



# Service Manual

Auto Washer

Model : DWF-600M



DAEWOO ELECTRONICS CO., LTD.

# 1. SPECIFICATIONS

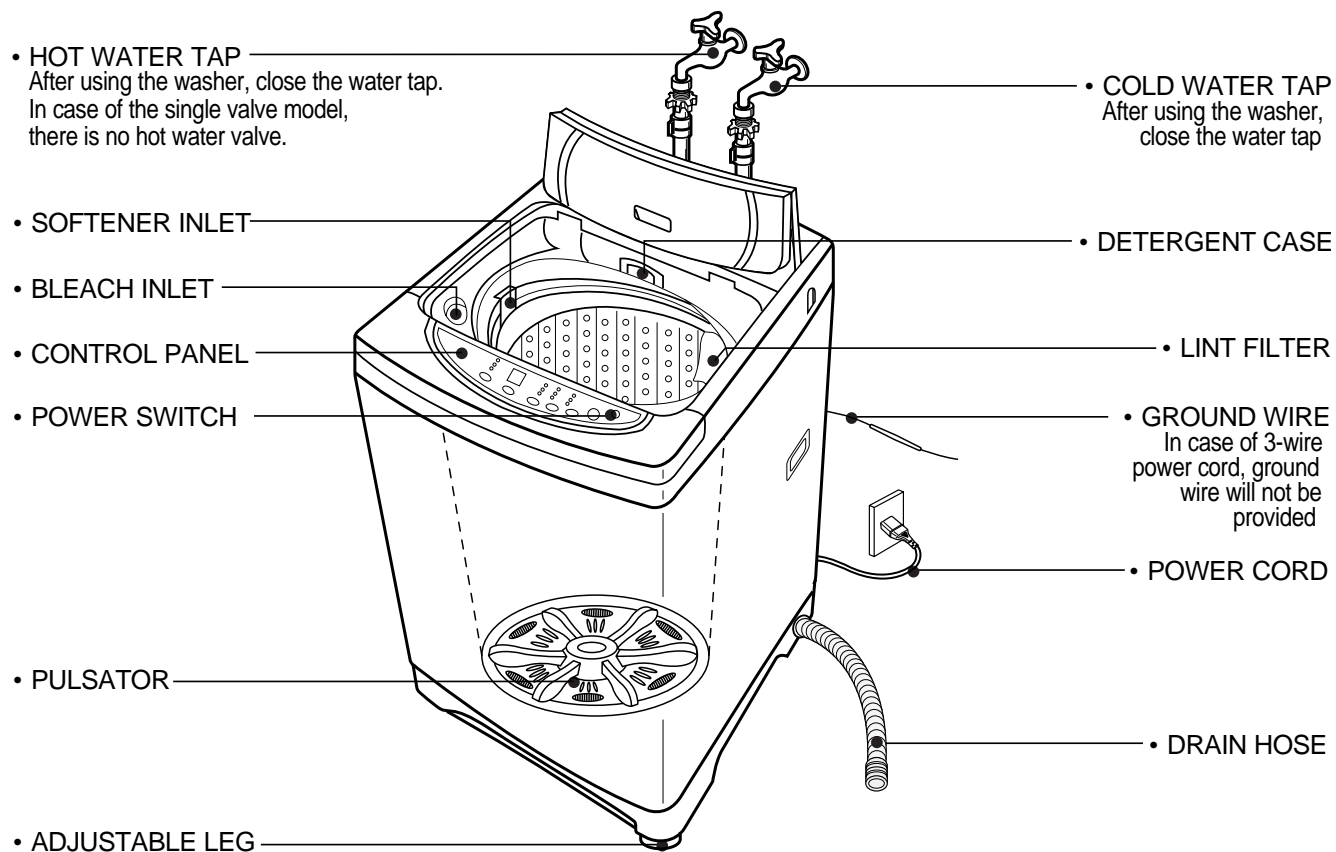
NO.	ITEM		DWF-600M			
1	POWER SOURCE		AVAILABLE IN ALL LOCAL AC VOLTAGE			
2	POWER	50Hz	320W			
	CONSUMPTION	60Hz	300W(110~127V) / 340W(220V)			
3	MACHINE	NET	28.5kg/29kg(pump)			
	WEIGHT	GROSS	32kg/32.5kg(pump)			
4	DIMENSION (WXHXD)		525X858X535			
5	MATERIAL OF INTERNAL TUB		STAINLESS STEEL			
6	WASHING PROGRAM		FULL AUTOMATIC 6 PROGRAMS (FUZZY, FUZZY+SOAK, HEAVY, HEAVY+SOAK, SPEEDY, WOOL/SUIT)			
7	WATER LEVEL SELECTOR		HIGH(55ℓ), MID(45ℓ), LOW(31ℓ)			
8	OPERATING WATER PRESSURE		0.3kgf/cm <sup>2</sup> ~8kgf/cm <sup>2</sup> (2.94 N/cm <sup>2</sup> ~78.4N/cm <sup>2</sup> )			
9	MAXIMUM MASS OF TEXTILE		6.0kg			
10	REVOLUTION PER MINUTE	WASH	125~145(50Hz), 130~150(60Hz)			
		SPIN	710~725(50Hz), 760~785(60Hz)			
		SUIT	50(50Hz), 60(60Hz)			
11	WATER CONSUMPTION		APPROX. 130ℓ/CYCLE			
12	WATER LEVEL CONTROL		ELECTRONICAL SENSOR			
13	ANTI NOISE PLATE		OPTION			
14	GEAR MECHANISM ASS'Y		SPUR GEAR			
15	LINT FILTER		O			
16	SOFTENER INLET		O			
17	ALARM SIGNAL		O			
18	AUTO. WATER SUPPLY		O			
19	FUNCTION FOR BUBBLE		OPTION			
20	AUTO RE-FEED WATER		O			
21	AUTO POWER OFF		O			

## 2. STRUCTURE OF THE WASHING MACHINE

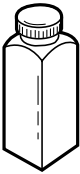
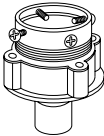
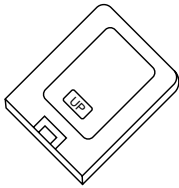
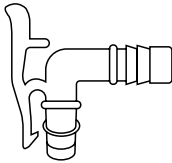
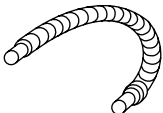
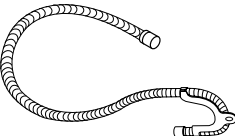
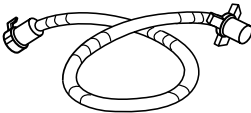
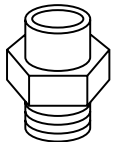
The parts and features of your washer are illustrated on this page.  
Become familiar with all parts and features before using your washer.

### NOTE

- The drawing in this book may vary from your washer model. They are designed to show the different features of all models covered by this book. Your model may not include all features.
- Page references are included next to same features.  
Refer to those pages for more information about the features.



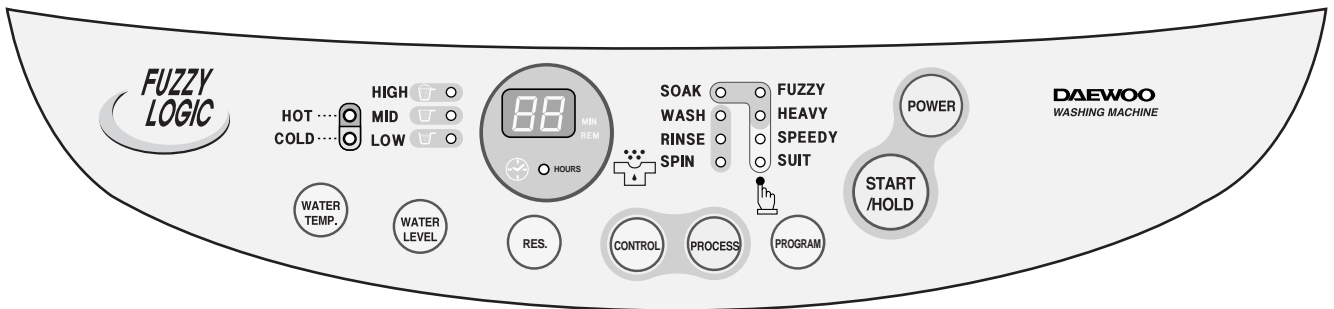
### Accessories

DRYTEN(OPTION)	HOSE ADAPTER	UNDER COVER(OPTION)	HOSE CONNECTOR(OPTION)
	 In case of screw shaped inlet hoses water tap adapters will not be provided.		
DRAIN HOSE		INLET HOSE(OPTION)	CONNECTOR INLET(OPTION)
 NON PUMP MODEL	 PUMP MODEL		

### 3. FUNCTIONS OF THE CONTROL PANEL

Control panel has microm sensor.

As the buttons are pressed, the lamps indicating the selection of your desired washing program will light up.



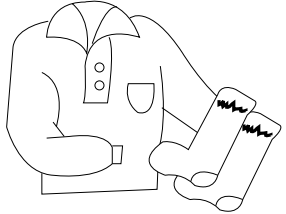


	<ul style="list-style-type: none"> <li>Press this switch to turn the power on or off.</li> </ul>
	<ul style="list-style-type: none"> <li>It can be used to choose water temperature to be supplied.</li> <li>As the button is pressed, water temperature will be repeated. COLD → COLD+HOT → HOT</li> <li>In case of the single valve model, there is no wash temperature selector function.</li> </ul>
	<ul style="list-style-type: none"> <li>It can be used to adjust amount of water according to the size of the load to be washed.</li> <li>As the button is pressed, water level is selected by MID → HIGH → LOW</li> </ul>
	<ul style="list-style-type: none"> <li>It can be used to pre-engage time for wash.</li> </ul>
	<ul style="list-style-type: none"> <li>It is the button for the partial process or the combination of each process (wash, rinse, spin) (See page 7)</li> </ul>
	<ul style="list-style-type: none"> <li>If you want to change wash time, rinse times, spin time, you must press this button after selecting each process by the process button. Also, this button can be used to spin only. (See page 7)</li> </ul>
	<ul style="list-style-type: none"> <li>It can be used to select the full-automatic program.</li> <li>As the button is pressed, program will be selected by following order : FUZZY → FUZZY+SOAK → HEAVY → HEAVY+SOAK → SPEEDY → SUIT(WOOL)</li> </ul>
	<ul style="list-style-type: none"> <li>Operation and temporary stop is repeated as it is pressed.</li> <li>When you want to change program in operating; press the "START/HOLD" button → Select the program that you want to change → press the "START/HOLD" button again.</li> </ul>

## 4. WASHING PROCEDURE AND PROGRAM SELECTION

### § Full Automatic Program





#### 1. FUZZY PROGRAM (SENSOR);

- This selection is for general washing except extraordinary clothes.
- Artificial brain sensor selects properly the various kind of washing condition such as washing time, rinse times, spin time and water level. Procedure to press the button;

<p>① Put in the clothes</p> 	<p>② Press the power switch.</p> 	<p>③ Press the Start/Hold button, and close the lid.</p> 
---	--	--





#### 2. HEAVY PROGRAM;

- This selection is effective for blue-jean, climbing clothes, rucksack, sports wear etc..
- Procedure to press the button;

<p>① Press the power switch.</p> 	<p>② Press the program selection button for "HEAVY"</p> <p>§ FUZZY § HEAVY § SPEEDY § WOOL/SUIT</p> 	<p>③ Select the water level proper to the wash load.</p> <p>§ HIGH § MID § LOW</p> 	<p>④ Press the Start/Hold button and close the lid.</p> 
--	---	---	---

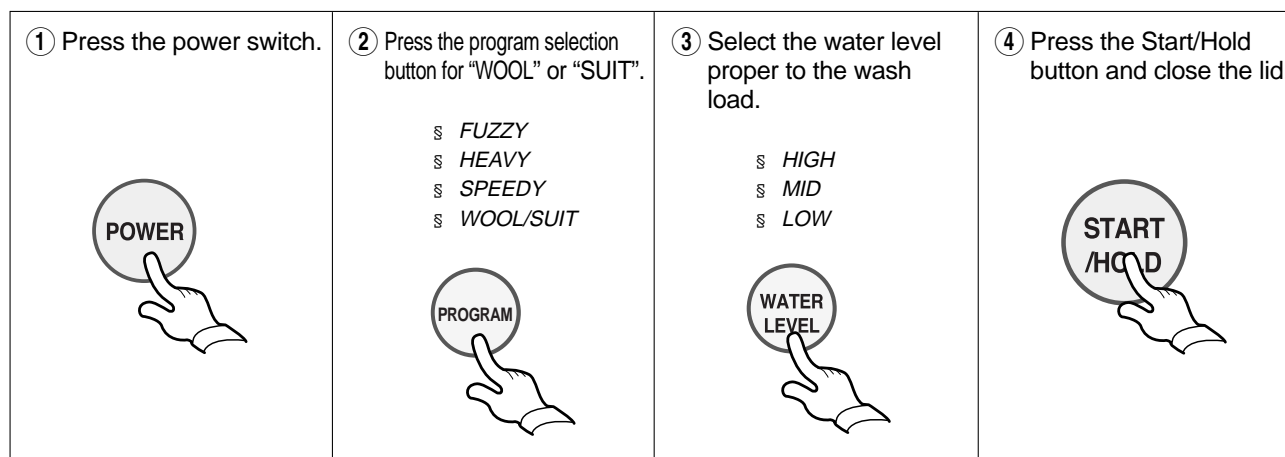
#### 3. SPEEDY PROGRAM;

- This selection is useful to reduce water consumption and washing time for less dirty clothes. Procedure to press the button;

<p>① Press the power switch.</p> 	<p>② Press the program selection button for "SPEEDY"</p> <p>§ FUZZY § HEAVY § SPEEDY § WOOL/SUIT</p> 	<p>③ Select the water level proper to the wash load.</p> <p>§ HIGH § MID § LOW</p> 	<p>④ Press the Start/Hold button and close the lid.</p> 
--	--	---	---

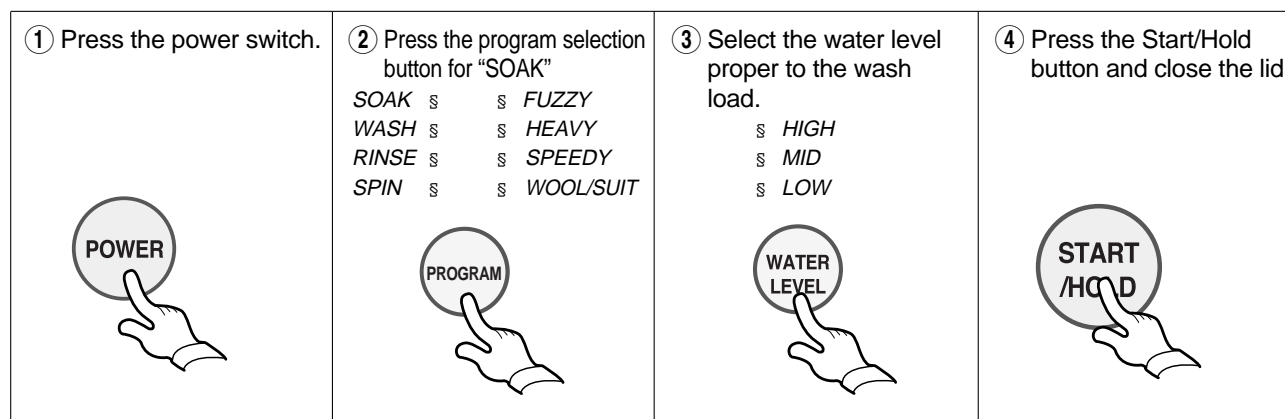
#### 4. SUIT(WOOL) PROGRAM;

- This selection is effective for suit/wool clothes. (1.2kg's limitation for 1-time wash)
- Do not put leather clothes, or chamios clothes into the washing tub for washing. It may cause shrinkage or deformation to the clothes.
- Please use the neutral detergents only.
- The water temperature is fixed to "COLD".
- The water level "LOW" is not selected. Procedure to press the button;



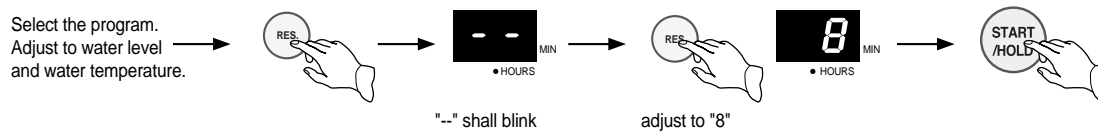
#### 5. SOAK PROGRAM;

- This selection is effective for heavily soiled clothes.
- If you want to soak, press the program button to adjust to "FUZZY + SOAK" or "HEAVY + SOAK". Precedure to press the button;



## Reserved Washing

- Reservation can be made from 2 hours to 48 hours.
- To make reservation to complete washing in 8 hours.



- Now the reservation is made.
- If you want to check the selected program, press the "START/HOLD" button again.

## Partial Process & Combination

 ↓ 	<b>WASH TIME CONTROL</b> <ul style="list-style-type: none"> <li>• As the control button is pressed, wash time will be repeated as following; 12 → 15 → 18 → 0 → 6 → 9min.</li> <li>• If you don't want wash process, you must adjust wash time to 0 min..</li> </ul>
 ↓  ↓ 	<b>RINSE TIMES CONTROL</b> <ul style="list-style-type: none"> <li>• As the control button is pressed, rinse times will be repeated as following; 2 → 3 → 4 → 0 → 1 time(s)</li> <li>• If you don't want rinse process, you must adjust rinse times to 0 times.</li> </ul>
 ↓  ↓ 	<b>SPIN TIME CONTROL</b> <ul style="list-style-type: none"> <li>• As the control button is pressed, spin times will be repeated as following; 5 → 7 → 9 → 0 → 1 → 3 min.</li> <li>• If you don't want spin process, you must adjust spin time to 0 min..</li> </ul>

## Convenient Operation For Spin Only

- If you want spin only, it is convenient to operate the button as following;

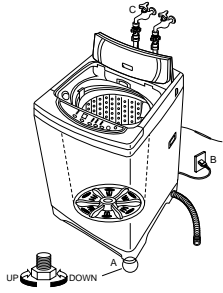


## 5. DIRECTIONS FOR INSTALLATION AND USE

### § Location Of Washer

Check location where washer will be installed. Make sure you have everything necessary for correct installation. Proper installation is your responsibility.

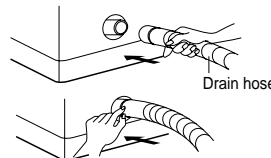
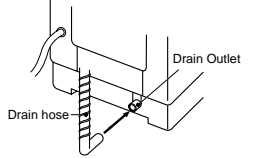
- Do not place or store your washer below 0°C(32°F) to avoid any damage from freezing.
- Install the washer on the horizontal solid floor.

	<p>If the washer is installed on an unsuitable floor, it could make considerable noise, vibrate and cause a malfunction. If washer is not level, adjust the front leg(A) up or down for horizontal setting.</p> <ul style="list-style-type: none"> <li>• Earthed electrical outlet(B) is required with 20cm of bottom back of washer cabinet.</li> <li>• Hot and cold water faucets (C) must be within 1M of the upper back of the washer cabinet and provide water pressure 0.3kgf/cm<sup>2</sup>-8kgf/cm<sup>2</sup>(2.94N/cm<sup>2</sup>-78.4N/cm<sup>2</sup>).</li> </ul>
---	---

### § Drain System

Never forget to install drain hose before operating your washer. The packing box is opened, there are a drain hose.

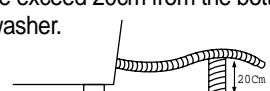
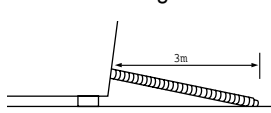
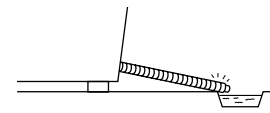
- Connect the drain hose to the drain outlet at the back side of the washer.

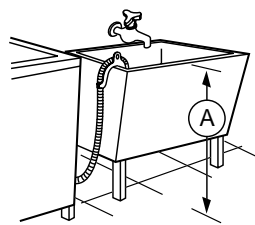
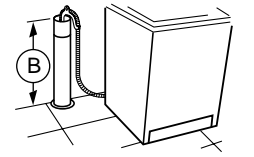
Non-Pump Model	Pump Model
	



#### NOTES

The opening must not be obstructed by carpeting when the washing machine is installed on a carpeted floor.

Non-Pump Model		
<p>① In case that it goes over a door sill. Don't let the height of the drain hose exceed 20cm from the bottom of washer.</p> 	<p>② In case of extending the drain hose. Don't let the total length exceed 3m.</p> 	<p>③ Be careful that the end of the drain hose is not immersed in water.</p> 

Pump Model	
Laundry tub drain system	Standpipe drain system
<ul style="list-style-type: none"> <li>• Top of tub must be at least 86cm (34inches) high and no higher than 130cm from bottom of washer (A)</li> </ul> 	<ul style="list-style-type: none"> <li>• Needs a 3cm minimum diameter standpipe with minimum carry away capacity of 30liters per minute.</li> <li>• Top of tub must be at least 86cm(34inches) high and no higher than 130cm from bottom of washer (B)</li> </ul> 



## § How to Connect the Inlet Hose

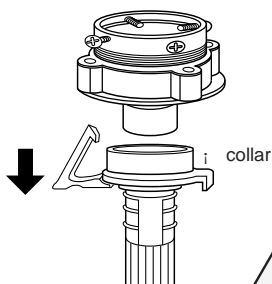
Be careful not to mistake in supplying between the hot(maximum : 50°C) and cold water.

In using only one water tap or in case of attached one water inlet valve, connect the inlet hose to the cold water inlet valve.

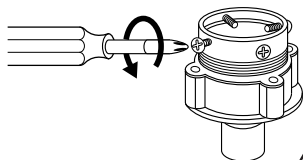
Do not over tighten : this could cause damage to couplings.

### • • • • FOR ORDINARY TAP

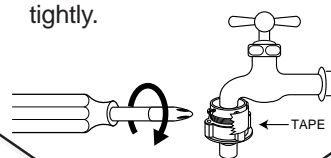
- 1 Pull down the collar of the inlet hose to separate it from the water tap adapter.



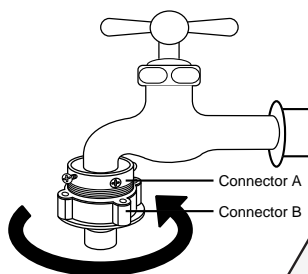
- 2 Loosen the four screws at the water tap adapter, but don't loosen the screws until they are separated from the water tap adapter.



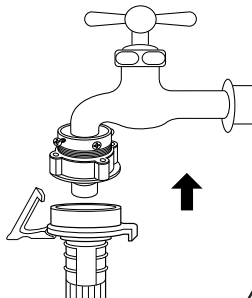
- 3 Connect the water tap adapter to the water tap and tighten the four screws evenly while pushing up the adapter so that the rubber packing can stick to the water tap tightly.



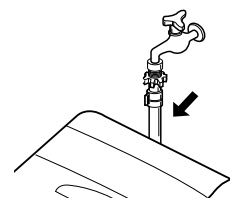
- 4 Remove the tape, and screw connector B into connect A tightly.



- 5 Connect the inlet hose to the water tap adapter by pulling down the collar of the hose end.



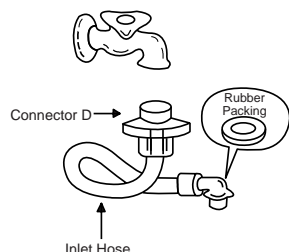
- 6 Connect the inlet hose adapter of the hose to the water inlet of the washer by turning it clockwise to be fixed tightly.



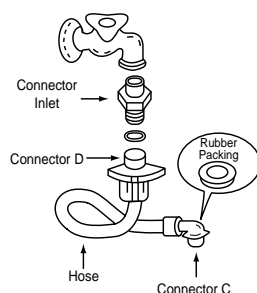
- Please check the rubber packing inside the inlet hose adapter of the hose.

### • • • • FOR SCREW-SHAPED TAP

- 1 Connect the inlet hose to the water tap by screwing the connector D tightly.



- 2 Connect the connector-inlet supplied if necessary.



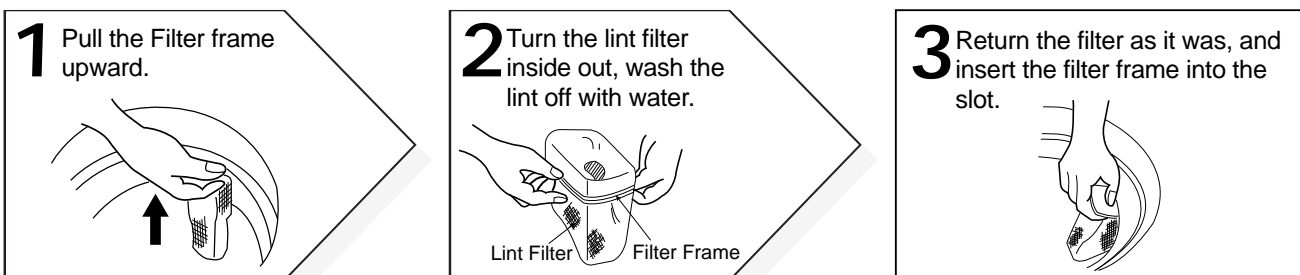
- 3 Insert the inlet hose adapter into the water inlet of washer and turn it to be fixed.



- Assert the packing in the inlet

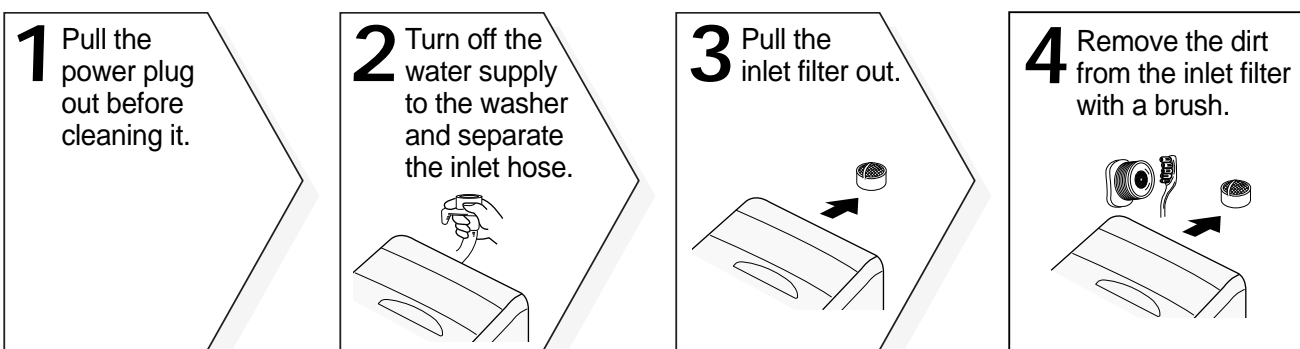
## § How To Clean The Filter

### • • • • CLEANING THE LINT FILTER



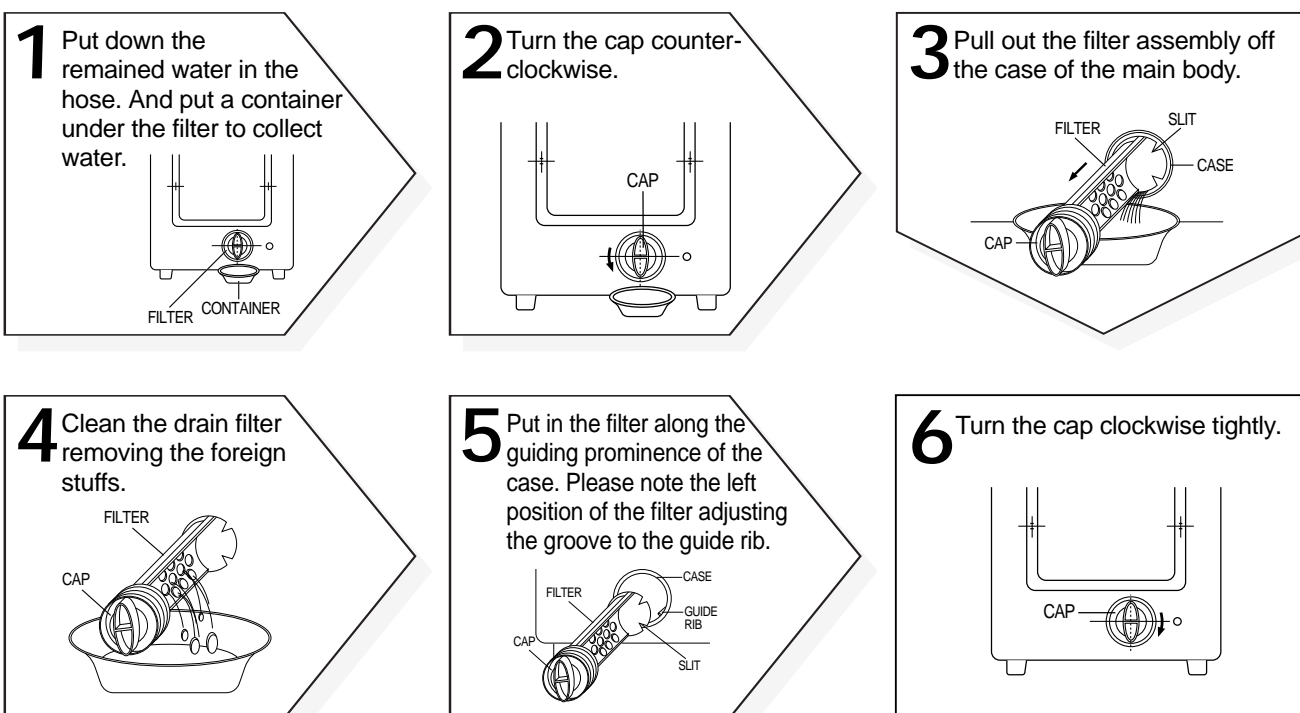
### • • • • CLEANING THE WATER INLET FILTER

- Clean the filter when water leaks from the water inlet.



### • • • • CLEANING THE DRAIN FILTER

- In case of "U" shaped drain hose, this filter's equipped at the back side of washer.
- This drain filter is to screen the foreign stuffs such as threads, coins, pins, buttons etc ..
- If the drain filter is not cleaned at proper time (every 10 times of use), drain problem could be caused.



## 6. FEATURE AND TECHNICAL EXPLANATION

### Feature of the Washing Machine

- ① The first air bubble washing system in the world.
- ② Quiet washing through the innovational low-noise design.
- ③ The wash effectiveness is much more enhanced because of the air bubble washing system.
- ④ The laundry detergent dissolves well in water because of the air bubble washing system.
- ⑤ The adoption of the water currents to adjust the unbalanced load.
- ⑥ One-touch operation system.

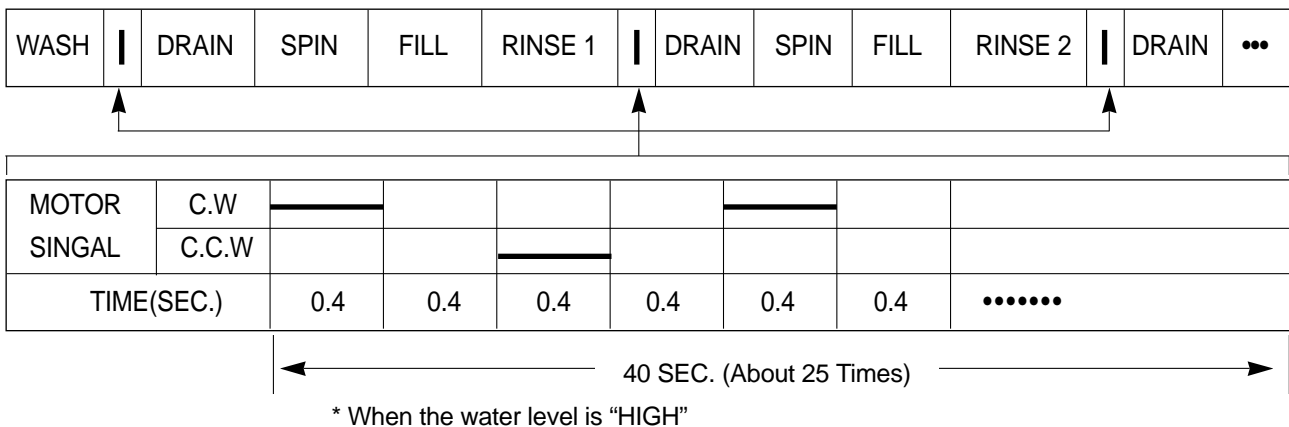
### Water Current to Adjust the Unbalanced Load

It is a function to prevent eccentricity of the clothes after wash by rotating pulsator C.W and C.C.W for 35 seconds.(But, the SUIT course have no operation of the water currents to adjust the unbalanced load.)

#### EFFECT

It reduces vibration and noise effectively while spinning.

#### WATER FLOW



### Automatic Water Supply System

The water level would be lowered because the clothes absorbs water at the beginning of washing. Therefore, after 60 seconds, the operation is interrupted to check the water level, and then the water is supplied again until the selected water level is reached.

## Automatic Draining time Adjustment

This system adjusts the draining time automatically according to the draining condition.

Draining condition	Good draining	The washer begins spin process after drainage.
	Bad draining	Draining time is prolonged.
	No draining	Program is stopped and gives the alarm.

### FUNCTIONAL PRINCIPLE

- ① The micom can remember the time from the beginning of drain to reset point when the pressure switch reaches to "OFF" point

Drain Time	Movement of the Program
Less than 10 minutes	Continue draining
More than 10 minutes	Program stops and gives the alarm with <b>DE</b> blinked on display lamp.

- ② In case of continuous draining, residual drain time is determined by micom.

Draining time as a whole = D + 40

\_\_\_\_\_ Residual drain time.  
\_\_\_\_\_ The time remembered by micom.

## Softener Dispenser

This is the device to dispense the softener automatically by centrifugal force.  
This is installed inside the auto-balancer.

### FUNCTIONAL PRINCIPLE

- ① Softener stays in room (A) when poured into softener inlet.
- ② Softener moves from (A) to (B) by centrifugal force during intermittent spin process.
- ③ Softener flows from (B) to (C) during rinse process next to intermittent spin.
- ④ Softener moves from (C) to (D) by centrifugal force during second intermittent spin.

After spin process is finished, the softener is added into the tub through softener outlet.

### FLOW OF THE SOFTENER

	Wash	Intermittent Spin	Hold	Intermittent Spin	Rinse	Spin
Normal Program	Centrifugal force (A) → (B)		Flow in (B) → (C)	Centrifugal force (C) → (D)	Flow in (D) →	_____

### FLOW OF THE SOFTENER INSIDE OF THE BALANCER

Room inside the balancer	Ⓐ	Ⓑ	Ⓒ	Ⓓ
Centrifugal force ↑				
Flowing by weight →				

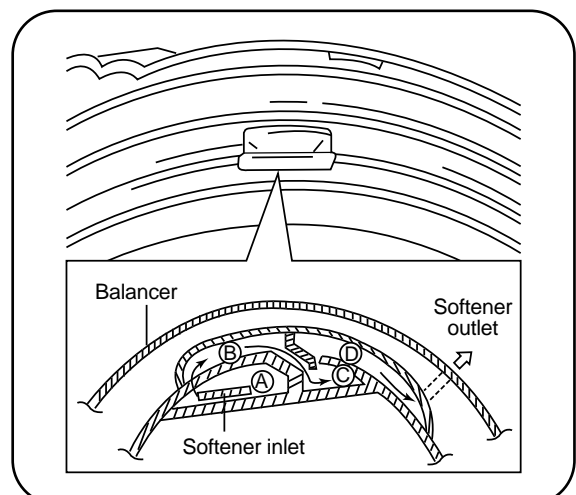


#### NOTES

Softener moves into the next room when r.p.m of the tub is more than 100 r.p.m.

### HOW TO CHECK MOVEMENT

Pour a reasonable amount of "MILK" into softener dispenser and operate the washer with no load. In final rinse cycle, make sure that the milk is added into the tub through softener outlet.



## Automatic Unbalance Adjustment

This system is to prevent abnormal vibration during intermittent spin and spin process.

### FUNCTIONAL PRINCIPLE

- ① When the lid is closed, the safety switch contact is "ON" position.
- ② In case that wash loads get uneven during spin, the outer tub hits the safety switch due to the serious vibration, and the spin process is interrupted.
- ③ In case that P.C.B. ASS'Y gets "OFF" signal from the safety switch, spin process are stopped and rinse process is started automatically by P.C.B. ASS'Y.
- ④ If the safety switch is operated due to the unbalance of the tub, the program is stopped and the alarm is given.



### NOTES

The alarm finished when you close the lid after opening it. Check the unbalance of the wash load and the installation condition.

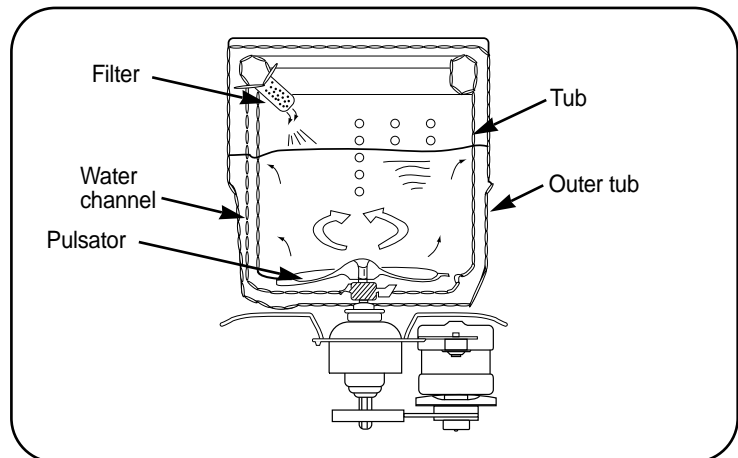
## Circulating Water

### CIRCULATING-WATER

The washing and rinsing effects have been improved by adopting the water system in which water in the tub is circulated in a designed pattern.

When the pulsator rotates during the washing or rinsing process, the water below the pulsator vanes creates a water currents as shown in figure.

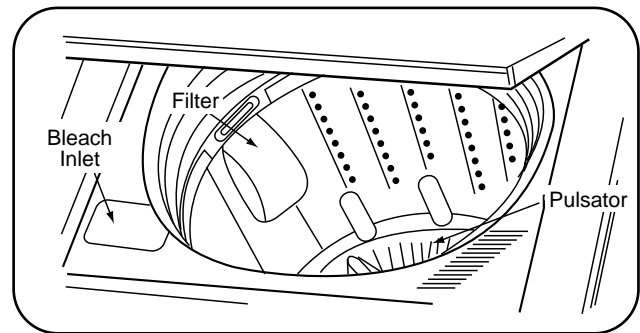
The water is then discharged from the upper part of the tub through the water channel. About 40 L/min. water is circulated at the 'high' water level, standard wash load and standard water currents.



## Lint Filter

Much lint may be obtained according to the kind of clothes to be washed and some of the lint may also sticks to the clothes.

To minimize this possibility a lint filter is provided on the upper part of the tub to filter the wash water as it is discharged from the water channel. It is good to use the lint filter during washing.




### HOW TO REPLACE LINT FILTER

- ① Pull the filter frame upward.
- ② Turn the lint filter inside out, and wash the lint off with water.
- ③ Return the filter as it was, and fix the filter frame to the slot.

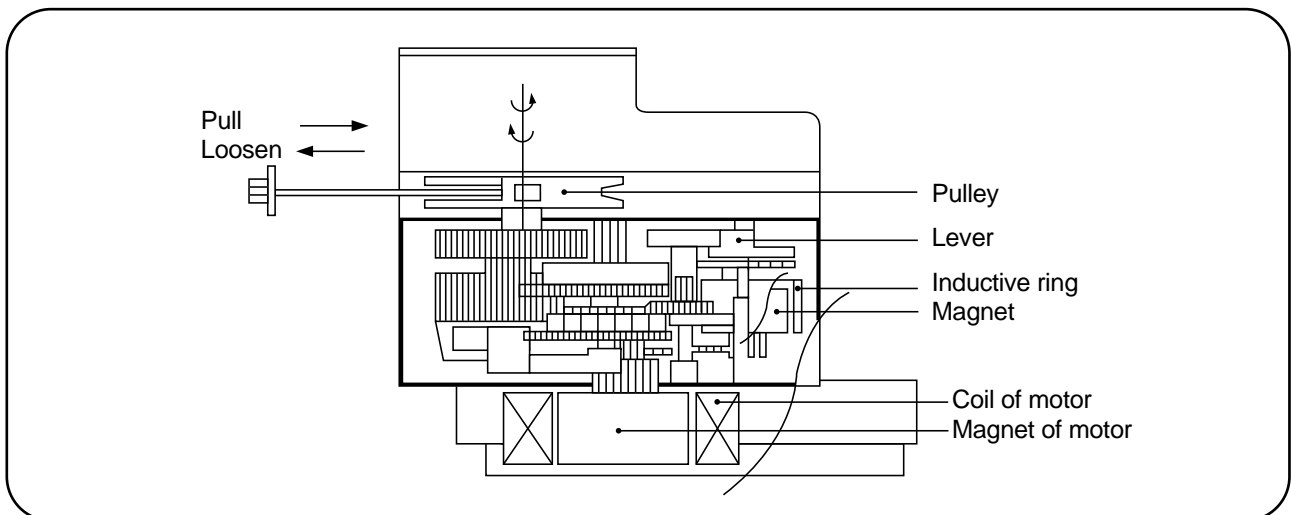
## Residual Time Display

When the START/HOLD button is pressed, the residual time (min.) is displayed on the time indicator, and it will be counted down according to process.

When operation is finished, the TIME INDICATOR will light up .

## Drain Motor

### STRUCTURE

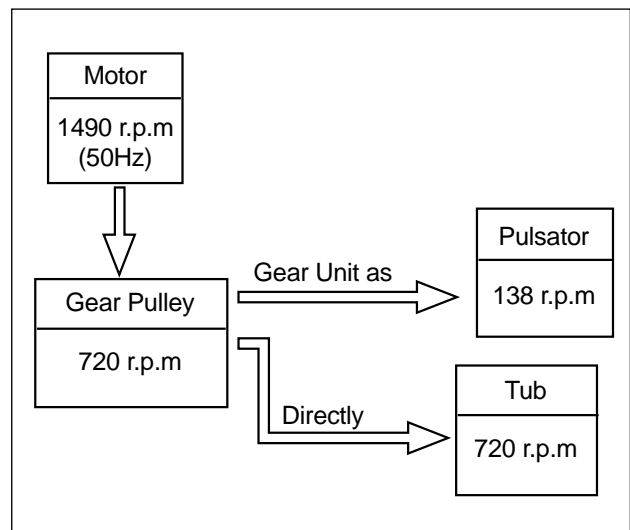
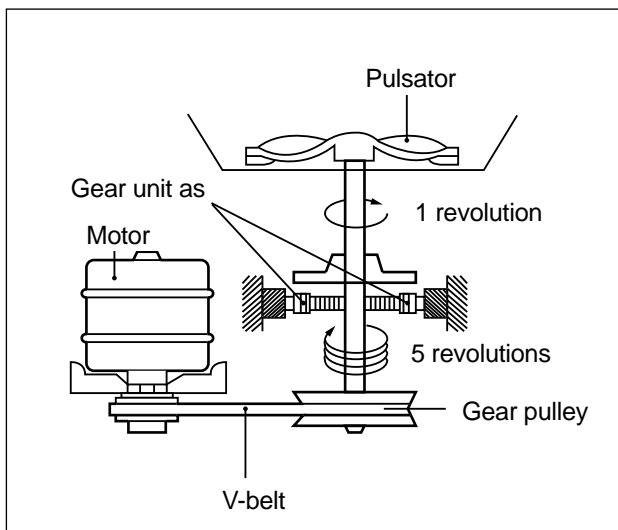
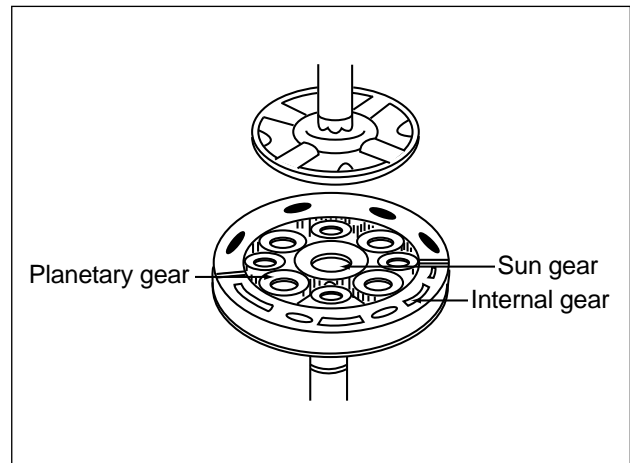
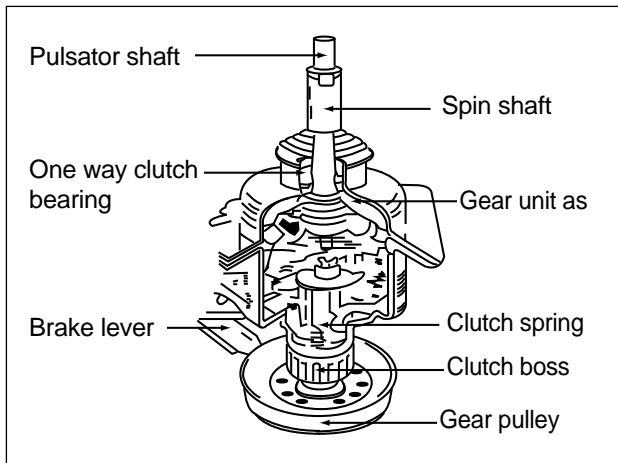


### FUNCTIONAL PRINCIPLE

- ① When the DRAIN MOTOR connected to the power source, the DRAIN MOTOR rotates with 900 r.p.m and revolves the pulley by gear assembly for reducing.
- ② When the pulley is rotated, the pulley winds the wire to open the drain valve.
- ③ Therefore, rotation of pulley changed to the linear moving of wire.
- ④ The wire pulls the brake lever of Gear Mechanism Ass'y within 5 seconds.
- ⑤ After the wire pulled, gear assembly is separated from motor and condition of pulling is held by operation of the lever.
- ⑥ When the power is turned off, the drain valve is closed because the wire returns to original position.

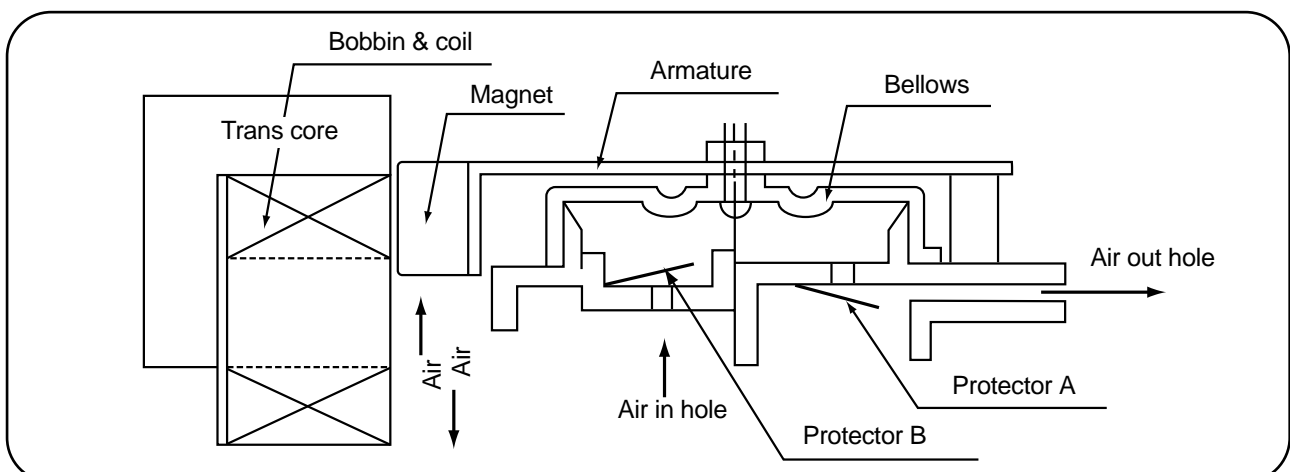
## Gear Mechanism Ass'y

The proper water currents is made by the rotation of pulsator at a low speed to prevent the damage to the small sized clothes.



## Principle of Bubble Generator

### STRUCTURE





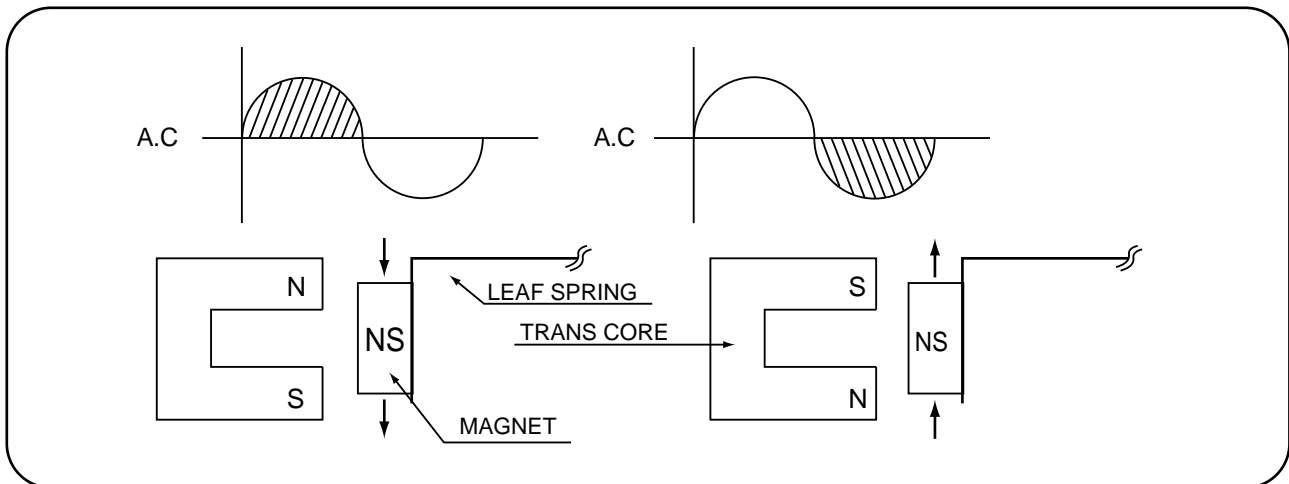
### PRINCIPLE OF INTAKE & OUTLET OF THE AIR

INTAKE : ARMATURE moves up, and BELLOWS inhales the air. At the same time, protector B is open and A is close.

OUTLET : ARMATURE moves down, and BELLOWS exhales the air. At the same time, protector B is close and A is open.

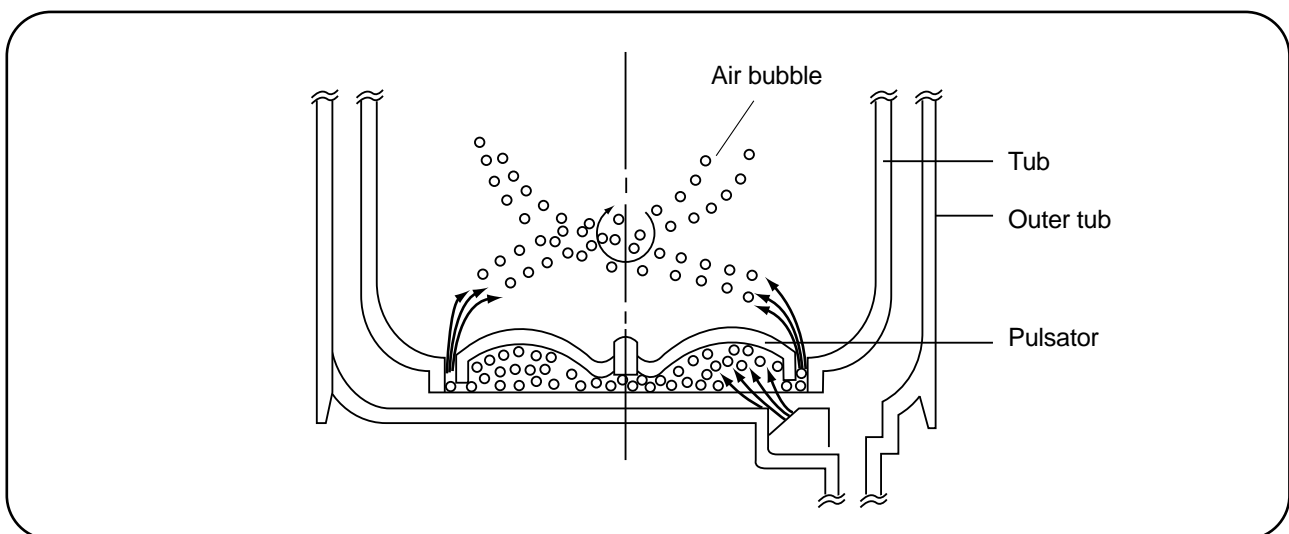
### FUNCTIONAL PRINCIPLE OF TRANS & MAGNET

- ; The phase of A.C electric power changes to 60 cycle/second.
- ; The magnetic pole of trans core is changed by the change of the phase of A.C electric power.
- ; The core repeats push and pull (3600 times/min.) of the armature magnet.



## Functional Principle of Bubble Washing Machine

### ACROSS SECTION









### FUNCTIONAL PRINCIPLE

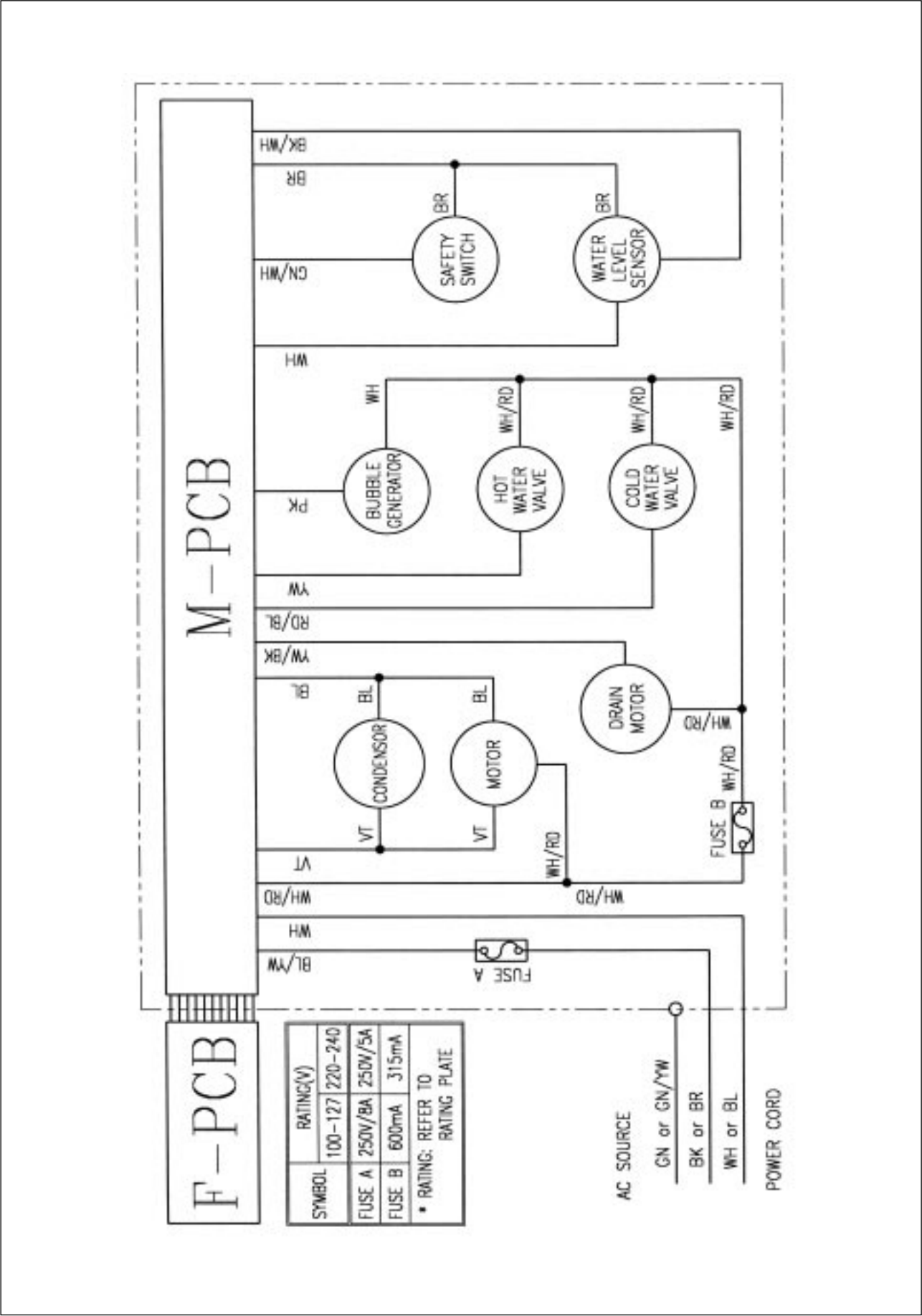
Bubble generator supplies the air from the bottom of outer tub to the inner space of pulsator, the air is dispersed by the rotation of pulsator. Air-bubble is created by the centrifugal force, and rises up.

## 10. PRESENTATION OF THE P.C.B ASS'Y

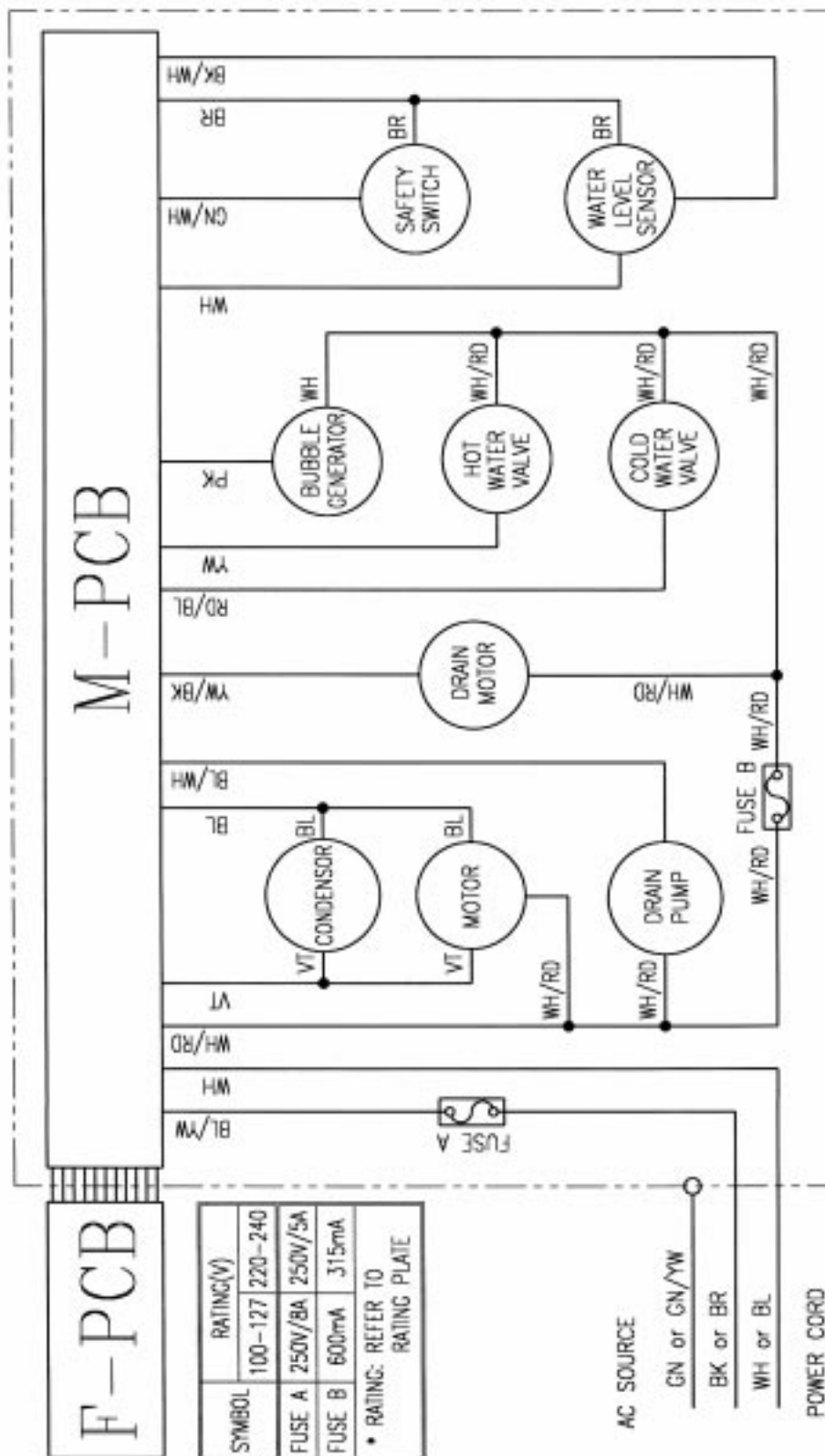
### Concerning Error Message

MESSAGE	CAUSE	SOLUTION
	Improper installation of drain hose.	Install drain hose properly.
	The drain hose is blocked up by foreign matter.	Remove foreign matter from drain hose.
	Drain motor is inferior.	Change drain motor.
	The water tap is closed.	Open the water tap.
	The water inlet filter clogged.	Clean the water inlet filter.
	It passes over the 30 minutes, yet it doesn't come to assigned water level.	Check whether or not it comes to the assigned water level.
	Wash loads get uneven during spin.	Re-set wash loads evenly.
	Poor installation of the unit.	Proper installation.
	The lid is opened.	Close the lid.
	The safety switch is inferior.	Change the safety switch.
	The load sensing is inferior. After the load sensing operates about 7 seconds, the message is displayed during 1 second and water level is always fixed 'high'.	Change the P.C.B. ASS'Y.
	The water level sensing is inferior.	Check the water level sensor and the contact part of the connector.

Wiring Diagram [non-pump]

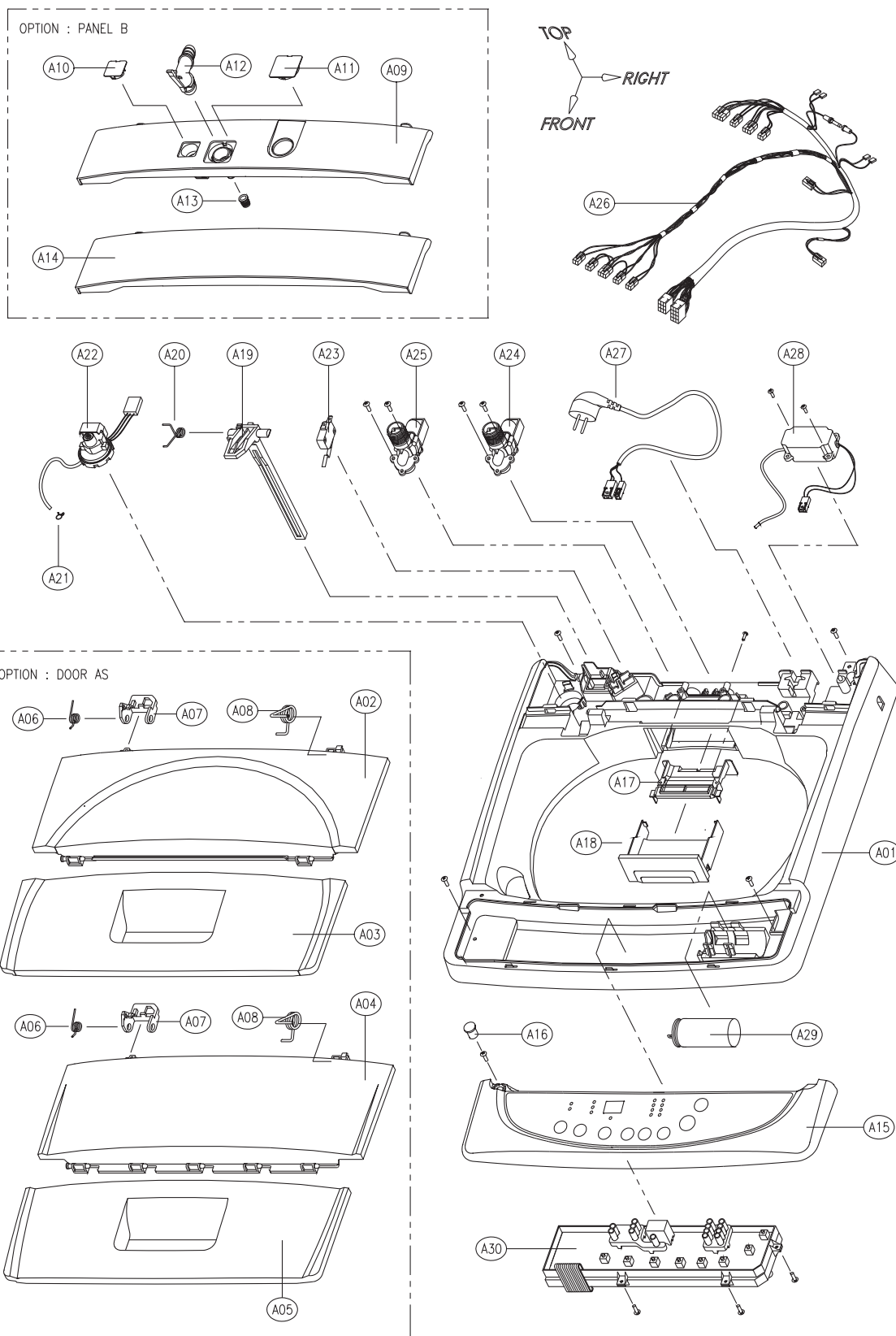








## Parts Diagram

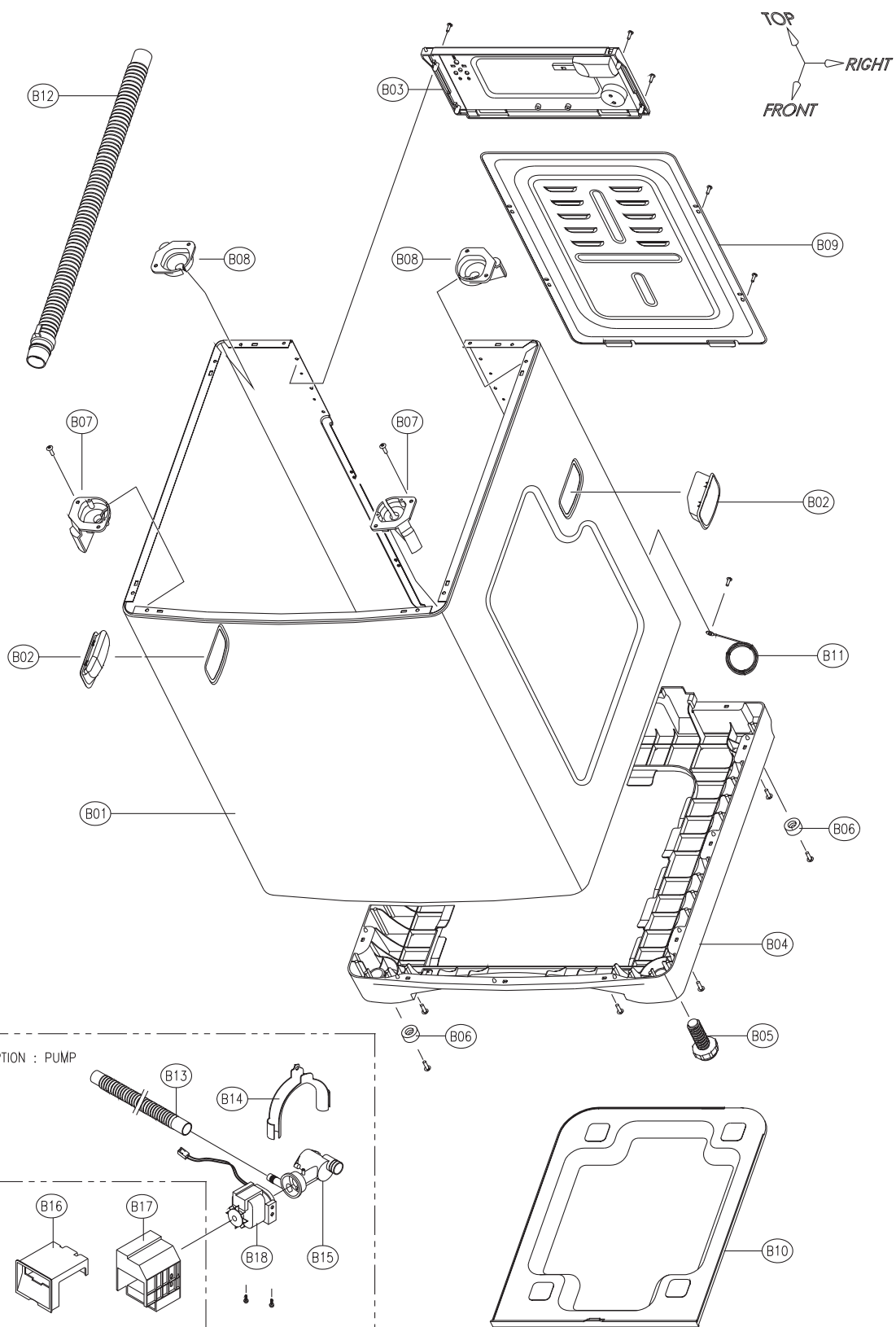


## § Parts List

NO.	PART NAME	PART CODE	SPECIFICATION	REMARK
A01	PLATE T	3614521500	PP	
A02	DOOR B AS	3611797600	ABS	OPTION : TRANSPARENT
A03	DOOR F AS	3611797700	ABS	
A04	DOOR B	3611797300	PP	OPTION : NOT TRANSPARENT
A05	DOOR F	3611797400	PP	
A06	SPRING PLATE LEVER	3615111800	SUS	
A07	PLATE LEVER	3614521400	PP	
A08	SPRING DOOR	3615112100	SUS D1.4	
A09	PANEL B	3614233400	PP	OPTION : UPWARD WATER VALVE
A10	CAP WATER	-	PP	
A11	CAP DRY	-	PP	
A12	CONNECTOR HOSE	3619506600	PS	
A13	PACKING	3614004100	SILICON	
A14	PANEL B	3614233600	PP	OPTION : BACKWARD
A15	PANEL F	3614233500	ABS	
A16	CAP REAR	3610902600	CR	
A17	NOZZLE DETERGENT	3618102600	PP	
A18	CASE DETERGENT	3611130700	PP	
A19	LEVER SAFETY S/W	3613701800	POM	
A20	SPRING LEVER SAFETY	3615111700	SUS D1.0	
A21	CLAMP	4507D08150	MFZN HOSE ID=7PIE	
A22	SENSOR PRESSURE AS	3614801300	CDN-D6N	
A23	SWITCH COVER AS	4507K44031	15A 220VAC 1006FD	
A24	VALVE INLET	3615403510	AC 100-130V/50,60Hz COLD	BACKWARD
		3615402010	AC 220V/60Hz COLD	
		3615403711	AC 220-240V/50Hz COLD	
		3615403530	AC 100-130V/50,60Hz COLD	UPWARD
		3615402030	AC 220V/60Hz COLD	
A25	VALVE INLET	3615403630	AC 100-130V/50,60Hz HOT	BACKWARD
		3615402130	AC 220V/60Hz HOT	
		3615403831	AC 220-240V/50Hz HOT	
A26	HARNESS AS	3612787920	8A COLD BUBBLE	SINGLE VALVE
		3612787925	5A COLD BUBBLE	
		3612787930	8A COLD/HOT BUBBLE	DUAL VALVE, PUMP
		3612787935	5A COLD/HOT BUBBLE	
		3612787940	8A COLD/HOT NON-BUBBLE	
		3612787945	5A COLD/HOT NON-BUBBLE	
		3612787970	8A COLD/HOT BUBBLE	DUAL VALVE
		3612787975	5A COLD/HOT BUBBLE	
		3612787980	8A COLD/HOT NON-BUBBLE	
		3612787985	5A COLD/HOT NON-BUBBLE	



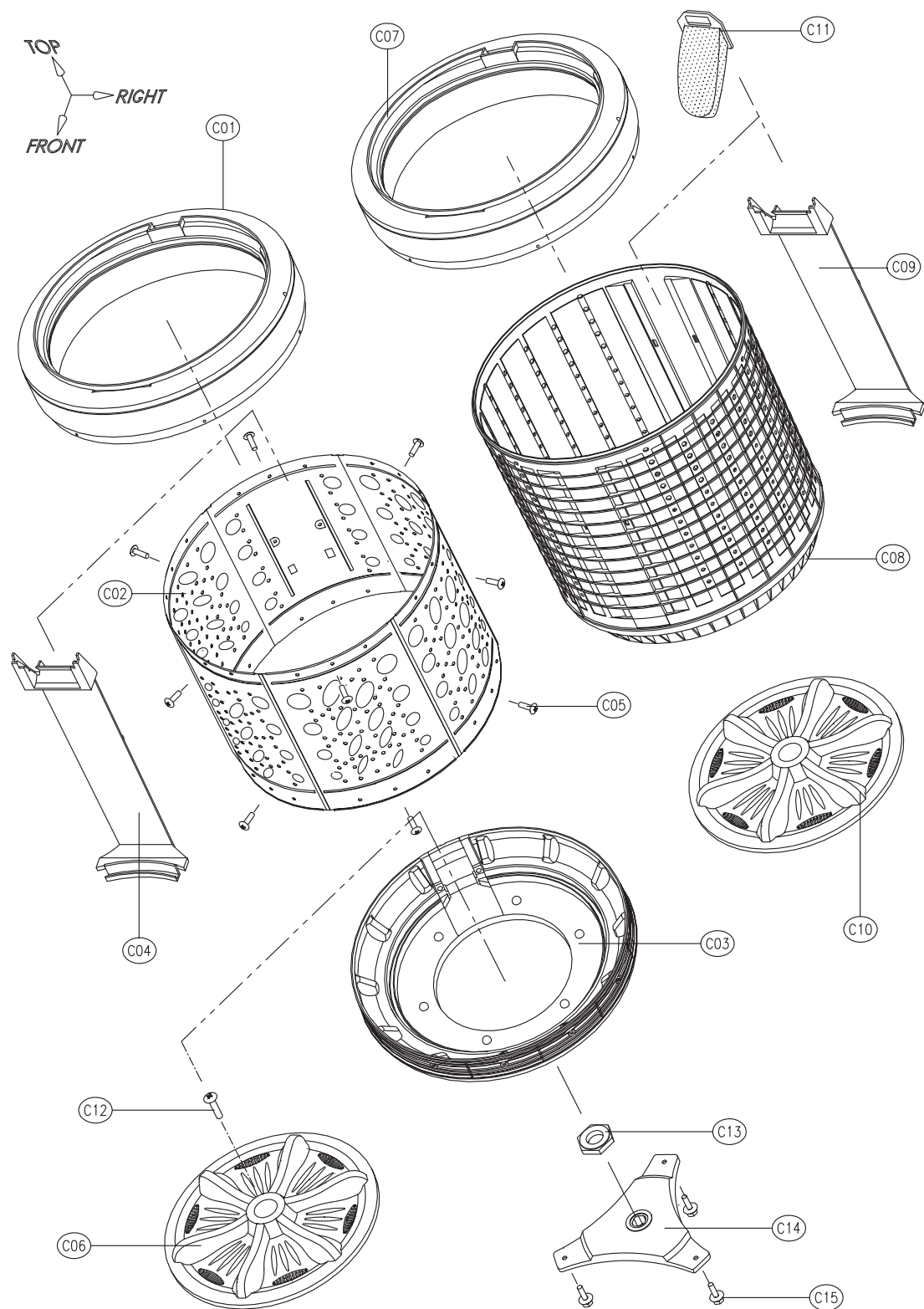




## 202

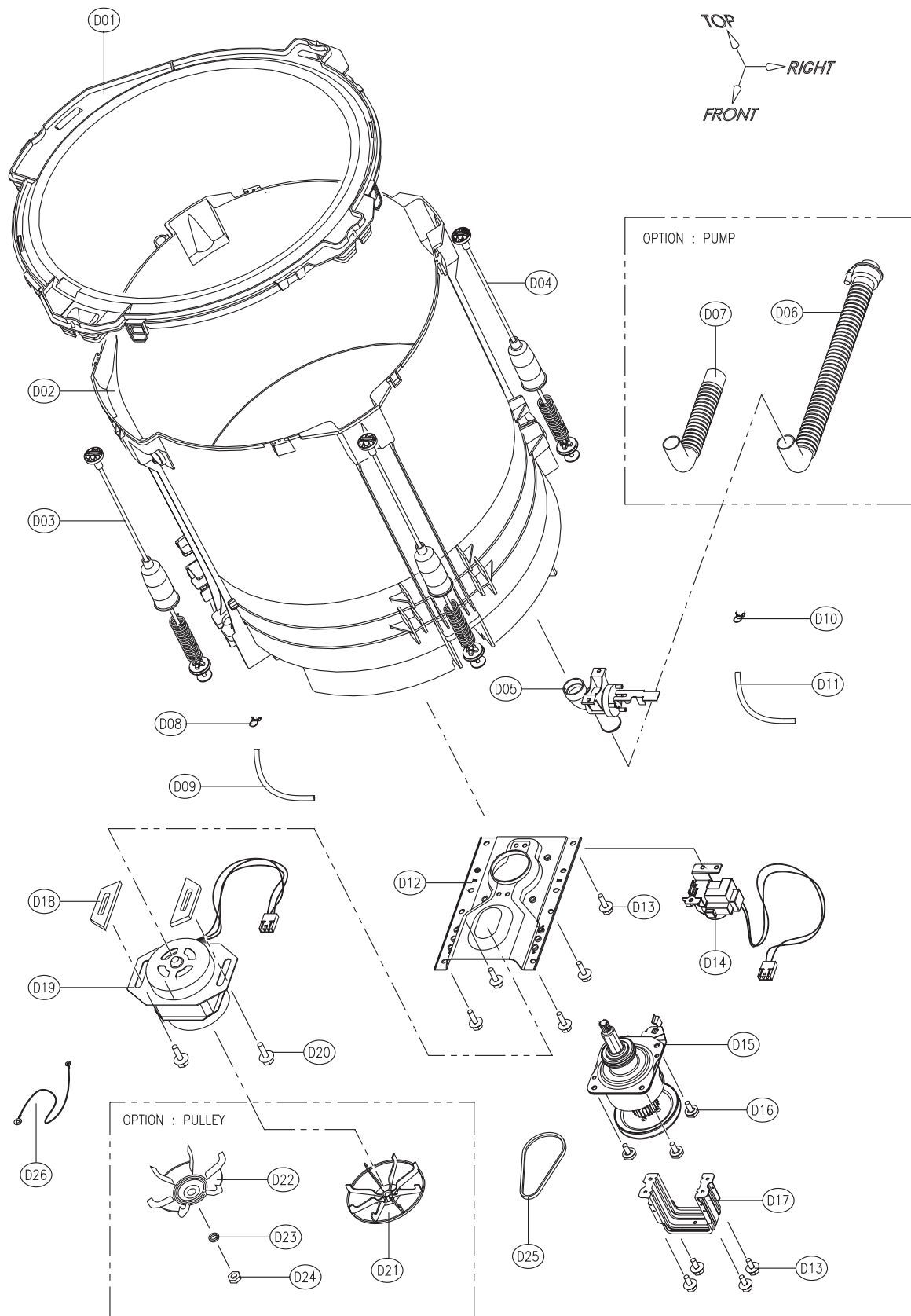
[illegible]

OPTION : TUB



## 202

[illegible]



[illegible]

## 501



FRONT P.C.B.