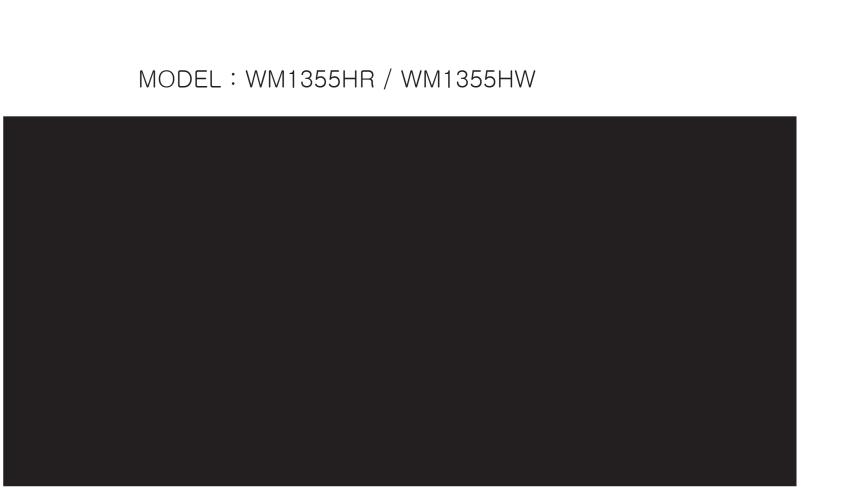


WASHING MACHINE SERVICE MANUAL

CAUTION

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





Jul. 2006 PRINTED IN KOREA P/No.: MFL30574762



CONTENTS

1. 8	SPECIFICATION	3
2. F	FEATURES & TECHNICAL EXPLANATION	4
3. F	PARTS IDENTIFICATION	6
4. I	NSTALLATION	7
5. (OPERATION	10
6. \	WIRING DIAGRAM / PROGRAM CHART	12
7. 7	FROUBLE SHOOTING	13
	7-1.BEFORE SVC CHECKING	13
	7-2.QC TEST MODE	13
	7-3.HOW TO KNOW THE WATER LEVEL FREQUENCY	13
	7-4.HOW TO KNOW TO TEMPERATURE OF EACH THERMISTOR AT OPERATING CONDITION	13
	7-5.ERROR DISPLAY	14
8. E	ERROR DIAGNOSIS AND CHECK LIST	16
	8-1. DIAGNOSIS AND ANSWER FOR ABNORMAL OPERATION	16
	8-2. FAULT DIAGNOSIS AND TROUBLE SHOOTING	19
9. [DISASSEMBLY INSTRUCTIONS	25
10.	EXPLODED VIEW AND PARTS LIST	33
	10-1. THE EXPLODED VIEW OF CABINET ASSEMBLY	33
	10-2. THE EXPLODED VIEW OF CONTROL PANEL AND DISPENSER ASSEMBLY	34
	10-3. THE EXPLODED VIEW OF DRUM AND TUB ASSEMBLY	35

1. SPECIFICATION

ITE	M	WM1355HR / WM1355HW						
חסיאירם פו	LIDDLY	120\/~ 60⊔→						
POWER S		120V~, 60Hz						
PRODUCT		72 kg						
	WASHING	140W						
ELECTRICITY	SPIN	440W						
CONSUMPTION	DRAIN MOTOR	40W						
	WASH HEATER	2000W						
	WASH	50rpm						
REVOLUTION SPEED	SPIN	No Spin/400/600/800/1000/1200/1400						
OPERATION WA	TER PRESSURE	0.3-10kgf/cm² (30-1000kPa)						
CONTROL	_ TYPE	Electronic						
WASH CA	APACITY	Refer to the Rating Label						
DIMENS	SION	600mm(W)x640mm(D)x850mm(H)						
WASH PRO	OGRAM	Cotton, Cotton Quick. Synthetic, Delicate, Wool, Hand Wash,						
		Quick30, Baby Care						
RINS	SE	Normal, Rinse ⁺ , Rinse ⁺⁺ , Rinse+Hold, Normal+Hold						
DOOR SWIT	CH TYPE	Bi-Metal type						
WATER L	LEVEL	10 steps (by sensor)						
RESERVA	NOITA	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	10 items						
POWER AL	JTO OFF	Adapted						
CHILD (_OCK	Adapted						
AUTO RE	START	Adapted						
TIME S	AVE	Adapted						

2. FEATURES & TECHNICAL EXPLANATION

2-1.FEATURES



■ Direct Drive System

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

■ Water Circulation



Spray detergent solution and water over the load over continu. Clothes are soaked more quickly and thoroughly during wash cycle. The detergent suds can be removed more easily by the water shower during rinse cycle. The water circulation system uses both water and detergent more efficiently.

■ Built-in Heater

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



Child Lock

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



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.



Low noise speed control system

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



■ Safety device (Aqua lock)

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

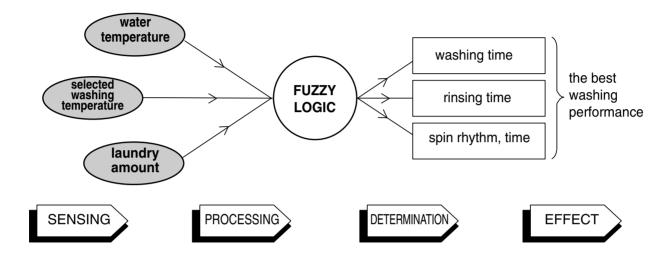


Automatic Wash Load Detection

Automatically detects the load and optimizes the washing time.

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.



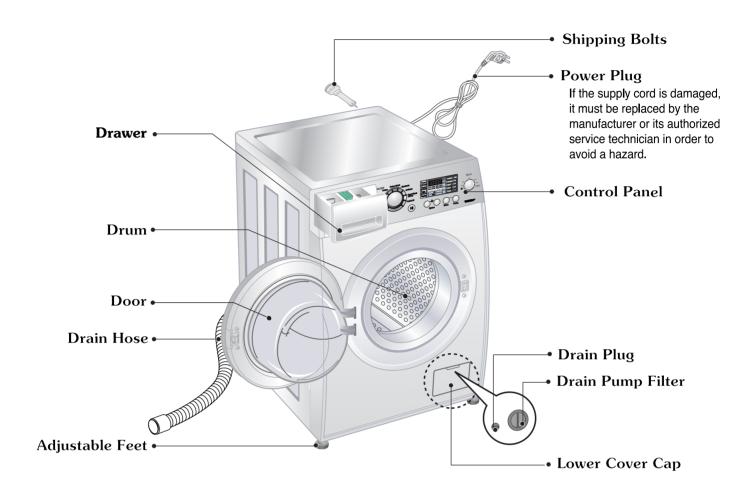
2-3.WATER LEVEL CONTROL

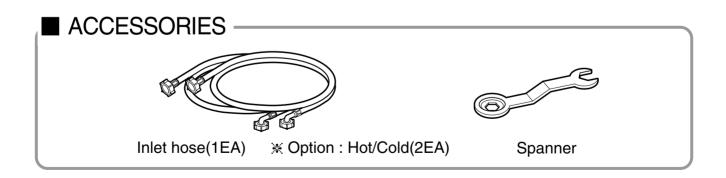
- This model adopts a pressure sensor which can sense the water level in the tub.
- Water supply is stopped when the water level to the preset level, then washing program proceeds.
- Spinning does not proceed until the water in the tub reduces to a certain level.

2-4.THE DOOR CAN NOT BE OPENED

- · While program is operating.
- While Door Lock light turns on.

3. PARTS IDENTIFICATION





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 trouble shooting.
- 4 Decide service steps referring to disassembly instructions.
- 5 And 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.

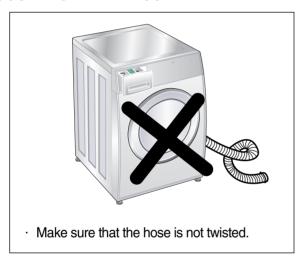
DEMONIE THE TO ANIOIT	a= == .==	
REMOVE THE TRANSIT	INSTALL THE APPLIANCE	ADJUST THE
BOLTS	ON FLAT AND FIRM SURFACE	HORIZONTAL
Remove the transit bolts (4EA:①) with supplied spanner. Keep the transit bolts and spanner for future use. Insert the provided 4 caps into the hole		Turn the leveling feet to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

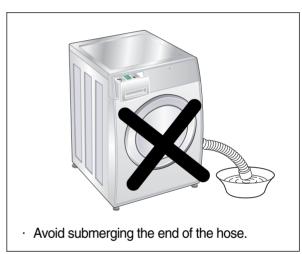
■ HOW TO CONNECT INLET HOSE

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



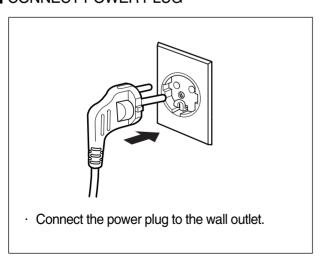
■ CONNECT DRAIN HOSE

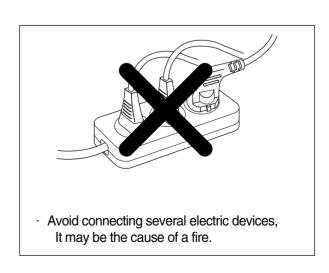




* The drain hose should be placed under 100cm from the floor.

■ CONNECT POWER PLUG

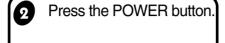




7 TEST OPERATION



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





Press the Start/Pause button.



• In case of Coloreds program.

6 Check the water heating.



 Press the Rinse+Medic Rinse button simultaneously and the present temperature will be displayed. Check automatic reverse turn.



· Check if the drum rotates clockwise and counterclockwise.

Check the water supply.



Check if water is supplied through the detergent dispenser

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

9 Water removal



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

5. OPERATION

Cycle Selector

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

Additional programs

- Time Delay: Allows the start of any cycle to be delayed for 3~19 hours.
- Favorite : Favorite program allows you to store a customized operation for next use.
- Intensive : If the laundry is heavily soiled "Intensive" option is effective.
- Medic Rinse: For high effectiveness or more purity in rinse operation you can choose Medic Rinse option.
 Medic Rinse is default in Baby Care program.

Power

 Use this button to turn the power On/Off.

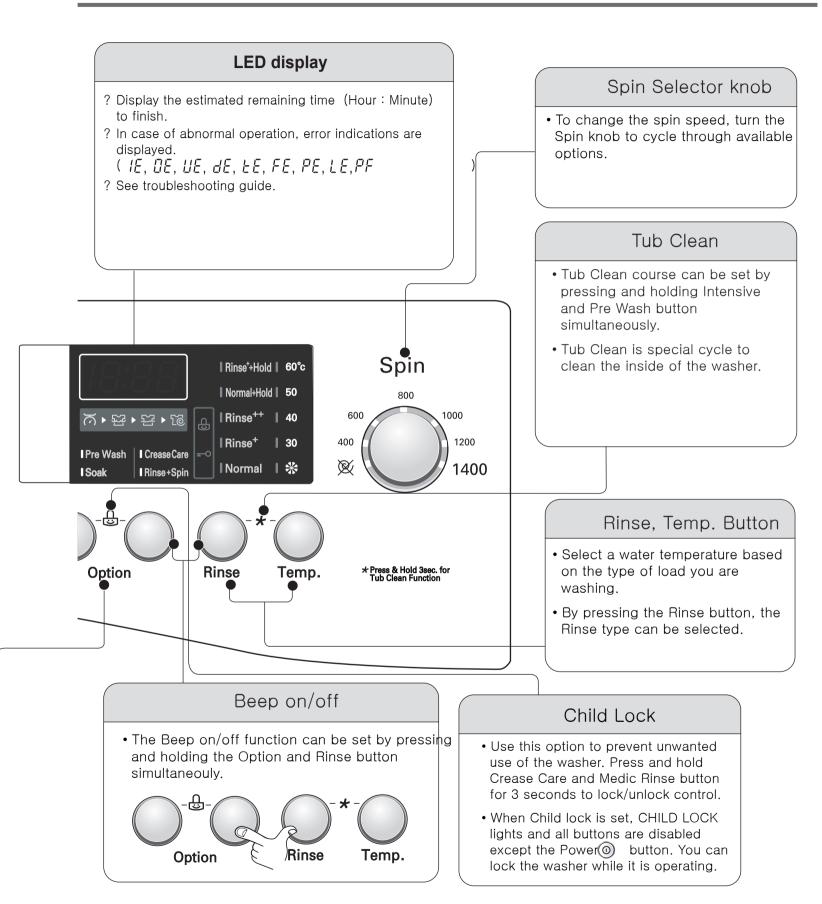


Start/Pause

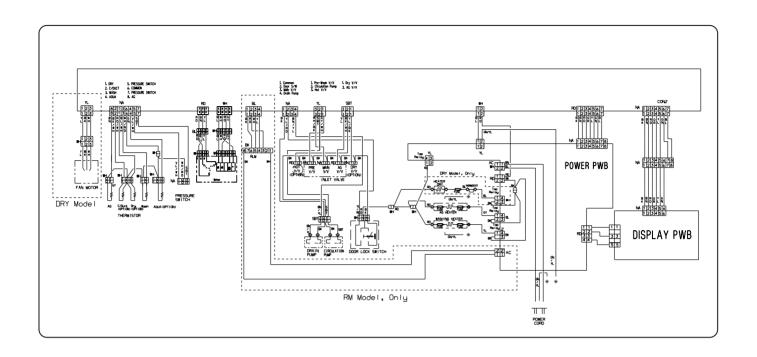
 Use this button to Start/ Stop the washer.

Option Button

- Pre Wash: If the laundry is heavily soiled, "Pre Wash" Cotton is recommended.
- Soak: Use this mode to wash normal clothes or thick and heavy clothes which are excessively dirty.
- Crease Care : If you want to prevent crease, select Crease Care button.
- Rinse + Spin: Use this option to rinse and then spin.



6. WIRING DIAGRAM / PROGRAM CHART



PRGRAM CHART

* Water Supply : W·S

* Intermittent Spin : I·S

* Disentangle : D·T

CYCLE	VOLE Wash Rinse										A U																		
WO.CEE		Р	re			М	ain			1			:	2			3	3		,	Exti Stain				Spir	1	Е	T O	
C T E P	W / s	Wash	Drain		W / S	S Heat	ash Wash	Drain	 / S	W /s	Rinse	Drain	 / S	× ∨ ⊗	Rinse	Drain	-	⊗ ∕ ⊗	Rinse	Drain		W / S	Rinse	Drain	Spin	D / T	N D	0 F	**Approx Working Time (Minute)
R	1	2	3	4	5	6	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	(iviiriute)
S TIME (SEC.)	60	("-)	60	180	120		("-)	60	180	120	180	60	180	120	180	60	180	120	180	60	180	120	180	60	480	180	20	20	ı
Cotton		8					12 42																						1:51
Synthetic		8					12																						1:34
Cotton Quick		8					12																						1:31
Delicate		\geq	\leq				42																						1:7
Hand Wash		8																											56
Wool																													56
Quick 30		\geq	$\overline{}$				12																						30
Rinse+Spin				\geq	_	=	\equiv																						20
Baby Care		8																											2:27
Wash		8					12 42						5							_					_	_			68
Spin										15																			

^{*} Basic Cycle

* Optional Cycle

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

Drain - 60 sec.

^{*} Wash time is in minutes.

 $^{^{\}star\star}$ 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.

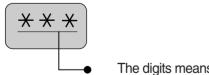
7-2.QC TEST MODE.

- ① Pressing Option(Left) and Rinse button simultaneously.
- 2 Press the Power (0) 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 (42~50)
2 times	Low speed Spin.	rpm (55~65)
3 times	High speed Spin.	rpm (125~155)
4 times	Inlet valve for prewash turns on.	Water level frequency (25~65)
5 times	Inlet valve for main wash turns on.	Water level frequency (25~65)
6 times	Inlet valve for hot water turns on.	Water level frequency (25~65)
7 times	Inlet valve for bleach turns on.	Water level frequency (25~65)
8 times	Tumble counterclockwise.	rpm (42~50)
9 times	Heater turns on for 3 sec.	Water temperature
10 times	Circulation pump turns on.	Water level frequency (25~65)
11 times	Drain pump tums on.	Water level frequency (25~65)
12 times	Off	-

7-4.HOW TO KNOW THE WATER LEVEL FREQUENCY

* Press the Intensive and Option(Left) 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.

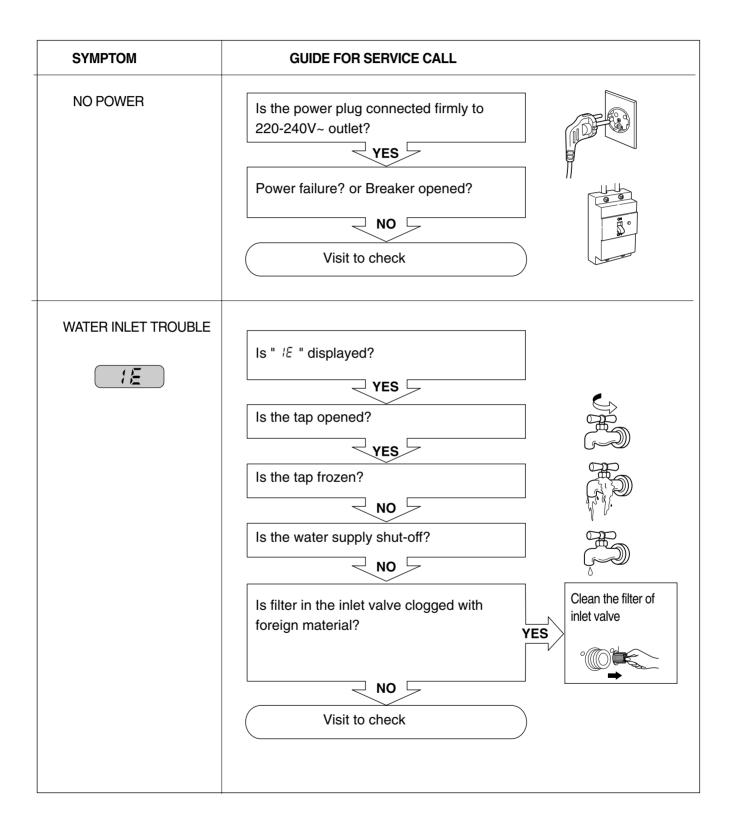
- If you press the Start/Pause button in error condition, any error except 'PE' will disappear and the machine will change into pause status.
- In case of $\lceil PE \rceil$, $\lceil EE \rceil$, if the error is not resolved within 20 sec., and in case of other errors, if the error is not resolved within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

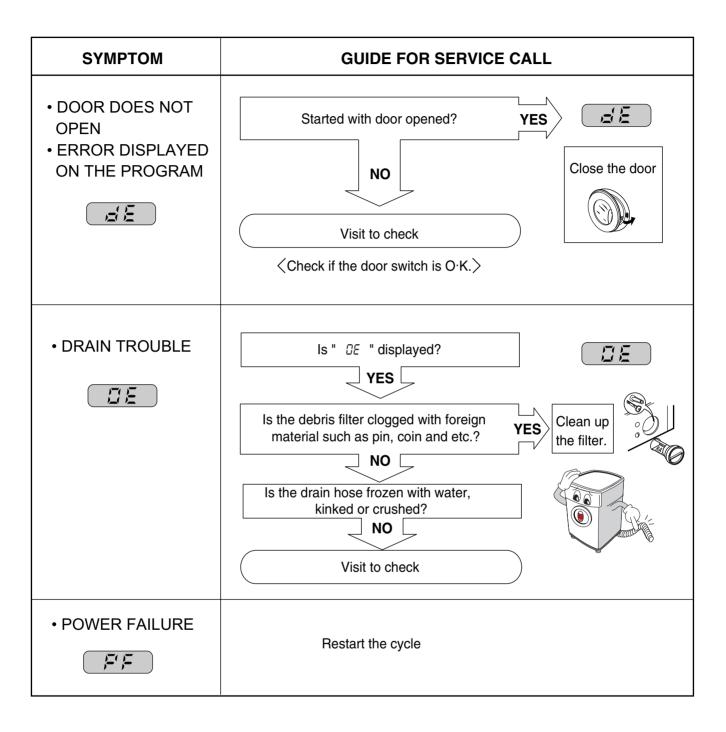
	ERROR	SYMPTOM	CAUSE
1	WATER INLET ERROR	(;E	Not reached to the water level(246)within 8 minutes after water supplied or not reached to the preset water level within 25 minutes.
2	DRAIN ERROR	<u> </u>	Not fully drained within 10 minutes.
3	OVERFLOW ERROR	FE	Water is over flowing(over 8 level). If "FE" is displayed, drain pump operates to drain water automatically.
4	SENSOR PRESSURE S/W ERROR	FE	The sensor pressure switch is out of order.
5	DOOR OPEN ERROR	ø£	 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>ue</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	LOCKED MOTOR ERROR	LE	The connector in the LEAD WIRE ASSEMBLY is not connected to the connector of STATOR ASSEMBLY Reconnect or repair the connector The hall sensor is out of order/defective. Replace the STATOR ASSEMBLY
9		FE	Water leaks
10	POWER FAILURE	FF	The washer ecperienced a power failure

8. ERROR DIAGNOSIS AND CHECK LIST

8-1.DIAGNOSIS AND ANSWER FOR ABNORMAL OPERATION



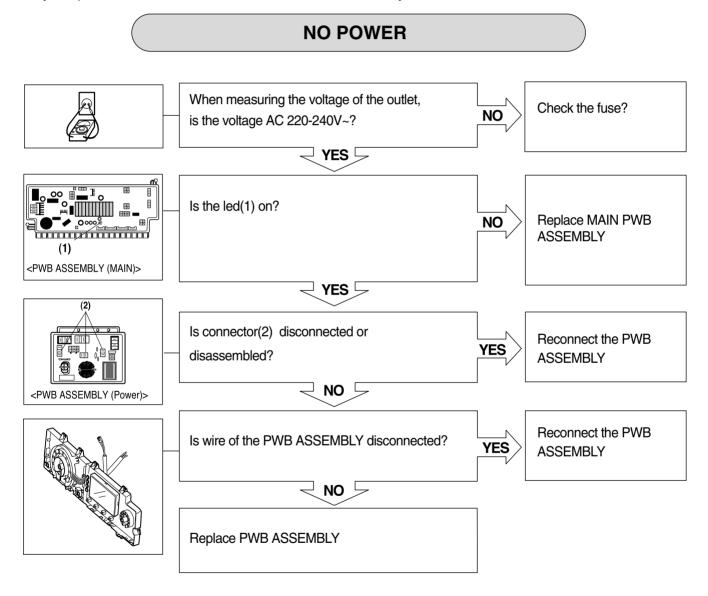


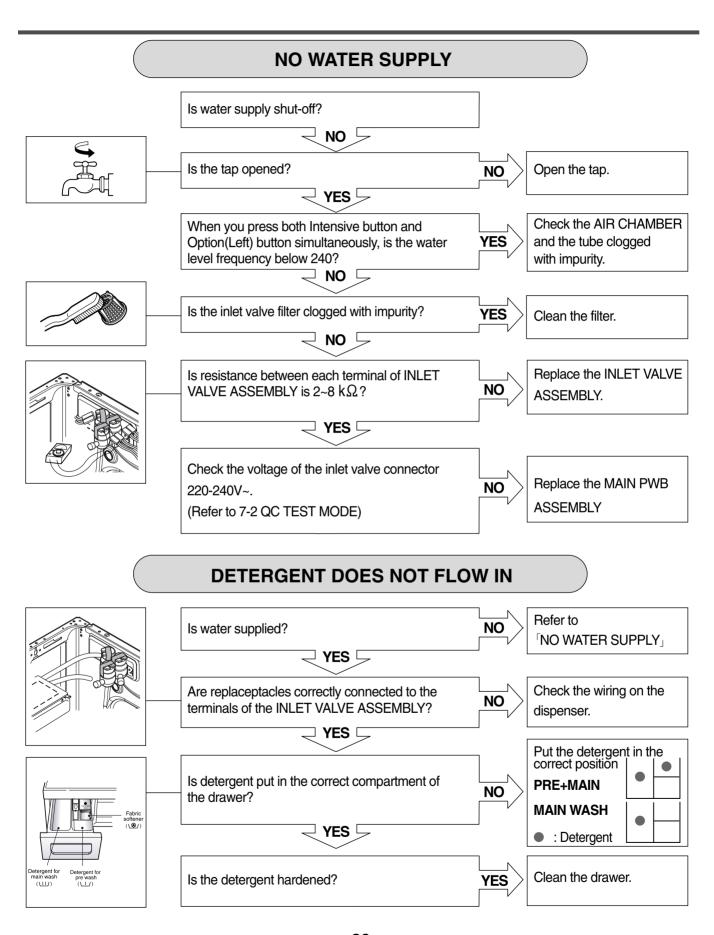
SYMPTOM	GUIDE FOR SERVICE CALL
 Suds overflow from the appliance. (In this condition, wash and spin do not operate normally) 	Is low-sudsing detergent for the drum washing machine used? YES Is the proper amount of detergent used as recommended? YES Recommend to reduce the using amount of detergent. * 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, suds removing function such as drain, water input and pause will operate without rotating the drum.
No effect of softener	Is softener put in the correct compartment of the drawer? YES Is the drawer closed during wash? Is the softener cap clogged? Explain how to use softener < Clean the compartment for softener >
FE FE EE	Visit to check

8-2. FAULT DIAGNOSIS AND TROUBLE SHOOTING

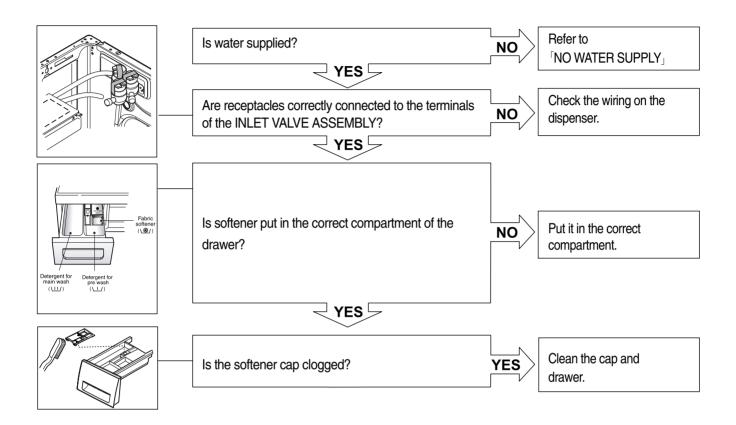
CAUTION

- 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 PWB ASSEMBLY, Put in the connectors correctly.

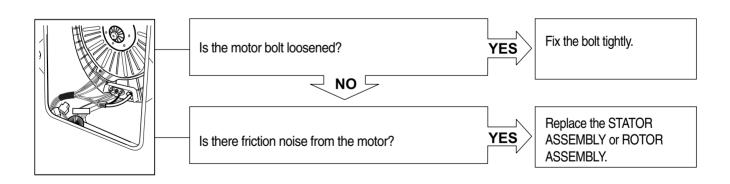




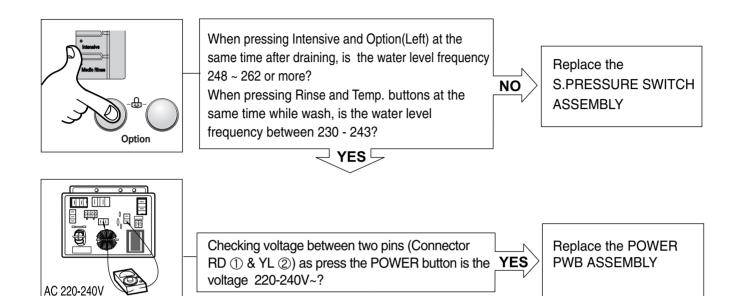
SOFTENER DOES NOT FLOW IN



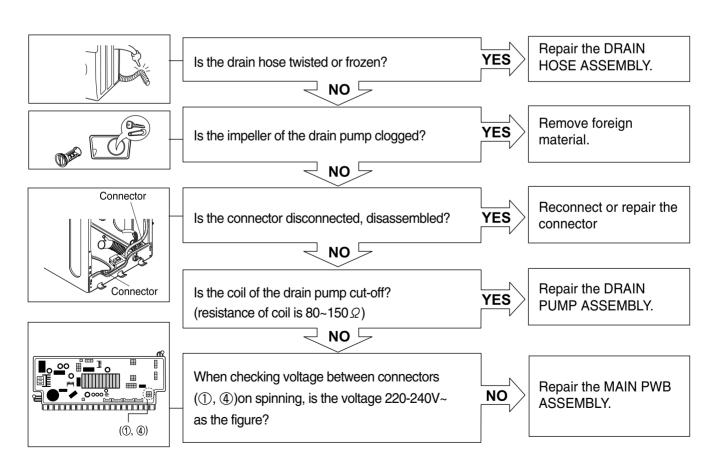
ABNORMAL SOUND



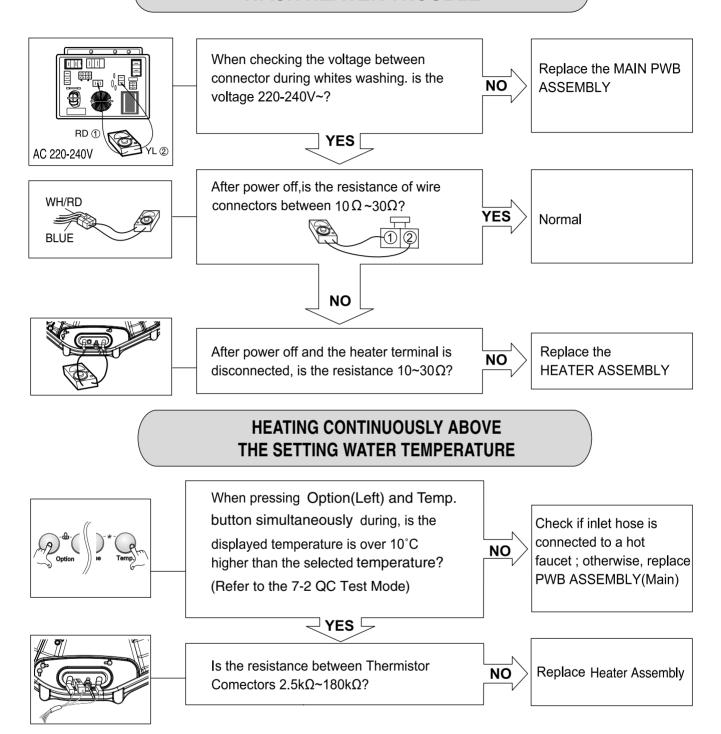
HEATING WITHOUT WATER



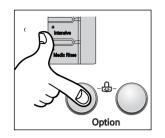
DRAIN MALFUNCTIONING



WASH HEATER TROUBLE



SPIN TROUBLE



Check on the spinning, is the frequency of the water level 248 or more. The frequency can be checked by pressing the Intensive and Option(Left) buttons at the same time on the program.

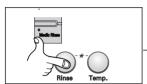
🖵 YES 🖵

 \supset NO \sqsubset

Ų NO └

NO

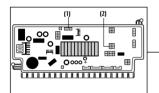
Check the S.PRESSURE SWITCH ASSEMBLY or HOSE (Pressure). If the problem is on the S.PRESSURE SWITCH ASSEMBLY or the HOSE, replace the S.PRESSURE SWITCH ASSEMBLY or the HOSE.



When pressing Rinse, Medic Rinse and POWER buttons at the same time after power off, press the Start/Pause button 1 times, is the drum low speed spin?

YES

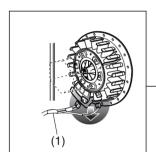
Normal



Is it disconnected, or disassembled? [Red:3pin(1), GY:4pin(2)]

YES

Correct the connector.



Check the motor connector, is the resistance of the terminal same as the figure?

MOTOR TERMINAL (1)

(1)

(2)

Resistance of terminal:

 $(1)\sim(2)/(2)\sim(3)/(3)\sim(1)$: About $5\Omega\sim15\Omega$

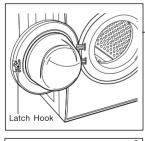
NO

Replace the STATOR **ASSEMBLY**



Replace the MAIN PWB ASSEMBLY

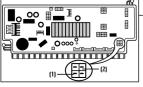
DRAIN TROUBLE



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

NO

Replace Door Assembly.



🛚 YES 🖵

」YES └

NO

Check the DOOR SWITCH **ASSEMBLY Connector and** MAIN PWB ASSEMBLY [Black(1), Brown/Yellow(2)].

Is DOOR SWITCH ASSEMBLY broken?

Does the spring of Latch Hook actuate?

YES

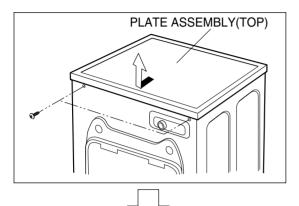
Replace the DOOR SWITCH ASSEMBLY.

24

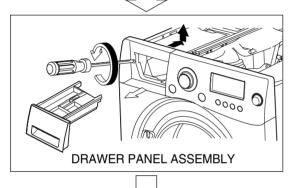
9. DISASSEMBLY INSTRUCTIONS

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

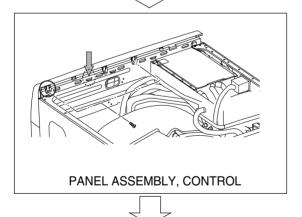
CONTROL PANEL



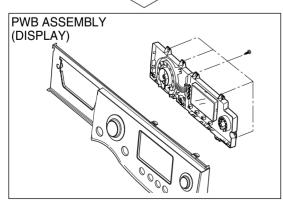
- ① Unscrew the screws on the top plate.
- ② The plate assembly(Top) is pulled back and then upward to arrow direction.
- ③ The cover(Inner) is disassembled.



- 1) Pull out the drawer and unscrew 2 screws.
- ② Lift the side the Control Panel Assembly and pull it out

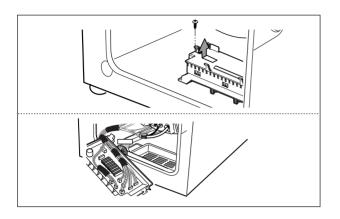


- ① Two screws is unscrewed.
- ② Push out PANEL ASSEMBLY, CONTROL after Push the hook below.



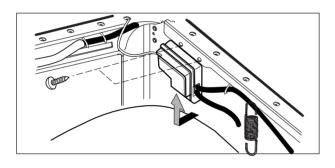
- ① The PWB assembly(Display) is disconnected.
- ② When 7 screws are unscrewed on the PWB insulator and the PWB assembly(Display) is disassembled from the PWB insulator.

PWB ASSEMBLY(MAIN)



- ① The back cover is removed.
- ② One screw is unscrewed.
- ③ Pull the PWB assembly(Main) to arrow direction
- ④ Two screws is unscrewed.
- ⑤ The cover of PWB assembly(Main) is removed.
- 6 Disconnect connector from the wiring.

PWB ASSEMBLY(POWER)

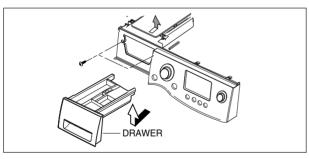


- ① The plate assembly(Top) disassembled.
- ② The cover of PWB assembly(Power) is removed.

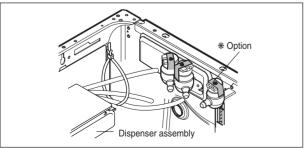
(Push the hook bellow.)

- 4 Disconnect connector from the PWB.
- ⑤ Two screw is unscrewed.

DISPENSER ASSEMBLY

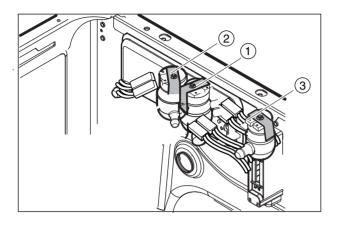


- ① The plate assembly(Top) are disassembled.
- ② Pull the drawer to arrow direction.
- ③ Two screws are unscrewed.



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

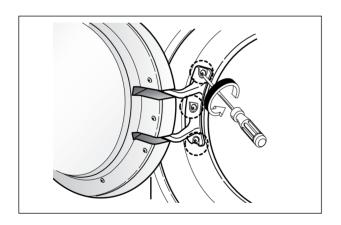
INLET VALVE



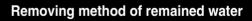
- ① Disconnect the wiring connector.
- ② Remove the valve by two screws of the valve holder.
- * When reconnecting the connector

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

DOOR

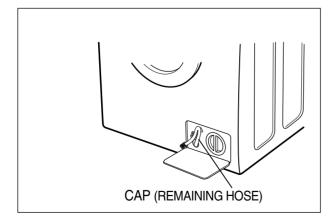


- ① Open the door completely.
- ② Remove the three screws from the hinge.
- When removing the Door Assembly, it is necessary to hold the Bracket that is inner of the Cabinet Cover.

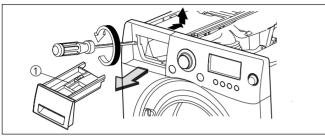




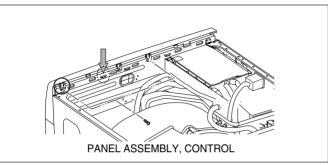
* First, prepare a bucket to put in the remained water.



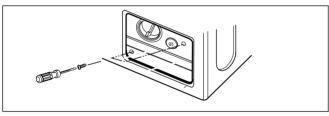
CABINET COVER



- ① The plate assembly(Top) is disassembled.
- 2 Pull out the drawer and unscrew 2 screws.
- 3 Lift the side the Control Panel Assembly and pull it out



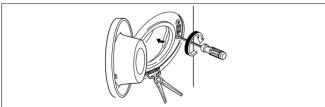
- 1 Two screws is unscrewed.
- ② Push out PANEL ASSEMBLY, CONTROL after Push the hook(①, ②) below.



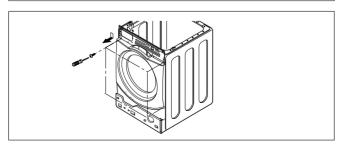
③ Unscrew the screws from the lower cover.



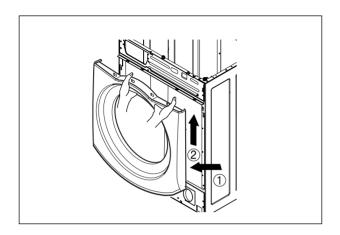
② The cabinet cover clamp is removed by special jig for service and the gasket is released.



③ Two screws are unscrewed.

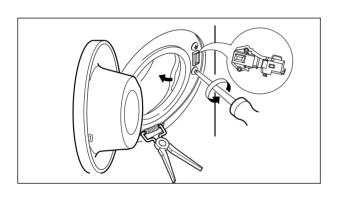


4 Unscrew all the screws on the upper and lower sides of the CABINET COVER.



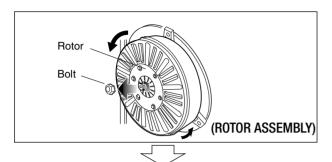
- ① Lift and separate the cabinet cover.
 - **** NOTE**: When assembling the CABINET COVER, connect the Door S/W connector.

SWITCH ASSY, DOOR LOCK

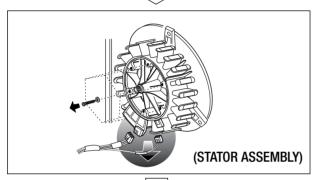


- ① The cabinet cover clamp is removed and the gasket is released.
- ② Two screws are unscrewed.
- ③ The Door Lock S/W is disconnected form the wiring connector and the strap.

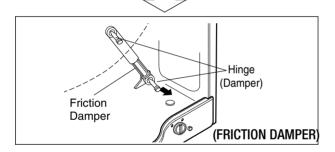
ROTOR ASSEMBLY, STATOR ASSEMBLY, FRICTION DAMPER



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

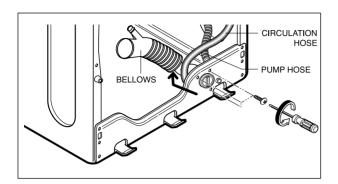


- ① Remove the 6 bolt from the stator.
- ② Disconnect the 2 connectors.



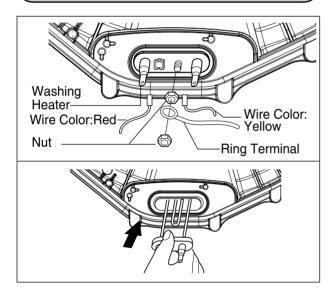
- ① Remove the hinges (Damper) at the Tub.
- ② The Hinge(Damper) at the base is pulled off pressing on the snaps at the sharp end.
- ③ The hinge at the base is pulled off. (To arrow direction)

PUMP



- ① Remove pump outlet hose.
- 2 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.

HEATER

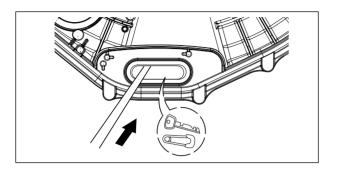


- 1 Loosen the nut.
- ② Remove washing heater by pulling out.

CAUTION

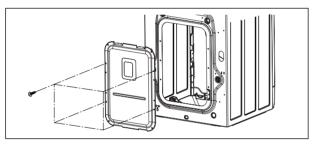
When assembling the washing heater, insert the heater to heater clip on the bottom of tub and check the position of wire color.

WHEN FOREIGN OBJECT STUCK BETWEEN DRUM AND TUB

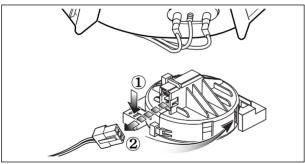


- ① Remove washing heater.
- ② Remove the foreign object(wire,coin,etc) by inserting long bar in the hole.

SWITCH ASSEMBLY, SAFETY



Unscrew 4 screws from the back cover.

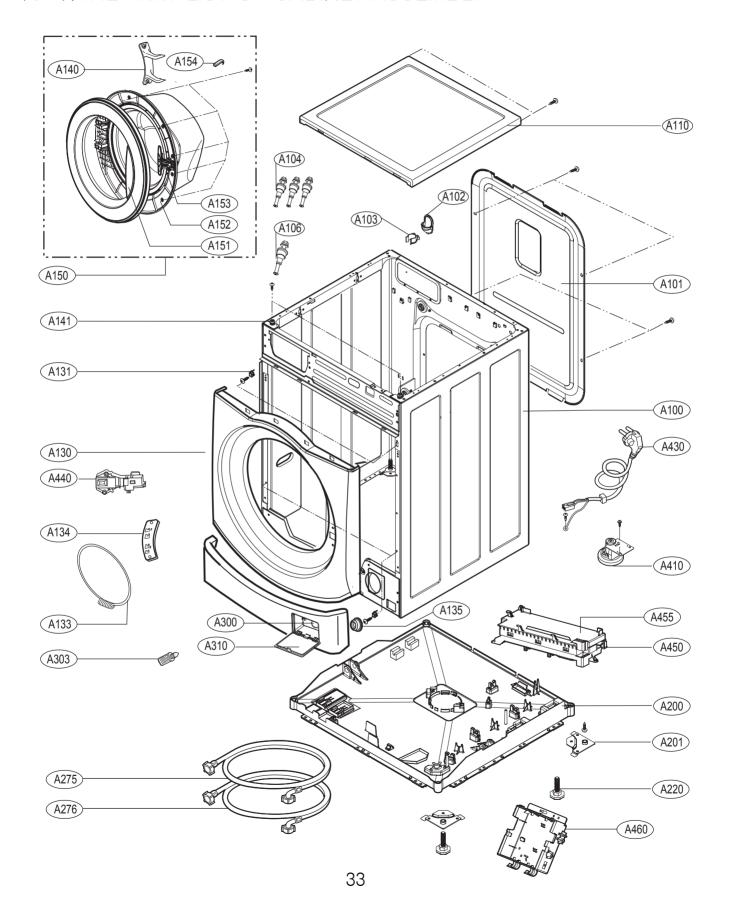


Disconnect the wiring connector.

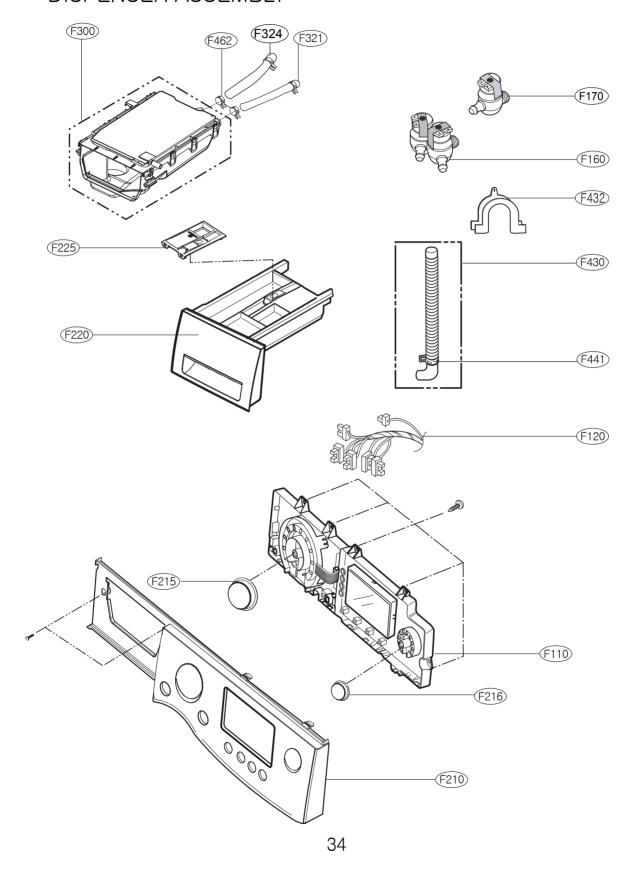
First, Press hook and turn the safety switch assembly switch assembly safety.

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 OFDRUM & TUB ASSEMBLY

