Service Manual

Service Manual

Full-Auto Electric Washing Machine

Model : DWF-4230 (Series)
DWF-5030 (Series)

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VERSION 1.0

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DAEWOO ELECTRONICS CO., LTD.
OVERSEAS SERVICE DEPT.

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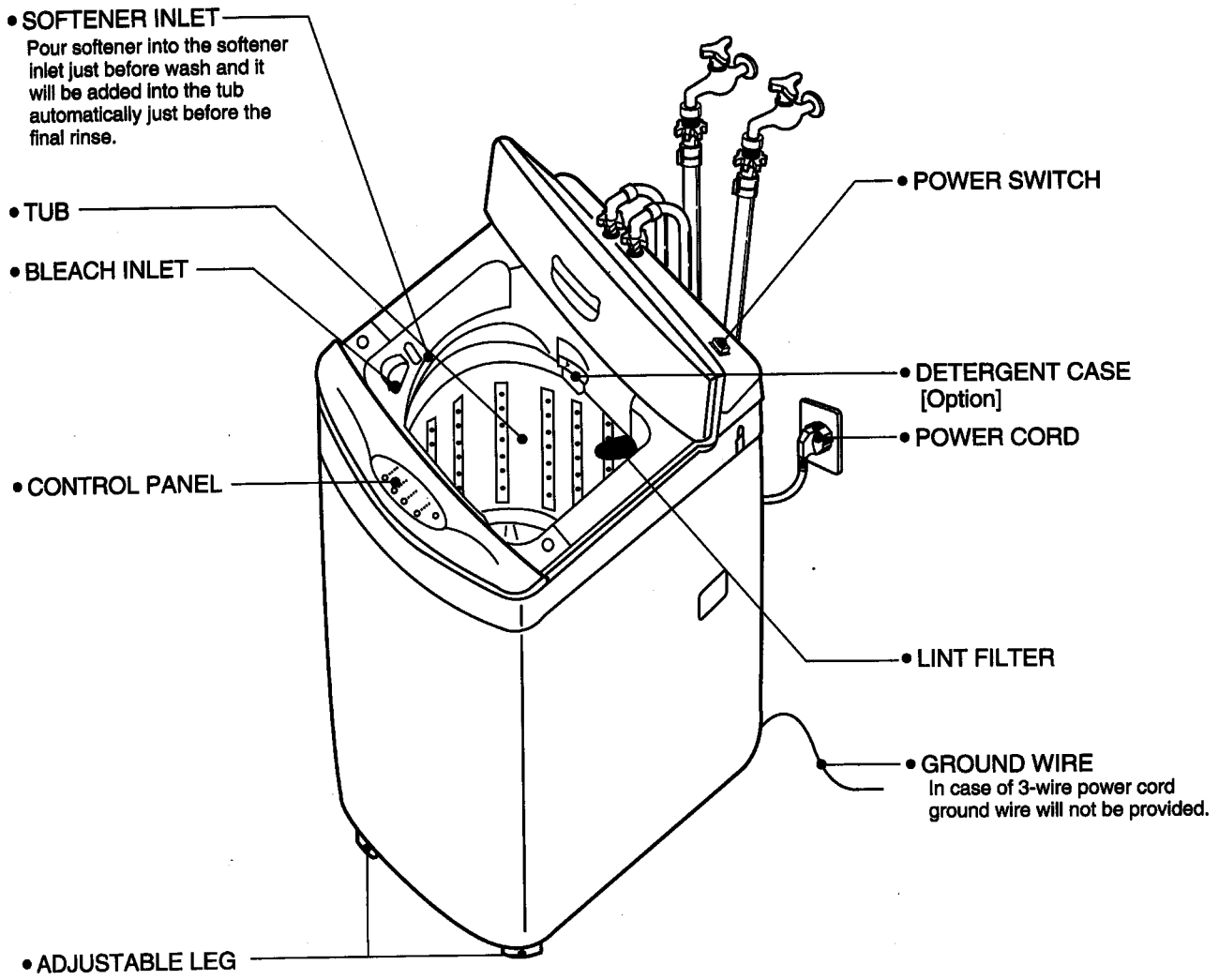
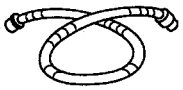
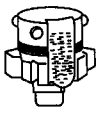
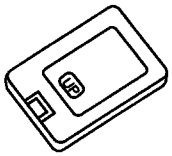
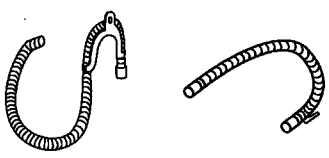
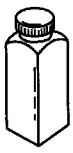
1. SPECIFICATIONS

NO	ITEM		SPECIFICATIONS				
1	POWER SOURCE		AC220V/60Hz	AC127V/60Hz	AC110V/60Hz	AC220V/50Hz	AC240V/50Hz
2	POWER CONSUMPTION	DWF-4230	370W	370W	370W	330W	330W
		DWF-5030	430W	430W	430W	370W	370W
3	MACHINE WEIGHT	DWF-4230	NON PUMP : NET-30, GROSS-33			PUMP : NET-31, GROSS-35	
		DWF-5030	NON PUMP : NET-31, GROSS-34			PUMP : NET-32, GROSS-36	
4	DIMENSION (W x H x D, mm)		NON PUMP : 502 X 876 X 500			PUMP : 502 X 848 X 500	
5	WASHING COURSE		FULL AUTOMATIC 4 COURSES (FUZZY, SPEED, HEAVY, WOOL or SUIT)				
6	WATER CONSUMPTION		DWF-4230 : 130ℓ DWF-5030 : 131ℓ				
7	WATER LEVEL	DWF-4230	HIGH(48ℓ), MEDIUM(36ℓ), LOW(26ℓ)				
		DWF-5030	HIGH(50ℓ), MEDIUM(37ℓ), LOW(27ℓ)				
8	OPERATING WATER PRESSURE		0.3~8kgf/cm^2 (2.9~78.4N/cm^2)				
9	REVOLUTION PER MINUTE		SPIN: 780 WASH : 140~160			SPIN : 710 WASH : 130~150	
10	PULSATOR		6 WINGS (Ø 321mm)				
11	WATER LEVEL CONTROL		ELECTRONIC SENSOR				
12	OUTER CABINET		SGCC				
13	GEAR MECHANISM ASS'Y		PLANETARY GEAR ASSEMBLY OF ENGINEERING PLASTIC				
14	LINT FILTER		○				
15	SOFTENER INLET		○				
16	ALARM SIGNAL		○				
17	AUTO WATER SUPPLY		○				
18	NEW WATER FLOW		WATER FLOW ADJUST THE UNBALANCED LOAD				
19	MAXIMUM MASS OF TEXTILE	DWF-4230	4.2kg				
		DWF-5030	5.0kg				

3. STRUCTURE OF THE WASHING MACHINE



ACCESSORIES

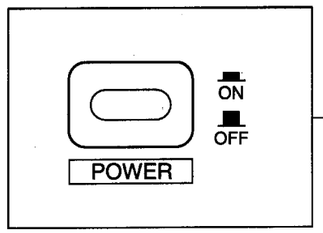
Inlet Hose (COLD) Inlet Hose (HOT) [Option]	Water Tap Adapter (COLD) Water Tap Adapter (HOT) [Option]	Drain Hose Clamp
	 In case of screw-shaped inlet hoses, water tap adapters will not be provided.	
Under Base Cover [Option]	Drain Hose	DRYTEN<Option>
	 Pump Model Non-Pump Model	

4. FUNCTION OF THE CONTROL PANEL

IN CASE THAT WATER TEMPERATURE SELECTION FUNCTION WILL BE USED

CONTROL PANEL

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

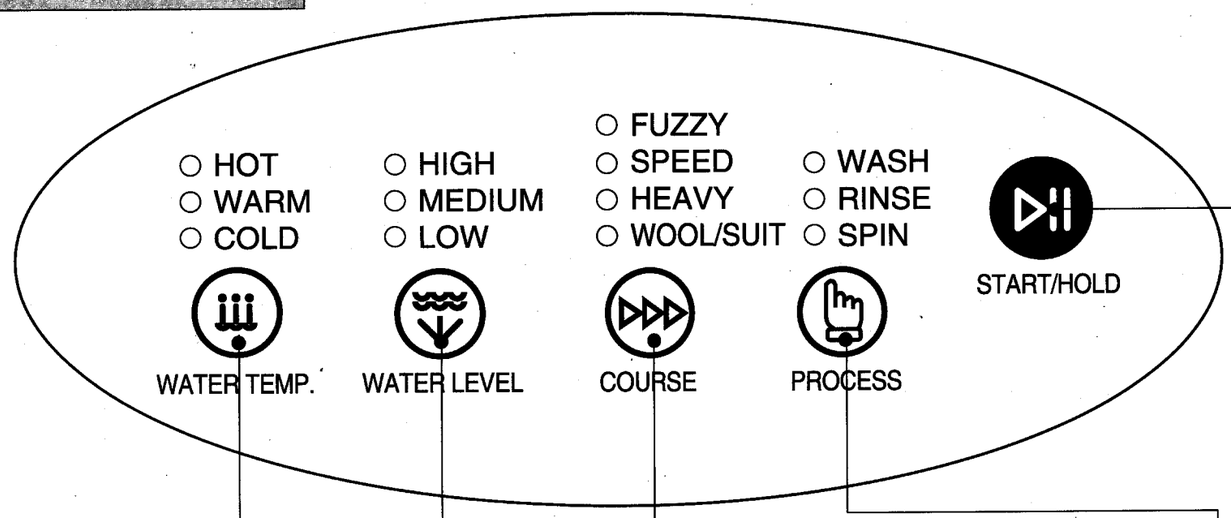


Power Switch

- Press this switch to turn the power ON or OFF.
- After turning off the power, wait for more than 3 seconds and then turn it on again.

Start/Hold Button

- Press this button to begin operation or to stop.
- Operation and temporary stop are repeated as it is pressed.



Temperature Selection Button

- This button is used to select the water temperature according to the clothes being washed.
- Press this button until your desired temperature indicator light comes on, and it will repeat following signs:

Water Level Selector

- This selector is used to select the washing water level according to the size of the wash load.

Course Selection Button

- This button is used to select the washing course according to the type of the clothes being washed.
- You can choose one of the four courses by pressing this button until your desired course indicator light comes on.

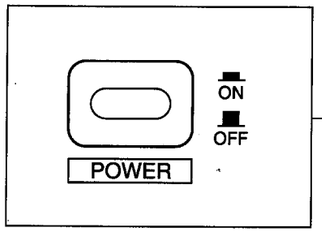
Process Selection Button

- This button is used to select the desired process of washing.
- If a full cycle of wash, rinse, and spin is not desired, the desired process can be selected by pressing this button until your desired process indicator light comes on.

IN CASE THAT RESERVATION WASHING FUNCTION WILL BE USED

CONTROL PANEL

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

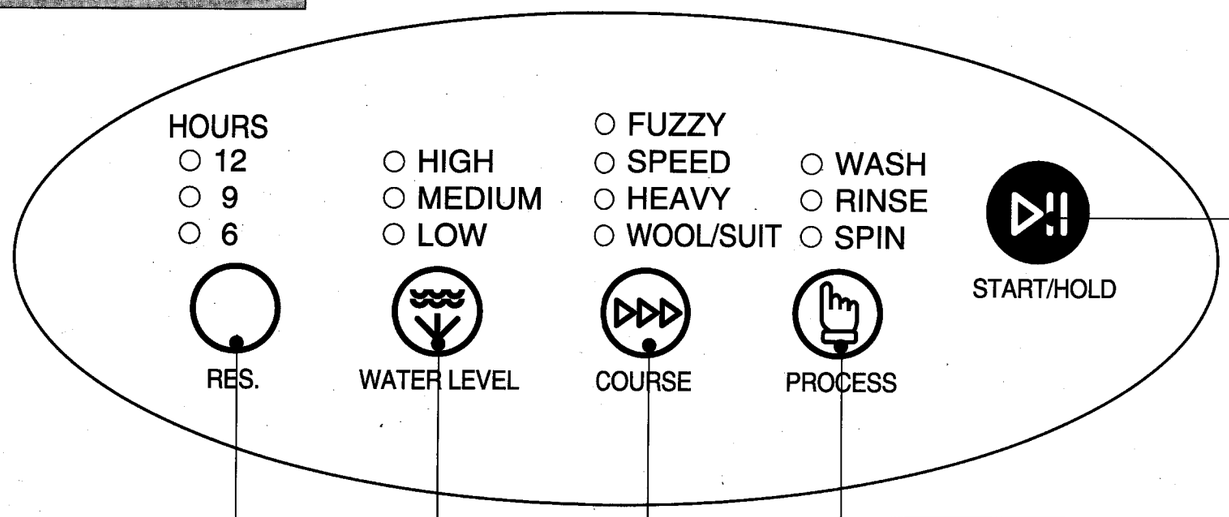


Power Switch

- Press this switch to turn the power ON or OFF.
- After turning off the power, wait for more than 3 seconds and then turn it on again.

Start/Hold Button

- Press this button to begin operation or to stop.
- Operation and temporary stop are repeated as it is pressed.



Reservation Washing Button

- When the desired is setted, the washing machine starts and finishes washing by itself while you are out or sleep.
- Example) To make reservation to complete washing in 6 hours.

① press the power switch
② press the "RES." button, and select "6".
③ shut the lid, and press the START/HOLD button.

Water Level Selector

- This selector is used to select the washing water level according to the size of the wash load.

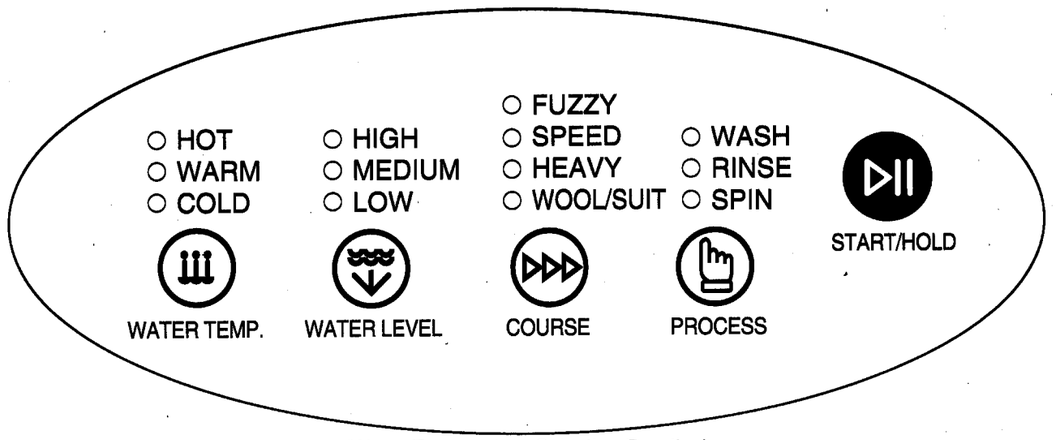
Course Selection Button

- This button is used to select the washing course according to the type of the clothes being washed.
- You can choose one of the four courses by pressing this button until your desired course indicator light comes on.

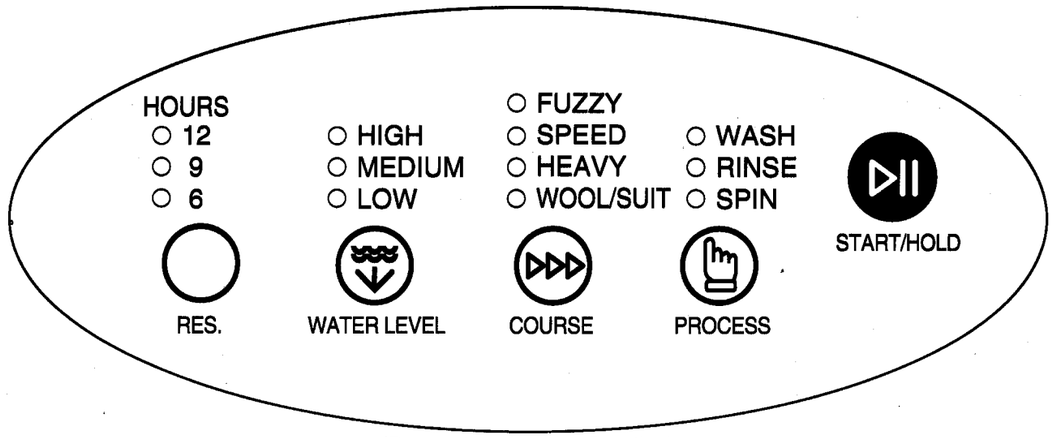
Process Selection Button

- This button is used to select the desired process of washing.
- If a full cycle of wash, rinse, and spin is not desired, the desired process can be selected by pressing this button until your desired process indicator light comes on.

6. PROCEDURE OF FULL-AUTOMATIC WASHING



(Water-Temperature Selection Function)



(Reservation Washing Function)

FULL AUTOMATIC COURSE

① Pressing the Power Switch	② Selecting Course			③ Selecting Water level	Procedure to Press the Button	
	Course	Kind of the Clothes				
POWER	Fuzzy Course	General clothes	● FUZZY ○ SPEED ○ HEAVY ○ WOOL/SUIT	Water level is selected automatically	START / HOLD	End of Washing It is informed by buzzer.
	Speed Course	Lightly stained clothes; underwear, T-shirts, Y-shirts, etc..	○ FUZZY ● SPEED ○ HEAVY ○ WOOL/SUIT	○ HIGH ● MEDIUM ○ LOW WATER LEVEL	COURSE → WATER LEVEL → START/HOLD	
	Heavy Course	Heavily stained clothes; blue-jean, climbing clothes, ruch-sack, sports wear, etc..	○ FUZZY ○ SPEED ● HEAVY ○ WOOL/SUIT	○ HIGH ● MEDIUM ○ LOW WATER LEVEL		
	Wool Course	Delicate clothes; Sweater, silk, lingerie, etc.. * 1.2 kg's weight limitation	○ FUZZY ○ SPEED ○ HEAVY ● WOOL/SUIT	○ HIGH ● MEDIUM ○ LOW WATER LEVEL		
	Suit Course	High quality sweater, wool, etc.. Put in the wash marked with "Dry-Cleaning" * 1.0 kg's weight limitation				

PARTIAL SELECTIONS AMONG WASH, RINSE OR SPIN

① Pressing the Power Switch	② Selecting Water Level	③ Selecting Course				
					WASH ● RINSE ○ SPIN ○	
POWER	○ HIGH ○ MEDIUM ○ LOW WATER LEVEL	○ WASH ○ RINSE ○ SPIN PROCESS	Stage 1	Only Wash		START / HOLD	End of Washing It is informed by buzzer.
			Stage 2	Only Rinse	WASH ○ RINSE ● SPIN ○	
			Stage 3	Only Spin	WASH ○ RINSE ○ SPIN ●	
			Stage 4	Wash and Rinse	WASH ● RINSE ● SPIN ○	
			Stage 5	Rinse and Spin	WASH ○ RINSE ● SPIN ●	

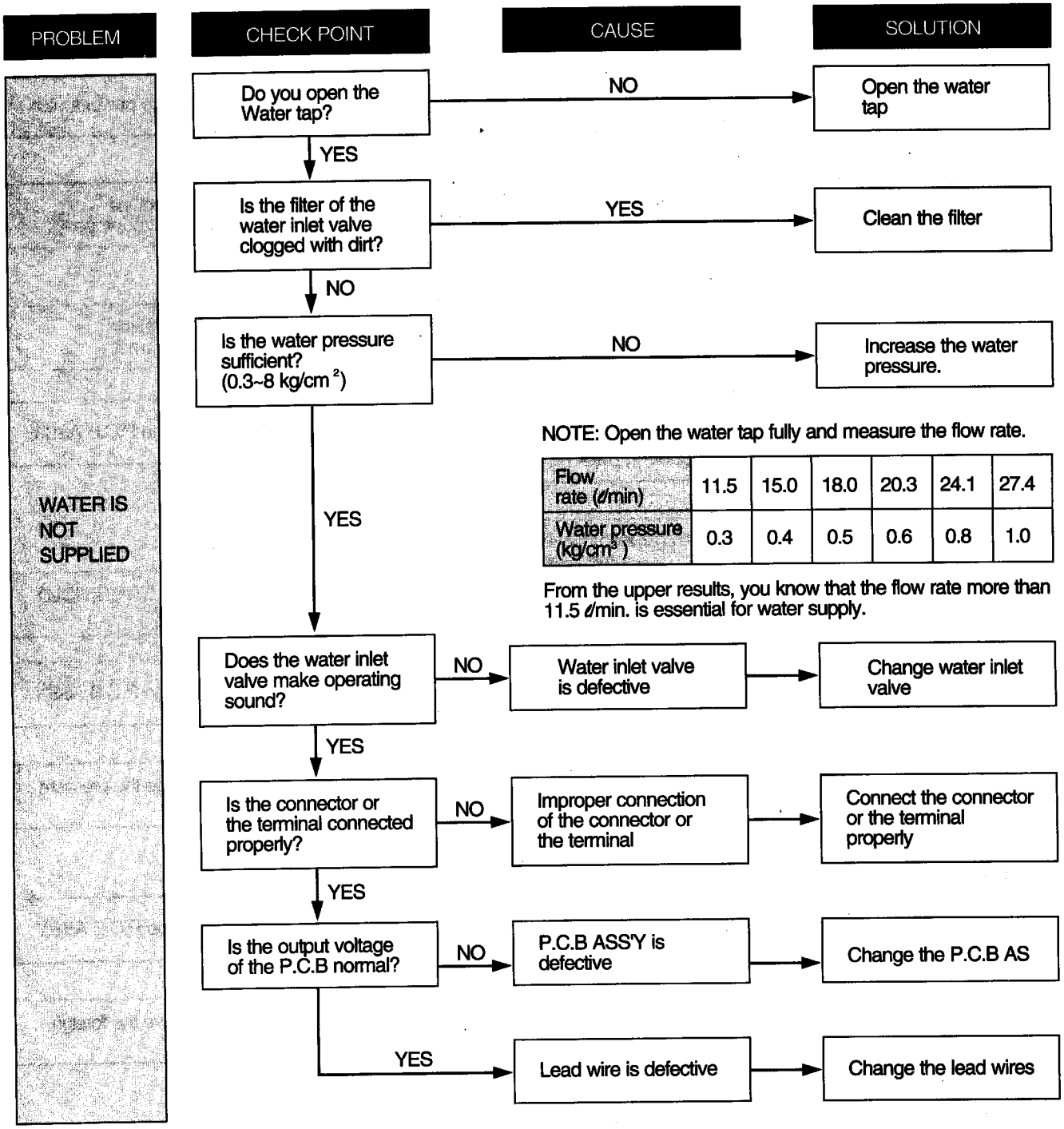
After Operation is Finished

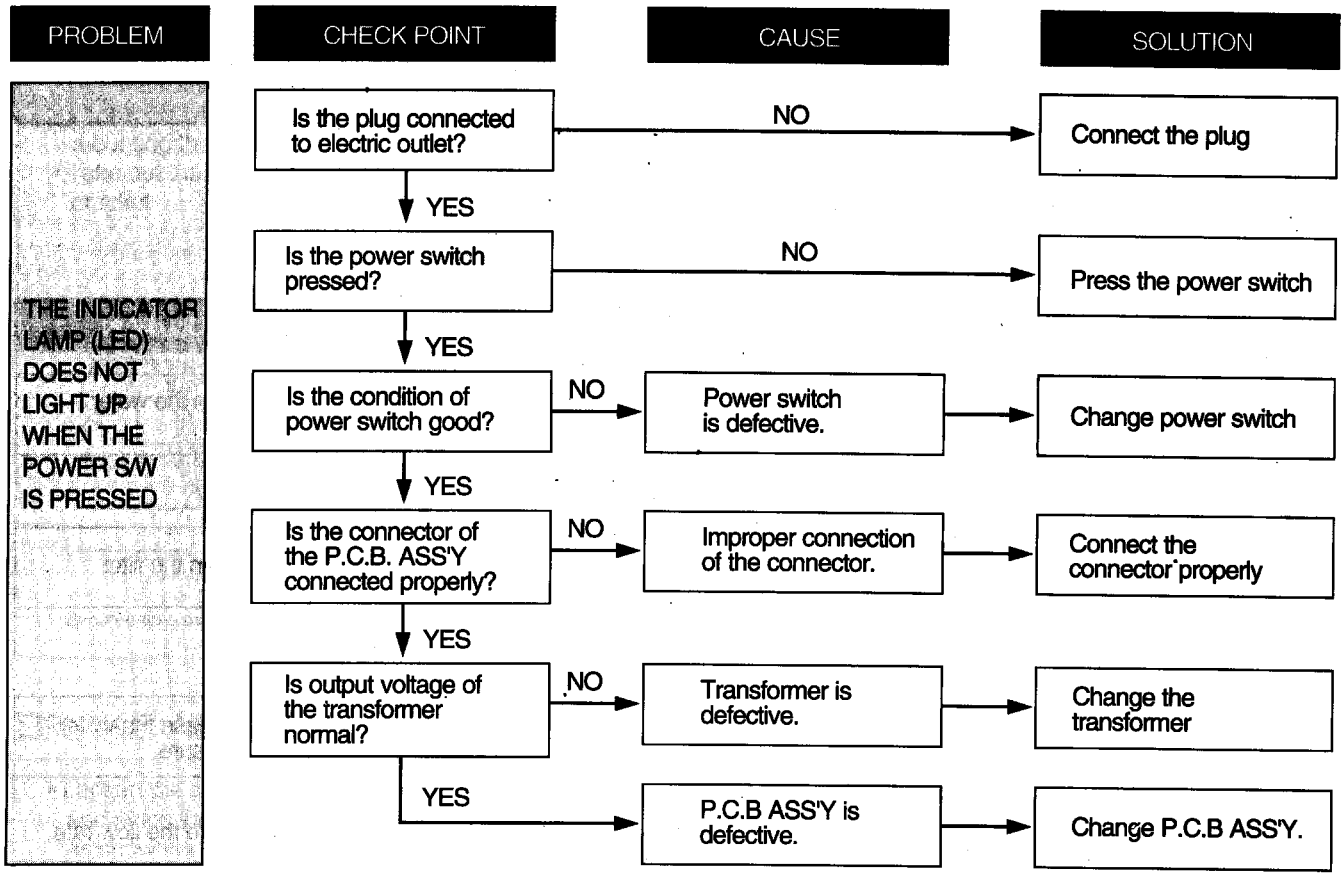
- Close the water tap, and disconnect the inlet hose if necessary.
- Turn off the power, and disconnect the power cord from the electric outlet, being sure to take hold of the plug.
- Clean the lint filter.

8. TROUBLESHOOTING GUIDE

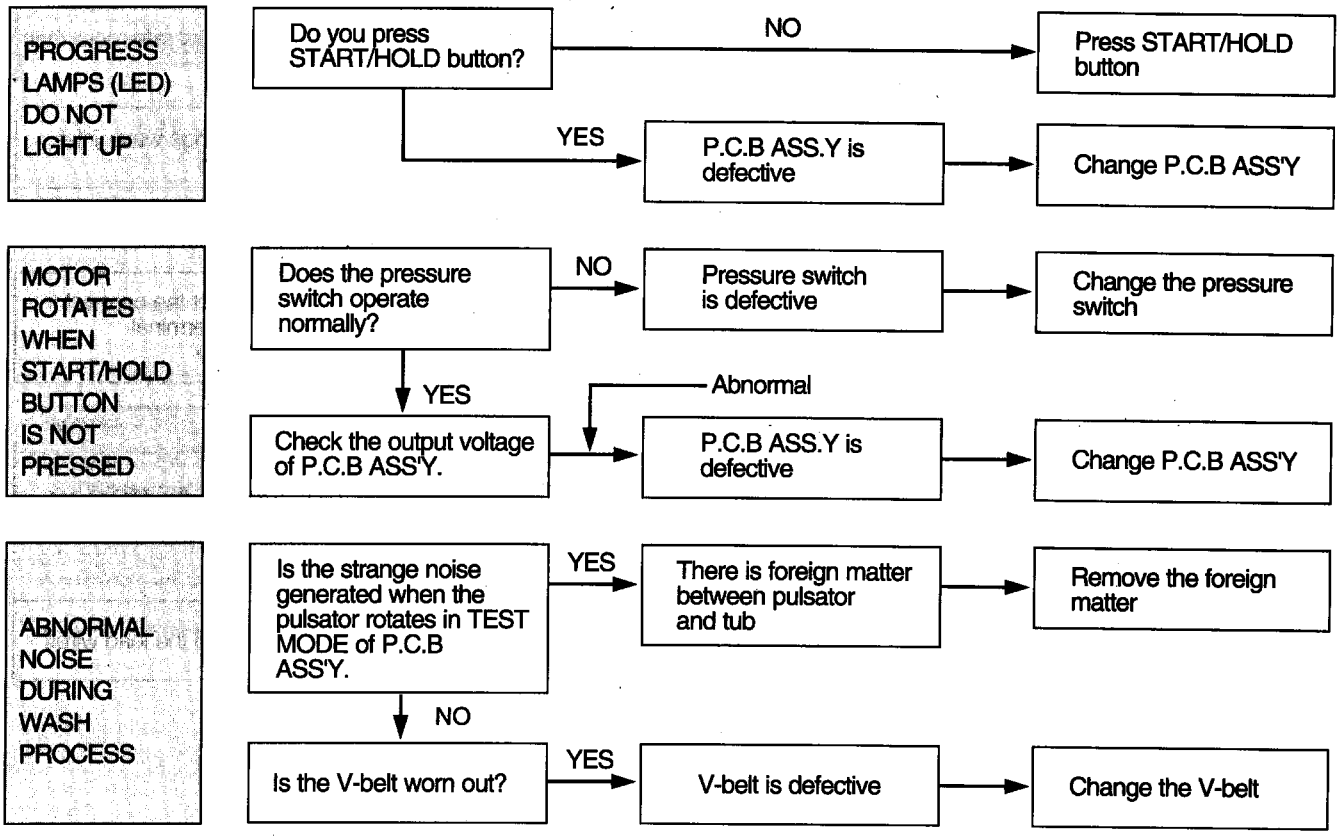
NOTE:
1. When you replace the P.C.B. ASS'Y do not scratch the surface of the P.C.B. ASS'Y.
2. Disconnect the power cord from the electric outlet.

CONCERNING WATER SUPPLY

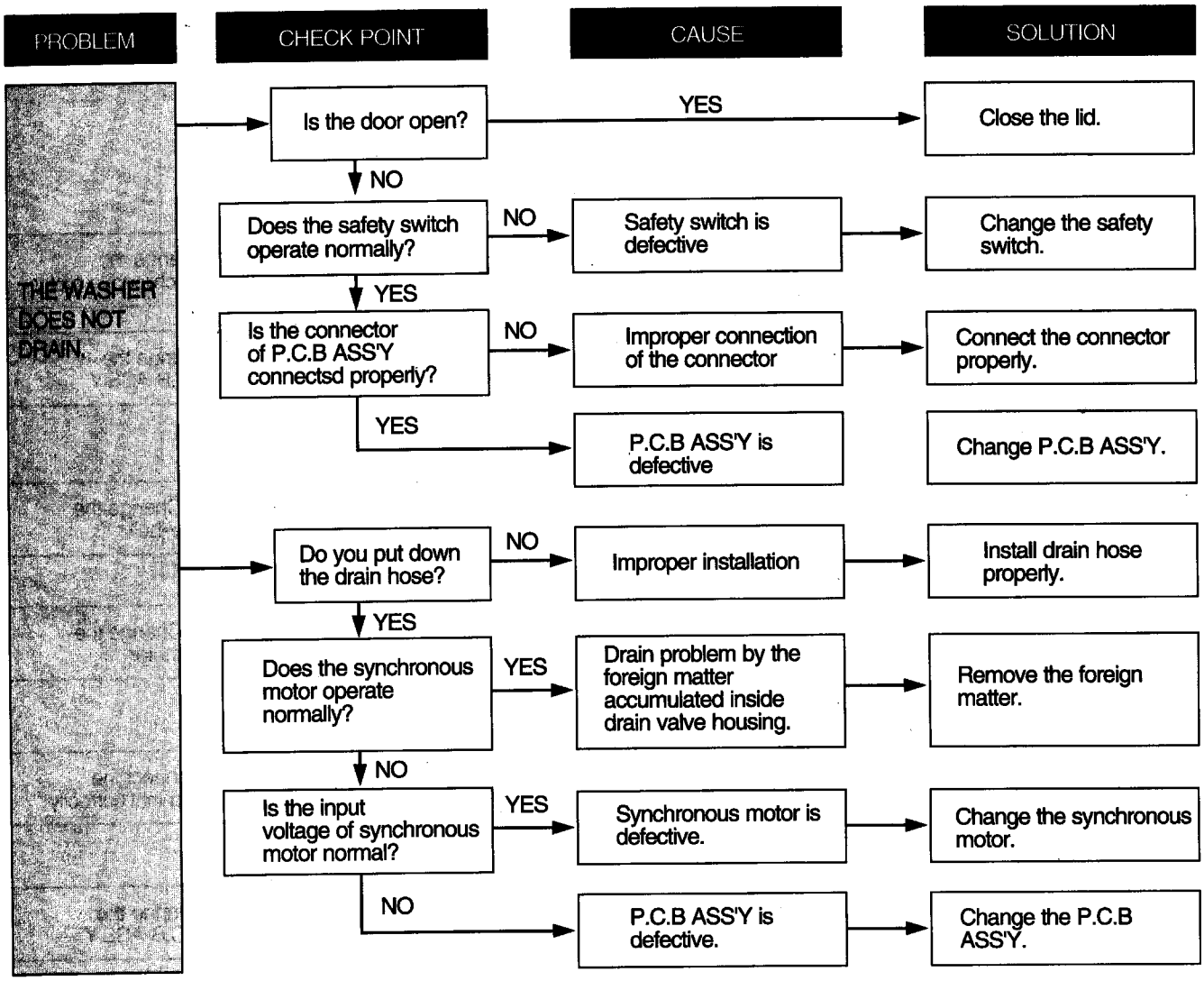




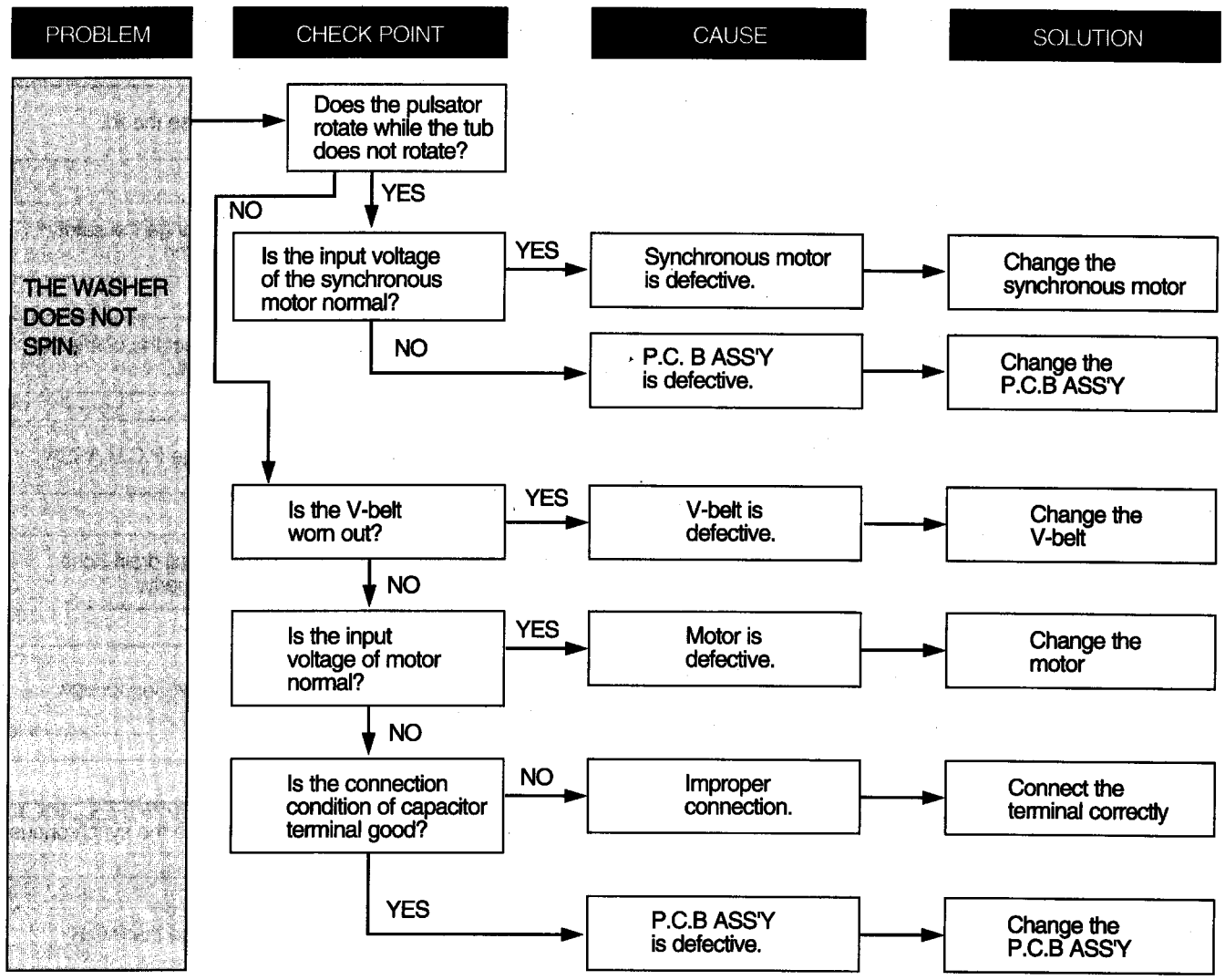
CONCERNING WASHING



CONCERNING DRAINING

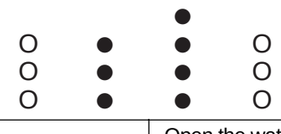
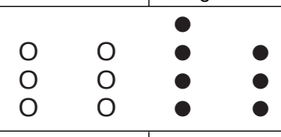
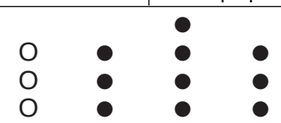
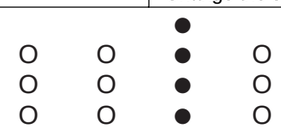


CONCERNING SPINNING



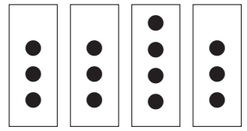
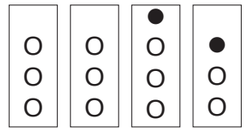
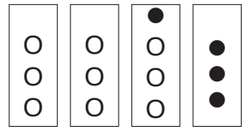
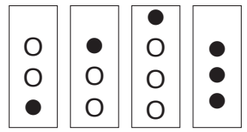
9. PRESENTATION OF THE P.C.B ASS'Y

CONCERNING ERROR MESSAGE

	MESSAGE	
	CAUSE	**SOLUTION**
DRAINAGE ERROR		
	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.
INLET ERROR		
	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.
UNBALANCE ERROR		
	Wash loads get uneven during spin.	Re-set wash loads evenly.
	Poor installation of the unit.	Install properly.
DOOR OPEN ERROR		
	The door is opened.	Close the door.
	The safety switch is inferior.	Change the safety switch.
LOAD SENSING ERROR		
	Load sensing is inferior	Change PCB ASS'Y and check motor or running condenser.
WATER LEVEL SENSING ERROR		
	The water level sensing is inferior.	Check the water level sensor and the contact parts of the connector.

TEST MODE

The operation condition of the washer can be checked without water in the tub by test mode of the P.C.B ASS'Y as shown below.

No. of times to press button 'Water Level'	Check Mode	DISPLAY	Items being checked	The condition of normal operation
0	A		• Buzzer sound indicating the end of washing • L.E.D lamp	• The buzzer sound 8 times while the indicator lights blinks
1	B		• The condition of wash process (Motor)	• The pulsator rotates continuously without water in the tub
2	C		• The functional condition of whole operating	• The washer repeates following operating Drain ➜ Spin ➜ Cold Water ➜ Hot Water ➜ Pulsator rotate(right)➜ Pulsator rotate(left) ➜ Pump ➜ Door check ➜ INITIAL STATE
3	D		• Aging Mode for P.C.B. ASS'Y	• FUZZY COURSE runs continously without INITIAL STATE

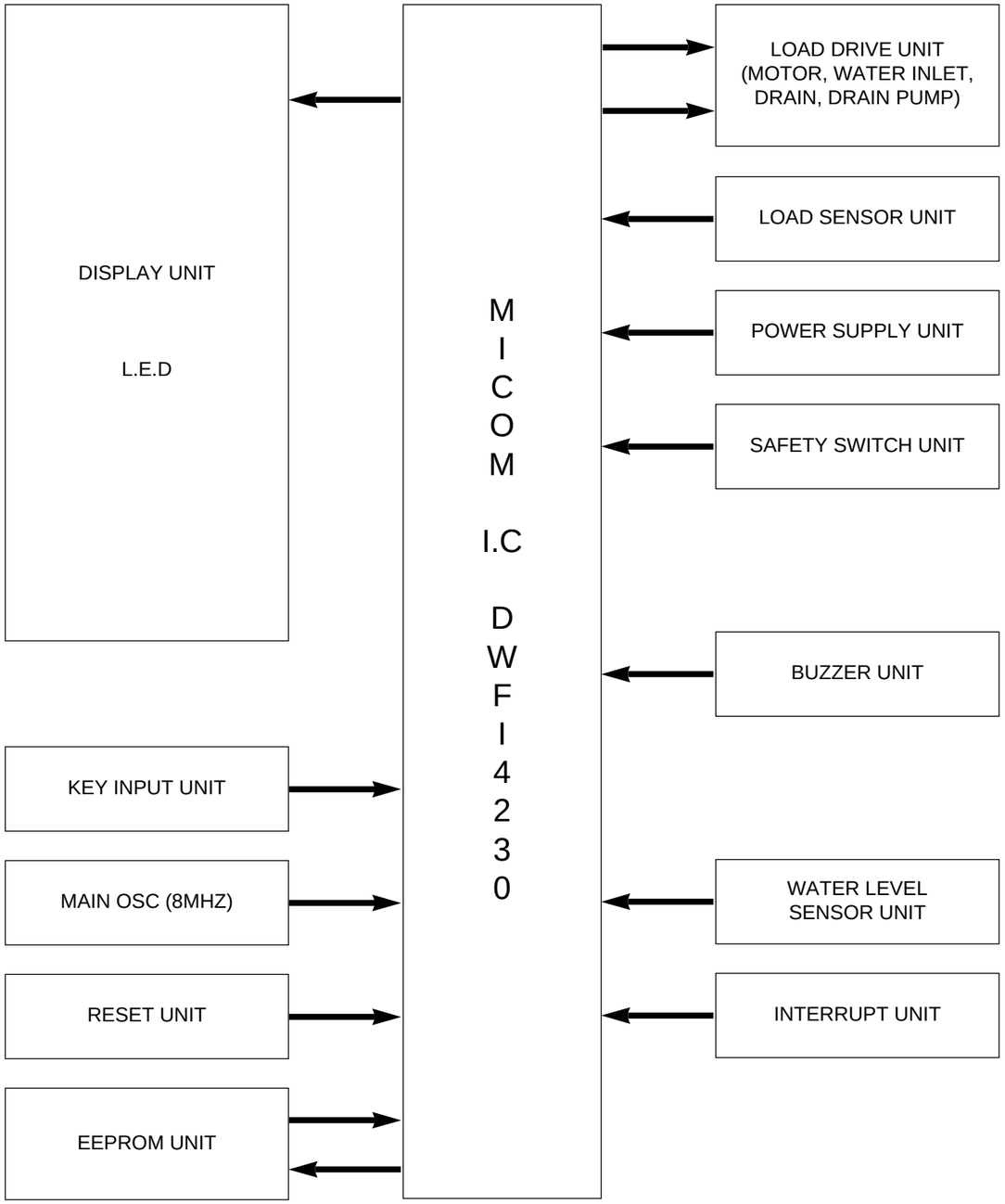
HOW TO OPERATE TEST MODE

1. Turn off the power.
2. Keep pressing two buttons ('COURSE' 'PROCESS') together and press the power switch.
3. Remove your fingers on the two buttons.
4. Press the 'COURSE' button according to desired check mode.
5. It is possible to stop operation temporarily by pressing 'START/HOLD' button.

NOTE :

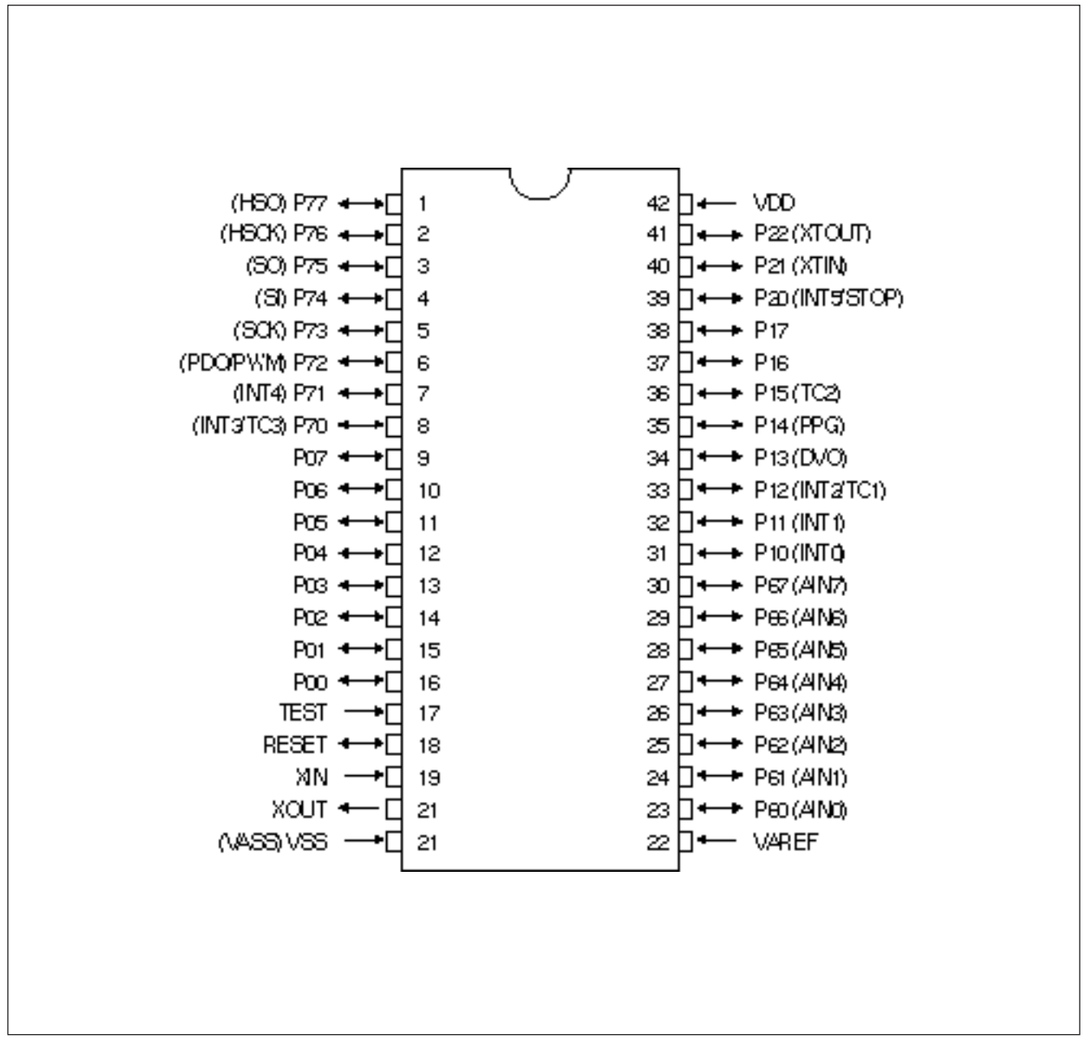
- If pressing 'PROCESS' button within 10 seconds, the check mode changes to 'B', 'C' and 'D' mode.
- If 'PROCESS' button is not pressed, 'A' mode will run.

CONFIGURATION OF FULL CIRCUITS



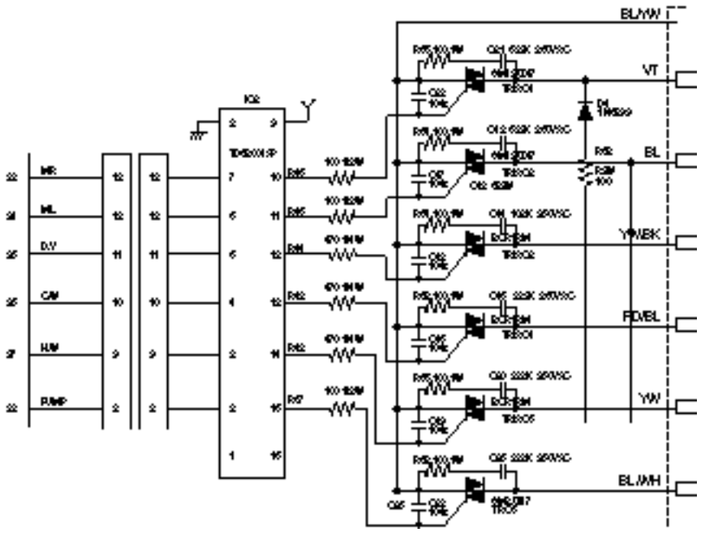
MINUTE EXPLANATION DIAGRAM FOR EACH PARTS

MICOM IC (SDIP42)



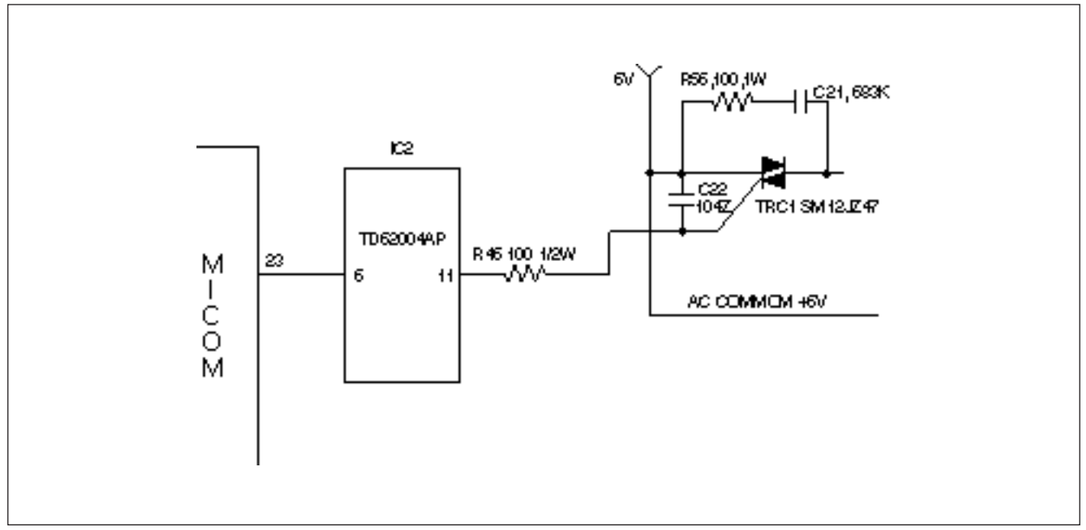
LOAD DRIVE UNIT
(CW WASH, CCW WASH, DRAINAGE, PUMP, HOT WATER, COLD WATER)

1) CIRCUIT DIAGRAM AND EXPLANATION



- Controlling load of button input in MICOM terminal, it is selected to ‘L’ or ‘H’. It is selected to ‘H’ in running load case and in ‘L’ case, load driving is finished. In clockwise rotation of washing motor, as MICOM No. 23 is changed 6V to 0V, IC2 (TD62004AP) is turn on. And then, the TRAC1 (SM12JZ47) is turn on, the source of electric power is supplied to washing motor for clockwise rotation. The TRIAC, as switching element, force to ‘ON’ or ‘OFF’ by use of the IC2 (TD62004AP). In the rest roads, when the MICOM terminal voltage changes 6V to 0V, each DRIVE IC is active, and then the TRIAC switches the source of electric power to loads.

2) DETAIL EXPLANATION OF CIRCUIT ACTION (ACTION OF CW WASH)

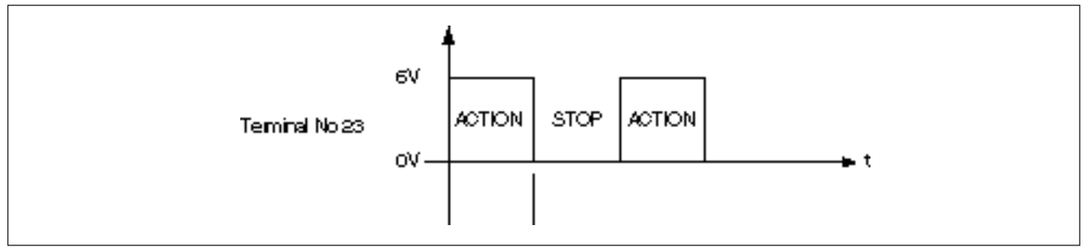


- In case MICOM TERMINAL No. 23 is ‘H’, the IC2 turn on and control the TRIAC. The resistance, as 100Ω & 1/2W, of the r46 is used to limit the GATE current of the TRIAC.

- The ceramic condenser C22 between the T1 and the GATE of the TRIAC is used for preventing the wrong action by means of the noise.

- The R56 (100Ω, 1W) and C21 (683K) between the T1 and T2 of the TRIAC is used for protecting the TRIAC, it is usually called SNUBBER CIRCUIT.

- The waveform of MICOM pin No. 23



3) CAUTION AND CHECKING FOR A/S

• If load is active as soon as the power switch is 'ON', check the driving TRIAC of load.

SM12JZ47 (12A), SM8JZ47 (8A)		BCR1AM-12L	
	• CHECK the resistance of the T1 & T2 of the TRIAC. (∞Ω). • CHECK the total parts without fail, in case the TRIAC has a short circuit.		• CHECK the resistance of the T1 & T2 of the TRIAC. (∞Ω). • CHECK the total parts without fail, in case the TRIAC has a short circuit.

• Check the MICOM output terminal, if the load doesn't act although the TRIAC isn't anything wrong.

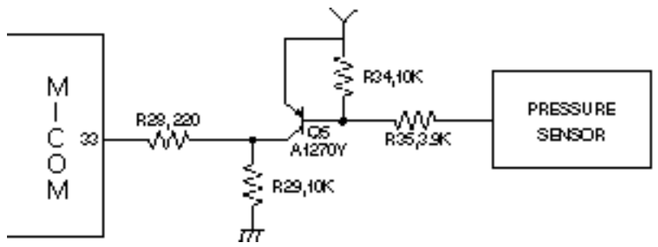
• If the ceramic condenser (C22, C17, C13, C15, C19, C25) using by protecting the noise between the GATE & t1 of each TRIAC has a short circuit, it has no voltage drop between the T1 and GATE. Therfore, the TRIAC is not turn on.

• The TRIAC's names and the values of the snubber & resistance of the total parts.

LOAD	TRIAC'S NAME	THE GATE'S RESISTANCES OF LIMITED CURRENTS	THE VALUES OF THE SNUBBER	THE RESISTANCES OF TOTAL PARTS
CW WASH	SM12JZ47 BCR 12PM-14L	100Ω, 1/2W	100Ω, 1W+683K AC 250V	
CCW WASH	SM12JZ47 BCR12PM-14L	100Ω, 1/2W	100Ω, 1W+683K AC 250V	
DRAINAGE	BCR1AM-12L	470Ω, 1/4W	100Ω, 1W+103K AC 250V	
HOT / COLD WATER	BCR1AM-12L	470Ω, 1/4W	100Ω, 1/W+223K AC 250V	
PUMP	SM8JZ47	100Ω, 1/2W	100Ω, 1W+223K AC 250V	

WATER LEVEL SENSOR UNIT1/ CIRCUIT DIAGRAM

1) CIRCUIT DIAGRAM



2) EXPLANATION OF CIRCUIT

- Push the power switch. And, in order to carry on the action of course selection, input the selection of frequency according to each water level selection.
- The frequency of water level sensor in each water level becomes square wave and is sended to the MICOM.

WATER LEVEL NAME	FREQUENCY	WATER LEVEL
HIGH MEDIUM LOW	22.9 KHz 23.5 KHz 24.1 KHz	340±15 260±15 180±15
RESET	25.30 KHz	
OVER FLOW	22.75 KHz	

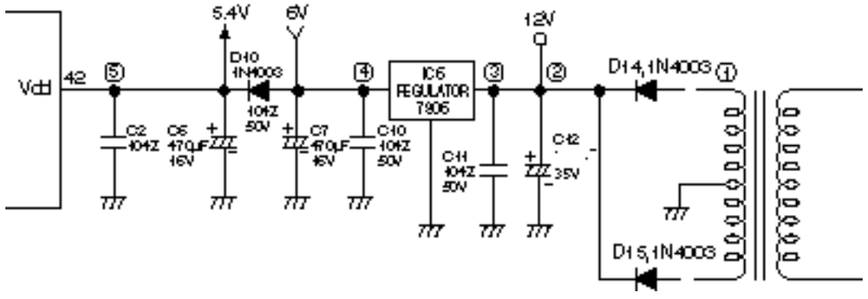
If the water level is selected 'HIGH' in washing, water supply proceeds until inputing the frequency 22.9 KHz of 'HIGH' in the MICOM terminal No. 33. Being finished the water supply, washing process is proceeded. After the washing process, water level reaches to RESET point, and then after the (D)+30 seconds, the spin process begins.

• The value of the frequency between the MICOM terminal No. 33 and the GND.

3) CAUTION FOR A/S

- The output of the frequency in the WATER LEVEL SENSOR varies in accordance with temperature and using condition. If it doesn't input the output of the WATER LEVEL SENSOR in the MICOM, the error message is displayed as WATER LEVEL SENSING ERROR (See page 22). In case of proceeding the water supply continuously in 'HIGH' water level, it is desirable to change the WATER LEVEL SENSOR because of the defect in the WATER LEVEL SENSOR.
- Check the TR Q5 (A1270Y).
- Being checked with tester, the value of the voltage reaches about 4V.
- As the frequency is lower, the water level is higher.

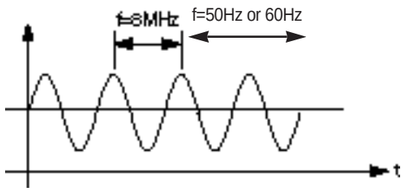
ELECTRIC POWER SUPPLY UNIT
1) CIRCUIT DIAGRAM



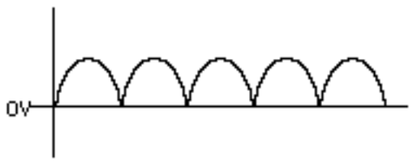
2) EXPLANATION OF CIRCUIT

- The primary voltage of the transformer sets RATING VOLTAGE, the secondary voltage of the transformer is full wave rectified by use of the D14 (1N4003) & D15 (IN4003)

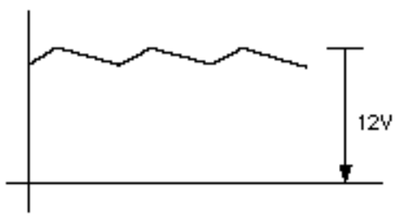
① The gray & red (The waveform in secondary part of the transformer)



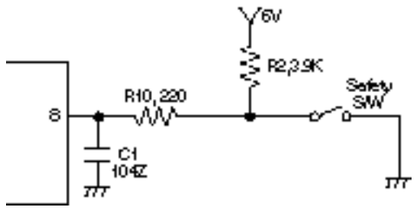
② Measuring the waveform in case of the removing condenser by the removal ripple C12.



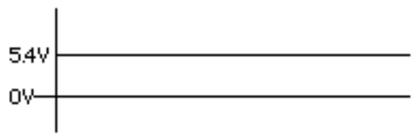
③ It is removed the ripple with attaching the C12 (1000μF).



④ The waveform of output in the REGULATOR I.C. 7806.



⑤ The waveform after passing the D10.



- The Electrolytic condenser C6 (470μF, 16V) and diode D10 is used in order that at instant power supply failure circuit should remember the contents of the program. It happens that the MICOM terminal No. 42 has instant interruption of electric power, yet the MICOM is not discharged electricity because of the diode D10.

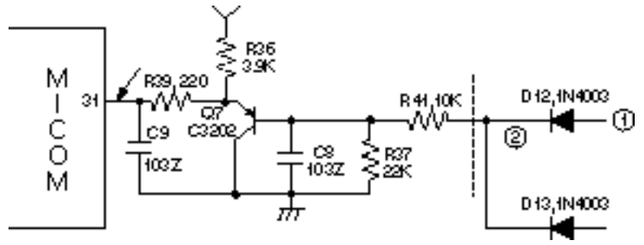
- The measurement of voltage

	EFFECTIVE VALUE ①	②	③	④	⑤
82.5V	5.2V	7.9V	7.9V	5.97V	5.4V
119V	7.2V	11V	11V	5.97V	5.4V
137.5V	9.3V	14.1V	14.1V	5.98V	5.4V
165V	5.3V	7.6V	7.6V	5.96V	5.4V
220V	7.6V	10.6V	10.6	5.98V	5.4V
275V	9.7V	13.7V	13.7V	5.98V	5.4V

3) CAUTION FOR A/S

- Measure the voltage of input terminal REGULATOR I. C. of 7806 with tester. And, compare the measuring value with the voltage table.
- Check the condenser in case the electrolytic condenser and ceramic condenser have short circuit. The reason is that it happerns no electric power supply.

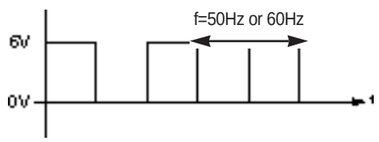
INTERRUPT UNIT
1) CIRCUIT DIAGRAM



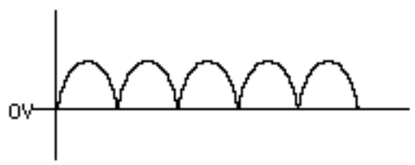
2) EXPLANATION OF CIRCUIT

The INTERRUPT UNIT is necessary to reduce the generation of surge, by use of being voltage 'ON' from the zero voltage.

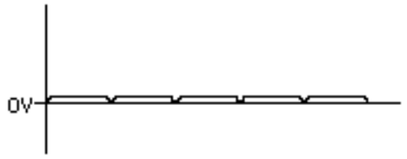
- The waveform of the part ①



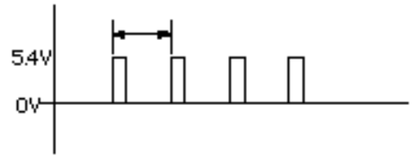
- Thewaveform of the part ② (in case of cutting the part of the dotted line)



• After connecting the part of the dotted line & waveform measurement



• The waveform measurement in the MICOM No. 31

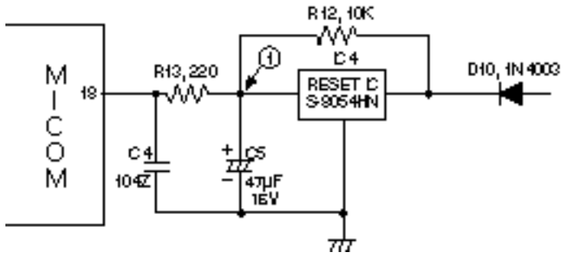


The waveform of the secondary part in transformer passes through the diode D12, D13 (1N4003), and then the voltage is divided by means of the resistance R37 & R41. This voltage gives force to input the pulse to the MICOM terminal No. 31 on the ground of action of the TR Q7 (C3202Y).

3) CAUTION FOR A/S

• When the phenomenon of no electric power supply happens, to begin with check the electric power supply unit, and then check the INTERRUPT UNIT. It is desirable to measure Q7 (C3202Y) with tester and C9 (C103Z) and C8 (103Z).

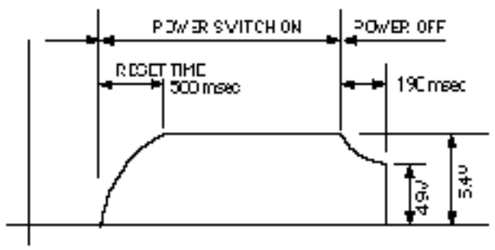
RESET UNIT
1) CIRCUIT DIAGRAM



2) EXPLANATION OF CIRCUIT

• The RESET unit is a hardware circuit, of which all programs are initialized, when the power switch is 'ON'. Here, the reason why uses RESET I. C. is that the RESET UNIT prevents the MICOM from incorrect action. Also, the R13 & C4 (104Z), as a RC fiter, is used in order to absorb the noise.

• The waveform measurement of the part ① with being 'ON' the power switch.

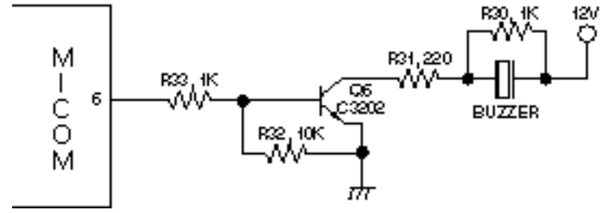


3) CAUTION FOR A/S

• Check the output of the RESET I. C. and judge whether or not it is something wrong.
  1. OUTPUT
  2. INPUT (VDD)
  3. GROUND

• The R12 and C5 turn on the accurate RESET value with controlling the RC time constant.

BUZZER UNIT
1) CIRCUIT DIAGRAM

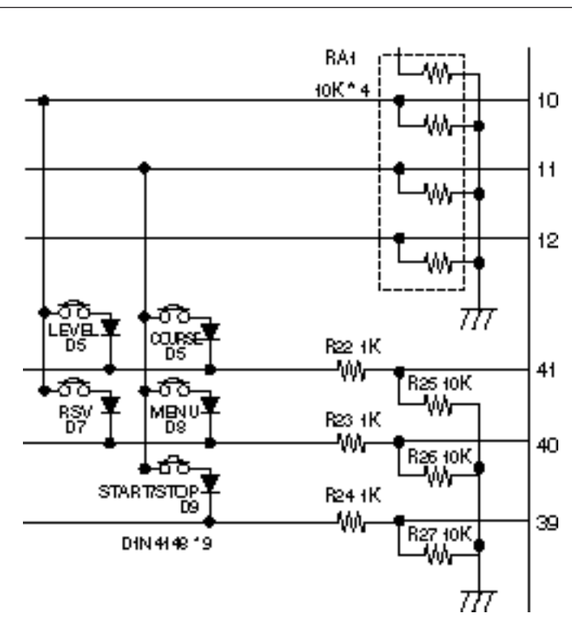


2) EXPLANTION OF CIRCUIT

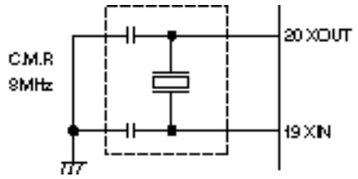
• After the button action and total process ends, BUZZER is active.

• It is active directly with offering an output the frequency waveform of 2.8 KHz from the MICOM terminal No. 6

BUTTON INPUT UNIT
1) CIRCUIT DIAGRAM



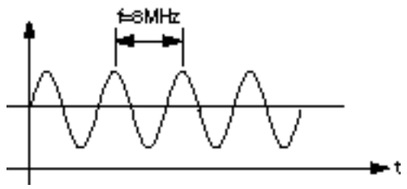
OSCILLATION UNIT
1) CIRCUIT DIAGRAM



2) EXPLANATION OF CIRCUIT

- As the OSCILLATION UNIT is a basic part of the MICOM DRIVE. If the oscillation doesn't generate, we are able to consider that the MICOM is destroyed.

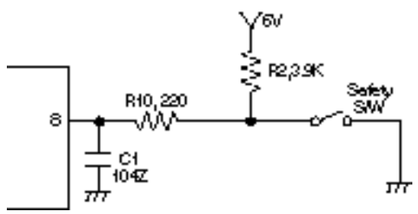
- The waveform between the part of ① and the GND.



- Specification of oscillator.
  It is in general use for the MICOM maker's recommendator value of RESONATOR which is fit for MICOM'S Characteristics.

TYPE OF OSCILLATOR	MAKER	RATING FREQUENCY
RESONATOR	MURATA	8MHz

SAFETY SWITCH UNIT
1) CIRCUIT DIAGRAM

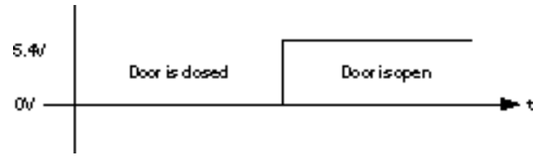


2) EXPLANATION OF CIRCUIT

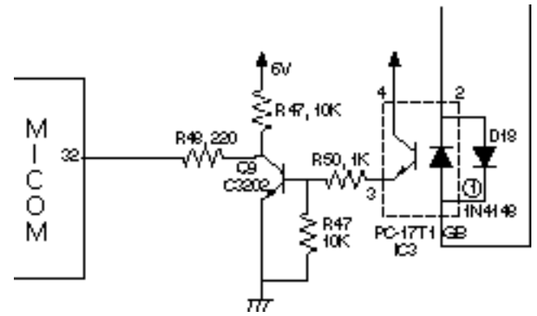
- The MICOM terminal No. 8 gets into 'L' at the state of the closed door. If the lid is opened in spining stage, the MICOM generates error signal. (See page 22)
- Case of range 40 mSEC~300 mSEC in spining time: It is regarded that washing clothes should be inclined. Accordingly washing time increases 7 minutes and rinsing action takes place another one time. Case of above 300 mSEC: It is regarded that the lid should be open. Therefore it is displayed as door open error. (See page 22)

3) CAUTION FOR A/S

- Be level with the ground.
- The UNBLANCEerror occurs in case of not being level with the ground.
- The waveform between the MICOM terminal No. 8 and the GND.

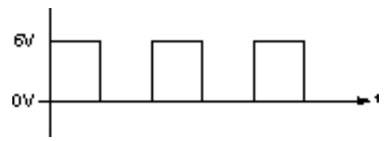


LOAD SENSOR UNIT
1) CIRCUIT DIAGRAM

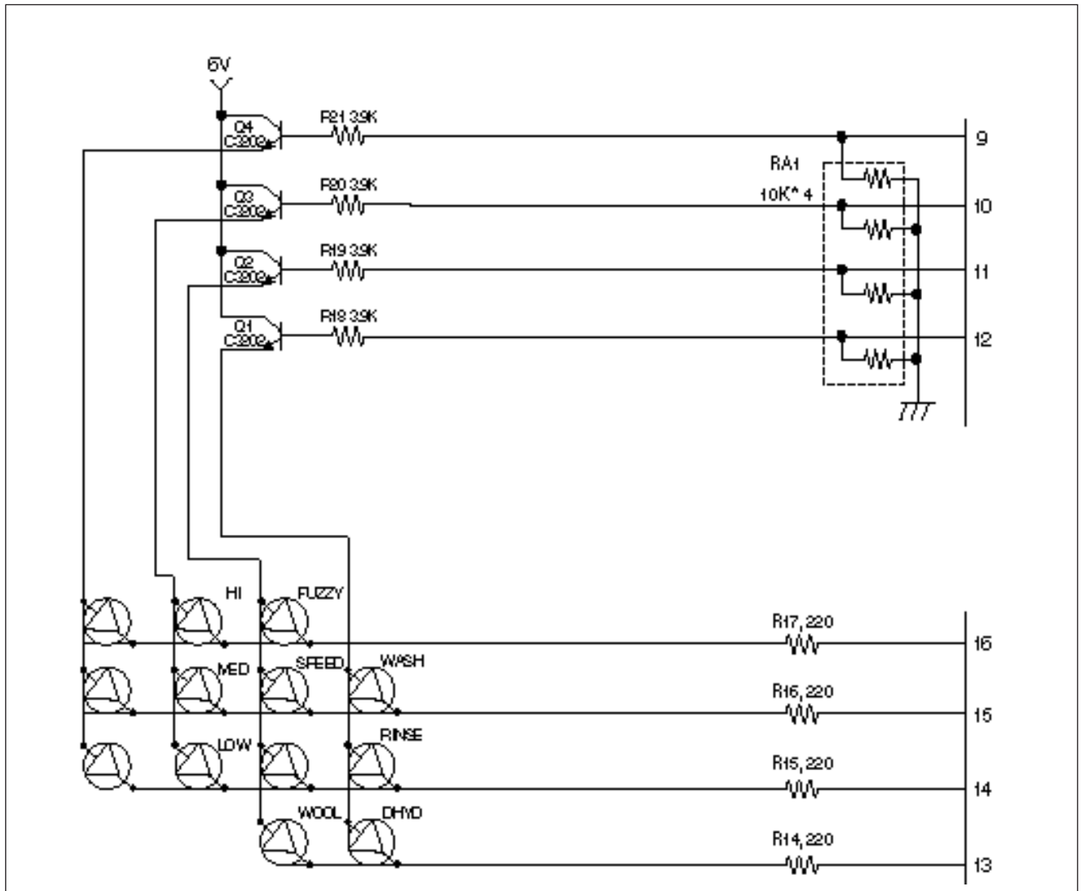


2) EXPLANATION OF CIRCUIT

- Detecting photo coupler the voltage of running condenser, it sends the sensing data to the MICOM terminal No. 32. That is, as charging & discharging time of running condenser becomes different according to the loads, in fuzzy course the washing time is determined by sensing the quantity of washing clothes.
- The waveform between the part of ① and GND (Waveform of pulse)



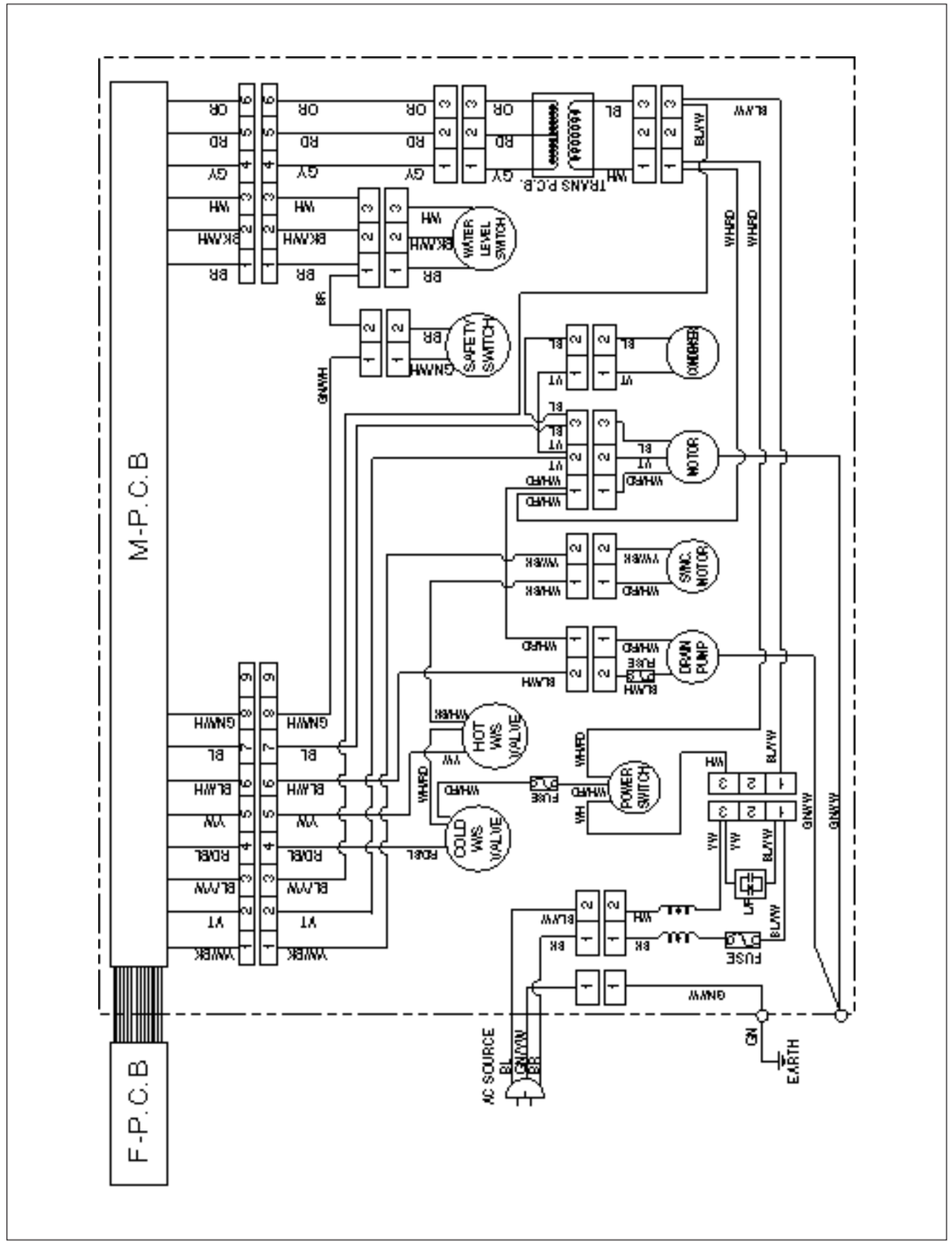
DISPLAY UNIT
1) CIRCUIT DIAGRAM



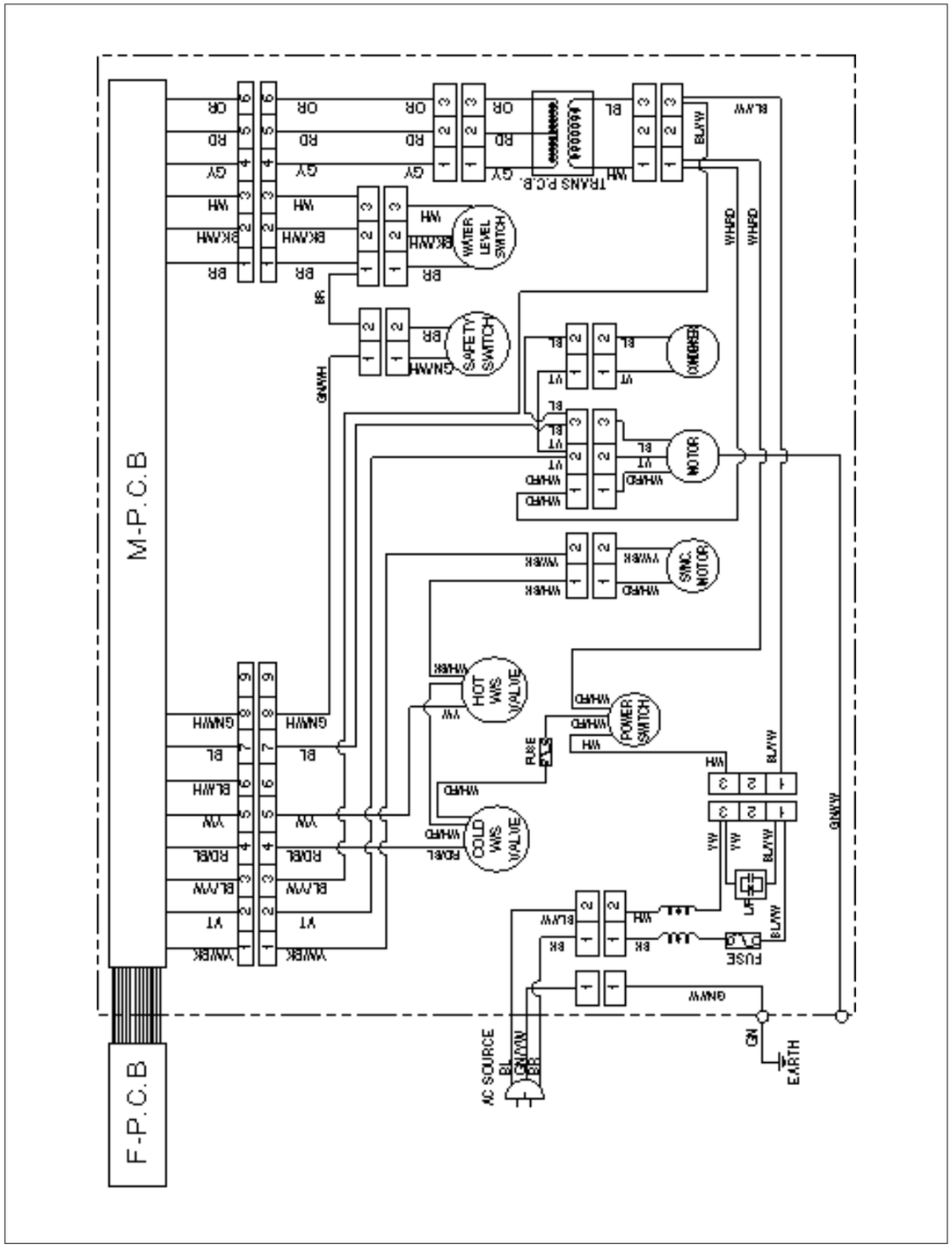
• When electric power source is turned on, the LED lamp is turned on necessarily corresponding to the standard course.

APPENDIX

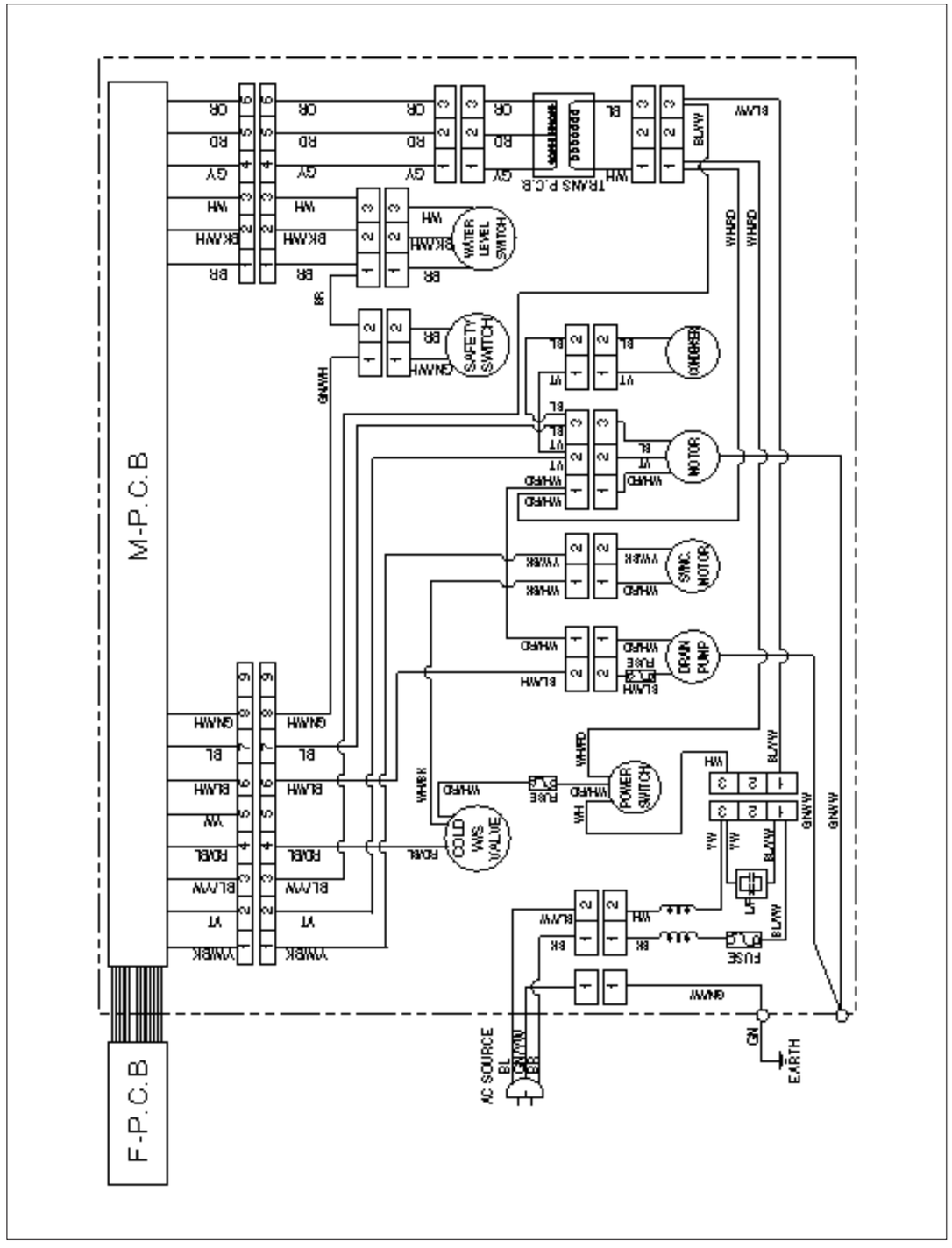
WIRING DIAGRAM (PUMP)



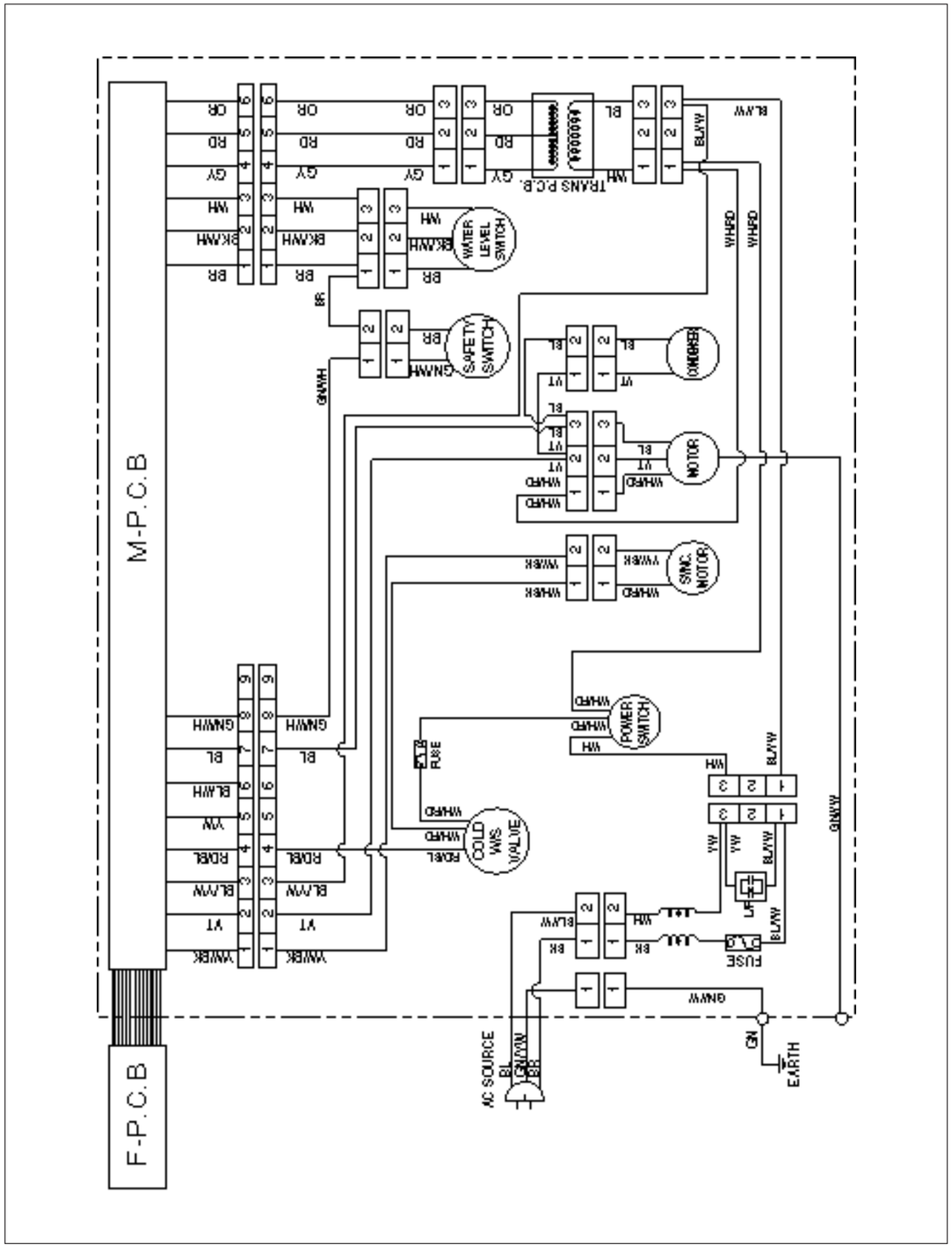
WIRING DIAGRAM (NON-PUMP)



WIRING DIAGRAM (PUMP, COLD ONLY)



WIRING DIAGRAM (NON-PUMP, COLD ONLY)



PARTS LIST

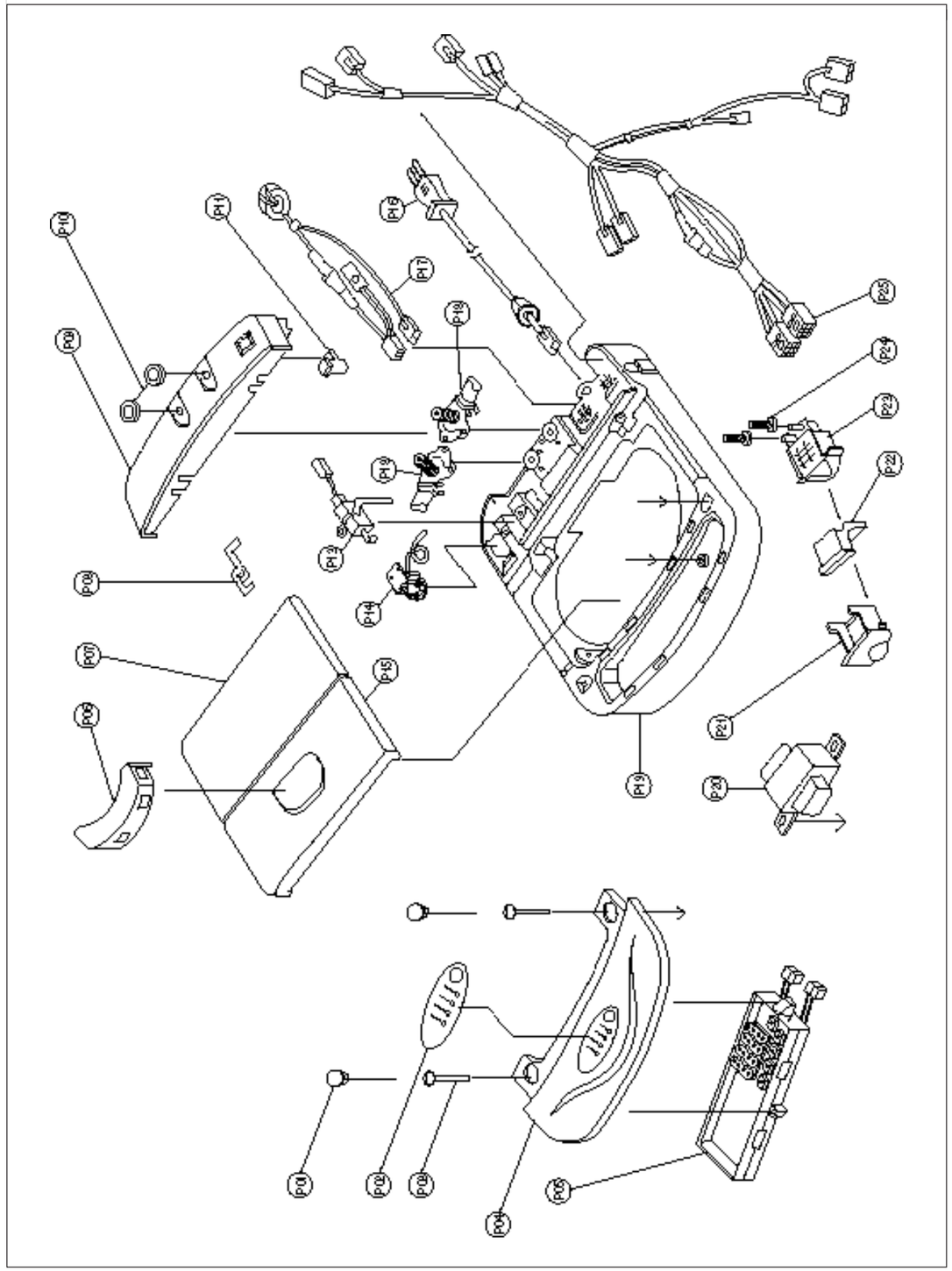
REF No.	PART CODE	PART NAME	DESCRIPTION	Q'TY	REMARK
ASS'Y PLATE					
P01	3610906700	CAP	ABS	2	
P02	3611611500	DECORATOR	PC FILM, 0.188T	1	
P03	3616001200	SPECIAL BOLT	T1 TRS 5X73	2	
P04	3614216200	PANEL F	PS	1	
P05	PRPSSWUZ00	PCB ASS'Y	PUMP	1	
	PRPSSWUY00		PUMP, COLD ONLY		
	PRPSSWCB00		NON-PUMP		
	PRPSSWCC00		NON-PUMP, COLD ONLY		
P06	3612602900	HANDLE DOOR	PS	1	
P07	3611715400	DOOR B	PS	1	
P08	3615107300	SPRING DOOR	SUS 304 D=1.6	1	
P09	3614217400	PANEL B	HIPS	1	
	3614217410		HIPS		COLD ONLY
P10	3612300110	GASKET VALVE	PVC-S	2	1EA:COLD ONLY
P11	3619008800	SWITCH POWER	125V/10A, 250V/5A 2P	1	
P13	3619006360	SWITCH SAETY	DC 15V/10mA	1	
P14	3614800960	SENSOR PRESSURE	DC 6V CDN-D7	1	
P15	3611715300	DOOR F	PS	1	
P16	3611302600	CORD POWER AS	3X1.0, 300X2, 300-RTM	1	CHILE
	3611302500		125V/12A T-MARK		JAPAN
P17	3618914810	UNIT FUSE FILTER	250V/5A	1	
	3618914820		125V/8A		
P18	3615403710	VALVE INLET (COLD)	AC 220~240/50Hz	1	
	3615402010		AC 220V/60Hz		
	3615403510		AC 110~130V/60Hz		
	3615403830	VALVE INLET (HOT)	AC 220~240/50Hz	1	
	3615402130		AC 220V/60Hz		
	3615403630		AC 110~130V/60Hz		
P19	3614514100	PLATE T	PP	1	
P20	5EP4048930	TRANS POWER	AC 230/50Hz T2-V2F-2	1	
	5EP4048920		AC 230V/50Hz T2-V2-2		
	5EP4048910		AC 110V/50Hz T2-V1F-2		
	5EP4048900		AC 110V/50Hz T2-V1-2		
P21	3611113500	CASE DETERGENT	PS	1	COLD ONLY
	3611415100	COVER	PP	1	
P22	3618101500	NOZZLE	PP	1	
P23	3610402300	BODY DETERGENT	PP	1	
	3610402310		PP		COLD ONLY

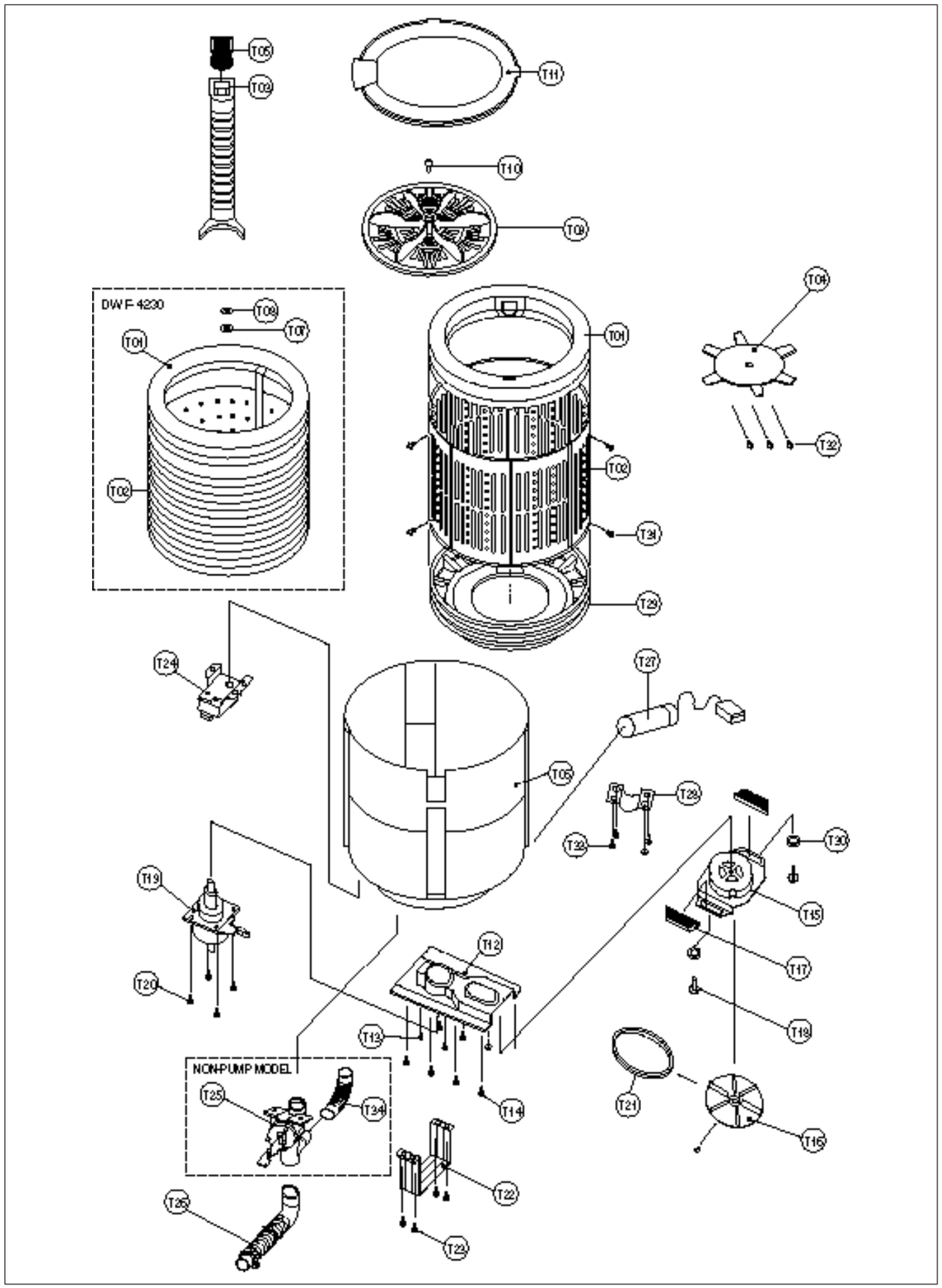
REF No.	PART CODE	PART NAME	DESCRIPTION	Q'TY	REMARK
P24	3614002200	PACKING	SILICON	2	1EA:COLD ONLY
P25	3612726100	HARNESS AS	DWF-4230PN, PM	1	
	3612726110		DWF-4230NE, ME		
	3612726120		DWF-4230CPN, CPM		
	3612726130		DWF-4230CNE, CME		
ASS'Y TUB					
T01	3616102800	BALANCER AS	DWF-4230 SERIES	1	
	3616003100		DWF-5030 SERIES		
T02	3618803500	TUB I	PP	1	DWF-4230
	3618805400		YUS 4300 0.6t		DWF-5030
T03	3612502500	GUIDE FILTER	DWF-4230	1	
	3612503400	GUIDE FILTER AS	DWF-5030		
T04	4505E05021	FLANGE TUB	ADC-10	1	
T05	3610085500	ASS'Y FILTER	PP (NYLON 74 X 130)	1	
T06	3618804100	TUB O	PP (PUMP)	1	
	3618804200		PP (NON-PUMP)		
T07	4509L83070	SPECIAL WASHER	SUS 304 T2.0 P144	1	
T08	4507D83080	SPECIAL NUT	SUS 340	1	
T09	3619703000	PULSATOR AS	PP	1	
T10	4505E32030	SC. PULSATOR FIX AS	6X26.5 SCREW + RING O	1	
T11	3611408300	COVER TUB	PP	1	
T12	3610302900	BASE	SECEN 1.6t	1	
T13	4505E83120	SCREW BASE FIX	SM 5 X 13	4	
T14	4505E83100	SPECIAL BOLT BASE	6.5 X 23	10	
T15	3964311030		AC 220V/50Hz	1	
	3964220710		AC 110V/60Hz		
	3964610430		AC 240V/50Hz		
	3964320710		AC 220V/60Hz		
	3964820710		AC 120, 127V/60Hz		
T16	3618401420	ASS'Y PULLEY MOTOR	ADC-12 DP=53 (50Hz)	1	
	3618402800		ADC-12 DP=48.5 (60Hz)		
T17	4505E34030	SPECIAL WASHER	NYLON 6/6	2	
T18	7650802511	BOLT HEX (to MOTOR)	6B-1, 8X25, HS, MFZN	2	
T19	3617303801	GEAR MECHANISM	GM-4200 KBC	1	
T20	7640801611	BOLT HEX (to GEAR)	6B-1, 8X16, SW, MFZN	4	
T21	4507D34020	BELT V	M19.5	1	60Hz
	4507B34020		M20		50Hz
T22	3618301300	PROTECTOR GEAR	SBHG 1.6t	1	

REF No.	PART CODE	PART NAME	DESCRIPTION	Q'TY	REMARK
T23	7640061611	BOLT HEX (to PROTECTOR)	6B-1, 6X16, SW, MFZN	2	
T24	3966320230	MOTOR SYNCHRONOUS	AC 220V/60Hz	1	PUMP
	3966320260		AC 220V/60Hz		NON-PUMP
	3966010140		AC 220~240V/50Hz		PUMP
	3966010160		AC 220~240V/50Hz		NON-PUMP
	450ED45040		AC 110~120V/60Hz		PUMP
	450ED45060		AC 110~120V/60Hz		NON-PUMP
T25	3615404000	VALVE DRAIN AS	NON-PUMP	1	
T26	3613215100	HOSE DRAIN AS	PUMP	1	
	3613218200		NON-PUMP		
T27	3610032640	ASSY CONDENSER	13.5μF+60μH (PL, LE)	1	
	3610076140		54.0μF+60μH (PT, TE)		
	3610031940		12.5μF+60μH (PN, NE)		
	3610045640		11.4μF+60μH (PM, ME)		
	3610076240		41.6μF+60μH (PS, SE, PA)		
T28	3613004100	HOLDER CONDENSER	PP	1	
T29	3618805300	TUB U	PP	1	DWF-5030
T30	4505E34040	SPECIAL WASHER	NYLON 6/6	2	
T31	3616003700	SPECIAL SCREW	SUS 5.5X16	24	DWF-5030
T32	4505E05040	SPECIAL SCREW	5X24	6	
T33	4505E05050	SPECIAL SCREW	5.2X18	3	
T34	3613208900	HOSE OVERFLOW	PELD L=280	1	NON-PUMP
ASS'Y CABINET					
C01	3610804710	CABINET	SGCC 0.6t	1	
C02	3614509900	PLATE UPPER	PP	1	
C03	3612201800	FRAME TOP	PP	1	
C04	3612601100	HANDLE CABINET	PP	1	
B01	3610307100	BASE U	PP	1	PUMP
	3610309200		PP		NON-PUMP
B02	3612000200	FIXTURE LEG	PPG	1	PUMP
B03	3617701500	LEG AS	PP	1	PUMP
	3617702200	LEG ADJUST AS	DWF-5591DPN	2	NON-PUMP
B04	3613004300	HOLDER LEG	BUTYL RUBBTER	1	PUMP
B05	4509D10020	FOOT	BUTYL RUBBER	3	2EA:NON-PUMP
B06	3963513430	MOTOR SHADED POLE	AC 220~240V/50Hz (PN,PM)	1	PUMP
	3963821530		AC 120~127V/60Hz (PS)		
	3693220330		AC 220V/60Hz (PT)		
	3963322730		AC 220V/60Hz (PL)		

REF No.	PART CODE	PART NAME	DESCRIPTION	Q'TY	REMARK
B07	3611405301	COVER PUMP	UL/CSA (466FWU)	1	PUMP
B08	3611109700	CASE FILTER	FRPP	1	PUMP
B09	3611901800	FILTER LINT	PP (J-150)	1	PUMP
B10	3614002000	PACKING	NBR	1	PUMP
B11	3616004300	SPECIAL WASHER	PC SHEET	1	PUMP
B12	3610903800	CAP FILTER	PP (J-150)	1	PUMP
B13	3618703700	TERMINAL PUMP	1A (AC 220V~240V)	1	PUMP
	3618703720		3.15A (AC 100V-127V)		
B14	4505E05050	SPECIAL SCREW	5.2X18	3	PUMP
ASS'Y WASHING MACHINE					
W01	3619801600	SUSPENSION AS	DWF-4200 SEFIES	2	
W02	3619801610	SUSPENSION AS	DWF-4200 SERIES	2	
W03	3611411800	COVER BACK	PP (PUMP)	1	
	3611404400		PP (NON-PUMP)		
ASS'Y ACCESSORY					
A01	3613203101	HOSE AS	PUMP	1	
	3613209200	HOSE DRAIN O AS	NON-PUMP	1	
A02	3612502300	GUIDE DRAIN HOSE	PP (PUMP)	1	
A03	3611411900	COVER U	PP	1	PUMP [OPTION]

PARTS DIAGRAM




T05
T02
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T04
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T05
T26
T32
T30
T15
T19
T17
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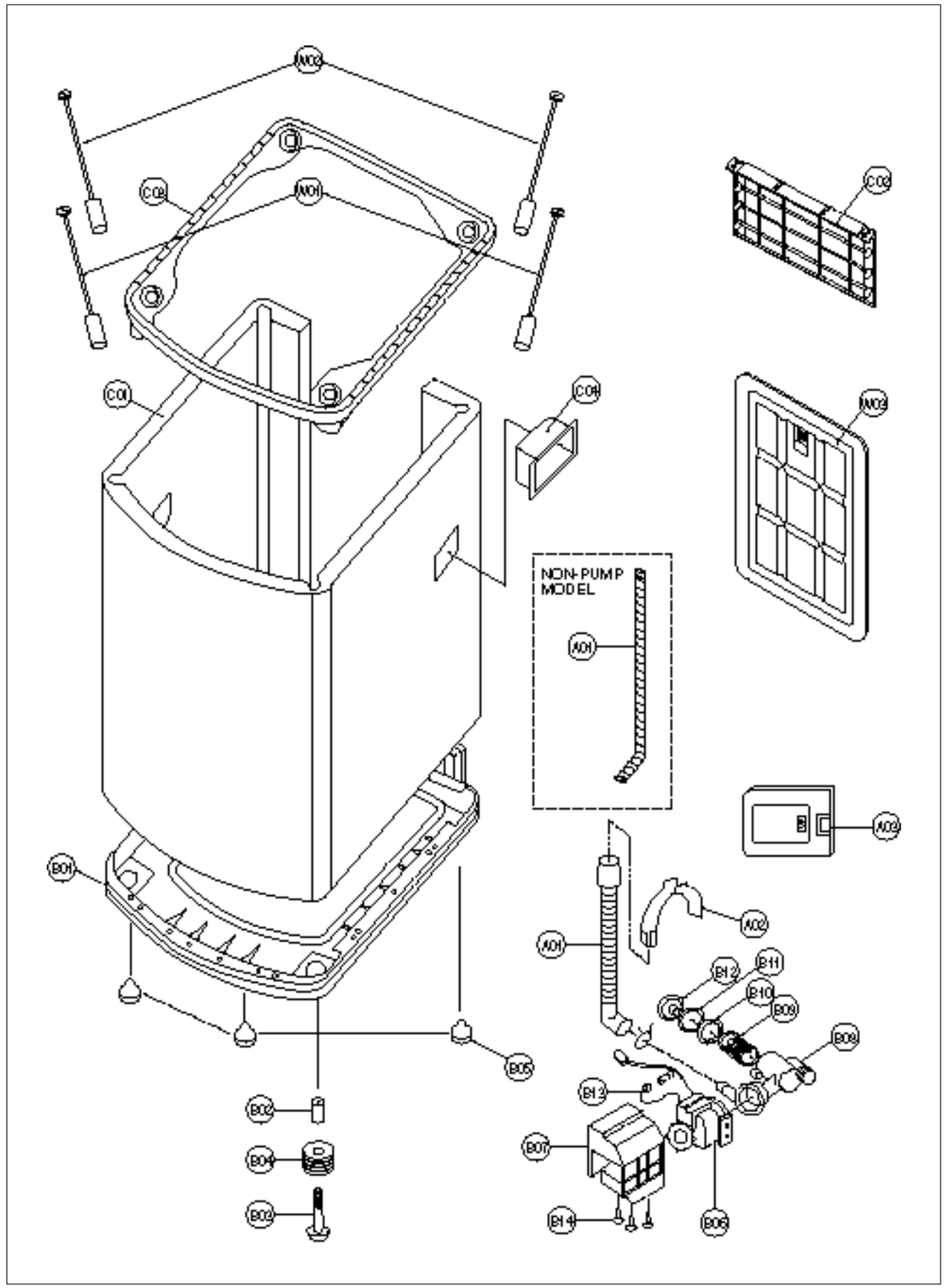
T18
T13
T14
NON-PUMP MODEL
T25
T34
T21
T16
T22
T23
T29


A03
C01
A01
C02
C01
C04
A03
NON-PUMP MODEL
A01
A02
B01
A02
B12
B11
B10
B09
B08
B13
B02
B07
B04
B14
B02
B06
B05

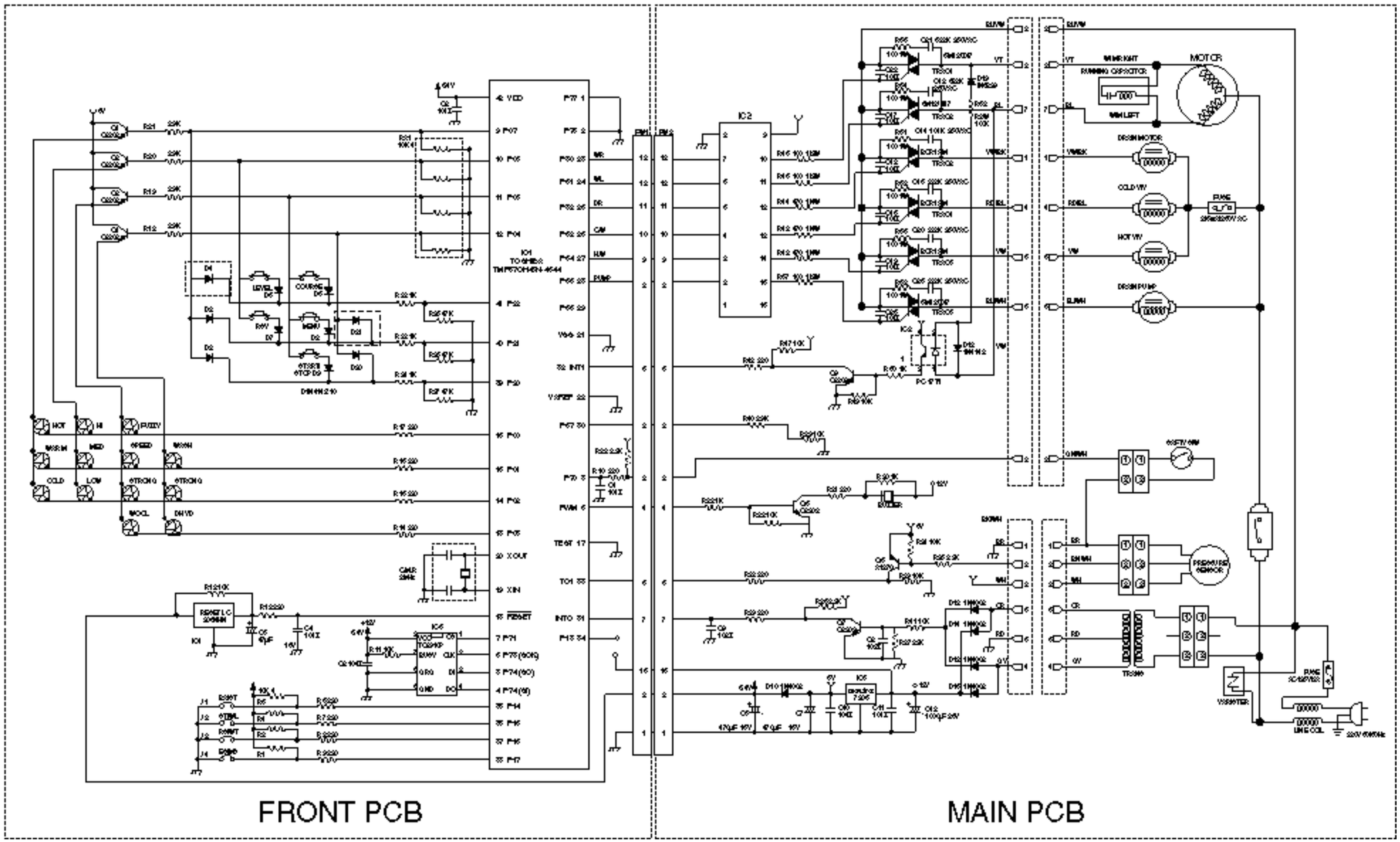
REF NO.	PART CODE	PART NAME	DESCRIPTION	REMARK
R28	RD-4Z221JK	R CARBON FILM	1/4 220 OHM J	
R29	RD-4Z103JK	R CARBON FILM	1/4 10K OHM J	
R30	RD-4Z102JK	R CARBON FILM	1/4 1K OHM J	
R31	RD-4Z221JK	R CARBON FILM	1/4 220 OHM J	
R32	RD-4Z103JK	R CARBON FILM	1/4 10K OHM J	
R33	RD-4Z102JK	R CARBON FILM	1/4 1K OHM J	
R34	RD-4Z103JK	R CARBON FILM	1/4 10K OHM J	
R35	RD-4Z392JK	R CARBON FILM	1/4 3.9K OHM J	
R36	RD-4Z392JK	R CARBON FILM	1/4 3.9K OHM J	
R37	RD-4Z223JK	R CARBON FILM	1/4 22K OHM J	
R38	RD-4Z103JK	R CARBON FILM	1/4 10K OHM J	
R39	RD-4Z221JK	R CARBON FILM	1/4 220 OHM J	
R40	RD-4Z392JK	R CARBON FILM	1/4 3.9K OHM J	
R41	RD-4Z103JK	R CARBON FILM	1/4 10K OHM J	
R42	RD-4Z471JK	R CARBON FILM	1/4 470 OHM J	HOT V/V
R43	RD-4Z471JK	R CARBON FILM	1/4 470 OHM J	
R44	RD-4Z471JK	R CARBON FILM	1/4 470 OHM J	
R45	RD-2Y101Y-	R CARBON FILM	1/4 100 OHM J	
R46	RD-2Y101J-	R CARBON FILM	1/4 100 OHM J	
R47	RD-4Z103JK	R CARBON FILM	1/4 10K OHM J	
R48	RD-4Z221JK	R CARBON FILM	1/4 220 OHM J	
R49	RD-4Z103JK	R CARBON FILM	1/4 10K OHM J	
R50	RD-4Z102JK	R CARBON FILM	1/4 1K OHM J	
R51	RS01Y101J-	R M-PXIDE FILM	1W 100 OHM J	
R52	RS02Z1041JS	R M-OXIDE FILM	2W 100K OHM J	
R53	RS01Y101J-	R M-PXIDE FILM	1W 100 OHM J	
R54	RS01Y101J-	R M-PXIDE FILM	1W 100 OHM J	
R55	RS01Y101J-	R M-PXIDE FILM	1W 100 OHM J	HOT V/V
R56	RS01Y101J-	R M-PXIDE FILM	1W 100 OHM J	
R57	RD-2Y101J-	R CARBON FILM	1/2 100 OHM J	DRAIN PUMP
R58	RS01Y101J-	R M-OXIDE FILM	1W 100 OHM J	DRAIN PUMP
R1	RD-4Z103JK	R CARBON FILM	1/4 10K OHM J	
R10	RD-4Z221JK	R CARBON FILM	1/4 220 OHM J	
R11	RD-4Z103JK	R CARBON FILM	1/4 10K OHM J	
R12	RD-4Z103JK	R CARBON FILM	1/4 10K OHM J	
R13	RD-4Z221JK	R CARBON FILM	1/4 220 OHM J	
R14	RD-4Z221JK	R CARBON FILM	1/4 220 OHM J	

REF NO.	PART CODE	PART NAME	DESCRIPTION	REMARK
R15	RD-4Z221JK	R CARBON FILM	1/4 220 OHM J	
R16	RD-4Z221JK	R CARBON FILM	1/4 220 OHM J	
R17	RD-4Z221JK	R CARBON FILM	1/4 220 OHM J	
R18	RD-4Z392JK	R CARBON FILM	1/4 3.9K OHM J	
R19	RD-4Z392JK	R CARBON FILM	1/4 3.9K OHM J	
R2	RD-4Z392JK	R CARBON FILM	1/4 3.9K OHM J	
R20	RD-4Z392JK	R CARBON FILM	1/4 3.9K OHM J	
R21	RD-4Z392JK	R CARBON FILM	1/4 3.9K OHM J	
R22	RD-4Z102JK	R CARBON FILM	1/4 1K OHM J	
R23	RD-4Z102JK	R CARBON FILM	1/4 1K OHM J	
R24	RD-4Z102JK	R CARBON FILM	1/4 1K OHM J	
R25	RD-4Z473JK	R CARBON FILM	1/4 47K OHM J	
R26	RD-4Z473JK	R CARBON FILM	1/4 47K OHM J	
R27	RD-4Z473JK	R CARBON FILM	1/4 47K OHM J	
R3	RD-4Z103JK	R CARBON FILM	1/4 10K OHM J	
R4	RD-4Z103JK	R CARBON FILM	1/4 10K OHM J	
R5	RD-4Z103JK	R CARBON FILM	1/4 10K OHM J	
R6	RD-4Z221JK	R CARBON FILM	1/4 220 OHM J	
R7	RD-4Z221JK	R CARBON FILM	1/4 220 OHM J	
R8	RD-4Z221JK	R CARBON FILM	1/4 220 OHM J	
R9	RD-4Z221JK	R CARBON FILM	1/4 220 OHM J	
RA1	RA-85X103J	R ARRAY	5P(4) 1/8 10K OHM J	
C12	CEXF1V1102V	C ELECTRO	35V RSS 1000MF (13X25)	
C14	CMXB2X103J	C MYLAR	EU 600V 0.01ME J	
C16	MCYB2X223J	C MYLAR	AC 250V 0.022MF J	
C18	CMXB2E683J	C MYLAR	EU 250V 0.068MF J	
C20	CMYB2X223J	C MYLAR	AC 250V 0.022MF	
C21	CMXB2E683	C MYLAR	EU 250V 0.068MF J	HOT V/V
C26	CMYB2X223J	C MYLAR	AC 250V 0.022MF	
C6	CEXE1C471A	C ELECTRO	16V RS 470MF 10X20	DRAIN PUMP
C7	CEXE1C471A	C ELECTRO	16V RS 470MF 10X20	
C10	CCKF1H104Z	C CERA	HIKF 50V 0.1MF Z AXL	
C11	CCKF1H104Z	C CERA	HIKF 50V 0.1MF Z AXL	
C13	CCKF1H104Z	C CERA	HIKF 50V 0.1MF Z AXL	
C15	CCKF1H104Z	C CERA	HIKF 50V 0.1MF Z AXL	
C17	CCKF1H104Z	C CERA	HIKF 50V 0.1MF Z AXL	
C19	CCKF1H104Z	C CERA	HIKF 50V 0.1MF Z AXL	HOT V/V
C22	CCKF1H104Z	C CERA	HIKF 50V 0.1MF Z AXL	

REF NO.	PART CODE	PART NAME	DESCRIPTION	REMARK
C25	CCKF1H104Z	C CERA	HIKF 50V 0.1MF Z AXL	DRAIN PUMP
C8	CCKF1H103Z	C CERA	25V F 0.01MF Z	
C9	CCKF1H103Z	C CERA	25V F 0.01MF Z	
C5	CEXE1C470A	C ELECTRO	16V RS 47MF 6.3X11	
C1	CCKF1H104Z	C CERA	JIKF 50V 0.1MF Z AXL	
C2	CCKF1H104Z	C CERA	JIKF 50V 0.1MF Z AXL	
C3	CCKF1H104Z	C CERA	JIKF 50V 0.1MF Z AXL	
C4	CCKF1H104Z	C CERA	JIKF 50V 0.1MF Z AXL	
D10	DKN4003A - -	DIODE	KN4003A AUTO 26MM	
D12	DKN4003A - -	DIODE	KN4003A AUTO 26MM	
D13	DKN4003A - -	DIODE	KN4003A AUTO 26MM	
D14	DKN4003A - -	DIODE	KN4003A AUTO 26MM	
D15	DKN4003A - -	DIODE	KN4003A AUTO 26MM	
D18	DKN4148 - - -	DIODE	KN4003A AUTO 26MM	
D19	D1N5399 - - -	DIODE	IN5399	
D2	DKN4148 - - -	DIODE	KN4148 AUTO 26MM	
D20	DKN4148 - - -	DIODE	KN4148 AUTO 26MM	
D3	DKN4148 - - -	DIODE	KN4148 AUTO 26MM	
D5	DKN4148 - - -	DIODE	KN4148 AUTO 26MM	
D6	DKN4148 - - -	DIODE	KN4148 AUTO 26MM	
D7	DKN4148 - - -	DIODE	KN4148 AUTO 26MM	
D8	DKN4148 - - -	DIODE	KN4148 AUTO 26MM	
D9	DKN4148 - - -	DIODE	KN4148 AUTO 26MM	
Q5	TZTA1270Y -	TR	KTA1270Y (AUTO) (562Y)	
Q6	TZTC3202Y -	TR	KTC3202Y (AUTO) (1959Y)	
Q7	TZTC3202Y -	TR	KTC3202Y (AUTO) (1959Y)	
Q9	TZTC3202Y -	TR	KTC3202Y (AUTO) (1959Y)	
IC2	1TD62004AP	IC	TD62004AP	
IC3	DTC17T1DW -	PHOTO COUPLER	PC-17T1 300-350% (CTR)	
IC6	1L7806 - - - -	IC REGULATOR	L7806	
IC1	13GR87CH46	IC MICOM	TMP87CH46N-4644	
IC4	1S8054HN - -	IC AUDIO RESET	S-8054HN	
IC5	1TC89101P -	IC EEPROM	TC89101P	
J13	W581GY1005	JUMPER WIRE	AWG22 1/0.65 SN 10 AU	
J14	W581GY1005	JUMPER WIRE	AWG22 1/0.65 SN 10 AU	
J15	W581GY1005	JUMPER WIRE	AWG22 1/0.65 SN 10 AU	
J16	W581GY1005	JUMPER WIRE	AWG22 1/0.65 SN 10 AU	
J17	W581GY1005	JUMPER WIRE	AWG22 1/0.65 SN 10 AU	

REF NO.	PART CODE	PART NAME	DESCRIPTION	REMARK
J18	W581GY1005	JUMPER WIRE	AWG22 1/0.65 SN 10 AU	
J8	W581GY1005	JUMPER WIRE	AWG22 1/0.65 SN 10 AU	
J9	W581GY1005	JUMPER WIRE	AWG22 1/0.65 SN 10 AU	
BUZZ	3615900200	BUZZER	GPB-B-23N2, 8ED 3PIN	
FW1	3612721900	HARNESS FLAT	125MM, 15P	
SCREW	7001301011	SCREW MACHINE	PAN 3X10 MFZN	
TRC1	TSM12JZ47F	TRIAC TOSHIBA	12A, LEAD FORMING TYPE	
TRC2	TSM12JZ47F	TRIAC TOSHIBA	12A, LEAD FORMING TYPE	
TRC3	TBCR1AMAB -	TRAIC	BCR1AM FORMING TYPE	
TRC4	TBCR1AMAB -	TRAIC	BCR1AM FORMING TYPE	
TRC5	TBCR1AMAB -	TRAIC	BCR1AM FORMING TYPE	HOT V/V
TRC6	TSM8 JZ47F	TRAIC TOSHIBA	8A, LEAD FORMING TYPE	DRAIN PUMP
WAS	4507D72300	SPECIAL WASHER	REGULATOR, TRIAC	
HOLED	3613008300	HOLDER LED	ABS	
SW2	5S50101400	SW TACT	KQB-902 IC 1P	
SW3	5S50101401	SW TACT	KQB-902 IC 1P	
SW4	5S50101402	SW TACT	KQB-902 IC 1P	
SW5	5S50101403	SW TACT	KQB-902 IC 1P	
SW6	5S50101404	SW TACT	KQB-902 IC 1P	
CMR	5PCST800MT	RESONATOR CERA	CST800MTW	
L1	DDLR523D - -	LED-LAMP	DLR-523D	
L10	DDLR523D - -	LED-LAMP	DLR-523D	
L12	DDLR523D - -	LED-LAMP	DLR-523D	
L13	DDLR523D - -	LED-LAMP	DLR-523D	
L14	DDLR523D - -	LED-LAMP	DLR-523D	
L2	DDLR523D - -	LED-LAMP	DLR-523D	
L3	DDLR523D - -	LED-LAMP	DLR-523D	
L4	DDLR523D - -	LED-LAMP	DLR-523D	
L5	DDLR523D - -	LED-LAMP	DLR-523D	
L6	DDLR523D - -	LED-LAMP	DLR-523D	
L7	DDLR523D - -	LED-LAMP	DLR-523D	
L8	DDLR523D - -	LED-LAMP	DLR-523D	
L9	DDLR523D - -	LED-LAMP	DLR-523D	

CIRCUIT DIAGRAM (PUMP)



CIRCUIT DIAGRAM (NON-PUMP, ONLY COLD)