THE EXPLODED VIEW OF CONTROL PANEL & DISPENSER ASSEMBLY

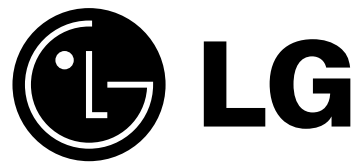


10-3. THE EXPLODED VIEW OF DRUM & TUB ASSEMBLY



11-4. THE EXPLODED VIEW OF DRYER





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