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# WASHING MACHINE SERVICE MANUAL

### **A** CAUTION

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

## MODEL: WM2277H\*/WM2077CW/ WM2177H\*/WM2677H\*M



APR. 2004 PRINTED IN KOREA

P/No.:3828ER3018Y

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## **1. SPECIFICATIONS**

ITEM		WM2677H*M	WM2277H*	WM2177H*	WM2077CW								
COLO	R	W: BLUE WHITE, B: BLACK PEARL, S: TITANIUM											
POWER SUP	PLY	AC 120 V, 60 Hz											
PRODUCT W	/EIGHT	190 lbs. (86 kg)											
ELECTRIC POWER	WASHING	280 W											
CONSUMTION	DRAIN MOTOR	80 W											
	WASH HEATER		1000 W –										
	WASH			42 rpm									
REVOLUTION SPEED	SPIN	0-1320 rpm	0-1100	rpm	0-1000 rpm								
CYCLE	ËS	9		7	1								
WASH/RINSE TEMP	ERATURES		l	5									
SPIN SPEE	DS	5											
OPTIONS	6	Prewash, Stain Cycle, Quick Cycle, Extra Rinse, Rinse+Spin, Delay Wash											
CUSTOM PRO	GRAM	Incorporated											
WATER CIRCUI	LATION	Incorporated –											
OPERATIONAL WAT	ER PRESSURE	4.5-145 psi (30-1000 kPa)											
CONTROL T	YPE	Electronic											
WASH CAPACIT	Y [cu. ft.]	3.32 (3.83 IEC)	33 IEC) 3.22 (3.72 IEC)										
DIMENSIO	NS	27" (W) X 29 <sup>3</sup> / <sub>4</sub> " (D) X 38 <sup>11</sup> / <sub>16</sub> " (H), 50 <sup>13</sup> / <sub>16</sub> " (D, door open)											
DELAY WAS	SH	up to 19 hours	up to	o 12 hours	up to 9 hours								
DOOR SWITCH	I TYPE	PTC + Solenoid											
WATER LEV	/EL	10 steps (by sensor)											
LAUNDRY LOAD S	SENSING	Incorporated											
ERROR DIAGN	NOSIS		Inc	corporated									
AUTO POWEF	ROFF	Incorporated											
CHILD LOC	СК	Incorporated											
RLM ENAB	LE	Incorporated		_									

## 2. FEATURES & TECHNICAL EXPLANATION

## 2-1. FEATURES

















### 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 door opening make it possible

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

### Water Circulation

Spray detergent solution and water onto the load repeatedly. Clothes are soaked more quickly and thoroughly during the wash cycle. Detergent suds are eliminated more easily by the water shower during rinse cycle. The water circulation system uses both water and detergent more efficiently.

### RollerJets

Washing ball enhances wash performance and reduces damage to 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 automatically heats the water to the optimum temperature on selected cycles.

#### Child Lock

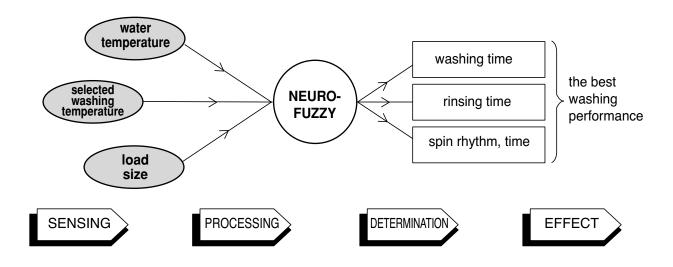
The Child lock feature prevents children from pressing any buttons to change the settings during operation.

### 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)

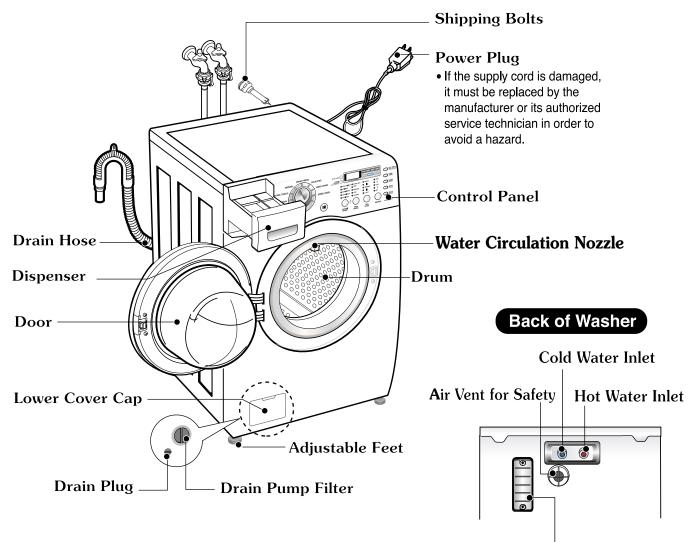
### 2-7. CHILD LOCK

- 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 (a) button. You can lock the washer while it is operating.

### 2-8. WATER CIRCULATION

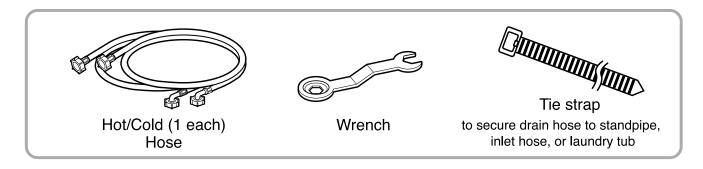
- When Washing and Rinsing function of shower at the upper part of Gasket.
- When Washing, it continuously operates for 3 minutes and intermittently.
- When Rinsing, it continuously operates after completion of water supply at first rinse.

## **3. PARTS IDENTIFICATION**



Safety Cover (PLC Moderm)

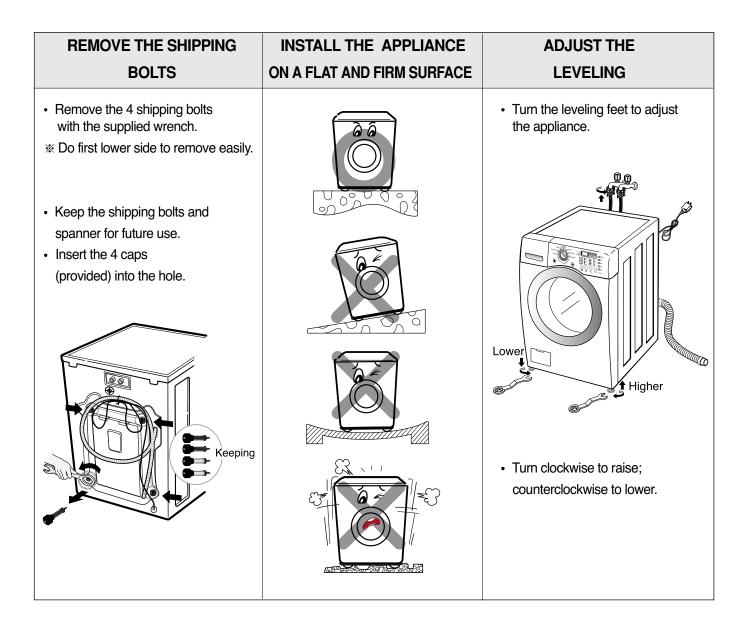
ACCESSORIES



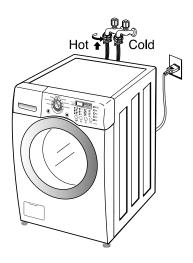
## 4. INSTALLATION & TEST

- 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

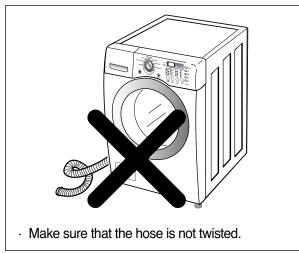
The appliance should be installed as follows:

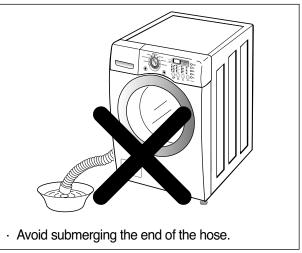


- HOW TO CONNECT THE INLET HOSE
  - Verify that the rubber washer is inside of the valve connector.
  - Tighten the inlet hose securely to prevent leaks.



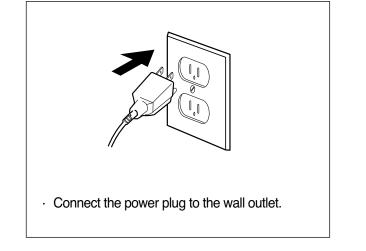
#### ■ CONNECT THE DRAIN HOSE

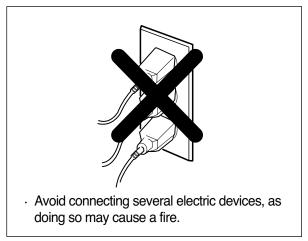




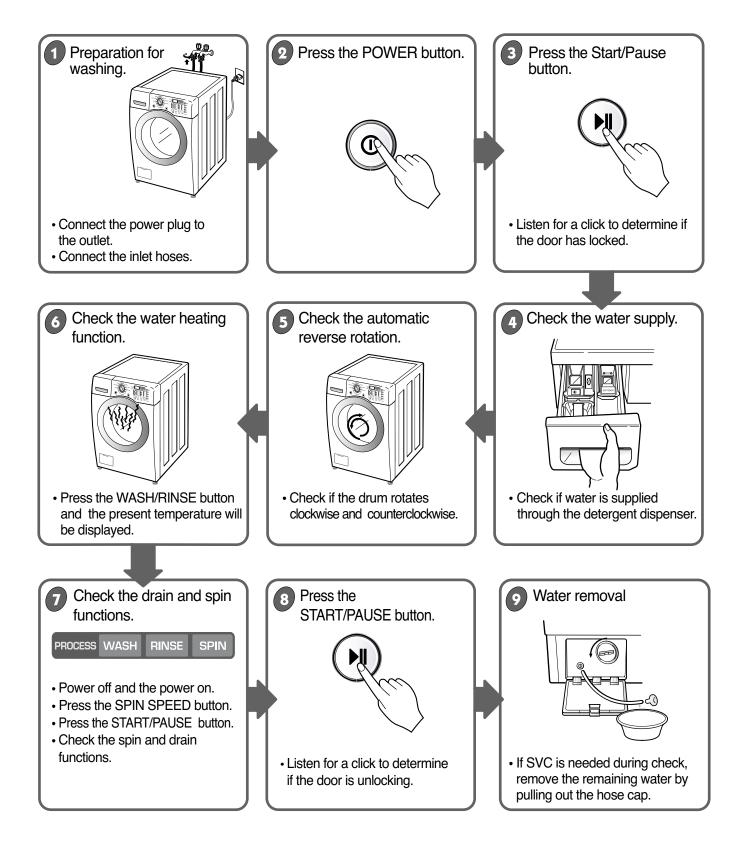
% The end of the drain hose should be placed less than 96" from the floor.

#### ■ CONNECT POWER PLUG





### **TEST OPERATION**



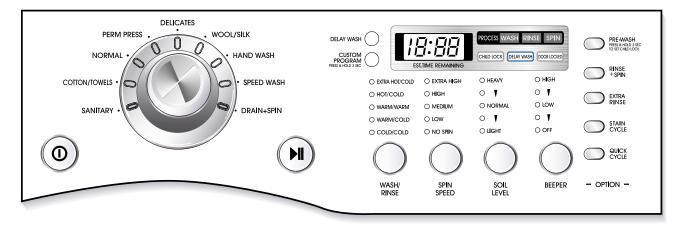
WM2277H\*/WM2177H\*

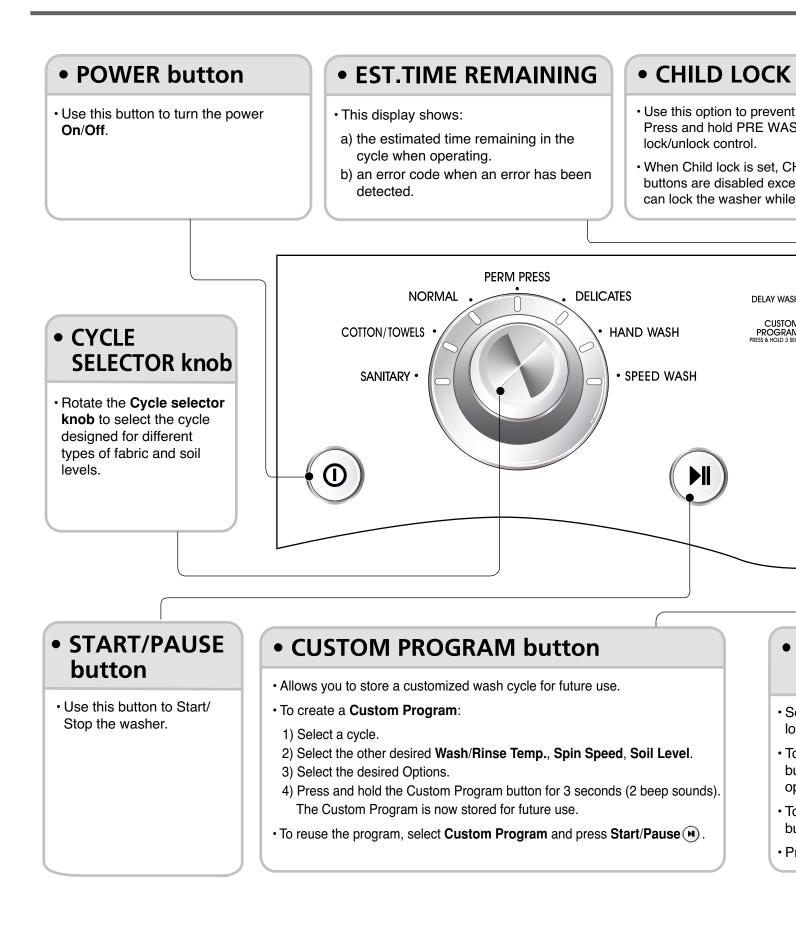


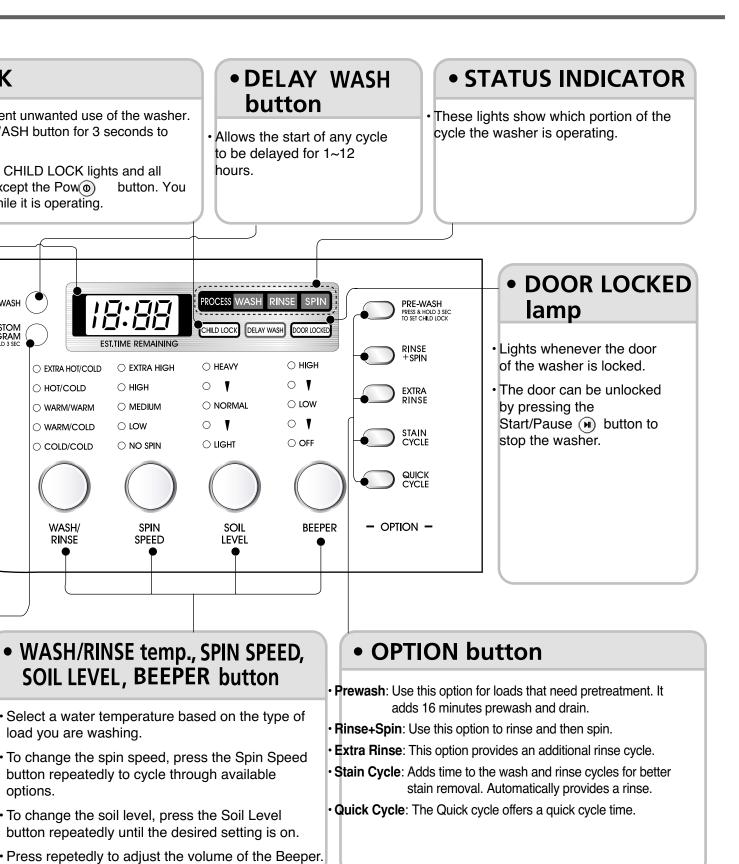
WM2077CW



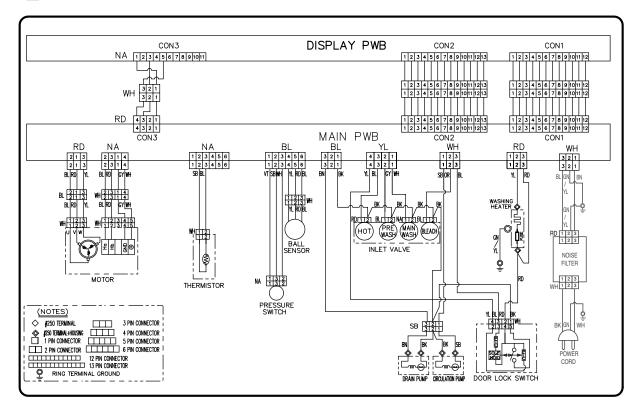
WM2677H\*M



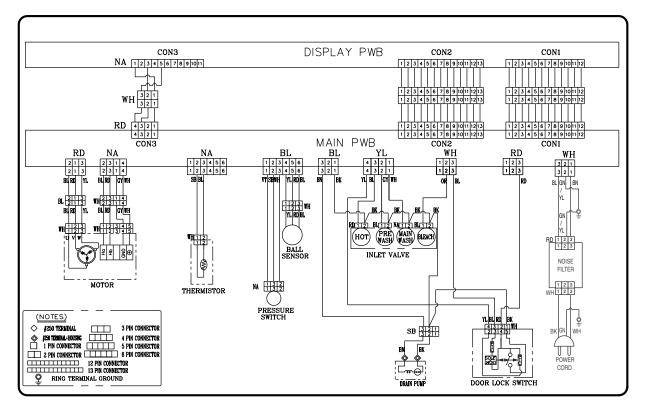




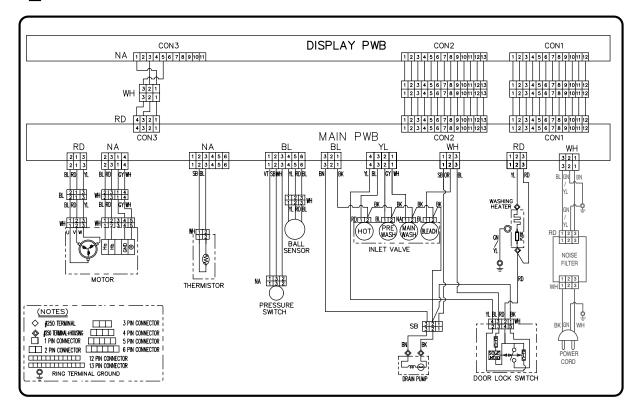
WM2277H\*



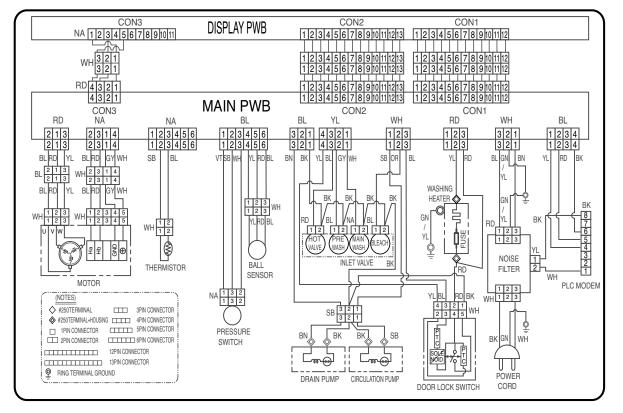
WM2077CW



WM2177H\*



WM2677H\*M



PROGRAM											* Water Supply: W–S * Intermittent Spin: I–S												S * Disentangle: D-T										
	Wash									Rinse																Spin				A			
		Pre	2				Mai	n					N	orm	nal				Ext	ra o	r Sta	ain	E>	dra a	& St	ain		•			ΙΥ		
172				_		Wa	ash	Coo	ol-do	wn		1				2				3				3						1E N	ò	**Approx.	
	W - S	Wash	Drain	  -  s	₩ S	Heat	Wash	⊗	Rinse	Drain	Drain	   	⊗ I ⊗	Rinse	Drain	- 	W - S	Rinse	Drain	<u> </u> s	₩ - S	Rinse	Drain	<b>–</b> s	W _ S	Rinse	Drain	Spin	D T	D	O F F	Working Time (Minutes)	
	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	(1111111100)	
E Time	60	*	60	300	60		*	60	60	60	60	360	60	240	60	360	60	240	60	300	60	240	60	300	60	240	60	360 ~ 660	) 60 ~ 180	20	20		
Sanitary		8					60																									105	
Cotton		8					67 13		TIM																				┢	$\vdash$	-		
/Towels							20		$\geq$	$\sim$																						58	
Normal		8					12 19		$\sim$	$\leq$									******													57	
Perm Press		8					18		$\sim$	$\langle \cdot \rangle$																						55	
Delicates		8					14	$\sum$	$\times$														/ /	$\geq$	$\leq$							34	
Wool /Silk		$\geq$	<				13		$\times$	$\sim$														>	<							34	
Hand Wash		>	<	$\langle$			14	$\triangleright$	$\succ$	<														>	<	$\leq$			—	—		34	
Speed Wash		>	<	$\overline{}$			8		$\times$	$\leq$				120				120				120		>	<	$\overline{}$				-		30	
Drain+Spin																																12	
Wash + Rinse		8					19		$\succ$	$\langle $									*****										$\geq$	$\overline{<}$	$\overline{}$	45	
Rinse + Spin						$\geq$	<	$\leq$	$\leq$	$\leq$													$\backslash$	$\geq$	$\leq$	$\leq$						29	

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.

## 7-1. BEFORE PERFORMING SERVICE

- Be careful of electric shock when disconnecting parts while troubleshooting.
- The voltage of each terminal is 110/120 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 (1) button, while the above condition. Then buzzer will sound twice.
- 3. Press the Start/Pause Dutton repeatedly to cycle through the test modes.

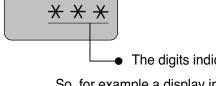
Number of times the Start/Pause button is pressed	Check Point	Display Status					
None	Turns on all lamps and locks the door.						
1 time	Tumble clockwise.	rpm (40~50)					
2 times	Low speed Spin.	rpm					
3 times	High speed Spin.	rpm					
4 times	Inlet valve for prewash turns on.	Water level frequency (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 (40~50)					
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 turns on.	Water level frequency (25~65)					
12 times	Power off and unlock the door.	Turn off all lamps.					

(; **F** : **E E**) : WM2077CW

(;;=:;=, ;): WM2677H\*M

## 7-3. HOW TO CHECK THE WATER LEVEL FREQUENCY

 $\ast$  Press the SPIN SPEED and SOIL LEVEL 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

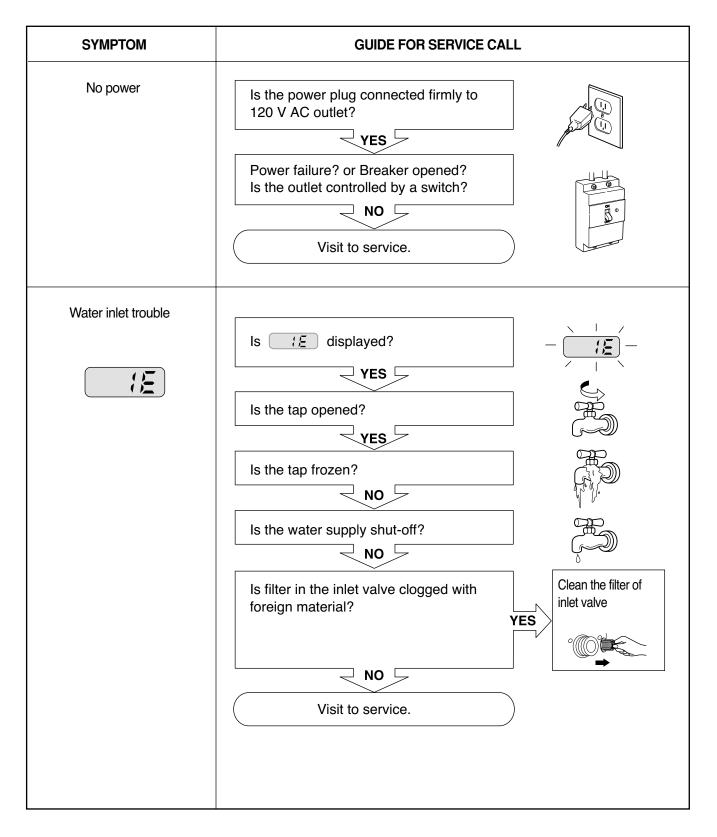
- If you press the START/PAUSE button when an error is displayed, any error except "PE \_ will disappear and the machine will go into the pause status.
- In case of *PE*, *FE*, *FE*, *fdE*, *if* the error is not resolved within 20 sec., or the in case of other errors, if the error is not resolved within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

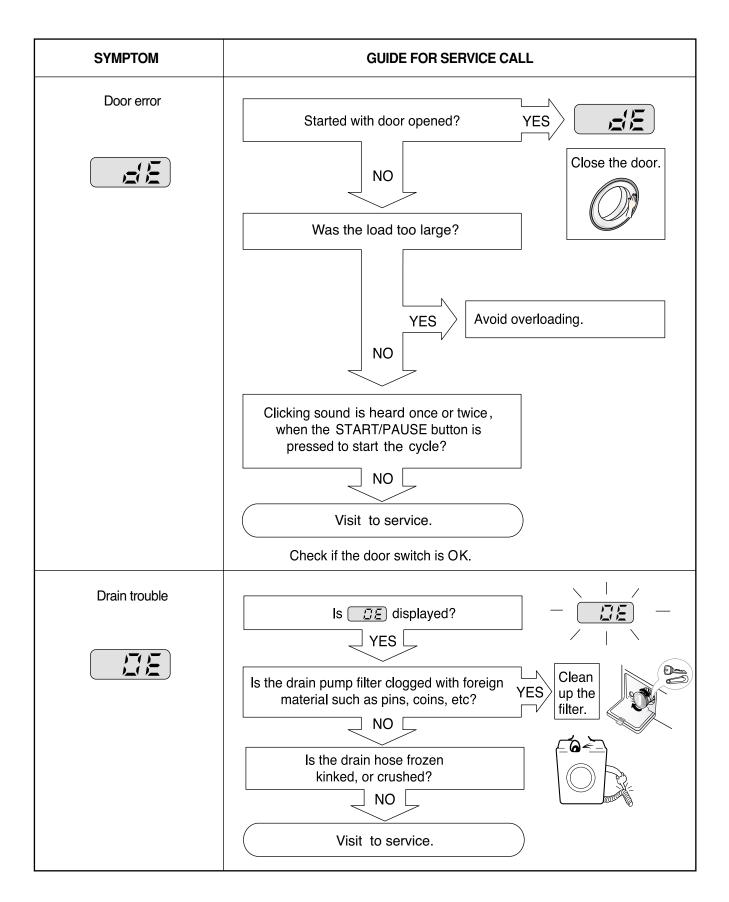
	ERROR	SYMPTOM	CAUSE
1	WATER INLET ERROR		<ul> <li>Correct water level (246) is not reached within 8 minutes after water is supplied or it does not reach the preset water level within 25 minutes.</li> </ul>
2	IMBALANCE ERROR		<ul> <li>The load is too small.</li> <li>The appliance is tilted.</li> <li>Laundry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

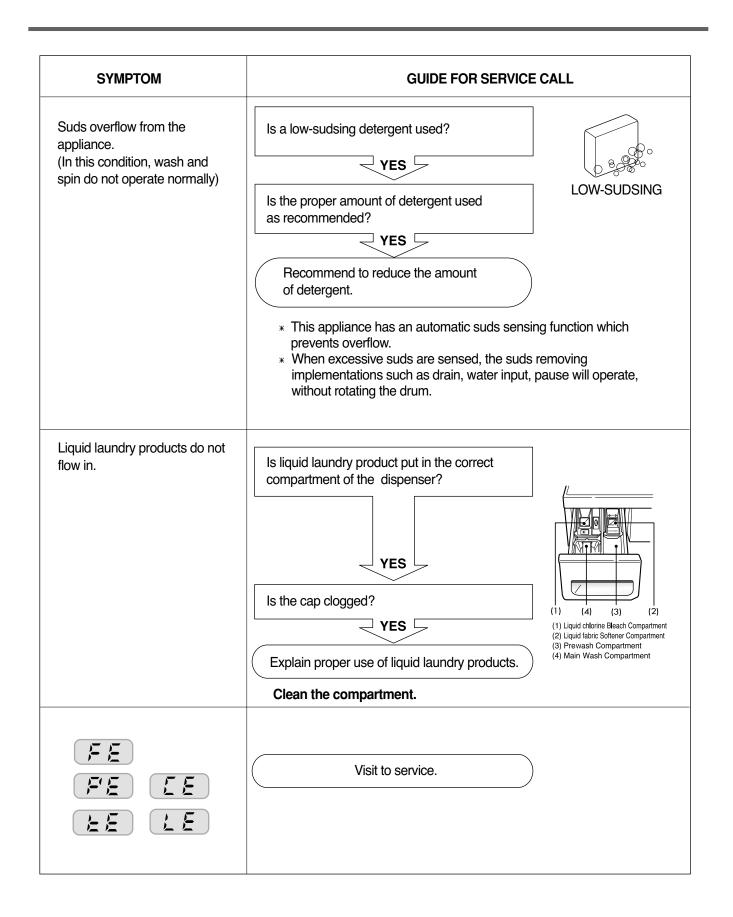
	ERROR	SYMPTOM	CAUSE
8	OVER CURRENT ERROR		<ul> <li>MAIN PWB ASSEMBLY is out of order.</li> <li>Winding in the STATOR ASSEMBLY is short-circuited.</li> </ul>
9	LOCKED MOTOR ERROR	ĿE	<ul> <li>The connector (3-pin, male, white) in the MOTOR HARNESS is not connected to the connector (3-pin, female, white) of STATOR ASSEMBLY.</li> <li>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.</li> <li>The MOTOR HARNESS between the STATOR ASSEMBLY and MAIN PWB ASSEMBLY is cut (open circuited).</li> <li>The hall sensor is out of order/defective.</li> </ul>
10	BALL SENSOR ERROR	<b>2 E</b>	<ul> <li>Loose Ball Sensor Connector.</li> <li>Ball Sensor is out of order.</li> <li>Misplayed only when the START/PAUSE button is first pressed in the QC Test Mode.</li> </ul>
11	EEPROM ERROR	EE	<ul> <li>EEPROM is out of order.</li> <li>Misplayed only when the START/PAUSE button is first pressed in the QC Test Mode.</li> </ul>
12	POWER FAILURE	, <b>;</b> ;;	• The washer experienced a power failure.

## 8. ERROR DIAGNOSIS AND CHECK LIST

## 8-1. DIAGNOSIS AND SOLUTION FOR ABNORMAL OPERATION



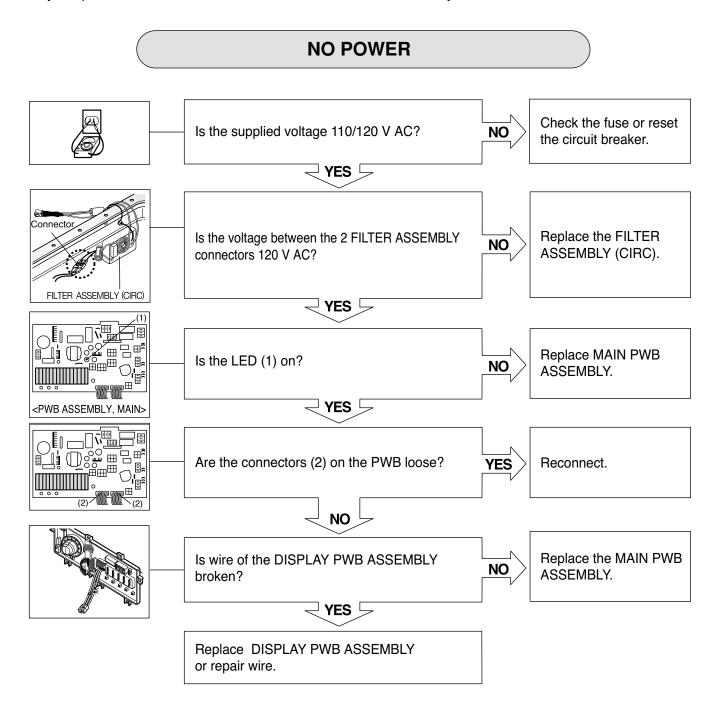


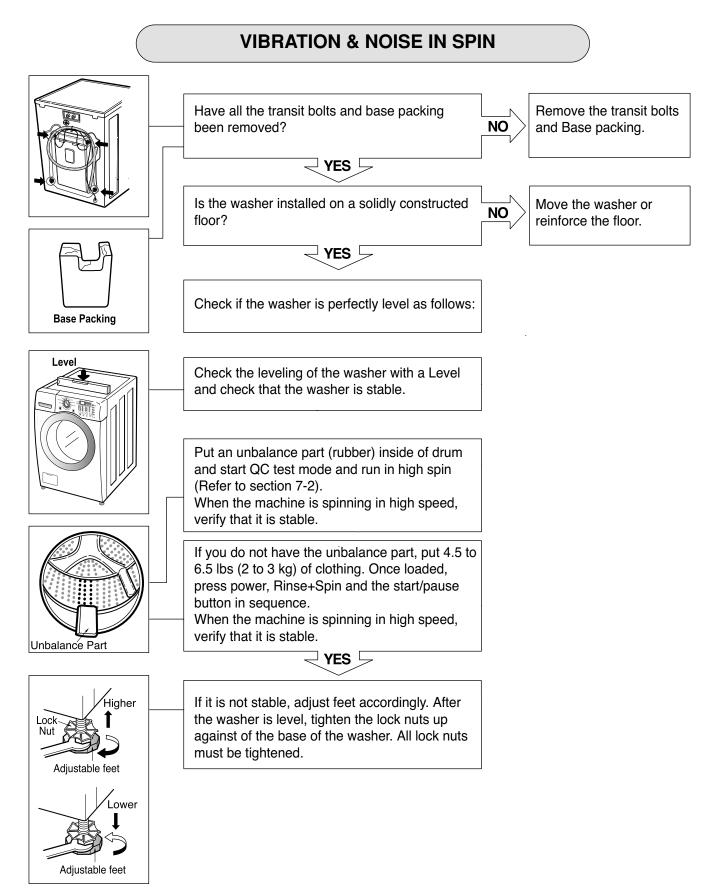


## 8-2. FAULT DIAGNOSIS AND TROUBLESHOOTING

### ▲ CAUTION

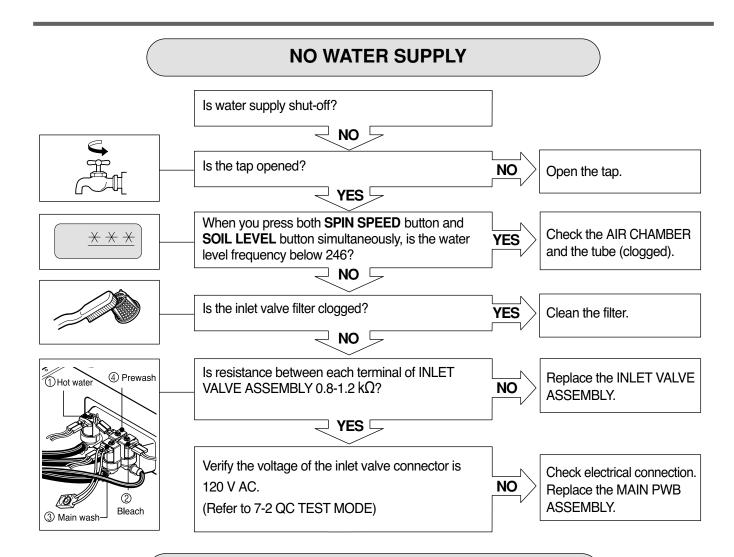
- 1. Be careful of electric shock if disconnecting parts while troubleshooting.
- 2. First of all, check the connection of each electrical terminal with the wiring diagram.
- 3. If you replace the MAIN PWB ASSEMBLY, reinsert the connectors correctly.



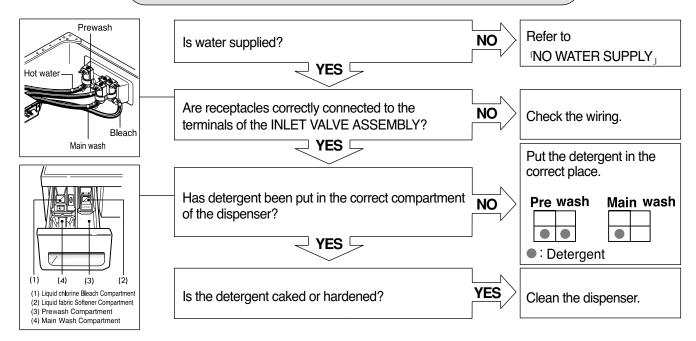


If it still has severe vibration and noise, regulate a specific spin speed that generates excessive vibration and noise as follows:

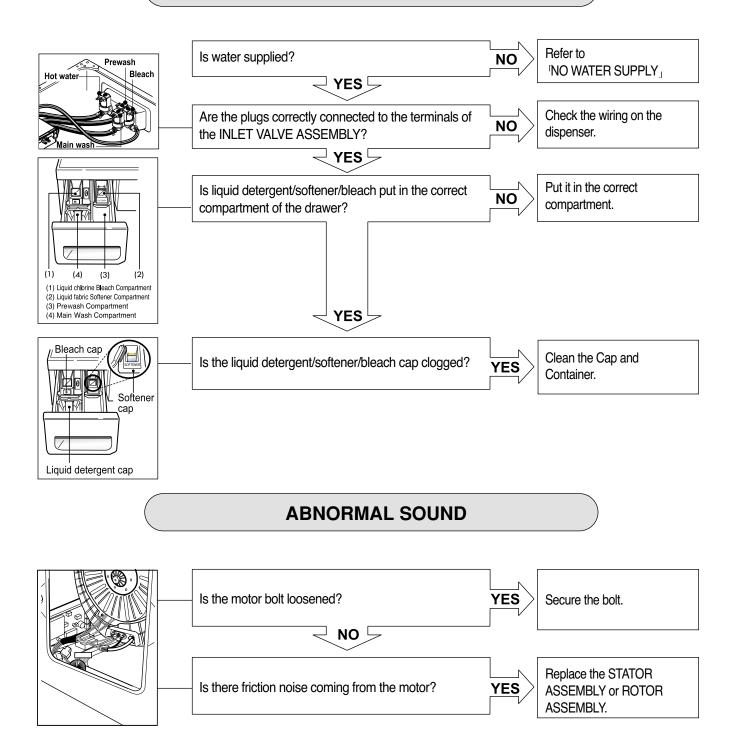
- 1) Put an unbalance part (rubber) inside of the drum.
- 2) Start the QC test mode (Refer to section 7-2).
- 3) Press Delay Wash button, then '  $\succeq \exists \succeq$  ' is displayed.
- 4) Press the Spin Speed button repeatedly to select Extra High.
- 5) Press the Quick Cycle button, the spin speed is displayed.
- 6) Press the Start/Pause button.
- 7) Press the Beeper button repeatedly to set spin speed (600, 900, 1020, 1120 rpm) and check if there is vibration and noise.
- 8) If there is no vibration and noise, increase the spin speed by pressing Beeper button.
- 9) If there is vibration and noise, rotate the Cycle selector knob clockwise to reduce the Spin Speed (reduce by 50 and 100 rpm). In case of 600 rpm, it can not reduce the spin speed.
- 10) If vibration and noise are reduced, press the Quick Cycle button to store (2 beep sounds).
- \* If you want to return to factory default spin speed setting, repeat above steps except step 9).



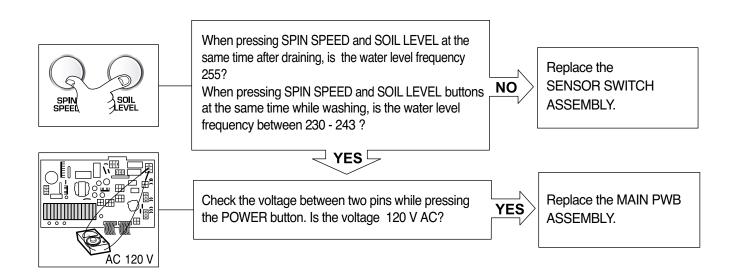
### DETERGENT DOES NOT FLOW IN



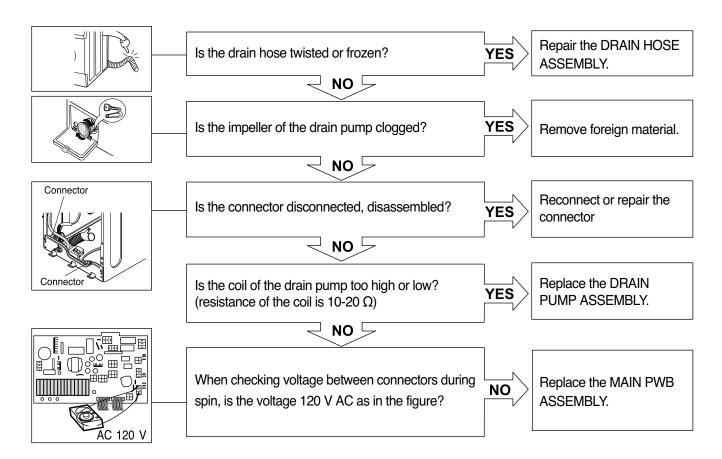
### (LIQUID DETERGENT/SOFTENER/BLEACH DOES NOT FLOW IN)



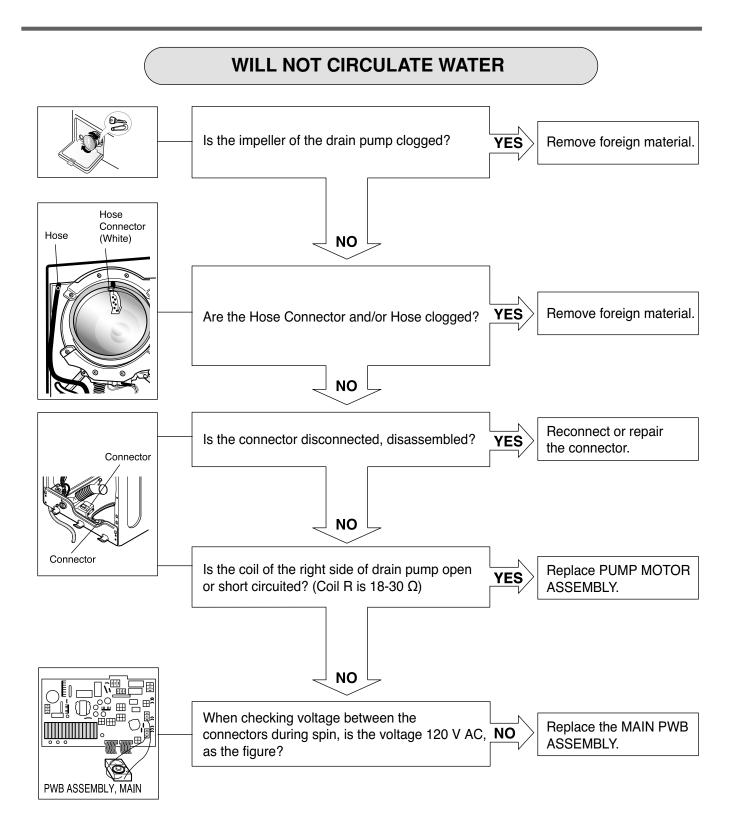
### **HEATING WITHOUT WATER**

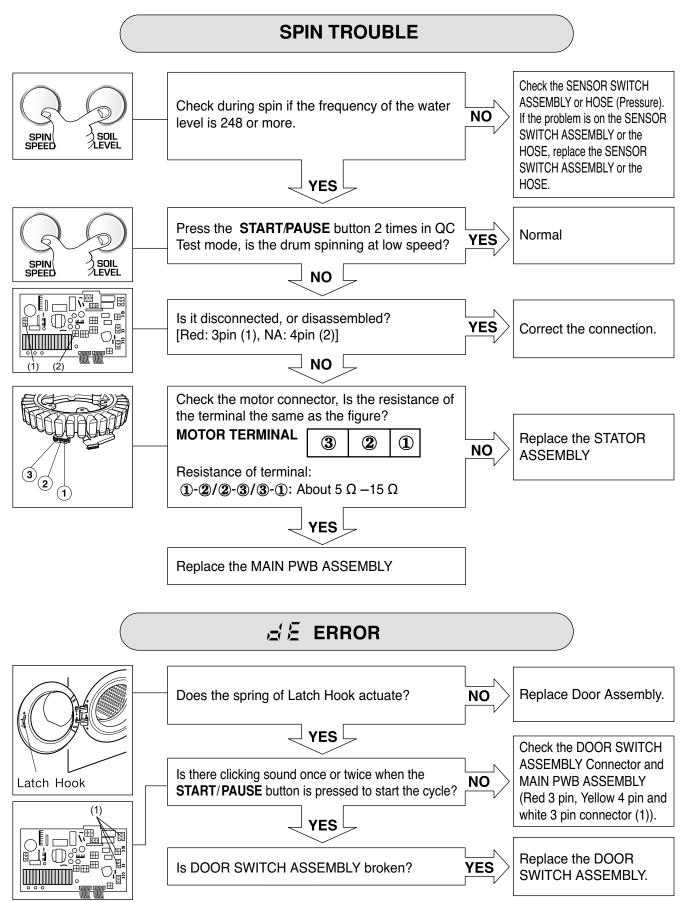


**DRAIN MALFUNCTION** 



#### WASH HEATER TROUBLE When checking the voltage between Replace the MAIN connector during whites washing. NO PWB ASSEMBLY. Is the voltage 110/120 V AC? YES AC 120 V After power off, is the resistance of wire (RED-YELLOW) connectors between RED YES Normal 10 Ω-30 Ω? Ø 123 YELLOW NO After power off and the heater terminal is Replace the YES disconnected, is the resistance 10-30 $\Omega$ ? PWB HARNESS. **HEATING CONTINUOUSLY ABOVE** THE SETTING WATER TEMPERATURE When pressing WASH/RINSE, Check if inlet hose is is the displayed temperature over 10 °C connected to a hot higher than the selected temperature? faucet; otherwise, NO Extra Hot: 70 °C replace MAIN PWB WA Hot: 50 °C ASSEMBLY. Warm: 40 °C Cold: 25 °C 🖵 YES 🖵 ШŪг Is the resistance between (2) and (3) Check electrical connection. ∐ျဴΩူး (4)(5)(6)NO ٥, of Connector (1) 2.5-180 kΩ? Replace THERMISTOR. 123 🖵 YES 🖵 Push the THERMISTOR When checking the THERMISTOR on the tub, YES tightly to the rubber. is the THERMISTOR loose?

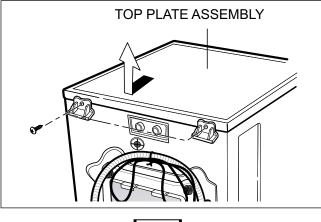




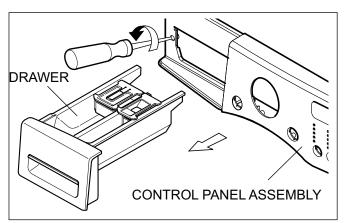
## 9. DISASSEMBLY INSTRUCTIONS

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

### CONTROL PANEL ASSEMBLY

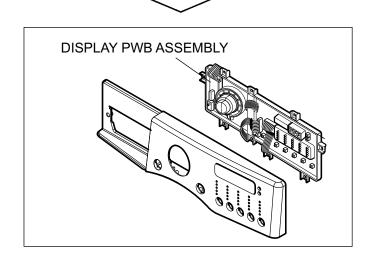






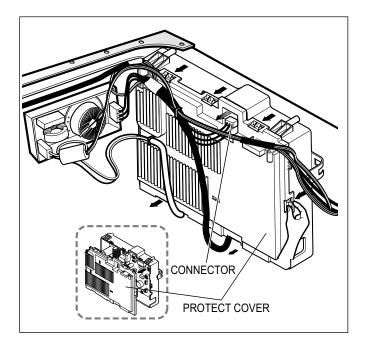
Unscrew 2 screws on the back of the top plate.
 Pull the top plate backward and upward as shown.

- (3) Disconnect the Display PWB Assembly connector from Trans cable.
- 4 Pull out the drawer and unscrew 2 screws.
- (5) Lift the left side of the Control Panel Assembly and pull it out.

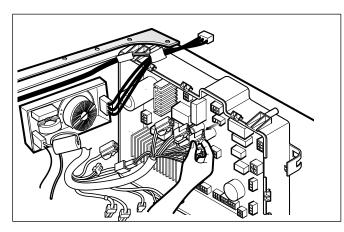


- 6 Unscrew the 9 screws from the Control Panel Assembly.
- O Disassemble the Display PWB Assembly.

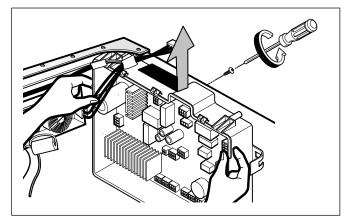
### MAIN PWB ASSEMBLY



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

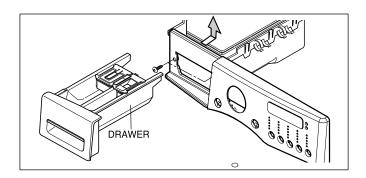


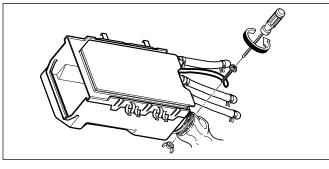
3 Disconnect the connectors.

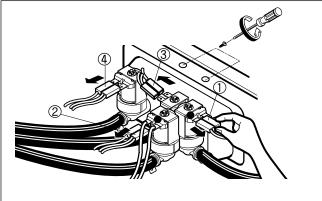


- 0 Unscrew 1 screw on the back.
- (5) Disassemble the Main PWB.

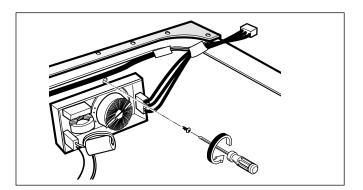
### DISPENSER ASSEMBLY







### NOISE FILTER



- $(\underline{)}$  Disassemble the top plate assembly.
- 2 Pull out the drawer.
- ③ Push out the DISPENSER ASSEMBLY after unscrew 2 screws.
- ④ Unscrew the nut at the lower part of the dispenser.

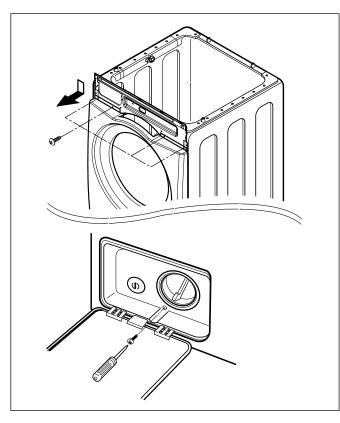
(5) Disassemble the 4 connectors from the valves.

Wire Color
① Blue Housing (OR-BK)
② White Housing (WH-BK)
③ Blue Housing (GY-BK)
④ Red Housing (BL-BK)

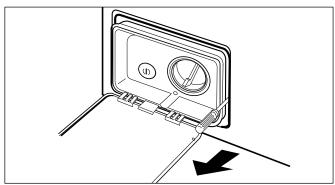
6 Unscrew 2 screws from the back of the cabinet.

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

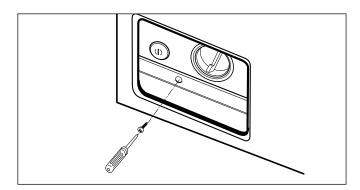
### CABINET COVER



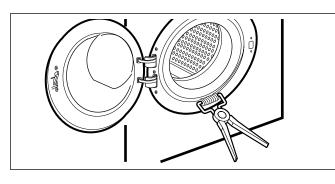
- ① Unscrew the 4 screws from upper of the canbinet cover.
- O Unscrew the screw from filter cover.



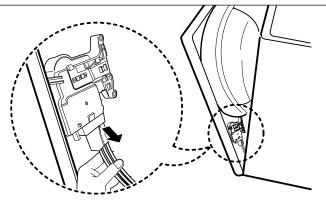
③ Put a flat ( – ) screwdriver or putty knife into the both sides of the filter cover, and pull it out.



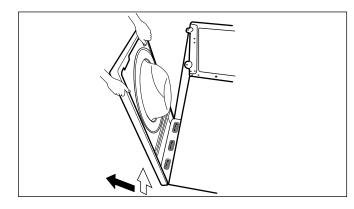
4 Unscrew the screw from the lower side of the cabinet cover.



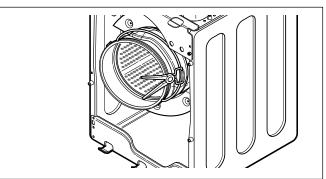
(5) Open the door.(6) Disassemble the clamp assembly.



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

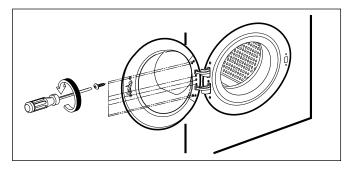


(9) Lift and separate the cabinet cover.

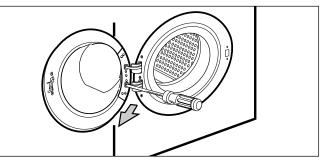


(i) Disassemble the clamp assembly.(i) Disassemble the Gasket.

### DOOR

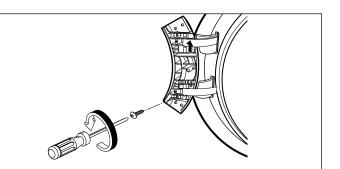


Open the door.
 Unscrew the 7 screws from the HINGE COVER.

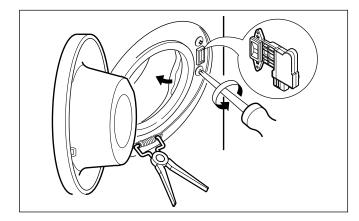


and pull out the hinge cover.

3 Put a flat ( - ) screwdriver into the openng of the hinge,



DOOR LOCK SWITCH ASSEMBLY



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

\* **Be careful!** The door is heavy.

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

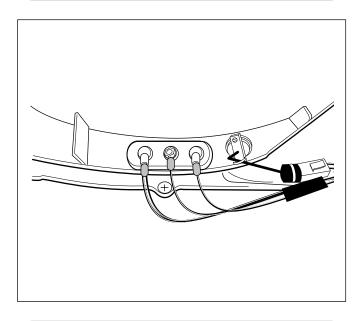
#### **\* NOTE**

• Reconnect the connector after replacing the DOOR SWITCH ASSEMBLY.

# PUMP HOSE PUMP HOSE BELLOWS

### HEATER

- 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.

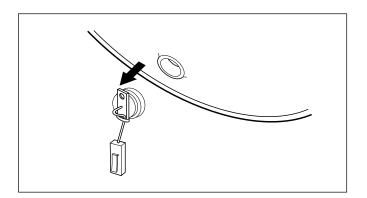


- Disassemble the cabinet cover.
- 0 Separate 2 connectors from the heater.
- (3) Loosen the nut and pull out the heater.

#### **\* CAUTION**

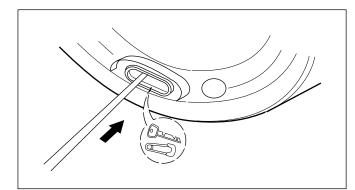
- When assembling the heater, insert the heater into the heater clip on the bottom of the tub.
- Tighten the fastening nut so the heater is secure.

### THERMISTOR

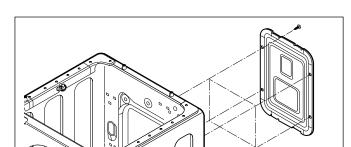


- 1 Disassemble the cabinet cover.
- O Unplug the white connector from the thermistor.
- ③ Pull it out by holding the bracket of the thermistor.

### WHEN FOREIGN OBJECT IS STUCK BETWEEN DRUM AND TUB

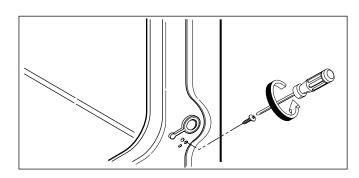


- Disassemble the cabinet cover.
- O Separate the heater from the tub.
- ③ Remove any foreign objects (wire, coin, etc.) by inserting a long bar in the opening.

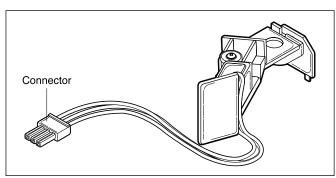


SENSOR ASSEMBLY (BALL SENSOR)

① Unscrew the 4 screws from the back cover.

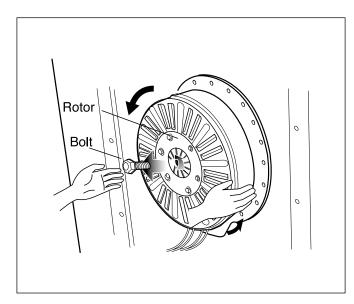


② Unscrew the single screw from the lower-right side of the cabinet.

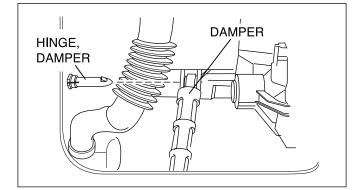


③ Disconnect the connector from PWB Harness.

### MOTOR/DAMPER



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



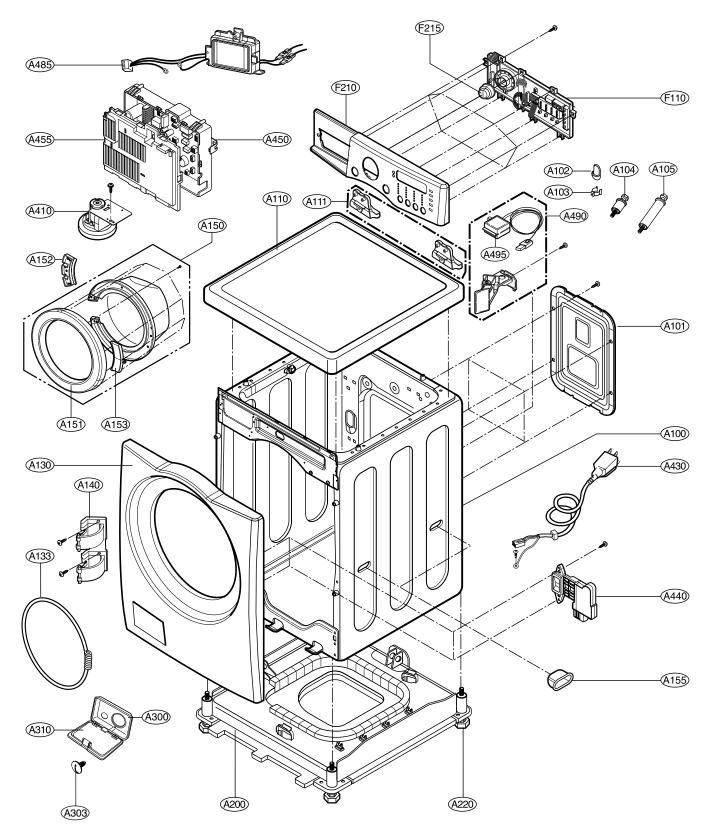
- Unscrew the 2 screws from the tub bracket.
- 0 Remove the 6 bolts on the stator.
- 3 Unplug the 2 connectors from the stator.

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

### \* NOTE

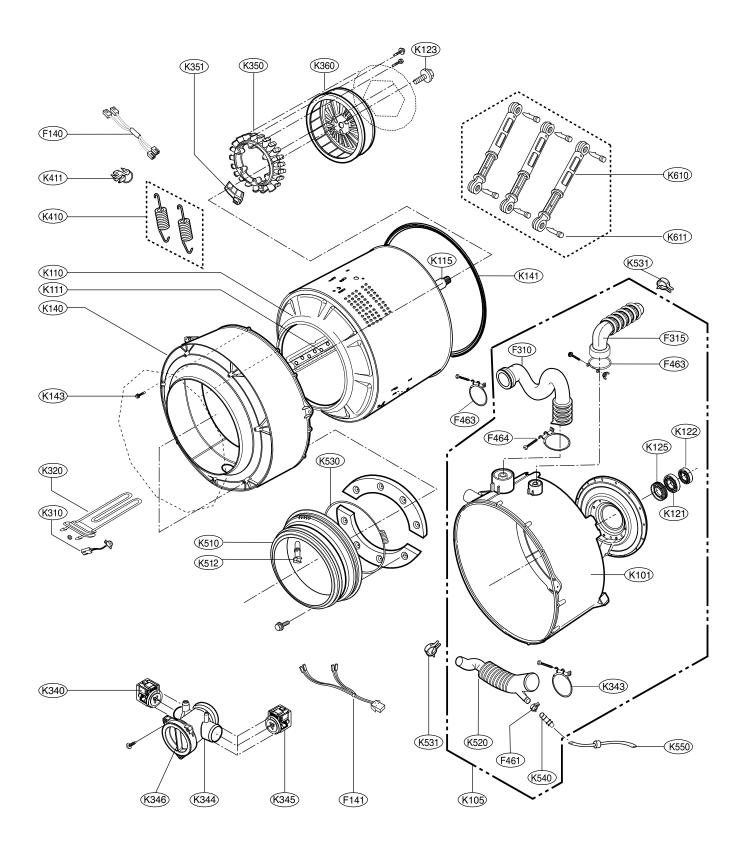
• Once removed, replace the damper pin with new one.

## 10-1. CABINET & CONTROL PANEL ASSEMBLY



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### 10-2. DRUM & TUB ASSEMBLY



## 10-3. DISPENSER ASSEMBLY

