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WASHING MACHINE SERVICE MANUAL

CAUTION

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

**MODEL : WD-10480S/N/T
WD-80480S/N/T
WD-10490S/N/T
WD-80490S/N/T**



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1. SPECIFICATIONS

ITEM		WD-10480S WD-80480S WD-10490S WD-80490S	WD-10480N WD-80480N WD-10490N WD-80490N	WD-10480T WD-80480T WD-10490T WD-80490T
POWER SUPPLY		220-240V~, 50Hz		
PRODUCT WEIGHT		52kg	57kg	64kg
ELECTRICITY CONSUMPTION	WASHING	190W		
	SPIN (800rpm)	300W		
	DRAIN MOTOR	32W		
	WASH HEATER	1900W		2000W
REVOLUTION SPEED	WASH	50rpm		
	SPIN	WD-80480S/N/T, WD-80490S/N/T	400/800rpm	
		WD-10480S/N/T, WD-10490S/N/T	400/800/1000rpm	
OPERATION WATER PRESSURE		0.3-10kgf/cm² (30-1000kPa)		
CONTROL TYPE		Electronic		
WASH CAPACITY		3.5kg	5.0kg	7.0kg
		Synthetic(1.5) Delicate(1.0) Baby Care(3.0) Hand Wash/Wool(1.0) Quick 30(1.0)	Synthetic(1.7) Delicate(1.5) Baby Care(4.0) Hand Wash/Wool(1.5) Quick 30(1.5)	Synthetic(3.0) Delicate(2.0) Baby Care(6.0) Hand Wash/Wool(2.0) Quick 30(2.0)
DIMENSION		600mm(W) x360mm(D) x850mm(H)	600mm(W) x440mm(D) x850mm(H)	600mm(W) x550mm(D) x850mm(H)
WASH PROGRAM		Cotton, Synthetic, Delicate, Hand Wash/Wool, Baby Care, Quick 30, Rinse+Spin, Spin		
OPTION		WD-10480S/N/T, 10490S/N/T	Rinse+, Pre Wash, Crease Care, Bio, Time Save, Time Delay	
		WD-80480S/N/T, 80490S/N/T	Rinse+, Pre Wash, Time Save, Time Delay	
DOOR SWITCH TYPE		Bi-Metal type		
WATER LEVEL		9 steps (by sensor)		
SENSING OF THE LAUNDRY AMOUNT		Adopted		
FUZZY LOGIC		Adopted		
DISPLAY OF THE REMAINING TIME		Adopted		
ERROR DIAGNOSIS		10 items		
POWER AUTO OFF		Adopted		
CHILD LOCK		Adopted		
AUTO RESTART		Adopted		

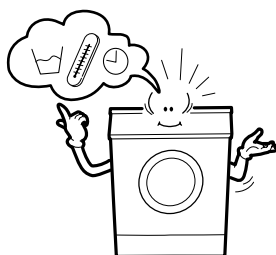
2. FEATURES & TECHNICAL EXPLANATION

2-1.FEATURES



■ **Anti - Crease Function**

With the alternate rotation of the drum, creasing in the laundry is minimized.



■ **More economical by Fuzzy Logic System**

FUZZY Logic 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 system has been developed to prevent children from pressing any button (except Power button) to change the programme during operation.



■ **Low noise speed control system**

By sensing the amount of load and balance, this system automatically distributes load evenly to minimize the spinning noise level.

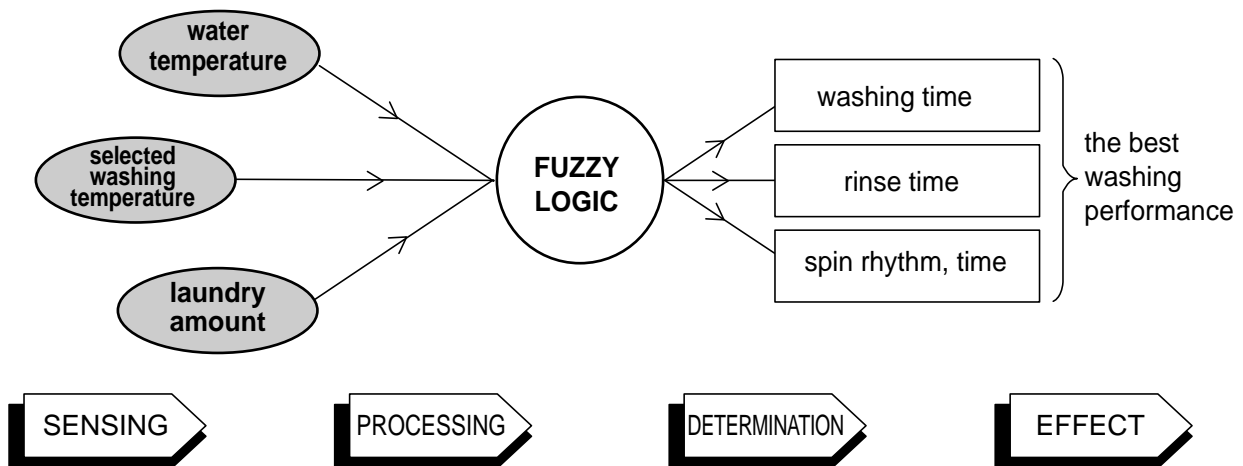


■ **Auto Restart**

Auto Restart allows the program to restart all by itself in case of power failure. It does from the stage where it stopped. It will be also the same when washer is plugged in after unplugging.

2-2.DETERMINE WASHING TIME BY FUZZY LOGIC

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



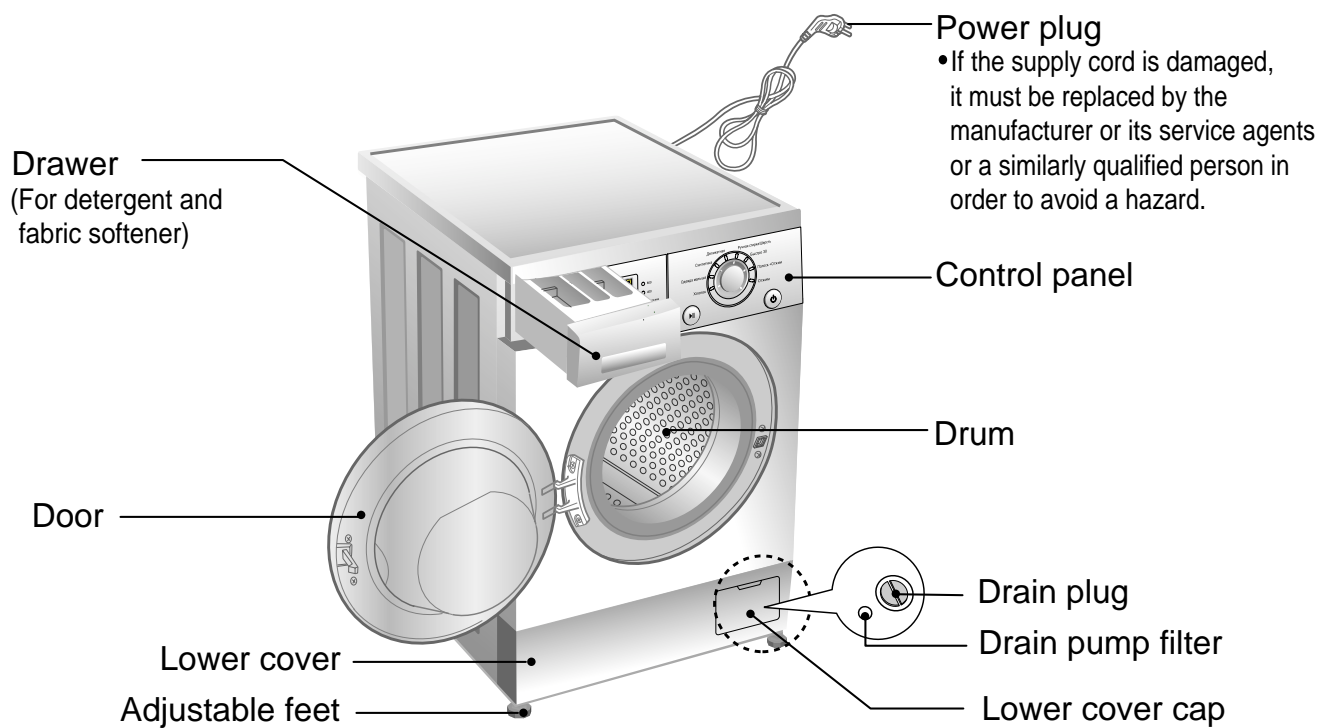
2-3.WATER LEVEL CONTROL

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

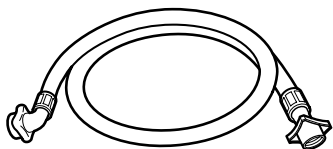
2-4.THE DOOR CAN NOT BE OPENED

- While program is operating.

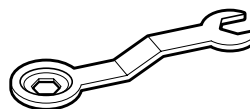
3. PARTS IDENTIFICATION



■ ACCESSORIES



Cold (1EA)
※ Option : Hot/Cold (2EA)



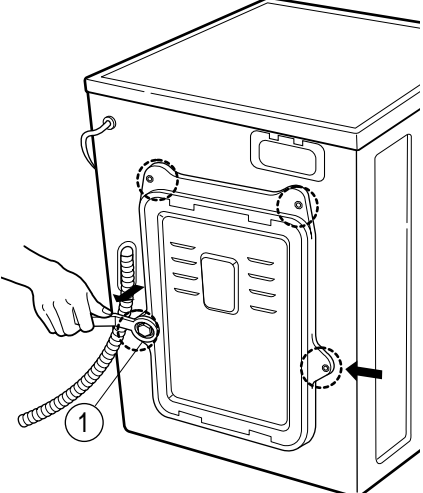
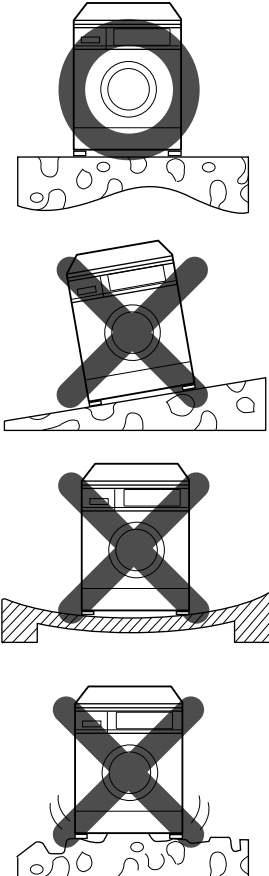
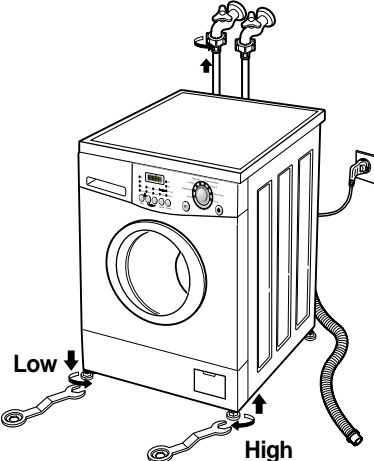
Wrench

4. INSTALLATION

- ① Before servicing ask the customer what the trouble is.
- ② Check the adjustment (power supply is 220-240V, remove the transit bolts....)
- 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 O.K or NOT.

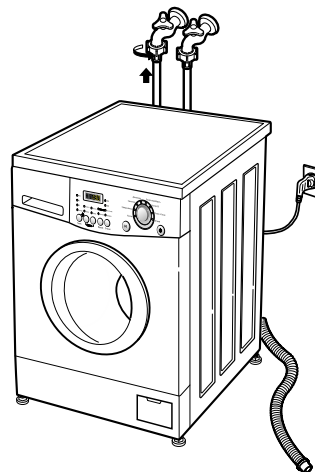
■ STANDARD INSTALLATION

The appliance should be installed as follows.

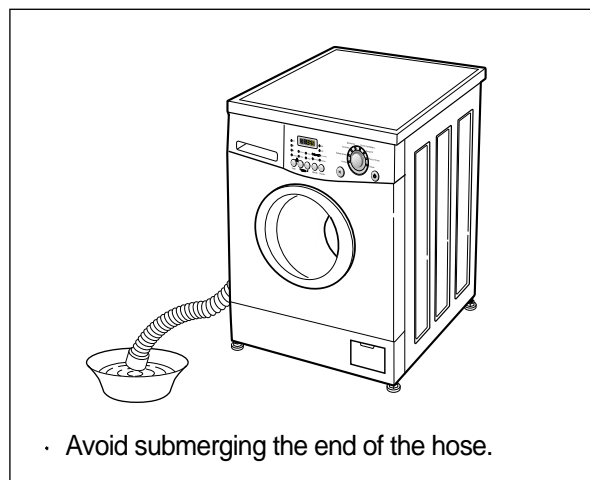
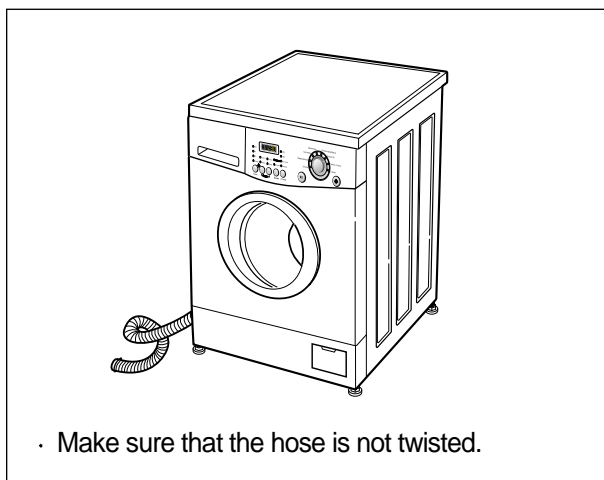
REMOVE THE TRANSIT BOLTS	INSTALL THE APPLIANCE ON FLAT AND FIRM SURFACE	ADJUST THE HORIZONTAL
<ul style="list-style-type: none"> Remove the transit bolts (4EA: ①) with supplied wrench. Keep the transit bolts and wrench for future use. Insert the 4 caps provided into the hole. 		<ul style="list-style-type: none"> Turn the adjustable feet to set the appliance horizontally.  <ul style="list-style-type: none"> The appliance goes up by rotating the feet clockwise. The appliance comes down by rotating the feet counter-clockwise.

■ HOW TO CONNECT INLET HOSE

- Check that the rubber washer is the inside of the valve connector.
- Connect inlet hose firmly to prevent leak.

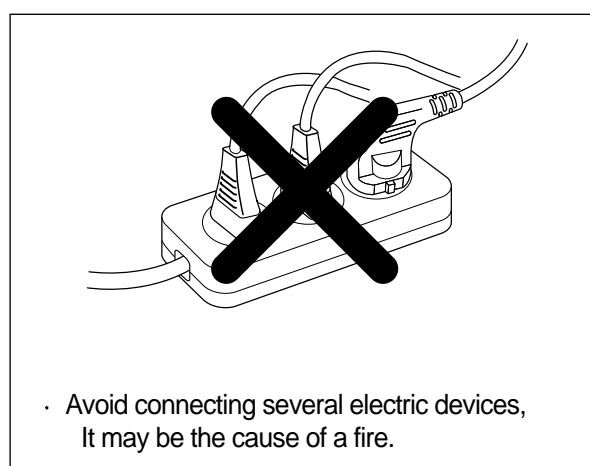
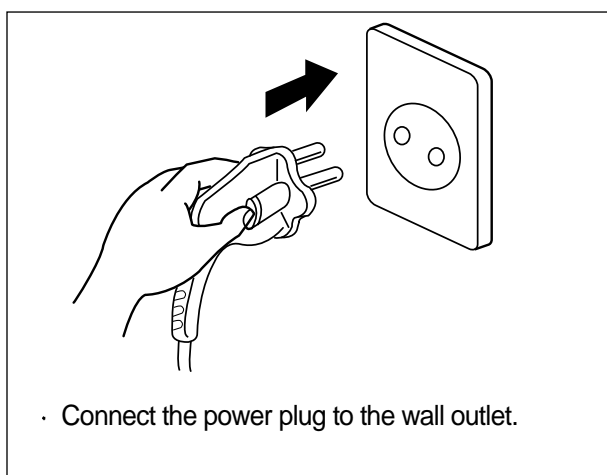


■ CONNECT DRAIN HOSE

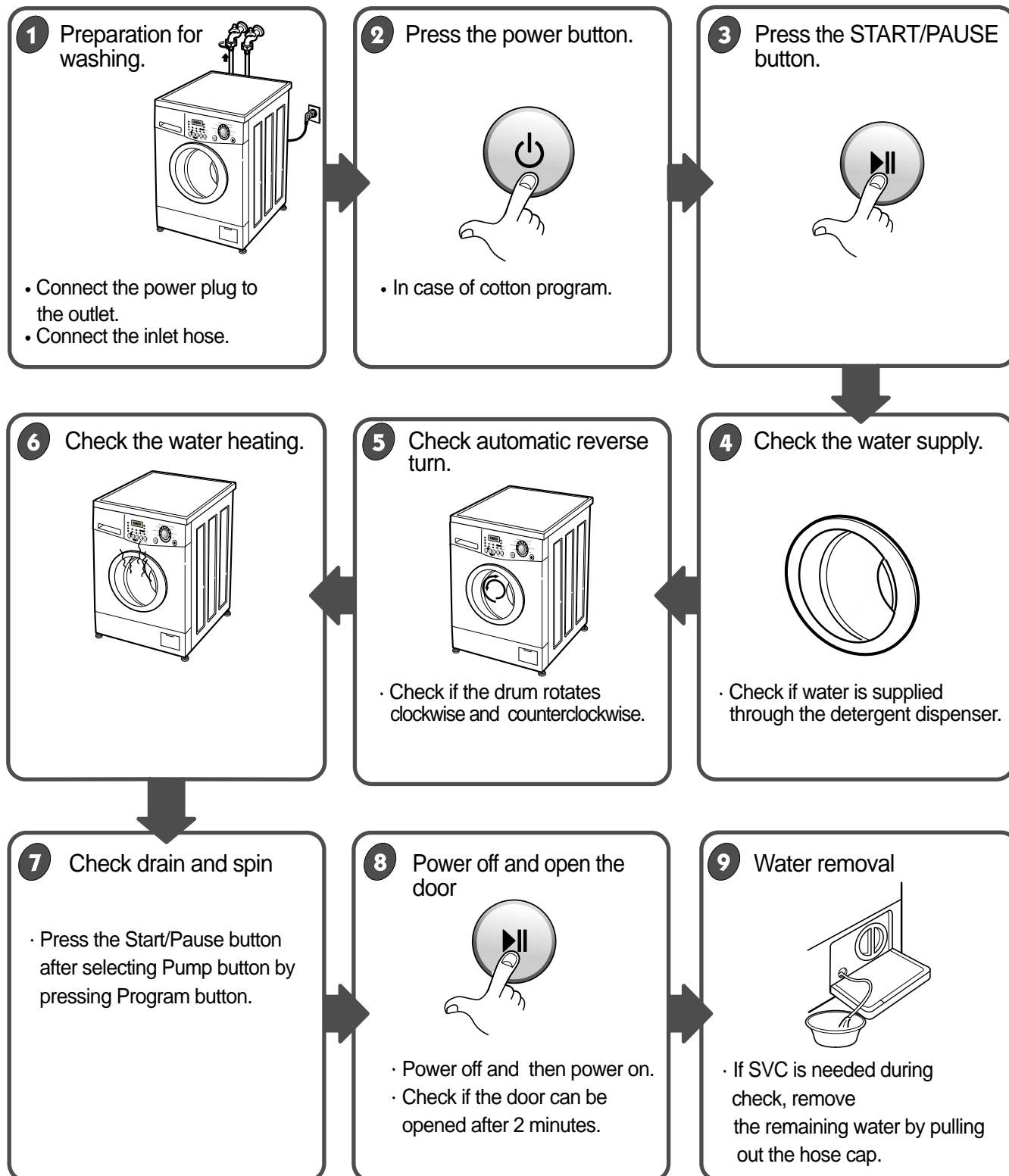


※ The drain hose should be placed under 100cm from the floor.

■ CONNECT POWER PLUG



7 TEST OPERATION



5. OPERATION

Option

Rinse+ :

- Used to additional rinse, which may assist in removing traces of detergent residue.
- By selecting Rinse+ function, the rinse time and the rinse water are increased.

Pre Wash :

- If the laundry is heavily soiled, "Pre Wash" course is effective.
- Pre Wash is available in Cotton and Synthetic Program.

Crease Care :

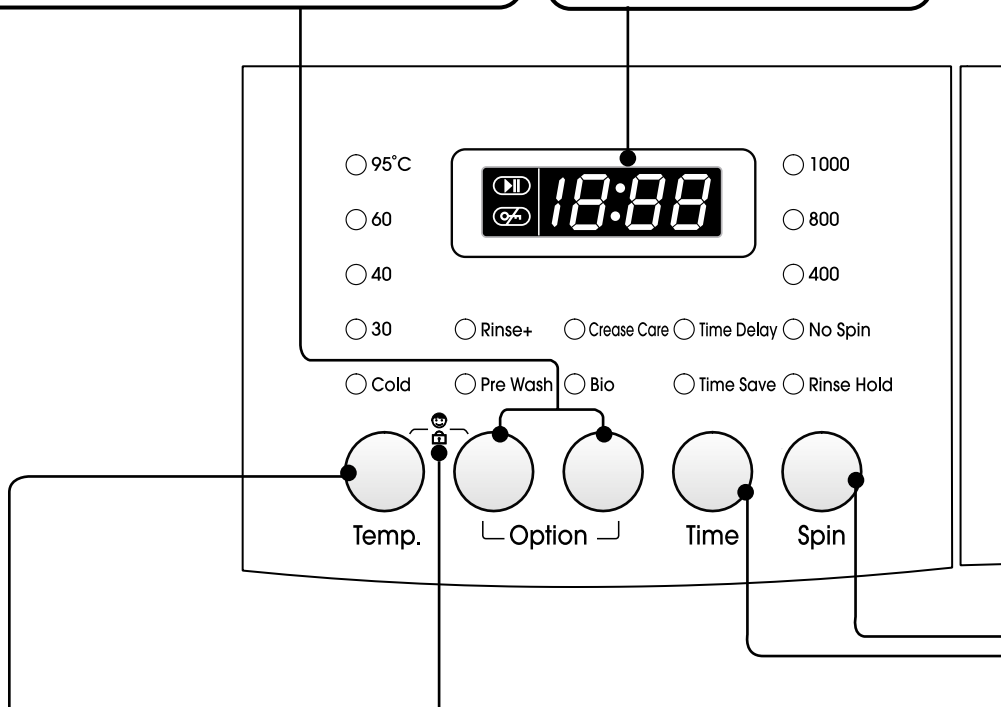
- If you want to prevent crease, select this button with spin speed.

Bio :

- If you want to eliminate protein stains(milk, blood, chocolate...), you may select Bio by pressing the option button.[You can select Bio when temperature is higher than 60°C in Cotton, Synthetic and Baby Care.]

LED display

- Display the estimated remaining time (Hour:Minute) to finish.
- In case of abnormal operation, error indications are displayed.
(IE, OE, UE, dE, tE, FE, PE)
- See troubleshooting guide.



Water temperature selector

- Press the button to select water temperature.
- The water temperature [60°C → 95°C → Cold → 30°C → 40°C] can be selected in Cotton.
- 95°C is selected for Cotton and Baby Care.

Child - lock

NOTE

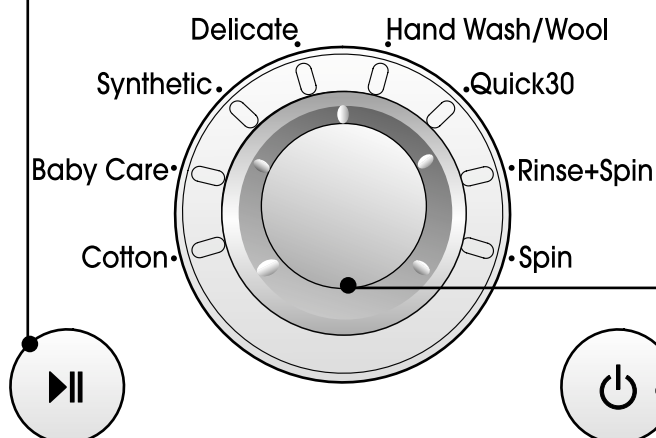
- If the Program lamps are blinked at the same time after the power off or the end of the washing, the child lock mode is set. Cancel the child lock mode by pressing the [Temp.] and the [Option] button simultaneously for 3 seconds.
- Child Lock system can be set and canceled by pressing both [Temp.] and [Option] button simultaneously for 3 seconds.
 - Once Child Lock is set, all buttons are not functioning except power button.
 - Child Lock system can be set anytime even during Power-off and operation.
 - It is automatically cancelled when an operational error occurs.

Start/Pause button

- Use the button to start or pause wash cycle.
- The power turn off automatically 4 minutes after the pause button is pressed.

Wash program selector

- 8 programs can be set depending on the type of the laundry.
- By turning the dial (pressing the button : WD-10490S/N/T, WD-80490S/N/T)
[Cotton → Baby Care → Synthetic → Delicate → Hand Wash/Wool → Quick 30 → Rinse+Spin → Spin] can be selected.



Power button

- Press the button to turn on and off.

Time

Time Save :

- By selecting the Time Save option, the wash time may be reduced, depending on the program selected.

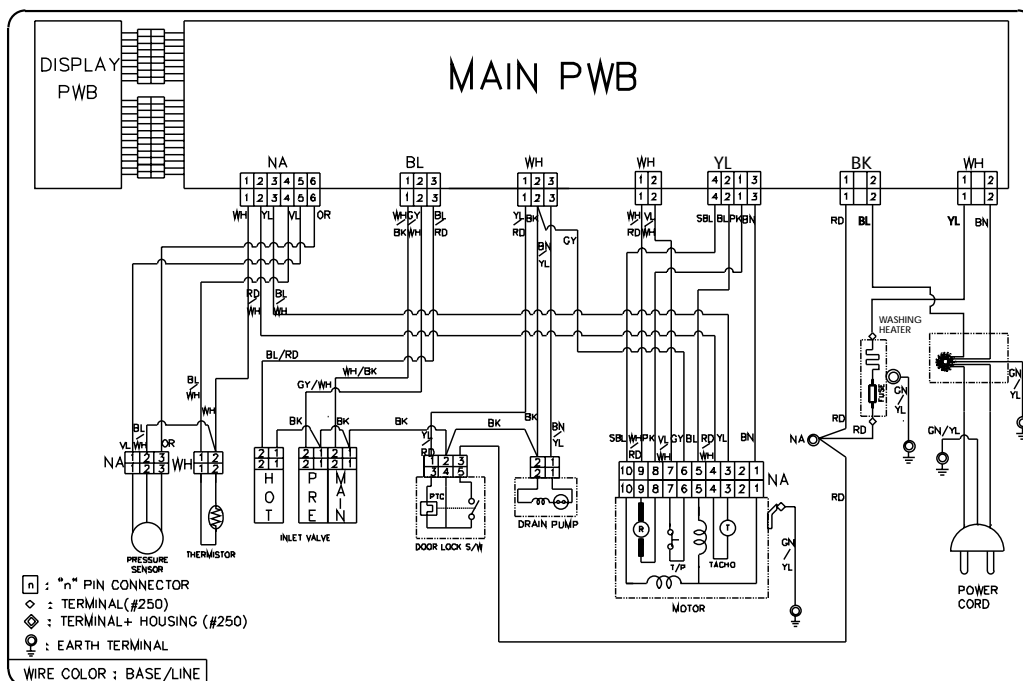
Time Delay :

- Press the button when reservation washing is needed.
- When the button is pressed, [3:00] is displayed, maximum delay of [19:00] hours can be set.
- Each press advances time delay by the hour.
- Use [Power] button to cancel [Time Delay]
- [Time Delay] means the time required from the present to the completion of washing.

Spin

- WD-10480S/N/T
WD-10490S/N/T
Rinse Hold → No Spin → 400
→ 800 → 1000
- WD-80480S/N/T
WD-80490S/N/T
Rinse Hold → No Spin → 400
→ 800

6. WIRING DIAGRAM / PROGRAM CHART



COURSES		*Water Supply : D										*Intermittent Spin										*Disentangle : D		Normal Working Time (Hour:Minute)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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* Basic Cycle

* Optional Cycle

* Pre-Setting Time : Water Supply - 120 sec.
Drain - 60 sec.

* ~ Time for varies as the temperature or the amount of laundry

* () : WD-8048(9)0S/N/T

* Basic time is minute
* The water temperature or ambient temperature

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

* **Time Save** : • This option can be used to reduce the time of a wash program.
• To use this option press the Time Save button once before the wash program is started.
• This option is not available with Quick 30 program.

* **Rinse+** : • Used to additional rinse, which may assist in removing traces of detergent residue.
• By selecting Rinse+ function, the rinse time and the rinse water are increased.

* **Crease Care** : • If you want to prevent crease, select this button with spin speed.

* **Bio** : • If you want to eliminate protein stains (milk, blood, chocolate...), you may select Bio function by pressing the option button.

7. TROUBLESHOOTING

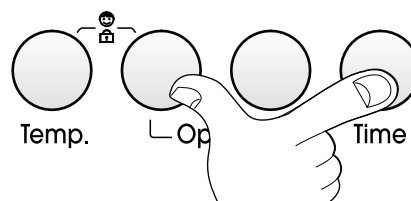
7-1. BEFORE PERFORMING SERVICE

- Be careful of electric shock or disconnecting the parts while troubleshooting.
- Voltage of each terminal in 220-240V~ and DC while applying an electric current.

7-2. QC TEST MODE.

- ① Pressing **Option** and **Time** button simultaneously.
- ② Power supply ON with pressing upper two button.
- ③ Press the START/PAUSE button as follows.

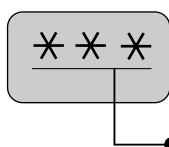
[Press the START/PAUSE button more 4 times until stop spinning]



Pressing number of [START/PAUSE] button	Checking Point	
None	All lamps turn on	
1 time	Clockwise spin (right)	Motor rpm (About 45)
2 times	Low speed Spin	Motor rpm (About 63~67)
3 times	High speed Spin	Motor rpm (About 79~85) : WD-80480S/N/T, 80490S/N/T
		Motor rpm (About 95~106) : WD-10480S/N/T, 10490S/N/T
4 times	Inlet valve for pre-wash operation	Water level frequency (25~65)
5 times	Inlet valve for main-wash operation	Water level frequency (25~65)
	Hot inlet valve in case of hot water fill	
6 times	Inlet valve for main-wash operation	Water level frequency (25~65)
7 times	Counterclockwise spin (left)	Motor rpm (About 45)
8 times	A Heater is in operation for 3 sec.	Water Temperature
9 times	Draining pump operation	Water level frequency
10 times	Auto off operation	

7-4. HOW TO KNOW THE WATER LEVEL FREQUENCY

* Press the **Temp.** and **Spin** button simultaneously.














The digits means water level frequency (10^{-1} kHz)

ex) 241 : Water level frequency = 241×10^{-1} kHz
=24.1kHz

7-5.ERROR DISPLAY.

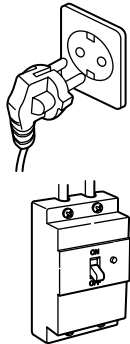



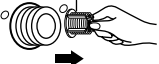
✧ If you press the [Start/Pause] button when an error is displayed, any error except **S/W ERROR** will disappear and the machine will change into pause status.




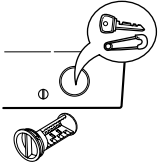
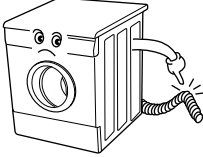
✧ In case of 『  』, 『  』, 『  』, if the error is not resolved within 20 sec. In the case of other errors, if the error is not resolved within 4 min. power will be turned off automatically and the error code will be blinked. But in case of 『  』, power will not be turned off.

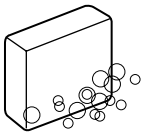
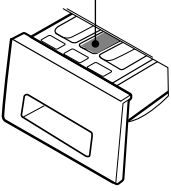
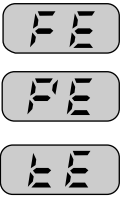
	ERROR	SYMPTOM	CAUSE
1	WATER INLET ERROR		<ul style="list-style-type: none"> ○ Water has not reached to the pre-set level within 4 min. since inlet valve operated, or water has not reached to the normal level within 25 min.
2	IMBALANCE ERROR		<ul style="list-style-type: none"> ○ The appliance is tilted. ○ Laundry is gathered to one side. ○ Non distributable things are put into the drum.
3	DRAIN ERROR		<ul style="list-style-type: none"> ○ Water has not drained enough within 5 min.
4	OVERFLOW ERROR		<ul style="list-style-type: none"> ○ Water is automatically being pumped out because too much water is in the tub.
5	SENSOR PRESSURE S/W ERROR		<ul style="list-style-type: none"> ○ The sensor pressure switch is out of order.
6	DOOR OPEN ERROR		<ul style="list-style-type: none"> ○ The [Start/Pause] button is pressed with the door open. ○ The door switch is out of order.
7	HEATING ERROR		<ul style="list-style-type: none"> ○ The thermistor is out of order.

8. ERROR DIAGNOSIS AND CHECK LIST

8-1.DIAGNOSIS AND ANSWER FOR ABNORMAL OPERATION

SYMPTOM	GUIDE FOR SERVICE CALL
<p>NO POWER</p>	<div data-bbox="552 533 1109 898"> <p>Is the power plug connected firmly to 220-240V~ outlet?</p> <p>YES</p> <p>Power failure? or Breaker opened? Is the outlet controlled by a switch.</p> <p>NO</p> <p>Visit to check</p> </div> <div data-bbox="1203 533 1333 875">  </div>
<p>Water inlet trouble</p> <div data-bbox="261 1055 415 1106">  </div>	<div data-bbox="552 1005 1109 1821"> <p>Is  displayed?</p> <p>YES</p> <p>Is the tap opened?</p> <p>YES</p> <p>Is the tap frozen?</p> <p>NO</p> <p>Is the water supply shut-off?</p> <p>NO</p> <p>Is filter in the inlet valve clogged with foreign material?</p> <p>YES</p> <p>NO</p> <p>Visit to check</p> </div> <div data-bbox="1187 1128 1411 1711">  <div data-bbox="1187 1509 1411 1711"> <p>Clean the filter of inlet valve</p>  </div> </div>

SYMPTOM	GUIDE FOR SERVICE CALL
<p>◦ DOOR OPEN ERROR</p> <p>Refer to 7-3 ERROR DISPLAY</p>	<div data-bbox="553 421 1385 862"> <p>Did you press the Start/Pause button when the door is open?</p> <p>YES → <div data-bbox="1187 421 1385 595"> Close the door  </div></p> <p>NO → <div data-bbox="553 745 1114 815">Visit to check</div></p> <p>Check if the door switch is O.K</p> </div>
<p>◦ Drain Trouble</p> <div data-bbox="256 1003 412 1055">  </div>	<div data-bbox="553 931 1459 1444"> <p>Is  displayed?</p> <p>YES → <div data-bbox="553 1077 1276 1182"> Is the debris filter clogged with foreign material such as pins, coins, etc.? YES → <div data-bbox="1133 1077 1276 1182">Clean up the filter.</div>  </div></p> <p>NO → <div data-bbox="553 1234 1089 1328"> Is the drain hose frozen with water, kinked, or crushed? NO → <div data-bbox="553 1379 1089 1444">Visit to check</div> </div></p>  </div>

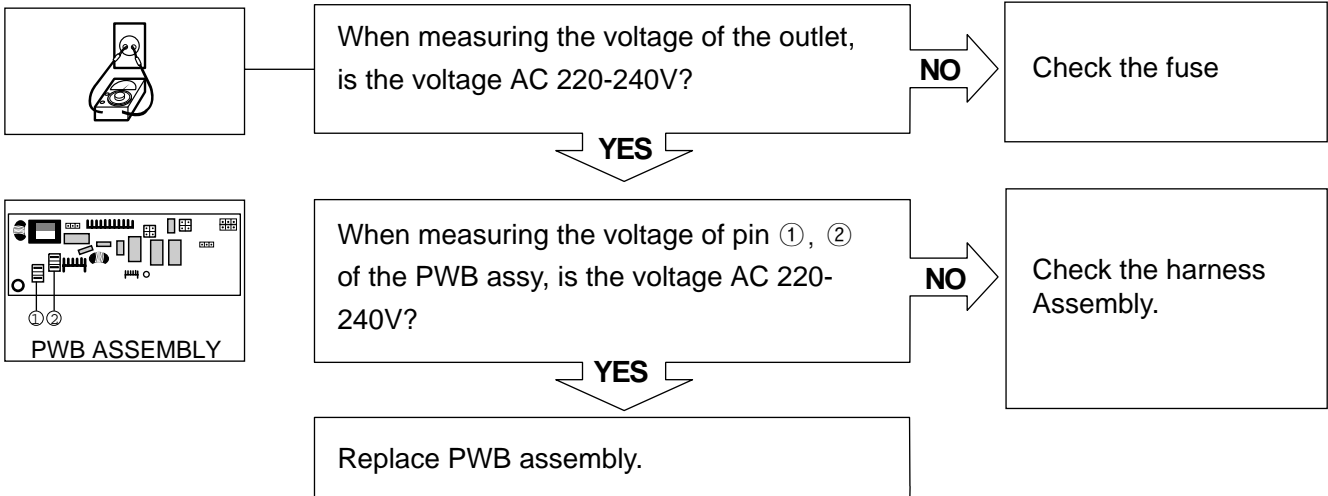
SYMPTOM	GUIDE FOR SERVICE CALL
<p>◦ Suds overflow from the appliance. (In this condition, wash and spin do not operate normally)</p>	<div data-bbox="584 394 1143 495">Is low-sudsing detergent for the drum washing machine used?</div> <div data-bbox="792 495 932 539">YES</div> <div data-bbox="584 551 1143 651">Is the proper amount of detergent used as recommended?</div> <div data-bbox="792 651 932 696">YES</div> <div data-bbox="584 696 1143 797">Recommend to reduce the amount of detergent.</div> <div data-bbox="630 797 1380 999"> <ul style="list-style-type: none"> * This appliance has the automatic suds sensing function which operates under much suds condition for good rinse and preventing overflow. * When much suds are sensed, the suds removing fuction such as drain, water input, and pause will operate without rotating the drum. </div> <div data-bbox="1214 405 1401 618">  <p>LOW SUDSING DETERGENT</p> </div>
<p>◦ No effect of softener</p>	<div data-bbox="584 1070 1143 1171">Is softener put in the correct compartment of drawer?</div> <div data-bbox="792 1171 932 1216">YES</div> <div data-bbox="584 1227 1143 1301">Is the drawer closed during wash?</div> <div data-bbox="792 1301 932 1346">YES</div> <div data-bbox="584 1357 1143 1431">Is the softener cap clogged?</div> <div data-bbox="792 1431 932 1476">YES</div> <div data-bbox="584 1476 1143 1543">Explain how to use softener</div> <div data-bbox="646 1554 1075 1588">Clean the compartment for softener</div> <div data-bbox="1167 1111 1396 1435"> <p>Compartment for softener</p>  </div>
	<div data-bbox="578 1686 1143 1753">Visit to check</div>

8-2.FAULT DIAGNOSIS AND TROUBLESHOOTING

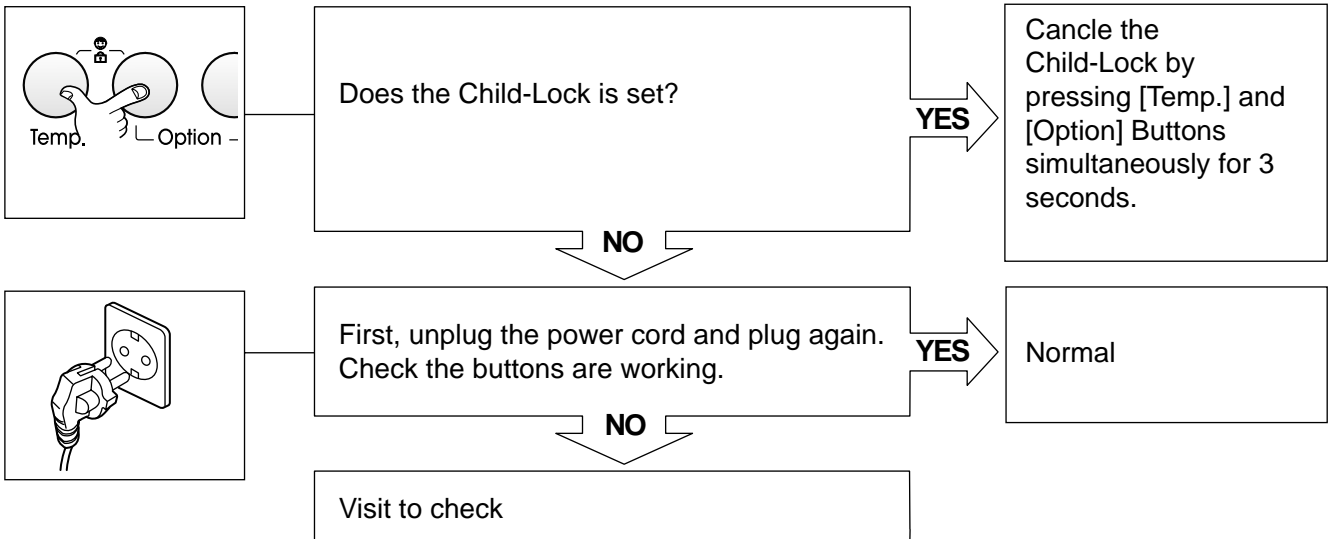
CAUTION

- 1. Be careful of electric shock or disconnecting the parts while troubleshooting.
- 2. First of all, check the connection of each part terminal with wiring diagram.
- 3. If you replace the PWB assembly (Main), put in the connectors correctly.

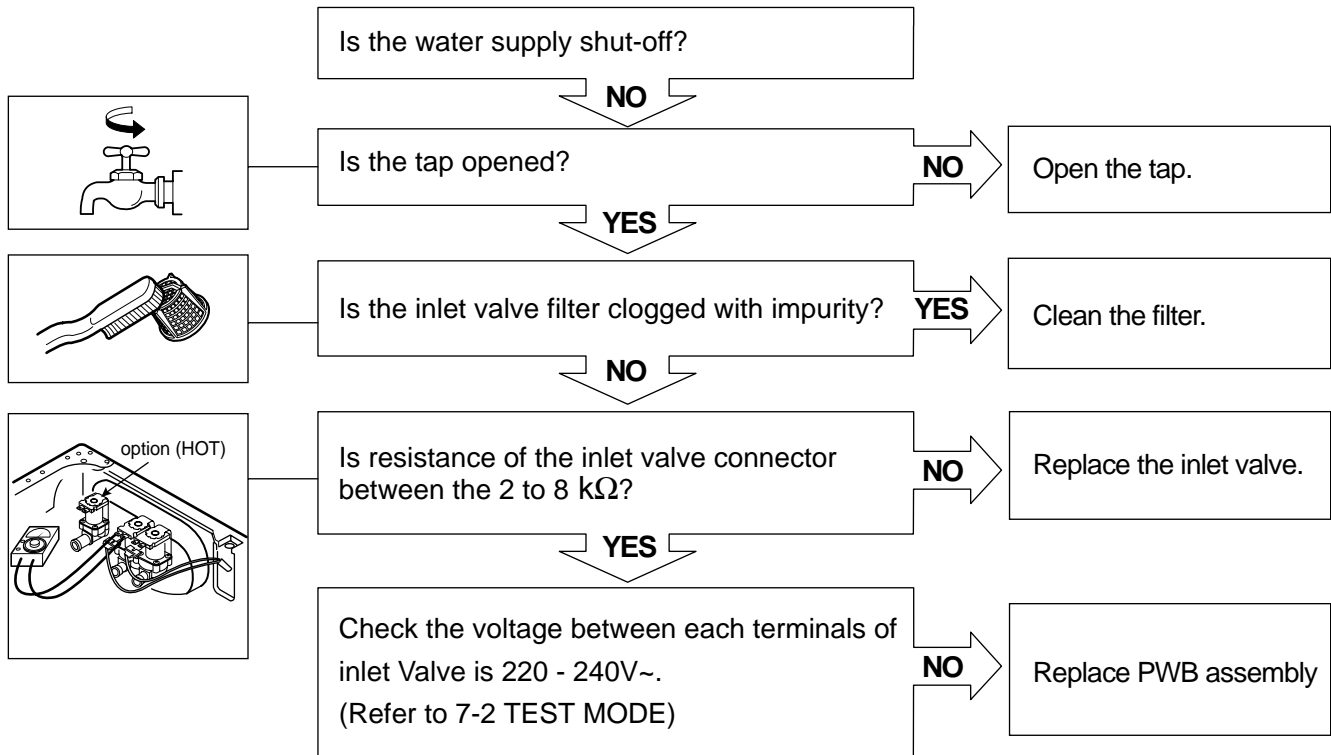
NO POWER



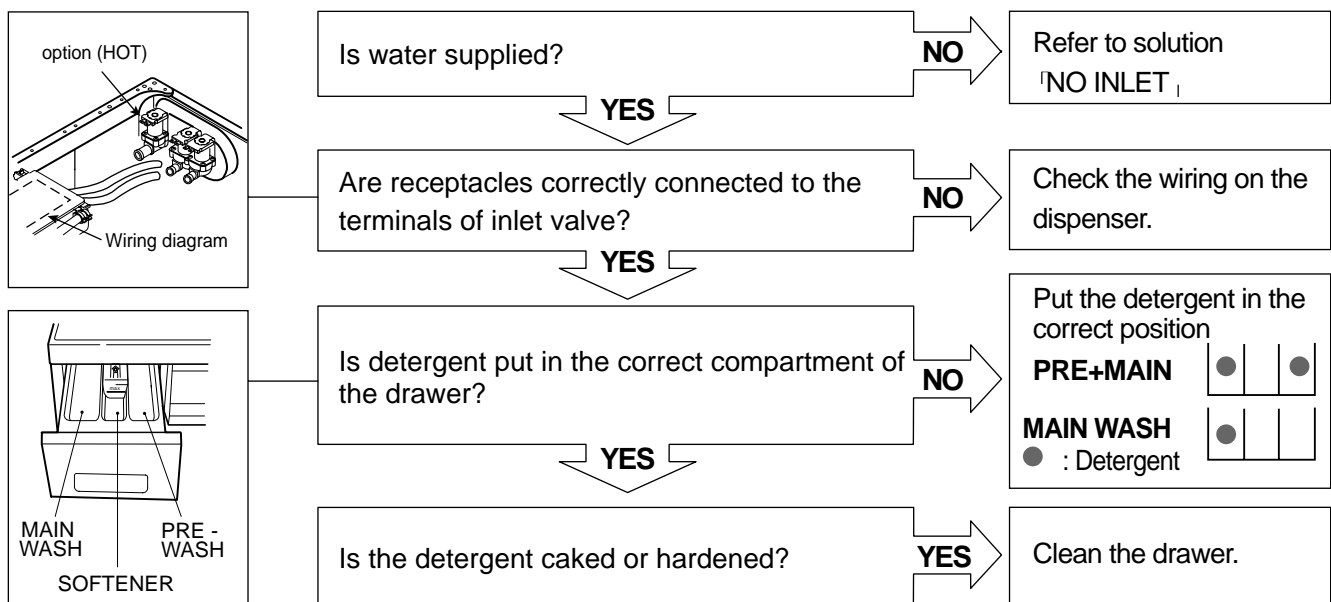
ALL BUTTONS ARE LOCKED EXCEPTOR FOR POWER BUTTON



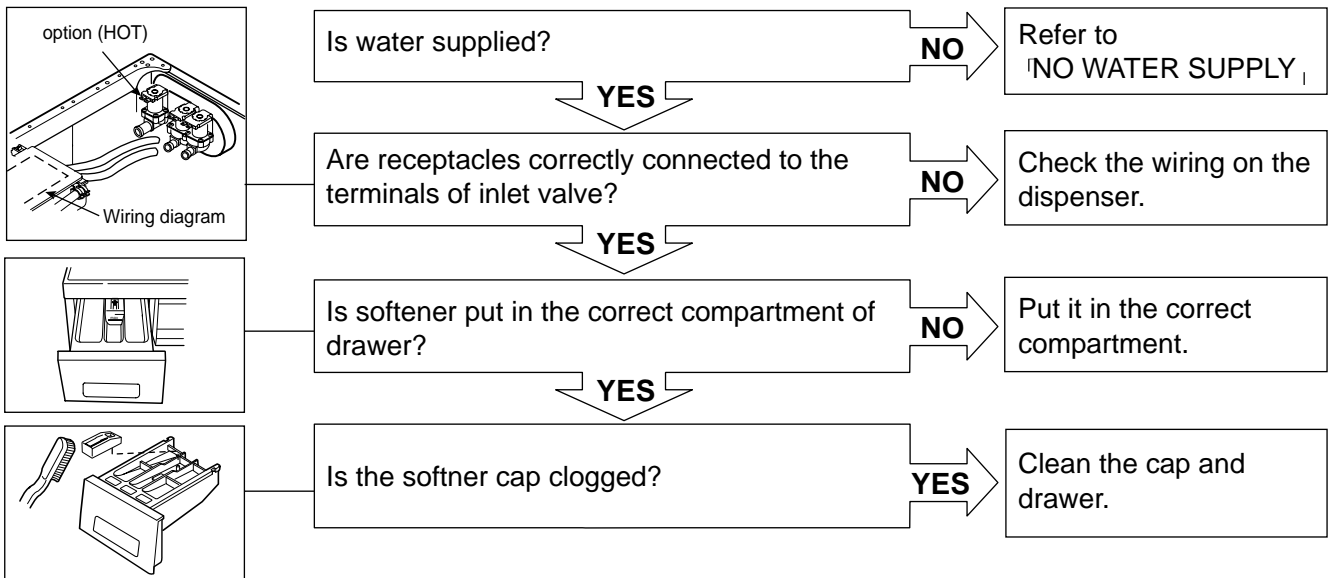
NO WATER SUPPLY



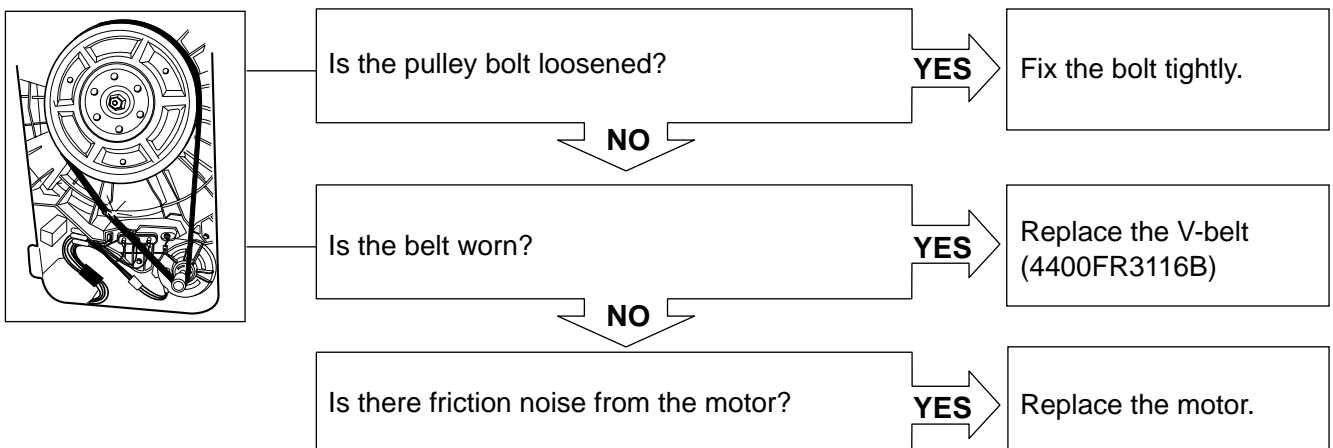
DETERGENT DOES NOT FLOW IN



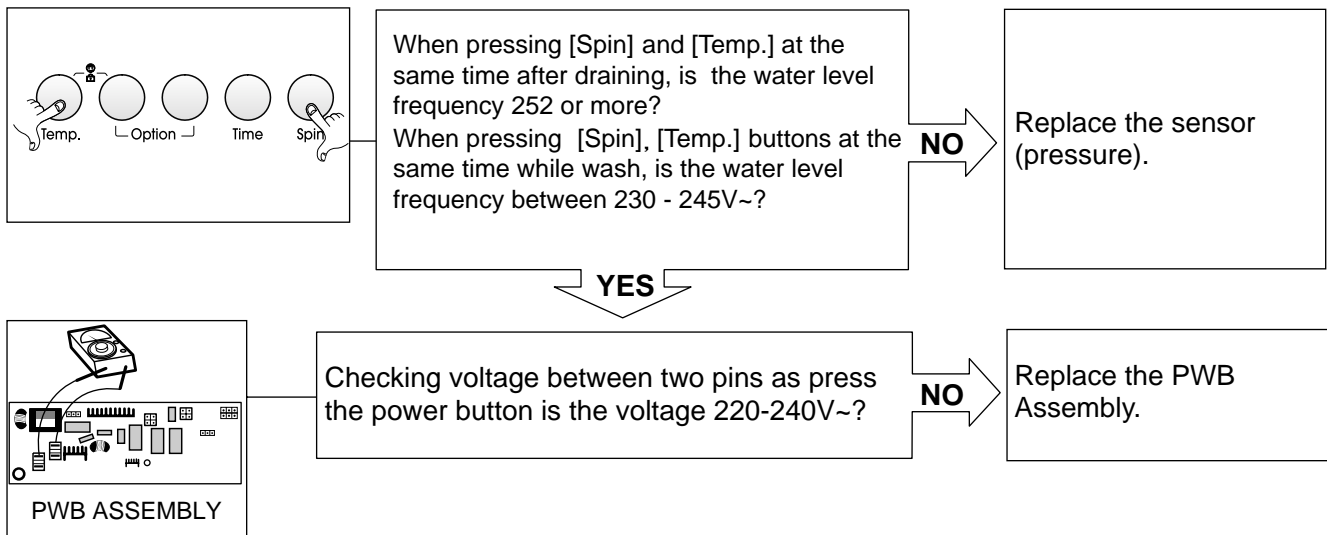
SOFTENER DOES NOT FLOW IN



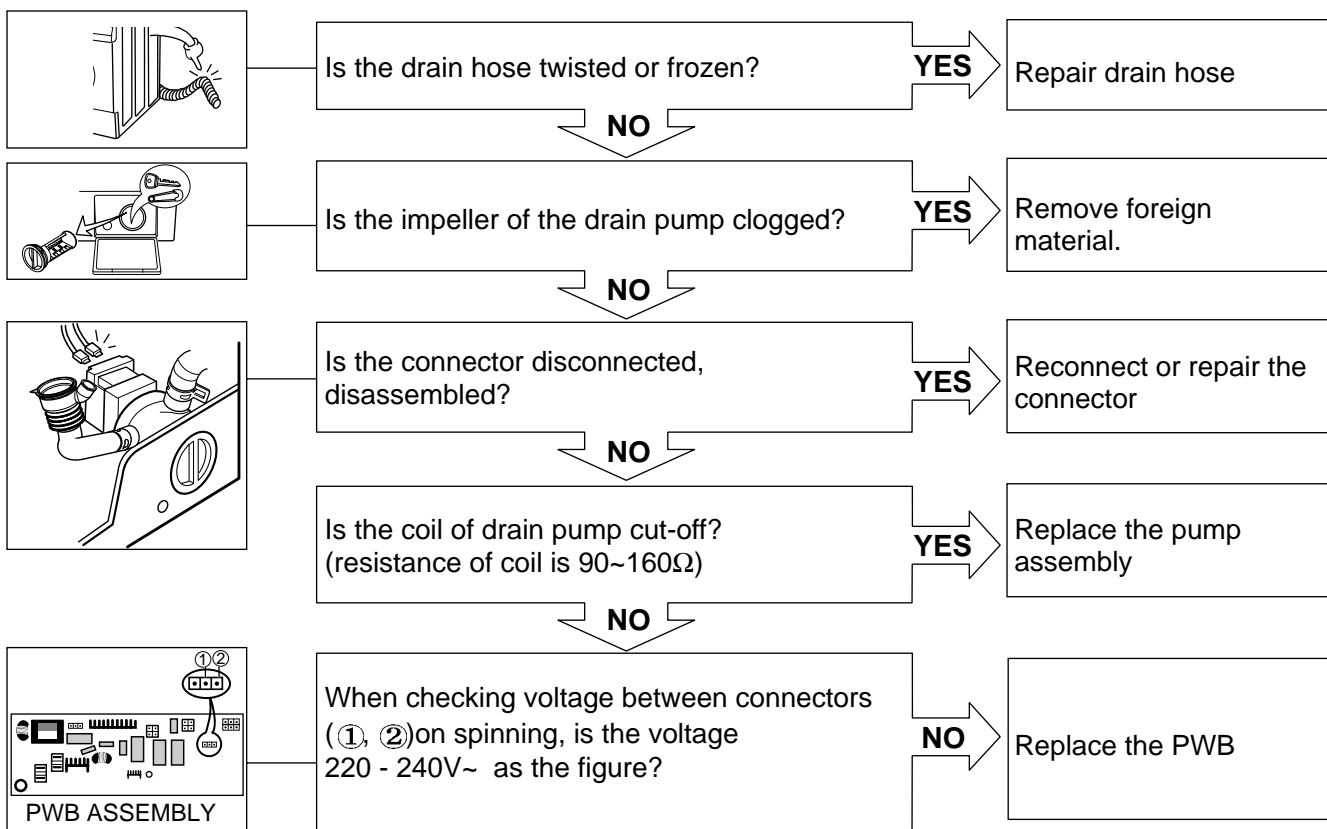
ABNORMAL SOUND



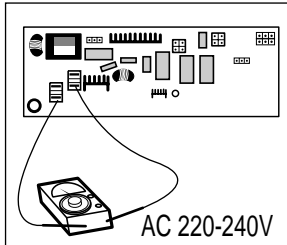
HEATING WITHOUT WATER



DRAIN MALFUNCTIONING



WASH HEATER TROUBLE

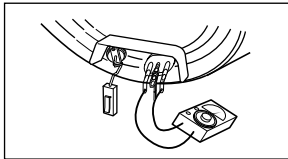


When checking the voltage between connector the PWB assembly (Main) during Cotton 95°C washing, is the voltage 220 - 240V ~?

NO

Replace the PWB assembly (Main)

YES

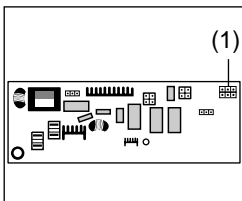


After power off and the heater terminal is disconnected, is the resistance 10 to 30Ω?

NO

Replace the heater assembly

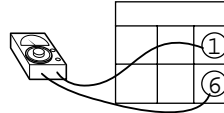
HEATING CONTINUOUSLY ABOVE THE SETTING WATER TEMPERATURE



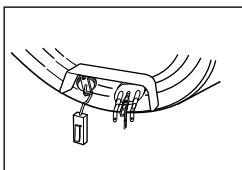
When disconnecting the connector (1) on the PWB assembly (Main) is the resistance of the Natural connectors [①(Blue White), ④(White)] between 2.5kΩ to 180kΩ(105°C~0°C)?

NO

Replace the thermistor



YES

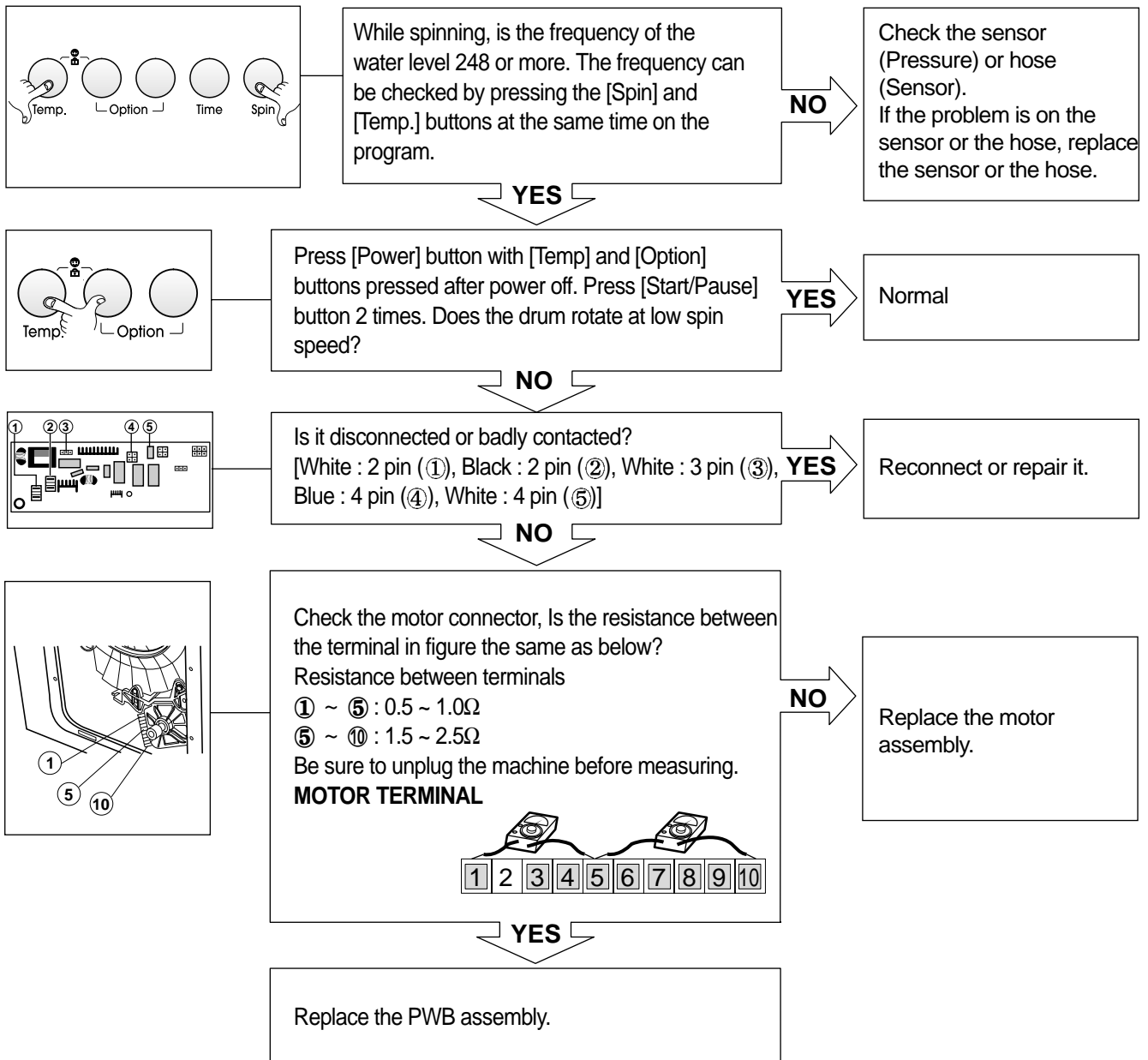


When checking thermistor on the tub, is the thermistor loosened above 2mm from the rubber?

YES

Push the thermistor tightly to the rubber.

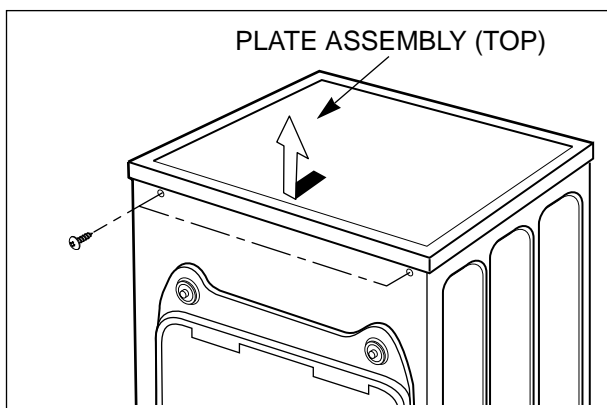
SPIN TROUBLE



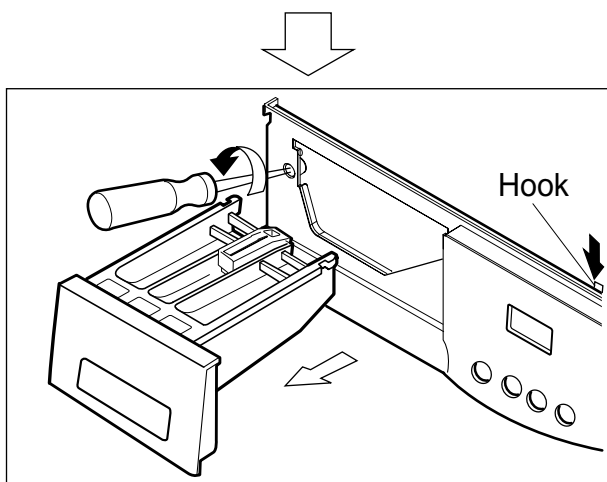
9. DISASSEMBLY INSTRUCTIONS

* Be sure to unplug the machine out of the outlet before disassembling and repairing the parts.

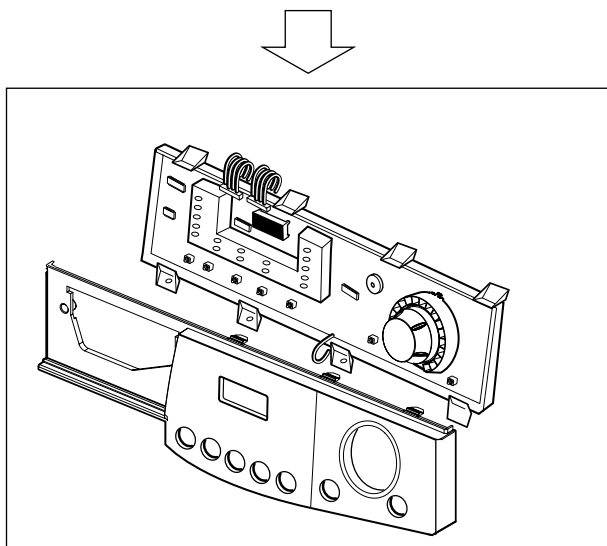
CONTROL PANEL



- ① Unscrew 2 screws on the back of the top plate.
- ② Pull the top plate backward and upward as shown.

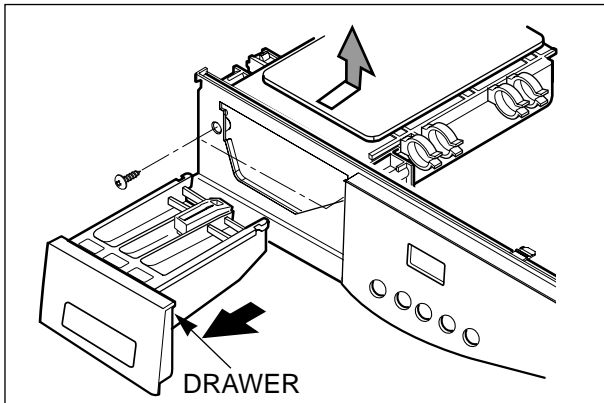


- ① Disconnect the PWB Assembly connector from Main lead wire Assembly.
- ② Pull out the drawer and unscrew 2 screws.
- ③ Push upper hooks down on the top and pull the control panel.

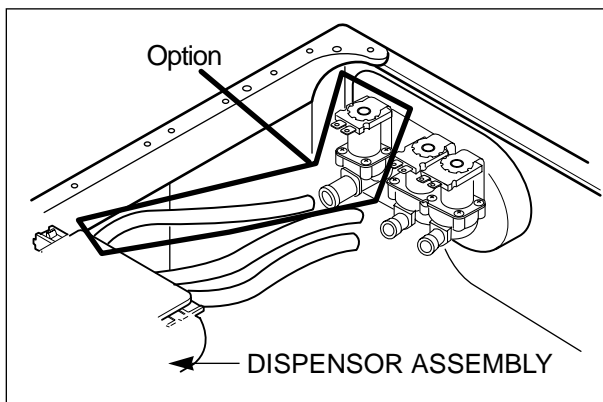


- ① Disconnect the PWB assembly from the control panel by unscrewing 5 screws.

DISPENSER ASSEMBLY

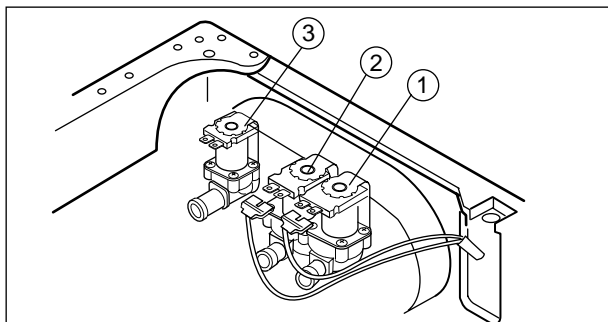


- ① Disassemble the top plate assembly.
- ② Pull out the drawer to arrow direction.
- ③ Unscrew 2 screws.



- ① Disassemble hose and its clamps.
- ② Disassemble ventilation bellows and water inlet bellows on the tub.

INLET VALVE



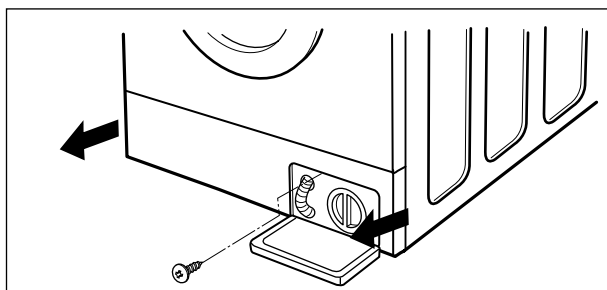
① Disconnect the wiring receptacle.

② Unscrew 2 screws from the back.

※When reconnecting the connector

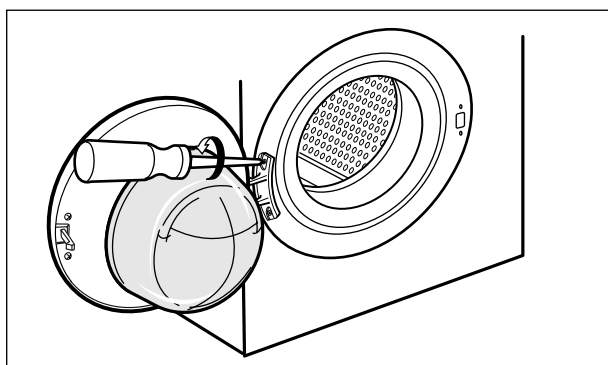
VALVE #1 (MAIN)	White/Black-Black
VALVE #2 (PRE)	Black - Gray
VALVE #3 (HOT)	Blue/White - Black

LOWER COVER



■ Open the lower cover cap by using coin and pull out the lower cover to the arrow direction after a screw is unscrewed.

DOOR

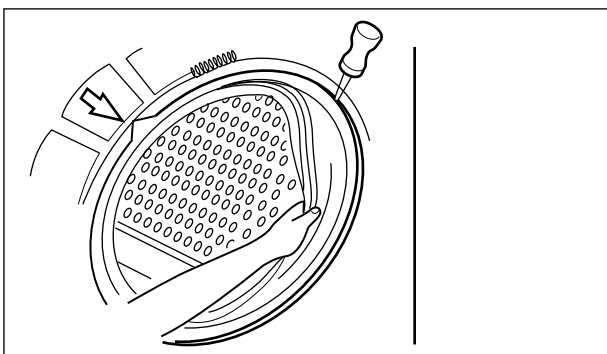
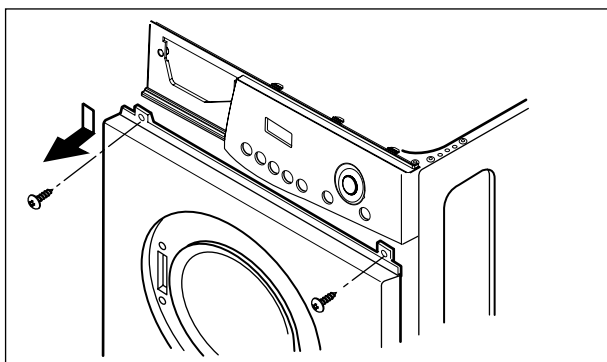
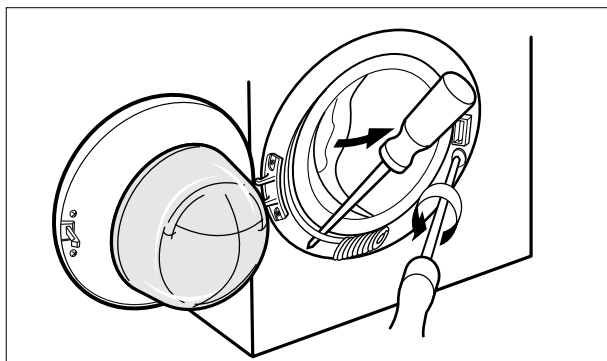


① Open the door completely.

② Remove the two screws from the hinge.

※When removing the door assembly, it is necessary to hold the bracket that is inner of the cabinet cover.

GASKET ASSEMBLY

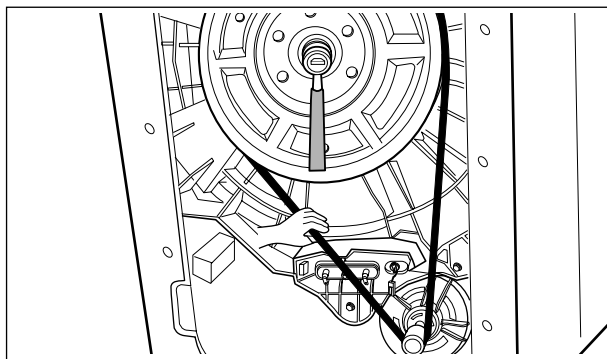


- ① Take apart the cabinet gasket clamp.
- ② Unscrew 2 screws from the cabinet cover.
- ③ Open the lower cover cap and unscrew 1 screw inside.
- ④ Take apart the lower cover.

- ① Disassemble the control panel. (refer to the page 25)
- ② Unscrew all the screws on the upper and lower sides of the cabinet cover.

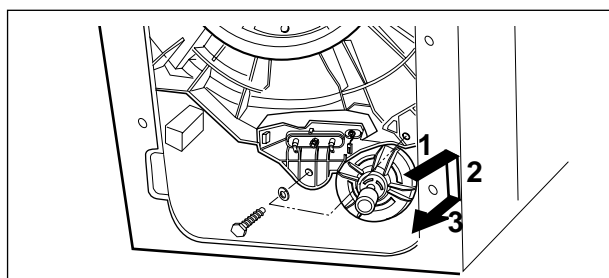
- ① Take apart the tub gasket clamp.
 - ② Make sure that the drain hole of the gasket is put beneath when reassembling the gasket.
- ※Refer to the arrow mark on the tub cover.

PULLEY, MOTOR, DAMPER



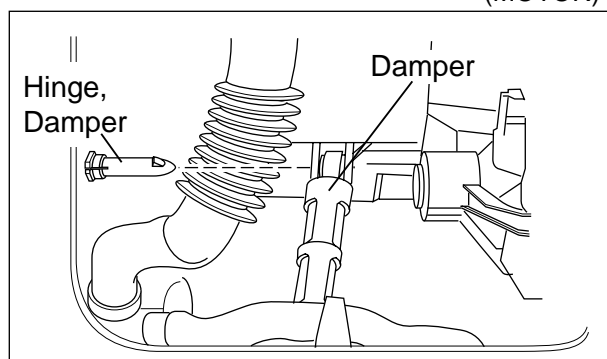
(PULLEY)

- ① Remove the back cover.
- ② Take off the belt turning the pulley.
- ③ Unscrew the bolt to pull out the pulley.



(MOTOR)

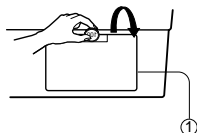
- ① Unscrew 2 screws from the bracket.
- ② Push the motor in the arrow direction for disassembling.
- ③ When reassembling the motor, make sure that motor mounting bushings are not taken off from the bracket.



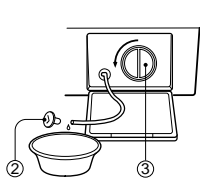
(DAMPER)

- ① Pull out the hinge, pressing its snap.
- ② Do not use the pulled - out hinge again. It may be taken off during operation.

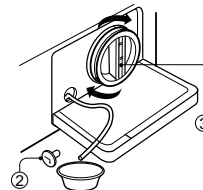
■ Clean the drain pump filter



Open the lower cover cap (①) by using a coin. Turn the drain plug (②) to pull out the hose.

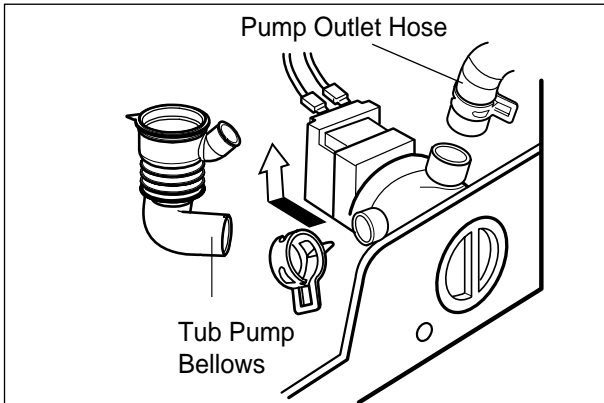


Unplug the drain plug (②), then the water flows out, At this time use a vessel To prevent water from flowing on the floor. If the water does not flow any more, turn the pump filter (③) open to the left.



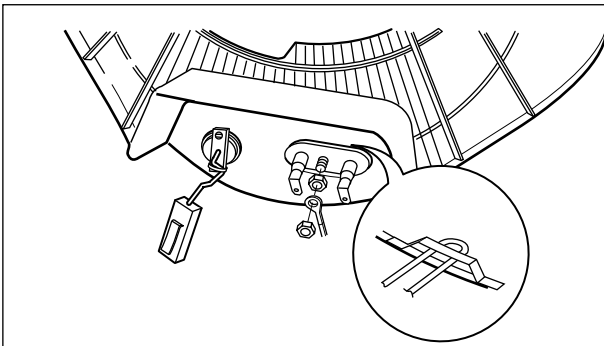
Take out any foreign material from the pump filter (③). After cleaning, turn the pump filter (③) clockwise and insert the drain plug (②) to the original place. close the lower cover cap.

PUMP



- ① Remove pump outlet hose.
- ② Remove tub pump bellows.
- ③ Remove cap (Remaining Hose.)
- ④ Disconnect the wiring.
- ⑤ Unscrew 2 screws.
- ⑥ Remove the pump.

HEATER

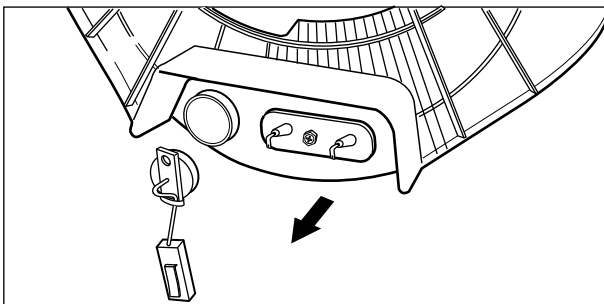


- ① Loosen the M6 heater nut to pull out the heater.

CAUTION

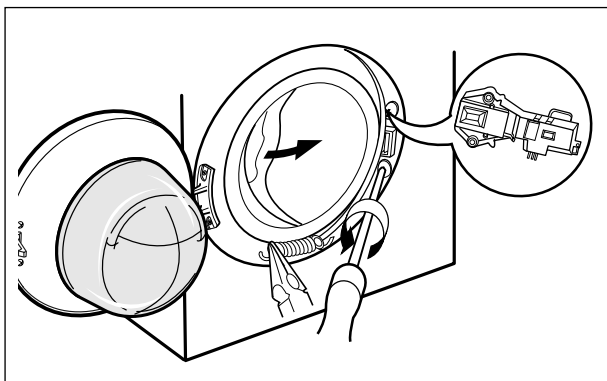
When mounting the heater, be sure to insert the heater into the heater clip on the bottom of the tub.

THERMISTOR



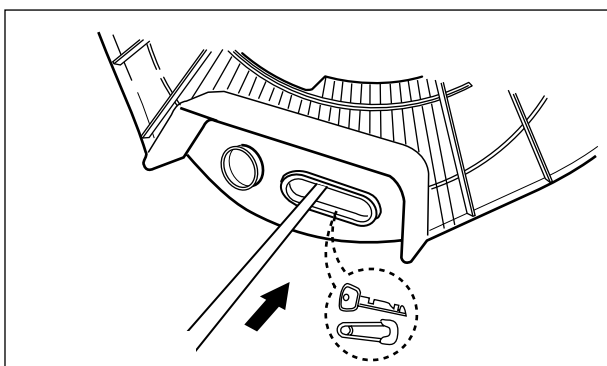
- ① Pull it out by holding the thermistor bracket.
* If it is pulled by the wire, it may be broken.
- ② When mounting the thermistor again, make sure that it is got back tight to the bushing.

SWITCH ASSEMBLY, DOOR LOCK



- ① Take apart the cabinet cover clamp and release the gasket.
- ② Unscrew 2 screws holding the door lock.
- ③ Disconnect the door lock from the wiring connector.

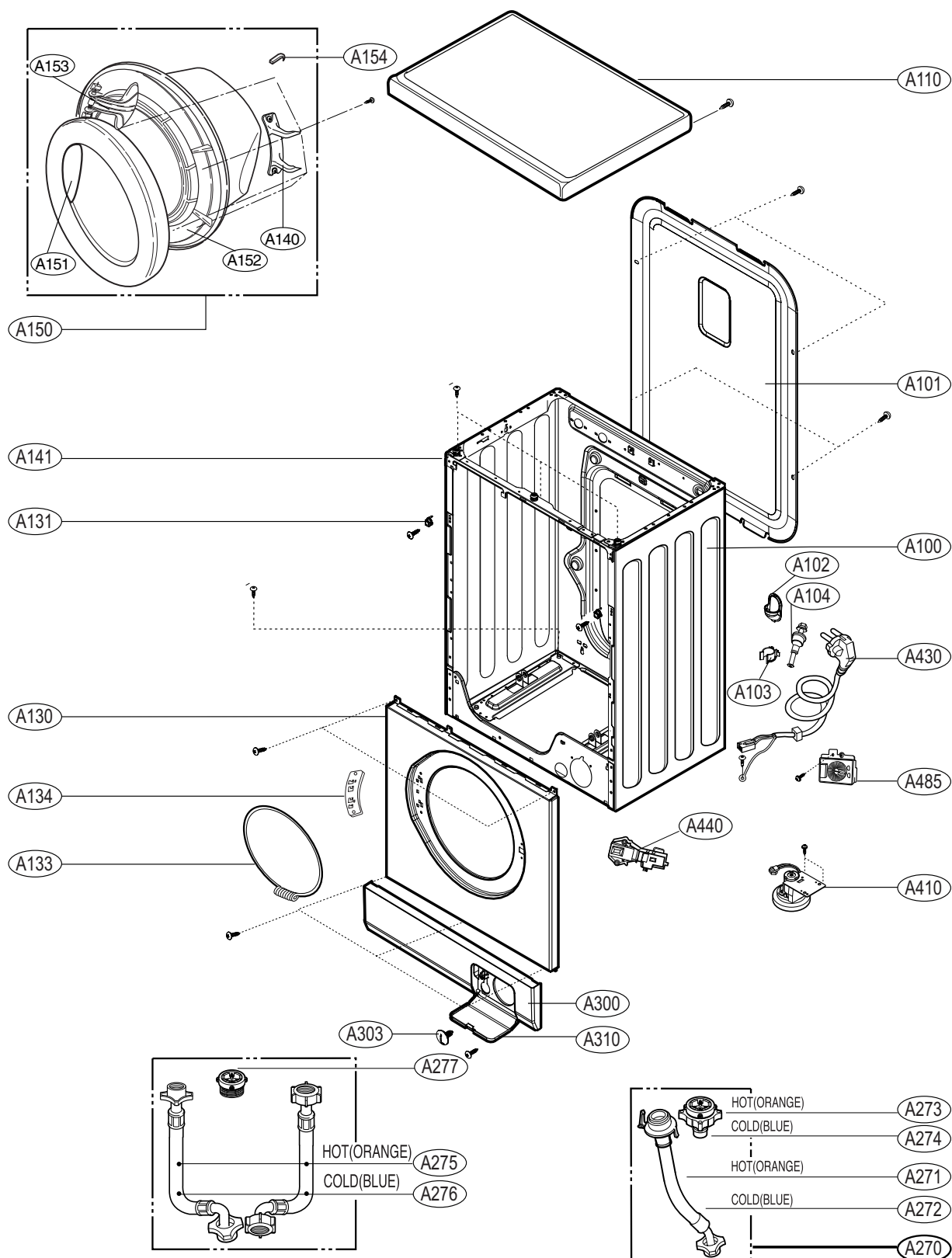
WHEN FOREIGN MATERIAL IS STUCK BETWEEN DRUM AND TUB



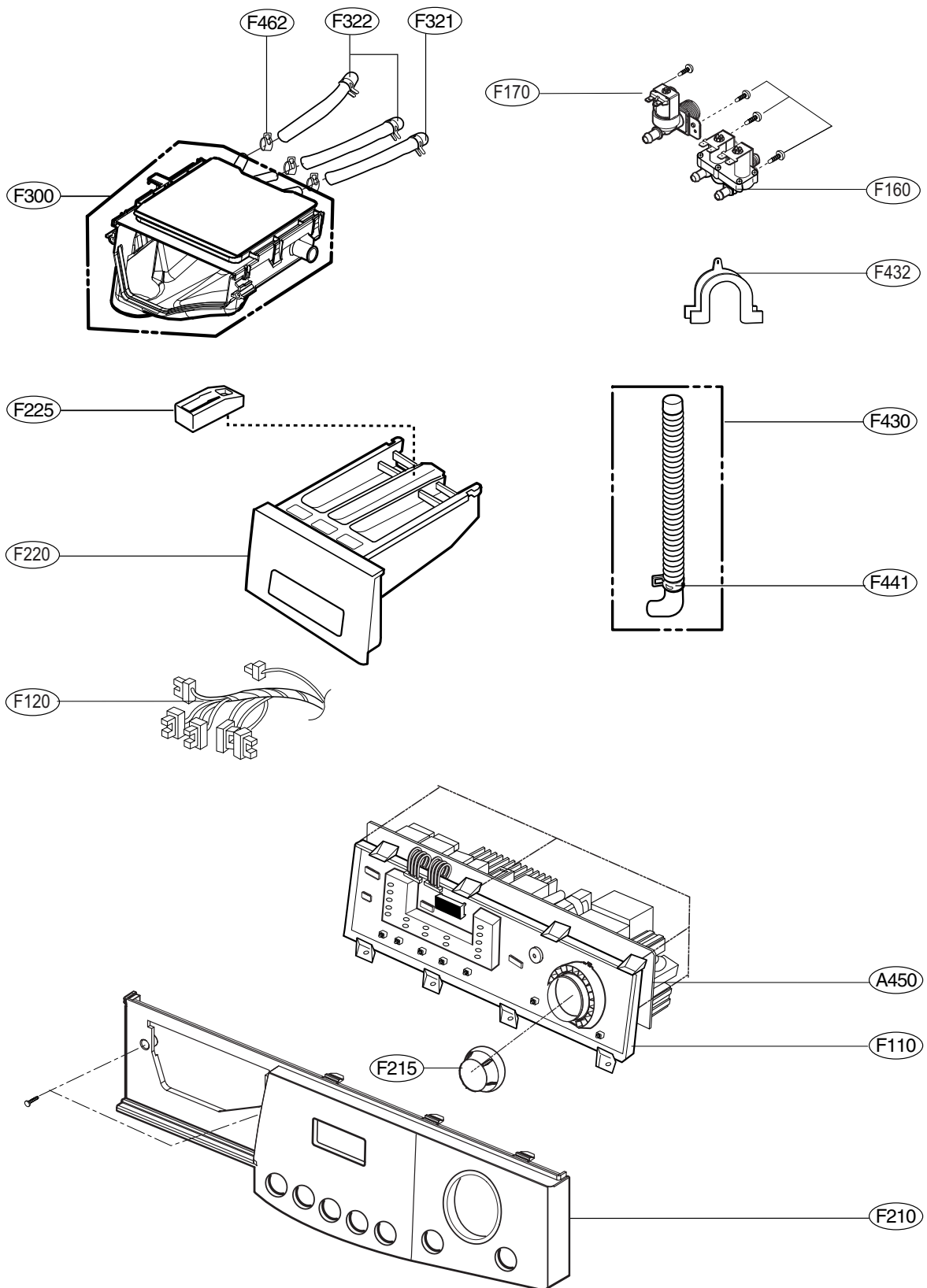
- ① Remove the heater.
- ② Remove the foreign material (wire, coin and others) by inserting a long bar through the hole.

10. EXPLODED VIEW

10-1.THE EXPLODED VIEW OF CABINET ASSEMBLY



10-2 THE EXPLODED VIEW OF CONTROL PANEL & DISPENSER ASSEMBLY



10-3 THE EXPLODED VIEW OF DRUM & TUB ASSEMBLY

