

FEB. 2005 PRINTED IN KOREA

P/No.:3828ER3035P



WASHING MACHINE SERVICE MANUAL

CAUTION

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

MODEL : AWD-14310(5)FD/AWD-12310(5)FD WD-14310(5)FD/WD-14311(6)FD WD-12310(5)FD/WD-12311(6)FD WD-12811FD/WD-12311HD

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1. SPECIFICATION

ITE	M	WD-14310(5)FD/WD-14311(6)FD/WD-12310(5)FD/WD-12311(6)FD/WD-12811FD AWD-14310(5)FD/AWD-12310(5)FD/WD-12311HD						
POWER S	UPPLY	220V-240V~, 50Hz						
PRODUCT	WEIGHT	64kg						
	WASHING	140W						
ELECTRICITY	SPIN	300W						
CONSUMPTION	DRAIN MOTOR	40W						
	WASH HEATER	2000W						
	WASH	45rpm						
REVOLUTION SPEED	SPIN	WD-14310(5)FD/14311(6)FD/AWD-14310(5)FD	400/800/1000/1400 rpm					
		WD-12310(5)FD/12311(6)FD/12811FD/12311HD/AWD-12310(5)FD	400/800/1000/1200 rpm					
OPERATION W	ATER PRESSURE	0.3-10kgf/cm ² (30-1000kPa)						
CONTR	OL TYPE	Electronic						
WASH CA	APACITY	8Kg(Cotton)						
DIMEN	SION	600mm(W) ×645mm(D) ×850mm(H)						
WASH PRO	OGRAM	Cotton, Cotton-Eco, Synthetic, Delicate, Wool/Silk, Hand Wash, Quick 30, Duvet, Drain						
RINS	SE	Normal / Rinse ⁺ / Rinse ⁺⁺ / Normal+Hold / Rinse ⁺ +Hold						
DOOR SWI	TCH TYPE	Bi-Metal type						
WATER I	_EVEL	10 steps (by sensor)						
RESERV	ATION	From 3 hours to 19 hours						
SENSING OF THE LA	AUNDRY AMOUNT	Adapted						
FUZZY L	OGIC	Adapted						
DISPLAY OF THE F	REMAINING TIME	Adapted						
ERROR DIA	AGNOSIS	10 items						
POWER AL	JTO OFF	Adapted						
CHILD L	-OCK	Adapted						
AUTO RE	START	Adapted						
TIME S	SAVE	Adapted						

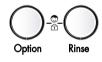
2. FEATURES & TECHNICAL EXPLANATION

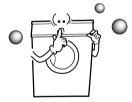
2-1.FEATURES















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, evenly distributes load to minimize the spinning noise level.

Auto Restart

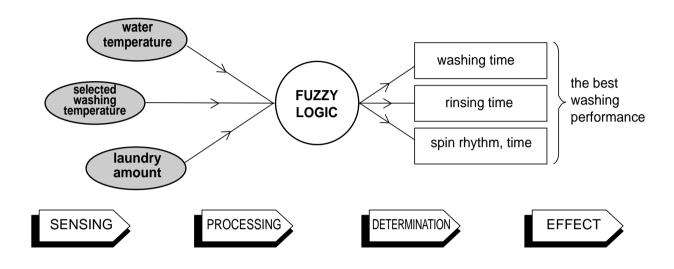
Although the washing machine is turned off by a power failure, it restarts automatically in its stopped process when power is supplied again. And it will be the same when the machine unplugged in operation is plugged in again.

Safety device (Aqua lock) [WD-14310(5)FD/12310(5)FD]

Aqua lock System is designed for detecting water leak during operation to prevent water from flooding over the floor.

2-2.DETERMINE WASHING TIME BY FUZZY LOGIC

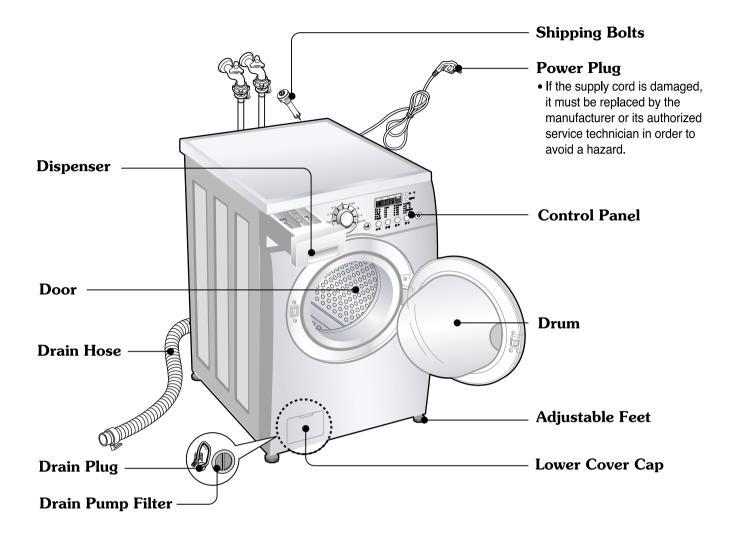
To get the best washing performance optimal time is determined by sensing of water temperature, selected washing temperature and laundry amount.



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 washing program proceeds.
- Spinning does not proceed until the water in the tub reduces to a certain level.

3. PARTS IDENTIFICATION



ACCESSORIES

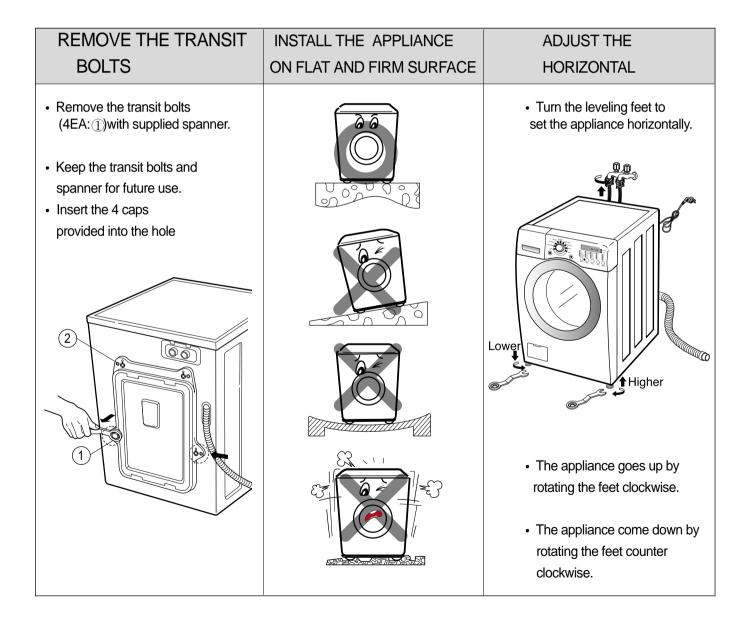


4. INSTALLATION

- 1 Before servicing ask troubles of customers
- 2 Check the adjustment(power supply is 220-240V~, remove the transit bolts....)
- 3 Check the troubles referring to the trouble shooting.
- [4] Decide service steps referring to disassembly instructions.
- **5** And then, service and repair.
- 6 After servicing, operate the appliance whether it works O·K or NOT.

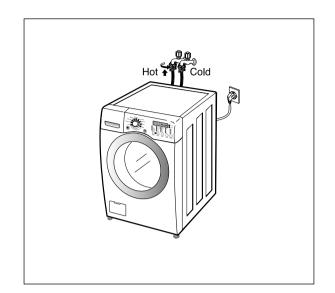
STANDARD INSTALLATION

The appliance should be installed as follows.

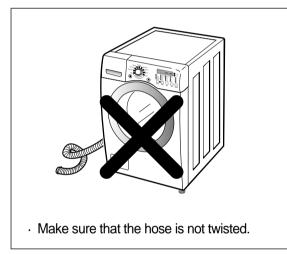


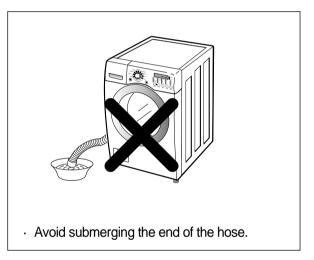
■ HOW TO CONNECT INLET HOSE

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



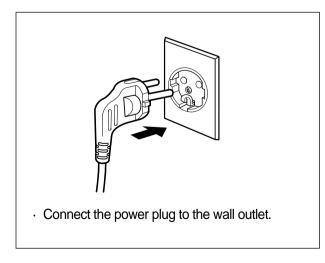
CONNECT DRAIN HOSE

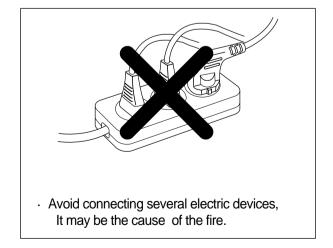




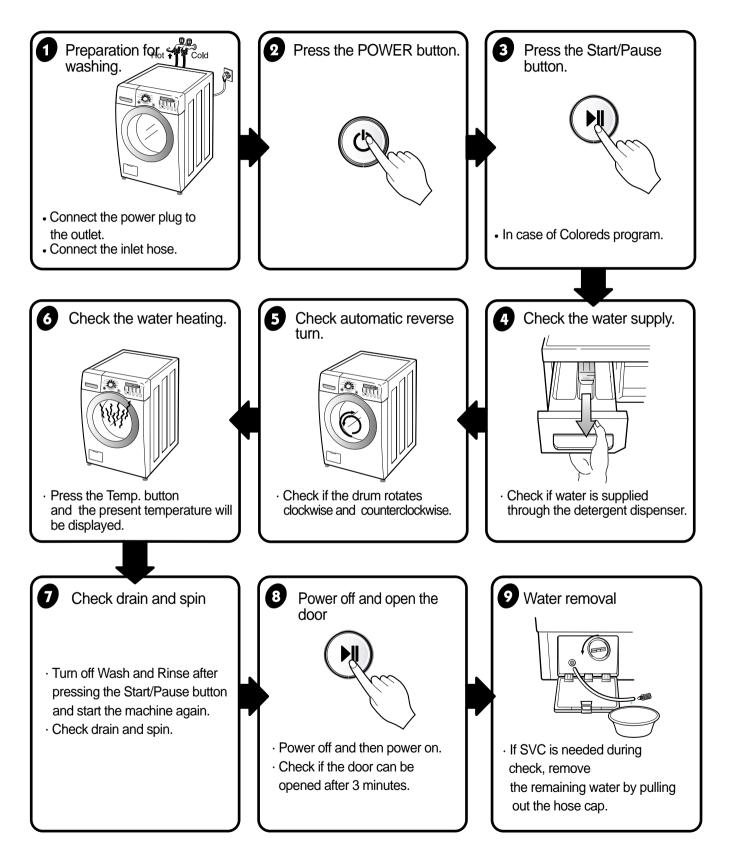
% The drain hose should be placed under 100cm from the floor.

■ CONNECT POWER PLUG

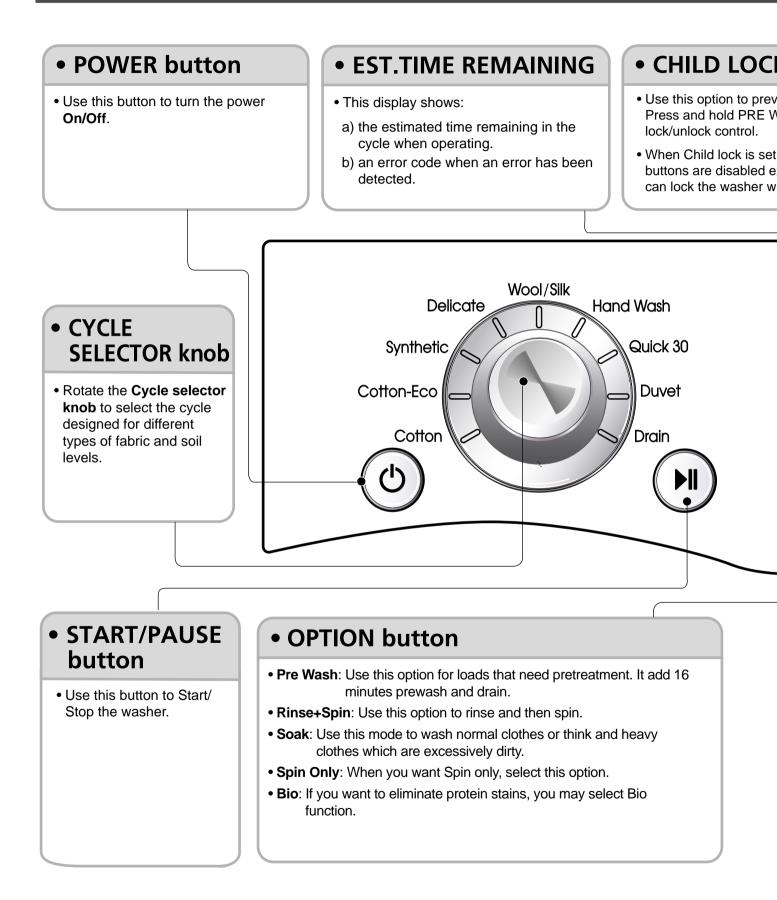


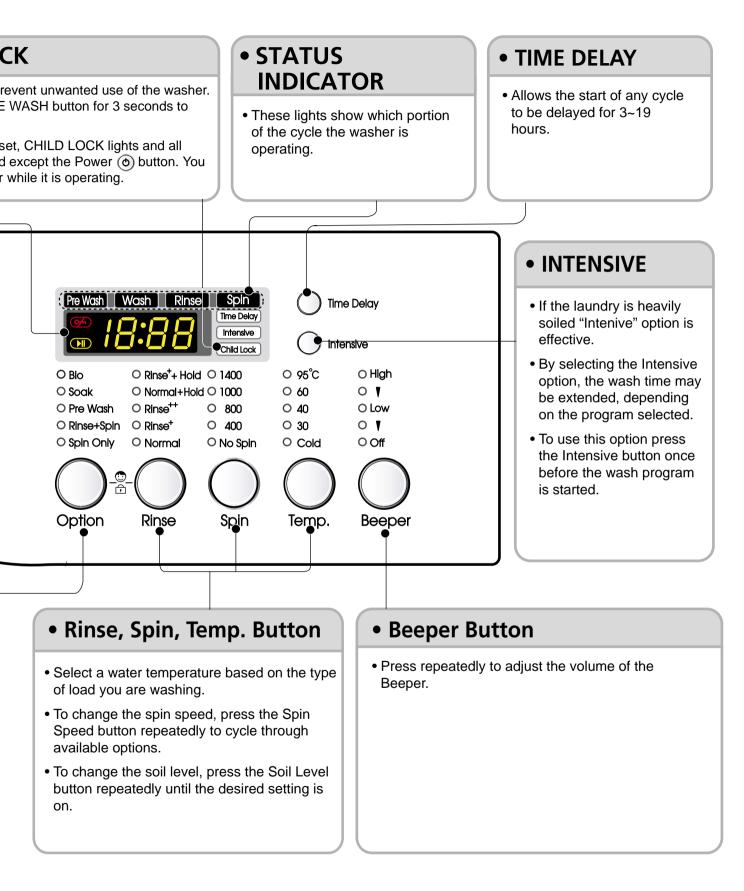


7 TEST OPERATION

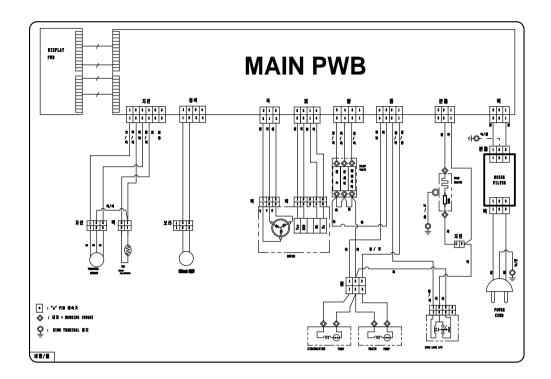


5. OPERATION





6. WIRING DIAGRAM / PROGRAM CHART



PRGRAM	С	HA	RT									*	Wa	ter	Sup	ply	: W	/∙S		*	nter	mit	tent	Sp	in :	ŀS		*	Dise	entangle : D·T																
CYCLE			V	/ash	I				Rinse												Spin					А																				
		Ρ	re			Mai	n			1				2				3		Extra & Stain(4~6)				Extra & Stain(4~6)			Extra & Stain(4~6)			Extra & Stain(4~6)			a & Stain(4~6)			a & Stain(4~6)			ra & Stain(4~6)		Spir			Е	U T	
C T C E U P	≷ • ທ	Wash	Drain	 • \$	≷ • ທ	≌ Heat	ash Wash	Drain	I • S	₩ ₩	Rinse	Drain	 • \$	₩ • \$	Rinse	Drain	 • S	W • S	Rinse	Drain	 • S	∾ ∾	Rinse	Drain	Spin	D • T	Dry	I N D	0 OFF	**Approx Working Time (Minutes)																
$ R \setminus \rangle$	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	20	20																	
S TIME E (SEC.)	60	(분)	60	180	120		(분)	60	180	120	180	60	240	120	180	60	180	120	180	60	180	120	180	60	480	180	분	20	20																	
Cotton	mm	8	aaa				12 42																							About 1:53																
Synthetic		8	om	cross			42													13210X	5.05.U	XI)(TI)					oxo			About 1:15																
Wool/Silk	$\left \right\rangle$	>	<	$\langle \rangle$			39											XXX		102102	31031	XI). ED					Х			About 55																
Delicate		>	<	\geq			39									mm		con			xmu	x13700					X			About 1:05																
Duvet		\geq	\leq	\leq		:00XIX	39													10X10X	xoxo	X132.00	0000XE				X			About 1:00																
Quick 30		\geq	\leq	\leq			12																10101							About 30																
Cotton-Eco		8	200				40														2020						ii in the second			About 2:03																
Hand Wash			ixiii																			X10.110								About 50																
Rinse+Spin			$\langle \rangle$	\geq	><	\langle	\langle	$\langle \rangle$													y ny n	X102.00					Х			About 33																
Wash		8	ixinii				12 42																							About 46																
Rinse			\geq	\geq	~	\leq	\leq	\leq												192192	rieri	X13210			\geq	\geq	\leq			About 28																
Spin											-																Х			About 17																

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

* Wash time is in minutes.

** The total working time will vary with the load size,

water temperature and ambient temperature.

7. TROUBLE SHOOTING

7-1.BEFORE SVC CHECKING

- Be careful of electric shock or disconnecting the parts while trouble shooting.
- 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) Press the Power (3) button, while the above condition.
- ③ Press the Start/Pause button as follows.

Number of times the Start/Pause button is pressed	Check Point	Display Status
None	Turns on all lamps and locks the door.	
1 time	Tumble clockwise.	rpm (40~50)
2 times	Low speed Spin.	rpm (600~650)
3 times	High speed Spin.	rpm (1300~1350)
4 times	Inlet valve for prewash turns on.	Water level frequency (25~65)
5 times	Inlet valve for main wash turns on.	Water level frequency (25~65)
6 times	Inlet valve for hot water turns on.	Water level frequency (25~65)
7 times	Tumble counterclockwise.	rpm (40~50)
8 times	Heater turns on for 3 sec.	Water temperature
9 times	Circulation pump turns on.	Water level frequency (25~65)
10 times	Drain pump turns on.	Water level frequency (25~65)
11 times	Power off and unlock the door.	Turn off all lamps.

7-3.HOW TO KNOW THE WATER LEVEL FREQUENCY

* Press the Rinse and Spin button simultaneously.



The digits means water level frequency(10⁻¹ kHz)

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

=24.1 kHz

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

Thermistor in tub : Press the [Temp.] button.

7-5.ERROR DISPLAY.

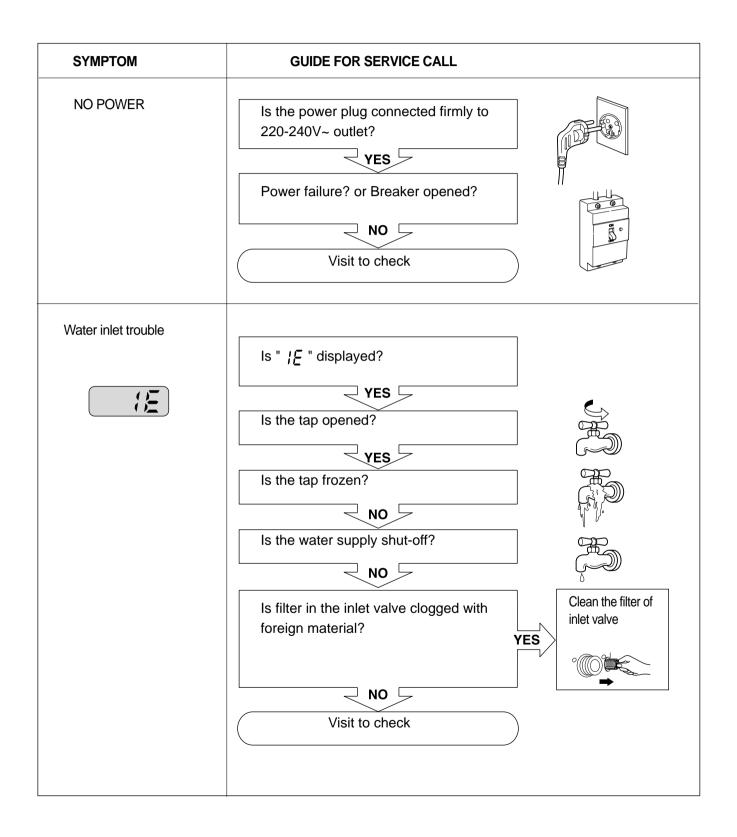
- If you press the Start/Pause button in error condition, any error except 'PE' will disappear and the machine will change into pause status.
- In case of "PE _, "EE_, "EE_, if the error is not resolved within 20 sec., and in case of other errors, if the error is not resolved within 4 min., power will be turned off automatically and the error only will be blinked. But in case of "FE, power will not be turned off.

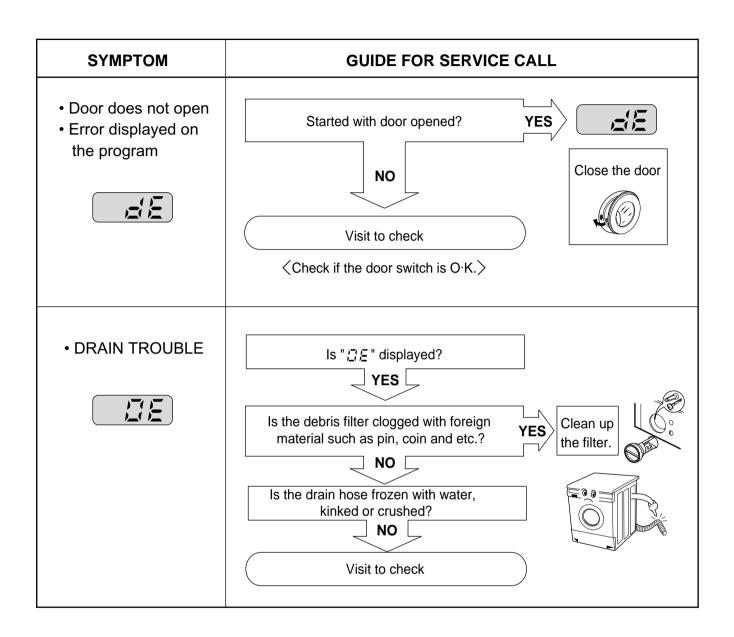
	ERROR	SYMPTOM	CAUSE
1	WATER INLET ERROR	:E	 Not reached to the water level(246)within 8 minutes after water supplied or not reached to the preset water level within 25 minutes.
2	DRAIN ERROR		 Not fully drained within 10 minutes.
3	OVERFLOW ERROR	, - <u>,</u> - <u>,</u>	 Water is over flowing(over 8 level). * If FE is displayed, drain pump operates to drain water automatically.
4	SENSOR PRESSURE S/W ERROR		 The sensor pressure switch is out of order.
5	DOOR OPEN ERROR		 In case of operating the reservation function or the other function with door opened. Close the door, then the error display is resolved. The door switch is out of order.
6	IMBALANCE ERROR	<u>;;;</u>	The appliance is tilted.Laundry is gatherd to one side.
7	HEATING ERROR	<u> </u>	The THERMISTOR is out of order.

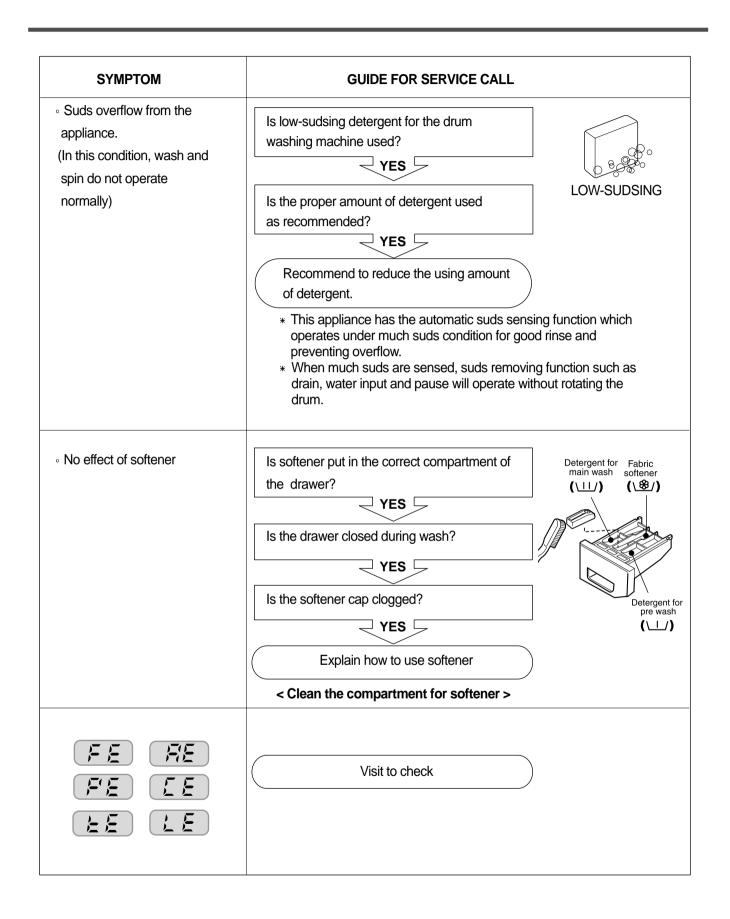
	ERROR	SYMPTOM	CAUSE
8	CURRENT ERROR	<u> </u>	 MAIN PWB ASSEMBLY is out of order Replace the MAIN PWB ASSEMBLY Winding in the STATOR ASSEMBLY is short-circuited. Replace the STATOR ASSEMBLY "<i>EE</i> " is dispplayed during a high spin Replace the LEAD WIRE ASSEMBLY (MOTOR)
9	MOTOR ERROR	ĽE	 The connector in the LEAD WIRE ASSEMBLY is not connected to the connnector of STATOR ASSEMBLY Reconnect or repair the connector The hall sensor is out of order/defective. Replace the STATOR ASSEMBLY
10	DRY HEATOR ERROR	FE	• Water leaks [WD-14310(5)FD/WD-12310(5)FD]

8. ERROR DIAGNOSIS AND CHECK LIST

8-1.DIAGNOSIS AND ANSWER FOR ABNORMAL OPERATION



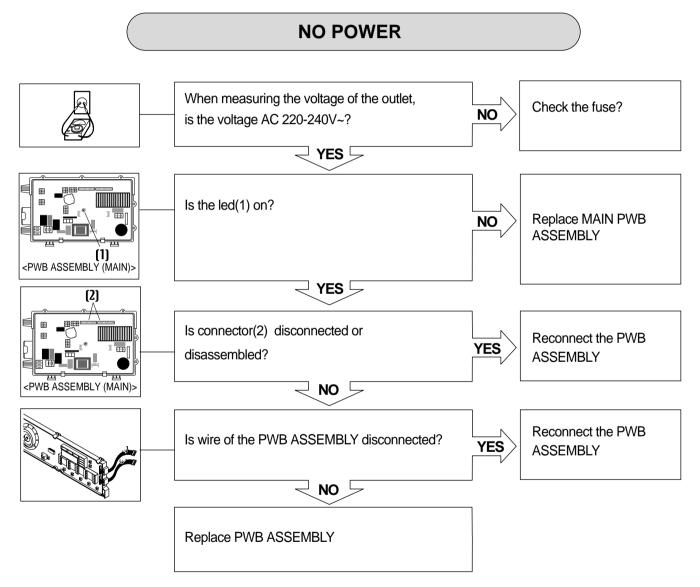


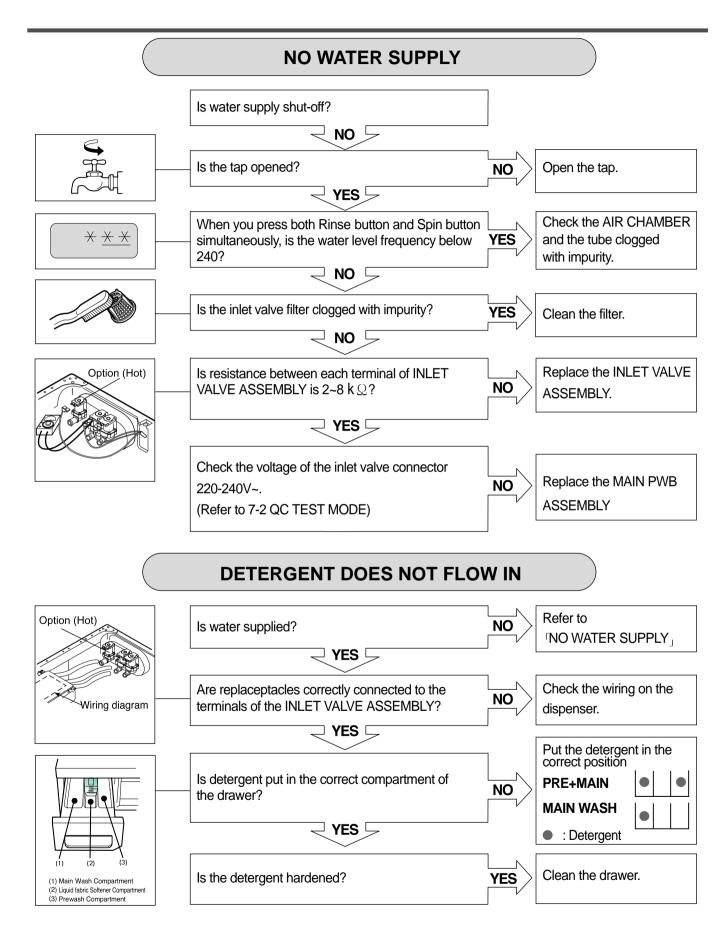


8-2.FAULT DIAGNOSIS AND TROUBLE SHOOTING

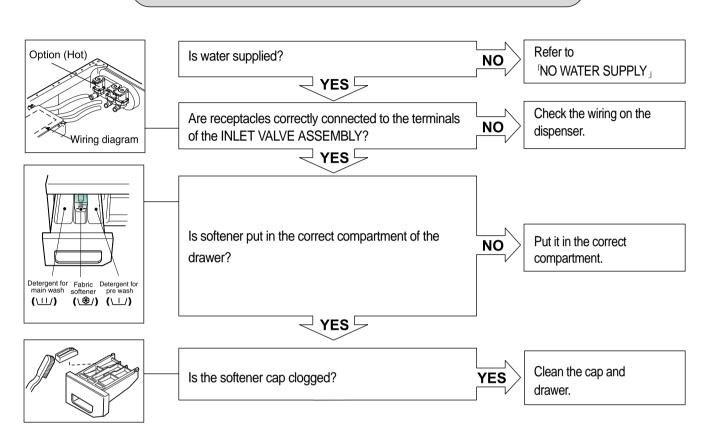
CAUTION

- 1. Be careful of electric shock or disconnecting the parts while trouble shooting.
- 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.

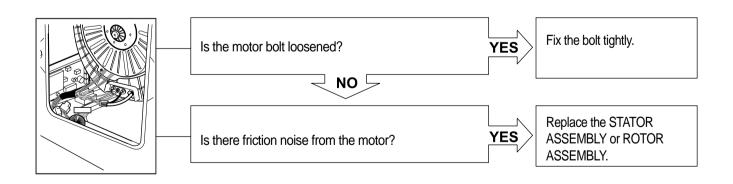


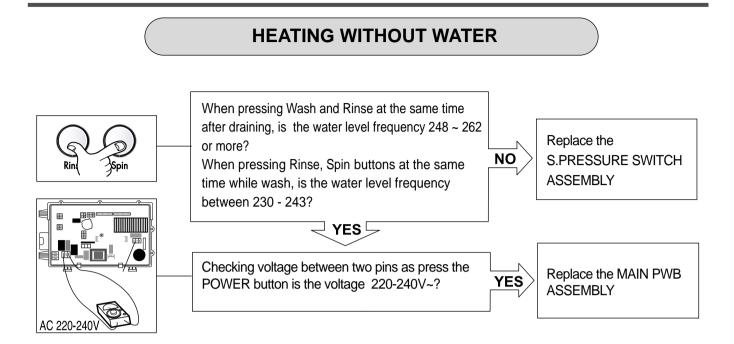


SOFTENER DOES NOT FLOW IN

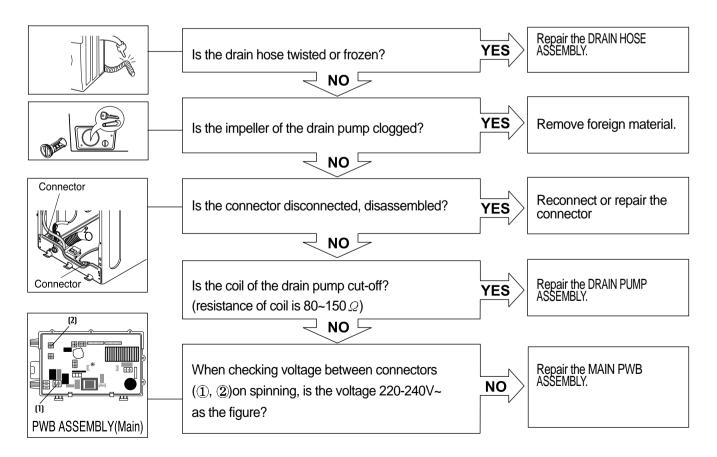


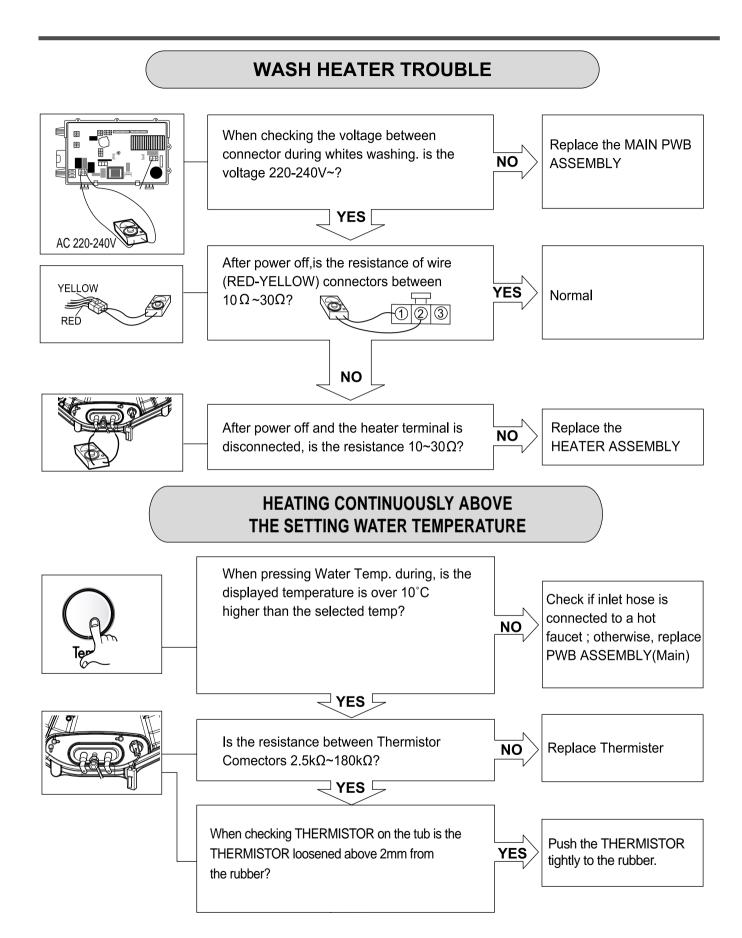
ABNORMAL SOUND

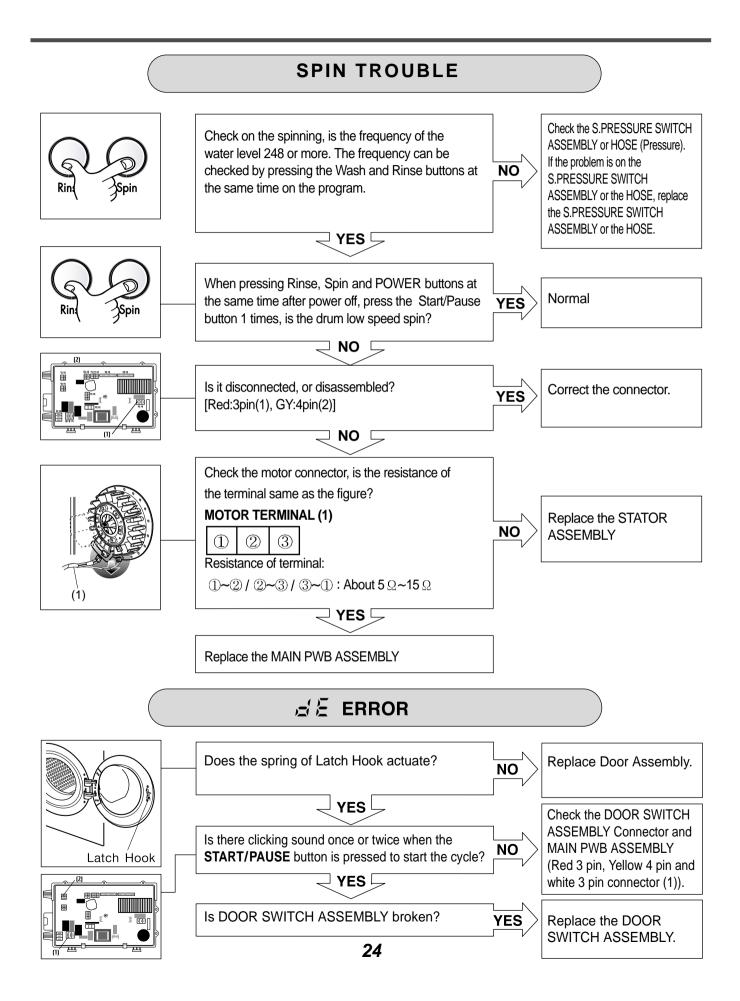




DRAIN MALFUNCTIONING

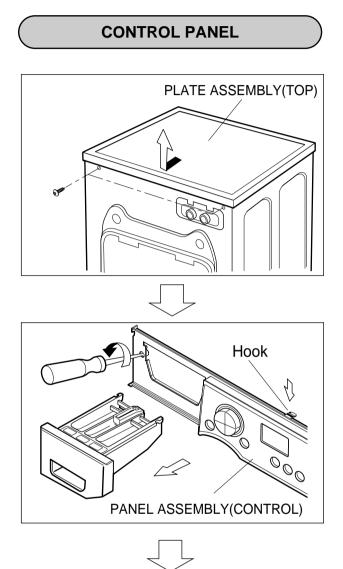






9. DISASSEMBLY INSTRUCTIONS

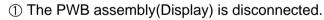
* Disassemble and repair the parts after pulling out power cord from the outlet.



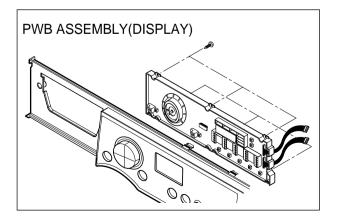


- ② The plate assembly(Top) is pulled back and then upward to arrow direction.
- ③ The cover(Inner) is disassembled.

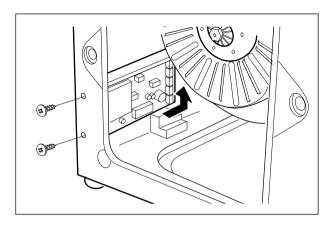
- The PWB assembly(Display) connectors are disconnected.
- ② Pull out drawer, three screws are unscrewed.
- ③ Push two upper hooks and pull the control panel forward.



② When 6 screws are unscrewed on the PWB insulator and the PWB assembly(Display) is disassembled from the PWB insulator.

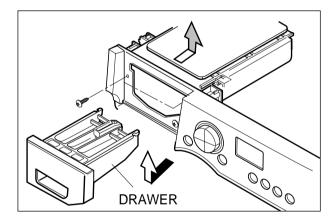


PWB ASSEMBLY(MAIN)

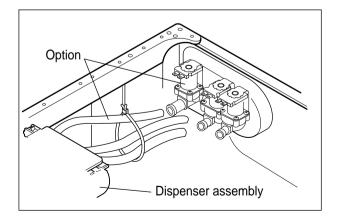


- ① The back cover is removed.
- O Two screws are unscrewed.
- ③ Disconnect connector from the wiring.
- ④ Pull the PWB assembly (Main) to arrow direction.

DISPENSER ASSEMBLY

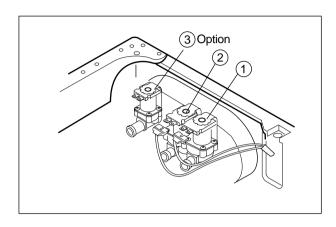


- ① The plate assembly(Top)and the cover(Inner)are disassembled.
- ② Pull the drawer to arrow direction.
- ③ Two screws are unscrewed.



- ① The hose clamps and the hose are disassembled.
- ② The ventilation bellows are disassembled on the tub.

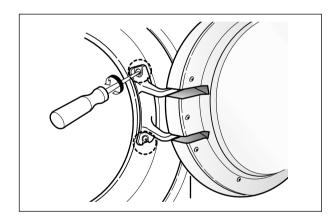
INLET VALVE

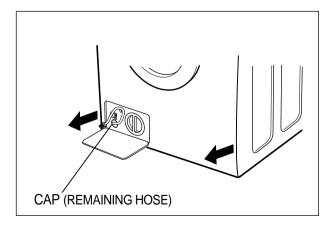


- ① Disconnect the wiring connector.
- ② Remove the valve by two screws of the valve holder.
- * When reconnecting the connector

VALVE ① (PRE-WASH)	GY/WH - BK
VALVE ② (NORMAL-WASH)	WH/BK - BK BL/RD - BK
VALVE ③ (HOT)	BL/RD - BK

DOOR





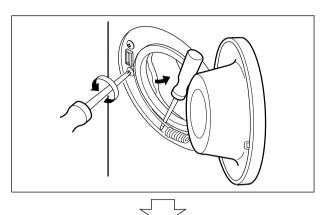
- ① Open the door completely.
- ② Remove the two screws from the hinge.
- When removing the Door Assembly, it is necessary to hold the Bracket that is inner of the Cabinet Cover.

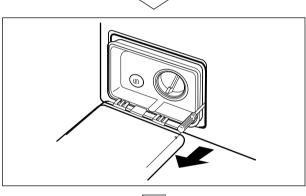
Removing method of remained water

Pull it out from hose.

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

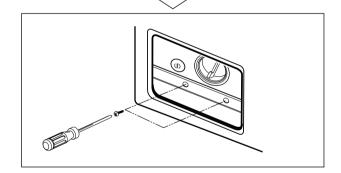
GASKET ASSEMBLY

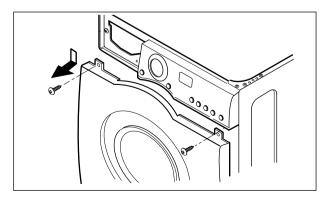




- The cabinet gasket clamp is released.
- ② Two screws are unscrewed from the cabinet cover.

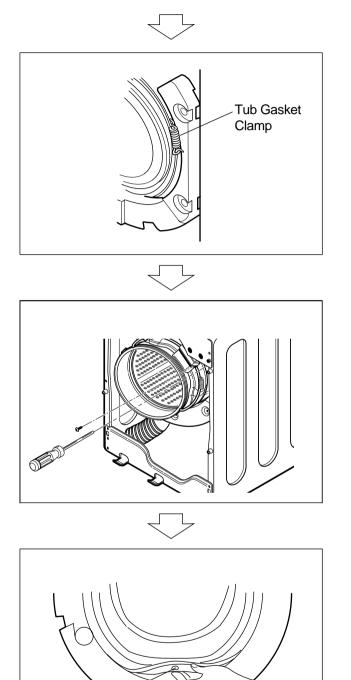
 Pull plat(-) screwdriver or pully knife into the both sides of filter cover, and pull in out.





① Unscrew the screw from the lower side of the cabinet cover.

① Unscrew the 2 screw from upper of the cabinet cover.



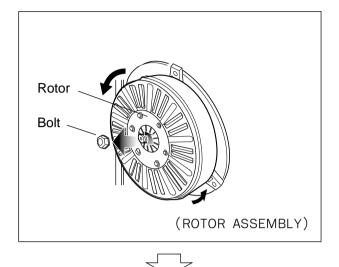
Drain Hole

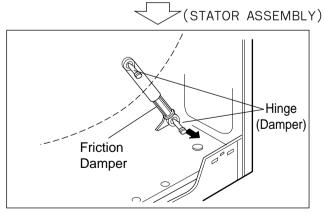
① Disassemble the clamp assembly.

Remove dry gasket clamp by loosening the screw.

① When reassembling the gasket, put the drain hole of the gasket downward, then assemble.

ROTOR ASSEMBLY, STATOR ASSEMBLY, FRICTION DAMPER



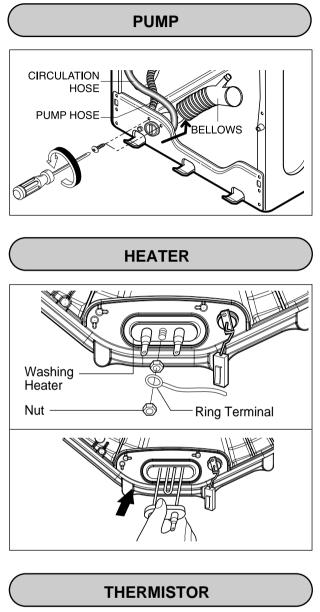


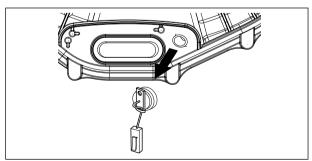
(FRICTION DAMPER)

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

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

- ① Remove the hinges (Damper) at the Tub.
- ② The Hinge(Damper) at the base is pulled off pressing on the snaps at the sharp end.
- ③ The hinge at the base is pulled off.(To arrow direction)





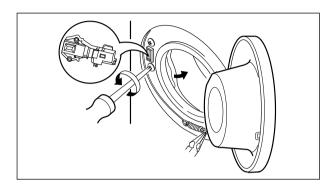
- ① Remove pump outlet hose.
- O Remove tub pump bellows.
- ③ Remove cap(Remaining Hose).
- ④ Disconnect the wiring.
- (5) Three screws are unscrewed from the cabinet.
- (6) Remove the pump to arrow direction.
- ① Loosen the nut.
- ② Remove washing heater by pulling out.



When assembling the washing heater, insert the heater to heater clip on the bottom of tub.

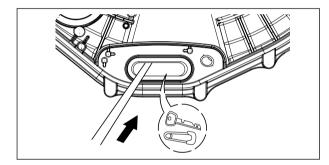
- ① Pull it out by holding the thermistor bracket.
- * If holding the wire and pulling out it, it may be broken.

SWITCH ASSY, DOOR LOCK



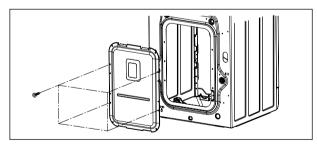
- ① The cabinet cover clamp is removed and the gasket is released.
- ② Two screws are unscrewed.
- ③ The door lock S/W is disconnected form the wiring connector and the strap.

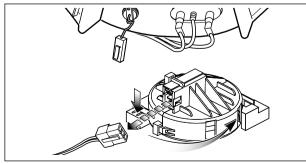
WHEN FOREIGN OBJECT STUCK BETWEEN DRUM AND TUB



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

SWITCH ASSEMBLY, SAFETY



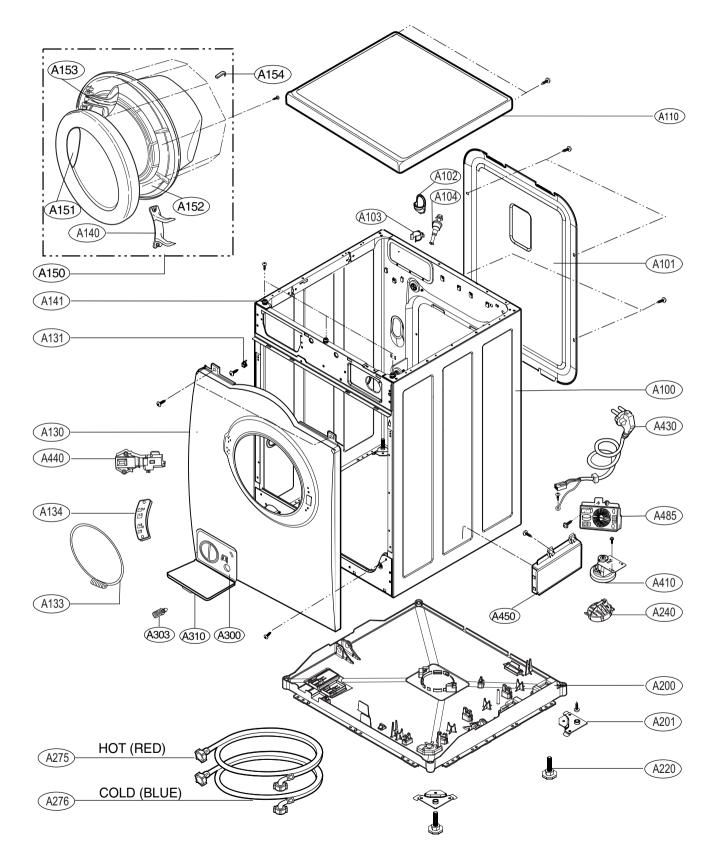


1 Unscrew 4 screws from the back cover.

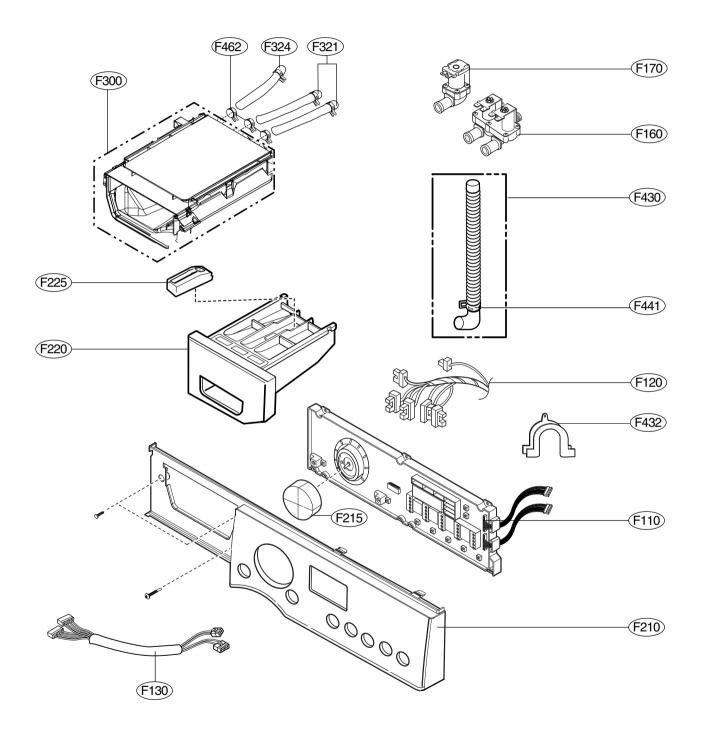
- 2 Disconnect the wiring connector.
- 3 Turn and press hook of switch assembly safety.

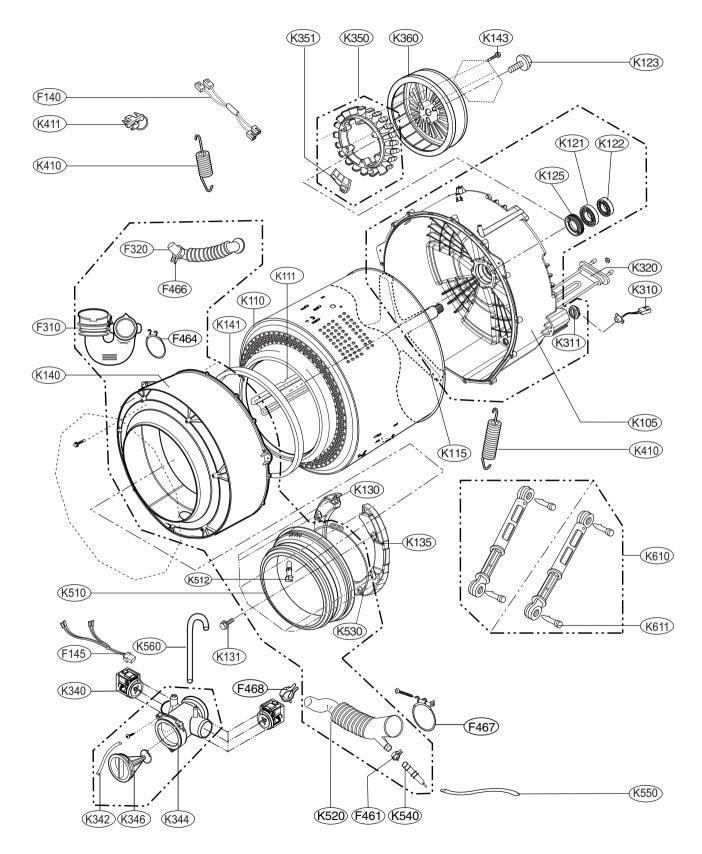
10. EXPLODED VIEW AND PART LIST

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