

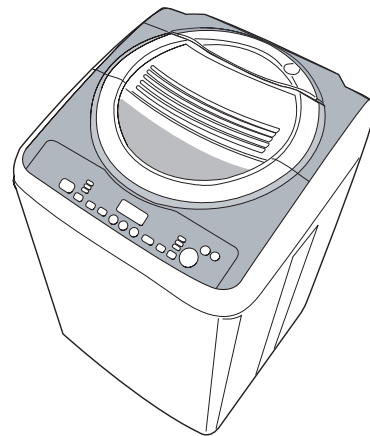
**TOSHIBA**

FILE NO. B60-201027

SERVICE MANUAL

**FULLY AUTOMATIC  
WASHING MACHINE**

***AW-SD150SBO  
AW-SD150SBA***



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## 1. SPECIFICATIONS

Model		AW-SD150SBO	AW-SD150SBA
Revolution	Wash	<b>50Hz : 70 - 150 rpm</b>	
	Spin	<b>50Hz : 760 rpm</b>	
Water Level		High : 105 L, LOW : 36 L	
Water Consumption		Regular cycle : 250 L	
Motor	Type	Capacitor Motor	
Water Pressure		0.03 ~ 1 Mpa	
Hot Water		50 degrees C or less	
Overall Dimension		W: 685 mm x D: 685 mm x H: 1088 mm	
Net Weight		50 kg	
Capacity	Wash	14.0 kg	
	Spin		
Power Source		230 - 240 V, 50Hz	220 V, 50Hz
Plug Type		3P	3P
Power Consumption	Wash	370 W	350 W
	Spin	140 W	140 W
Destination		Oman	UAE

Specifications are subject to change without notice.




## 2. CAUTIONS FOR SAFETY





- Please observe the following important notes on safety.
- The notes mean as follows.

Symbol	Meaning
 <b>WARNING</b>	Indicates possibility of death or serious injury of a repair technician and a person nearby through the misconducted work, or of a user by a defect of the product after the work performed by the technician.
 <b>CAUTION</b>	Indicates possibility of injury or physical damages* of a repair technician and a person nearby through the misconducted work, or of a user by a defect of the product after the work performed by the technician.











\* Means secondary damages of property, furniture, domestic animal and pet.

### Graphic symbols





Graphic Symbol	Meaning
 <b>ELECTRIC SHOCK</b>	△ indicates a caution (including a warning). Specific instruction is followed by a graphic or characters in or near △. Symbol left warns an electric shock.
 <b>DO NOT DISASSEMBLE</b>	⊘ indicated prohibition (act must not be conducted). Specific instruction is followed by a graphic or characters in or near ⊘. Symbol left warns not to disassemble.
 <b>UNPLUG</b>	● indicates a forcing (act must be conducted). Specific instruction is followed by a graphic or characters in or near ●. Symbol left warns to unplug the power cord.

 <b>WARNING</b>	
 <b>OUT OF CHILD</b>	<ul style="list-style-type: none"> <li>■ <b>Advise the customer to keep children out of the work place.</b> Children may be <b>injured</b> with a tool or a disassembled part.</li> </ul>
 <b>UNPLUG POWER</b>	<ul style="list-style-type: none"> <li>■ <b>Unplug the power cord for the work unnecessary to power on like disassembling. Do not hold the plug by a wet hand.</b> Failing to unplug may cause <b>an electric shock</b>.</li> </ul>
 <b>USE REPAIR PARTS</b>	<ul style="list-style-type: none"> <li>■ <b>Use the specified repair parts when repairing the product.</b> Otherwise, a malfunction or a defect may occur. Also, <b>a short circuit, ignition</b> or other danger to the customer may occur.</li> </ul>

## **WARNING**

 <b>CHECK INSULATION RESISTANCE</b>	<ul style="list-style-type: none"> <li>■ <b>After the end of working, measure insulation resistance between the charging part (power cord plug) and the non-charging metallic part (ground) with an insulation resistance meter (500 V) and check the resistance is 10 MΩ or more.</b> Failing to check the insulation resistance may cause a <b>short circuit, an electric shock</b> or other diseases to the customer.</li> </ul>
 <b>DO NOT MODIFY</b>	<ul style="list-style-type: none"> <li>■ <b>Do not modify the product.</b> An <b>electric shock</b> or <b>ignition</b> may occur.</li> </ul>
 <b>DO NOT DISASSEMBLE AND REPAIR</b>	<ul style="list-style-type: none"> <li>■ <b>Only a repair technician can disassemble and repair.</b> An <b>electric shock, ignition</b> or malfunction may cause <b>injury</b>.</li> </ul>
 <b>USE EXCLUSIVE SOCKET</b>	<ul style="list-style-type: none"> <li>■ <b>Use an exclusive 220 VAC/17 A socket for the washing machine.</b> Otherwise, an <b>electric shock</b> or <b>ignition</b> may cause. Sharing the same socket with other instrument causes heating of a branch socket and result in a <b>fire</b>.</li> </ul>
 <b>CONNECT GROUNDING WIRE</b>	<ul style="list-style-type: none"> <li>■ <b>Connect the grounding wire.</b> Failing to do so may cause an <b>electric shock</b> when a short circuit occurs. Consult an electric work shop or a sales shop.</li> </ul>
 <b>DO NOT USE WET PLACE</b>	<ul style="list-style-type: none"> <li>■ <b>Do not install in a bath room or a place exposed to wind or rain.</b> An <b>electric shock</b> or a <b>short circuit</b> may cause a <b>fire</b>.</li> </ul>
 <b>DO NOT SPLASH WATER</b>	<ul style="list-style-type: none"> <li>■ <b>Do not pour or immerse the electrical parts.</b> An <b>electric shock</b> or <b>ignition</b> may occur.</li> </ul>
 <b>REMOVE DUST</b>	<ul style="list-style-type: none"> <li>■ <b>Wipe off the dust adhered to the plug of the power cord.</b> Dust may cause a <b>fire</b>.</li> </ul>
 <b>AVOID INFLAMMABLE</b>	<ul style="list-style-type: none"> <li>■ <b>Do not put inflammable into the washing tub.</b> Do not put cloths stained with kerosene, gasoline, benzene, thinner, alcohol. etc. It may cause a <b>fire</b> or <b>explosion</b>.</li> </ul>
 <b>DO NOT TOUCH</b>	<ul style="list-style-type: none"> <li>■ <b>Do not touch the laundry before the spin basket stops completely.</b> The laundry entangles your hand causing an <b>injury</b> even if the basket rotates slowly. Pay special attention to children.</li> </ul>

## CAUTION

 <b>INSTALL CAREFULLY</b>	<ul style="list-style-type: none"> <li>■ <b>Ask an electric work shop to install the product. Install the product securely and safely according to the electrical equipment technical standard and the wiring standard.</b> Incorrect work causes <b>an electric shock</b> and <b>a fire</b>.</li> </ul>
 <b>DO NOT PULL</b>	<ul style="list-style-type: none"> <li>■ <b>Do not pull the power cord when unplugging.</b> Hold the power plug to unplug. <b>An electric shock</b> or <b>short circuit</b> may cause <b>a fire</b>.</li> </ul>
 <b>DANGER HAND</b>	<ul style="list-style-type: none"> <li>■ <b>Do not insert your hand under the washing machine during operation.</b> There is a rotary part under the machine which may cause <b>an injury</b>.</li> </ul>
 <b>WATER LEAKAGE</b>	<ul style="list-style-type: none"> <li>■ <b>Before starting washing, open the faucet and check that the water supply hose joint is not loose and no water leaks.</b> The loose screw or hose joint may cause water leakage resulting in an unexpected <b>damage</b>.</li> </ul>

### 3. CAUTIONS FOR MICROCOMPUTER OPERATION

When changing the cycles or procedures of the operation on the way, the operation will not be changed even if the START/HOLD button is pushed.  
When changing the cycles or the procedures of the operation, please turn off the power switch and set them again.

When the power switch is not turned on, the operation is not performed even if the clock display appears.  
(When the clock display appears on the display panel, it may lead misunderstanding to control the operation. But the operation is not performed in this condition.)

## 4. Technical Points

### One-Point Information

#### About operation switching by clutch mechanism

##### 1. About Clutch Mechanism

Switch washing operation and spinning operation by a sliding clutch mechanism. The sliding clutch is operated by pulling and pushing back the clutch lever.

- 1) When washing operation is performed, the teeth on the top of the clutch fit into the teeth of the lock gear on the upper part of the product (on cup assy side). Fig.3
- 2) When spinning operation is performed, the teeth on the bottom of the clutch fit into the teeth of the boss on the lower part of the product (on rotor side). Fig.2

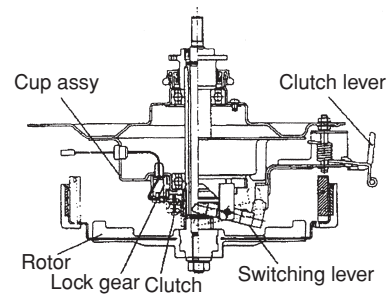


Fig.1 Clutch mechanism

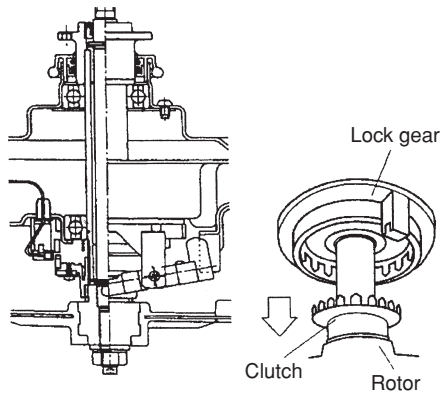


Fig.2 Clutch condition during spinning operation

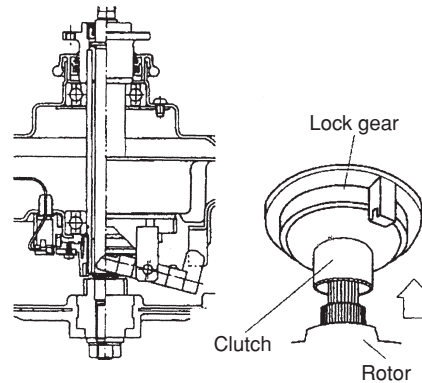


Fig.3 Clutch condition during washing operation

## One-Point Information

### 2. About Operation Switching

#### Wash → Spin clutch switching

- ① Pull the drain valve. (Pull the clutch lever.)
- ② The pulsator rotates forwards while repeating small forward and reverse rotations.
- ③ Clutch switching is completed when both the wash tub and the pulsator start rotating.  
 In the case where the clutch is not switched even after the clutch switching is attempted 4 times, fill the wash tub with water again and fluff the laundry, then perform the same switching operation. If the clutch is still not switched, the error Ec6 is displayed.  
 Sometimes, clutch switching operation is performed by filling the wash tub with water at the start of spinning.  
 (See Page 23 for details of Ec errors.)

#### Spin → Wash clutch switching

- ① The drain valve returns. (The lever returns.)
- ② Spin tub makes small forward and reverse rotations.
- ③ The spin tub makes large forward and reverse rotations at a low speed.
- ④ Clutch switching is completed when only the pulsator starts rotating.  
 In the case where the clutch is not switched even after the clutch switching is attempted 6 times, fill the wash tub with water and let it stand for 3 minutes, then perform the switching operation again. If the clutch is still not switched, rotate the wash tub by 180 degrees and perform the same switching operation. If the clutch is still not switched, the error Ec5 is displayed. (See Page 23 for details of Ec errors.)  
 Note) If the washing operation was originally being performed, the clutch switching is not performed but the washing operation starts immediately.

### 3. About operation of wash tub

Process	Operation
Wash process & when wash process is stopped	Just as the current models, the wash tub does not rotate even if it is not turned clockwise or counterclockwise direction. The wash tub stops at multiple positions (at one of the 18 points for every 20 degrees)
When spin process is suspended. (When the lid is opened during spin process)	Just as the current models, the wash tub rotates freely both in clockwise or counterclockwise direction. When a long time (30 minutes) has elapsed, the machine is switched to the clutch switching standby status.
At the start of spinning	After rotating in the reverse direction at the start of spinning, the main spinning is performed. (This control is adopted from E-series.) <div style="text-align: center;"> </div>
When the power is turned off during spin process	Just as the current models, brake is applied to stop rotation. When the rotation stops, the clutch lever returns and the machine is switched to the clutch switching standby status.

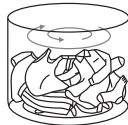
## One-Point Information

### About Concentrated Bubble Wash

#### 1. Outline

Put the laundry in the basket and start the machine. The sensor will weigh clothes and begin flowing water.

- 1** The pulsator begins to revolve 6 seconds after startup under none-water situation, and clothes are weighed.



- 2** Flowing water starts. Put in detergent according to the reference value through entry gate of "Washing Spinning Tub", followed by softening agent. Close the lid. Display of detergent amount.

#### ■ How to put detergent

Referring to the indicated detergent amount, put the detergent into the detergent dispenser of the wash/spin tub. Excessive detergent may lead to excessive suds or insufficient rinsing.

If the water level is set to too low, some detergent may be left in the dispenser.

In this case, put the detergent inside the wash/spin tub around its peripheral.

\* There are 2 dispensers.

Choose more convenient one to put in the detergent.

• When changing the dispenser position

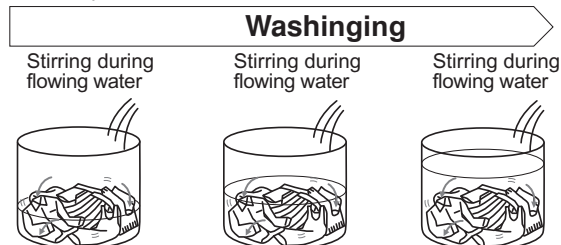
Turn on the power, set spin only while the lid is open, and then start the machine.

After "E21" is displayed, rotate the wash/spin tub manually to adjust the dispenser position. Then, turn off the power.



- 3** The water level indicator will be lighted when flowing water ends by reaching the preset water level.

• When a chemical fiber, blending fiber or spreadsheet is washed, the water level may be a little bit low. Adjust the water level by "WATER LEVEL" button.



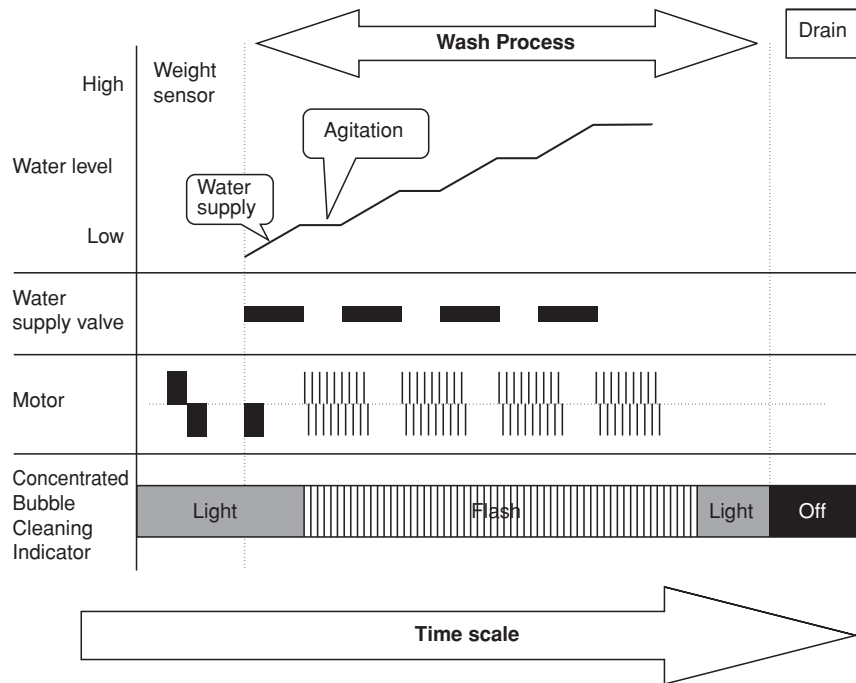
Stirring starts during flowing water while washing and flowing water are executed simultaneously. Times of flowing water differ depending on clothes weight and rinsing frequency.



## One-Point Information

### 2. Operation Cycle

Example : At high water level



Number of levels of water supply and agitation vary depending on the washing load.

Washing load	Number of levels of water supply and agitation
8.1 kg and above	4 levels
1.1 ~ 8.0 kg	3 levels
Below 1.0 kg	2 levels

- \* When increasing the number of rinsing for the reason that the tub has already been filled with water, the above number of levels may become less.
- \* Agitation varies depending on the washing load
- \* If washing time (preset: 15 minutes) is changed in the midst of wash process, agitating time in each level becomes shorter.

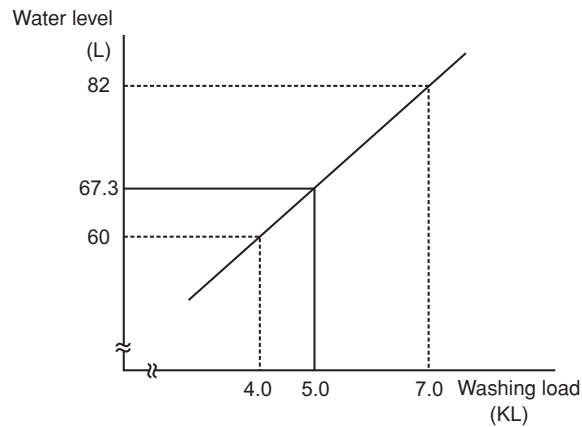
## One-Point Information

### About Linear Water Level

When "Standard", "Soak", "Memory", "Heavy", "Delicate" or "Softener" is set, the weight sensor automatically sets the most suitable water level for the washing load on a linear basis to save water.

Setting is made based on the 4-levelled water level for manual setting. For example, when the detected washing load is 5.0kg, the most suitable water level of 67.3L is automatically set by proportional calculation between the first level of 82L for washing load of 7.0kg and the second level of 60L for washing load of 4.0kg. The display indicator for the lower water level, i.e., 60L for this example, turns on.

AW-SD150S Type	
Manually set water level	Washing load
1	105L
2	82L
3	60L
4	36L



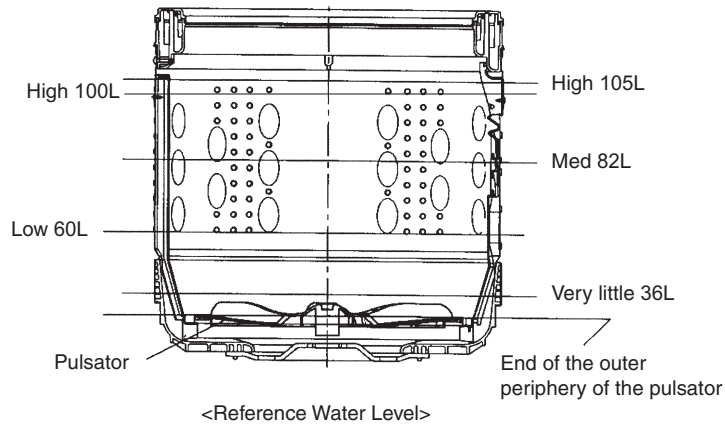
Water level of 36L is very low as the blade of the pulsator is not fully covered with water. However, this water level is suitable for washing the washing load of 1.0kg or below. It is not an abnormal level.

## One-Point Information

### Relation between oscillation frequency and water level

The table below shows the relation between oscillation frequency and water level.

Water level	Water amount	Oscillation frequency	Distance from the top edge of the outer periphery of the pulsator	Reference water level
No water reset	–	26.40kHz and above	–	–
	–	26.05kHz	–	–
	36L	25.10kHz	100±30 mm	Refer to the figure below.
	60L	23.80kHz	200±30 mm	
	82L	23.00kHz	280±30 mm	
	100L	22.05kHz	400±15 mm	
105L	22.00kHz	410±15 mm		



**One-Point Information**

**Washing Process Chart**

Course	Water level *Note1	Wash										Rinse																Spin												
		Weight detection	Water supply	Pre-agitation	Water flow detection	Wash	Ravel	Drain	Spin	Stop	Brake	Shower rinse 1				Shower rinse 2				Static rinse 1				Static rinse 2				Drain	Spin	Stop	Buzzer									
												Water filling	Spin	Stop	Brake	Water filling	Spin	Stop	Brake	Water supply	Pre-agitation	Rinse	Ravel	Drain	Spin	Stop	Water supply					Pre-agitation	Rinse	Ravel						
Condensed Regular	Linear auto setting (36L~105L)	(High water level condition)																																						
Memory	Wash	■																																						
	Rinse one time											■								■																				
	Rinse two times											■								■																				
	Rinse three times											■								■																				
	Rinse four times											■								■																				
	Spin	nil																											■											
Output	Water supply valve	■		■		(supplementally water filling)		■		■		■		static rinse		over flow rinse		static rinse		over flow rinse																				
	Softener water supply valve																			■																				
	Motor	Forward rotation (CCW)									■		■		■		■		■		■		■		■		■		■		■		■		■		■		■	
		Reverse rotation (CW)									■		■		■		■		■		■		■		■		■		■		■		■		■		■		■	
	Drain valve											■				■				■				■				■												
Lid Lock											■																■													

Note1 : AW-SD150S Type 36L ~ 105L

Note2 : When "Wash" is not set, the water level will automatically be set to high.

- In the case where the power is turned on ( the power button is pressed ) but no operation is performed, the power is turned off in 10 minutes.

**One-Point Information**

**Soak • Heavy wash • Delicate Course**

Course	Water level	Wash										Rinse										Spin																					
		Weight detection	Water supply	Pre-agitation	Water flow detection	Soak	Wash	Ravel	Drain	Spin	Stop	Brake	Water filling	Spin	Stop	Brake	Water filling	Spin	Stop	Brake	Water supply	Pre-agitation	Rinse	Ravel	Drain	Spin	Stop	Water supply	Pre-agitation	Rinse	Ravel	Drain	Spin	Stop	Buzzer								
Soak	Linear auto setting (36L~105L)																																										
						(High water level condition)																																					
Heavy wash	Linear auto setting (36L~105L)																																										
						(High water level condition)																					(over flow rinse)					(over flow rinse)											
Delicate	Linear auto setting (36L~105L)																																										

**Softener • Speed • Blanket Course**

Course	Water level	Wash										Rinse										Spin																				
		Weight detection	Water supply	Pre-agitation	Water flow detection	Wash	Ravel	Drain	Spin	Stop	Brake	Water supply	Pre-agitation	Rinse	Ravel	Drain	Spin	Stop	Brake	Water supply	Pre-agitation	Rinse	Ravel	Drain	Spin	Stop	Buzzer															
Softener	Linear auto setting (36L~105L)																																									
Speed	Linear auto setting (36L~60L)																																									
Blanket	105L																																									

**Tub Cleaning Course**

Output	Motor	Water supply valve	Soak	Wash	Spin remaining water	Drain	Spin	Water supply	Rinse	Spin remaining water	Drain	Spin	Buzzer
		Water supply valve	Soak	Wash	Spin remaining water	Drain	Spin	Water supply	Rinse	Spin remaining water	Drain	Spin	Buzzer
		(High + 30 sec)						(High + 30 sec)					
	Forward rotation (CCW)												
	Reverse rotation (CW)												
	Drain valve												
	Auto power off												

## SUPER SPIN DRY

When you need to dry clothes or shorten their indoor drying time.

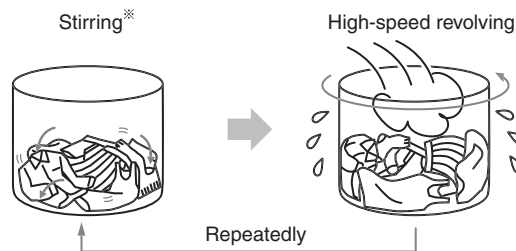
### SUPER SPIN DRY

Through setting of the SUPER SPIN DRY for 30 minutes, you can vapor the water contained in clothes, thus shorten their indoor drying time. In addition, you can basically dry sports wear, chemical fiber or blending fiber by setting SUPER SPIN DRY for 60 minutes (less than 3 kg).

- The hand touch differs depending on the type, weight of clothes, room temperature and moisture. Clothes will be cold due to air drying process, so they may produce a hand touch feeling like the wet ones.

### What is the SUPER SPIN DRY?

This is a course which discharge wet air through the high-speed revolving of the washing-spinning tub, thus vapor the water carried by the clothes.



※: Stir for every 15 minutes to unravel the clothes. Stirring may not be necessary, depending on the weight of the clothes.

#### ■ Clothes prohibited for the SUPER SPIN DRY

- Since the SUPER SPIN DRY needs a long time for high-speed revolving, and unravel clothes every 15 minutes, the following articles are not allowed for the process:
  - Clothes with unstable color
  - Creasing-prone clothes (such as frock, or 100% cotton shirt)
  - Deformation-prone clothes
  - Water-tight clothes
  - Quilt and blanket

#### ■ Method of using SUPER SPIN DRY button

(Ex.) When the "REGULAR" course of the "CONDENSED BUBBLE" is being executed

SUPER SPIN DRY

Press the "SUPER SPIN DRY" to select processing time according to the following sequence or select

SUPER SPIN DRY only. Please press the SUPER SPIN DRY button for at least 4 times, when you select SUPER SPIN DRY only.

	Washing	SUPER SPIN DRY
1 time	"REGULAR" course for CONDENSED BUBBLE	30 minutes
2 times	"REGULAR" course for CONDENSED BUBBLE	60 minutes
3 times	"REGULAR" course for CONDENSED BUBBLE	90 minutes
4 times	None	30 minutes
5 times	None	60 minutes
6 times	None	90 minutes

## One-Point Information

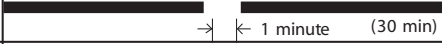


### About Tub Dry

#### 1. Outline

By performing "tub dry" operation after washing is completed, humidity inside the wash/spin tub can be removed and growth of black mold can be reduced.

#### 2. Process


Dry up the remaining water by high-speed rotation of wash/spin tub for approximately 30 minutes. Perform this operation after removing all the clothes in the tub to empty the tub.


			Tub rotation at high speed(30 min)	Buzzer
Tub dry				
Output	Motor	Forward rotation (CCW)		
		Reverse rotation (CW)		

Operation time is 30 minutes, which cannot be changed.

#### 3. Panel operation

- Run "TUB DRY" after washing is finished, to prevent mildew by removing the moisture of the tub. Please run the course once a week.
- ※ Please do not add clothes during the course.

1 Power on, and press the  button 4 times.

2 Close the lid and press the  button.

- High-speed revolving for about 30 minutes can dry the washing-spinning tub through air intaking and revolving the pulsator.

#### Tips

Mildew of Washing-Spinning tank occurs depending on the environment.

Once mildew occurs, it can not be removed by "TUB DRY" process. Therefore, it is recommended to run "TUB DRY" and "TUB CLEAN" regularly.

## One-Point Information

### About Weight Sensor and Suitable Detergent Amount Guide

( It is described as "Washing load sensor" in the instruction manual.)

Before the water supply, rotate the pulsator for approximately 6 seconds to detect the load onto the motor by the number of rotation of the motor. This is performed to judge the washing load to decide water level and display the most suitable detergent amount to be put.

Detergent amount is displayed by how many spoons of compact detergent to be used when using the spoon provided.

(The calculation is based on the assumption that 1 spoonful of detergent is for 55L of water.)

Detergent amount for "Dry" course will be displayed by how many caps of neutral detergent to be put.

(The calculation is based on the assumption that 2 caps of neutral detergent is for 30L of water.)

The water level is automatically set according to the detergent amount. However, the water level may be adjusted by the following method if the user feels that automatically set water level is too high or too low.

### When adjusting automatically set water level

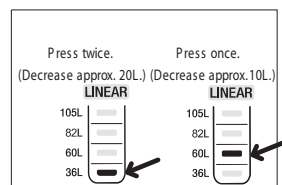
The water level is automatically set according to the detergent amount. However, the water level may be adjusted by the following method if the user feels that automatically set water level is too high or too low.

Once a setting is made, it will be stored in the memory.

While pressing the **WATER LEVEL** press the power **ON**. Buzzer beeps. Water level indicator turns on.  
(Auto power ON/OFF)

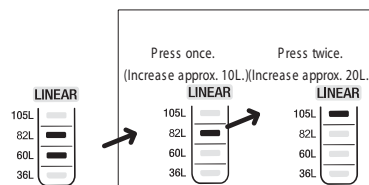
To lower the water level

Press **WASH** to adjust



To raise the water level

Press **PRESET** to adjust



Turn the POWER off. (Finished adjusting)



## One-Point Information

### About Static Rinse Mode

#### 1. "Static rinse" mode

There is a mode to change from "shower rinse" to "static rinse" mode by invisible button operation. Use this mode for users who have a problem in "white rinsing water" or those who want longer rinsing.

(1) Applicable course

Concentrated standard, standard, soak and memory

(2) Mode setting method

1 of shower rinse becomes 1 of static rinse.

Rinse cycle becomes same as the case where bath water is used until rinse process.

Press the power **ON** button, then

**1** Turn on the power.

**2** Press **RINSE** button for 3 seconds. The setting completes in approximately 5 seconds when the buzzer beeps. Turn off the power.

Press **RINSE** for 3 seconds.

- To return to shower rinse mode, perform the above operation again. When the setting to shower rinse completes, the buzzer beeps.
- Once the setting is made, it will be stored in the memory.

- The setting method for the past models, i.e., turn on the power while pressing "RINSE" + "COURSE" can also be used.

(3) Rinse cycle

"Shower rinse" becomes "Static rinse" as shown in the table below.


Display	Rinse Cycle			
1 rinse				Static
1 rinse + overflow rinse				overflow
2 rinse	Shower			Static
2 rinse + overflow rinse	Shower			overflow
3 rinse	Shower	Shower		Static
3 rinse + overflow rinse	Shower	Shower		overflow
4 rinse	Shower	Shower	Static	Static
4 rinse + overflow rinse	Shower	Shower	overflow	overflow

→










Static Rinse Cycle			
			Static
			overflow
Static			Static
Static			overflow
Static	Static		Static
Static	Static		overflow
Static	Static	Static	Static
Static	Static	overflow	overflow

## One-Point Information

### Water Flow Power

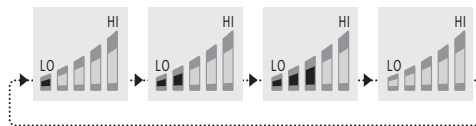
Press the  button to choose the water flow power according to your needs such as what to be washed or dirtiness level.

#### ■ How to choose the water flow power

Key operation	Display	Situation
Turn on the power.		Standard water flow (Default)
Press the  button once.		When you need to wash rather strongly.
Press the  button twice.		When you need to wash strongly.
Press the  button three times.		When you need to wash softly.
Press the  button four times.		When you need to wash rather softly.

- The water flow power during rinsing cannot be changed.
- The water flow power can be adjusted only any of "REGULAR" and "MEMORY" is selected.
- Clothes should not be washed by strong water flow power.
- When the "MEMORY" mode is set, the operation will start with the water flow power preset.
- When the water level reaches to a designated level, the water flow power will be indicated. Such indication will be repeated in the following order. This means the operation is being done under the water flow power preset.


#### Example (Standard water flow power)



#### ■ When you need to change the water flow power during operation

**1** Press the  button to hold the operation.

- The water flow power will be gradually increased, and then be decreased. When you need to wash sensitive clothes softly, hold the operation. Otherwise, such clothes may be damaged.

**2** Press the  button to choose the water flow power.

**3** Press the  button again.

- The water flow power will be changed during the operation when you select more than one levels of water.

## One-Point Information


### LID LOCK


**Instruction: Do not open the lid while  lights up. (The lid may be damaged.)**

**At the end of washing, the lid will be automatically locked.**

**When you need to cancel the lid lock**

■ **During operation**

Press the  button to hold the operation.

When  lights out, the lid can be open.

■ **While the power is off**

Turn the power on. When  lights out, the lid can be open.

(When the power is turned off or shut down during operation, the lid will be automatically locked.)

### CHILD PROOF MODE (if you have small children)

#### CHILD PROOF mode

This model is equipped with CHILD PROOF mode. After this mode is set to ON, the lid can be locked so that children should not fall into washing-spinning tub during washing or drying. If you find the accident such as children's falling into the wash tub, please take necessary safety action urgently.

If there are small children who require attention, set this mode ON.

**WARNING:** Pay attention to small children. Do not leave the lid open. Do not leave the washer filled with water. Never allow children to look into the basket or play around the washer. Do not place the stand or box etc. near the washer.

#### HOW TO USE CHILD PROOF MODE

Press the  button, then the washing machine begins operating, follow the instruction below:

Hold down the  button, press the  button once again.

- A buzzer will sound and the CHILD PROOF mode indicator will be activated.

Once the CHILD PROOF mode is set, it is stored in memory.

#### Canceling the CHILD PROOF mode

Hold down the  button, press the  button once again.

- A buzzer will sound and the CHILD PROOF mode indicator will be canceled.

Once the CHILD PROOF mode can be canceled even during the operation.

- Cannot add detergent while child proof mode. The lid lock is activated.

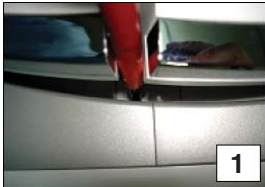
- If accident occur when strongly pull up lid when lid lock in child proof mode occur when lid lock in child proof mode occur. The buzzer will be sound and operation will stop. Subsequently if that state persists about 5 seconds, it will be detected as an alarm and water will be drained.



## One-Point Information

### About Lid Lock

**How to do?** : If Lid Lock problem, wash lid assy cannot open.



- 1) Take off top cover cap of both side by lift up of lid 1 & lid 2 at center position and use small minus driver for open cap.

(Photo. 1 and Photo. 2)



- 2) Take off screw and then remove top cover deco of both side(Right & Left side).

(Photo. 3)



- 3) Take off panel deco by pushing slide-up by hand.

(Photo. 4)

- 4) Take off 4 screws on control panel and then lift-up

(Photo. 5)

Note 1) Be careful lead wire unit.



- 5) Move control panel assy to left side for lid lock move out from lid hook.

(Photo. 6)

Caution : Before take off must be "Unplug" for prevent electric shock.

## One-Point Information

### 2. Functions during each process

	Process in which the lid is opened	Functions while the child proof is set
1	During weight sensing	<ul style="list-style-type: none"> <li>No child proof function</li> </ul>
2	During water supply	<ul style="list-style-type: none"> <li>No child proof function until the water reaches the reset level. However, the child proof functions when the lid is opened after the status of "lid closed" is detected during water supply.</li> </ul>
3	During wash, rinse & agitation	Child proof functions.
4	During drain	
5	During spin	
6	During shower rinse	
7	Before starting operation (When the power is ON)	<ul style="list-style-type: none"> <li>Basically, the child proof is to be set after starting operation. If the child proof is set and the lid is opened before starting, the child proof functions as follows;-                             <ol style="list-style-type: none"> <li>When there is no water: No child proof function</li> <li>When there is water: Child proof functions.</li> </ol> </li> </ul>
8	After course completes (When the power is ON.)	<ol style="list-style-type: none"> <li>When there is no water: No child proof function even if the lid is opened.</li> <li>When there is water: Child proof functions when the lid is opened. (When the child proof is set, the power is not automatically turned off after wash only or rinse only completes.)</li> </ol>
9	When the power switch is OFF	

- Others
- When the child proof is set, it functions when the lid is opened even when the start/stop button is pressed to suspend the operation.
  - If the operation is started while the lid is open, water is supplied just for a while and the child proof functions once the water level reaches a certain level (reset level).

## One-Point Information

### About Cancellation of Memory Data

This machine has data which will remain in the memory even if the power cord is unplugged or a power failure occurs.

To initialize the memory data, turn on the power while pressing (Super Spin Dry). If this is carried out, the buzzer sounds and all the settings are cancelled.


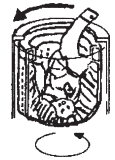
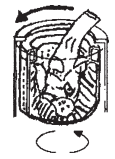
No.	Memory Data Items	Initialized Status
1	Buzzer for standard and other courses	Sounds
2	Course button memory	"Standard" turns on.
3	Description of memory course	"Standard" Wash: 8 min, Rinse: 2 times, Spin: 4 min
4	Water volume adjustment by the weight sensor	Standard
5	Child proof setting	No

## One-Point Information

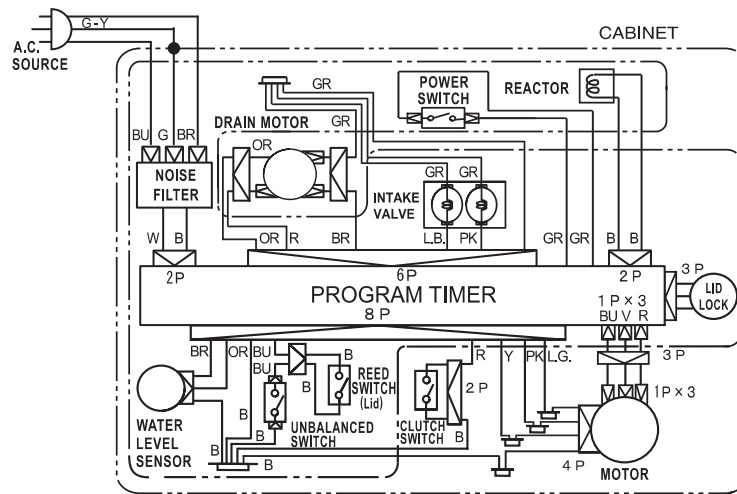
### About Clothes for Which Care Should be Taken When Washing

Recently, more users think, in this environment where clothes types are diversified, that anything can be washed with a fully automatic washing machine and actually wash various types of clothes in a washing machine.

However, a fully automatic washing machine cannot wash every type of cloth that is said to be washable. Please be reminded of the followings, which are also noted in the owner's manual.

No.	Clothes	Symptoms	Notes on clothes
1	Waterproof type sheets, mats and clothing  Ex. Cover for cars, sauna suits, rain coat, ski wear, sleeping bag, etc.	Injury hazard due to abnormal vibration during spin process. If waterproof clothes are spun, the water in the clothes cannot be removed as this type of cloth does not absorb water and thus water starts rotating in the wash tub. If spinning by high-speed rotation is performed in such a condition, the balance may be lost or great vibration is applied to the tub itself because of sudden removal of water. Abnormal vibration (impact) thus occurs on the washing machine and this could result in not only <u>damage on washing machine and tear and wear of clothing</u> but also <u>personal injury</u> . 	No washing of waterproof type sheets, mats and clothing.  Warning stated on the owner's manual.  (Hand wash or seeking laundry service by a specialist is recommended.)
2	Clothing made of synthetic fabric such as polyester and nylon  Ex. Wind breaker, shirt, etc.	Clothing made of synthetic fabric may come out of the tub due to centrifugal force during spinning and this could damage the clothing. <Symptom where the tub cover is damaged may also occur.> 	If there is a large amount to be washed, reduce the amount.
3	Clothing made of thick fabric	As clothing made of thick fabric becomes bulky, it has a tendency to become difficult to be agitated compared to other types of clothing. Particularly when it is washed together with other types of clothes, it becomes further difficult to be agitated and could be damaged by coming out of the tub during spin process due to centrifugal force. <Symptom where the tub cover is damaged may also occur.> 	Push a small amount inside the tub to wash. Do not wash together with other types of clothes. (It is recommended to wash thick clothes alone without mixing other types.)
4	Clothes that is hard to absorb water  Ex. Pillow, doll, cushion, etc.	Items that still float even if pressed by hand cannot be washed. Such items may come out of the tub during spin process and the clothes, water tub cover or inner lid could be damaged.	Do not wash items that still float if pressed by hand. (Hand wash is recommended.)
5	Clothing which carries a laundry symbol denoting hand wash or gentle machine wash	In the case where this type of clothing is washed in heavy water flow, i.e., standard course, it may shrink or be damaged even if it is put inside the laundry net.	Select a course with gentle water flow (such as gentle course) following the laundry symbol or instruction.
6	Large item  Ex. Blanket, curtain, etc.	Blanket Unless otherwise stated, this type of item may come out the tub and be damaged if a blanket net is not used. <Symptom where the tub cover is damaged may also occur.>	Wash a large item using the blanket course. Use a blanket net unless otherwise stated.

## 5. SCHEMATIC DIAGRAM



R ... Red	W ... White	GR ... Gray	L.G. ... Light Green
B ... Black	Y ... Yellow	OR ... Orange	G-Y ... Green & Yellow
G ... Green	BR ... Brown	PK ... Pink	
V ... Violet	BU ... Blue	L.B. ... Light Blue	

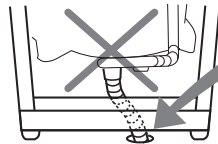
## 6. CHECKING PROCEDURES

### Notes on Installation

#### About operation check during installation

1. Wash operation check
  - Plug in the power cord and press the "POWER" button. Then, press the "START" button.
  - Pulsator rotates clockwise and counterclockwise direction. Detergent amount 0.2 cup is displayed.
  - \* Knocking sound is heard when plugging in. However, it is not abnormal.
2. Spin operation check
  - Close the lid and press the "POWER", "SPIN" and "START" buttons in this sequence.
  - \* Before spinning starts, the wash tub rotates slowly and a clicking operation sound is heard because the clutch is switched from washing to spinning.
  - \* The brake works at the completion of spinning. Then the wash tub rotates and the clutch switching from spinning to washing is performed.
  - \* For the course operation, the clutch switching from washing to spinning and vice versa will be performed automatically.

**NOTE** Never do as shown in the drawing below.



Direct insertion of the drain hose from interior of the washing machine into the drain hole could result in water leakage or abnormal noise.

#### About Error Display

When the following errors are displayed, carry out the inspection stated below.

	<ul style="list-style-type: none"><li>• Is too much laundry put into the tub?</li><li>• Is the water level set to too low for the laundry load?</li></ul>		<ul style="list-style-type: none"><li>• Turn off and on the power. Reduce the laundry or reset the water level and then press the start button again.</li></ul>

\* If the error is not solved even after the above inspection, please request repair service.



# Abnormality Alarm

## (1) Error display and description of abnormality alarm

- In case of abnormality or failure such as incorrect operation and faulty drainage or spinning, the operation is stopped by error display and abnormality report (buzzer alarm).

Error Display	Description of Detected Error	How to Cancel																						
<b>E1</b> <u>Abnormal drainage</u>	<ul style="list-style-type: none"> <li>After starting draining in wash or spin process, the water level does not go down below the reset level even after the specified time has elapsed. (To be detected by the water level sensor) [7 mins 30 secs]</li> <li>Occurred by drain hose that was not put down or flattened hose, etc.</li> </ul>	After opening and closing the lid, press the start button. The operation resumes from the stopped state.																						
<b>E2</b> <u>Abnormal open lid</u> E21, E23	<ul style="list-style-type: none"> <li>The lid is open or opened during spin in rinse and spin process or during shower rinse operation. (To be detected by the lid switch)</li> <li>(E21):The lid is opened, while spinning or switching of clutch.</li> <li>(E23):The lid lock is not locked or is not released.</li> </ul>	(E21):Close the lid. The operation resumes from the stopped state. (E23):Turn off and on the power(OFF/ON)button. Operation will not continue. Start back the operation from the beginning again.																						
<b>E3</b> <u>Abnormal unbalance</u> E31, E32	<ul style="list-style-type: none"> <li>Unbalance occurred by uneven laundry load during the final spinning. (Unbalance detected → rectifying operation was repeated but the unbalance was not rectified.)</li> <li>(Abnormality alarm) When an unbalance was detected 3 times during the same spin process. In dry course, however, abnormality alarm sounds at the first abnormality detection.</li> <li>(E31):When abnormality was detected by the lid switch unbalance. (To be detected by the lid switch)</li> <li>(E32):When abnormality alarm was detected by the vibration sensor. (To be detected by the rotation sensor.)</li> </ul>	Open and close the lid. The operation resumes from the stopped state.																						
<b>E5</b> <u>Abnormal water supply</u>	<ul style="list-style-type: none"> <li>When the water level reaches the following water level during water supply in wash and rinse process or while rectifying an unbalance, the water does not rise up to the water level of one-level higher even after a specified time has elapsed. (To be detected by the water sensor)</li> </ul> <table border="1"> <thead> <tr> <th>Detected water level</th> <th>Detected time</th> </tr> </thead> <tbody> <tr><td>97 ~ 105L</td><td>16 minutes</td></tr> <tr><td>91 ~ 97L</td><td>12 minutes</td></tr> <tr><td>82 ~ 91L</td><td>18 minutes</td></tr> <tr><td>76 ~ 82L</td><td>12 minutes</td></tr> <tr><td>69 ~ 76L</td><td>14 minutes</td></tr> <tr><td>60 ~ 69L</td><td>18 minutes</td></tr> <tr><td>55 ~ 60L</td><td>10 minutes</td></tr> <tr><td>46 ~ 55L</td><td>18 minutes</td></tr> <tr><td>36 ~ 46L</td><td>20 minutes</td></tr> <tr><td>0 ~ 36L</td><td>52 minutes</td></tr> </tbody> </table> <ul style="list-style-type: none"> <li>Occurred by a tap which was not turned on or water supply valve failure, etc.</li> </ul>	Detected water level	Detected time	97 ~ 105L	16 minutes	91 ~ 97L	12 minutes	82 ~ 91L	18 minutes	76 ~ 82L	12 minutes	69 ~ 76L	14 minutes	60 ~ 69L	18 minutes	55 ~ 60L	10 minutes	46 ~ 55L	18 minutes	36 ~ 46L	20 minutes	0 ~ 36L	52 minutes	After opening and closing the lid, press the start button. The operation resumes from the stopped state.
Detected water level	Detected time																							
97 ~ 105L	16 minutes																							
91 ~ 97L	12 minutes																							
82 ~ 91L	18 minutes																							
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55 ~ 60L	10 minutes																							
46 ~ 55L	18 minutes																							
36 ~ 46L	20 minutes																							
0 ~ 36L	52 minutes																							
<b>E6</b> <u>Abnormal motor current</u> E61, E63~66	<ul style="list-style-type: none"> <li>Overcurrent flows through the motor while the motor is running (for all processes). (Current value flowing through the motor drive circuit is detected by the program timer assy.)</li> <li>Occurred by excessive laundry load, too low water level, defective wiring between the motor and the program timer assy, motor drive circuit failure, etc.</li> <li>(E61): While washing (E63): Abnormality occurred while spinning and there was no problem during washing.</li> <li>(E64): Occurred when spin only is set. (E65): When clutch is switched to washing.</li> <li>(E66): When clutch is switched to spinning.</li> </ul>	Turn off and on the power (OFF/ON) button. Operation will not continue. Start back the operation from the beginning again.																						

Error Display	Description of Detected Error	How to Cancel
<b>E7</b> <u>Abnormal motor current</u> E71, E73~74	<ul style="list-style-type: none"> <li>Abnormality occurred in the sensor signal which detects motor rotation while the motor is running (for all processes).</li> <li>Occurred by excessive laundry load, too low water level, defective wiring between motor and program timer assy, motor drive circuit failure, etc. (E71): While washing (E73): Abnormality occurred while spinning and there was no problem during washing. (E74): Occurred when spin only is set. (E75): When clutch is switched to washing. (E76): When clutch is switched to spinning.</li> </ul>	Turn off and on the power (OFF/ON) button. Operation will not continue. Start back the operation from the beginning again.
<b>E8</b> <u>Abnormal motor voltage</u> E81, E83~86	<ul style="list-style-type: none"> <li>Excessive voltage was added to the program timer assy by the motor while the motor is running (for all processes). (Voltage value applied to the motor drive circuit is detected by the program timer assy.)</li> <li>Occurred by excessive laundry load or motor program timer assy failure, etc. (E81): While washing (E83): Abnormality occurred while spinning and there was no problem during washing. (E84): Occurred when spin only is set. (E85): When clutch is switched to washing. (E86): When clutch is switched to spinning.</li> </ul>	
<b>E9</b> <u>Abnormal water leakage</u>	<ul style="list-style-type: none"> <li>The water level of the water tub became lower than the reset level during agitation ( in wash and rinse process). (To be detected by the water level sensor)</li> <li>Occurred by crack on the tub, foreign matters stuck in the drain valve, water level sensor failure, etc.</li> </ul>	
<b>EA</b> <u>Abnormal DC voltage</u>	<ul style="list-style-type: none"> <li>DC voltage of the motor drive power circuit is too low while the motor is stopped. (Voltage value applied to the motor drive circuit is detected by the program timer assy.)</li> <li>Occurred by defective wiring in the machine or motor program timer assy failure, etc.</li> </ul>	
<b>Ec</b> <u>Abnormality in the clutch</u> EC1, EC3 EC5, EC6	<ul style="list-style-type: none"> <li>Clutch switching was not performed correctly (wash → spin, spin → wash) for all processes. (To be detected by the clutch sensor)</li> <li>Occurred by excessive laundry load, clutch failure or clutch sensor circuit failure, etc. (Ec1) When the clutch is released during washing (Ec3) When the clutch is applied during spinning (Ec5) When the clutch was not switched to washing. (Ec6) When clutch was not switched to spinning.</li> </ul>	
<b>EL</b> <u>Leakage current detected</u>	<ul style="list-style-type: none"> <li>Leakage current occurred on the main unit of the washing machine. (To be detected by the leakage current detection sensor inside the program timer assy after turning on the power and before pressing the start switch) (Detectable leakage current is 1mA or below.)</li> <li>Occurred by submerged electrical components on the bottom part, freezing or water splashing, etc.</li> </ul>	Unplug the power cord.
<b>A</b> <u>Abnormal water (During air drying)</u>	<ul style="list-style-type: none"> <li>Water level sensor output is above the reset level when drying starts. (To be detected by the water level sensor)</li> <li>Occurred by drying operation started while there is water in the tub.</li> </ul>	Turn off and on the power (ON/OFF) button, operate spin only and drain water. Turn on the power again and perform drying operation.
<b>F</b> <u>During air drying Abnormal overload alarm</u>	<ul style="list-style-type: none"> <li>Occurred by excessive laundry load, etc.</li> <li>Occurred by tangled laundry.</li> </ul>	Reduce laundry amount or fluff the laundry, then press the start button.
<b>E95</b> <u>Abnormal water level sensor</u>	<ul style="list-style-type: none"> <li>Water level sensor output is out of normal area.</li> <li>Occurred by defective connector of water level sensor, defective connector of air tube.</li> <li>Occurred by program timer assy failure, water level sensor failure, etc.</li> </ul>	Turn off and on the power (OFF/ON) button. Operation will not continue. Start back the operation from the beginning again.

### Detailed Description of E6, E7, E8 and Ec Errors

On the above error table, error description is classified and stated.

The table below shows how to identify, with the last number of the error display, the process where the error had occurred.

Error Display Last number	E6 E7 E8	Ec
1	In wash process	In wash & rinse process
2	NIL	NIL
3	There is no problem in wash process but abnormality occurred in a subsequent process	In spin process
4	When spin only or rinse only is set	When spin only or rinse only is set
5	At the clutch switching from spin to wash	At the clutch switching from spin to wash
6	At the clutch switching from spin to wash	At the clutch switching from spin to wash

Check the laundry overload when E6, E7, E8 or Ec occurred.

Overload: Laundry more than the rated load is put in the washing machine,  
The water level is set to extremely too low for laundry load, etc.

#### (2) Actions to be taken against error alarm, etc.

Error Display	Check Items & Description → Actions to be Taken in Case of Abnormality	Relevant Places		
<b>E1</b> Abnormal drainage	<ul style="list-style-type: none"> <li>Check around the drain hose (Forgot to put down the hose, flattened hose, hose tip submerged in the water, a sleeve installed, extension of hose, etc.) &lt;Most of the water in the wash tub has been drained&gt;</li> <li>Check the water level sensor and air tube. &lt;Most of the water in the wash tub has not been drained&gt;</li> <li>Check the drain valve operation.</li> </ul>	<ul style="list-style-type: none"> <li>Around the drain hose</li> <li>Water level sensor</li> <li>Air tube</li> <li>Drain valve</li> <li>Junction lead wire</li> <li>Program timer assy</li> </ul>		
<b>E2</b> Abnormal open lid E21, E23	<ul style="list-style-type: none"> <li>The lid is open → Close the lid.</li> <li>Error is displayed even if the lid is closed. → (1) Check the safety lever distance. → <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>Safety lever distance</td></tr><tr><td>59±4mm</td></tr></table></li> <li>(2) Check the operation of the lid switch.</li> <li>(3) Check the operation of the lid lock.</li> </ul>	Safety lever distance	59±4mm	<ul style="list-style-type: none"> <li>Lid</li> <li>Lid switch</li> <li>Lid lock</li> <li>Junction lead wire</li> <li>Program timer assy</li> <li>Around safety lever</li> </ul>
Safety lever distance				
59±4mm				
<b>E3</b> Abnormal unbalance E31, E32	<ul style="list-style-type: none"> <li>Is the laundry load uneven? → Make it even.</li> <li>Is the washing machine installed on an uneven or inclined floor surface? → Rectify the unevenness to secure levelness. (Check with a level.)</li> <li>Check the installation of the drain hose. (Perform the same check as E1)</li> <li>Check the lifting rod. → Replace the rod.</li> <li>Check the operation of the cover switch. (Perform the same check as E2)</li> </ul>	<ul style="list-style-type: none"> <li>Uneven laundry load</li> <li>Installed place (Unevenness, inclination)</li> <li>Around the drain hose</li> <li>Lifting rod</li> <li>Around lid switch</li> </ul>		
<b>E5</b> Abnormal water supply	<ul style="list-style-type: none"> <li>Is the tap not turned on? (When a bath water pump is used, this error may be displayed during rinsing.) → Turn on the tap.</li> <li>Is dust or rubbish accumulated on the net of the water supply port? → Clean the net of the water supply valve.</li> <li>Check the operation of the water supply valve.</li> </ul>	<ul style="list-style-type: none"> <li>Forgot to turn on the tap.</li> <li>Dust or rubbish on the net of the water supply valve</li> <li>Water supply valve</li> <li>Junction lead wire</li> <li>Program timer assy</li> </ul>		

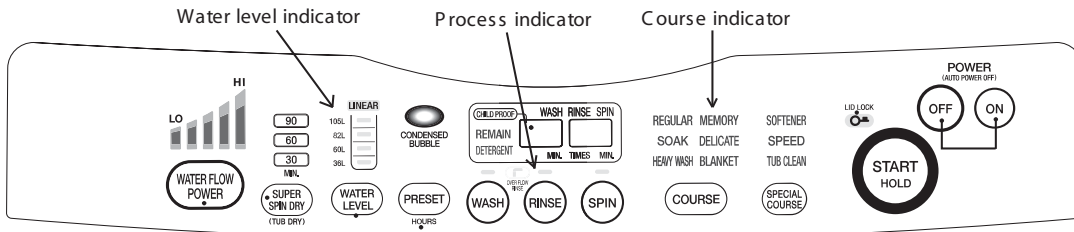
Error Display	Check Items & Description → Actions to be Taken in Case of Abnormality	Relevant Places
<b>E6</b> <u>Abnormal motor current</u> E61, E63~66	<ul style="list-style-type: none"> <li>Laundry load exceeds the rated load. → Reduce the laundry amount.</li> <li>Water level is extremely too low than laundry load. → Make the set water level higher.</li> <li>* It can be thought that the load on the pulsator became too large and the pulsator due to excessive laundry load thus became locked. This could be a cause of an overcurrent flowing in the motor.</li> <li>Check the operation of the motor.</li> <li>* The followings are thought to be other factors (including occasional factors) of this error.               <ol style="list-style-type: none"> <li>(1) Current is not correctly switched to the motor due to defective wiring, etc.</li> <li>(2) The motor become locked due to the stuck or suspended clutch.</li> <li>(3) Current is not correctly switched to the motor due to influence of external noise, etc</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>Excessive laundry load</li> <li>Too low water level</li> <li>Junction lead wire</li> <li>Clutch</li> <li>Clutch sensor</li> <li>Program timer assy</li> </ul>
<b>E7</b> <u>Abnormal motor rotation</u> E71, E73~76	<ul style="list-style-type: none"> <li>Perform the same check as E6.</li> <li>* It can be thought that the load on the pulsator became too large due to excessive laundry load and the pulsator thus became locked. This could be a cause of interruption of the motor signal.</li> <li>* The followings are thought to be other factors (including occasional factors) of this error.               <ol style="list-style-type: none"> <li>(1) Defective wiring between the motor and the program timer assy</li> <li>(2) The motor become locked due to the stuck or suspended clutch.</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>Excessive laundry load</li> <li>Too low water level</li> <li>Junction lead wire</li> <li>Clutch</li> <li>Program timer assy</li> </ul>
<b>E8</b> <u>Abnormal motor voltage</u> E81, E83~86	<ul style="list-style-type: none"> <li>Perform the same check as E6.</li> <li>* It can be thought that the load on the pulsator became too large due to excessive laundry load and the pulsator thus became locked. This could be a cause of counter electromotive current generated from the motor.</li> <li>* The followings are thought to be other factors (including occasional factors) of this error.               <ol style="list-style-type: none"> <li>(1) Program timer assy failure (detection circuit or microcomputer surrounding circuit failure)</li> <li>(2) Defective wiring inside the machine (disconnection or poor contact at the connector)</li> </ol>               NOTE: The state where the circuit voltage becomes highest is when the lid is opened during spin top rotation. To perform reproduction for checking, carry it out at the abovementioned operation status.             </li> </ul>	<ul style="list-style-type: none"> <li>Excessive laundry load</li> <li>Junction lead wire</li> <li>Program timer assy</li> </ul>
<b>E9</b> <u>Abnormal water leakage</u>	<ul style="list-style-type: none"> <li>Fill the water inside the water tub and check water leakage from the tub or drain valve. → Repair the water leaking part or replace the component.</li> <li>Check the operation of the water level sensor.</li> </ul>	<ul style="list-style-type: none"> <li>Water tub</li> <li>Drain valve</li> <li>Water level sensor</li> <li>Junction lead wire</li> <li>Program timer assy</li> </ul>
<b>EA</b> <u>Abnormal DC voltage</u>	<ul style="list-style-type: none"> <li>Check AC supply voltage. (Reduced up to approx. AC35V or exceeds AC160V) → Check the power supply wiring.</li> <li>* The followings are thought to be other factors (including occasional factors) of this error.               <ol style="list-style-type: none"> <li>(1) Defective wiring inside the machine (disconnection or poor contact at the connector)</li> <li>(2) Program timer assy failure (detection circuit or microcomputer surrounding circuit failure)</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>Power supply wiring</li> <li>Junction lead wire</li> <li>Program timer assy</li> </ul>
<b>Ec</b> <u>Abnormality in the clutch</u> Ec1, Ec3 Ec5, Ec6	<ul style="list-style-type: none"> <li>Perform the same check as E6.</li> <li>* It can be thought that the load on the pulsator became too large due to excessive laundry load and the pulsator thus became locked. This could be a cause of the clutch that cannot be switched.</li> <li>* The followings are thought to be other factors (including occasional factors) of this error.               <ol style="list-style-type: none"> <li>(1) Defective operation of the clutch mechanism</li> <li>(2) Clutch sensor failure (including defective wiring)</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>Excessive laundry load</li> <li>Too low water level</li> <li>Clutch mechanism</li> <li>Clutch sensor</li> <li>Junction lead wire</li> <li>Program timer assy</li> </ul>
<b>EL</b> <u>Leakage current detected</u>	<ul style="list-style-type: none"> <li>Is the bottom part of the washing machine submerged in the water due to clogging of the waterproof pan, etc.? → Clean the clogging.</li> <li>Check if dew condensation occurred on the motor, etc. in cold morning. → Dry up well. (Insulation resistance 3MΩ and above)</li> <li>Leakage current from other electrical components than motor could occur. → Check the insulation resistance of each electrical component.</li> </ul>	<ul style="list-style-type: none"> <li>Submerge</li> <li>Dew condensation</li> <li>Water splashing</li> <li>Program timer assy</li> </ul>
<b>A</b> <u>Abnormal water (During air drying)</u>	<ul style="list-style-type: none"> <li>Is water left in the machine? → Drain the water.</li> <li>* "A" may be displayed even when there is the same symptom as "E1". → Take the same actions as in case of "E1".</li> </ul>	<ul style="list-style-type: none"> <li>Water left in the machine</li> <li>Same places as in "E1", such as water level sensor and drain valve</li> </ul>
<b>F</b> <u>During air drying Abnormal overload alarm</u>	<ul style="list-style-type: none"> <li>Is too much laundry put in the machine? → Reduce the laundry.</li> <li>Is the laundry tangled? → Fluff the laundry and put it again.</li> </ul>	<ul style="list-style-type: none"> <li>Excessive laundry to be dried</li> </ul>
<b>E95</b> <u>Abnormal water level sensor</u>	<ul style="list-style-type: none"> <li>Check connector of water level sensor, connector of program timer assy.</li> <li>Check connection of air tube.</li> <li>Program timer assy failure, water level sensor failure, etc.</li> </ul>	<ul style="list-style-type: none"> <li>Water level sensor</li> <li>Air tube</li> <li>Program timer assy</li> <li>Junction lead wire</li> </ul>

## Detailed Failure Diagnosis Method

### (1) Setting method of inspection mode and description of inspection

In the inspection mode, failure diagnosis of each electrical part can easily be checked on the control panel. If an abnormal alarm sounds and there is a problem in the washing machine, identify the faulty electrical part by this inspection mode and carry out the failure diagnosis of each electrical part (Page 29).

If the connector is disconnected and reconnected, carry out the checks under this inspection mode again after the repair completes and make sure that the motor starts rotation when starting spinning and that no abnormal alarm sounds when the spinning operation is performed for 1 minute.



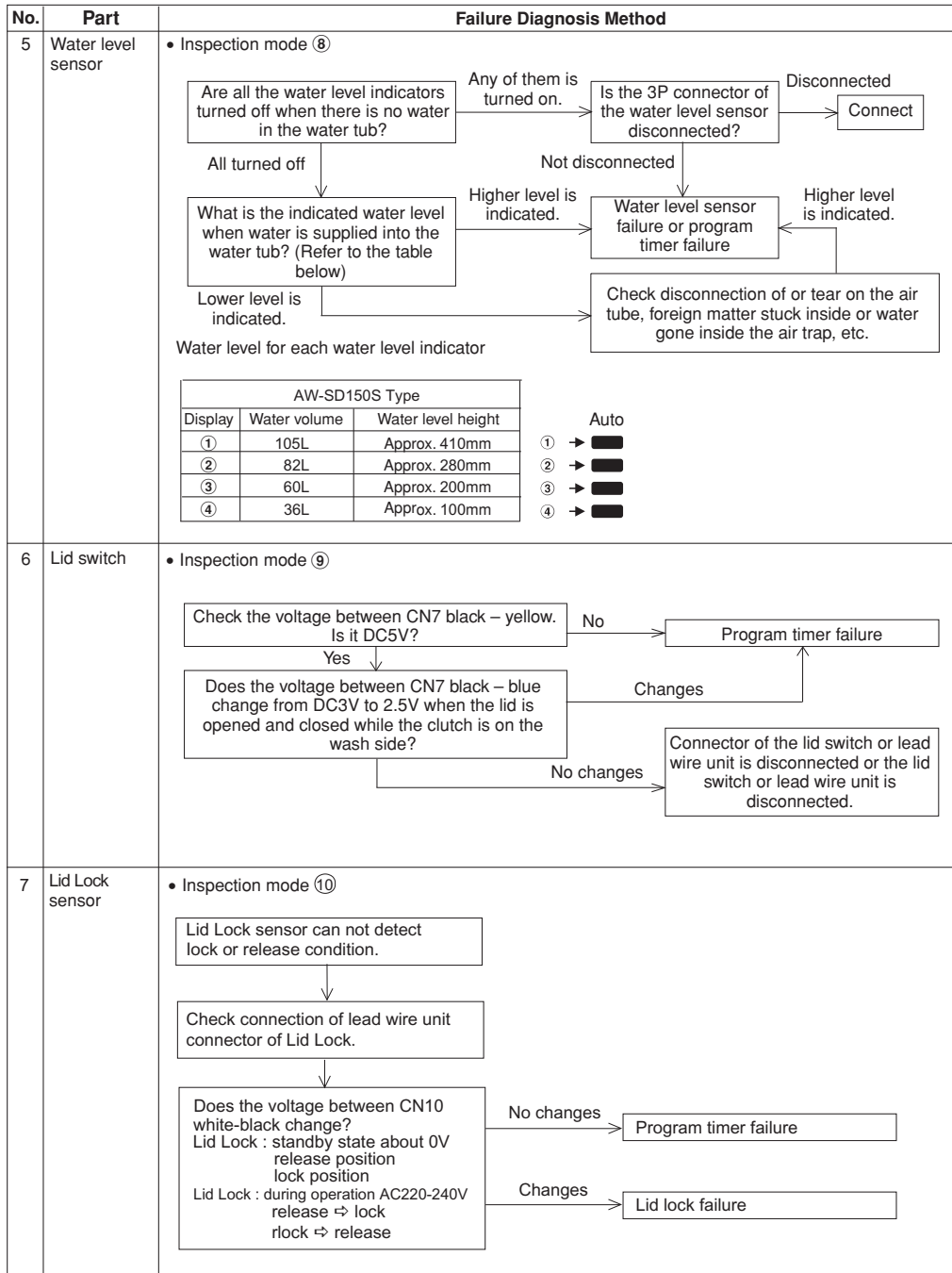
- Inspection mode setting (Procedures)**
1. While pressing down the **RINSE** button, press the **POWER ON** button. (The buzzer beeps.)
  2. Press the **START** button. (The washing machine will be in standby mode.) (Preset time: 10 minutes)
  3. After the inspection completes, carry out automatic power off with the **TIMER** button. The power is then turned off.

No.	Check Items	Operation under Normal Condition	Check Items in Case of Abnormality (Normal Value)	Failure Diagnosis of Electrical Parts
Motor	1 Motor forward rotation	By pressing the <b>COURSE</b> button, the motor rotates forwards after the clutch is switched to washing.	Resistance between CN4 blue - CN6 red (10 ~ 20.Ω) Resistance between CN4 blue - CN5 purple (10 ~ 20.Ω) Resistance between CN6 red - CN5 purple (10 ~ 20.Ω) * Measured value when unplugged and CN4-6 is removed.	1
	2 Motor forward rotation (High speed)	The motor rotates forwards (at high speed) after the clutch is switched to washing by pressing the <b>START</b> button while pressing the <b>TIMER</b> button.	Resistance between CN4 blue - CN6 red (10 ~ 20.Ω) Resistance between CN4 blue - CN5 purple (10 ~ 20.Ω) Resistance between CN6 red - CN5 purple (10 ~ 20.Ω) * Measured value when unplugged and CN4-6 is removed.	
	3 Rotation sensor function	According to the motor speed, output of 2 rotation sensors is displayed on the digital LED. Pink lead sensor: Wash LED Yellow green lead sensor: Spin LED	CN7 Voltage between black - yellow (5V) Voltage between black - pink (5V → 0V → ...) Voltage between black - yellow green (5V → 0V → ...)	
Water supply valve	4 Function of water supply valve (on the tap side)	The water supply valve (on the tap side) works for 15 seconds by pressing the <b>SPIN</b> button.	Voltage between CN1 black - CN9 pink (Standby state: AC220-240V, during operation: 0V)	2
	5 Function of water supply valve (on the softener side)	The water supply valve (on the tap side) works for 15 seconds by pressing the <b>RINSE</b> button.	Voltage between CN1 black - CN9 light blue (Standby state: AC220-240V, during operation: 0V)	
Drain valve motor	6 Drain valve function	Drain valve motor works for 15 seconds and then clutch is switched to spinning by pressing the <b>WASH</b> button.	Voltage between CN1 black - CN9 brown (Standby state: AC 220-240V) (During operation: 0V Voltage between CN9 red-orange (Standby state : AC 0V during latch operation : about DC300-330V) operation time : about 1 second	3
Clutch sensor (cup assy)	7 Clutch sensor input	According to the clutch status, the process indicator turns on/off. Spin side: OFF, Wash side: ON	Voltage between CN7 black - red (Lid open, clutch on spin side: DC5V) (Lid closed, clutch on spin side: DC3.3 ~ 4.2V) (Lid open, clutch on wash side: 0V) (Lid closed, clutch on wash side: 0V)	4
Water level sensor	8 Water level input	Water level in the water tub is directly displayed on the water level indicator.	According to (4) Water level sensor failure diagnosis method	5
Lid switch	9 Lid switch input	Course indicator turns on/off according to open/close of the lid. Lid open: OFF, lid closed: ON	Voltage between CN7 black - blue (Lid open, clutch on spin side: DC5V) (Lid open, clutch on wash side: DC2.7 ~ 3.3V) (Lid closed, clutch on spin side: 0V) (Lid closed, clutch on wash side: 0V)	6
Lid Lock	10 Lid lock input	Lid lock locks by pressing the (Water level) button. Lid lock releases by pressing the (Water flow power) button. (Lid lock)LED turns on by locked condition. (Lid lock)LED turns off by released condition.	Voltage between CN10 black-white standby state(release or lock position) : about 0V, during operation (release → lock, lock → release) AC220-240V	7

## (2) Failure Diagnosis of Each Electrical Part

No.	Part	Failure Diagnosis Method
1	Program timer motor            Clutch sensor (Cup assy)	<p>• Inspection mode ①②③ (Make sure that there is no problem in common check items stated on Page 28.)</p> <pre>           graph TD             Start[The motor does not rotate.] --&gt; Q1{Does the rotation indicator change when the pulsator is turned manually after setting to the inspection mode?}             Q1 -- Changes --&gt; Q2{Unplug the power cord, remove the CN4 ~ 6 of the program timer and measure the resistance between (red) - (purple), (red) - (blue) and (blue) - (purple) on the main unit lead wire side.}             Q1 -- No change --&gt; Q3{Is the voltage between CN7 black - yellow DC5V?}             Q3 -- Yes --&gt; Q4{When rotated, does the voltage between CN7 black - yellow green and between CN7 black - pink change from DC5V to 0V?}             Q3 -- No --&gt; Q2             Q2 -- All approximately 10 ~ 20Ω --&gt; P1[Program timer failure]             Q2 -- Short or open --&gt; P2[Motor failure, disconnected lead wire unit connector or wire disconnection]             Q4 -- Changes --&gt; P2             Q4 -- No change --&gt; P2              EC5[Ec5 error is displayed but the clutch is on the wash side.] --&gt; Q5{Is CN7 black - red shorted when unplugged and CN7 is removed?}             Q5 -- Short --&gt; P1             Q5 -- Open --&gt; P3[Disconnected lead wire unit connector, wire disconnection or cup assy failure]           </pre>
2	<ul style="list-style-type: none"> <li>Water supply valve</li> <li>Lid Lock</li> </ul>	<p>• Inspection mode ④~⑤, ⑩</p> <pre>           graph TD             Q1{Is the voltage at the checked point AC220-240V in standby status?}             Q1 -- No --&gt; P1[Failure of each electrical part, disconnected lead wire unit connector, or wire disconnection]             Q1 -- Yes --&gt; Q2{Does the voltage at the checked point change from AC220-240V to 0V when operated?}             Q2 -- No change --&gt; P2[Program timer failure]             Q2 -- Changes --&gt; P3[Each electrical part failure]           </pre>

No.	Part	Failure Diagnosis Method
3	① Drain valve motor  ② Drain valve Latch signal  ③ Clutch sensor (Cup assy)	<p>• Inspection mode ⑥</p> <pre> graph TD     Start[Check the voltage between CN1 (black) – CN9 (brown) in the standby status. Is it AC220-240V?] -- No --&gt; F1[Drain valve motor failure, disconnected lead wire unit connector or disconnected wire]     Start -- Yes --&gt; Q1{Check the above voltage when winding completes. Does it change from AC220-240V to 0V? (Check the voltage during winding.)}     Q1 -- Changes --&gt; F2[Drain valve motor failure]     Q1 -- No Changes --&gt; F3[Program timer failure]          Q2[Latch of Drain valve does not work.] --&gt; Q3{Check the voltage between CN9 red – gray in the standby status. Is it about DC 0V?}     Q3 -- No --&gt; F4[Drain valve motor failure, disconnected lead wire unit connector or disconnected wire]     Q3 -- Yes --&gt; Q4{Check the voltage between CN9 red-orange during latch operation. Is it about DC300~330V? during latch operation : press [Power ON] ,and press [start] during about 1 second.}     Q4 -- Changes --&gt; F5[Lid Lock failure]     Q4 -- No Changes --&gt; F6[Program timer failure]          Q5[The clutch is on the spin side but the clutch sensor does not judge that it is on the spin side.] --&gt; Q6{Is between CN7 black – red open when plugged and CN7 is removed?}     Q6 -- Open --&gt; F7[Program timer failure]     Q6 -- Short --&gt; F8[Lead wire unit connector short or cup assy failure]           </pre>
4	Clutch sensor (Mechanical part)	<p>• Check in the inspection mode ①②③⑥</p>

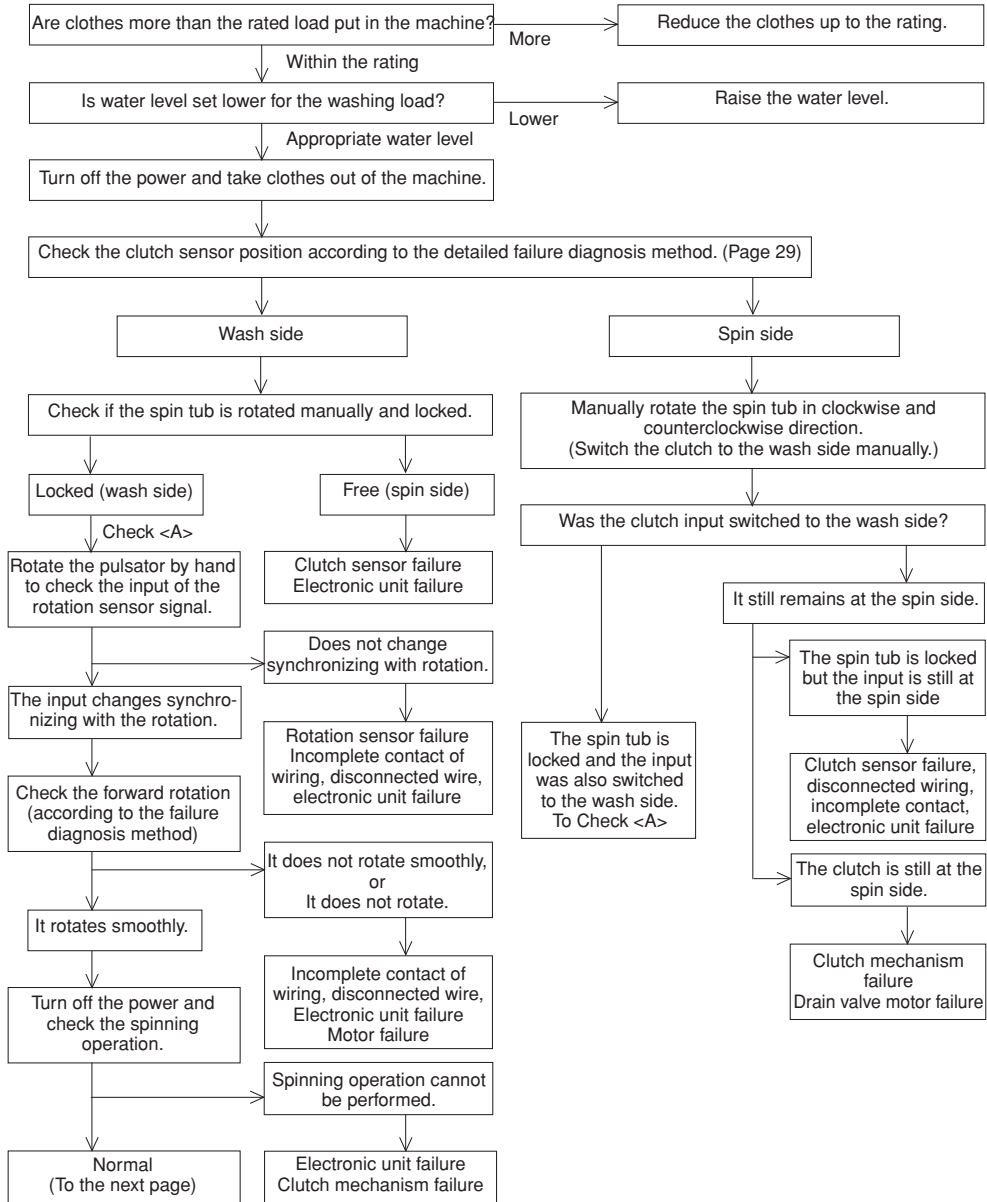




## Common check items when a DD motor-related error occurred

(Applicable error display: E6, E7, E8 & Ec)

E6, E7, E8 & Ec errors are the errors occurred by excessive washing load, too low water level for the washing load, rotation sensor failure, clutch sensor failure, defective operation or failure of clutch mechanism, drain valve motor failure, electronic unit failure, incomplete contact of in-machine wiring and wire disconnection. Depending on the detecting situation, error display may not always be the same even when a deficiency occurred on the same place. Please check the operation of the motor and clutch following the procedures shown below.



## Actions to be taken when the motor and clutch switching were judged to be normal

If the motor and clutch switching were judged to be normal, check whether or not there is no abnormality on wiring connection (incomplete connection of connector or incomplete contact etc.) again.

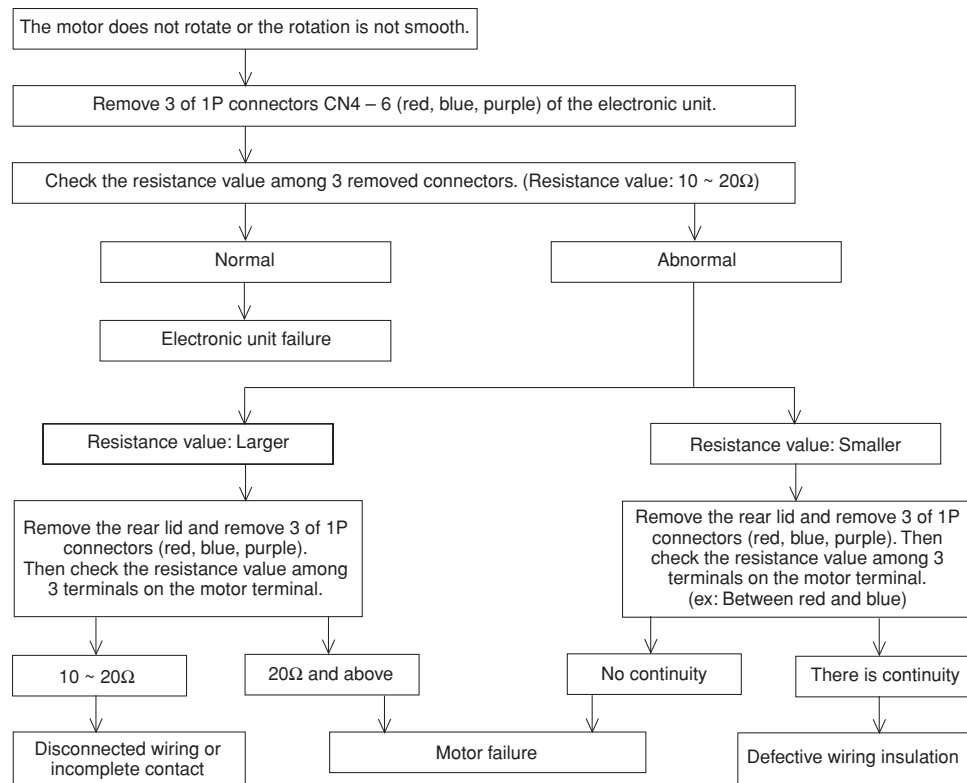
When an abnormality cannot be identified due to the reason of occasional abnormal occurrence, etc., check the number of abnormality occurrence and observe the situation for a certain period of time.

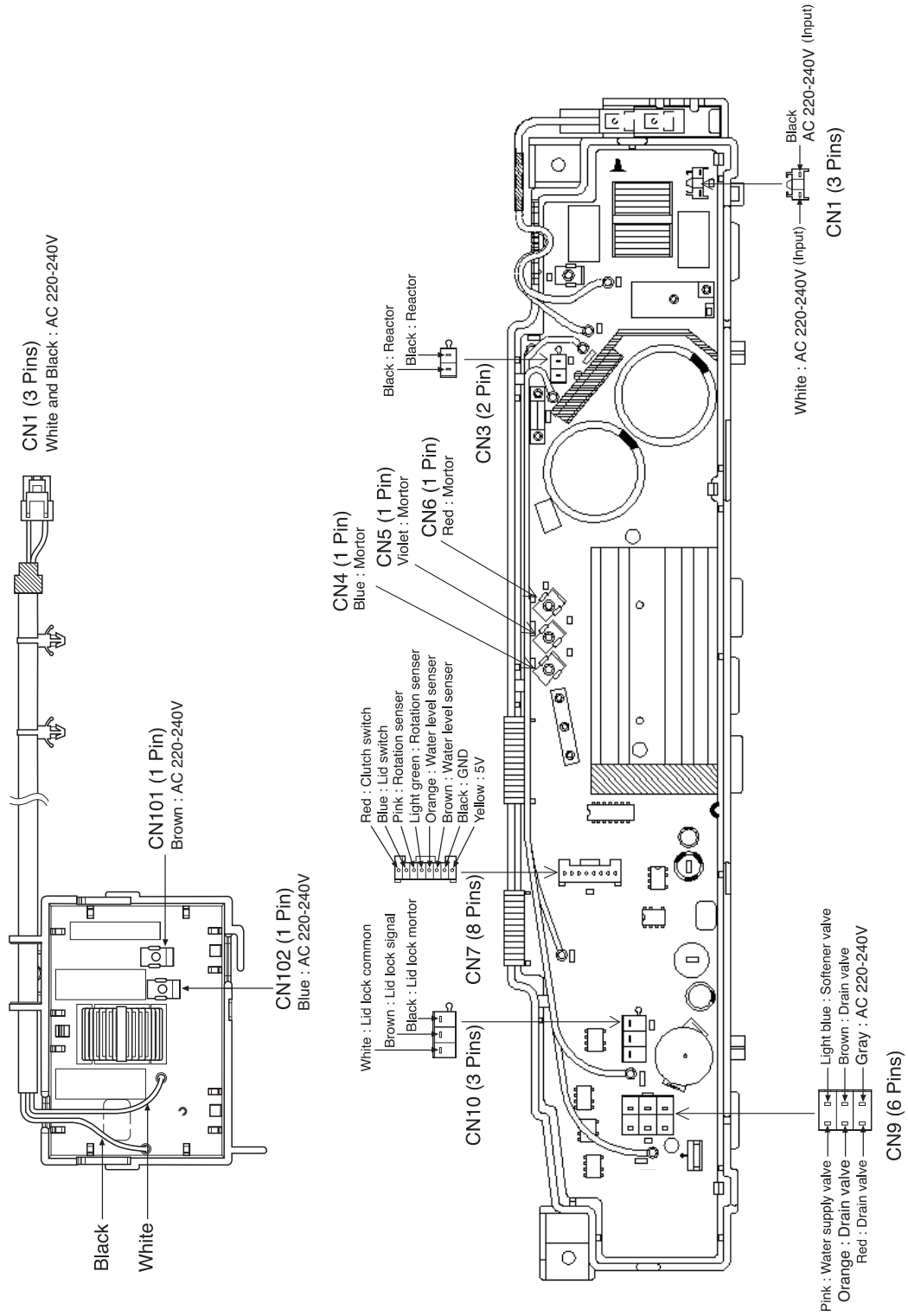
(It is suspected that the abnormality is due to certain usage condition including excessive washing load or condition of clothes.)

\* How to check the number of abnormality occurrence: Refer to Page 36

## Simple checking method in case of abnormal motor operation

Failure of drive circuit inside the electronic unit, abnormal motor coil, disconnected wiring and incomplete contact, etc. are suspected to be a cause of abnormal motor operation. Carry out the check by the following methods.

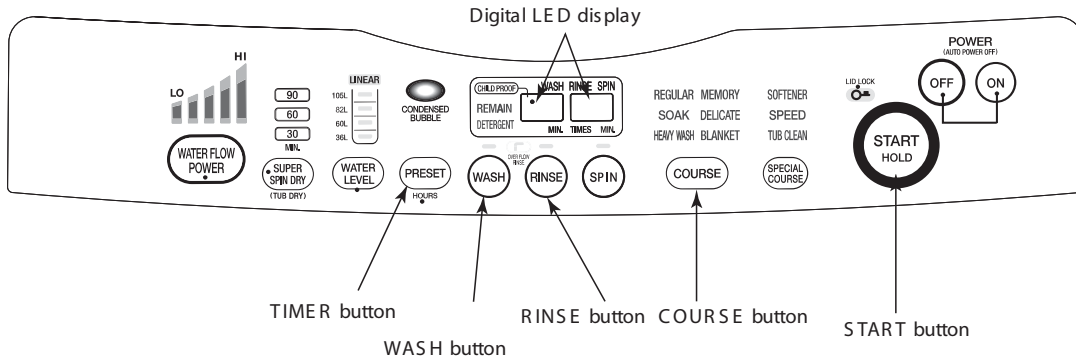




## Displaying Method of the Number of Error Occurrence and Its Clearing Method


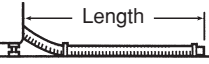
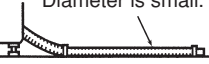

### (1) Displaying method of the number of error occurrence and its clearing method

The number of past error occurrence is kept in the memory and can be displayed on the control panel. Memorized number of error occurrence can also be cleared. Use this function to check the failure for any repair work or to check the conditions after repair.


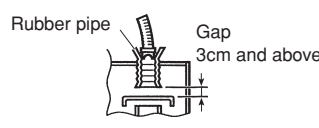

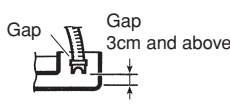



Display Sample on Number LED Display	Button	Description
E 1	WASH and RINSE	[Setting of display mode] Within 3 minutes after turning on the power button, press the WASH and RINSE button for approximately 1 second. Error number is displayed on the number LED. (The buzzer beeps.) (The power is automatically turned off in 10 minutes.) (Subsequently, operations will be in display mode.)
E 1 → E 2	TIMER	[Change error number (increment)] Error number increments. E every time TIMER button is pressed, the display changes as follows: E 1 → E 2 → E 3 → E 5 → E 6 → E 7 → E 8 → E 9 → E P → E c → E L → E A → A F → E → E 23 → E 95
E 1 → E A	WASH	[Change error number (decrement)] Error number decrements. E every time WASH button is pressed, the display changes as follows: E 1 → E 95 → E 23 → E → F A → E A → E L → E c → E P → E 9 → E 8 → E 7 → E 6 → E 5 → E 3 → E 2
E 2 → 009 (Ex: E 2 error occurred 9 times in the past.)	START	[Display the number of error occurrence] After selecting the error number by the above method using TIMER or WASH button, press START button. The number of past occurrence of that error will be displayed. (Displayed in 3-digit number. Max. displayed number: 255 times) (Display "000" means the number of error occurrence is 0.)
E A (This can be used for any displayed error number.)	START and COURSE	[Clear the memorized number of errors] Memorized number of errors can be cleared. (The buzzer beeps.) (Memorized number of all the errors will be cleared.) Use it when necessary after repair. (To check the completed repair works on a later day, etc.)

## Symptoms That Are Easily Suspected As a Failure

Symptom	Check Points	Actions to be Taken
(1) Error is displayed on the timer display and electronic buzzer sounds.	Check following "Abnormality Alarm" on Page 24 ~ 27.	Take actions stated on "Abnormality Alarm" on Page 24 ~ 27.
(2) Operation stops in the midst of a process.	① Is "Abnormality Alarm" mentioned on the above (1) made?	Same as the above (1).
	② Has the process where spinning is omitted been set? If the process where spinning is omitted is set, the operation stops at the completion of the final rinse without performing draining.	Use the machine just by pressing the COURSE button only. Automatic operation will be performed from washing until spinning.
(3) "WASH, RINSE and SPIN" buttons do not work when a process is under way.	① Is the "START/STOP" button pressed after laundry started?	Do the setting after pressing the START button.
	② Is a change made in the midst of rinse or spin process? (Rinse and spin process cannot be changed in the midst of the process.)	It is not a failure. When wanting to make any change in the midst of a process, press the power switch to turn off and on the power and then do the setting again.
(4) "START/STOP" button does not work.	Has the timer been set?	It is not a failure. Press the power switch to turn off and on the power and then cancel the timer.
(5) Water cannot be drained effectively. Water cannot be drained. It is difficult to drain the water. (E1 is displayed.)	① Has the process where spinning is omitted been set?	Same as the above (2) -②
	② Is the drain hose raised due to a doorsill, etc.? (Is the abnormality alarm "E1" made?)	 Adjust the height of the drain hose to 15cm or below.
	③ Is the drain hose raised due to a doorsill, etc.? (Is the abnormality alarm "E1" made?)	 Adjust the length of the drain hose to 3m or below (on a flat surface).
	④ Is a commercially available thinner hose (25φ) used as an extension of the drain hose? (Is the abnormality alarm "E1" made?)	 Replace the extension to the optional extension hose designated by Toshiba
	⑤ Is the drain hose connected to the drain port without any gap? (Is the abnormality alarm "E1" made?)	 Allow some gap. Gap Gap 3cm and above

## Symptoms That Are Easily Suspected As a Failure (Continued)

Symptom	Check Points	Actions to be Taken
	<p>⑥ Is the drain hose flattened? (Is there an "abnormality alarm"?)</p>	Replace the hose if it is abnormal.
	<p>⑦ Is the tip of the drain hose closed? (Is the abnormality alarm "E1" made?)</p>  <p>Note) If a laundry pan is used, allow some gap at the rubber pipe.</p>  <p>Rubber pipe      Gap 3cm and above</p> <p>※ A sleeve is attached to the tip of the drain hose. Do not remove it as it is to make some gap at the tip of the hose.</p>  <p>Sleeve      Gap</p>	<p>Allow some gap.</p>  <p>Gap      Gap 3cm and above</p> <p>If no gap can be made, cut the hose, not at its tip, diagonally.</p>  <p>Cut diagonally.</p>
(6) Reverse rotation time at the end of washing or rinsing is short.	Short reverse rotation is sometimes made during the last 20 seconds of wash or rinse process to fluff the clothes. It is not an abnormal.	It is not a failure.
(7) Laundry time is longer than usual.	<p>① Is a process to rectify unbalanced wash load inserted in the operation? In case of badly unbalanced wash load during spinning, the process of "water supply → agitation (1 min) → drain" is inserted. This makes operation time longer.</p>	It is not a failure. Check the installation (unbalanced legs or levelness of the main unit) and rectify the problem, if any.
	<p>② Is the drain hose raised due to a doorsill, etc.? If the drain hose is too long, a large amount of suds are formed during rinsing or draining. This makes rotation efficiency during spinning lower and the process of "water supply → agitation (1 min) → drain" is inserted automatically, and the operation time thus becomes longer.</p>	Same as the above (5) -②
(8) An abnormal noise is heard.	<p>① Is a foreign matter stuck to the pulsator? ② Is the washing machine installed on an inclined or unlevelled surface? ③ Is the wash load unbalanced during spinning? ④ Operation noise during water supply is the sound that is generated when the water supply valve works. Water flow sound when spinning completes is the sound of liquid for balancing on the wash tub. None of the above sound/noise is abnormal. ⑤ A knocking sound is heard when plugged in the power cord. It is the sound generated when current flows into drain valve motor and is not abnormal. ⑥ A click sound is heard when operation is switched to washing or spinning. It is the sound of clutch switching, which is not abnormal.</p>	

Symptom	Check Points	Actions to be Taken
(9) Washing machine does not work.	① Power failure occurred? ② Fuse blew or circuit breaker tripped? ③ Is contact of the power plug perfect? ④ Was the power switch pressed? Was START/STOP button pressed? ⑤ Is the tap turned on? (Is the abnormality alarm "E5" made?) ⑥ Is the specified amount of water filled in the tub? ⑦ Is the drain hose put down? To prevent water from pooling on the floor, this type of washing machine stops the operation if the drain hose is not put down. (Abnormality alarm "E1" is made.)	Remove the problem and restart the operation by pressing the "START/STOP" button, etc.
(10) Softener does not work efficiently.	Is softener hardened in the softener dispenser?	Remove and wash the dispenser in the softener case.
(11) Time required is different from the displayed remaining time.	Time required may be longer depending on water pressure, condition of clothes and draining condition. * If automatic unbalance rectifying function works, the displayed remaining time increases accordingly.	It is not a failure.
(12) Water level decided by the weight sensor is not the desired water level.	Weight sensor selects the standard water level. Set user's personal desired water level. When damp clothes are put in the machine, the water level may become higher	Refer to the weight sensor adjustment on the instruction manual.
(13) The machine does not work as user desires.	Turn off and on the power and attempt operation with buttons. If the machine still does not work, unplug and plug in again and operate the machine.	Read the instruction manual.
(14) The pulsator rotates while water is being supplied in wash or rinse process.	When water is supplied until certain level, the pulsator is programmed to start rotating to start wash or rinse process.	It is not a failure.
(15) Rotation speed for spinning changes.	With spinning control, the rotation speed is set to low for approximately 2-3 minutes after spinning starts. In addition, rotation speed slightly changes during spinning.	It is not a failure.
(16) The panel becomes warm.	If the unit is plugged in, the surface and surrounding of the panel becomes warm. This is due to heat radiation of electronic components.	It is not a failure.
(17) Detergent amount is not displayed.	① Is the lid closed? (Detergent amount is displayed if the lid is opened.) ② Detergent amount is not displayed for blanket and dry course.	It is not a failure.

### Symptoms That Are Easily Suspected As a Failure (Continued)

Symptom	Check Points	Actions to be Taken
(18) The wash tub rotates before water is supplied or after spinning.	In the following cases, the pulsator or wash tub rotates for 2~20 seconds to switch the clutch. <Switching the clutch from wash side to spin side> • When moving from wash/rinse process to spin process. <Switching the clutch from spin side to wash side> • When moving from spin process to wash/rinse process. • When moving to automatic unbalance rectifying process after detecting unbalance during spinning. • When the course completes (to prepare the next laundry).	It is not a failure.
(19) Rotation for spinning stops temporarily at the beginning of the spinning.	To remove water, the machine is programmed to stop temporarily and restart after a certain time has elapsed.	It is not a failure.
(20) Sparks can be seen when plugged in.	Sparks may be seen at the power receptacle when plugged in. This is due to charge current to the electrolytic capacitor and is not abnormal.	It is not a failure.



## 7. DISASSEMBLY INSTRUCTIONS

### Repairing and Disassembling Method



#### WARNING

**Ask your client not to bring any child near the place where service and repairs are carried out.**  
Failure to observe this warning could result in injury of child due to tools or disassembled parts



Do not come near

**Unplug the power cord when no electric power is required, e.g., disassembling, etc.**

Failure to observe this warning could result in electrical shock or injury.



Unplug

**Do not plug in and unplug the power cord with wet hand.**

Failure to observe this warning could result in electrical shock or injury.



No wet hand

**For repair, use spare parts for the model concerned.**

Failure to observe this warning could result in abnormal operation or failure, which could lead to accident including leakage current and fire.



Use spare parts

**Do not modify.**

**Do not allow any person other than service personnel to disassemble or repair the product.**

Failure to observe this warning could result in fire, electrical shock or injury.



No modifying

**Do not put or splash water on any electric part.**

Failure to observe this warning could result in electrical shock or short.



Do not splash water



#### CAUTION

**Do not pull the cord to unplug.**

Hold the power plug to unplug.

Failure to observe this warning could result in electrical shock or fire due to short.



Do not pull

## Notes on Repair and Disassembling

Make sure to observe the followings when carrying out failure diagnosis and replacing parts.

- (1) Unplug and wait for 10 seconds before starting operation. (This machine is equipped with a large-capacity capacitor.)
- (2) To prevent damage on electronic components due to static electricity charged in human body or resin part of the washing machine, eliminate potential difference between human body and washing machine by using a body earth or by touching the earth wire before performing any work that involves contact to the program timer.



- (3) Electronic components on PCB cannot be replaced as the program timer is protected by a humidity proof coating to increase its humidity resistance. Replace the whole program timer unit. Care should be taken for handling of the humidity proof coating to avoid damage.
- (4) Both strong electricity (AC220V, DC315V) and weak electricity (DC17V) exist inside the panel. Take due care to avoid electrical shock due to careless handling.
- (5) Care should be taken to avoid burn as the heat sink of the program timer becomes hot immediately after use.

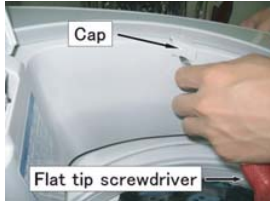





## <Replacing Water Supply Valve and Water Dispenser Case>

This series adopted the structure where the water supply valve is directly connected to the water dispenser case.

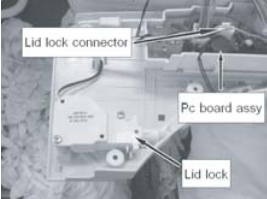
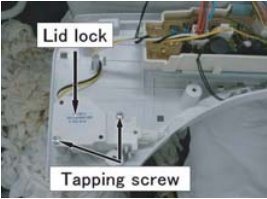
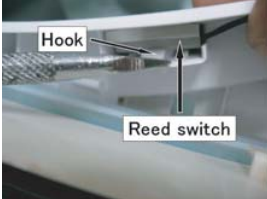
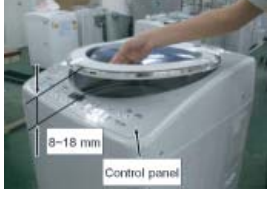

When replacing the water supply valve, make sure to use the O-ring provided. Use of old O-ring could result in water leakage.

After removing and reattaching the water dispenser case, make sure to carry out trial run before installing the back cover to make sure that water does not leak from any joint.

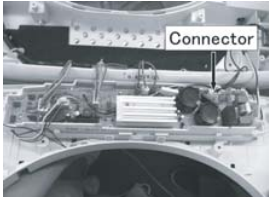
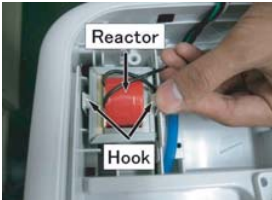



Unless otherwise specified, reassembling is to be performed in the reverse procedures of disassembling.

Part Name	Illustration	Repair Procedures Description in <input type="checkbox"/> shows notes.
(1) Pc board assembly	 <p>Cap Flat tip screwdriver</p> <p>(Photo 1)</p>	<ul style="list-style-type: none"> <li>• Eliminate static electricity before replacing the Pc board assy as it may be damaged by static electricity.</li> <li>• Use protective gears such as gloves when carrying out disassembling or inspection.</li> </ul> <p>&lt;Cautions for repair and replacement&gt; Refer to Page 41.</p> <p>Follow the cautions on Page 41 for handling of spare electronic components.</p> <ol style="list-style-type: none"> <li>① Open the lid and remove the cap of the panel assy (2 pc) with a flat tip screwdriver, etc. (Photo 1)</li> <li>② Remove the screw (2 pc) under the cap.</li> <li>③ Pull up the top cover deco(2 pc) and slide down. Remove the top cover deco (2 pc) from the top cover. (Photo 2)</li> <li>④ Slide the panel assy to back side and pull up the panel assy from the top cover. (Photo 3)</li> <li>⑤ Remove the screw(4 pc) on the control panel. (Photo 4)</li> <li>⑥ Pull up the control panel from the top cover and raise it towards you.</li> <li>⑦ Remove the connectors (8 pcs) of the lead wire unit from the Pc board assy. (Photo 5)</li> <li>⑧ Remove two tapping screws. Take out the Pc board assy from the control panel. (Photo 6)</li> </ol> <p>* Observe the followings when reassembling.</p> <p>Note 1) Fit in the connector securely.</p> <p>Note 2) Match the color of each lead wire.</p> <p>Note 3) Do not pinch lead wires at any part where pinched lead wire can become an obstacle to switch operations.</p> <p>Note 4) Do not pinch lead wires between the top cover and control panel.</p>
	 <p>Top cover deco</p> <p>(Photo 2)</p>	
	 <p>Panel</p> <p>(Photo 3)</p>	
	 <p>Screws</p> <p>Control panel</p> <p>(Photo 4)</p>	
	 <p>Connector</p> <p>(Photo 5)</p>	
	 <p>Unit mounting screw</p> <p>Electronic unit</p> <p>(Photo 6)</p>	

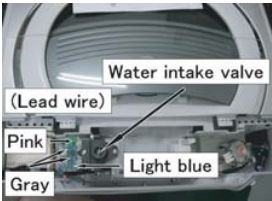

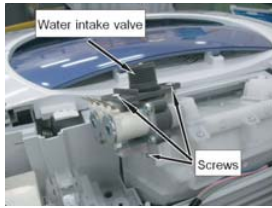
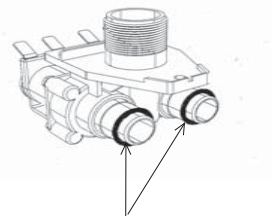
Unless otherwise specified, reassembling is to be performed in the reverse procedures of disassembling.

Part Name	Illustration	Repair Procedures Description in <input type="checkbox"/> shows notes.
(2) Lid lock	 <p>(Photo 7)</p>  <p>(Photo 8)</p>	<p>① Remove the cap and the screws of the panel assy following the procedures stated in ①, ② of (1).</p> <p>② Remove the top cover deco, the panel assy and the control panel from top cover following the procedures stated in ③~⑥ of (1)</p> <p>③ Remove the lid lock connector from Pc board assy. (Photo 7)</p> <p>④ Remove two tapping screws. Take out the lid lock from the control panel. (Photo 8)</p>
(3) Reed switch	 <p>(Photo 9)</p>  <p>(Photo 10)</p>	<p>① Remove the cap and the screws of the panel assy following the procedures stated in ①, ② of (1).</p> <p>② Remove the top cover deco, the panel assy and the control panel from top cover following the procedures stated in ③~⑥ of (1).</p> <p>③ Remove the reed switch connector from lead wire assy.</p> <p>④ Remove the reed switch by pushing hook. (Photo 9)</p> <p>⑤ After replacing the reed switch, check the operation of the reed switch (operation angle of the lid). Also, make sure the brake works when the lid end is higher than 8~18 mm from the upper control panel on the top cover. (Photo 10)</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>* Observe the followings when reassembling.            Note : When reassembling, arrange the lead wire of reed switch turn around lead wire of lid lock as it originally was. For protective Pc board assy damage.</p> </div>
(4) Reactor	 <p>(Photo 11)</p>	<p>① Cut the lock tie of reactor connector wire with a nipper etc. (Photo 11)</p>

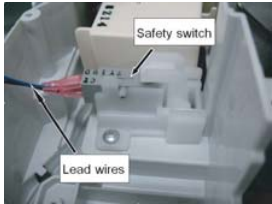
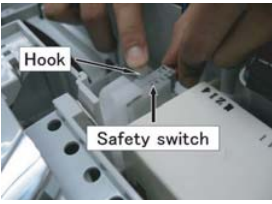

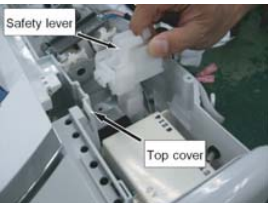
Unless otherwise specified, reassembling is to be performed in the reverse procedures of disassembling.

Part Name	Illustration	Repair Procedures Description in <input type="checkbox"/> shows notes.
(4) Reactor	 <p>(Photo 12)</p>  <p>(Photo 13)</p>	<p>② Take out the connector from Pc board assy. (Photo 12)</p> <p>③ Remove the reactor while opening the hook(2 places). (Photo 13)</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>* Observe the followings when reassembling.            Note 1) When cutting the insulock, don't damage the lead wire.            Note 2) When reassembling, arrange the lead wires as it originally was.</p> </div>
(5) Water intake valve, Water feed case assembly	 <p>(Photo 14)</p>  <p>(Photo 15)</p>  <p>(Photo 16)</p>	<p>① Remove the softner case. (Photo 14)</p> <p>② Remove 2 back cover mounting screws at rear. (Photo 15)</p> <p>③ Remove the back cover by inserting a screwdriver (-) from the lower end of bottom. (Photo 16)</p>

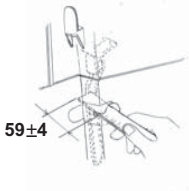
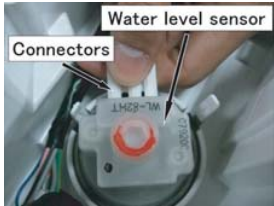
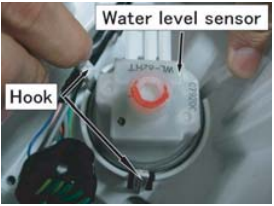

Unless otherwise specified, reassembling is to be performed in the reverse procedures of disassembling.

Part Name	Illustration	Repair Procedures Description in <input type="checkbox"/> shows notes.		
(5) Water intake valve, Water feed case assembly	 <p>(Photo 17)</p>	④ Remove four lead wires from the water intake valve. (Photo 17) <table border="1" data-bbox="834 585 1260 690"> <tr> <td data-bbox="834 585 1000 690">Intake valve</td> <td data-bbox="1000 585 1260 690">Lead wire: Pink, Gray, Gray, Light blue</td> </tr> </table>	Intake valve	Lead wire: Pink, Gray, Gray, Light blue
	Intake valve	Lead wire: Pink, Gray, Gray, Light blue		
	 <p>(Photo 18)</p>	⑤ Pull up the water feed case to the back side with pushing two hooks. (Photo 18)		
	 <p>(Photo 19)</p>	⑥ Take out the intake valve and valve mounting base from water feed case (3 screws.) (Photo 19)		
 <p>(Fig. 1)</p>	<table border="1" data-bbox="805 1381 1304 1545"> <tr> <td data-bbox="805 1381 1304 1545">           * Observe the followings when reassembling.            Note : When reassembling the water feed case, arrange the packing its originally was. (Fig. 1)         </td> </tr> </table>	* Observe the followings when reassembling. Note : When reassembling the water feed case, arrange the packing its originally was. (Fig. 1)		
* Observe the followings when reassembling. Note : When reassembling the water feed case, arrange the packing its originally was. (Fig. 1)				

Unless otherwise specified, reassembling is to be performed in the reverse procedures of disassembling.

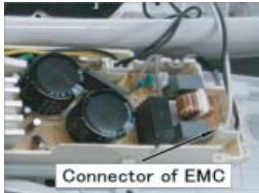

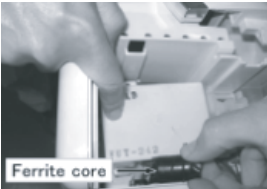
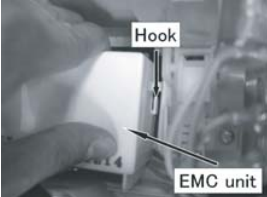
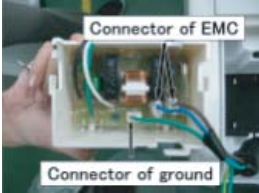
Part Name	Illustration	Repair Procedures Description in <input type="checkbox"/> shows notes.
(6) Safety lever	 <p>(Photo 20)</p>	① Remove two lead wires from the safety switch. (Photo 20)
	 <p>(Photo 21)</p>	② Remove the safety switch with pushing the hook. (Photo 21)
	 <p>(Photo 22)</p>	③ Remove the screw (1 pc) which fixes the safety lever on the top cover. (Photo 22)
	 <p>(Photo 23)</p>	④ Pull up the safety lever out from the groove of top cover. (Photo 23)

Unless otherwise specified, reassembling is to be performed in the reverse procedures of disassembling.

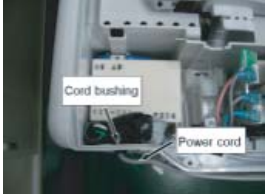
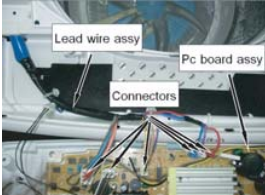
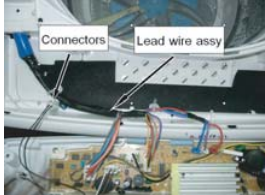
Part Name	Illustration	Repair Procedures Description in <input type="checkbox"/> shows notes.
(6) Safety lever	 <p>59±4</p> <p>(Fig. 2)</p>	<p>* Following notes are necessary when reassembling.</p> <p>Note 1: Make sure (through the half hole provided on upper frame) distance between the safety lever and the cabinet is 59±4mm. (Fig. 2)</p> <p>Note 2: Taking care not to miss the color of each lead wire and connectors. Also make sure they are connected securely. The intake valve has specified lead colors.</p>
(7) Water level sensor	 <p>Water level sensor</p> <p>Connectors</p> <p>(Photo 24)</p>  <p>Water level sensor</p> <p>Hook</p> <p>(Photo 25)</p>  <p>Air tube</p> <p>(Photo 26)</p>	<p>① Remove the connector from the water level sensor. (Photo 24)</p> <p>② Pull up the water level sensor with pushing hooks. (Photo 25)</p> <p>③ Pull out the air tube from the water level sensor. (Photo 26)</p> <p>* Observe the followings when reassembling.</p> <p>Note : When reassembling the air tube, arrange the packing its by apply adhesives for connection type "CEMEDINE 366E".</p>



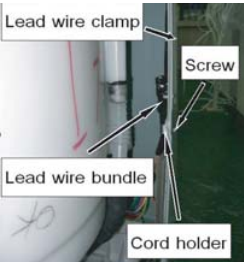


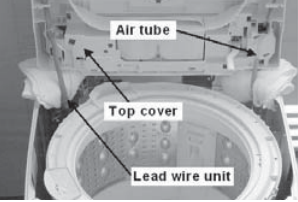

Unless otherwise specified, reassembling is to be performed in the reverse procedures of disassembling.

Part Name	Illustration	Repair Procedures Description in <input type="checkbox"/> shows notes.
(8) EMC unit	 <p>Connector of EMC</p> <p>(Photo 27)</p>	<p>① Open the control panel following the procedures stated in ①~⑥ in (1).</p> <p>② Cut the lock tie following the procedures stated in ① in (4).</p> <p>③ Remove EMC connector from Pc board assy. (Photo 27)</p>
	 <p>Lead clamps</p> <p>(Photo 28)</p>	<p>④ Open the back cover following the procedures stated in ①~③ in (5).</p> <p>⑤ Push out two lead clamps from the top cover. (Photo 28)</p>
	 <p>Ferrite core</p> <p>(Photo 29)</p>	<p>⑥ Pull up the ferrite core. (Photo 29)</p>
	 <p>Hook</p> <p>EMC unit</p> <p>(Photo 30)</p>	<p>⑦ Slide the EMC unit to the back side with pushing the hook and pull up the EMC unit from the top cover. (Photo 30)</p>
	 <p>Connector of EMC</p> <p>Connector of ground</p> <p>(Photo 31)</p>	<p>⑧ Remove three connectors of the power cord from the EMC unit. (Photo 31)</p>

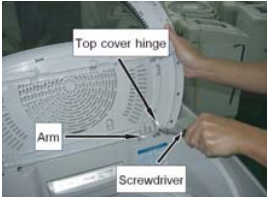
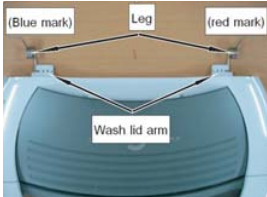


Unless otherwise specified, reassembling is to be performed in the reverse procedures of disassembling.

Part Name	Illustration	Repair Procedures Description in <input type="checkbox"/> shows notes.
(9) Power Cord assembly	 <p>(Photo 32)</p>	<p>① Remove the power cord wire from the hook of the top cover.</p> <p>② Remove the back cover following the procedures stated in ① ~ ③ of (5).</p> <p>③ Remove the power cord while pinching the both sides of the cord bushing with pliers and pressing the tabs.</p> <p style="text-align: right;">(Photo 32)</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>* Observe the followings when reassembling.</p> <p>Note 1) When reassembling, bring the tab of the power cord bushing to the right side viewing from behind the product.</p> <p>Note 2) When reassembling, arrange the power cord wiring as it originally was.</p> </div>
(10) Lead wire assembly	 <p>(Photo 33)</p>  <p>(Photo 34)</p>	<p>① Open the control panel following the procedures stated in ① ~ ⑥ in (1).</p> <p>② Remove the connectors (5 pcs) of the lead wire unit from the Pc board assy.</p> <p style="text-align: right;">(Photo 33)</p> <p>③ Remove the connectors (1 pcs) of the lead wire unit from the reed switch.</p> <p style="text-align: right;">(Photo 34)</p> <p>④ Remove the back cover following the procedures stated in ① ~ ③ of (5).</p> <p>⑤ Remove the lead wires of the safety switch following the procedures state in ① of (6).</p> <p>⑥ Remove the lead wires of the water intake valve following the procedures state in ④ of (5).</p> <p>⑦ Remove the lead wires of the water level sensor following the procedures state in ① of (7).</p>

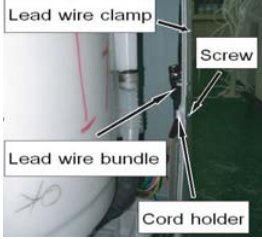
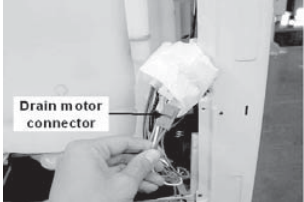
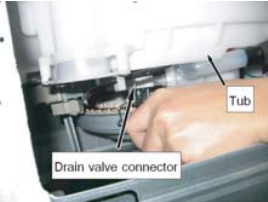
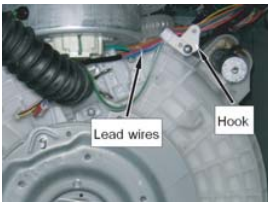
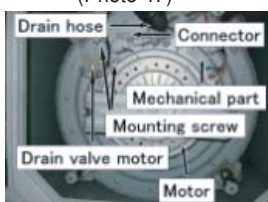
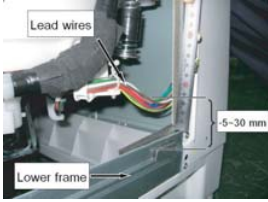
Unless otherwise specified, reassembling is to be performed in the reverse procedures of disassembling.

Part Name	Illustration	Repair Procedures Description in <input type="checkbox"/> shows notes.
(10) Lead wire assembly	 <p>(Photo 35)</p>	<p>⑧ Remove the rear cover. (6 screws)</p> <p>⑨ Remove the lead wire clamps (1 places) from the external case. Then remove the lead wire bundle from the cord holder (by takeoff 1 screw). (Photo 35)</p>
	 <p>(Photo 36)</p>	<p>⑩ Remove the tapping screws (2 pcs) on the back side of top cover. (Photo 36)</p>
	 <p>(Photo 37)</p>	<p>⑪ Remove the circle sheet side of the top cover(2 pc) with a flat tip screw-driver. Remove the screw(2 pc) under the circle sheet. (Photo 37)</p> <p>⑫ Pull up the top cover from cabinet.</p>
	 <p>(Photo 38)</p>	<p>⑬ Let the whole top cover lean against the wall, etc. to let it stand on the external case. At this time, put a towel between the lead wire and external case to prevent lead wires from being cut. In addition, put a towel on the air tube of the water level sensor to prevent it from being damaged with the top end of the external case. Pay attention not to deform the safety lever. (Photo 38)</p>
	 <p>(Photo 39)</p>	<p>⑭ Cut the lead clamps (3 pcs) from the top cover.</p> <p>⑮ Remove the lead wire assy from the hook of the top cover. Take out the lead wire assy from the top cover. (Photo 39)</p> <p>⑯ Let the whole lead wire assy down on the external case.</p> <p>⑰ Remove the taping bundling the lead wires. Then separate the lead wires (lead wires in the top cover and lead wire connectors on the main unit side).</p>


Unless otherwise specified, reassembling is to be performed in the reverse procedures of disassembling.

Part Name	Illustration	Repair Procedures Description in <input type="checkbox"/> shows notes.
(11) Wash lid	 <p>(Photo 40)</p>	<p>① Remove the back cover following the procedures stated in ① ~③ of (5).</p> <p>② While the wash lid is open, remove the hinge which is located on the right side viewing from the front side. Inserting a screwdriver (-) between the top cover hinge and the arm of the wash lid. While opening the hinge, pull up the wash lid with your right hand to remove it.</p> <p>(Photo 40)</p>
	 <p>(Photo 41)</p>	<p>Note 1) Be careful not to break the hinge when removing the wash lid.</p> <p>Note 2) Be careful of deformation of the lid spring which is attached to the arm (left side) of the wash lid.</p>
	 <p>(Photo 42)</p>	<p>* Carry out reassembling following the procedures stated below.</p> <ul style="list-style-type: none"> <li>• Attach the leg with the spring (red mark is located on the right side, blue mark on the left side viewing from the front side of washing machine) to the wash lid arm. (Photo 41)</li> <li>• And fit the another leg into the hook groove of the top cover. (Photo 42)</li> </ul>
	 <p>(Photo 43)</p>	<ul style="list-style-type: none"> <li>• While the wash lid is open and then push the spring into the groove of the top cover (right side and left side) (Photo 43)</li> </ul> <p>Make sure that the wash lid rotates smoothly. And no mistake spring side.</p> <ul style="list-style-type: none"> <li>* Blue of L-side.</li> <li>* Red of R-side.</li> </ul>

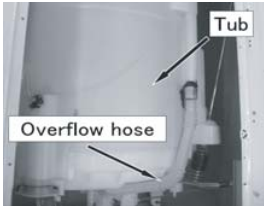
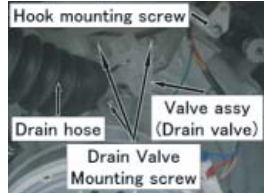
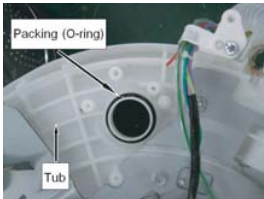

Unless otherwise specified, reassembling is to be performed in the reverse procedures of disassembling.

Part Name	Illustration	Repair Procedures Description in <input type="checkbox"/> shows notes.
(12) Gear-motor	 <p>(Photo 44)</p>	① Remove the rear cover. (6pcs screw) (Photo 44)
	 <p>(Photo 45)</p>	② Remove the cord holder and remove the connector of the drain valve motor (3P) from the wirings in the external case (inside the taping bundling the lead wires : Lead wires in the top cover and lead wire connectors on the main unit side). (Connector color: Blue, Lead wire color: Brown, red, white) (Photo 45)
	 <p>(Photo 46)</p>	* Lay down washing machine following the procedures stated below. • Before laying down washing machine, check remaining water. If water remains, drain water by pulling the drain valve connector. (Photo 46)
	 <p>(Photo 47)</p>	• Remove the softener case and put a towel, etc. in the water dispenser case before laying down the main unit. ③ Remove the hook (screw, 1pc) which fixes the lead wires on the water tub and remove the taping bundling the lead wires. Then separate only the lead wire of the drain valve motor from other lead wires. (Photo 47)
	 <p>(Photo 48)</p>	④ Remove the valve spring from drain valve connector with long-nose pliers. ⑤ Remove the mounting screws (2pcs) to remove the drain valve motor. (Photo 48)
	 <p>(Photo 49)</p>	<div style="border: 1px solid black; padding: 5px;">           *Observe the followings when reassembling.            • Return the lead wire tape. Don't add the extra tape.            • Put the lead wire of the drain valve motor through the air trap of the water tub and the hook on the valve assembly, then fix it on the water tub together with other lead wires.            • Check the height of the lead wire after assembling. (Photo 49)         </div>

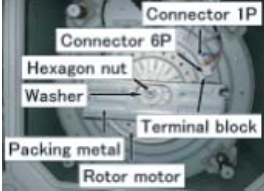
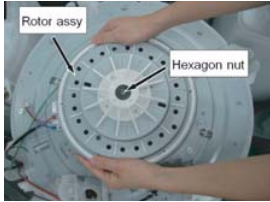
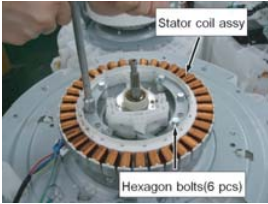
Unless otherwise specified, reassembling is to be performed in the reverse procedures of disassembling.

Part Name	Illustration	Repair Procedures Description in <input type="checkbox"/> shows notes.
(13) Drain Valve	 <p>(Photo 50)</p>	<p>① Remove the rear cover. (6 pcs screw)</p> <p>② Lay down the washing machine to the front side.</p> <ul style="list-style-type: none"> <li>• Before laying down washing machine, check remaining water. If water remains, drain water by pulling the drain valve connector.</li> <li>• Remove the softener case and put a towel, etc. in the water dispenser case before laying down the main unit.</li> </ul> <p>③ Remove the valve spring from drain valve connector with long-nose pliers. (Photo 50)</p> <p>④ Remove the valve cap by turning it counterclockwise. At this time, put a towel, etc. under the valve so that water flow out from the valve will not wet the motor.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>* Observe the followings when reassembling. Note 1) Firmly tighten the valve cap as loose valve cap may cause water leakage.</p> </div>

Unless otherwise specified, reassembling is to be performed in the reverse procedures of disassembling.

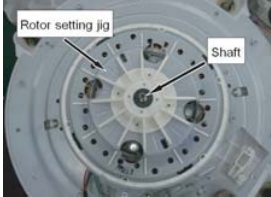
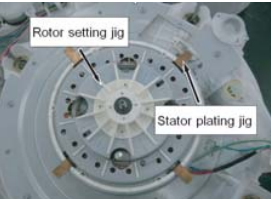
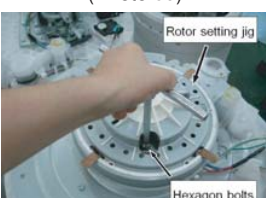
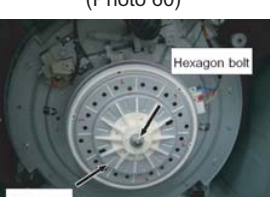
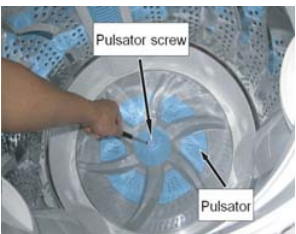
Part Name	Illustration	Repair Procedures Description in <input type="checkbox"/> shows notes.
(14) Valve Assembly	 <p>(Photo 51)</p>  <p>(Photo 52)</p>  <p>(Photo 53)</p>  <p>(Photo 54)</p>	<p>Note 1) Make sure that the power cord is unplugged.</p> <ol style="list-style-type: none"> <li>① Remove the rear cover. (6 pcs screw)</li> <li>② Lay down the washing machine to the front side.</li> </ol> <ul style="list-style-type: none"> <li>• Before laying down washing machine, check remaining water. If water remains, drain water by pulling the drain valve connector.</li> <li>• Remove the softener case and put a towel, etc. in the water dispenser case before laying down the main unit.</li> </ul> <ol style="list-style-type: none"> <li>③ Remove the upper side of the overflow hose with a cutter knife from the tub. (Photo 51)</li> <li>④ Remove the hose (rubber) with a screwdriver (-) from the valve assembly. (Photo 52)</li> <li>⑤ Remove the tapping screw (3 pcs) to remove the valve assembly from the tub.</li> </ol> <p>* Observe the followings when reassembling.</p> <p>Note 1) Make sure to attach packing (O-ring) to the tub before mounting the valve assembly to the tub. Check the O-ring shape. (Photo 53)</p> <p>Note 2) When putting the inner hose, set the position marking of the inner hose to the marking of the drain valve.</p> <p>Note 3) Apply adhesives for connection of drain hose. When applying adhesives, be careful not to allow the adhesives go in the water flowing part.</p> <p>Note 4) After replacing the valve assembly, make sure to check that no water leaks by filling the tub with water.</p> <p>Note 5) Fix the hose band to the original position. (Photo 54)</p>

Unless otherwise specified, reassembling is to be performed in the reverse procedures of disassembling.

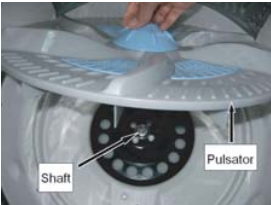
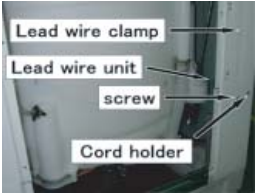
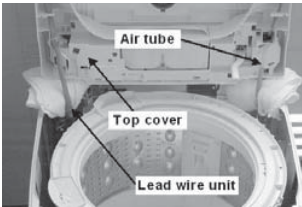
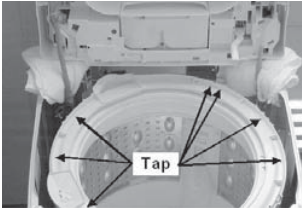
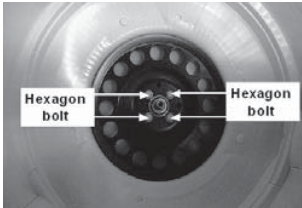
Part Name	Illustration	Repair Procedures Description in <input type="checkbox"/> shows notes.
(15) Motor Rotor assembly	 <p>(Photo 55)</p>  <p>(Photo 56)</p>	<p>Note 1) Make sure that the power cord is unplugged.</p> <p>① Lay down the washing machine to the front side.</p> <p>Before laying down washing machine, check remaining water. If water remains, drain water by pulling the drain valve connector. Remove the softener case and put a towel, etc. in the water dispenser case before laying down the main unit.</p> <p>② Remove the connector 1P (3pcs) and 6P (1pc) that are inserted into the terminal block of the stator. (Photo 55)</p> <p>③ Remove 3 tapping screws (opposite side 10mm) and packing metal.</p> <p>④ Hold the rotor by hand and remove the hexagon nut (opposite side 17mm) to remove the rotor. (Photo 56)</p> <p>Note 1) When the rotor is difficult to come off, be careful not to injure yourself by applying a large force.</p> <p>Note 2) Be careful not to allow the rotor to be pulled to the stator due to magnetic force of the rotor, which could result in your hand pinched between the rotor and stator.</p> <p>Note 3) Be careful not to lose the nut and washer.</p> <p>Note 4) Do not insert a screwdriver into the hole on the rotor. Contact with the stator could result in electrical shock or insulation deterioration due to damage on the stator.</p>
(15) Motor Stator coil assembly	 <p>(Photo 57)</p>	<p>① Remove 6 hexagon bolts that locks the stator (opposite side 10mm) to remove the stator. (Photo 57)</p> <p>Note 1) Wear the gloves to avoid any possible danger when removing the stator.</p>



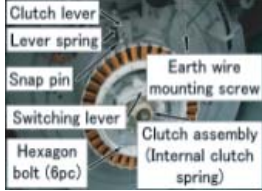
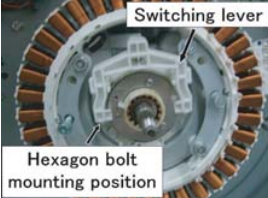
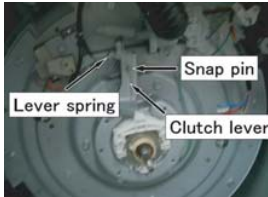
Unless otherwise specified, reassembling is to be performed in the reverse procedures of disassembling.

Part Name	Illustration	Repair Procedures Description in <input type="checkbox"/> shows notes.
(15) Motor Stator coil assembly	 <p>(Photo 58)</p>  <p>(Photo 59)</p>  <p>(Photo 60)</p>  <p>(Photo 61)</p>	<p>* Observe the followings when reassembling.</p> <p>Note 1) Insert each of 4 connectors into the terminal block by matching colors.</p> <p>Note 2) Be careful not to damage the coil or terminal block with a tool to avoid insulation deterioration.</p> <p>Note 3) Tighten the stator and rotor securely.</p> <p>( Tightening torque of the stator mounting bolt: 60~80kgf.cm ) ( Tightening torque of the rotor mounting bolt: 250~350kgf.cm )</p> <p>Note 4) Be careful not to allow the rotor to be pulled to the stator due to magnetic force of the rotor, which could result in your hand pinched between the rotor and stator.</p> <p>Note 5) To mount the stator coil assembly, loosen the hexagon bolts that locks the stator (6 pcs). Insert the rotor setting jig into the shaft (the groove of rotor setting jig must be to due position of four hexagon bolts on the spacer a both, except hexagon bolts position middle on the spacer). (Photo 58)</p> <p>Then insert stator plating jig into the groove of the rotor setting jig. (Air gap between stator coil assy and rotor assy is 0.4 mm) (Photo 59)</p> <p>Tighten the four hexagon bolts, then take out the rotor setting jig from the shaft. Tighten the two hexagon bolts position middle on the spacer. (Photo 60)</p> <p>Then insert the rotor into the shaft and fix the rotor with hand. Insert the hexagon wrench (opposite side 4 mm) to the hexagonal hole in the center of the shaft, then insert the rotor into the end of the shaft while rotating the wrench. (Photo 61)</p>
(16) Pulsator	 <p>(Photo 62)</p>	<p>① Remove the cap of the pulsator(1pc) with a flat tip screwdriver,etc. (Photo 62)</p> <p>② Loosen the screw and remove the pulsator while holding the pulsator screw. (Do not remove the screw from the pulsator.) (Photo 63)</p>

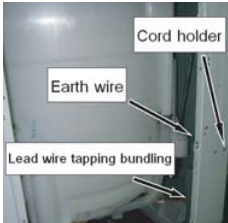


Unless otherwise specified, reassembling is to be performed in the reverse procedures of disassembling.

Part Name	Illustration	Repair Procedures Description in <input type="checkbox"/> shows notes.
(16) Pulsator	 <p>(Photo 63)</p>	<p>Be careful not to drop the washer which is located under the blade.</p> <p>Note 1) Be careful not to damage the spin tub when pulling out the pulsator from the spin tub.            Note 2) Be careful not to lose the washer which is located under the blade.            Note 3) Reassembly need put washer on shaft before lay down pulsator.</p>
(17) Spin basket assembly	 <p>(Photo 64)</p>  <p>(Photo 65)</p>  <p>(Photo 66)</p>  <p>(Photo 67)</p>	<ol style="list-style-type: none"> <li>① Remove the rear cover. (6 screws)</li> <li>② Remove the lead wire clamps (1 places) from the external case. Then remove the lead wire bundle from the cord holder (by takeoff 1 screw). (Photo 64)</li> <li>③ Remove the tapping screws (2 pcs) on the back side of top cover. And remove the circle sheet side and screws following the procedures stated in ⑩ ~ ⑪ of (10).</li> <li>④ Pull up the top cover from cabinet.</li> <li>⑤ Let the whole top cover lean against the wall, etc. to let it stand on the external case. At this time, put a towel between the lead wire and external case to prevent lead wires from being cut. In addition, put a towel on the air tube of the water level sensor to prevent it from being damaged with the top end of the external case. Pay attention not to deform the safety lever. (Photo 65)</li> <li>⑥ Release 12 hooks to remove the tub cover. (Photo 66)</li> <li>⑦ Remove the pulsator following the procedures stated in (16).</li> <li>⑧ Remove 4 hexagon bolts. (Photo 67)</li> </ol>


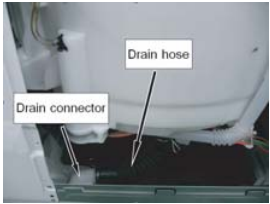

Unless otherwise specified, reassembling is to be performed in the reverse procedures of disassembling.

Part Name	Illustration	Repair Procedures Description in <input type="checkbox"/> shows notes.
(18) Drive assembly Clutch assembly Lever assembly	 <p>(Photo 68)</p>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">           Note 1) Make sure that the power cord is unplugged.         </div> <ol style="list-style-type: none"> <li>① Remove the packing metal and rotor following the procedures stated in ①~④ of (15).</li> <li>② For clutch assembly, remove 2 hexagon bolts (opposite side 8mm) that locks the switching lever. (Photo 68)</li> <li>③ After pushing the hexagon bolt mounting position on the switching lever, from which the hexagon bolts were removed, to the lever assembly side, remove the switching lever upwards and remove the clutch assembly and clutch spring. (Photo 69)</li> <li>④ For lever assembly, remove the stator following the procedures stated in ⑤ of (15). Remove the snap pin located at the tip of the clutch shaft and the lever spring of the clutch lever. Then, remove the lever and lever spring by pulling them towards you simultaneously. (Photo 70)</li> </ol>
	 <p>(Photo 69)</p>	
	 <p>(Photo 70)</p>	
<div style="border: 1px solid black; padding: 10px;"> <p>* Observe the followings when reassembling.</p> <p>Note 1) Mount the clutch lever before mounting the stator and clutch assembly. Clutch lever cannot be mounted if the stator and clutch assembly have already been mounted.</p> <p>Note 2) When mounting the clutch assembly to the spin shaft, mount the clutch spring first and then the switching lever assembly. The switching lever assembly must be mounted by fitting and pushing the teeth of the clutch assembly to the teeth of the lock gear.</p> <p>Note 3) Before mounting the rotor, make sure that the teeth of the clutch assembly, after tightening the switching lever with a screw, can be removed from the teeth of the lock gear when the clutch lever is pulled.</p> <p>Note 4) Lock gear is not available just by itself as precise mounting is required. Use mechanical part assembly or cup assembly.</p> </div>		

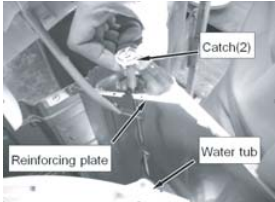
Unless otherwise specified, reassembling is to be performed in the reverse procedures of disassembling.

Part Name	Illustration	Repair Procedures Description in <input type="checkbox"/> shows notes.
(19) Drive assembly Cup assembly Spin shaft assembly	 <p>(Photo 71)</p>  <p>(Photo 72)</p>  <p>(Photo 73)</p>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Note 1) Make sure that the power cord is unplugged.</p> </div> <ol style="list-style-type: none"> <li>① Remove the rear cover. (Screw 6pcs)</li> <li>② Remove the cord holder, then remove the wiring in the external case (inside the tapping bundling : Lead wires in the top cover and lead wire connectors on the main unit side) and earth wire (φ4screw with plain washer). (Photo 71)</li> <li>③ Remove the pulsator following the procedures stated in (16).</li> <li>④ Remove the wash tub (wash • spin tub) following the procedures stated in (20).</li> <li>⑤ Remove the packing metal, rotor and stator following the procedures stated in (15).</li> <li>⑥ Remove 1 hook mounting screw to remove the lead wires. (Photo 72)</li> <li>⑦ Separate only lead wire with tube that comes from the cup assembly from other lead wires wound with vinyl tape.</li> <li>⑧ Remove the clutch assembly and lever assembly following the procedures stated in (18).</li> <li>⑨ Remove 6 hexagon bolts of the cup assembly (opposite side 12mm) to remove the cup assembly.</li> <li>⑩ Remove the tapping screw(2 pc)to remove the drain valve motor following the procedures stated in (13). And remove internal earth wire(screw 1 pc). Remove the screws(17 pc) of the tub reinforce plate to remove the tub reinforcing plate from the tub.</li> <li>⑪ Remove the spin shaft assembly from the tub. (Photo 73)</li> </ol> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>* Observe the followings when reassembling.</p> <p>Note 1) After replacing the bearing mechanical part, make sure to check that no water leaks by filling the tub with water.</p> <p>Note 2) When removing the mechanical part or checking loosen screws, make sure to remove the wash tub (wash • spin tub). If the above is not carried out, the wash tub may incline.</p> <p>Note 3) Re-fix the removed lead wire securely to the lead wire through hole on the valve and external case.</p> </div>

Unless otherwise specified, reassembling is to be performed in the reverse procedures of disassembling.







Part Name	Illustration	Repair Procedures Description in <input type="checkbox"/> shows notes.
(20) Tub	 <p>(Photo 74)</p>  <p>(Photo 75)</p>  <p>(Photo 76)</p>	<ol style="list-style-type: none"> <li>① Remove the rear cover. (Screw 6pcs)</li> <li>② Remove the pulsator and spin basket assembly following the procedures stated in (16) and (17).</li> <li>③ Remove the wiring in the external case (Lead wires on the top cover side and lead wire connectors on the main unit side) and earth wire (φ4 screw with plain washer). (Photo 74)</li> <li>④ Remove the air tube from the air trap.</li> <li>⑤ Take out the drain hose. Remove two tapping screws to remove the drain connector from the cabinet base. (Photo 75)</li> <li>⑥ Remove the catch of lifting rod from the catching parts on the external case and water tub. (Photo 76)</li> </ol> <p>(This can easily be done by pulling up the lifting rod while holding up the water tub with one hand.)</p> <ol style="list-style-type: none"> <li>⑦ Pull out the water tub upwards.</li> <li>⑧ Put the water tub upside down.</li> <li>⑨ Remove the drain valve motor following the procedures stated in (13).</li> <li>⑩ Remove the motor following the procedures stated in (15).</li> <li>⑪ Remove the mechanical part following the procedures stated in (18) and (19).</li> </ol> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>* Observe the followings when reassembling.            Note 1) Reassembly should be done firmly to avoid air or water leak from the connections.            Note 2) After replacing the bearing mechanical part, make sure to check that no water leaks by filling the tub with water.</p> </div>



Unless otherwise specified, reassembling is to be performed in the reverse procedures of disassembling.

Part Name	Illustration	Repair Procedures Description in <input type="checkbox"/> shows notes.
(21) Spring assembly	 <p data-bbox="553 737 651 764">(Photo 77)</p>	<p data-bbox="797 499 1292 552">① Remove the top cover from the external case following the procedures stated in of (17).</p> <p data-bbox="797 573 1313 674">② Remove the catch (2) from the external case reinforcing plate. Remove the lifting rod from water tub lifting part while holding the water tub with one hand. (Photo 77)</p> <p data-bbox="821 695 1289 747">(This can easily be done by pulling up the lifting rod while holding up the water tub with one hand.)</p> <div data-bbox="805 774 1304 982" style="border: 1px solid black; padding: 5px;"> <p data-bbox="813 785 1224 806">* Observe the followings when reassembling.</p> <p data-bbox="813 808 1203 829">Note 1) Lifting rod is common for all 4 rods.</p> <p data-bbox="813 831 1292 974">Note 2) Make sure to wind (counterclockwise) the air tube 2 times around the lifting rod located on the left viewing from the front side of the washing machine. Failure to do so could cause knocking sound or damage of the air tube.</p> </div>

## 8. CHECK POINTS AFTER REPAIRING

### Check Points on Completion of Repair

 <b>WARNING</b>	
 Check the insulation resistance	<ul style="list-style-type: none"><li>■ After repair works have finished, check the insulation resistance between live part (power plug) and dead metal part (earth) and make sure it is 10MΩ and above. Failure to check the insulation resistance could result in accident on customer due to leakage current and electrical shock.</li></ul>
 Use exclusive power outlet	<ul style="list-style-type: none"><li>■ Use an exclusive AC outlet for power supply. Different voltage or rating could result in fire or electrical shock. If a power outlet is shared with other appliance, the outlet may abnormally heat up and cause fire.</li></ul>
 Connect earth wire	<ul style="list-style-type: none"><li>■ Connect earth wire. Failure to connect earth wire could result in electrical shock in case of leakage current. Consult electrician or your dealer for earth wire.</li></ul>
 No using in wet place	<ul style="list-style-type: none"><li>■ Do not install the machine in a bathroom or a place where is exposed to rain. Failure to observe this warning could result in electrical shock or fire due to leakage current.</li></ul>
 Remove dusts	<ul style="list-style-type: none"><li>■ Wipe off the dusts accumulated on the metal parts of the power plug or their mounted surface. Accumulated dust could result in fire.</li></ul>

 <b>CAUTION</b>	
 Check water leakage	<ul style="list-style-type: none"><li>■ Before laundry, turn on the tap and make sure that the connection of the water supply hose is not loosened and no water leaks from there. Loosened screw or hose connection could result in unexpected accident due to water leakage.</li></ul>

## CHECK POINTS

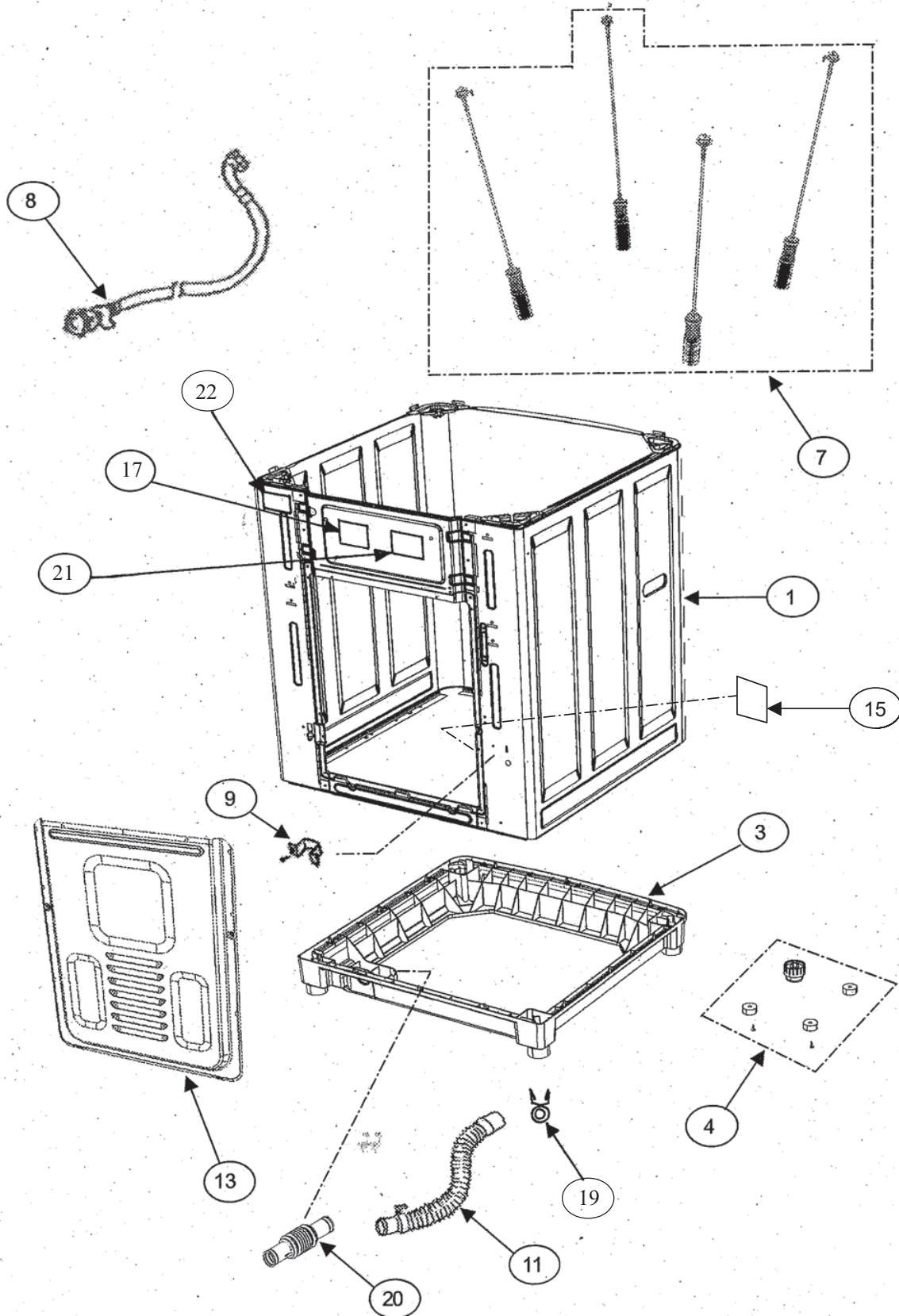
When the product is repaired or any part is replaced, make sure to carry out trial run and make sure there is no abnormality on the following points.

Inspection Items	Inspection and Judging Methods	Measuring Instrument and Sub-Materials							
(1) Insulation resistance	Unplug the power cord and measure the insulation resistance between the power plug and main unit earth. The insulation resistance is to be 10MΩ and above. Carry out the check extra carefully in the following cases. (1) When an electric part is replaced. (2) When the machine is used in a highly humid place. (3) When the product has been used for longer than 5 years.	DC500V megger							
(2) Inspection of earth	Make sure that the earth wire of the main unit is connected to the securely installed earth rod or earth terminal. In the following cases, explain your client about the danger to children and reinstall the earth. (1) If the earth wire is connected to a gas pipe. (2) When the earth wire is connected to a water pipe made of vinyl chloride.								
(3) Inspection of safety device	Check the brake function. If the time for brake stop exceeds the time in the table below, make sure to repair the brake. Check whether or not the program timer and resistor assembly is securely connected. <table border="1" data-bbox="568 1014 1117 1102"> <thead> <tr> <th>Load</th> <th>Time required for brake stop</th> </tr> </thead> <tbody> <tr> <td>Unloaded</td> <td>4-8 seconds or below</td> </tr> <tr> <td>Rated load</td> <td>7-14 seconds or below</td> </tr> </tbody> </table>		Load	Time required for brake stop	Unloaded	4-8 seconds or below	Rated load	7-14 seconds or below	Stopwatch or watch/clock with second hand
Load	Time required for brake stop								
Unloaded	4-8 seconds or below								
Rated load	7-14 seconds or below								
(4) Check of the specified parts for safety	If any part other than specified parts is used, replace it with a specified part. (Refer to △ mark on the parts price list.)								
(5) Lead wires	Is there no slack or excessive tension on lead wires? Are lead wires connected securely? Are taping or binding securely?								
(6) Tightening of nuts and screws	Are nuts and screws tightened securely?								
(7) Removal of foreign matters inside the machine	Is there any solder debris, dust ball or screws inside the machine? Is dust accumulated in the machine?								
(8) Oil and water leakage	Especially check the oil leakage around the mechanical part and water part around the drain valve.								
(9) Inspection of power cord	Are cords, plugs and power outlet not damaged? The power supply is not shared with other appliances? Is power supply capacity appropriate?								
(10) Levelness adjustment	Check with a level. Adjust the levelness with adjusting leg or leg cap when necessary.								
(11) Inspection of installation place	Is the machine installed on a leveled surface? Is the machine stable?								



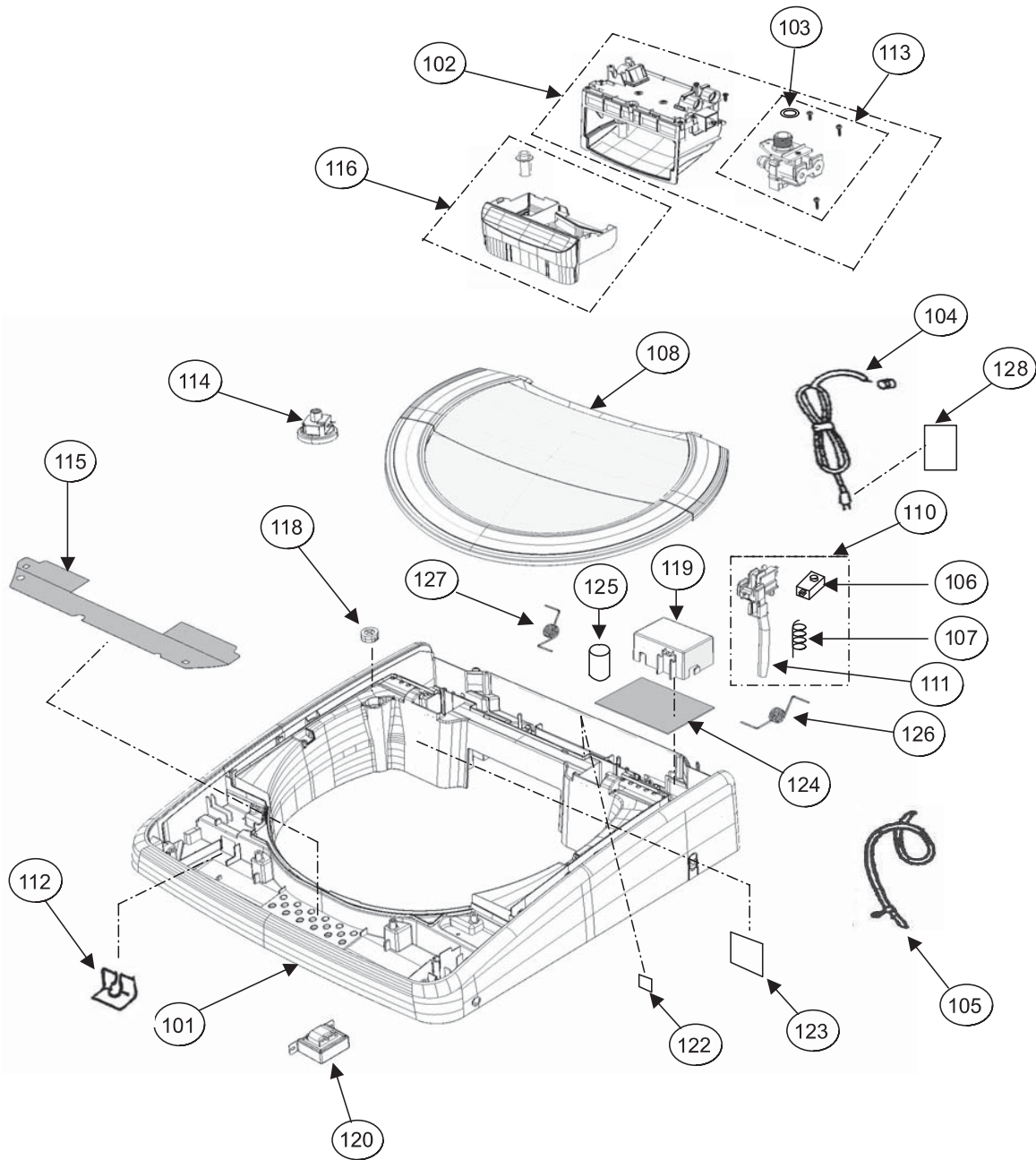
## 9.Exploded Views and Parts List

### 9-1. Cabinet Assembly



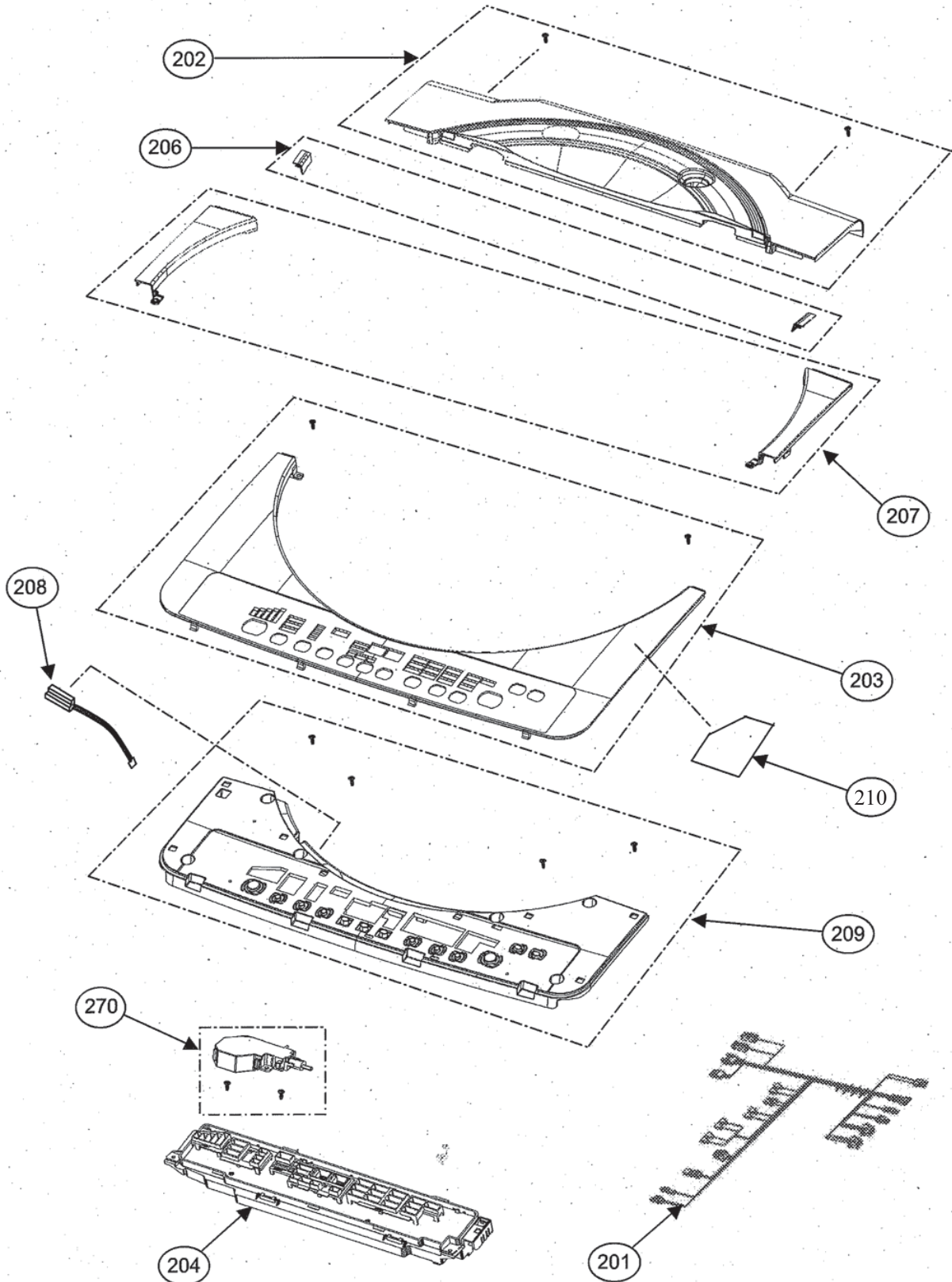
Location No.	Part No.	Description	AW-SD150SBA(WM)	AW-SD150SBO(WM)
1	42T00107	Cabinet	1	1
3	42T06030	Base, Cabinet	1	1
4	42T07010	Caster, Adjustable	1	1
7	42T63006	Spring	4	4
8	42T40023	Hose, Water Supply, Assy	1	1
9	42T78003	Clamper, Cord	1	1
11	42T40034	Hose, Drain	1	1
13	42T03005	Lid, Rear	1	1
15	42T79016	Bag, PE	2	1
17	42T16715	Label, Name Plate	1	
17	42T16716	Label, Name Plate		1
19	42T48004	Clamper, Drain Hose	1	1
20	42T40046	Hose	1	1
21	42T86676	Label, Wiring Diagram	1	
22	42T86464	Label, Caution	1	

## 9-2. Top Cover Assembly



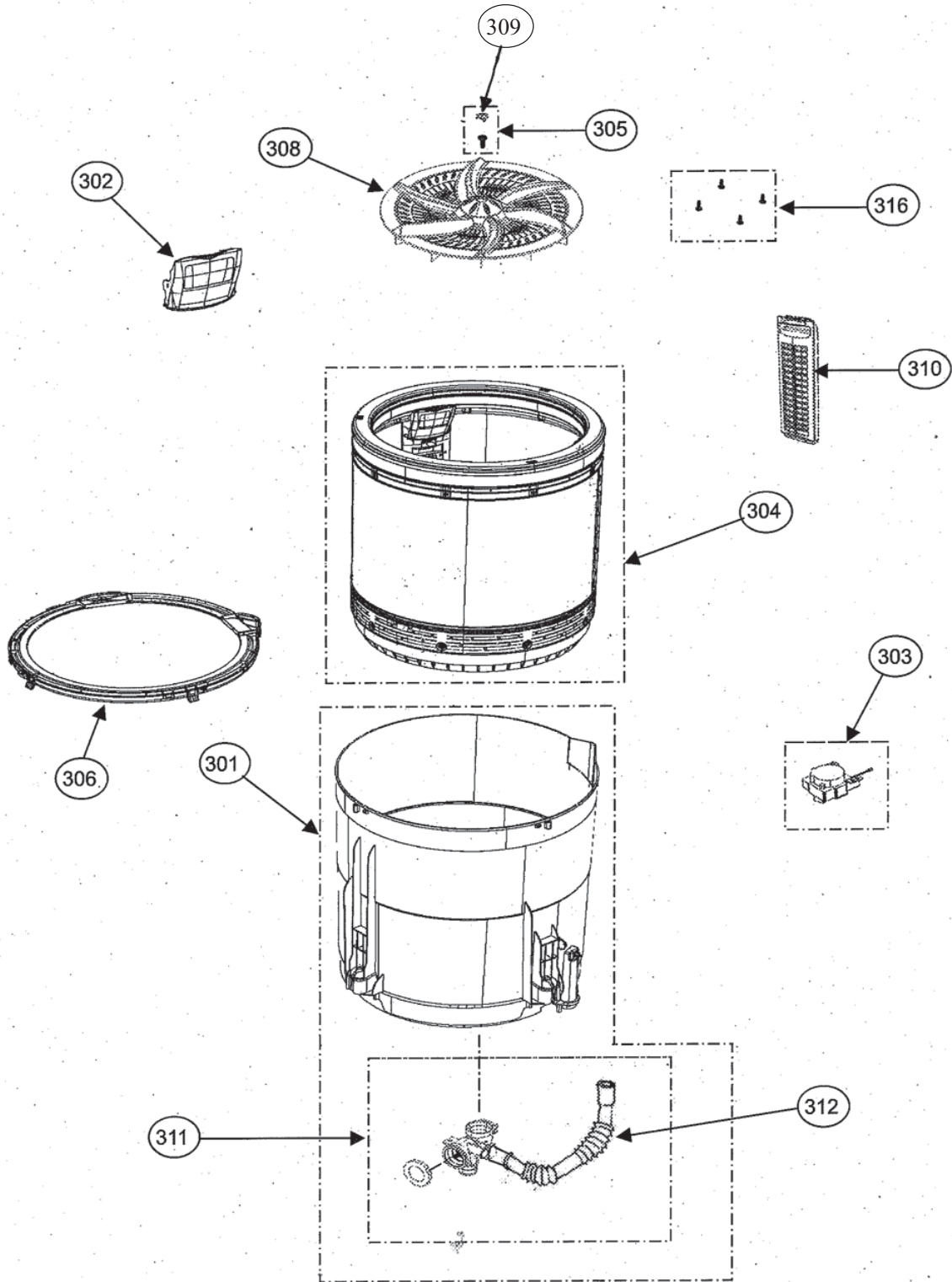
Location No.	Part No.	Description	AW-SD150SBA(WM)	AW-SD150SBO(WM)	
101	42T01035	Cover, Top	1	1	
△	102	42T43041	Case, Inlet, Assy	1	1
103	42T48001	Washer	1	1	
△	104	42T77141	Power Cord, 3P	1	1
105	42T41011	Tube, Air	1	1	
△	106	42T69001	Switch, Lid	1	1
107	42T78004	Spring, N	1	1	
108	42T02319	Lid	1	1	
△	110	42T69022	Switch, Lid Assy	1	1
111	42T78013	Lever, Safety 2	1	1	
112	42T79021	Cover 2	1	1	
△	113	42T67020	Valve, Water Intake	1	1
△	114	42T75014	Sensor, Water Level	1	1
115	42T79017	Cover, Timer Case	1	1	
116	42T28029	Case, Softner	1	1	
118	42T19014	Indicator, Horizontality	1	1	
△	119	42T68162	EMC Pc Board Assy	1	1
120	42t77142	Reactor	1		
120	42t77109	Reactor		1	
122	42T18033	Plate, Earth	1	1	
123	42T16595	Label, Error	1	1	
124	42T79020	Sheet, EMC	1	1	
125	42T71080	Ferrite Core	1	1	
126	42T18031	Spring, Lid	1	1	
127	42T18032	Spring, Lid	1	1	
128	42T79013	Bag, PE	1	1	

### 9-3. Panel Assembly



Location No.	Part No.	Description	AW-SD150SBA(WM)	AW-SD150SBO(WM)
201	42T77143	Wire, Assembly	1	1
202	42T05095	Cover, Back	1	1
203	42T04741	Panel, (WM)	1	1
⚠ 204	42T68211	PC Board Assy, 220-240V	1	1
206	42T19026	Cap, Screw	1	1
207	42T01034	Cover, Top Deco	1	1
208	42T69024	Reed Switch	1	1
209	42T04684	Panel, Control	1	1
210	42T86726	Label, Caution	1	1
270	42T02296	Lid, Lock Assy	1	1

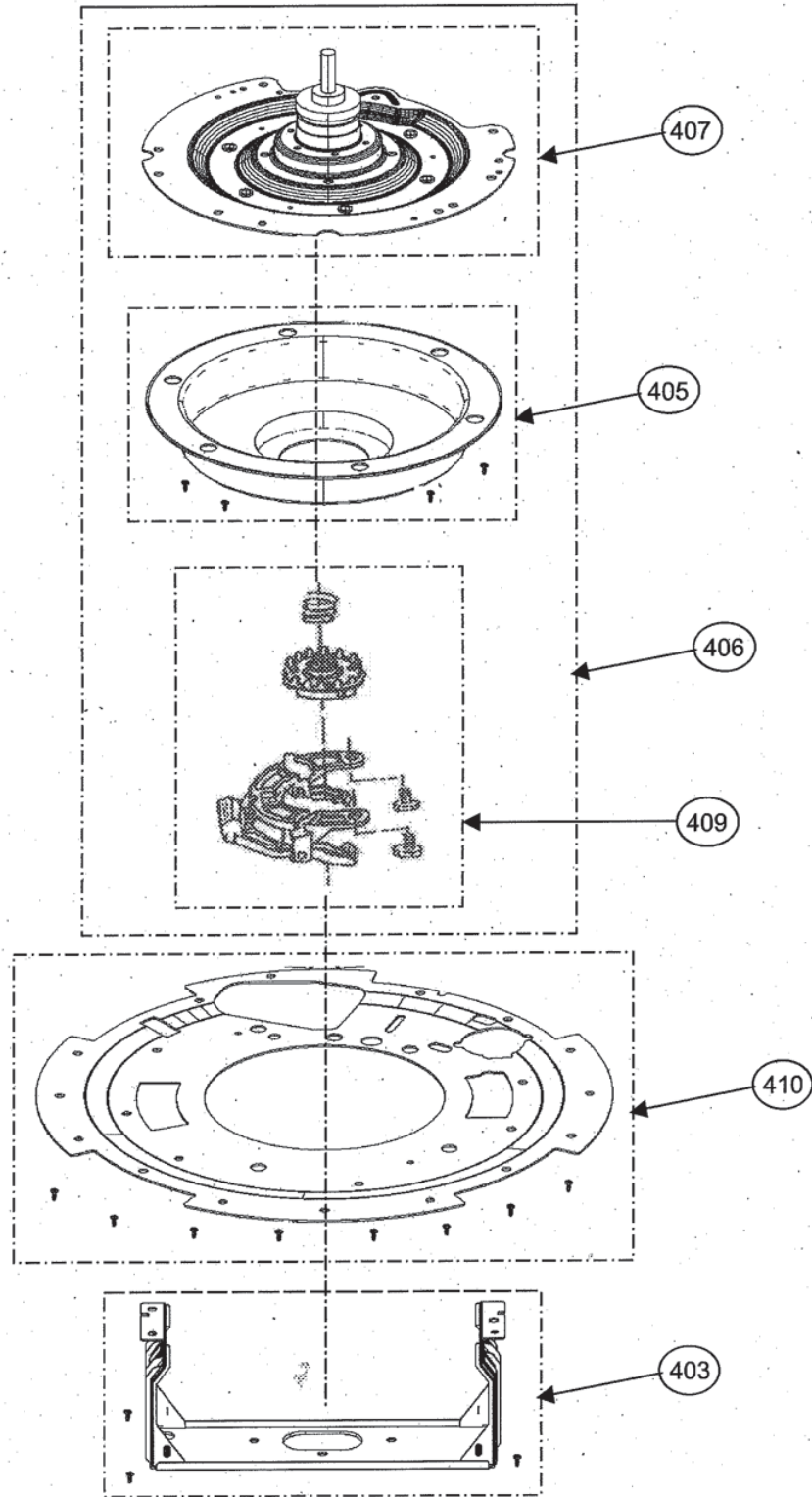
### 9-4. Spin Basket Body Assembly



Location No.	Part No.	Description	AW-SD150SBA(WM)	AW-SD150SBO(WM)
301	42T20045	Tub, Assy	1	1
302	42T42023	Case, Detergent	1	1
303	42T65116	Motor, Drain Valve	1	1
304	42T21029	Basket, Spin	1	1
305	42T28005	Screw With Washer, 6X20.5	1	1
306	42T28028	Cover, Tub	1	1
308	42T50034	Pulsator	1	1
309	42T50035	Cap, Pulsator	1	1
310	42T44068	Filter, Lint	1	1
311	42T48009	Valve, Drain	1	1
312	42T40044	Hose, Over Flow	1	1
316	42T18013	Bolt, Hex.Head	4	4
319	42T78009	Clamper, Lead Wire	1	1

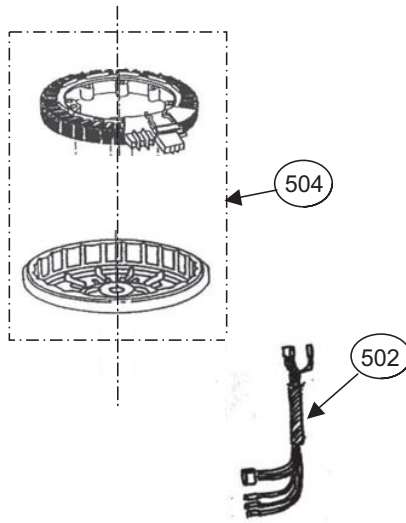



## 9-5. Drive Assembly



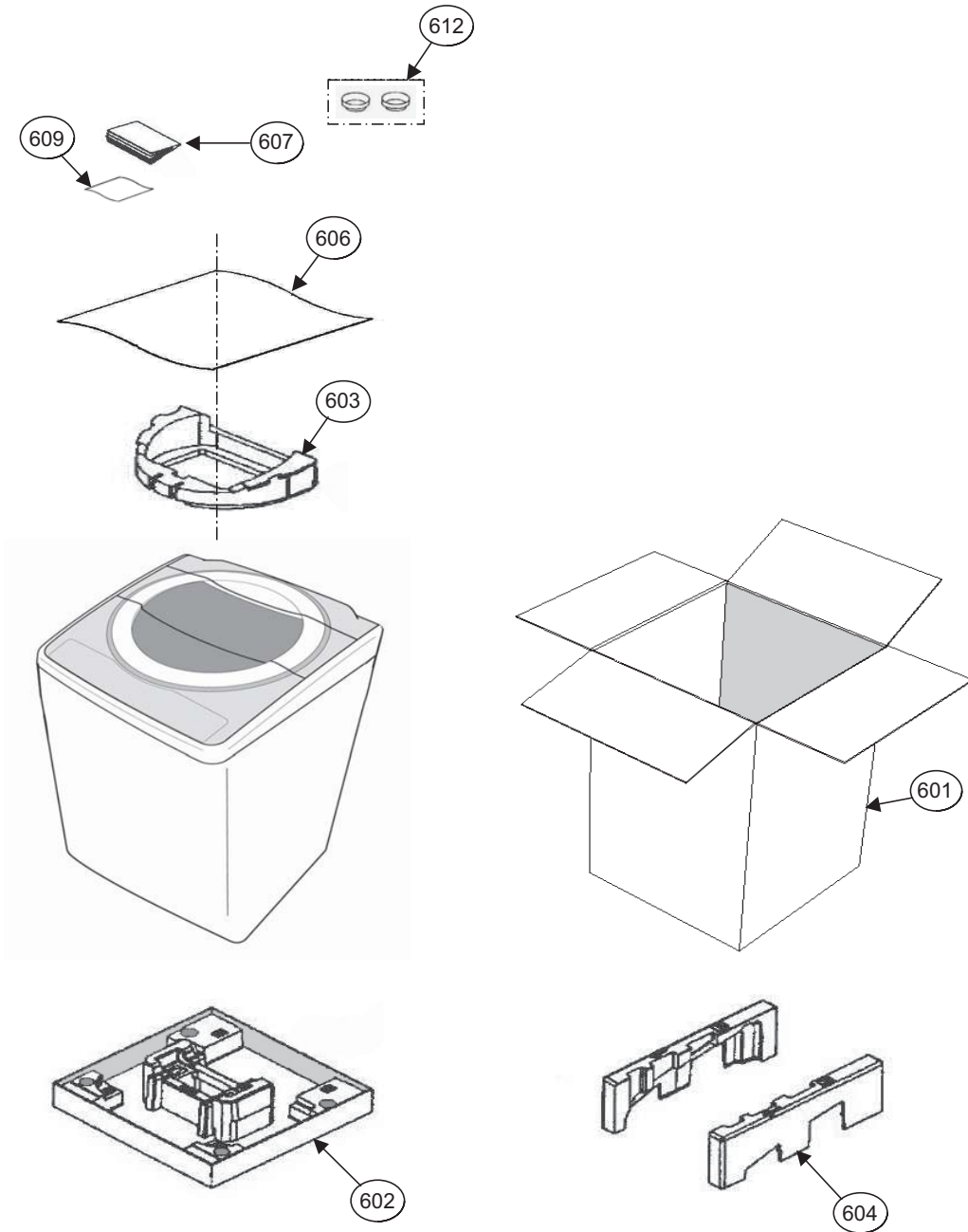
Location No.	Part No.	Description	AW-SD150SBA(WM)	AW-SD150SBO(WM)
403	42T29011	Bracket, Packing	1	1
405	42T55013	Case, Bearing	1	1
406	42T51028	Shaft, Spin Assy	1	1
407	42T51029	Cup 1, Assy	1	1
408	42T78010	Clip, Cable	1	1
409	42T56002	Clutch, Kit	1	1
410	42T51030	Reinforce, Tub	1	1

## 9-6. Motor Assembly



Location No.	Part No.	Description	AW-SD150SBA(WM)	AW-SD150SBO(WM)
502	42T77137	Wire, Lead Unit	1	1
503	42T93011	Sheet, Packing	1	1
 504	42T65142	SDD, Motor Assy	1	1

### 9-7. Packaging Assembly



Location No.	Part No.	Description	AW-SD150SBA(WM)	AW-SD150SBO(WM)
601	42T90C39	Carton Box	1	
601	42T90C40	Carton Box		1
602	42T99022	Cushion, Bottom	1	1
603	42T92048	Cushion, Inner	1	1
604	42T92049	Cushion, Shoulder	1	1
606	42T93004	Sheet, Poly	2	2
607	42T86848	Owner's Manual, English	1	
607	42T86849	Owner's Manual, Arabic	1	
607	42T86850	Owner's Manual, English		1
607	42T86851	Owner's Manual, Arabic		1
609	42T89002	Bag, Manual	1	1
612	42T06017	Rubber, Leg 2	1	1



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