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WASHING MACHINE SERVICE MANUAL

CAUTION

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

MODEL: WD-10120FD

WD-12120(5)FD WD-14120(5)FD FWD-12120(5)FD FWD-14120(5)FD

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1. SPECIFICATION

П	FEM	WD-10120FD / WD-12120(5)FD / WD-14120(5)FD / FWD-12120(5)FD / FWD-14120(5)FD					
POWER	SUPPLY	220-240V~, 50Hz					
PRODUCT	WEIGHT	65kg					
	WASHING	230W					
ELECTRICITY	SPIN (1400rpm)	440W					
CONSUMPTION	DRAIN MOTOR	38W					
	WASH HEATER	2000W					
	WASH	45rpm					
REVOLUTION		1400 rpm : No spin/400/800/1000/1400 rpm					
SPEED	SPIN	1200 rpm : No spin/400/800/1000/1200 rpm					
		1000 rpm : No spin/400/600/800/1000 rpm					
OPERATION WAT	ER PRESSURE	0.3-10kgf/ _{ℂℿ} (30-1000kPa)					
CONTRO	OL TYPE	Electronic					
WASH CA	A DA CITY	7kg					
WASH CA	AFACILI	Synthetic (3.5kg), Delicate (3.0kg), Wool (2.0kg)					
DIMEN	SION	600 mm(W) $\times 600$ mm(D) $\times 850$ mm(H)					
WASH DD	OCD AM	Cotton-Eco, Cotton, Synthetic,					
WASH PRO	JGRAIVI	Delicate, Wool, Hand Wash, Quick 30					
RINS	SE	Super, Normal, Hold					
DOOR SWI	TCH TYPE	Bi-Metal type					
WATER L	_EVEL	9 steps (by sensor)					
RESERV	ATION	From 3 hours to 19 hours					
SENSING OF THE LA	UNDRY AMOUNT	Adapted					
FUZZY L	OGIC	Adapted					
DISPLAY OF THE R	EMAINING TIME	Adapted					
ERROR DIA	GNOSIS	9 items					
POWER AL	JTO OFF	Adapted					
CHILD L	OCK	Adapted					
AUTO RE	START	Adapted					
RAP	ID	Adapted					

2. FEATURES & TECHNICAL EXPLANATION

2-1.FEATURES



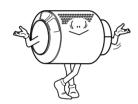
■ Jumbo drum

LG's jumbo drum can wash about 40% more load than conventional washing machine. A bigger drum improves the wash performance.



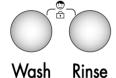
■ More economical by Intelligent Wash System

Intelligent Wash System detects the amount of load and water temperature, and then determines the optimum water level and washing time to minimize energy and water consumption.



■ Direct Drive system

The advanced Brushless DC motor rotates the Drum directly without belt and pulley.



■ Child-Lock

The Child-Lock system has been developed to prevent children from pressing any button to change the program during operation.



Low noise speed control system

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

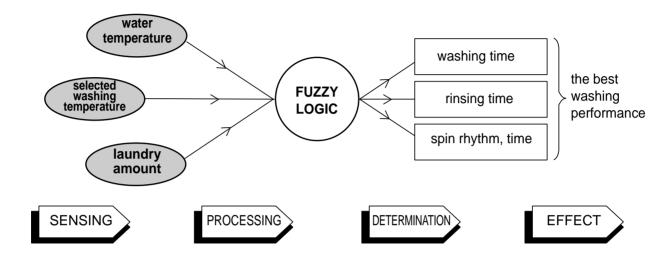


Auto Restart

Although the washing machine is turned off by a power failure, it restarts automatically where it stopped when power is supplied again. And it will be the same the machine is unplugged and is plugged in again.

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.



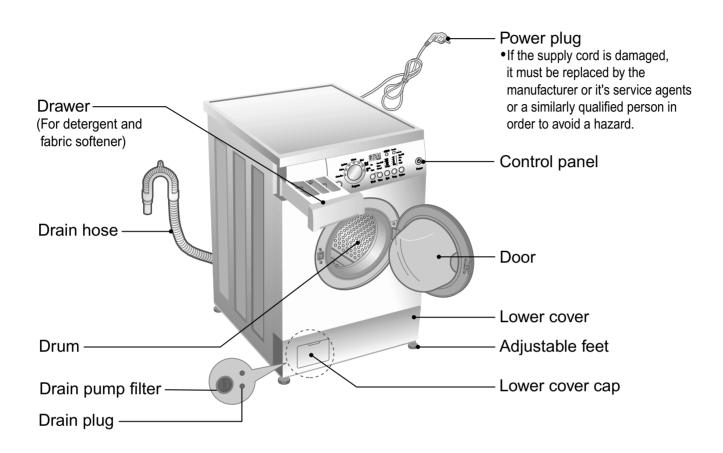
2-3.WATER LEVEL CONTROL

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

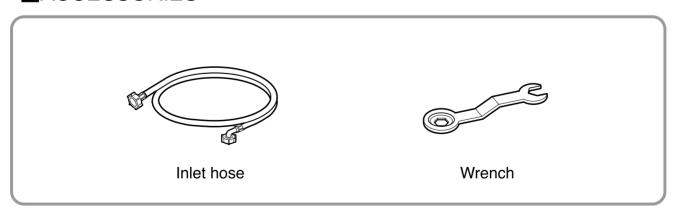
2-4.THE DOOR CAN NOT BE OPENED

While program is operating.

3. PARTS IDENTIFICATION



ACCESSORIES



4. INSTALLATION

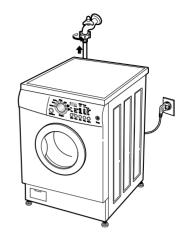
- 1 Before servicing ask the customer what the trouble is.
- 2 Check the adjustment (power supply is 220-240V~, remove the transit bolts....)
- [3] Check the troubles referring to the troubleshooting.
- 4 Decide service steps referring to disassembly instructions.
- 5 Then, service and repair.
- 6 After servicing, operate the appliance to see whether it works O·K or NOT.
- STANDARD INSTALLATION

The appliance should be installed as follows.

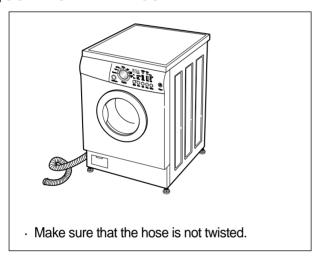
Keep the transit bolts and spanner for future use. Insert the 4 caps provided into the hole			
 Remove the transit bolts (4EA: ①) with supplied spanner. Keep the transit bolts and spanner for future use. Insert the 4 caps provided into the hole 	REMOVE THE TRANSIT	INSTALL THE APPLIANCE	ADJUST THE
 (4EA: ①) with supplied spanner. Keep the transit bolts and spanner for future use. Insert the 4 caps provided into the hole 	BOLTS	ON FLAT AND FIRM SURFACE	HORIZONTAL
• The appliance goes up by rotating the feet clockwise.	 Remove the transit bolts (4EA: ①) with supplied spanner. Keep the transit bolts and spanner for future use. Insert the 4 caps 		Turn the leveling feet to set the appliance horizontally. High The appliance goes up by rotating the feet clockwise. The appliance comes down by

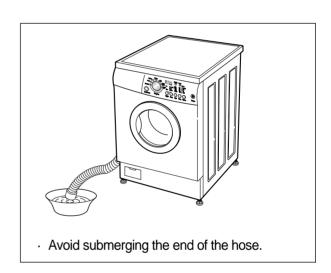
■ HOW TO CONNECT INLET HOSE

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



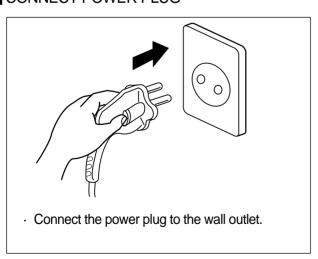
■ CONNECT DRAIN HOSE

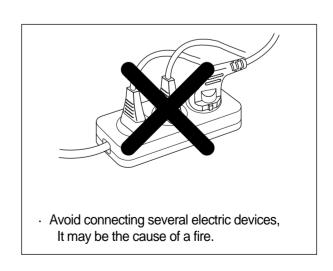




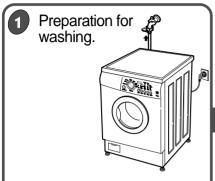
** The drain hose should be placed under 100cm from the floor.

■ CONNECT POWER PLUG





7 TEST OPERATION



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

2 Press the power button.



Power

Press the Start/Pause button.



Start/Pause

• In case of coloureds program.

6 Check the water heating.



 Press the **Temp.** button and the present temperature will be displayed. Check automatic reverse turn.



· Check if the drum rotates clockwise and counterclockwise.

4 Check the water supply.



· Check if water is supplied through the detergent dispenser.

- 7 Check drain and spin
- Turn off Wash and Rinse after pressing the Start/Pause button and start the machine again.
- · Check drain and spin.

Power off and open the door



Power

- · Power off and then power on.
- Check if the door can be opened after 3 minutes.

Water removal



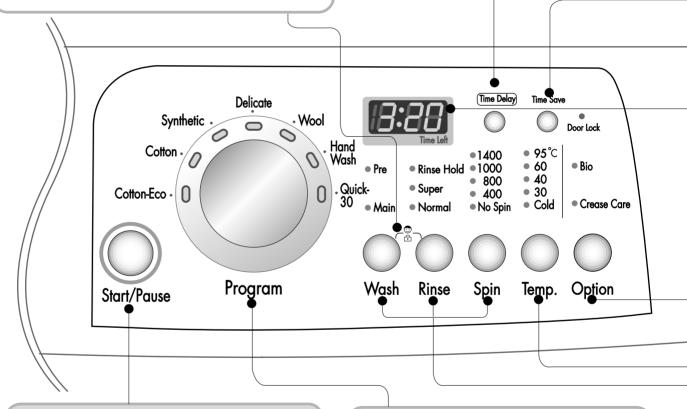
 If SVC is needed during check, remove the remaining water by pulling out the hose cap.

Child lock

- Once Child-Lock is set, and canceled by pressing both [Wash] and [Rinse] simutaneusly once Child lock is set. Once Chold Lock is set, all buttons are iroperable.
- The Child-Lock system can be set at any time even including during Power-Off, on Pause and operation.
 It is automatically cancelled when an operational error occurs and when the cycle ends.

Delay finish

- Press the button when reservation washing is needed.
- When the button is pressed, [☐: ☐☐] is displayed.
- A maximum delay of [; \(\frac{1}{2} \); \(\frac{1}{2} \) \(\frac{1}{2} \) hours can be set.
- Each press advances time delay by one hour.
- Use ON/OFF button to cancel [Time delay].



Start/Pause button

- Use the button to start or pause wash cycle.
- •The power turns off automatically in 4 minutes after the pause button is pressed.
- · Press the button to change the program.

Wash program selector

- 7 programs can be selected depending on the type of the laundry.
- By turning the dial,
 [Cotton → Synthetic → Delicate → Wool → Hand Wash → Quick 30 → Cotton-Eco]
 can be selected

Time Save

- This option can be used to reduce the time of a wash program.
- This function in not available with Quick 30 program.

LED display

- Display the remaining time (Hour : Minute) to finish.
- In case of abnormal operation, error indications are displayed. (FE, FE, 3E, LE, LE, LE, LE, LE, LE)
- See trouble shooting guide.



Power

ON/OFF button

• Press the button to turn power on and off.

Option

- **Bio**: If you want to elimenate 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 and Synthetic.]
- Crease Care: If you want to prevent Crease, select this button with spin speed.

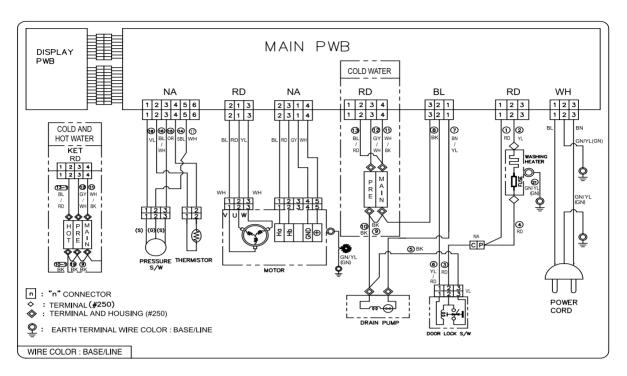
For manual wash, rinse and spin

- Use these buttons to change washing method, rinse times, spinning speed.
- When lamp is off, no selection has been made.
- Prewashing is available for Cotton, Cotton-Eco, Synthetic program.

Water temperature selector

- Press the button to select water temperature.
- The water temperature is selected [60°C → 95°C → Cold →30°C →40°C] during cotton program.
- 95°C is selected only for cotton program.
- By pressing the button during operating the washer, the present temperature is displayed.

6. WIRING DIAGRAM / PROGRAM CHART



* ()WD-10120FD / WD-12120(5)FD / FWD-12120(5)FD / FWD-14120(5)FD

PROGRA	PROGRAM CHART						* Water Supply : W·S * Intermittent Sp							pin	: 1-8	3	*	ʻ Disentangle : D·T															
C	Wash Rinse Spin																																
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		Pi	re			Main				Normal (Hold)									Extra (Hold)				Ориг		Орп		E	U					
\\s\ L	w		_	\Box	w		shing	Sta	ycoo	ling		1				2				3	3			4	_					N	o	Normal	
C T E	S	Washing	Drain	I S	s	Heat	Wash	W · S	Rinse	Drain	Drain	- S	W S	Rinse	Drain	l S	W S	Rinse	Drain	! S	W S	Rinse	Drain	- S	₩ S	Rinse	Drain	Spin	D·T	D	O F F	Working Time (Hour:Minute)	
U \ P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	20	20	(Floar.iviiilate)	'
S Time (SEC)	120	MIN	60	300	120		MIN	120	60	60	60	300	120	360	60	300	120	360	60	300	120	360	60	300	120	360	60	600	120	20	20		
Cotton		8					60 96		\sim																							About 2:43(2:3	39)
Cotton-Eco		8					1																									About 2:58	ヿ
Synthetic		8					40 23	3	TIMES	\vdash																						About 1:32	\dashv
-		\sqsubseteq					59 	otin	$\stackrel{\sim}{=}$	\geq																			=				닉
Quick 30		\geq	\leq				12		\simeq																							About 30	
Delicate		>	<				1 29		><	$\langle \ $																						About 1:07	
Wool		>	<				1 23		><																							About 1:01	
HandWash		>	<				1 29		><	\langle																						About 1:00	
Wash		8					60 96		><										\equiv			=	\equiv	\equiv	Ξ							About 1:03	
Rinse				\geq	>	>	_	=																		*****		\geq	\leq			About 39	
Rinse Hold					=	<u> </u>	_	=																					\geq	\leq		About 39	
Spin												_			_		_	_														About 12	
Wash + Rinse		8					60 96		><																				\leq			About 1:48	
Wash +Spin		8					60 96		><								=															About 1:14	
Rinse + Spin					=	_	<	=																								About 38	

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.

^{*} Basic time is minute in washing chart

^{*} The actual program time can be varied with the load amount, water temperature or ambient temperature

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.

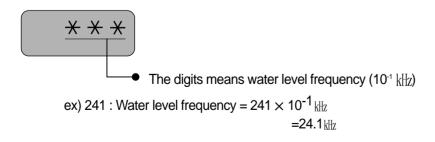
- ① Pressing Rinse, and Spin button simultaneously.
- 2 Power supply on with pressing upper two button. Then buzzer sound twice.
- ③ Press the Start/Pause button as follows.

[Press the Start/Pause button more 4 times until stop spinning]

Pressing number of [Start/Pause] button	Checking Point	Display Status		
None	All lamps turn on			
1 time	Clockwise spin (right)	Drum rpm (About 40~52)		
2 times	Low speed Spin	Drum rpm (About 55~65)		
3 times	High speed Spin	Drum rpm (About 95~140)		
4 times	Inlet valve for prewash operation	Water level frequency (25~65)		
5 times	Inlet valve for mainwash operation	Water level frequency (25~65)		
5 unes	Hot inlet valve in case of hot water fill	vvaler level frequency (25~65)		
6 times	Inlet valve for mainwash operation	Water level frequency (25~65)		
7 times	Counterclockwise spin (left)	Drum rpm (About 40~52)		
8 times	Heater is in operation for 3 sec.	Water temperature		
9 times	Draining pump operation	Water level frequency		
10 times	Auto off operation			

7-3.HOW TO KNOW THE WATER LEVEL FREQUENCY

* Press the Rinse and Spin button simultaneously.



7-4.ERROR DISPLAY.

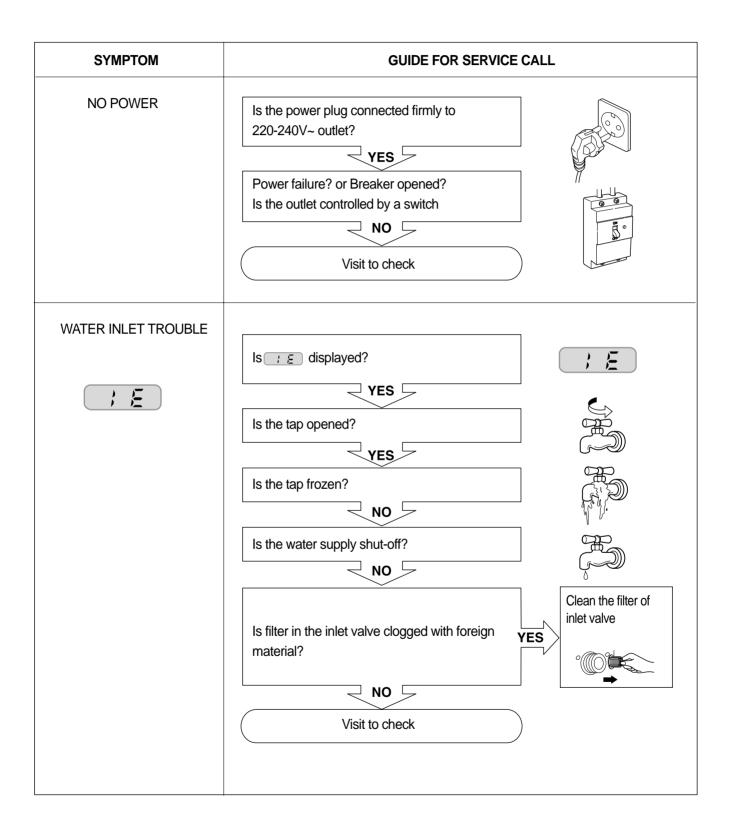
- If you press the Start/Pause button when an error in displayed, any error except $P \in \mathbb{R}$ will disappear and the machine will change into pause status.
- In case of PE, LE, dE, if the error is not resolved within 20 sec. In the case of other errors, if the error is not resolved within 4 min., power will be turned off automatically and the error only will be blinked. But in the case of FE, power will not be turned off.

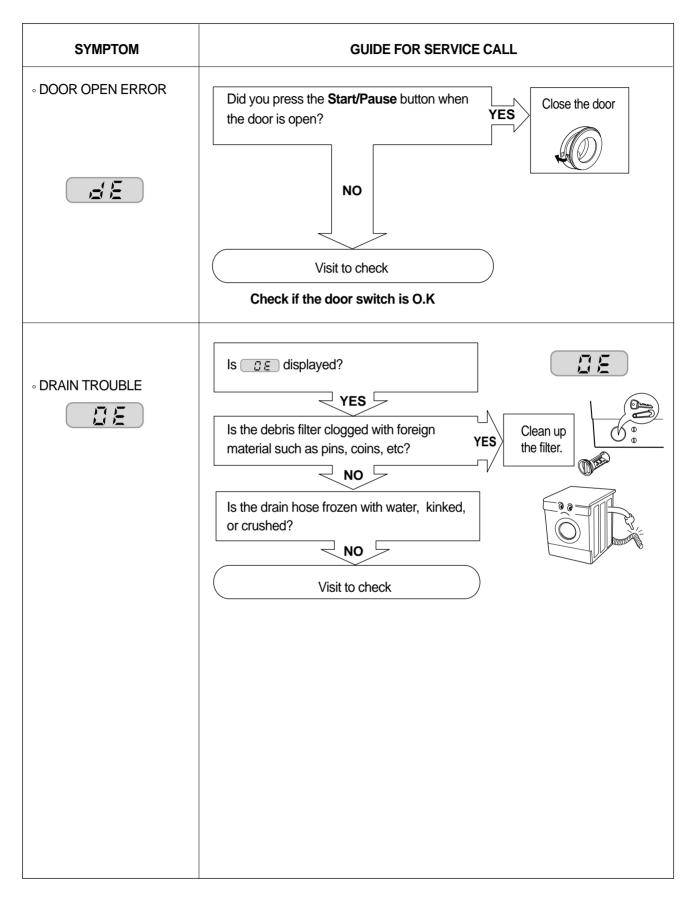
	ERROR	SYMPTOM	CAUSE
1	WATER INLET ERROR	;	 Water has not reached to the pre-set level within 8 min. since inlet valve operated, or water has not reached to the normal level within 25 min.
2	IMBALANCE ERROR	LIE	 Load is too small. The appliance is tilted. Laundry is gathered to one side. Non-distributable things are put into the drum.
3	DRAIN ERROR	<u> </u>	○ Water has not drained enough within 10 min.
4	OVERFLOW ERROR	FE	Water is automatically being pumped out because too much water is in the tub.
5	SENSOR PRESSURE S/W ERROR	FE	The sensor pressure switch is out of order.
6	DOOR OPEN ERROR	<u> </u>	 The Start/Pause button is pressed with the door open. The door switch is out of order.
7	HEATING ERROR	EE	○ The THERMISTOR is out of order.

	ERROR	SYMPTOM	CAUSE
8	CURRENT ERROR	<u>E</u>	MAIN PWB ASSEMBLY is out of order Replace the MAIN PWB ASSEMBLY Winding in the STATOR ASSEMBLY is short-circuited. Replace the STATOR ASSEMBLY
9	LOCK ERROR	LE	 The connector (3-pin, male, white) in the LEAD WIRE ASSEMBLY is not connected to the connector (3-pin, female, white) of STATOR ASSEMBLY. Reconnect or repair the connector The electric contact between the connectors [3-pin, male, white in the LEAD WIRE ASSEMBLY and 4-pin, female, natural in the MAIN PWB ASSEMBLY is bad or unstable. Reconnect or repair the contact in the connector The LEAD WIRE ASSEMBLY between the STATOR ASSEMBLY and MAIN PWB ASSEMBLY is cut (open circuited). Repair the damaged (open-circuited) the LEAD WIRE ASSEMBLY The hall sensor is out of order/defective. Replace the STATOR ASSEMBLY

8. ERROR DIAGNOSIS AND CHECK LIST

8-1.DIAGNOSIS AND ANSWER FOR ABNORMAL OPERATION



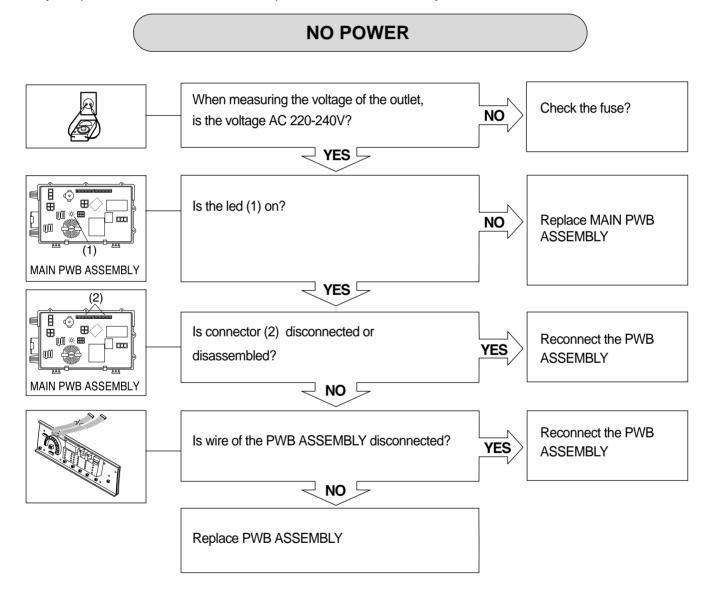


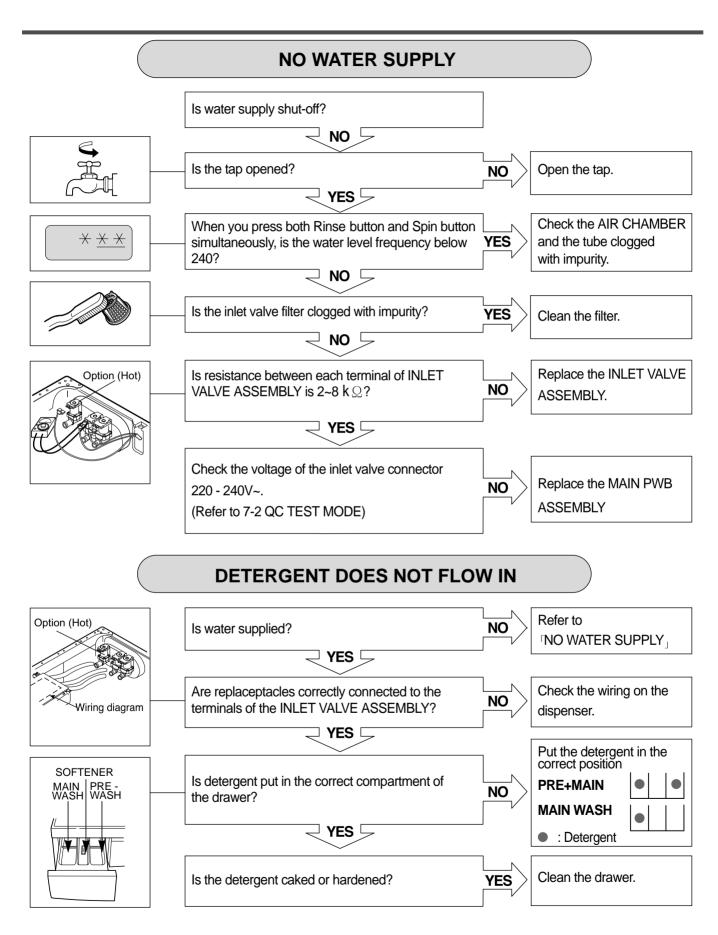
Is low-sudsing detergent for the drum washing machine used? YES Is the proper amount of detergent used	
Is the proper amount of determent used	LOW-SUDSING
as recommended?	DETERGENT
Recommend to reduce the amount of detergent.	
operates under much suds condition for good preventing overflow.* When much suds are sensed, the suds rem	d rinse and oving function such
Is softener put in the correct compartment of the drawer?	Compartment for softener
Is the drawer closed during wash?	
Is the softener cap clogged?	<u> </u>
YES	
Explain how to use softener	
Clean the compartment for softener	
Visit to check	
	Recommend to reduce the amount of detergent. * This appliance has the automatic suds sens operates under much suds condition for good preventing overflow. * When much suds are sensed, the suds remas drain, water input, and pause will operate drum. Is softener put in the correct compartment of the drawer? YES Is the drawer closed during wash? YES Is the softener cap clogged? YES Explain how to use softener Clean the compartment for softener

8-2. FAULT DIAGNOSIS AND TROUBLESHOOTING

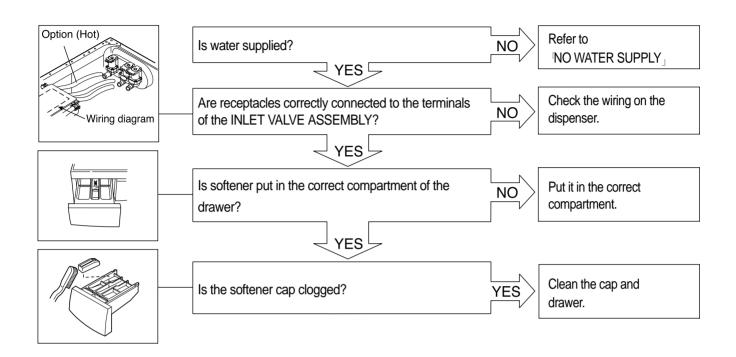
CAUTION

- 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 MAIN PWB ASSEMBLY, put in the connectors correctly.

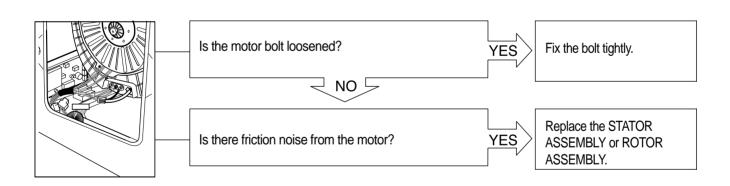




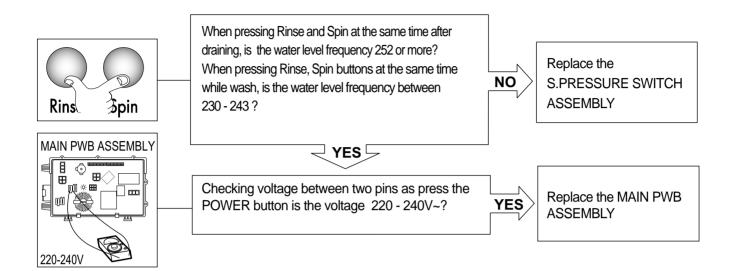
SOFTENER DOES NOT FLOW IN



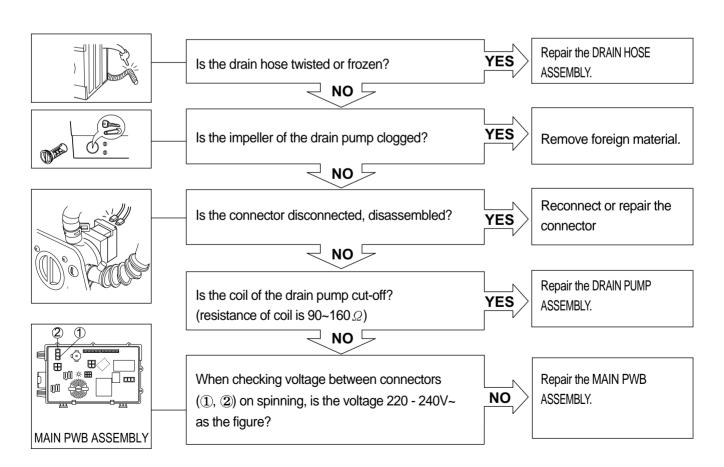
ABNORMAL SOUND

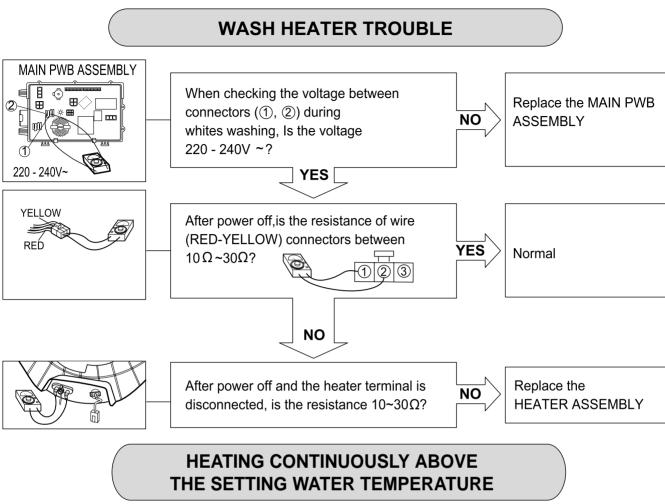


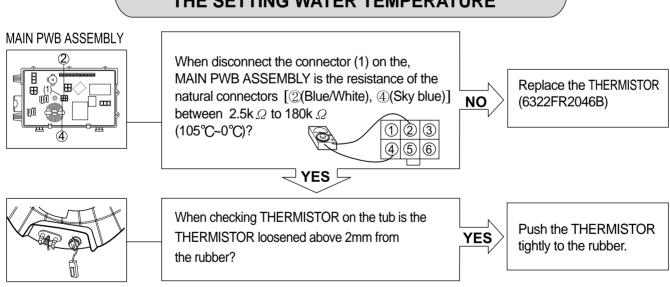
HEATING WITHOUT WATER



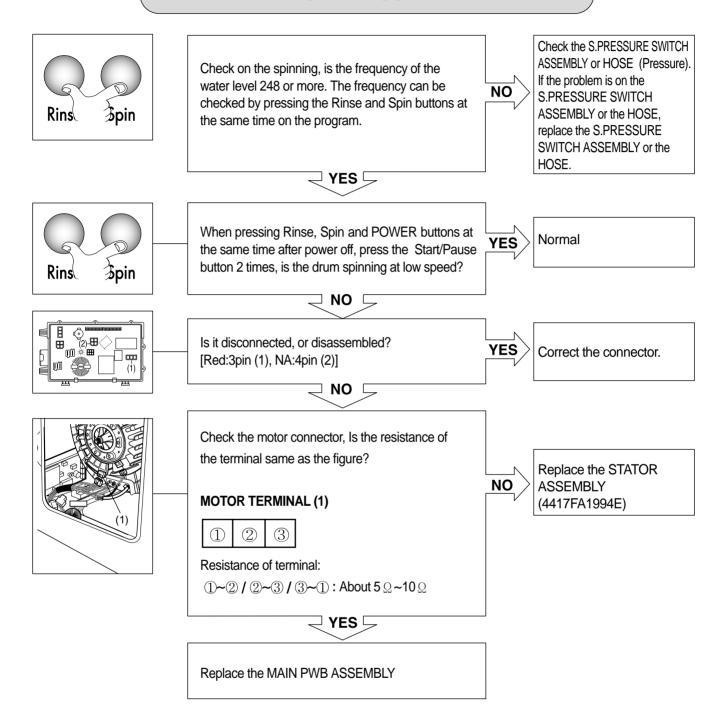
DRAIN MALFUNCTIONING







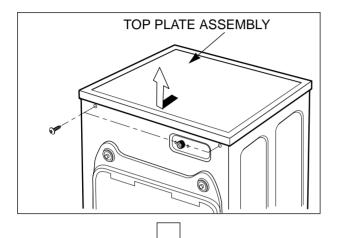
SPIN TROUBLE



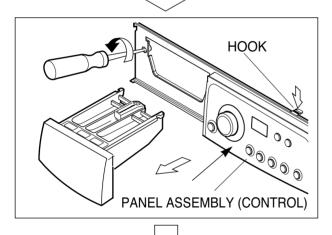
9. DISASSEMBLY INSTRUCTIONS

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

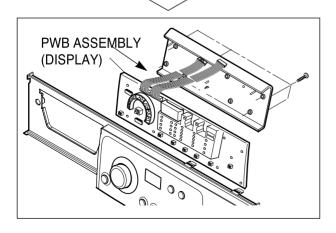
CONTROL PANEL ASSEMBLY



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

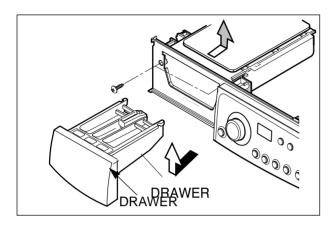


- ① Disconnect the ASSEMBLY connector.
- 2) Pull out the drawer and unscrew 3 screws.
- ③ Push 2 upper hooks down and pull the control panel.

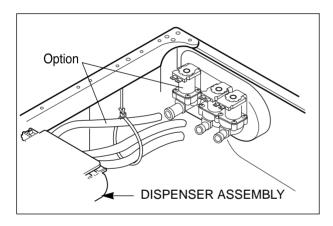


① Disconnect the PWB ASSEMBLY from the control panel by unscrewing 9 screws.

DISPENSER ASSEMBLY

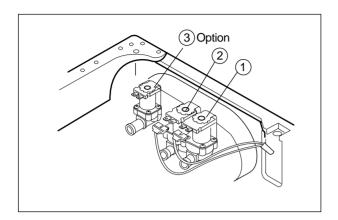


- ① Disassemble the TOP PLATE ASSEMBLY.
- ② Pull out the drawer slightly upward.
- ③ Unscrew 2 screws.



- $\ensuremath{\textcircled{1}}$ Disassemble hose clamps and hoses.
- ② Disassemble the ventilation bellows and the water inlet bellows from the tub.

INLET VALVE ASSEMBLY



- 2 Unscrew 2 screws from the back.
- *When reconnecting the connector
- * Cold only model

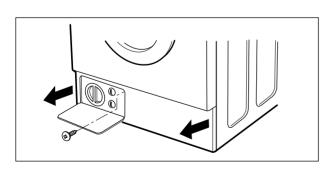
VALVE#1 (MAIN)	Whited/Black-Black
VALVE#2 (PRE)	Gray/ White - Black

* Cold and Hot model

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

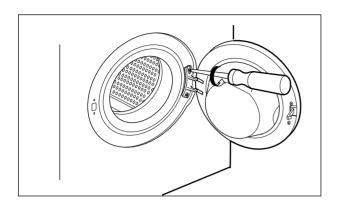
- **MAIN PWB ASSEMBLY**
- ① Remove the back cover.
- ② Unscrew 2 screws.
- ③ Pull the MAIN PWB ASSEMBLY as shown.

LOWER COVER



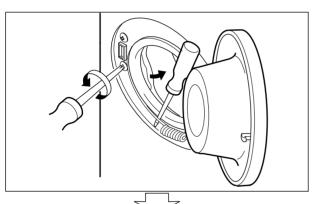
① Open the lower cover CAP by using coin and pull out the lower cover in the arrow direction after a screw is unscrewed.

DOOR ASSEMBLY

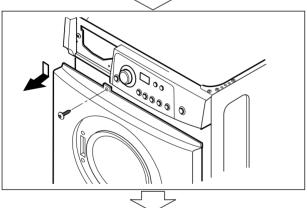


- ① Open the door completely.
- ② Remove the two screws from the hinge.
- When removing the DOOR ASSEMBLY, it is necessary to hold the BRACKET that is inner of the CABINET COVER.

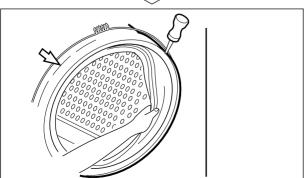
GASKET



- ① Take apart the CLAMP ASSEMBLY (cabinet).
- 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.

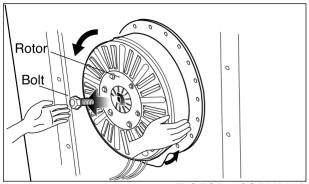


① Unscrew all the screws on the upper and lower sides of the CABINET COVER.

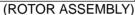


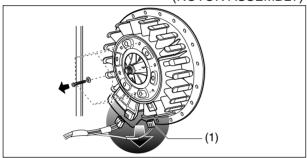
- ① Take apart the tub CLAMP ASSEMBLY
- ② Make sure that the drain hole of the GASKET is put beneath when reassembling the GASKET.
- *Refer to the arrow mark on the TUB COVER.

ROTOR ASSEMBLY, STATOR ASSEMBLY, FRICTION DAMPER ASSEMBLY



- ① Remove the BACK COVER.
- ② Unscrew the bolt to pull out the ROTOR ASSEMBLY.



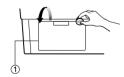


- (STATOR ASSEMBLY)
- Damper

(FRICTION DAMPER ASSEMBLY)

- $\ensuremath{\textcircled{1}}$ Disconnect the wiring connector.
- ② Unscrew 6 bolts from the STATOR.
- ③ Remove the BODY FRAME. (Only 1400 rpm models)
- * Note: Hook of connector (1) is on the backside
- $\ \ \ \ \ \)$ 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 coin.

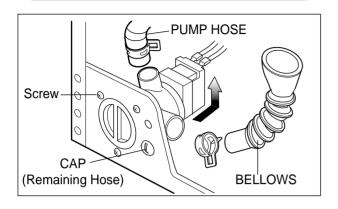


Unplug the drain plug (②), then the water flows out, At this time use a vessel to prevent water flowing on the floor. If the water does not flow any more,turn the pump filter (③) open to the left.



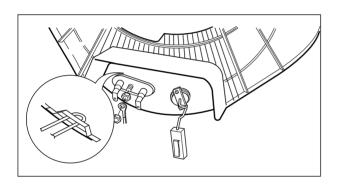
Take out any foreign material from the pump filter (③). After cleaning, turn the pump filter (③) clockwise and insert the drain plug (②) to the original place. close the lower cover cap.

DRAIN PUMP ASSEMBLY



- ① Remove PUMP HOSE.
- ② Remove BELLOWS..
- ③ Remove CAP (Remaining Hose.)
- 4 Disconnect the wiring.
- (5) Unscrew 3 screws
- (6) Remove the DRAIN PUMP ASSEMBLY.

HEATER ASSEMBLY

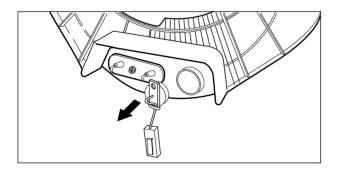


① Loosen the M6 heater nuts to pull out the HEATER ASSEMBLY.

CAUTION

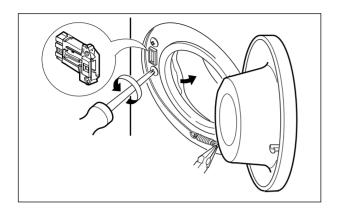
When mounting the HEATER ASSEMBLY be sure to insert the HEATER ASSEMBLY into the heater clip on the bottom of the tub.

THERMISTOR



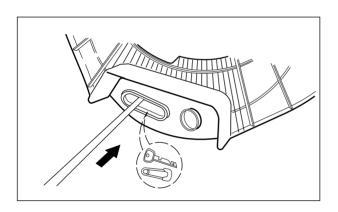
- ① Pull it out by holding the THERMISTOR bracket.
- * If it is pulled by the wire, it may be broken.
- ② When mounting the THERMISTOR again, make sure that it is got back tight to the bushing.

SWITCH ASSEMBLY, DOOR LOCK



- ① Take apart the CLAMP ASSEMBLY (cabinet) and release the GASKET.
- ② Unscrew 2 screws holding the DOOR SWITCH ASSEMBLY.
- ③ Disconnect the door lock from the wiring connector.

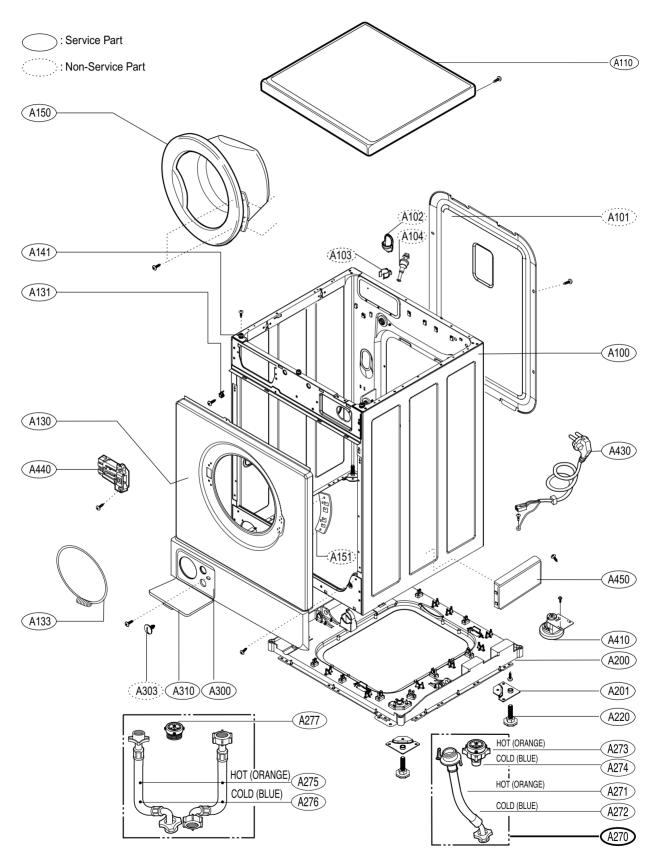
(WHEN FOREIGN MATERIAL IS STUCK BETWEEN DRUM AND TUB)



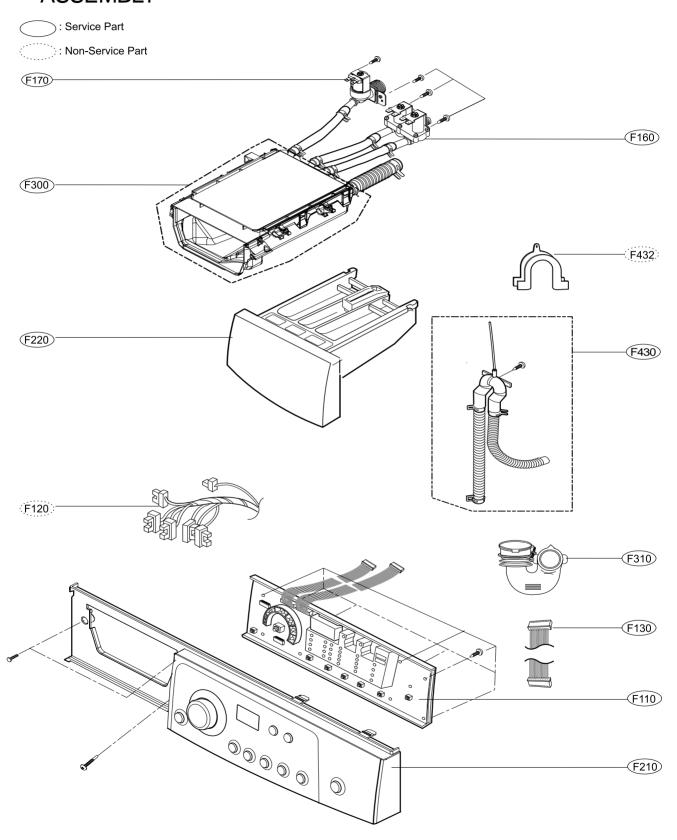
- ① Remove the HEATER ASSEMBLY.
- ② Remove the foreign material (wire, coin and others) by inserting a long bar through the hole.

10. EXPLODED VIEW AND PART LIST

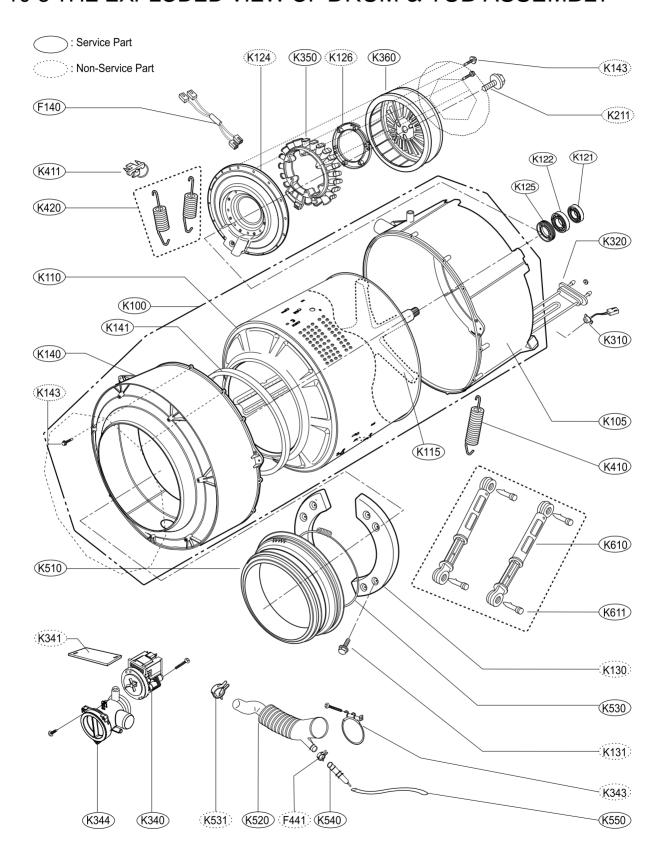
10-1.THE PART LIST OF CABINET ASSEMBLY



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



10-3 THE EXPLODED VIEW OF DRUM & TUB ASSEMBLY





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