CONFIDENTIAL

WASHING MACHINE
SERVICE MANUAL

⚠ CAUTION

READ THIS MANUAL CAREFULLY TO DIAGNOSE PROBLEMS CORRECTLY BEFORE SERVICING THE UNIT.

MODELS : WM3400CW

CONTENTS

1. SPECIFICATIONS

ITEM		WM3400CW
COLOR		Blue White
POWER SUPPLY		AC 120 V, 60 Hz
PRODUCT WEIGHT		189.6lb (86 kg)
ELECTRIC POWER CONSUMPTION	WASHING	225W
	DRAIN MOTOR	40W
	WASH HEATER	N/A
REVOLUTION SPEED	WASH	46 rpm
	SPIN	0-1,300 rpm
CYCLES		8
WASH/RINSE TEMPERATURES		5
SPIN SPEEDS		3
OPTIONS		Cold Wash, Signal, Delay Wash, Extra Rinse, Pre Wash. Rinse+Spin, Control Lock, Spin Only
WATER CIRCULATION		X
OPERATIONAL WATER PRESSURE		14.5 – 142 PSI (100 – 980kPa)
CONTROL TYPE		Electronic
WASH CAPACITY [cu.ft.]		(4.5 DOE)
DIMENSIONS		27”(W) X 29 3/4”(D) X 38 11/16”(H), 51”(D, door open)
DELAY WASH		up to 19 hours
DOOR SWITCH TYPE		PTC + Solenoid
WATER LEVEL		10 steps (by sensor)
LAUNDRY LOAD SENSING		O
ERROR DIAGNOSIS		O
AUTO POWER OFF		O
CONTROL LOCK		O

⚠ WARNING To reduce the risk of injury you must a dhere to all industry recommended sa fety procedures including the use of long sleeved gloves a nd sa fety gla sses. Fa ilure to follow a ll of the sa fety wa rnings in this ma nua l could result in property da mage, injury, or dea th.

2. FEATURES & TECHNICAL EXPLANATION

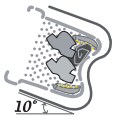
2-1. FEATURES

Ultra Capacity

The larger drum enables not just higher head drop and stronger centrifugal force, but also less tangling and wrinkling of the laundry. Heavier loads, such as king size comforters, blankets, and curtains, can be washed.

Direct Drive System

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



Tilted Drum and Extra Large Door Opening

Tilted drum and extra large opening make it possible to load and unload clothing more easily.

Automatic Wash Load Detection

Automatically detects the load and optimizes the washing time.

Control Lock

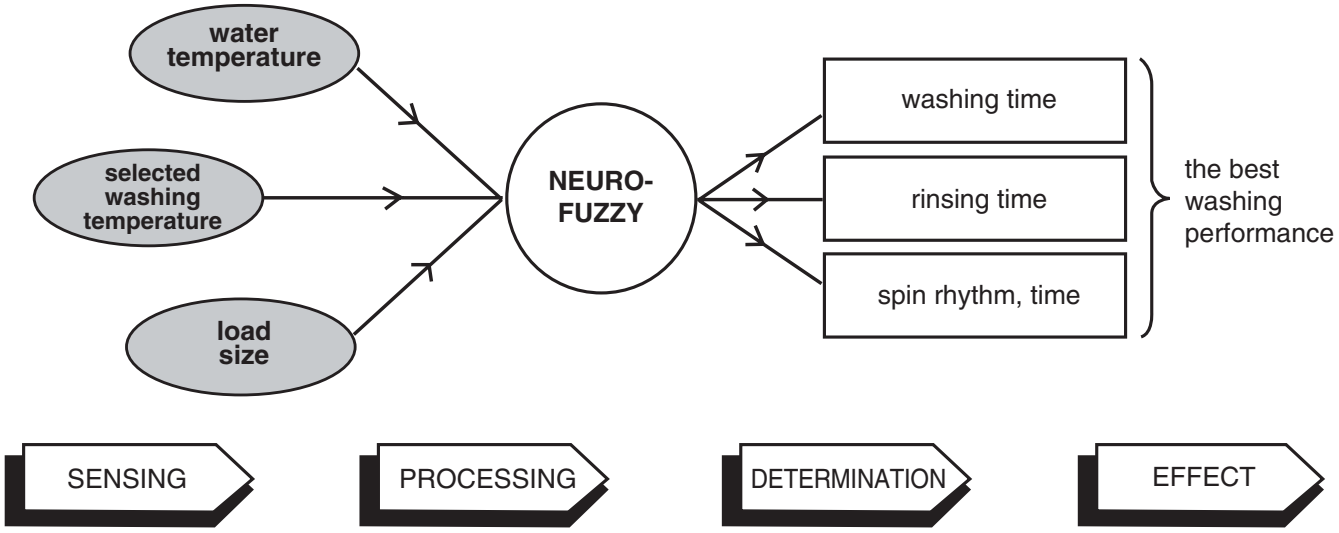
The control lock prevents children from pressing any button to change the settings during operation.

SMART DIAGNOSIS ™

Should you experience any technical difficulty with your washing machine, is capable of producing multiple distinct different motions for optimal washing performance with very little noise and vibration. The motor assembly also contains fewer moving parts, thus resulting in fewer repairs.

2-2. NEURO FUZZY WASHING TIME OPTIMIZATION

To get the best washing performance, optimal time is determined by the water temperature, the selected washing temperature, and the size of the load.



2-3. WATER LEVEL CONTROL

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

2-4. DOOR CONTROL

- The door can be opened by pulling the door handle whenever washer is not in operation.
- When the cycle is completed, the DOOR LOCKED light will turn off.
- If a power failure has occurred while in operation, the door will unlock after 5 minutes.
- Clicking sounds can be heard when the door is locked/unlocked.

2-5. THE DOOR CAN NOT BE OPENED

- While the machine is in opera tion.
- After a power failure, and the machine has been unplugged during operation.
- While the Door Lock light is on.
- While the motor is rotating, even though the operation may be paused.

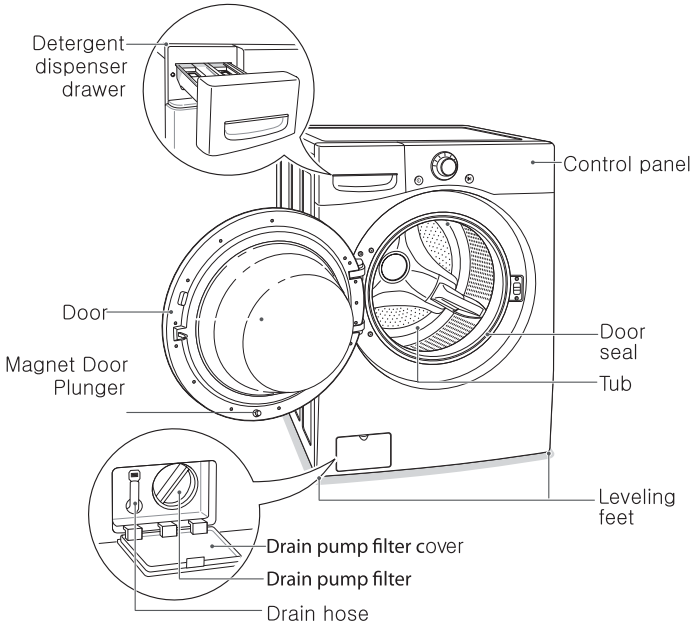
2-6. CONTROL LOCK

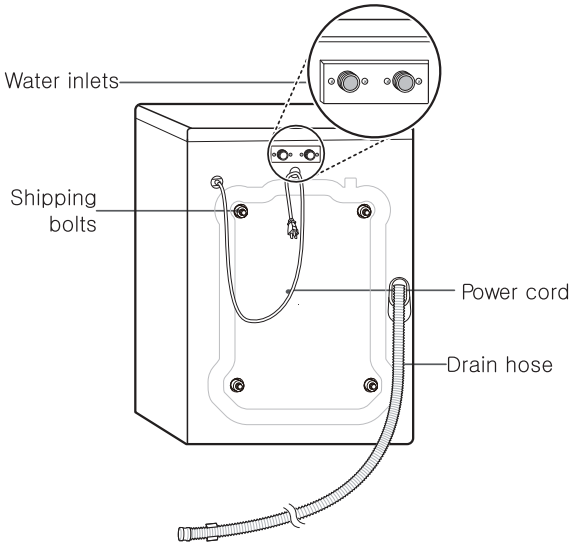
- The Control Lock is used to restrict unwanted users from operating the machine.
  Press and hold Pre Wash for 3 seconds to either lock or unlock the machine's controls
- Only the Power button remains active while the Control Lock feature is engaged.
  The Control Lock can be activated while the ma chine is already in opera tion
- The Control Lock will remain engaged until the end of the current cycle. To disengage the Control Lock Press and hold the Pre Wash button for 3 seconds

3. PARTS IDENTIFICATION

Parts and Accessories

Parts





Accessories

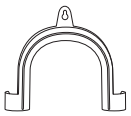
Included Accessories

Non-skid pads

Caps for covering shipping bolt holes

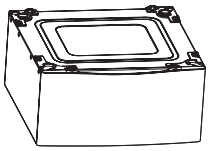
Wrench

Tie strap

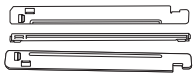


Elbow bracket (for securing drain hose)

Optional Accessories



Pedestal (sold separately)



Stacking Kit (sold separately)

Required Accessory (sold separately)

Hot/cold water hoses

- Required accessory is sold separately. It can be ordered through LG Website.
  US: www.lg.com/us

Part Number
- 5215FD3715U : Hot water hose
- 5215FD3715V : Cold water hose

NOTE

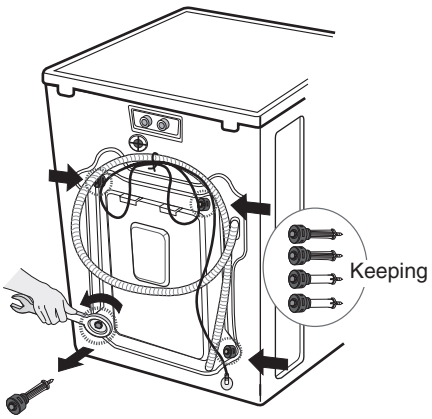
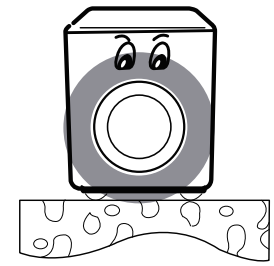
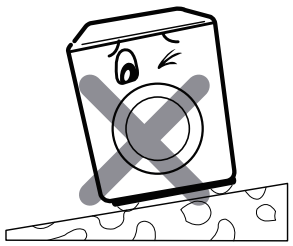
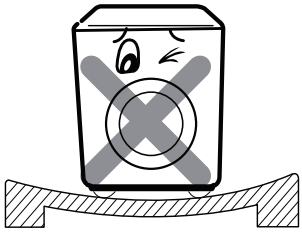
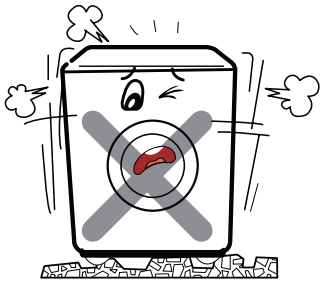
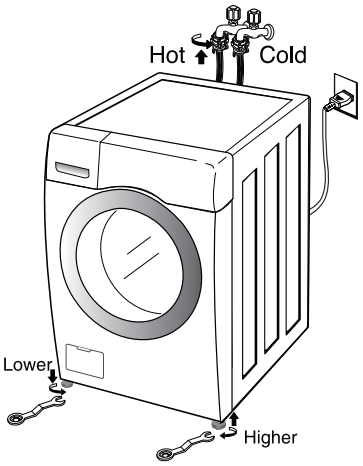
- Contact LG Customer Service at 1-800-243-0000 (1-888-542-2623 in Canada) if any accessories are missing.
- For your safety and for extended product life, use only authorized components. The manufacturer is not responsible for product malfunction or accidents caused by the use of separately purchased unauthorized components or parts.
- The images in this guide may be different from the actual components and accessories, and are subject to change by the manufacturer without prior notice for product improvement purposes.

4. INSTALLATION & TEST

1 Before servicing, ask the customer what the trouble is.
2 When installing or repairing the washer, put on long gloves and safety glasses.
3 Check the setup (power supply is 120 VAC, remove the transit bolts, level the washer, etc.)
4 Check with the troubleshooting guide.
5 Plan your service method by referring to the disassembly instructions.
6 Service the unit.
7 After servicing, operate the appliance to see whether it functions correctly.

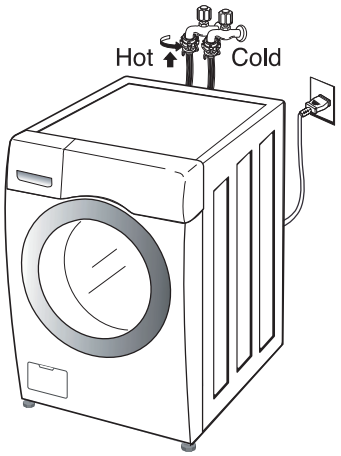
■ STANDARD INSTALLATION

The appliance should be installed as follows:

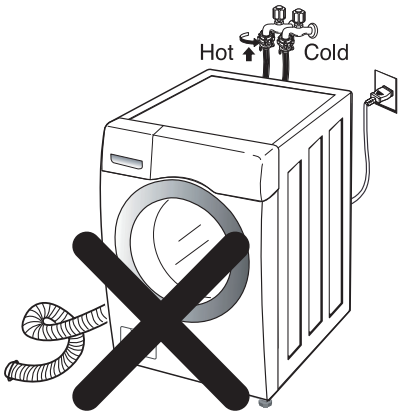
REMOVE THE SHIPPING BOLTS	INSTALL THE APPLIANCE ON A FLAT AND FIRM SURFACE	ADJUST THE LEVELING
• Remove the 4 shipping bolts with the supplied wrench. ※ Remove the lower bolts fist. It is easier that way. • Keep the shipping bolts and spanner for future use. • Insert the 4 caps (provided) into the hole. 	   	• Turn the leveling feet to adjust the appliance.  • Turn clockwise to raise; counterclockwise to lower.

■ HOW TO CONNECT THE INLET HOSE

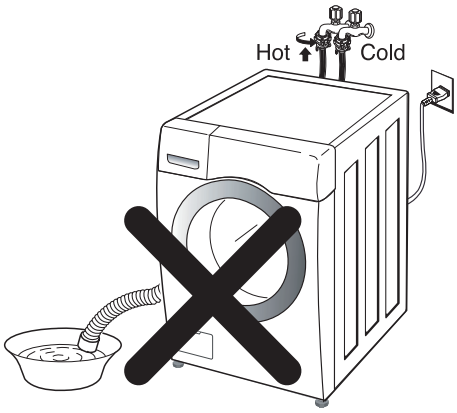
- Verify that the rubber washer is inside of the valve connector.
- Tighten the inlet hose securely to prevent leaks.
- Install the inlet hose to correct temperature water tap.
  Otherwise, it cause drips on the drawer panel handle and drawer panel.



■ CONNECT THE DRAIN HOSE



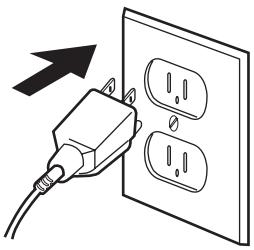
- Make sure that the hose is not twisted.



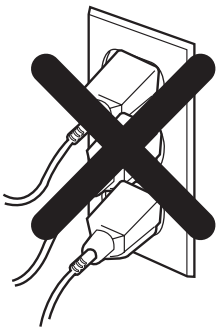
- Avoid submerging the end of the hose.

※ The end of the drain hose should be placed less than 96” from the floor.

■ CONNECT POWER PLUG



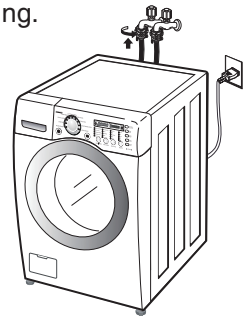
- Connect the power plug to the wall outlet.



- Avoid connecting several electric devices, as doing so may cause a fire.

7 TEST OPERATION

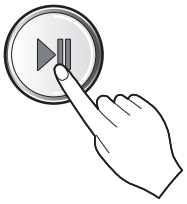
1 Preparation for washing.



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

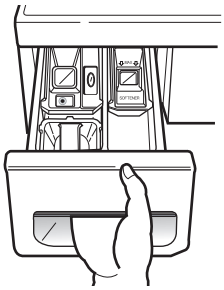
2 Press the POWER button.

3 Press the START/PAUSE button.



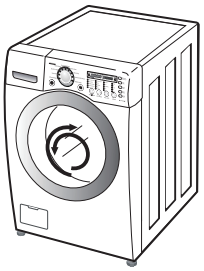
- Listen for a click to determine if the door has locked.

4 Check the water supply.



- Check if water is supplied through the detergent dispenser.

5 Check the automatic reverse rotation.



- Check if the drum rotates clockwise and counterclockwise.

6 Check the water heating function.

- Press the WASH/RINSE button and the present temperature will be displayed.

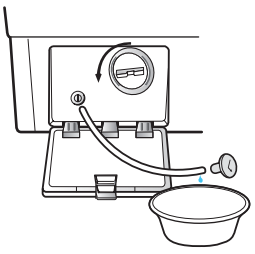
7 Check the drain and spin functions.

- Power off and the power on.
- Press the SPIN SPEED button.
- Press the START/PAUSE button.
- Check the spin and drain functions.

8 Press the START/PAUSE button.

- Listen for a click to determine if the door is unlocking.

9 Water removal

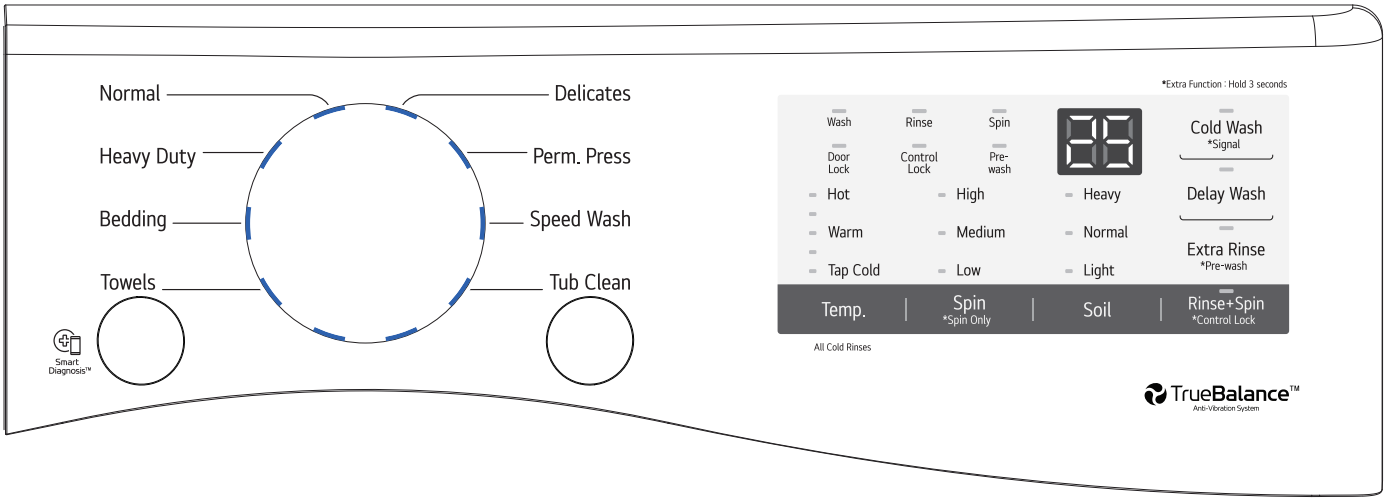


- If SERVICE is needed during check, remove the remaining water by pulling out the hose cap.

5. OPERATION

5-1. CONTROL PANEL FEATURE S

■ WM3400CW



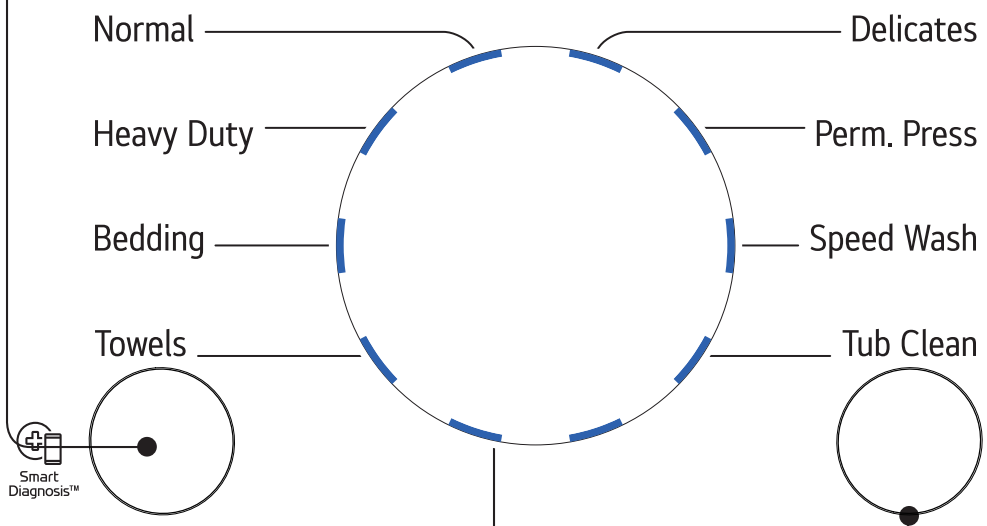
ENGLISH

Power Button

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

Status Indicator

- It shows elapsed time of the cycle the washer is operating.



Cycle Selector Knob

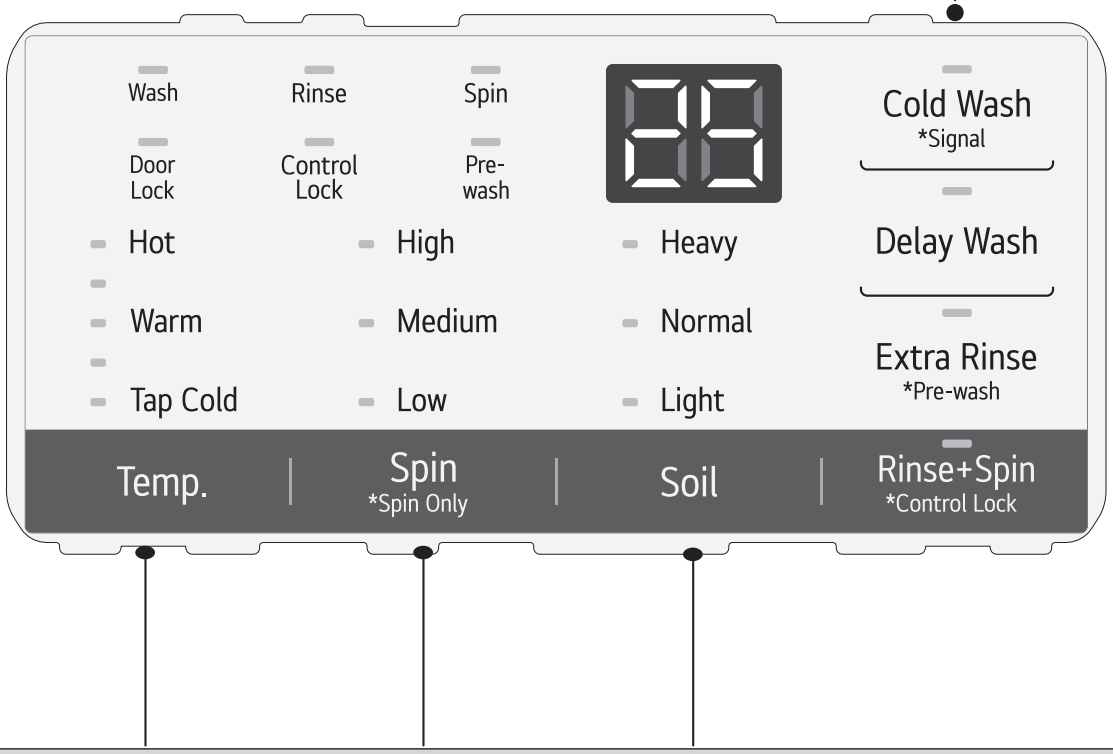
- Rotate the Cycle selector knob to select the cycle designed for different types of fabric and soil levels.

Start/Pause

- Use this button to Start/Stop the washer.

Option Button

- **Pre Wash : Use the Pre Wash button to select to wash temporary before to start the course which you chosen.**
- **Delay Wash : Once you have selected the cycle and other settings, press this button to delay the start of the wash cycle.**
- **Cold Wash™ : Use this function to wash without hot water and heating.**
- **Extra Rinse : This option will add an extra rinse cycle to the selected cycle.**
- **Rinse+Spin : Use this option to rinse detergent from load.**



Wash Temp., Spin speed, Soil Level

- Select a water temperature based on the type of load you are washing.
- To change the spin speed, press the Spin button repeatedly to cycle through available options.
- To change the soil level, press the Soil button repeatedly until the desired setting is on.
- Press repeatedly to adjust the volume of the Signal.

5-2. Cycle Guide

The cycle guide below shows the options and recommended fabric types for each cycle.

● = Available option

CYCLE	FABRIC TYPE	BASIC OPTION (★=DEFAULT)			ADDITIONAL OPTIONS					
		Wash Temp.	Spin Speed	Soil Level	Pre Wash	Extra Rinse	Steam	Cold Wash™	Turbo Wash™	Delay Wash
Towels	Towels	Hot Warm ★ Semi Warm Cold Tap Cold	High★ Medium Low	Heavy Normal★ Light	●	●		●		●
Bedding		Hot Warm ★ Semi Warm Cold Tap Cold	High Medium★ Low	Heavy Normal★ Light	●	●		●		●
Heavy Duty	Heavy soiled Cotton Fabrics	Hot Warm★ Semi Warm Cold Tap Cold	High★ Medium Low	Heavy ★ Normal Light	●	●		●		●
Normal	Cotton, linen, towels, shirts, sheets, jeans, mixed loads	Hot Warm★ Semi Warm Cold Tap Cold	High★ Medium Low	Heavy Normal★ Light	●	●		●		●
Delicates	Dress shirts/ blouses, nylons, sheer or lacy garments	Warm Semi Warm Cold★ Tap Cold	Medium★ Low	Heavy Normal★ Light	●	●		●		●
Perm.Press	Dress shirts/pants, wrinkle-free clothing, poly/ cotton blend clothing, tablecloths	Hot Warm★ Semi Warm Cold Tap Cold	High Medium★ Low	Heavy Normal★ Light	●	●		●		●
Speed Wash	Lightly soiled clothing and small loads	Hot★ Warm Semi Warm Cold Tap Cold	High★ Medium Low	Heavy Normal Light★		●		●		●
Tub Clean	This cycle is designed to remove a mildewy or musty smell.									●

-Cycle time depends on type and amount of load and detergent,water pressure and chosen additional options.

5-3. SPECIAL FUNCTIONS

The option buttons also activate special functions, including SPIN ONLY, CONTROL LOCK and SIGNAL ON/OFF. Press and hold the option button marked with the special function for 3 seconds to activate.

Spin Only

This option spins the load without a wash or rinse cycle. this is useful for spinning dry hand-washables.

Press and hold the Spin button for 3 seconds.

Control Lock

Use this option to disable the controls. This feature can prevent children from changing cycles or operating the machine. The feature does not lock the door. Once the Control Lock is set, it must be deactivated before any controls, except the **Power** button, can be used. Once the washer has shut off, the **Power** button will allow the machine to be turned on, but the controls will still be locked. When the controls are locked, LL will display alternately with the estimated time remaining.

Locking/Unlocking the Control Panel

Press and hold the **Rinse+Spin** button for 3 seconds.

Signal

The washer plays a melody when the wash cycle is finished. The buttons make a sound each time a button is pressed. Use this option to adjust the volume of the melody and button tones. Press and hold the **Cold Wash** button for 3 seconds

5-4. Explanation of each process

No.	Process	Explanation
1.	Stay	• Electrical power is supplied. • Washer is ready to work and the micom is in the active mode.
2.	Water supply	• After loading laundry and selecting a course and a cycle, water is supplied and drum rotates. • When a user selects Pre-wash course, water is supplied through pre wash valve.
3.	Soaking and washing laundry	• To get laundry wet, drum rotates clockwise and counterclockwise. • If water amount is insufficient at this time, the Inlet valve will supply water again.
4.	Heating and washing	• The heater heats the water in drum to the selected water temperature and drum rotates for washing.
5. 6.	Washing and heating / washing	• When the water temperature reaches to the selected temperature, the heating stops and only the drum rotates. • If water temperature becomes lower than selected because of re-supplied water, the heating starts again.
7.	Washing	• Fuzzy logic decides washing time according to the laundry load, water temperature, and other factors.
8.	Drainage	• A pump motor drains the water from the drum. • After sensing drained water amount by water level frequency, spin starts. • When a heating course is selected, stay cooling process is performed to decrease the water temperature gradually to prevent laundry from being damaged and for safety reasons.
9.	Untangling (Sensing eccent-ricity)	• It balances laundry load and senses the eccentricity of the load, to only allow spinning without vibration. • If the eccentricity is worse than the allowed level, it repeats the disentangling process. When the repeated time is more than allowed level, it displays UE. • If the eccentricity is good, the intermittent spin starts. • During this process, the drain pump works for drainage intermittently.

No.	Process	Explanation
10	Intermittent spin	• To reach the correct set speed, the motor rotates clockwise and counterclockwise directions after spin process starts. • If the water level frequency is lower than 23.0 kHz, a washer senses suds and starts suds removal process.
11	Rinse spin	• In this process, the remaining water during washing process is extracted and the selected speed is kept. • Removing suds process is in active mode at this cycle.
12	Remaining spin	• After spin finishes, the drum rotates by remaining spin power until it stops. Motor power is off. • This process is overlapped with next process.
13	Rinse water supply	• Water supply for rinse process.
14	Rinse	• Rinsing process.
15	Last drainage	• After spin finishes and power is not supplied to motor, the drum rotates by remaining spin power. • If rinse hold is selected, the drainage is not proceeded after rinse finishes.
16	Disentangling	• The same as item 9.
17	Intermittent spin	• The same as item 10.
18	Main spin1	• The same as item 11.
19	Main spin2	• At the end of a main spin, the spin speed will reach the selected rpm.
20	Remaining spin	• The same with item 12.
21	Disentangling	• After spin finishes, disentangling starts to remove unbalanced laundry.
22	End	• After ‘end’ signal is displayed, it stays for 8 seconds and power is automatically turned off. (Auto type door switch) • After door switch is off, end signal is displayed in the case of manual type and it takes around 2 minute to turn off door switch.

6. TEST MODE

6-1. SAFETY CAUTION

- There can be live AC and DC voltage on some terminals on the main board, even when the machine is turned off. Be cautious to avoid electric shock when disconnecting parts while troubleshooting. (Wear Static Discharge gloves when working.)
- After cutting off the power when changing the PWB disconnecting, or reassembling.
- Be careful static when handling the PWB assembly, and use Electro Static Discharge plastic pack when shipping or storing it.

6-2. LOAD TEST MODE

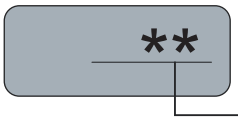
The washer must be empty and the controls must be in the off state.

1. Touch the **SPIN** and **SOIL** and then press the POWER button.
2. Then buzzer will sound twice.
3. 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 a ll lamps a nd locks the door	LOAD TEST MODE
1 time	Tumble clockwise.	Rpm (45~50)
2 times	Low speed spin.	Rpm (55~60)
3 times	High speed spin.	Rpm (110~115)
4 times	Inlet valve for prewash turns on.	Water level frequency (0~255)
5 times	Inlet valve for main wash turns on.	Water level frequency (0~255)
6 times	Inlet valve for hot water turns on.	Water level frequency (0~255)
7 times	Inlet valve for bleach turns on.	Water level frequency (0~255)
8 times	Tumble counterclockwise.	rpm (42~50)
9 times	Drain pump turns on.	Water level frequency (25~65)
10 times	off	-

6-3. HOW TO CHECK THE WATER LEVEL FFREQUENCY

Press and hold the **Temp** and **Cold Wash** button simultaneously.



The digits indicate the water level frequency (x.1 kHz).

so, for exampe a display indicating 49 : a water level frequency of 249 x.1 kHz

= 24.1 kHz

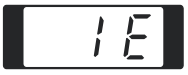
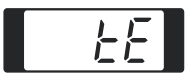
7. TROUBLESHOOTING

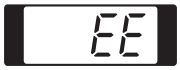
7-1. SAFETY CAUTION

- TThere can be live AC and DC voltage on terminals on the main board, even when the machine is turned off. Be cautious to avoid electric shock when disconnecting parts while troubleshooting. (Wear Electro Static Discharge gloves when working.)
- After cutting off the power when changing the PWB assembly, disconnecting, or reassembling.
- Be careful static when handling the PWB assembly, and use Electro Static Discharge plastic pack when shipping or storing it.

7-2. ERROR MODE SUMMARY

- If you press the START/PAUSE button when an error is displayed, any error except PE will disappear and the machine will go into the pause status.
- In case of PE tE dE1 dE2 if the error is not resolved within 20 seconds, or the in case of other errors, if the error is not resolved within 4 minutes, power will be turned off automatically and the error code will blink. But in the case FE , power will not be turned off.

	ERROR	SYMPTOM	CAUSE
1	WATER INLET ERROR		• Correct water level (24.6kHz) is not reached within 8 minutes after water is supplied or it does not reach the preset water level within 20 minutes.
2	UNBALANCE ERROR		• The load is too small. • The appliance is tilted. • Laundry is gathered to one side. • Non-distributable things are put into the drum.
3	DRAIN ERROR		• Not fully drained within 10 minutes.
4	OVERFLOW ERROR		• Water is overflowing. (water level frequency is over 21.3kHz). ※ If FE is displayed, the drain pump will operate to drain the water automatically.
5	PRESSURE SENSOR ERROR		• The PRESSURE SENSOR ASSEMBLY is out of order. • When water level frequency is consistently below 10 kHz or over 30 kHz.
6	DOOR OPEN ERROR		• Door not all the way closed. • Loose electrical connections at door switch and PWB Assembly. • The DOOR SWITCH ASSEMBLY is out of order.
7	HEATING ERROR		• The THERMISTOR is out of order.

	ERROR	SYMPTOM	CAUSE
8	LOCKED MOTOR ERROR		• The connector (3-pin, male, white) in the MOTOR HARNESS is not connected to the connector (3-pin, female, white) of STATOR ASSEMBLY. • The electric contact between the connectors (3-pin, male, white) in the MOTOR HARNESS and 4-pin, female, white connector in the MAIN PWB ASSEMBLY is bad or unstable. • The MOTOR HARNESS between the STATOR ASSEMBLY and MAIN PWB ASSEMBLY is cut (open circuited).
9	EEPROM ERROR		• EEPROM is out of order. ※ Displayed only when the START/PAUSE button is first pressed in the Load Test Mode.
10	POWER FAILURE		machine is working, the power is supplied rapidly.
11	Suds Error		• If the washing machine detects too many suds, it displays this error code and adds Suds Reducing cycle. This adds about two hours to the cycle time. If too many suds are detected during spinning, the washing machine stops to help prevent leaking.

7-3. TROUBLESHOOTING WITH ERROR

INLET VALVE ERROR

Is 1E displayed?

Yes

When you press both **Cold Wash button and Temp.** button simultaneously, is the water level frequency below 24.6 kHz?

Yes → Check the AIR CHAMBER and the tube (clogged).

No

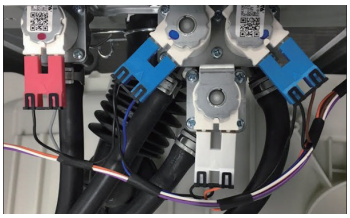
Is filter inlet valve clogged with foreign material?

Yes → Clean or replace the filter.

No

Are the inlet valve connectors broken or loose?

Yes → Reconnect or repair the connector.



No

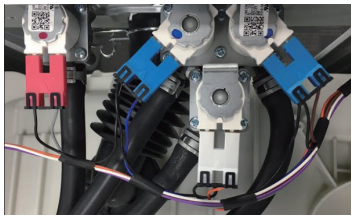
Is resistance between each terminal of INLET VALVE ASSEMBLY 0.8–1.2 kΩ?
(Refer to 9-5 inlet valve assembly. See page 41.)

No → Replace the INLET VALVE ASSEMBLY.

Yes

Is the voltage of the inlet valve connector 12.5V ~ 13.6V DC? (Check the all terminal of INLET VALVE ASSEMBLY while the power is on.)

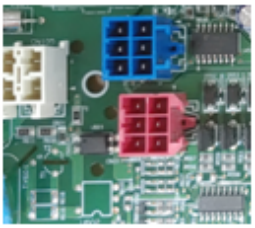
Yes → Replace the INLET VALVE ASSEMBLY.



No

Is the connector connected to MAIN PWB assembly disconnected or dis-assembled? (CN551)

Yes → Reconnect or repair the connector.



No

Is Electrical connection correct?
(Refer to 9-5 wiring diagram. See page 41.)

No → Replace the MAIN HARNESS.

Yes

After checking connector, is the water level frequency below 24.6 kHz?

Yes → Check the PRESSURE SWITCH.

No

Replace the MAIN PWB ASSEMBLY.

[Note] Installation safety check list

1) No water tap leakage
2) No water tap freeze
3) No entanglement of water supply hose
4) No water shortage
5) No shrinkage on water supply hose due to a possible misuse of hot and cold water
6) No water supply hose leakage

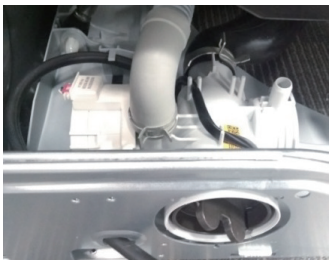
DRAIN ERROR

Is dE displayed?

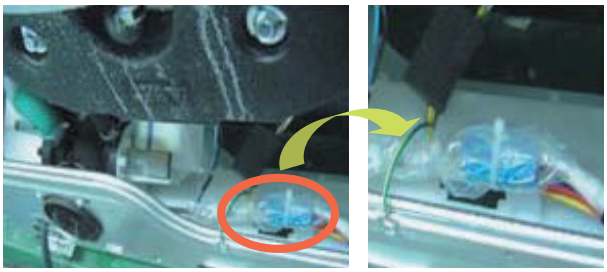
Yes

Check the connectors at the main PCB and the drain pump. Are the connectors loose or disconnected?

Yes → Reconnect or repair the connector.



Drain pump



Connection connector

No

When you press both **Cold Wash button and Temp.** button simultaneously, is the water level <250?

No → Check the air dome and pressure hose for clogging. Check the pressure switch. See test #2.

Yes

Proceed to next step at right

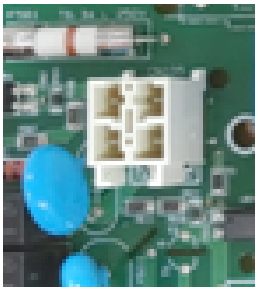
Measure the resistance of the drain pump motor. Is the resistance between 10 Ω and 20Ω ?
(Refer to 9-4 Pump motor assembly.)

Yes → Replace the DRAIN PUMP ASSEMBLY.

No

Check the voltage between the main PCB connectors **CN105-1,4. Is the voltage 120 VAC ± 5%?**

No → Replace the MAIN PWB ASSEMBLY.



TO TURN ON THE DRAIN PUMP:

1. Turn on the washer
2. Press the Spin Only button to select low speed.
3. Press the START/PAUSE button.
   The drain pump will be energized for several minutes at the beginning of the spin cycle.

ALWAYS CHECK FOR EXTERNAL CAUSES
Kinked or clogged drain hose
Frozen drain hose
Foreign objects clogging the drain pump filter
Foreign objects caught in pump impeller

LOCKED MOTOR ERROR

Is ⚠ **LE ERROR** displayed?

Yes

Check the connectors below.
Is the connector disconnected or disassembled?
(
motor drive connector.)

- **part of main PWB assembly (CN301)**

Motor Drive

Yes → Reconnect the connector. (connector / wire / motor)

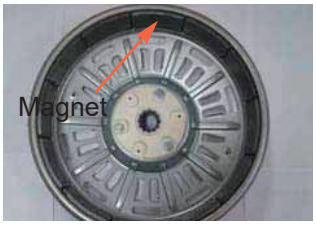
- **part of wire**

- **part of motor**

Motor

Yes

Is rotor magnet cracked?



Yes → Replace the ROTOR.

No

Is the resistance values in the range of 5 to 15 Ω
(U-V, V-W, W-V
:U=1, V=2, W=3)

- After pull out the CN301 connector, check the terminal of the connector in wire. (Grey 3P, male)

No → Replace the STATOR.

Yes

Check the IPM in the controller.

No → Replace the MAIN PWB ASSEMBLY.

DOOR OPEN ERROR

Is ⚠ **dE ERROR** displayed?

Yes

Is the connector connected to door switch or main PWB disconnected?

No → Reconnect or repair the connector.

Yes

Does the spring of Latch Hook actuate?

No → Replace Door Assembly.

Yes

Is there clicking sound once or twice when the **START/PAUSE** button is pressed to start the cycle?

No → Replace the PCB ASSEMBLY.

Yes

Is DOOR SWITCH ASSEMBLY broken?

No → Replace the DOOR SWITCH ASSEMBLY.

[Note] Environmental check list

1) The machine must operate with all the doors completely closed and locked.
2) The washing area must operate with a water temperature not higher than 45 Celsius and must not have more amount of supplied water than it should.

UNBALANCE ERROR

Is UE displayed?

Yes

Does the laundry lean toward one side, not evenly put in the DRUM assembly? Yes → Put laundry evenly In the DRUM assembly

No

Is the washing machine installed at an angle? Yes → Adjust the height of washing machine to be kept horizontally.

[Note] Installation check list

1) Remove the transit bolts. (4)
2) Confirmation on the material to see if it is capable of handling two different types of blanket materials.

OVER FLOW ERROR

Is FE displayed?

Yes

When you touch both Cold Wash and Temp button simultaneously, is the water level frequency over 21.3KHz? No → Check the AIR CHAMBER and the tube (clogged).

Yes

Does the inlet valve work when the power is not applied? No → If the inlet valve is open continuously when the power is applied, Replace the MAIN PWB ASSEMBLY.

Yes

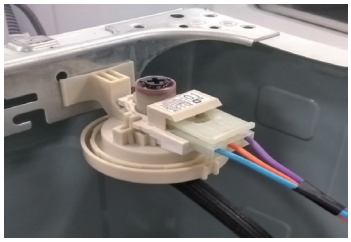
Replace the INLET VALVE ASSEMBLY.

PRESSURE SENSOR ERROR

Is ⚠ **PE ERROR** displayed?

Yes

Is the connector connected to pressure sensor disconnected or disassembled?



Yes → Reconnect or repair the connector.

No

Is the resistance of the pressure sensor out of range?
(pin 1~ pin 3)
(21~23Ω±10%)

Yes → Replace the pressure switch.

No

Is the AIR CHAMBER and the tube clogged?

Yes → Fix the air chamber and remove the foreign material.

No

Replace the MAIN PWB assembly.

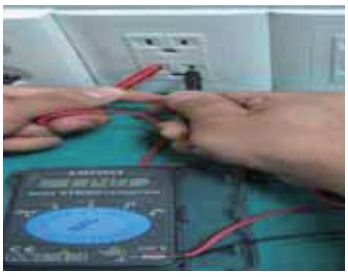
7-4. TROUBLESHOOTING ELSE

⚠ CAUTION

1. Be careful of electric shock if disconnecting parts while troubleshooting.
2. First of all, check the connection of each electrical terminal with the wiring diagram.
3. If you replace the MAIN PWB ASSEMBLY, reinsert the connectors correctly.

NO POWER

Is the supplied voltage 120V AC?(+10%, -15%)



No → Check the fuse or reset the circuit breaker.

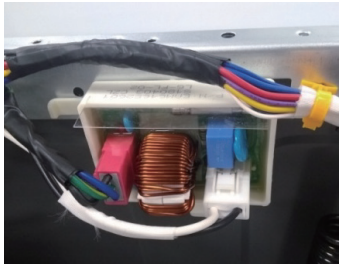
Yes ↓

Is the current rating of multi-outlet power strip enough?
(Avoid connecting several electric devices.)

No → Alternate with explanation.

Yes ↓

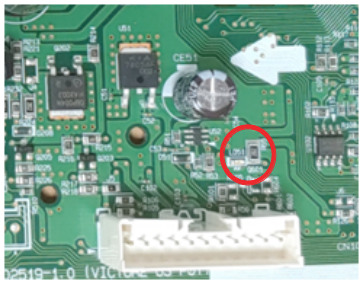
Is the connector connected to PCB/Noise filter disconnected or disassembled?



No → Reconnect or repair the connector.

Yes ↓

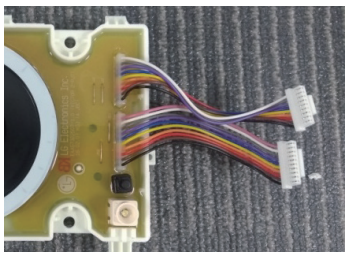
Is LED on while the power is on?



No → Replace the MAIN PWB ASSEMBLY.

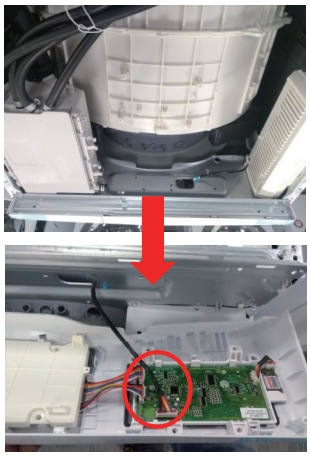
Yes ↓

Is five pin wire of display PWB broken?



Display PWB

No → Replace the DISPLAY PWB ASSEMBLY.



Connecting connector
MAIN PWB~ Display PWB

BUTTON DOESN'T WORK

Are the connectors to the MAIN board and DISPLAY board damaged or broken?

Yes → Reconnect or Repair the connector.

No

Is the button of panel stuck?

Yes → Repair the button.

No

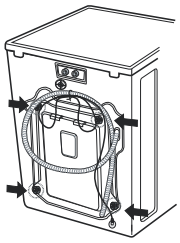
Is the display PCB broken? (check the buzzer sound and LED light while push the button.)

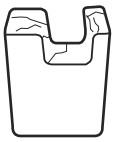
Yes → Replace the DISPLAY PWB ASSEMBLY.

VIBRATION & NOISE IN SPIN

Have all the transit bolts and base packing been removed?

No → Remove the transit bolts and base packing.





Base Packing

Yes

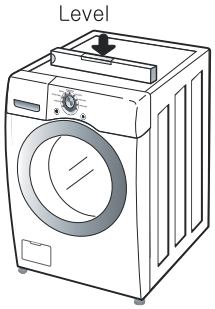
Is the washer installed on a solidly constructed floor?

No → Move the washer or reinforce the floor.

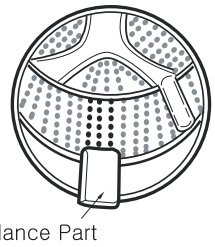
Yes

Check if the washer is perfectly level as follows:

Check the leveling of the washer with a level and check that the washer is stable.



Put an unbalance part (rubber) inside of drum and start QC test mode and run in high spin.
(Refer to section 7.2, page 19.)
When the machine is spinning in high speed, verify that it is stable.

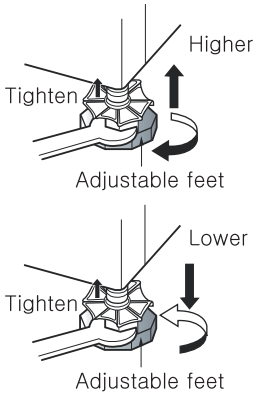


Unbalance Part

If you do not have the unbalance part, put 4.5 to 6.5 lbs (2 to 3 kg) of clothing. Once loaded, press power, Rinse+Spin and the start/pause button in sequence.
When the machine is spinning in high speed, verify that it is stable.

Yes

If it is not stable, adjust feet accordingly. After the washer is level, tighten the lock nuts up against of the base of the washer. All lock nuts must be tightened.



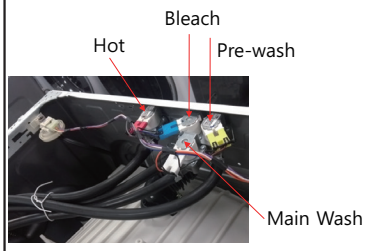
DETERGENT DOES NOT FLOW IN

Is water supplied?

No → Refer to NO WATER SUPPLY.

Yes

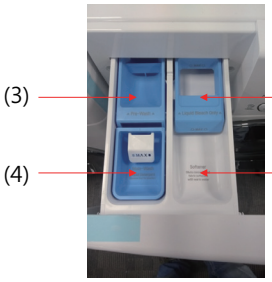
Are receptacles correctly connected to the terminals of the INLET VALVE ASSEMBLY?



No → Check the wiring.

Yes

Has detergent been put in the correct compartment of the dispenser?



(1) Liquid chlorine Bleach Compartment
(2) Liquid fabric Softener Compartment
(3) Prewash Compartment
(4) Main Wash Compartment

No → Put the detergent in the correct place.

Pre wash

Main wash

● : Detergent

Yes

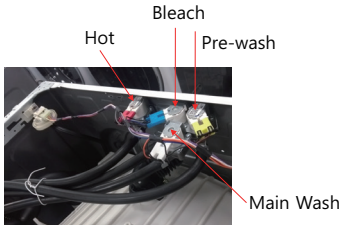
Is the detergent caked or hardened?

Yes → Clean the dispenser.

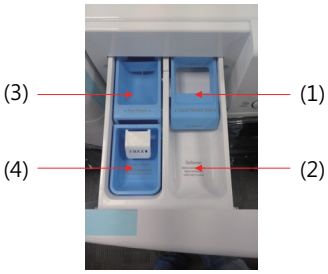
LIQUID DETERGENT/SOFTENER/ BLEACH DOES NOT FLOW IN

Is water supplied?
- No → Refer to NO WATER SUPPLY.
- Yes ↓

Are the plugs correctly connected to the terminals of the INLET VALVE ASSEMBLY?
- No → Check the wiring on the dispenser.
- Yes ↓

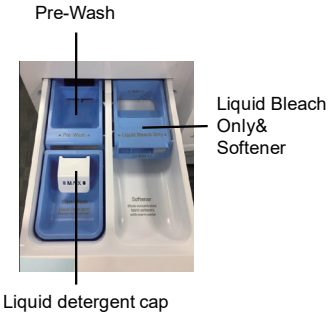


Is liquid detergent/softener/ bleach put in the correct compartment of the drawer?
- No → Put it in the correct compartment.
- Yes ↓



(1) Liquid chlorine Bleach Compartment
(2) Liquid fabric Softener Compartment
(3) Prewash Compartment
(4) Main Wash Compartment

Is the liquid detergent/ softener/bleach cap clogged?
- Yes → Clean the cap and container.



ABNORMAL SOUND

Is the motor bolt loosened?
- Yes → Secure the bolt.
- No ↓

Is there friction noise coming from the motor?
- Yes → Check hall sensor. Replace If defective. Then check stator. Replace if necessary. Check rotor for broken magnets. Replace rotor if necessary.

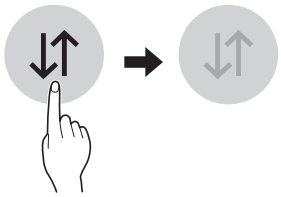
7-5. Before using the Tag On function

Before Using LG SmartThinQ

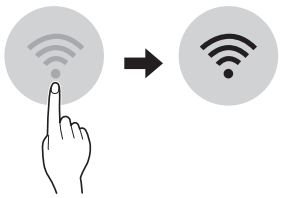
- For appliances with the SmartThinQ or SmartThinQ logo

1 Use a smartphone to check the strength of the wireless router (Wi-Fi network) near the appliance.
   - If the distance between the appliance and the wireless router is too far, the signal strength becomes weak. It may take a long time to register or installation may fail.

2 Turn off the **Mobile data** or **Cellular Data** on your smartphone.



3 Connect your smartphone to the wireless router.



NOTE

- To verify the Wi-Fi connection, check that **Wi-Fi** icon on the control panel is lit.
- The appliance supports 2.4 GHz Wi-Fi networks only. To check your network frequency, contact your Internet service provider or refer to your wireless router manual.
- LG SmartThinQ is not responsible for any network connection problems or any faults, malfunctions, or errors caused by network connection.
- The surrounding wireless environment can make the wireless network service run slowly.
- If the appliance is having trouble connecting to the Wi-Fi network, it may be too far from the router. Purchase a Wi-Fi repeater (range extender) to improve the Wi-Fi signal strength.
- The network connection may not work properly depending on the Internet service provider.
- The Wi-Fi connection may not connect or may be interrupted because of the home network environment.
- If the appliance cannot be registered due to problems with the wireless signal transmission, unplug the appliance and wait about a minute before trying again.
- If the firewall on your wireless router is enabled, disable the firewall or add an exception to it.
- The wireless network name (SSID) should be a combination of English letters and numbers. (Do not use special characters.)
- Smartphone user interface (UI) may vary depending on the mobile operating system (OS) and the manufacturer.
- If the security protocol of the router is set to **WEP**, network setup may fail. Change the security protocol (**WPA2** is recommended), and register the product again.

Installing the LG SmartThinQ Application

Search for the LG SmartThinQ application from the Google Play Store or Apple App Store on a smart phone. Follow instructions to download and install the application.

NOTE

- If you choose the simple login to access the LG SmartThinQ application, you must go through the appliance registration process each time you change your smartphone or reinstall the application.

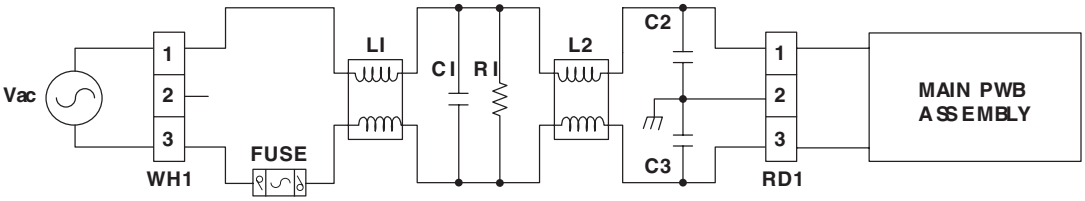
8. COMPONENT TESTING INFORMATION

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

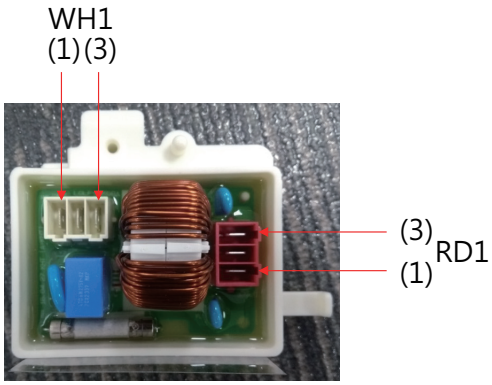
8-1. FILTER ASSEMBLY (LINE FILTER)

Wiring diagram

Circuit in the MAIN PWB / Wiring Diagram

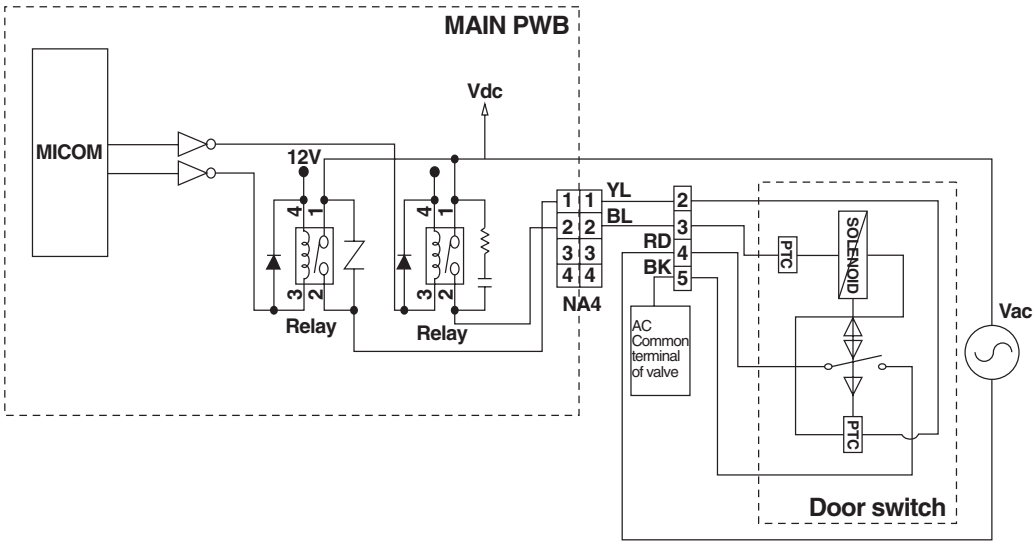


Test points and Result

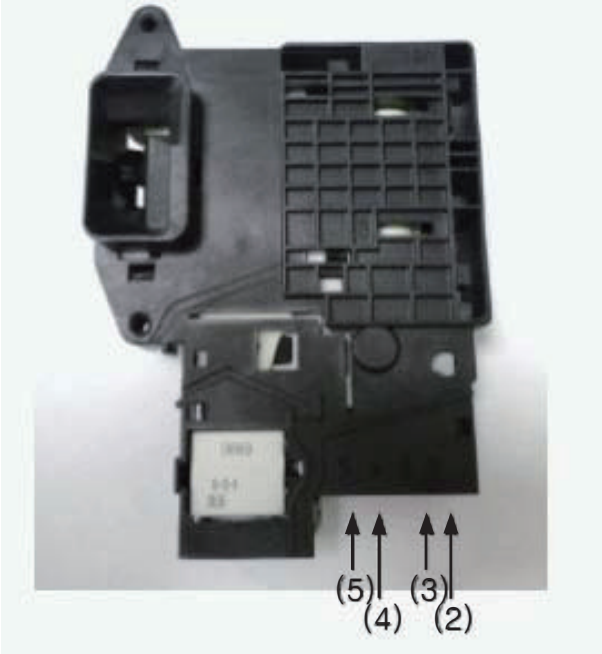


Test Points	Result
WH (1) to RD (3)	0 Ω
WH (3) to RD (1)	0 Ω

8-2. 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 the wash cycle. 1. Operation for door closing - After the system turns on, PTC heating starts up through terminals 2 and 4 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 locked. - 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



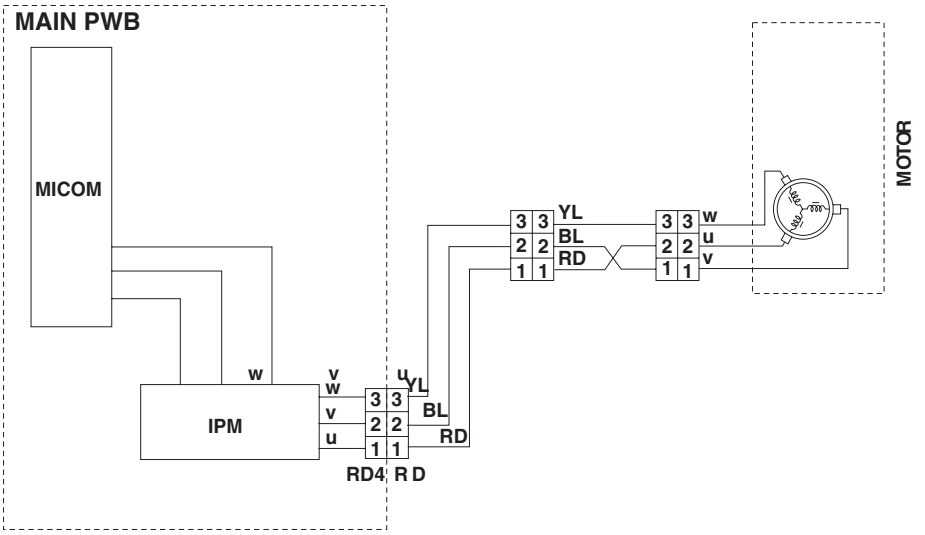
Result

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)	120 Vac	Voltage Input

8-3. STATOR ASSEMBLY

Wiring diagram

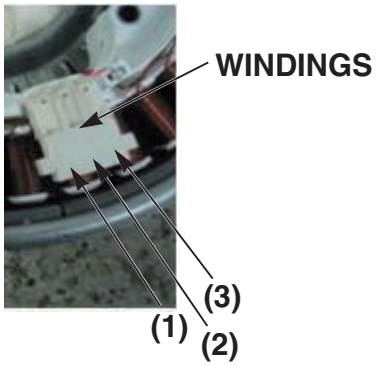
Circuit in the MAIN PWB Wiring Diagram



Function

The Direct Drive 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 brushelss motor, the rotor surrounds the stator rather than being attached to it

Test points (Windings)



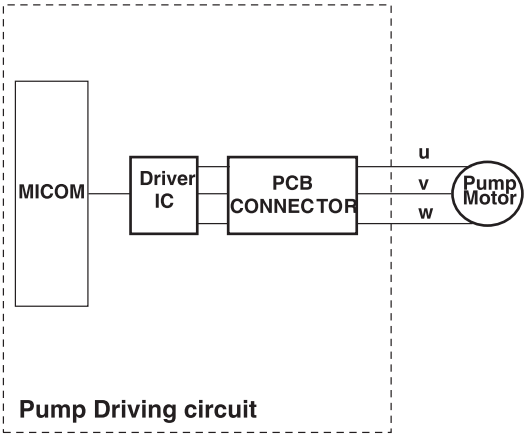
Result (Windings)

Test Points	Result
(1)to (2)	5-15 Ω
(2)to (3)	5-15 Ω
(3)to (1)	5-15 Ω

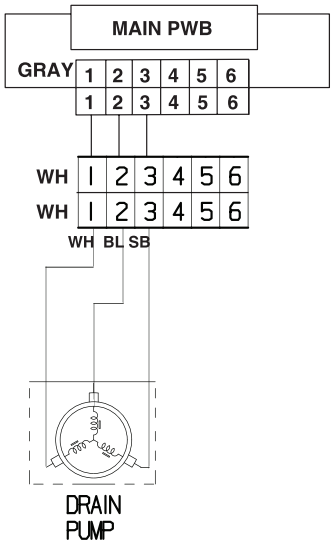
8-4. PUMP MOTOR ASSEMBLY

Wiring diagram

Circuit in the MAIN PWB

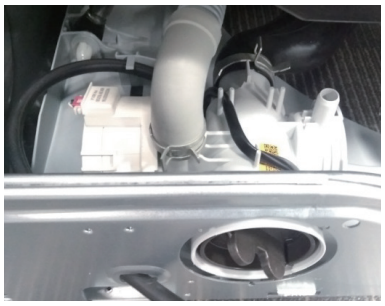


Wiring Diagram



* Each circuits of loads in wiring diagram are all same.

Object

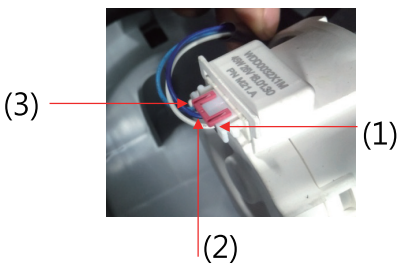


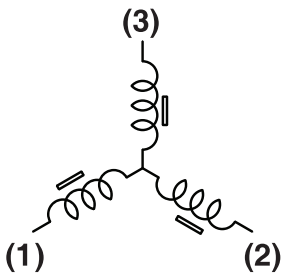
Function

Two pump motors are used to drain the tub

Test points

DrainPump



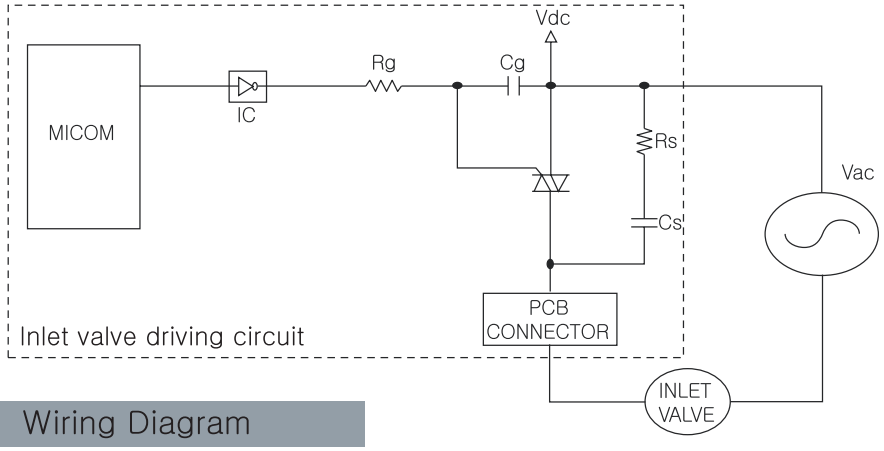
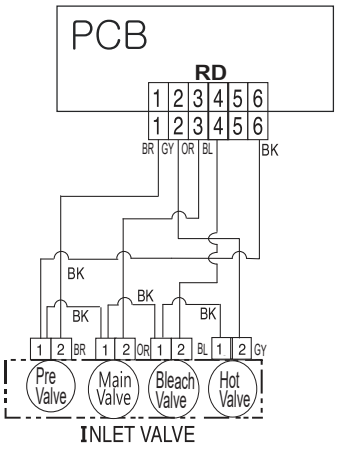
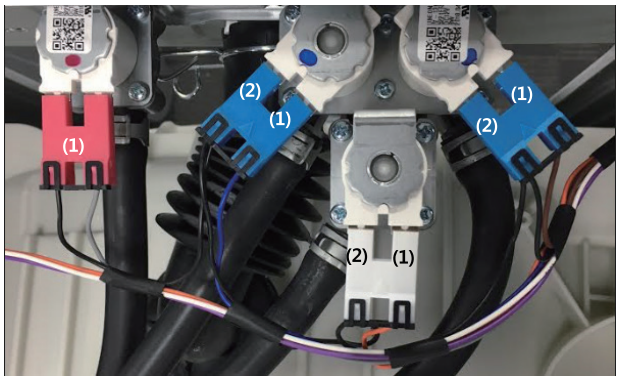


Result

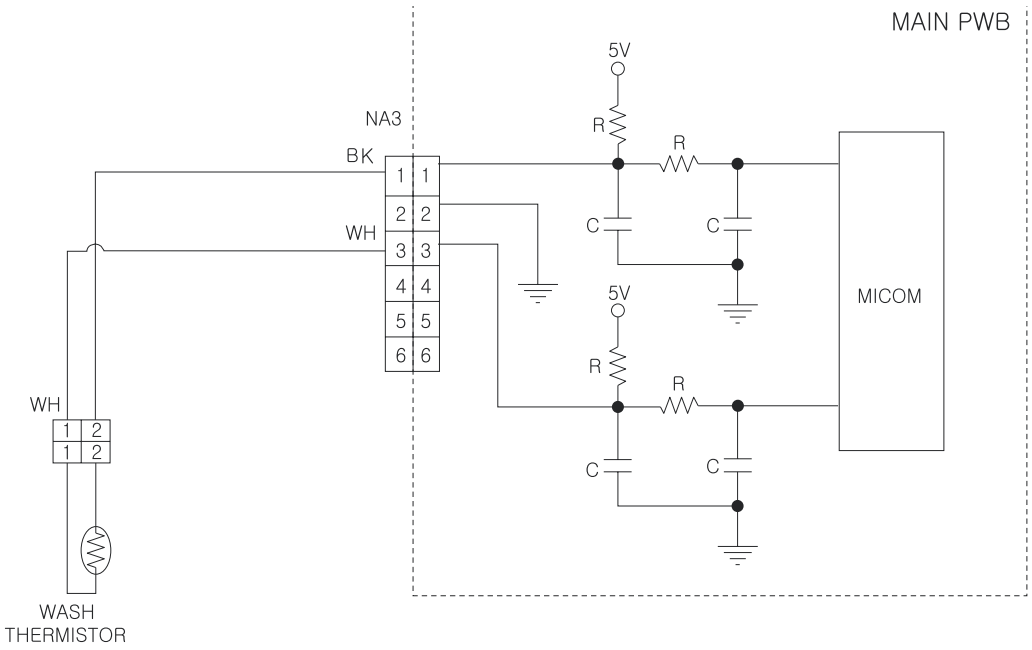
DrainPump

Test Points	Result
(1) to (2)	10-20 Ω

8-5. INLET VALVE ASSEMBLY

Wiring diagram	**Circuit in the MAIN PWB**  **Wiring Diagram** 
Function	Depending on the cycle and water temperature, the controller will energize the hot or cold water valve solenoids to regulate the selected water temperature.
Test points and Result	Remove the connector from the valve and check the resistance.  Test points: (1)-(2) Result: 0.8-1.2k Ω

8-6. THERMISTOR ASSEMBLY

Wiring diagram	Circuit in the MAIN PCB / Wiring Diagram 
Function	The thermistor (temperature sensor) is used to monitor water temperature in the tub or steam generator.
Test points	 Wash Thermistor

Result

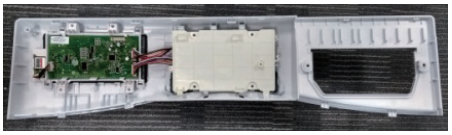
Wash Thermistor

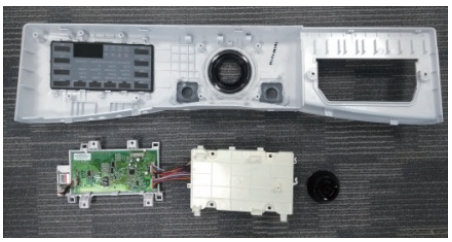
Test Points	Result (tolerance ±5%)	Remarks
(1) to (2)	39.5 kΩ	At 86°F (30°C)
	26.1 kΩ	At 104°F (40°C)
	12.1 kΩ	At 140°F (60°C)
	8.5 kΩ	At 158°F (70°C)
	3.8 kΩ	At 203°F (95°C)
	2.8 kΩ	At 221°F (105°C)

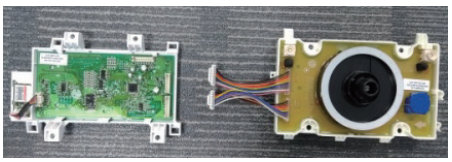
9. DISASSEMBLY INSTRUCTIONS

✳ Be sure to unplug the machine before disassembling and repairing the parts.

CONTROL PANEL







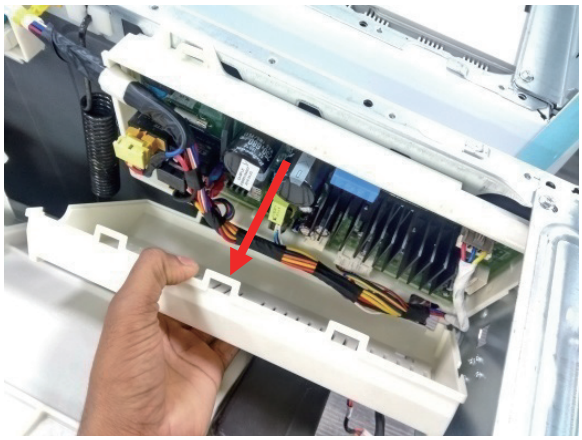
(1) Unscrew 2 screws on the back of the top plate.
(2) Pull the top plate backward and upward as shown.
(3) Pull out the drawer and unscrew 2 screws as shown.
(4) Remove one backside screw.
(5) Lift the side of the control panel assembly and pull it out.
(6) Disconnect the control panel PCB connector from the cabling.
(7) Unlock all 7 locking snaps & hooks from the control panel assembly.
(8) Remove rotary Knob and disassemble the control panel PCB assembly.
(9) Disconnect control panel PCB connectors from the Display PCB.

MAIN PWB ASSEMBLY

1. Disconnect the POWER connector and lift locking hook in highlighted direction.

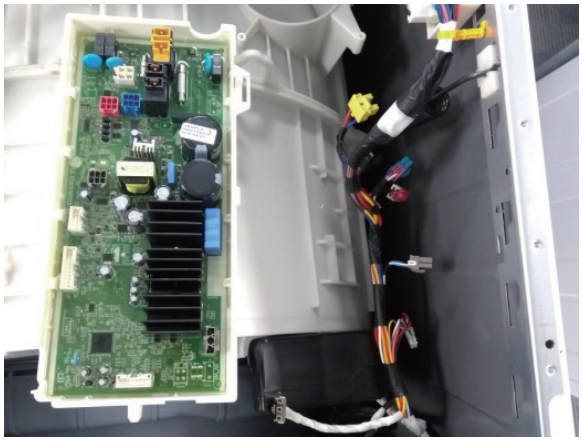
2. Unlock all three highlighted hooks.

3. Remove the protective cover.



4. Push PCB in shown direction and take out.

5. Disconnect the connectors



DISPENSER ASSEMBLY

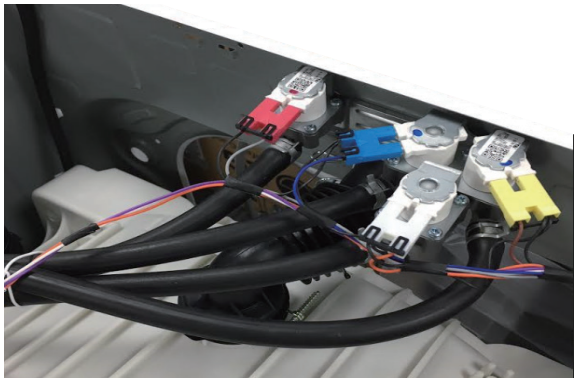
① Disassemble the top plate assembly.

② Pull out the drawer.

③ Remove 2 screws.

④ Slide dispenser backwards to remove.

⑤ Remove the bellows at the lower part of the dispenser.

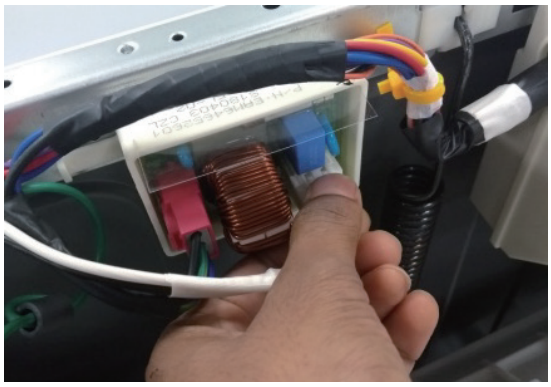


⑥ Disassemble the 4 connectors from the valves.

※ Wire Color
① Yellow Housing (BR-BK)
② White Housing (OR-BK)
③ Blue Housing (BL-BK)
④ Red Housing (GY-BK)

⑦ Unscrew 1 screws from the back of the cabinet.

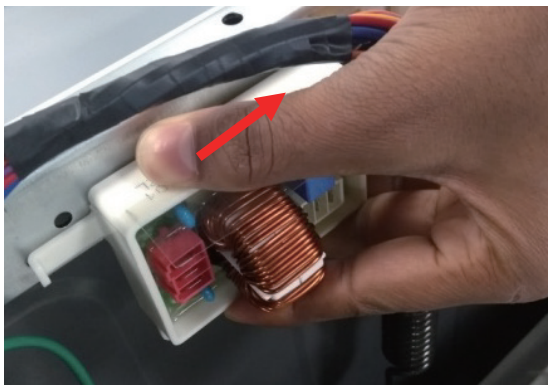
NOISE FILTER

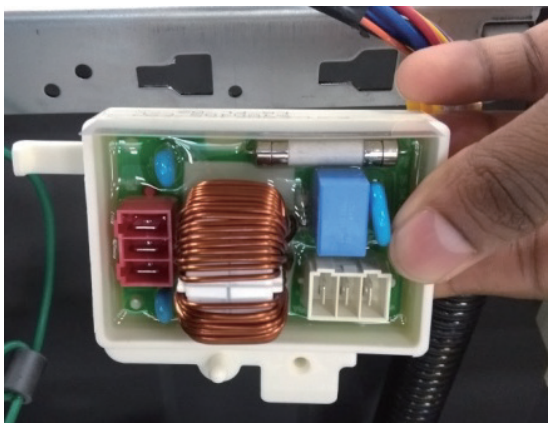


(1) Disassemble both connectors from the noise filter.

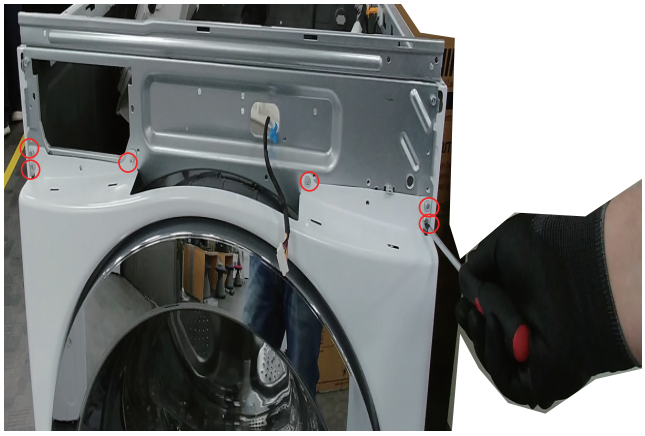
(2) Unlock the locked site.

(3) Pull out noise filter in highlighted direction.





CABINET COVER



① Unscrew the 6 screws from upper of the Cabinet cover.

② Unscrew the screw from the filter cover.

③ Reach up to the ceiling of the pump case cover and pull forward to remove.

④ Unscrew the screw from the lower side of the cabinet cover.

⑤ Open the door.

⑥ Disassemble the clamp assembly.

⑦ Tilt the cabinet cover.

⑧ Disconnect the door switch connector.

※ **NOTE :** When assembling the cabinet cover, connect the door switch connector.

⑨ Lift and separate the cabinet cover.

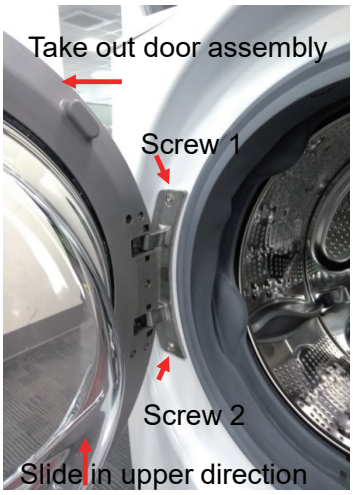
⑩ Disassemble the clamp assembly.

⑪ Disassemble the gasket.

DOOR

① Open the door.

② Unscrew the 2 screws from hinge (use the 8 mm tool).



③ Disassemble the door upward.

DOOR LOCK SWITCH ASSEMBLY

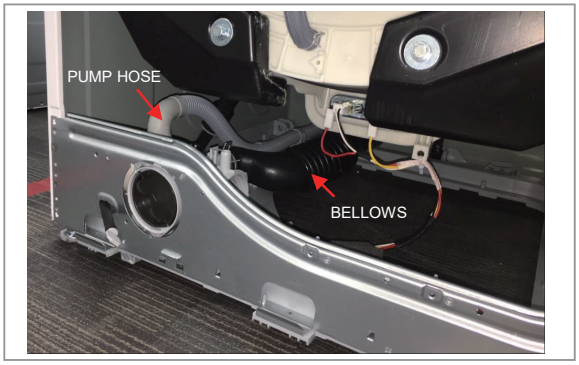
① Open the door and remove the gasket using the special gasket pliers.

② Unscrew the 2 screws.

※ NOTE

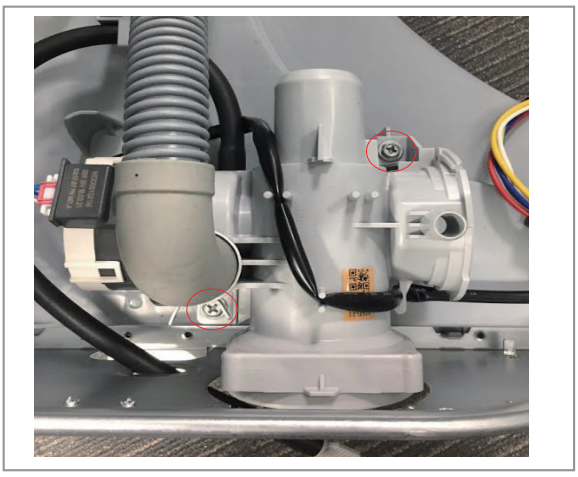
- Reconnect the connector after replacing the door switch assembly.

PUMP



① Disassemble the cabinet cover.

② Separate the pump hose, the bellows assembly from the pump assembly.



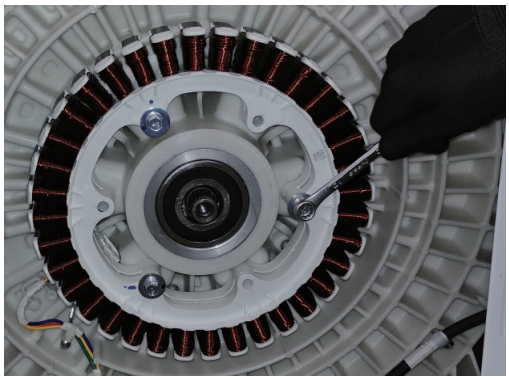
③ Unscrew the 2 screws and disassemble the pump assembly follow red arrow direction.

MOTOR/DAMPER

① Disassemble the back cover.

② Remove the bolt.

③ Pull out the rotor.



① Use a 10mm socket wrench to remove the 3 bolts on the stator.

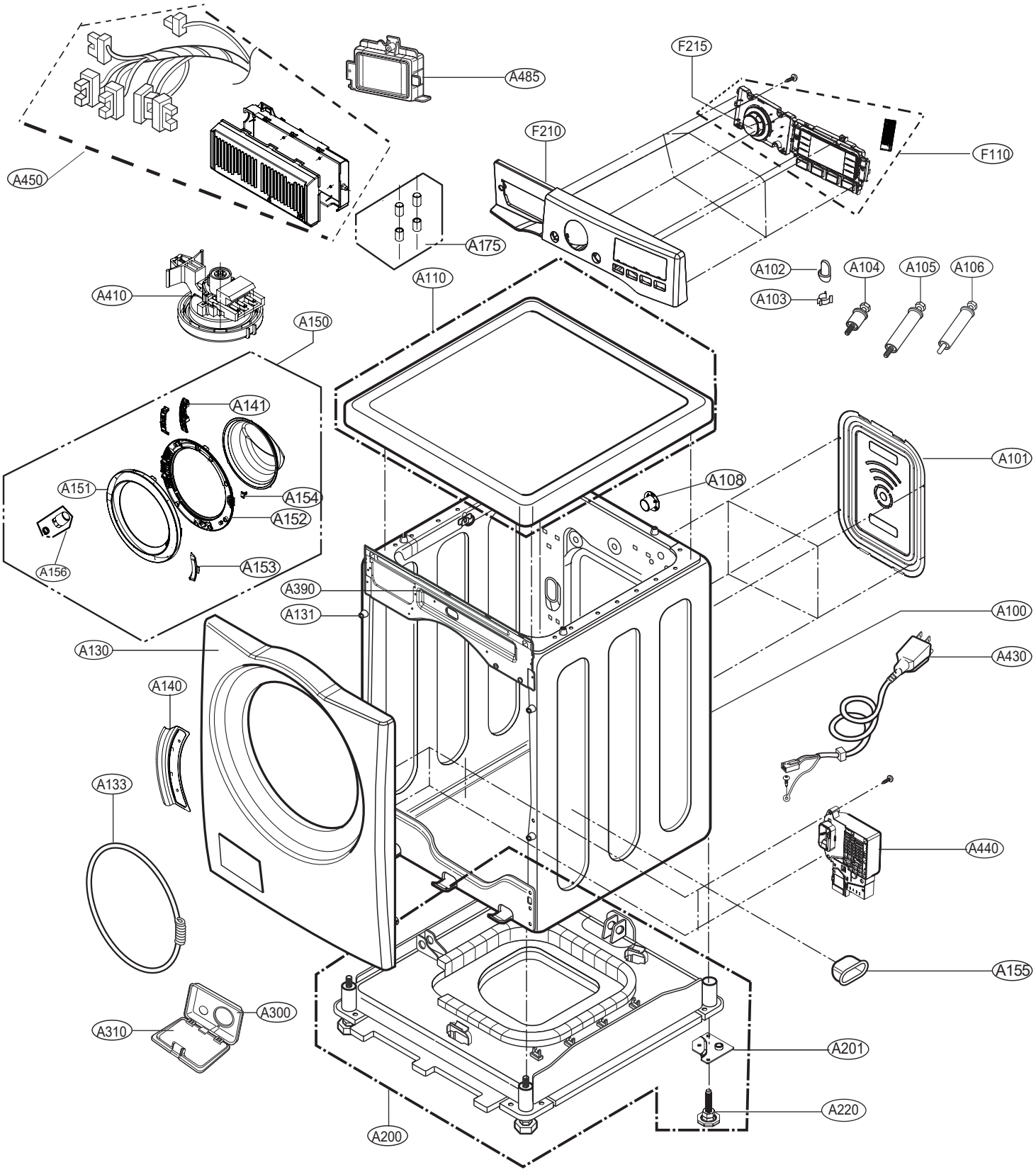
② Unplug the 1 connectors from the stator.

① Disassemble the damper hinges from the tub and base.

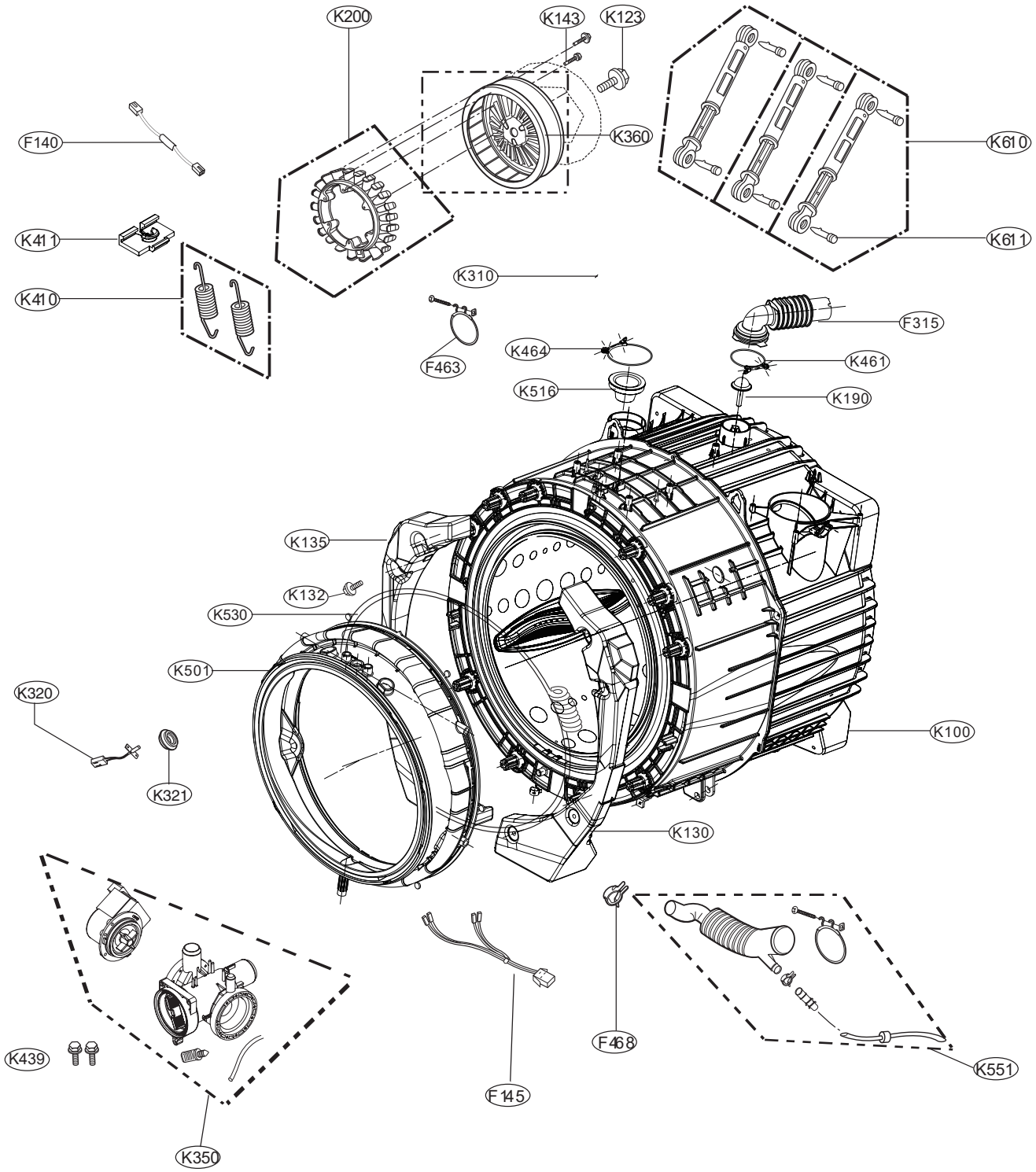
※ NOTE
If you pull the dampers apart, the must be replaced. If you do not separate them, they can be re-used.

<EXPLODED VIEW>

CABINET & CONTROL PANEL ASSEMBLY



DRUM & TUB ASSEMBLY

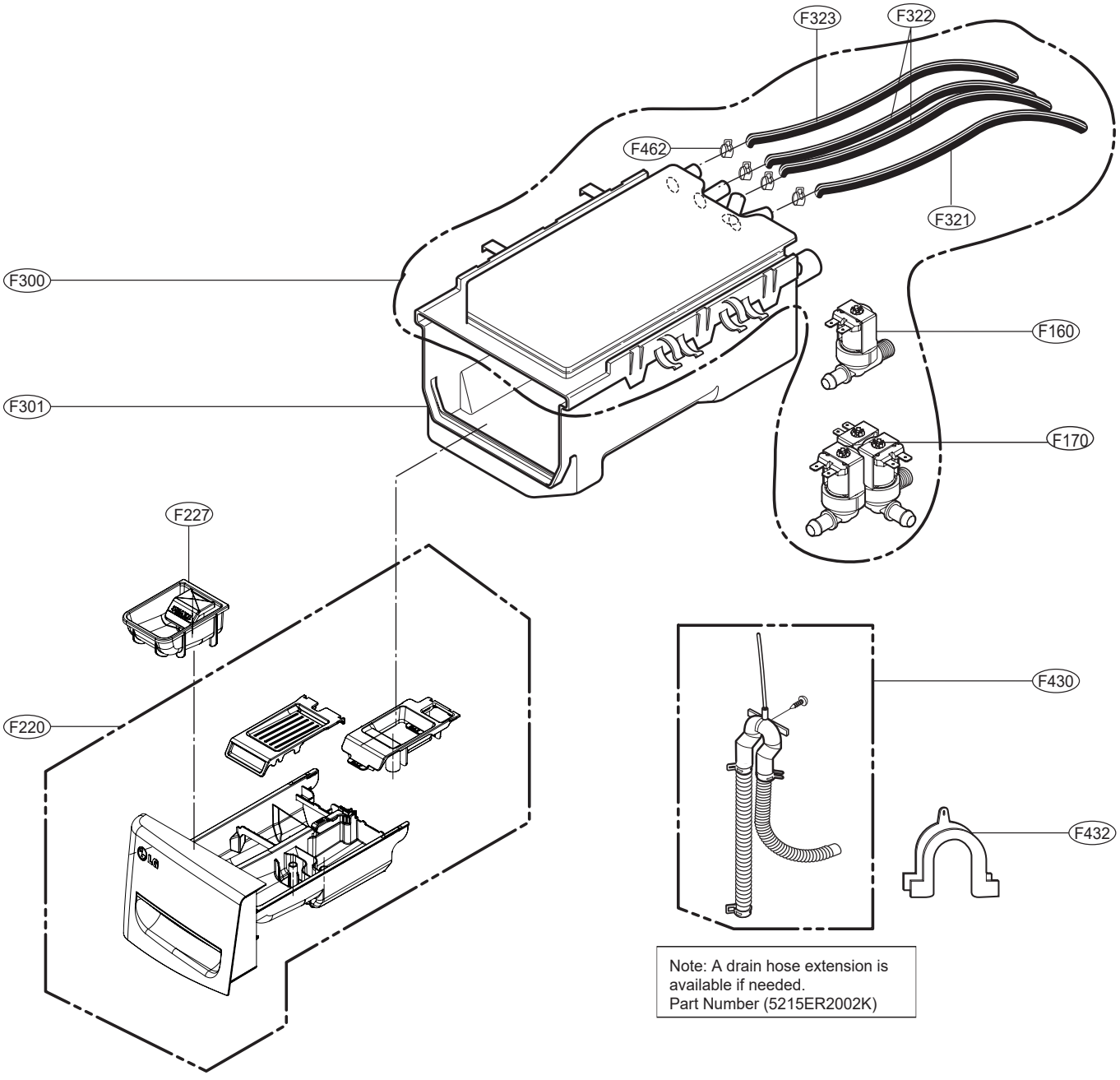


※ In case of replacing THERMISTOR of HEATER ASSEMBLY(K320), replace HEATER ASSEMBLY(K320), HEATER ASSEMBLY(K320) includes THERMISTOR.

※ In case of replacing BEARING,BALL(K121,K122) and GASKET(K125), replace TUB ASSEMBLY,OUTER(K105), TUB ASSEMBLY,OUTER(K105) includes BEARING,BALL(K121,K122) and GASKET(K125).

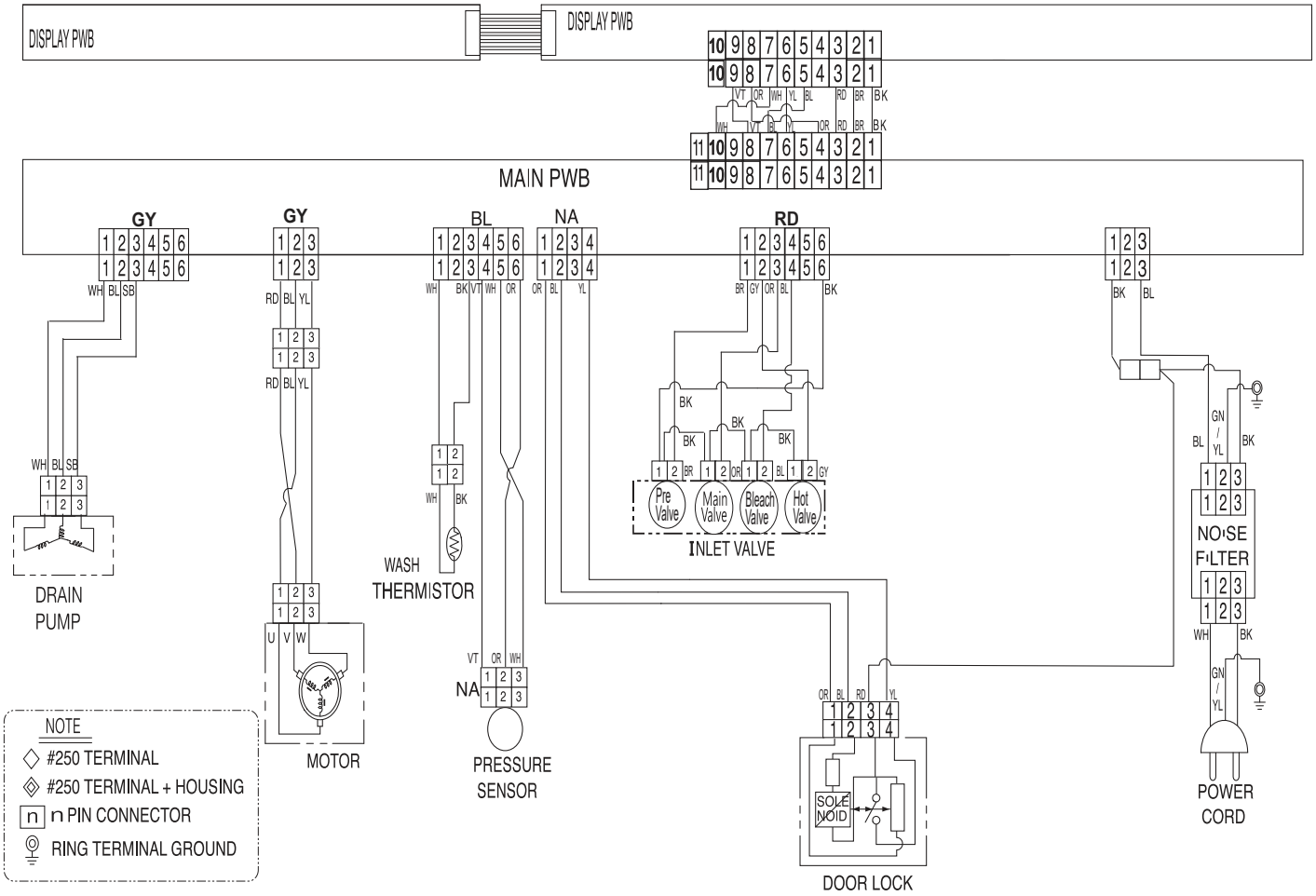
※ Part Assembly(K142) includes 10 screws.

DISPENSER ASSEMBLY



11. WIRING DIAGRAM

11. Wiring Diagram



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