



WASHING MACHINE SERVICE MANUAL

A CAUTION

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

MODEL: WM2487H*M

CONTENTS

1. SPECIFICATIONS	3
2. FEATURES & TECHNICAL EXPLANATION	4
3. PARTS IDENTIFICATION	7
4. INSTALLATION & TEST	8
5. OPERATION	11
6. WIRING DIAGRAM/PROGRAM CHART	14
7. TROUBLESHOOTING	15
7-1. BEFORE PERFORMING SERVICE	15
7-2. QC TEST MODE	15
7-3. HOW TO CHECK THE WATER LEVEL FREQUENCY	15
7-4. ERROR DISPLAY	16
8. ERROR DIAGNOSIS AND CHECK LIST	18
8-1. DIAGNOSIS AND SOLUTION FOR ABNORMAL OPERATION	18
8-2. FAULT DIAGNOSIS AND TROUBLESHOOTING	21
9. DISASSEMBLY INSTRUCTIONS	29
10. EXPLODED VIEW	40
10-1. CABINET & CONTROL PANEL ASSEMBLY	40
10-2. DRUM & TUB ASSEMBLY	41
10-3 DISPENSER ASSEMBLY	42

1. SPECIFICATIONS

ITEM		WM2487H*M						
COLOR		W:BLUE WHITE, N:NAVY BLUE, R:CANDY APPLE RED						
POWER SUPPLY	Y	AC 120 V, 60 Hz						
PRODUCT WEIGH	НТ	192 lbs (87kg)						
ELECTRIC POWER	WASHING	280 W						
ELECTRIC POWER CONSUMTION	DRAIN MOTOR	80 W						
CONSOINTION	WASH HEATER	1000 W						
REVOLUTION SPEED	WASH	46 rpm						
NEVOLOTION 3F LED	SPIN	0-1200 rpm						
CYCLES		9						
WASH/RINSE TEMPER	RATURES	5						
SPIN SPEEDS		5						
OPTIONS		Prewash, Rinse+Spin, Extra Rinse, Water Plus, Stain Cycle						
WATER CIRCULAT	ION	Incorporated						
OPERATIONAL WAT	ER PRESSURE	14.5-116 psi (100-800 kPa)						
CONTROL TYPE		Electronic						
WASH CAPACITY [c	cu.ft]	3.47 (4.0 IEC)						
DIMENSIONS		27" (W) X 29 ³ / ₄ " (D) X 38 ¹¹ / ₁₆ " (H), 50 ¹³ / ₁₆ " (D, door open)						
DELAY WASH		up to 19 hours						
DOOR SWITCH TY	PΕ	PTC + Solenoid						
WATER LEVEL		10 steps (by sensor)						
LAUNDRY LOAD SEN	ISING	Incorporated						
ERROR DIAGNOS	SIS	Incorporated						
AUTO POWER OF	F	Incorporated						
CHILD LOCK		Incorporated						
RLM ENABLE		Incorporated						
STEAM		Incorporated						
	l.							

2. FEATURES & TECHNICAL EXPLANATION

2-1. FEATURES



Ultra Capacity

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



■ Direct Drive System

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



Tilted Drum and Extra Large Door Opening

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



■ Steam Washing and SteamFresh[™]

Steam Washing features upgraded washing performance with low energy and water consumption. SteamFresh™ cycle removes wrinkles from dry clothes.



RollerJets

Washing ball enhances the wash performance and reduces damage to the clothing. The jets spray and help tumble clothes to enhance washing performance while maintaining fabric care.



Automatic Wash Load Detection

Automatically detects the load and optimizes the washing time.



Built-in Heater

Internal heater helps to maintain water temperature at its optimum level for selected cycles.



Child Lock

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



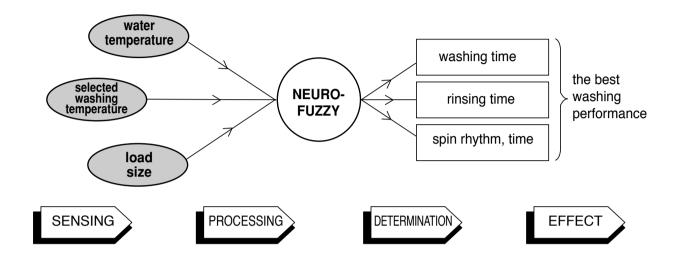
Using the RLM (Remote Laundry Monitor)

The RLM monitors status of your washer and/or dryer. You can plug the display unit into any power outlet in your home.

The RLM Display Unit can be purchased separately for this washer.

2-2. NEURO FUZZY WASHING TIME OPTIMIZATION

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



2-3. WATER LEVEL CONTROL

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

2-4. DOOR CONTROL

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

2-5. THE DOOR CAN NOT BE OPENED

- While program is operating
- When a power failed and power plug is taken out in operation
- While Door Lock lights turn on.
- White the motor is in the process of intertial rotating, through the operation is paused.

2-6. DOOR LOCKED LAMP LIGHTS

- When the frequency of water level is lower than 22.9 kHz
 (It can be canceled when the frequency is more than 23.8 kHz)
- When the temperature inside the tub is higher than 45 °C and water level is not 25.5 kHz
 (It can be canceled when the water level is 25.5 kHz or the temperature inside the tub is lower than 40 °C)

2-7. CHILD LOCK

- Use this option to prevent unwanted use of the washer. Press and hold PRE WASH button for 3 seconds to lock/unlock control.
- When Child lock is set, CHILD LOCK lights and all buttons are disabled except the Power ⊚ button. You can lock the washer while it is operating.

2-8. WATER CIRCULATION

- When Washing and Rinsing function of shower at the upper part of Gasket.
- When Washing, it continuously operates for 3 minutes and intermittently.
- When Rinsing, it continuously operates after completion of water supply.

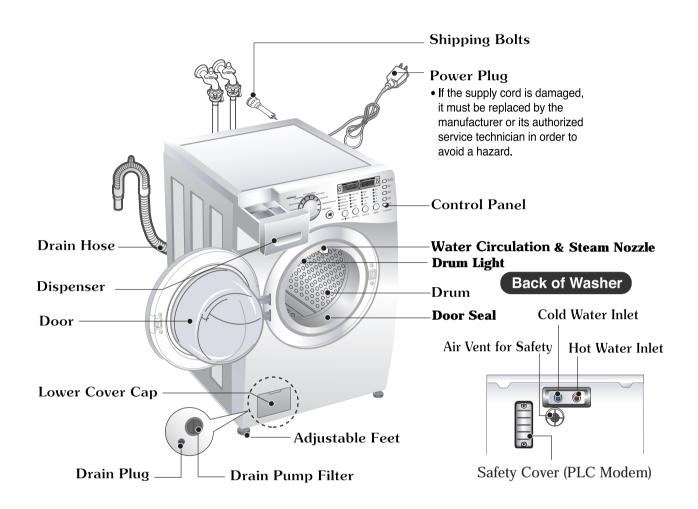
2-9. STEAM

- For tough stained clothes, underwear, or baby clothes.
- Steam Wash is available with Sanitary, Bulk/Large, Perm. Press, Cotton/Normal, and baby Wear cycles.
- This option features upgraded washing performance with low energy and water consumption
- Do not load delicates such as wool, silk, and easily discolored clothes.

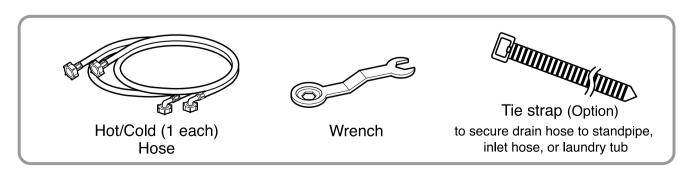
2-10. DRUM LIGHT

- The Drum Light comes on when the Power button is pressed. It goes off when the door is closed and the washer starts operation.
- The Drum Light remains off when the door is locked.
- ◆ The Drum Light can be turned on while the washer is in operation by pressing the Rinse+Spin button for 3 seconds. The light will turn off automatically 4 minutes later.
- The Drum Light comes on when the washing cycle is finished and goes off 4 minutes later.

3. PARTS IDENTIFICATION



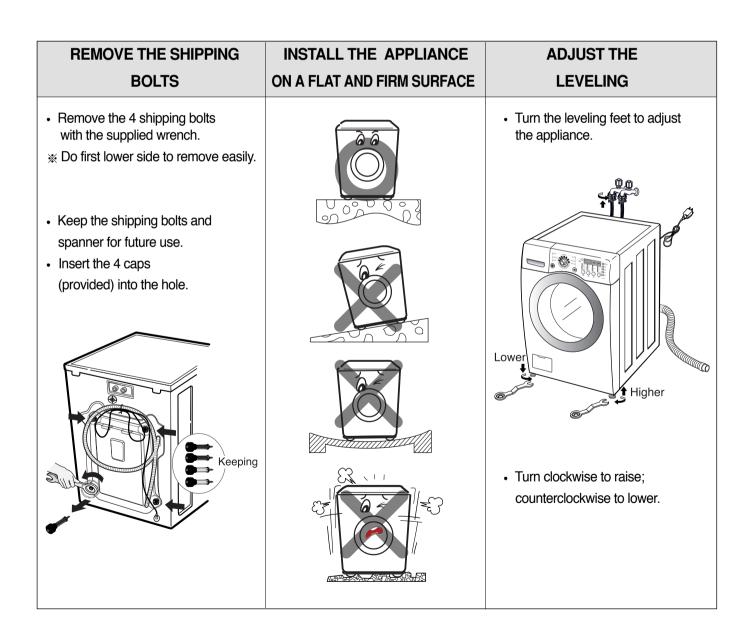
ACCESSORIES



4. INSTALLATION & TEST

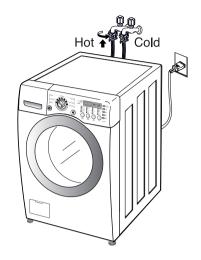
- 1 Before servicing, ask the customer what the trouble is.
- 2 Check the setup (power supply is 120 V AC, remove the transit bolts....).
- (3) Check with the troubleshooting guide.
- 4 Plan your service method by referring to the disassembly instructions.
- 5 Service the unit.
- 6 After servicing, operate the appliance to see whether it functions correctly.
- STANDARD INSTALLATION

The appliance should be installed as follows:

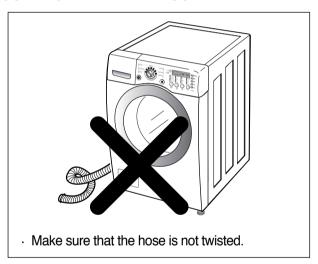


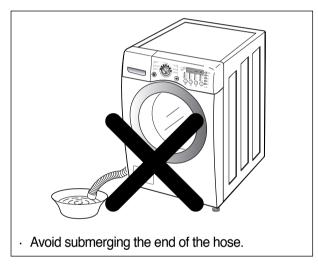
■ HOW TO CONNECT THE INLET HOSE

- Verify that the rubber washer is inside of the valve connector.
- Tighten the inlet hose securely to prevent leaks.



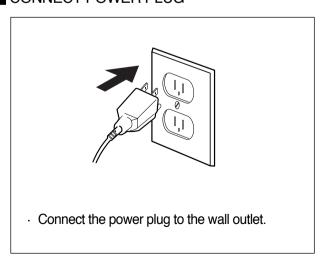
■ CONNECT THE DRAIN HOSE

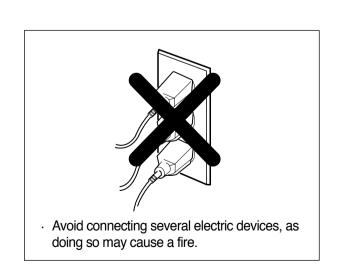




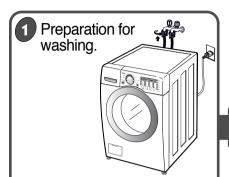
 $\ensuremath{\ensuremath{\%}}$ The end of the drain hose should be placed less than 96" from the floor.

■ CONNECT POWER PLUG





7 TEST OPERATION



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

2 Press the POWER button.



Press the Start/Pause button.



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

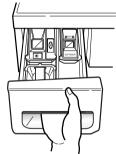
6 Check the water heating function.



 Press the WASH/RINSE button and the present temperature will be displayed. Check the automatic reverse rotation.



 Check if the drum rotates clockwise and counterclockwise. Check the water supply.



 Check if water is supplied through the detergent dispenser.

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

Press the START/PAUSE button.



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

Water removal



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

5. OPERATION

■ WM2487H*M

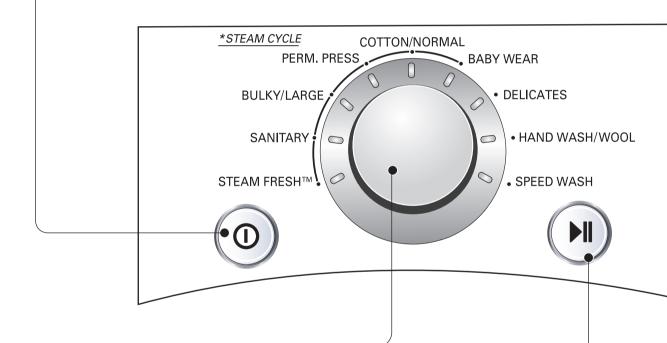


Power Button

 Use this button to turn the power On/Off.

Status Indicator

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



Cycle Selector Knob

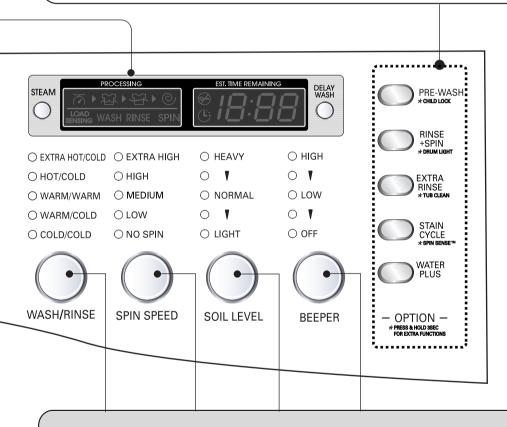
• Rotate the **Cycle selector knob** to select the cycle designed for different types of fabric and soil levels.

Start/Pause

 Use this button to Start/ Stop the washer.

Option Button

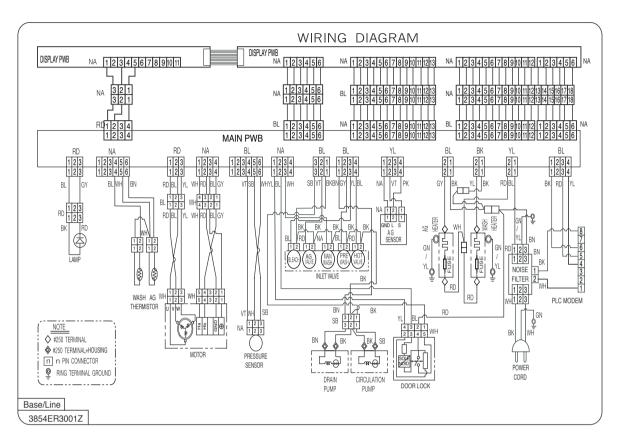
- PREWASH: Use this option for loads that need pretreatment. It adds 16 minutes prewash and a spin cycle.
- RINSE+SPIN: Use this option to rinse and then spin.
- EXTRA RINSE: This option provides an additional rinse.
- STAIN CYCLE: Adds time to the wash and rinse cycles for better stain removal. Automatically provides a rinse.
- WATER PLUS: Add extra water to the wash and rinse cycles for superior results.



Wash/Rinse, Spin speed, Soil Level, Beeper Button

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

6. WIRING DIAGRAM/PROGRAM CHART



PROGRAM	OGRAM CHART										* Water Supply: W-S * Intermittent Spin: I-S * Disentangle												ıle: D−T									
			Wash														F	Rins	se									Cnin			Α	
	Pre Main						Normal								Ext	ra o	r Sta	ain	Extra & Stain					Spin			<u>U</u>					
167						W	ash	Cool-do		wn		1			2				3				3						E	T	**Approx.	
C T L	W - S	Wash	Drain	 - S	w - s	Heat	Wash	W - S	Rinse	Drain	Drain	<u> </u>	W s	Rinse	Drain	<u> </u>	W s	Rinse	Drain	<u>-</u> s	W - s	Rinse	Drain	- I s	W - s	Rinse	Drain	Spin	D T	D	O F F	Working Time
U E E	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	\vdash	18	19	20	21	22	23	\Box	25	26	27	28	29	20	20	(Minutes)
R P Time	60	*	Т	300	60		*	60	Т	60	Т	360	П	240	Г	360		Г	Г	300		240	60	300	60	240	60	360 ~ 660	60 ~ 180	20	20	
Sanitary		8					60		TIM																							105
Cotton		8					67 13		<u> </u>																							58
/Normal Bulky		8					20	\vdash		\geq																						
/Large		8					25		$\stackrel{\times}{-}$	\geq																						57
Perm Press		ů					18		\simeq	\leq																						55
Delicates		8					14		><	<														>	<	$\overline{}$						34
Baby Wear		\geq	<				70		><	$\overline{}$																						120
Hand Wash /Wool		>	<	~			14		><	~					H									$\overline{>}$	<	<u> </u>						34
Speed Wash		>	<	\nearrow			8		><	$\overline{}$	_			120				120				120		>	<	~	F			F		30
Drain+Spin										14																						
Wash + Rinse		8					19		\sim	7																			\geq	${<}$		45
Rinse + Spin					5		113		=	$\stackrel{>}{=}$	_									<u> </u>		<u></u>			_	_						19
***************************************	Basic Cycle Optional Cycle Pre-Setting Time: Water Supply - 60 sec. Drain - 60 sec. * Wash time is in minutes. ** The total working time will vary with the load size, water temperature and ambient temperature.							J																								

¹⁴

7. TROUBLESHOOTING

7-1. BEFORE PERFORMING SERVICE

- Be careful of electric shock when disconnecting parts while troubleshooting.
- The voltage of each terminal is 120 V AC and DC when the unit is plugged in.

7-2. QC TEST MODE.

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

- 1. Press the SPIN SPEED and SOIL LEVEL buttons simultaneously.
- 2. Press the Power (a) button, while the above condition. Then buzzer will sound twice.
- 3. Press the Start/Pause (M) button repeatedly to cycle through the test modes.

Number of times the Start/Pause button is pressed	Check Point	Display Status						
None	Turns on all lamps and locks the door.	(;F:;F(;						
1 time	Tumble clockwise.	rpm (42~50)						
2 times	Low speed Spin.	rpm (55~65)						
3 times	High speed Spin.	rpm (125~135)						
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 steam turns on.	Water level frequency (25~65)						
8 times	Inlet valve for bleach turns on.	Water level frequency (25~65)						
9 times	Tumble counterclockwise.	rpm (42~50)						
10 times	Heater turns on for 3 sec.	Water temperature						
11 times	Circulation pump turns on.	Water level frequency (25~65)						
12 times	Drain pump tums on.	Water level frequency (25~65)						
13 times	Water level Sensor for Steam	Water level frequency of TSG(0~255)						
14 times	Steam Heater turns on for 1.2 sec.	TSG temperature						
15 times	Off	-						

7-3. HOW TO CHECK THE WATER LEVEL FREQUENCY

* Press the WASH/RINSE and DELAY WASH button simultaneously.



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

So, for example a display indicating 241: a Water level frequency of 241 x.1 kHz = 24.1 kHz

7-4. ERROR DISPLAY

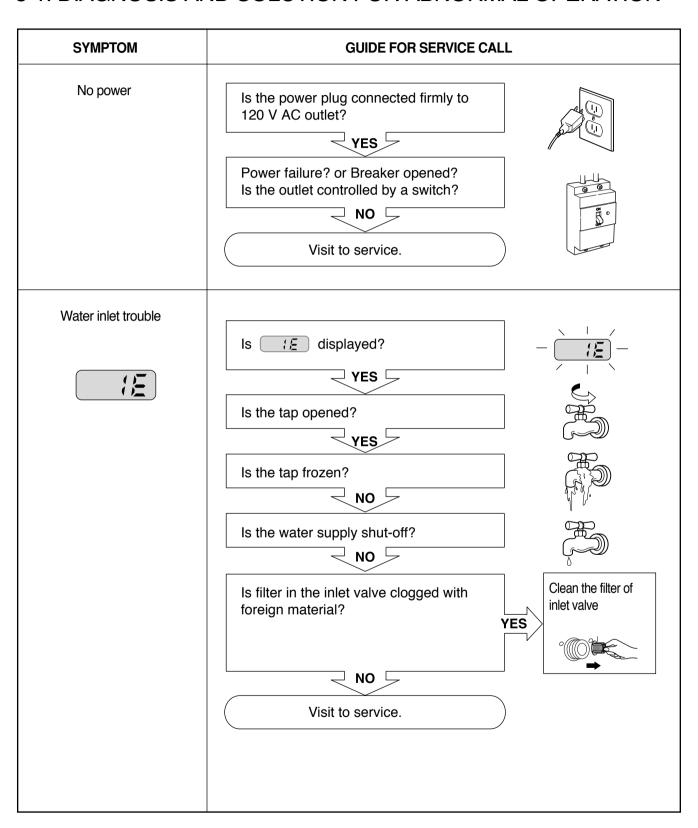
- If you press the START/PAUSE button when an error is displayed, any error except $\[\[\] PE \]$ will disappear and the machine will go into the pause status.
- In case of <code>FPE</code> <code>_, FLE</code> <code>_, FdE</code> <code>_</code> if the error is not resolved within 20 sec., or the in case of other errors, if the error is not resolved within 4 min., power will be turned off automatically and the error code will blink. But in the case of <code>FFE</code> <code>_,</code> power will not be turned off.

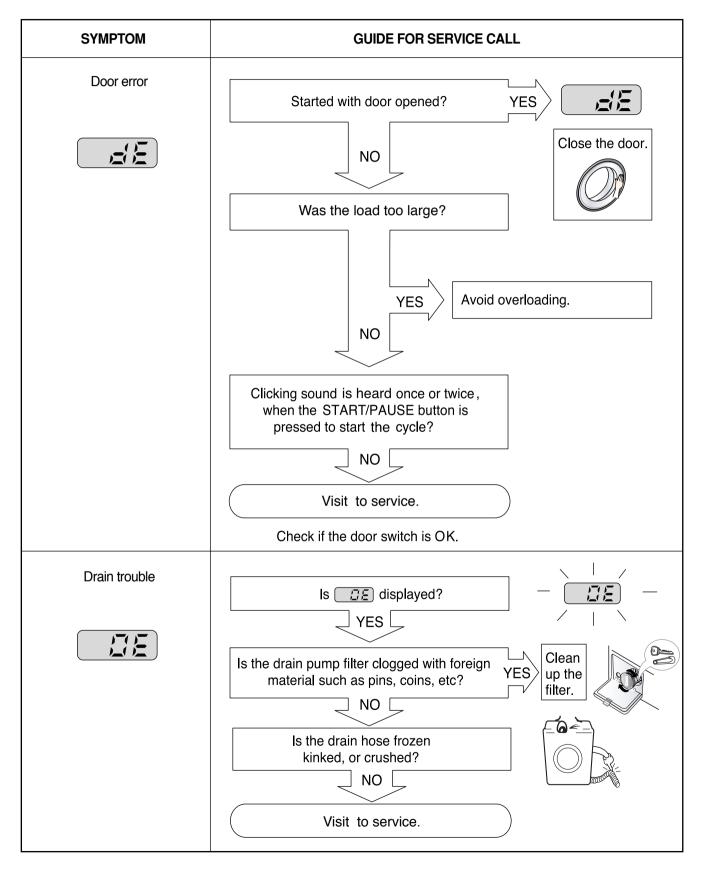
	ERROR	SYMPTOM	CAUSE
1	WATER INLET ERROR	(;E	Correct water level (246) is not reached within 8 minutes after water is supplied or it does not reach the preset water level within 25 minutes.
2	IMBALANCE ERROR		 The load is too small. The appliance is tilted. Laundry is gathered to one side. Non distributable things are put into the drum.
3	DRAIN ERROR		Not fully drained within 10 minutes.
4	OVER FLOW ERROR	FE	Water is overflowing (water level frequency is over 213). If FE is displayed, the drain pump will operate to drain the water automatically.
5	PRESSURE SENSOR ERROR	FE	The SENSOR SWITCH ASSEMBLY is out of order.
6	DOOR OPEN ERROR		 Door not all the way closed. Loose electrical connections at Door switch and PWB Assembly. The DOOR SWITCH ASSEMBLY is out of order.
7	HEATING ERROR	EE	The THERMISTOR is out order.

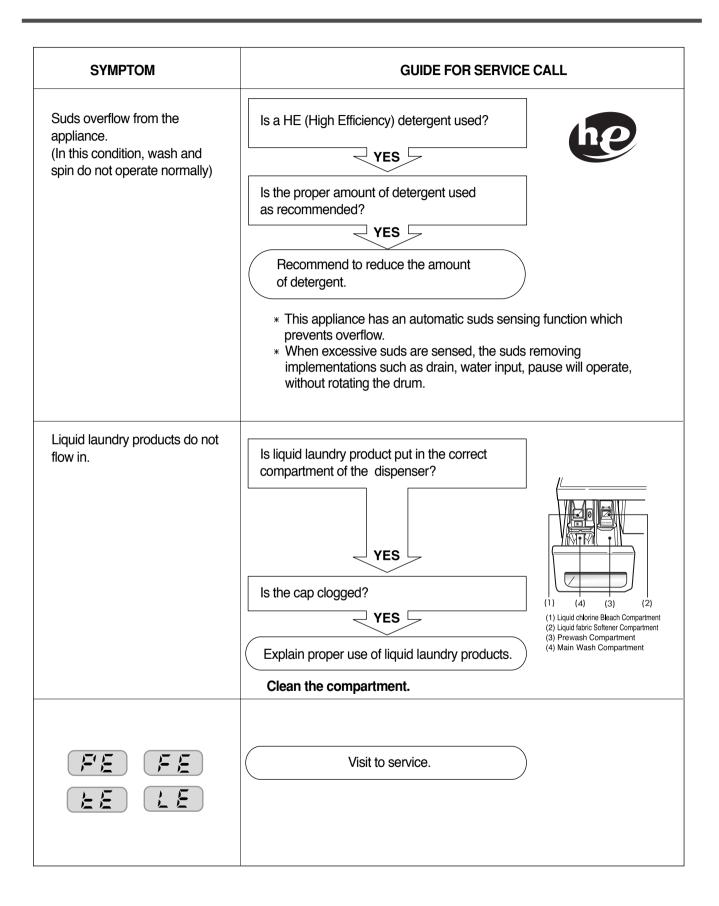
	ERROR	SYMPTOM	CAUSE
8	LOCKED MOTOR ERROR	LE	 The connector (3-pin, male, white) in the MOTOR HARNESS is not connected to the connector (3-pin, female, white) of STATOR ASSEMBLY. The electric contact between the connectors (3-pin, male, white) in the MOTOR HARNESS and 4-pin, female, white connector in the MAIN PWB ASSEMBLY is bad or unstable. The MOTOR HARNESS between the STATOR ASSEMBLY and MAIN PWB ASSEMBLY is cut (open circuited). The hall sensor is out of order/defective.
9	EEPROM ERROR	EE	EEPROM is out of order. Displayed only when the START/PAUSE button is first pressed in the QC Test Mode.
10	POWER FAILURE	<i>F</i> ; <i>F</i>	The washer experienced a power failure.

8. ERROR DIAGNOSIS AND CHECK LIST

8-1. DIAGNOSIS AND SOLUTION FOR ABNORMAL OPERATION



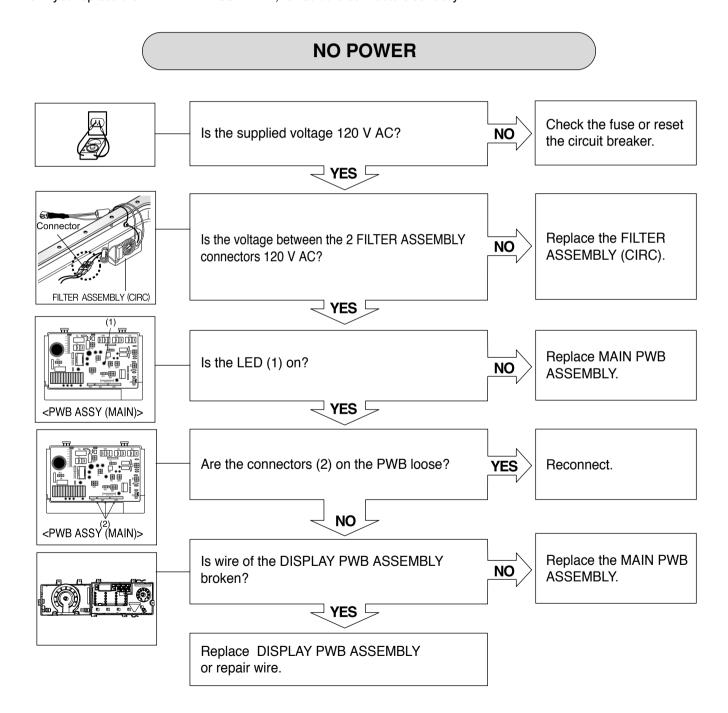




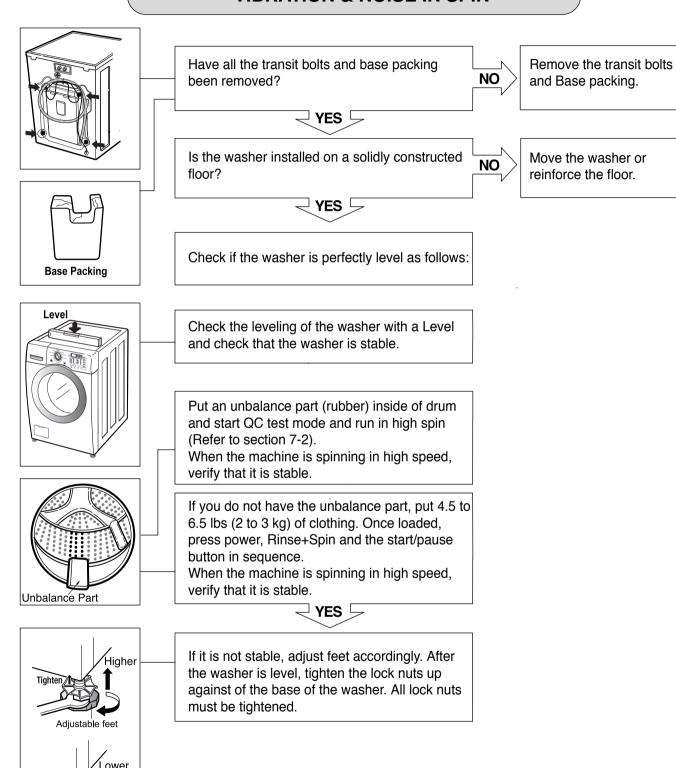
8-2. FAULT DIAGNOSIS AND TROUBLESHOOTING

▲ CAUTION

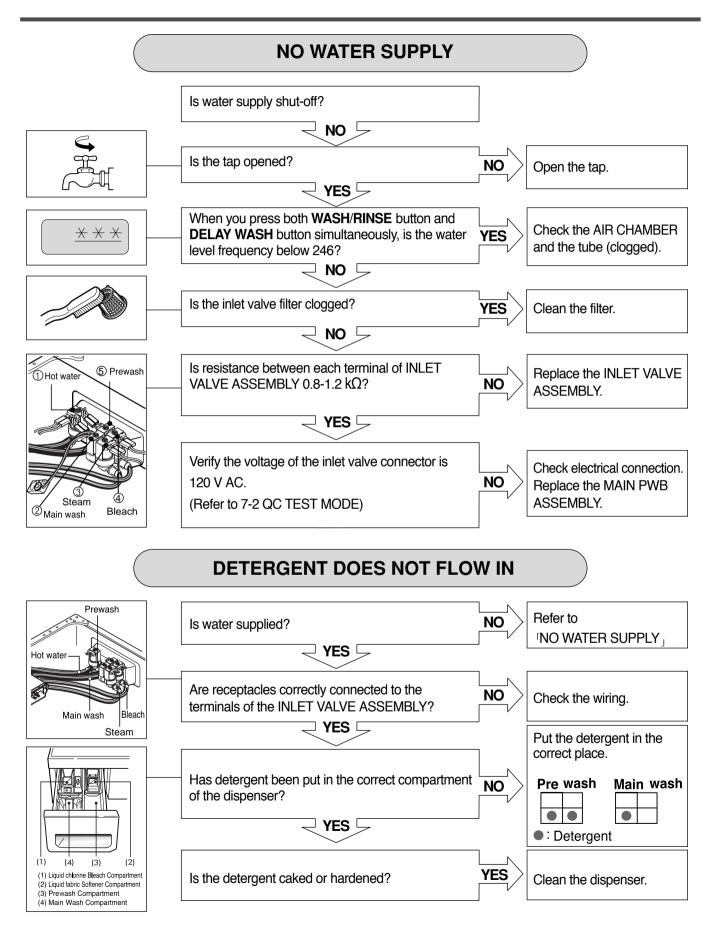
- 1. Be careful of electric shock if disconnecting parts while troubleshooting.
- 2. First of all, check the connection of each electrical terminal with the wiring diagram.
- 3. If you replace the MAIN PWB ASSEMBLY, reinsert the connectors correctly.



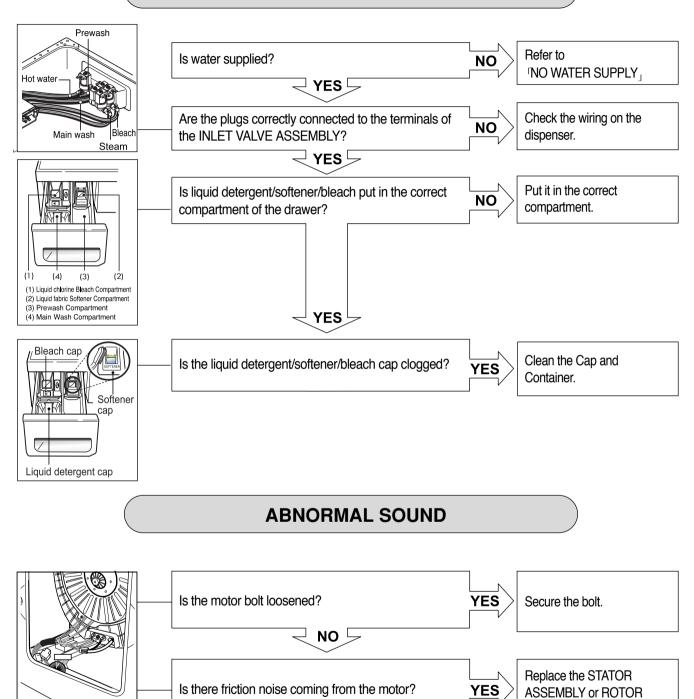
VIBRATION & NOISE IN SPIN



Adjustable feet

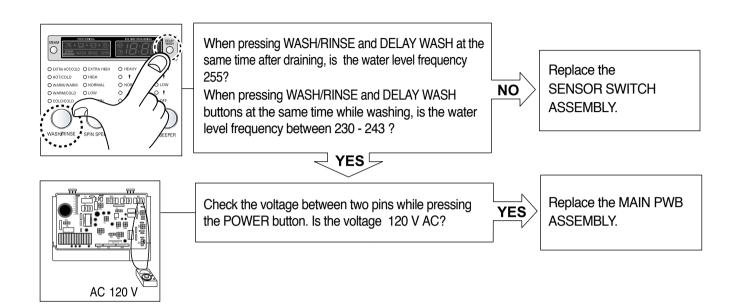


(LIQUID DETERGENT/SOFTENER/BLEACH DOES NOT FLOW IN)

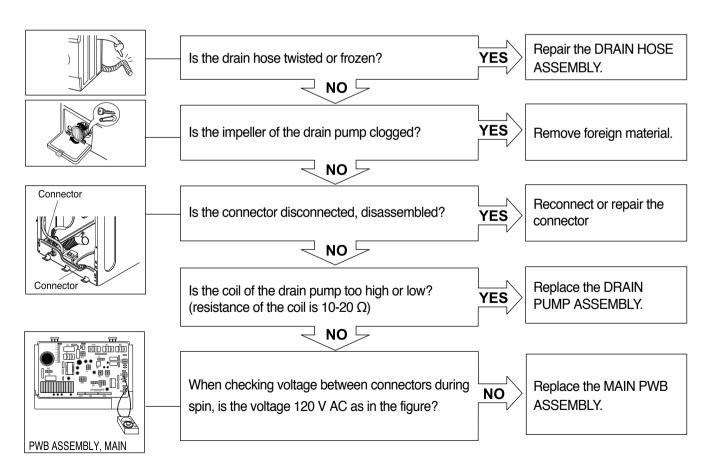


ASSEMBLY.

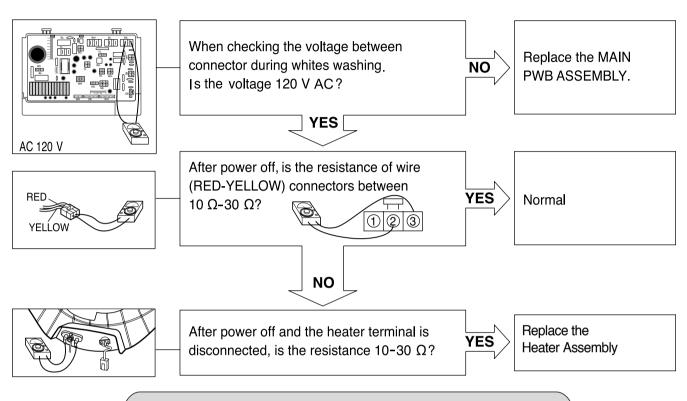
HEATING WITHOUT WATER



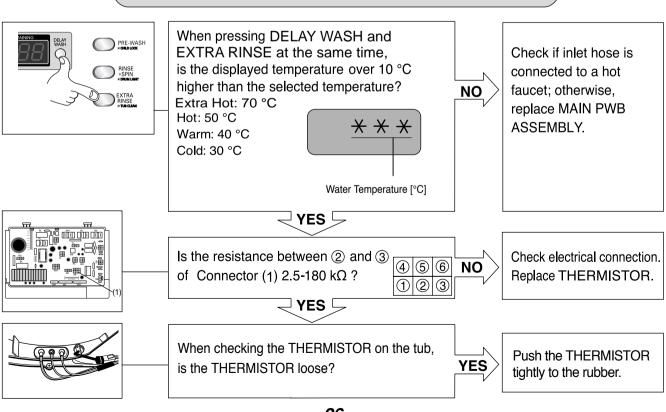
DRAIN MALFUNCTION



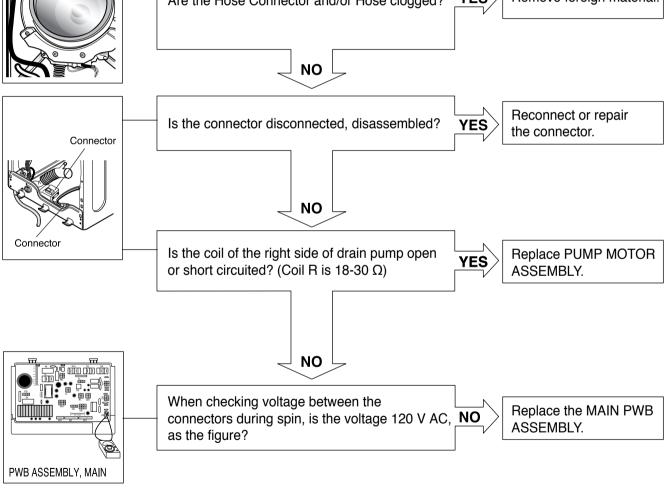
WASH HEATER TROUBLE



HEATING CONTINUOUSLY ABOVE THE SETTING WATER TEMPERATURE



Is the impeller of the drain pump clogged? Are the Hose Connector and/or Hose clogged? NO Remove foreign material. Remove foreign material. Remove foreign material. NO Is the connector disconnected, disassembled? YES Reconnect or repair the connector.

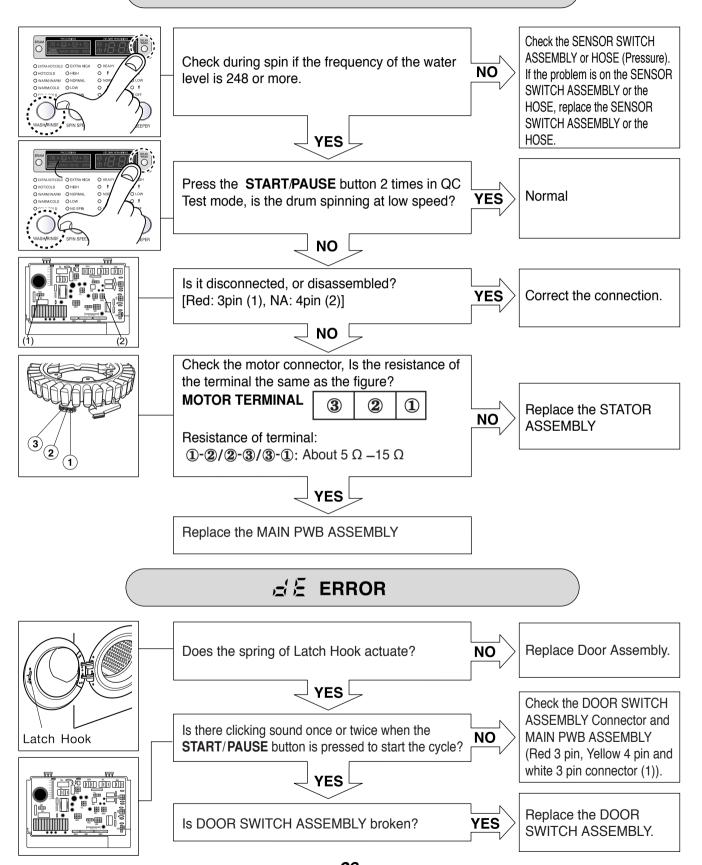


Hose Connector (Water circulation

& Steam Nozzle)

Hose

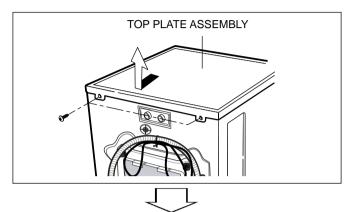




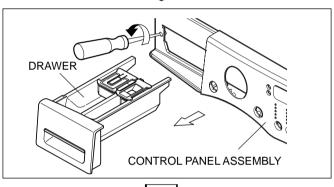
9. DISASSEMBLY INSTRUCTIONS

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

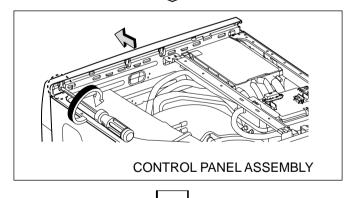
CONTROL PANEL ASSEMBLY



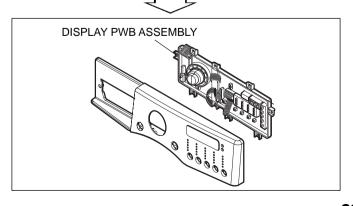
- ① Unscrew 2 screws on the back of the top plate.
- ② Pull the top plate backward and upward as shown.



- ③ Disconnect the Display PWB Assembly connector from Trans cable.
- 4 Pull out the drawer and unscrew 2 screws.

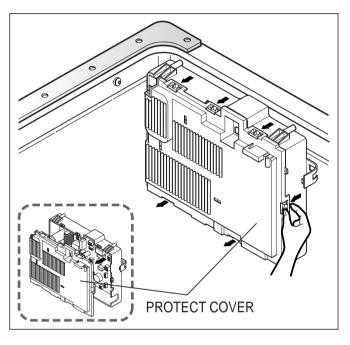


- (5) Taking out 1 screw.
- ⑥ Lift the side the Control Panel Assembly and pull it out

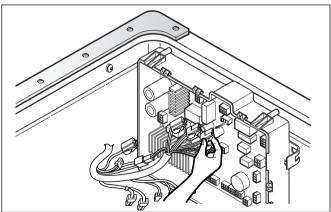


- ① Unscrew the 8 screws from the Control Panel Assembly.
- ® Disassemble the Display PWB Assembly.

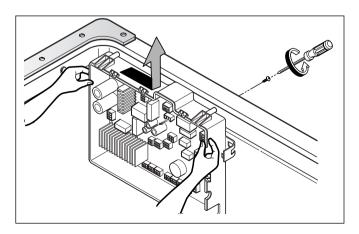
MAIN PWB ASSEMBLY



- ① Disconnect the POWER connector and SENSOR SWITCH ASSEMBLY.
- ② Remove the Protect Cover.

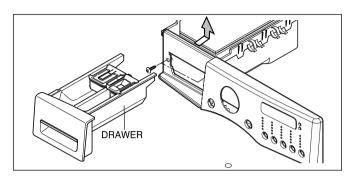


③ Disconnect the connectors.

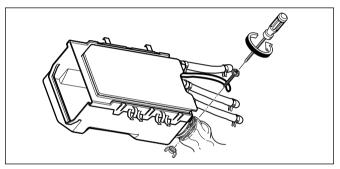


- 4 Unscrew 1 screw on the back.
- ⑤ Disassemble the Main PWB.

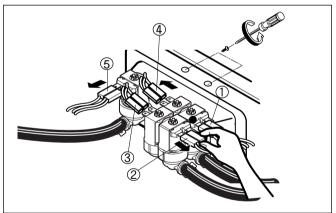
DISPENSER ASSEMBLY



- ① Disassemble the top plate assembly.
- ② Pull out the drawer.
- ③ Push out the DISPENSER ASSEMBLY after unscrew 2 screws.

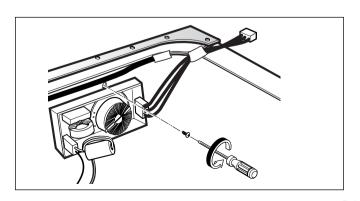


① Unscrew the nut at the lower part of the dispenser.



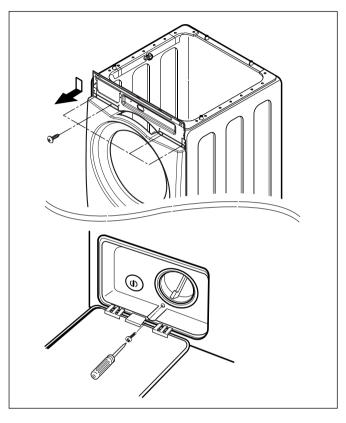
- ⑤ Disassemble the 4 connectors from the valves.
 - Wire Color
 - ① Blue Housing (YL-BK)
 - ② Red Housing(VT-BK)
 - ③ White Housing(WH-BK)
 - 4 Blue Housing(GY-BK)
 - ⑤ Red Housing(BL-BK)
- (6) Unscrew 2 screws from the back of the cabinet.

NOISE FILTER

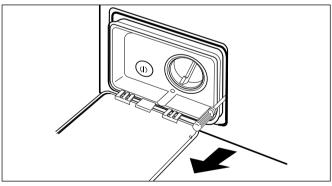


- ① Disassemble two (or three) connectors from the NOISE FILTER.
- ② Unscrew a screw from the TOP BRACKET.

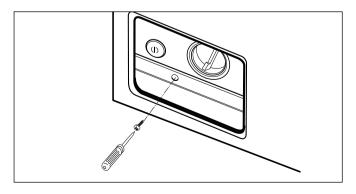
CABINET COVER



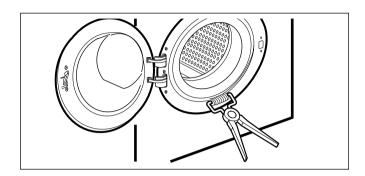
- ① Unscrew the 5 screws from upper of the canbinet cover.
- ② Unscrew the screw from filter cover.



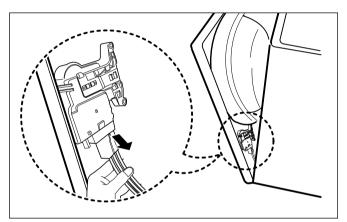
③ Put a flat (–) screwdriver or putty knife into the both sides of the filter cover, and pull it out.



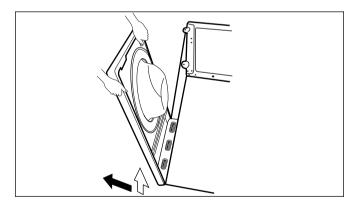
④ Unscrew the screw from the lower side of the cabinet cover.



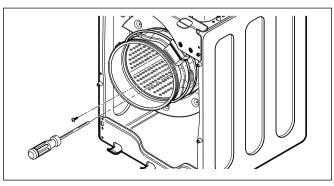
- ⑤ Open the door.
- ⑥ Disassemble the clamp assembly.



- Tilt the cabinet cover.
- (8) Disconnect the door switch connector.
 - NOTE: When assembling the CABINET COVER, connect the connector.

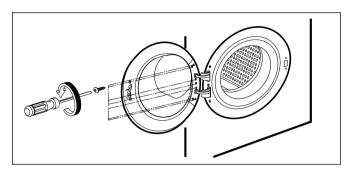


(9) Lift and separate the cabinet cover.

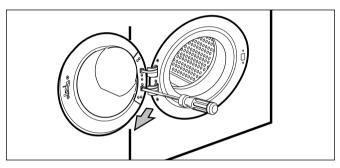


- (i) Disassemble the clamp assembly.
- (1) Disassemble the Gasket.

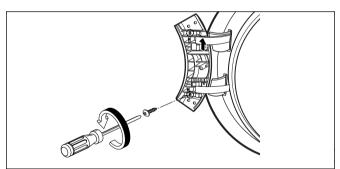
DOOR



- ① Open the door.
- ② Unscrew the 7 screws from the HINGE COVER.



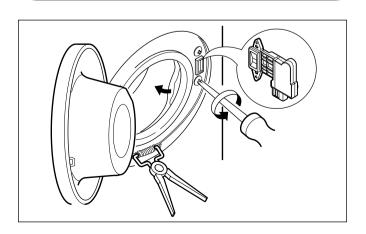
③ Put a flat (-) screwdriver into the opening of the hinge, and pull out the hinge cover.



- ④ Unscrew a screw from the lower side of door.
- ⑤ Disassemble the door upward.

* Be careful! The door is heavy.

DOOR LOCK SWITCH ASSEMBLY

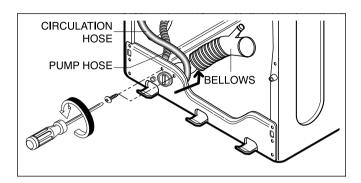


- ① Open the door and disassemble the CLAMP ASSEMBLY.
- ② Unscrew the 2 screws.

*** NOTE**

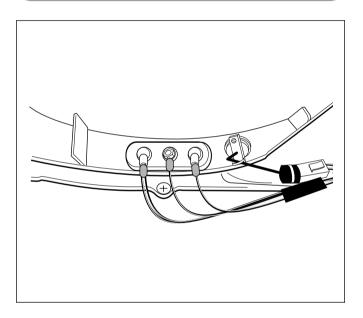
• Reconnect the connector after replacing the DOOR SWITCH ASSEMBLY.

PUMP



- ① Disassemble the cabinet cover.
- ② Separate the pump hose, the bellows and the circulation hose assembly from the pump assembly.
- ③ Disassemble the pump assembly in arrow direction.

HEATER

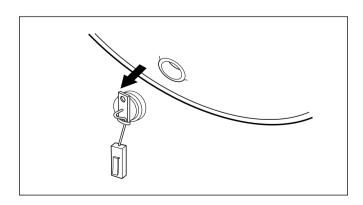


- ① Disassemble the cabinet cover.
- ② Separate 2 connectors from the heater.
- ③ Loosen the nut and pull out the heater.

*** CAUTION**

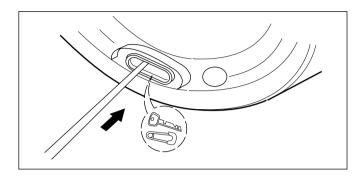
- When assembling the heater, insert the heater into the heater clip on the bottom of the tub.
- Tighten the fastening nut so the heater is secure.

THERMISTOR



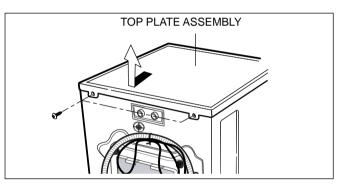
- ① Disassemble the cabinet cover.
- ② Unplug the white connector from the thermistor.
- ③ Pull it out by holding the bracket of the thermistor.

WHEN FOREIGN OBJECT IS STUCK BETWEEN DRUM AND TUB

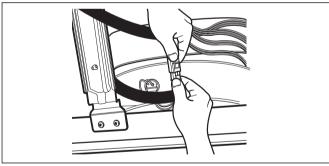


- ① Disassemble the cabinet cover.
- ② Separate the heater from the tub.
- ③ Remove any foreign objects (wire, coin, etc.) by inserting a long bar in the opening.

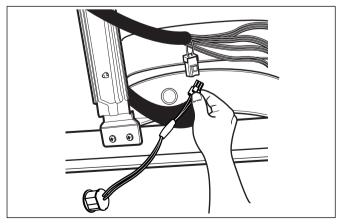
LAMP ASSEMBLY



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

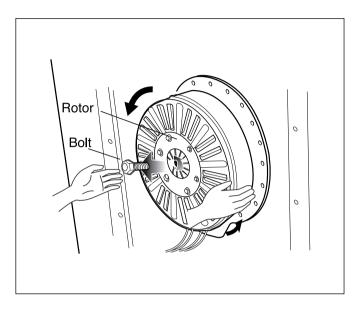


③ Disconnect the connector.

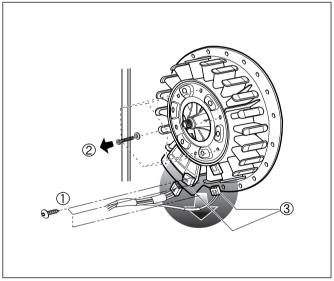


4 Disassemble the lamp assembly.

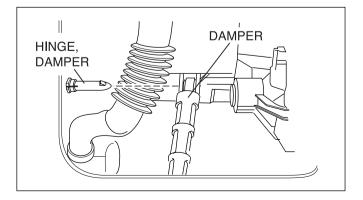
MOTOR/DAMPER



- ① Disassemble the back cover.
- ② Remove the bolt.
- ③ Pull out the Rotor.



- ① Unscrew the 2 screws from the tub bracket.
- ② Remove the 6 bolts on the stator.
- ③ Unplug the 2 connectors from the stator.

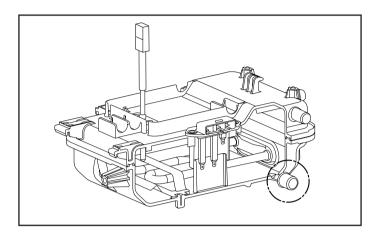


- ① Disassemble the damper hinges from the tub and base.
- ② Separate the dampers.

*** NOTE**

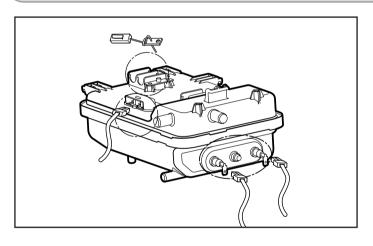
• Once removed, replace the damper with new one.

Checking the TSG (TURBO STEAM GENERATOR)

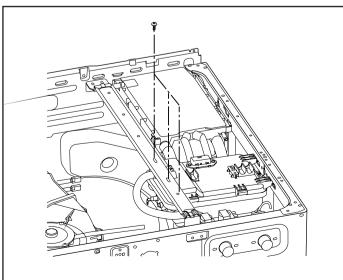


- ① To check out the fault diagnosis of TSG, in case of removing the water inside, you can pull out the plug and let the water drain away.
- ② Be cautious in case of the TSG is hot temperature.

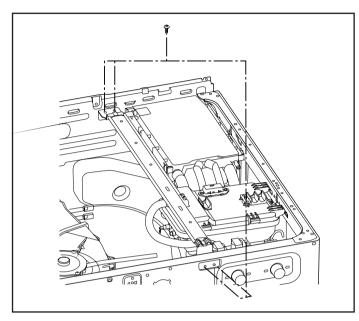
TSG (TURBO STEAM GENERATOR)



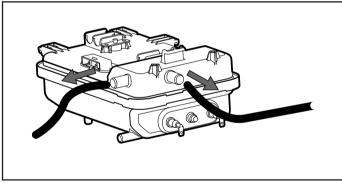
 Remove the housing coupled the TSG (Heater, Water level frequency-sensor, Thermistor)



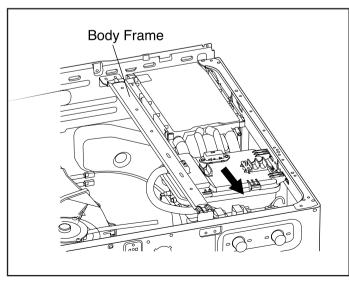
② Taking out the screw of the TSG and Body Frame.



③ Taking out the screws of Body Frame (2EA)



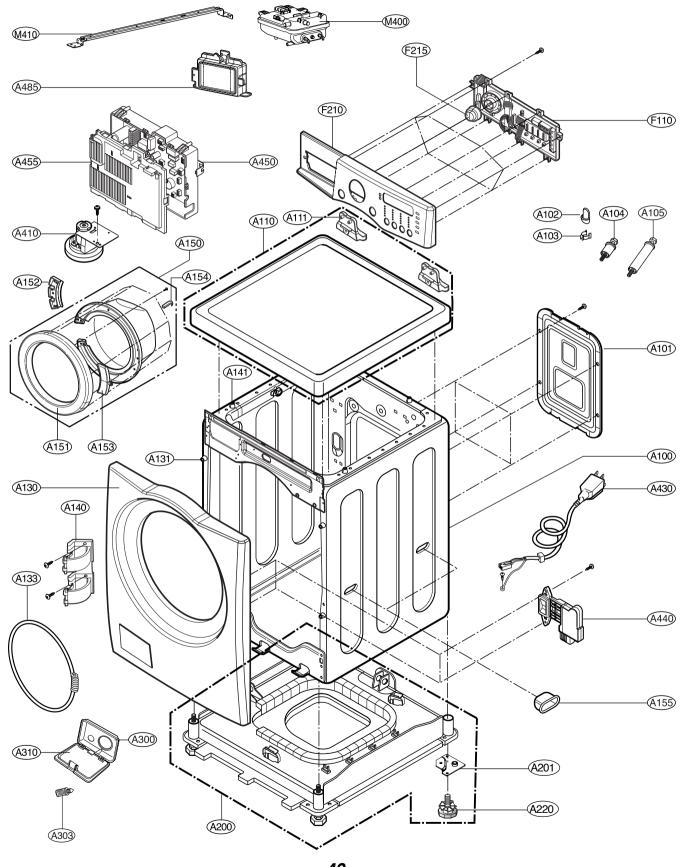
4 Separate the hoses from the TSG.



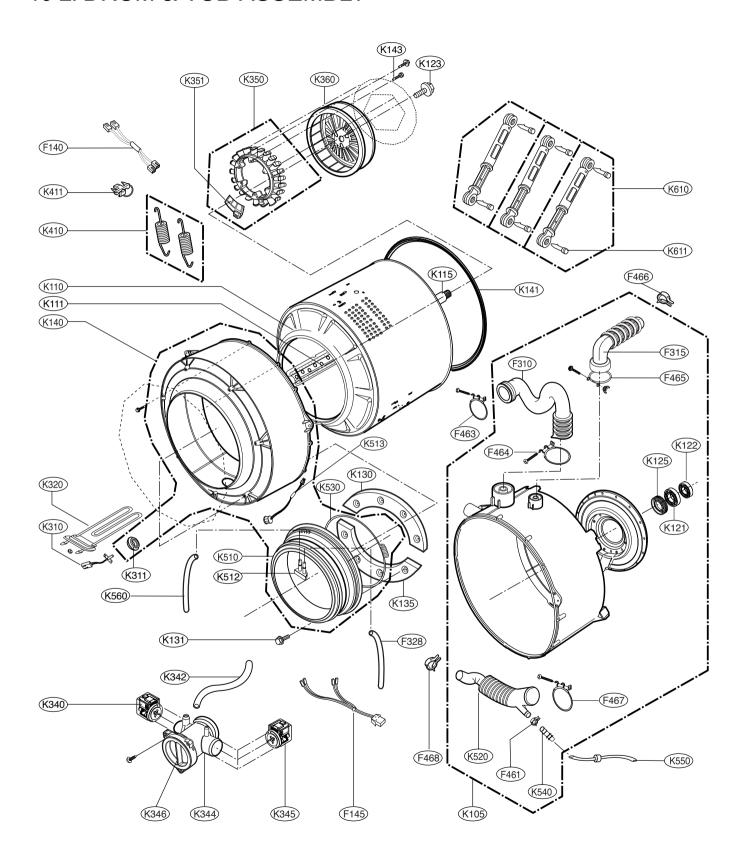
 $\ensuremath{\mbox{(5)}}$ Remove the Body Frame and then, separate the TSG from the washer

10. EXPLODED VIEW

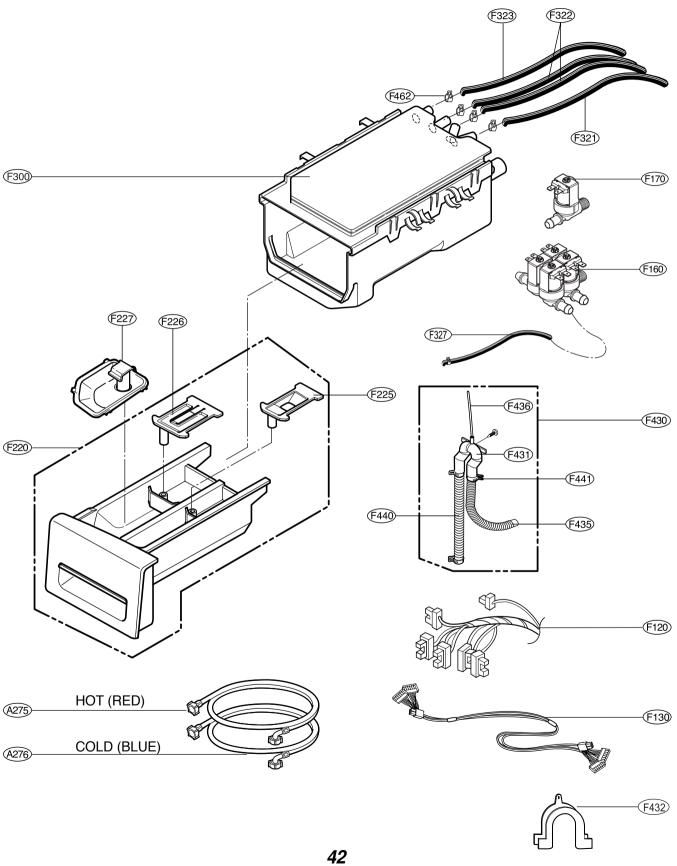
10-1. CABINET & CONTROL PANEL ASSEMBLY



10-2. DRUM & TUB ASSEMBLY



10-3. DISPENSER ASSEMBLY





P/No.: MFL31245501

JUN. 2006 PRINTED IN KOREA