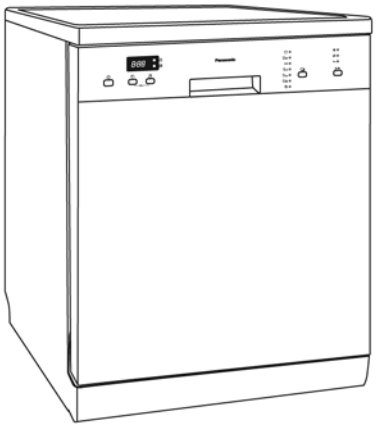
ORDER NO. PMMA170535CE

Service Manual

Stand-alone Dishwasher



Model No. NP-6R2MUQNZ-NZ

Destination: New Zealand

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagrams, Circuit Board Diagrams, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.

Panasonic®

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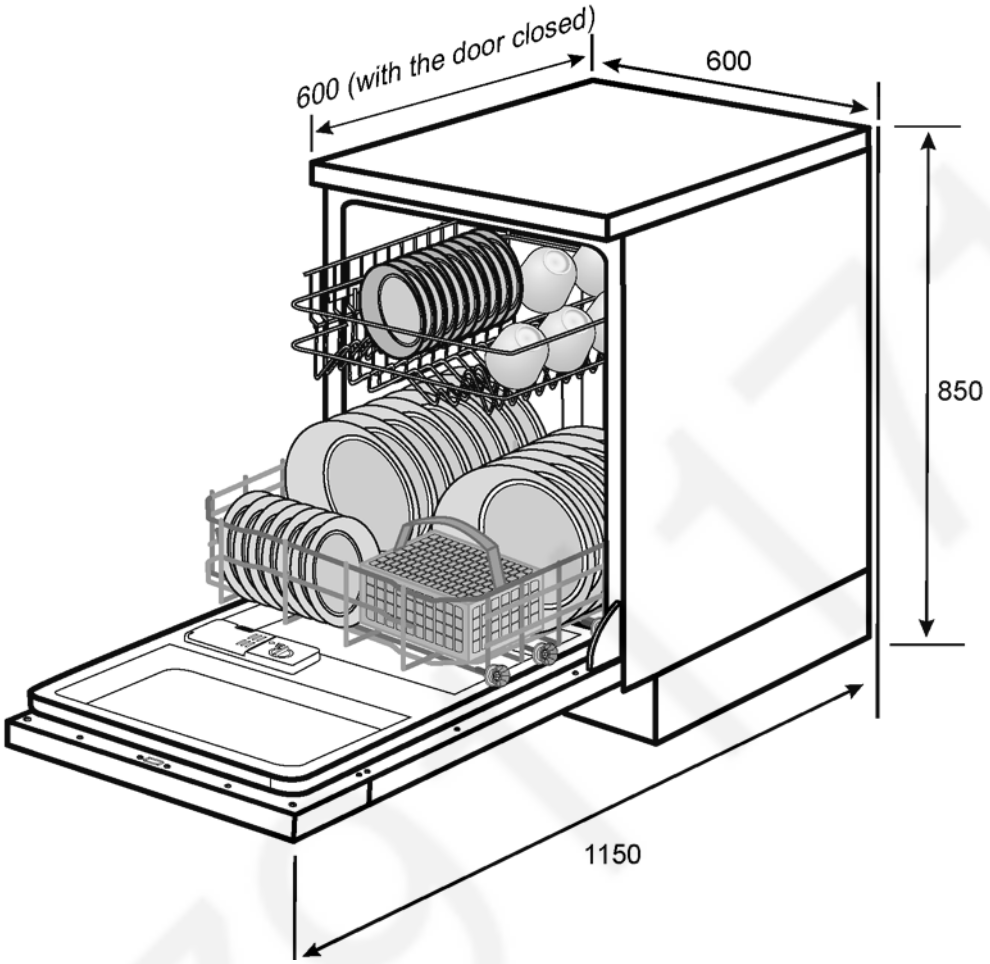
1 Specifications



Model	NP-6R2MUQNZ
Power Source	220 - 240 V~
Wattage	1760 ~ 2100 W
Frequency	50 Hz
Water Pressure	0.04 - 1.0 MPa
Capacity	12 Settings
Dimensions (L × W × H)	Approx. 600 mm × 600 mm × 850 mm
Nett Weight	Approx. 48 kg

2 Control Panel

1. **ON/OFF button:**
   To turn ON/OFF the power supply.

2. **Time Delay button:**
   Press the button to delay. User can delay the washing time from 1 to 24 hours.

3. **Child Lock:**
   Press the two buttons (2 and 4) simultaneously to lock/unlock the programme. All button will not function after activated the Child Lock unless it is unlocked.

4. **Extra Dry Indicator:**
   Only Intensive, Heavy, ECO, Glass have this function.

5. **Main Display:** To show the remaining time and the state (running state, delay time, and such).

8:88	**Delay Time, Remain Time, or Error Codes indicator**
	Water Supply indicator Indicates when shortage of water supply.
	Extra Dry indicator

6. **Programme indicators:** To show which programme has been chosen.

7. **Programme Selection button:**
   Press the button to select appropriate programme.

8. **Other indicators:**

	Rinse Aid indicator Indicates when the dispenser needs to be refilled.
	Complete Wash indicator
	Child Lock indicator

9. **Start/Pause button:**
   To pause the washing programme when the Dishwasher is working or pause the selected washing programme.

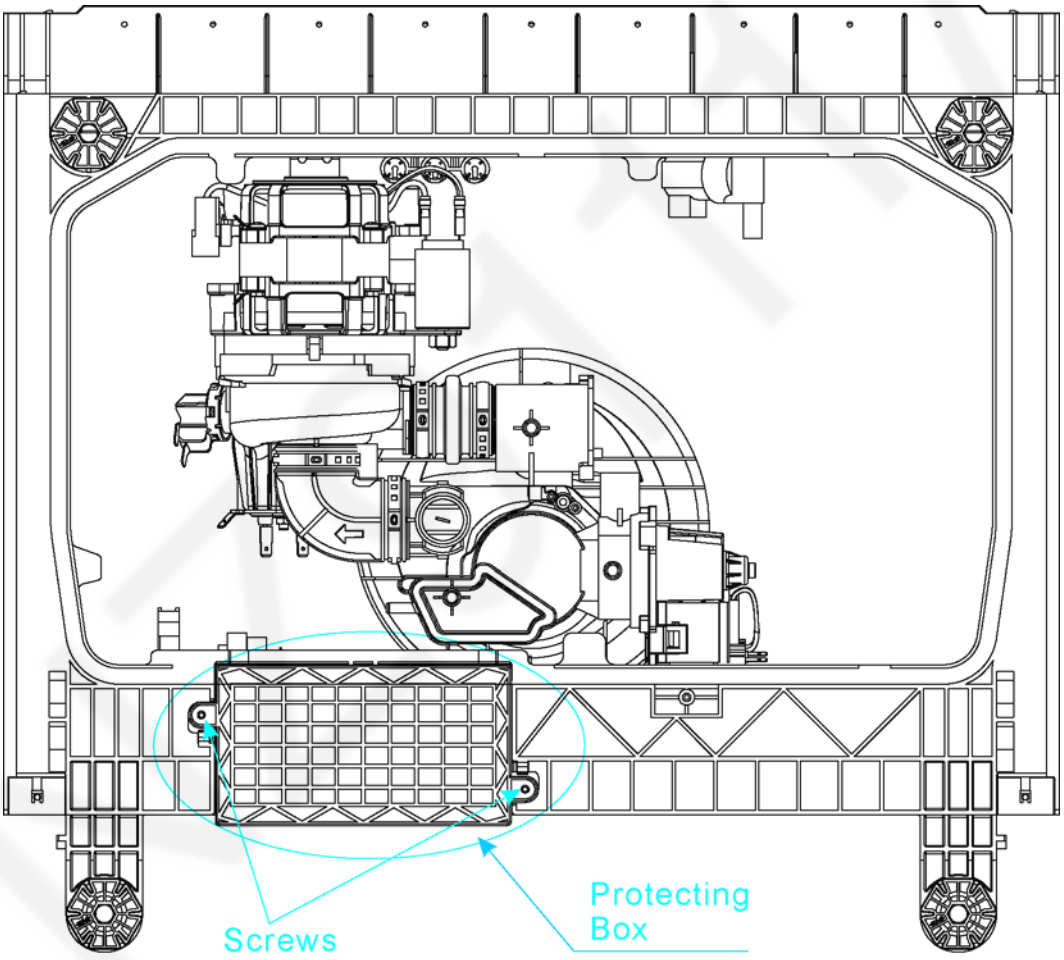
3 Disassembly and Assembly Instructions

3.1. Access PCB

3.1.1. Removing the protecting box

The PCB can be removed from the protecting box in the bottom of machine.

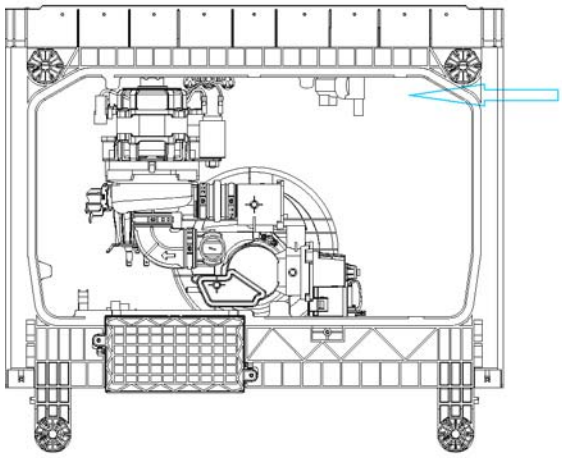
1. Disconnect power supply.
2. Take out cutlery basket, basket and filter system.
3. Open the cover of bottom board.
4. Remove the screws for fixing protecting box and open the protecting box cap.
5. Disconnect the connector form PCB.
6. Remove the screws securing the PCB to control panel.
7. Remove the PCB.
8. Reverse the above procedure to install.

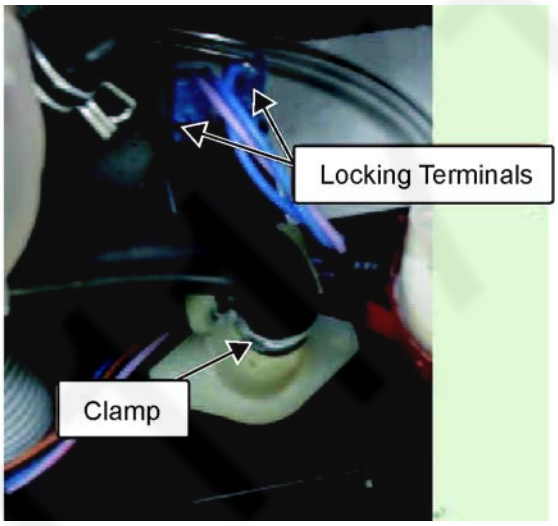


Bottom view

3.2. Access inlet valve

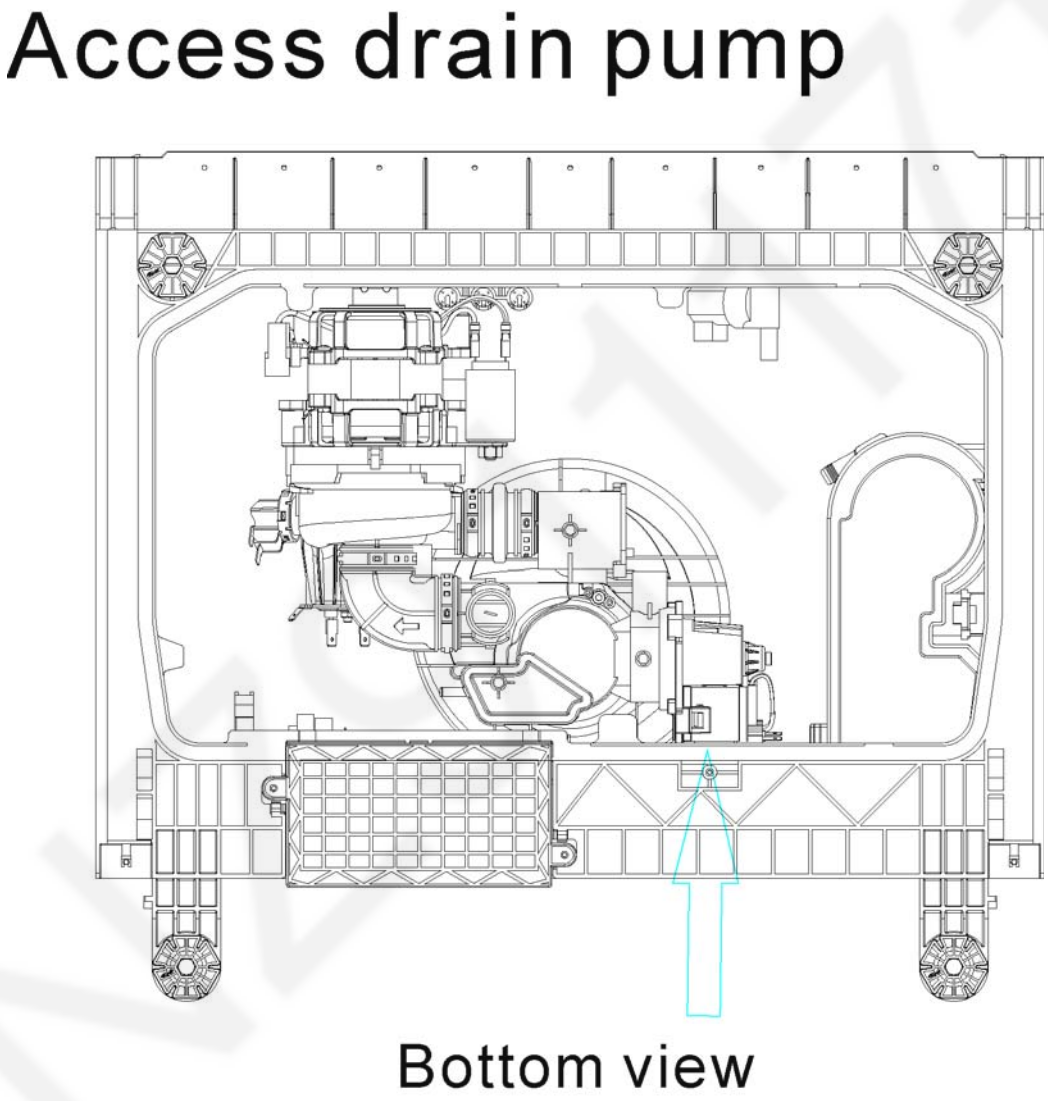
1. Disconnect power.
2. Remove the water inlet hose. (Note : Be careful of remain water drop.)
3. Remove the cover of the bottom board.
4. Disconnect the 2 terminal lugs from the inlet valve.
5. Pull out the valve a little then turn it in anti-clockwise direction it to take it off.
6. Remove the clamp and disconnect the inlet hose (to air breaker) from the water valve.
7. Reverse above procedures to install.





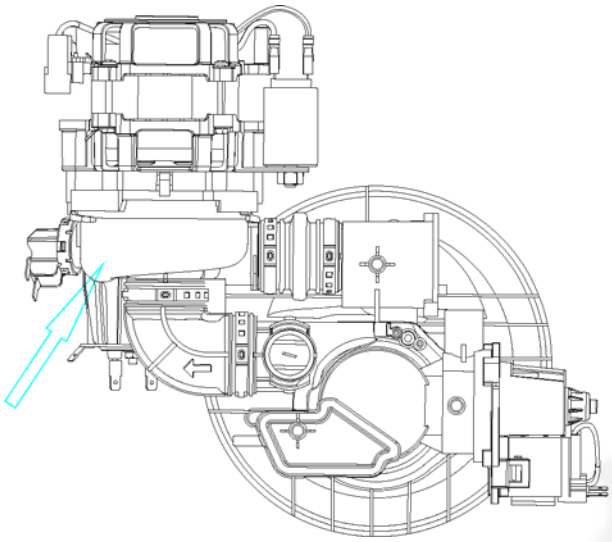
3.3. Access drain pump

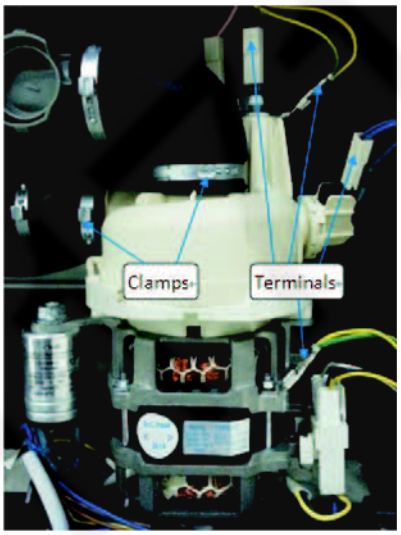
1. Drain off the water in the dishwasher, and disconnect the power supply.
   (Note : Make sure to remove remained water in the dishwasher. If not, wet the floor.)
2. Loosen the hooks, and then remove bottom board.(Note:You should first loosen the top hooks, then the left and right hooks. and be care do not break the hook.)
3. Label and disconnect the two terminal lugs from the drain pump.
4. Turn the drain pump in anti-clockwise direction to take it off.
5. Reverse the above procedure to install.



3.4. Access heater

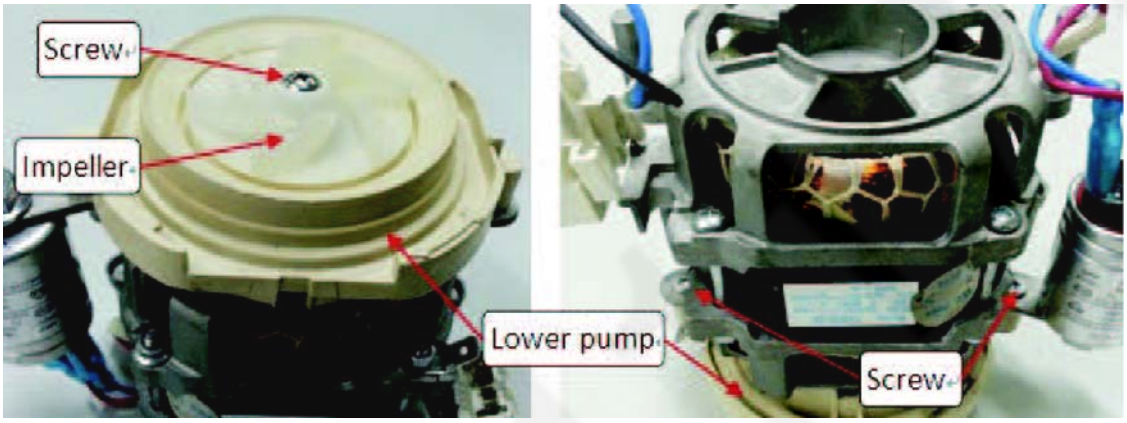
1. Drain off the water in the dishwasher, and disconnect the power supply.
   (Note : Make sure to remove remained water in the dishwasher. If not, wet the floor)
2. Remove bottom board.
3. Label and disconnect the terminals.
4. Remove the 3 screws for fixing the heating element.
5. Reverse above procedures to install.





3.5. Access Washing Pump

1. Disconnect power.
2. Remove bottom board.
3. Label and disconnect the 2 terminals to the motor wire connector.
4. Remove the clamp fastening the interconnect hose to the sump.
   Caution: The clamp is easily damaged during removal and can't be reused. Replace the old clamp with a new universal clamp.
5. Disconnect the ground wire from the wash pump motor assembly.
6. Remove the motor pump assembly from the dishwasher.
7. Reverse above procedures to install.



3.6. Access NTC

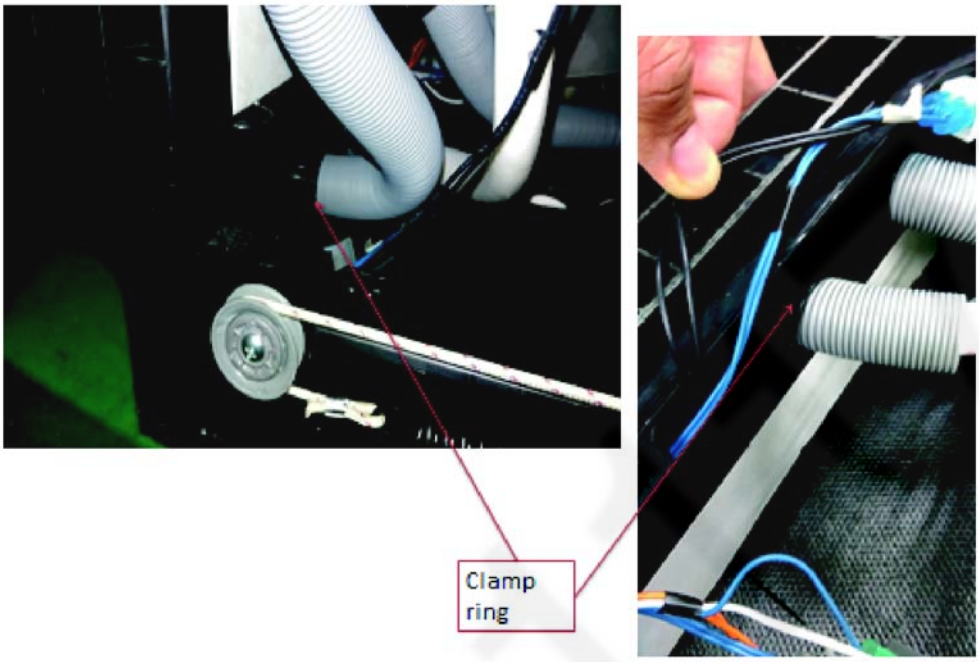
1. Remove bottom board.
2. Remove two screws securing the NTC to sump (shown in above picture).
3. Take out NTC.
4. Reverse the above procedure to install.

3.7. Access Flowmeter

1. Remove the baseboard, top panel and left side panel.
2. Remove the plastic nut inside tub, which secures the air breaker to tub.(Because flowmeter is integrated into air breaker, replace air breaker if flowmeter has failure.)
3. Disconnect the wire and remove clamp fastening hose to air breaker.
4. Take out air breaker.
5. Reverse the above procedure to install.

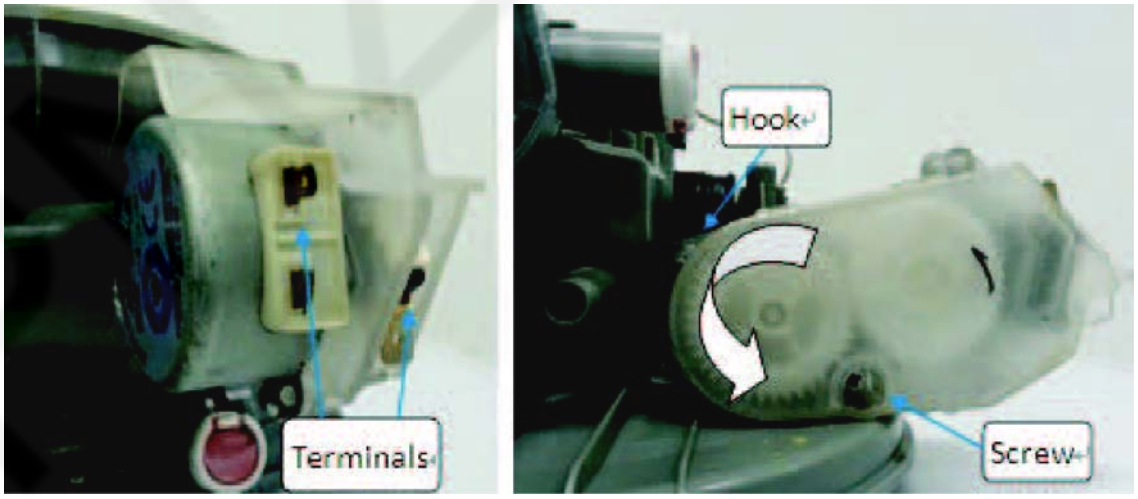
3.8. Access Safety Hose

1. Remove baseboard, side baseboard, top panel and left side panel.
2. Remove clamp, cut the bound belt and disconnect the wire connector. Then the Inlet hose cane pulled out.
3. Reverse the above procedure to assemble.
   Mechanical Aquastop hose is connected to appliance just as universal water inlet hose.



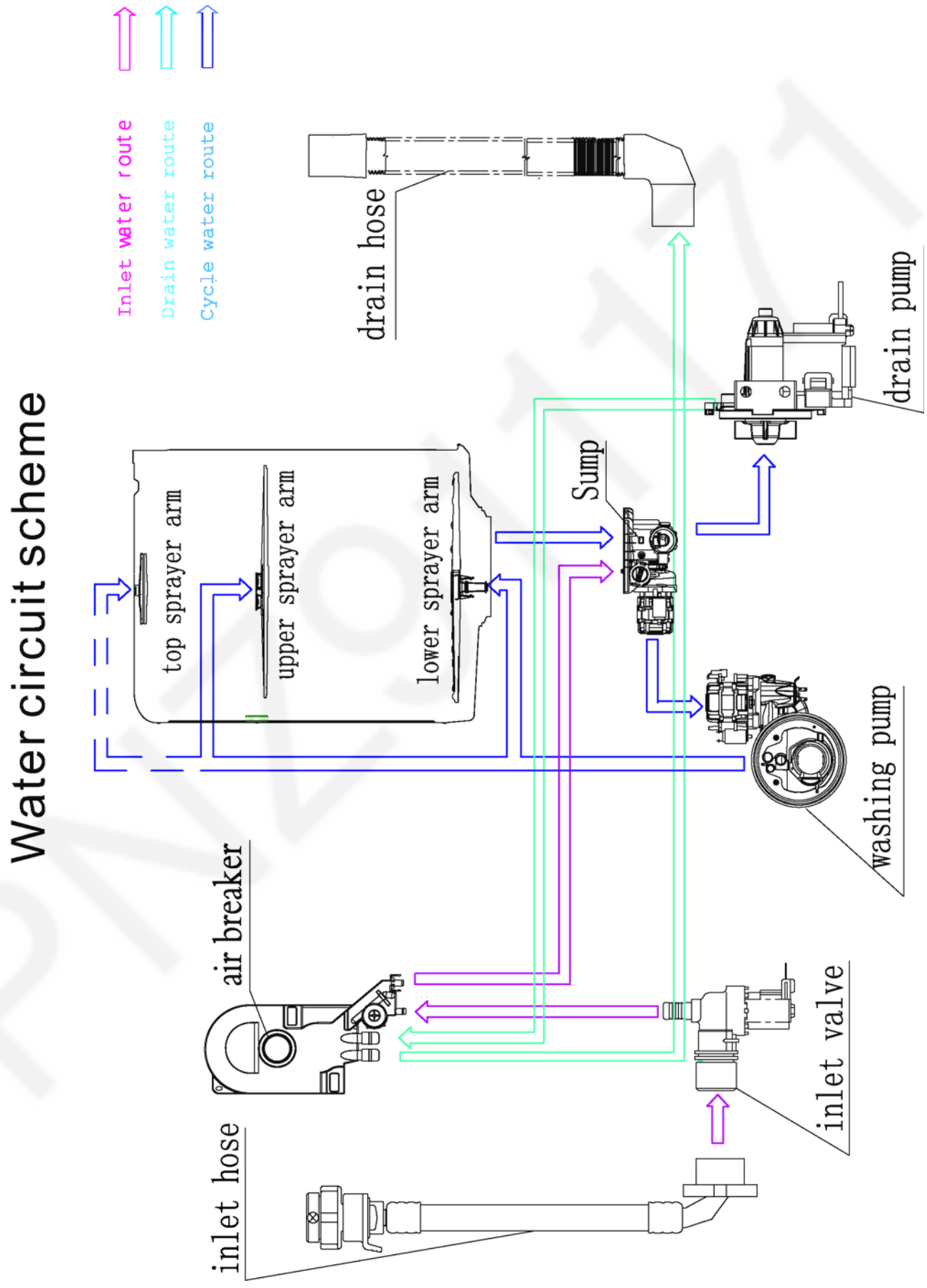
3.9. Access Diverter Valve

1. Disconnect power.
2. Remove bottom board.
3. Label and disconnect the 4 terminals.
4. Remove 1 screw fastening the diverter valve to sump.
5. Contrarotate the diverter valve to take it off.
6. Reverse the above procedure to install.



4 Block Diagram

4.1. Water Circuit

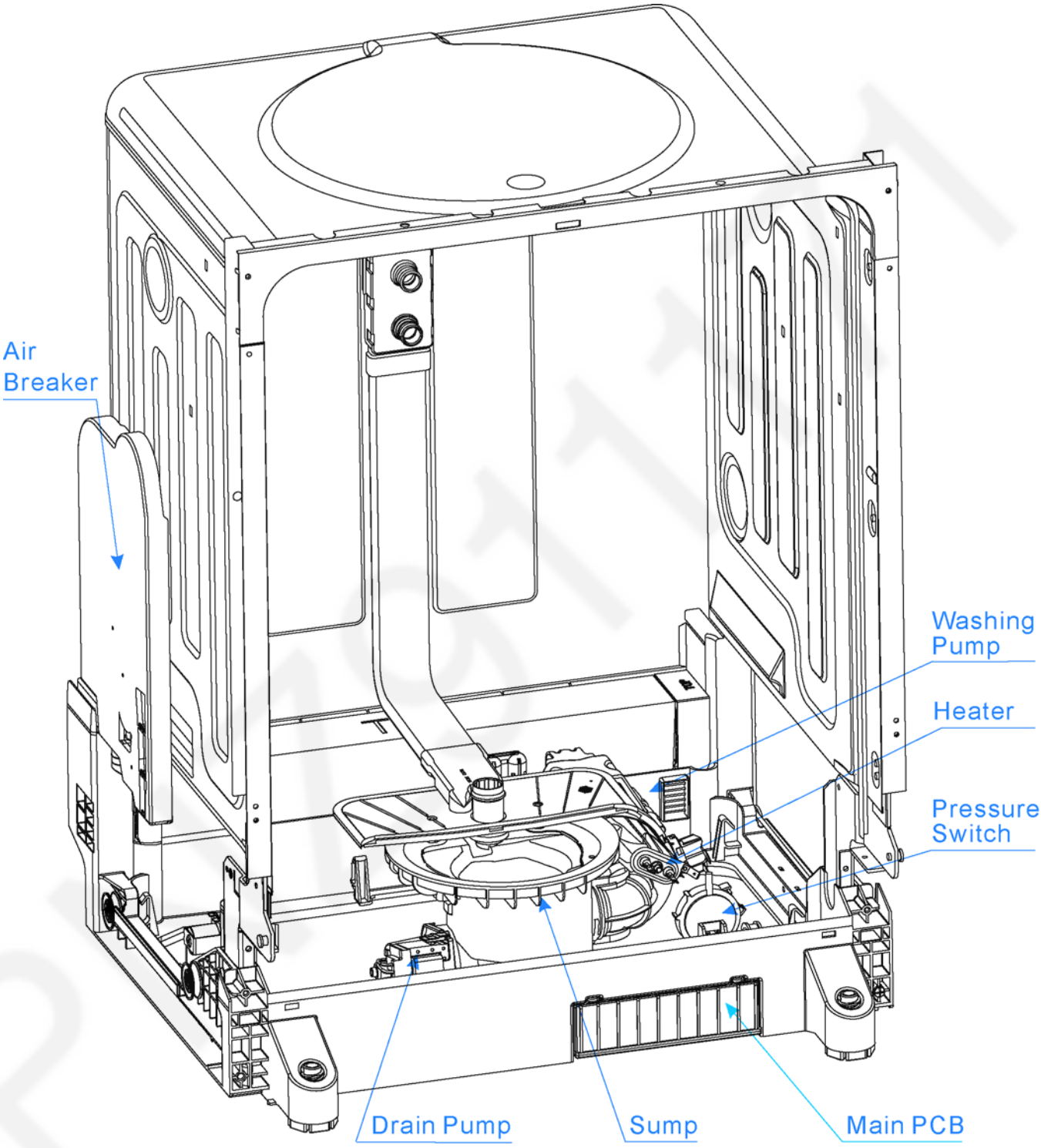


Process of water inlet (indicated by magenta route)
In this process, regeneration water route is cut off, main water route is open. The water in the main water route is softened when pass through the softener, and then enter in the tub. During this phase, some of inlet water will be stored in the air breaker to be regenerating water.

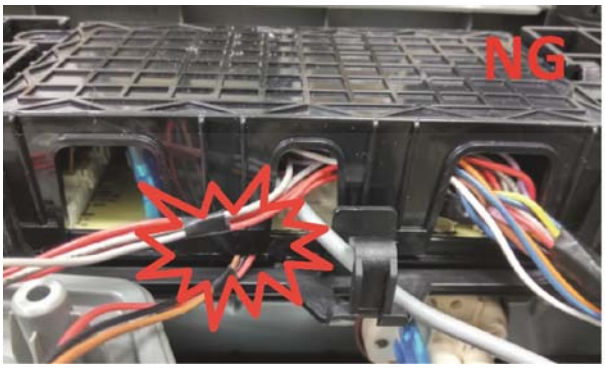
Process of cycle washing (indicated by blue route)
Cycle washing action is driven by washing pump motor. Water can obtain the power during it passing through the working washing pump, then be pumped into spray arm, pass from spray arm nozzles, over the dishes, into sump ,where connect to washing pump, and to get in the next water cycle.

5 Troubleshooting

5.1. Location

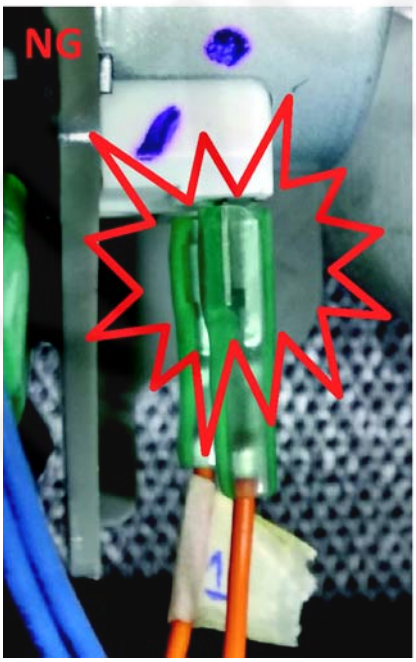


1. Ensure there is no wire clamped by PCB Casing after you closed the PCB Box.

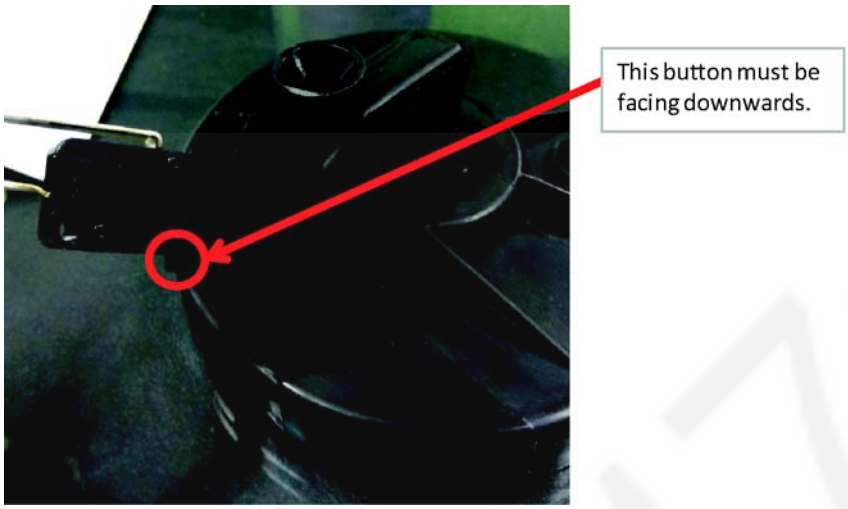


2. Ensure the foam is already insert into the overflow assembly.

3. Ensure all terminals is inserted firmly.



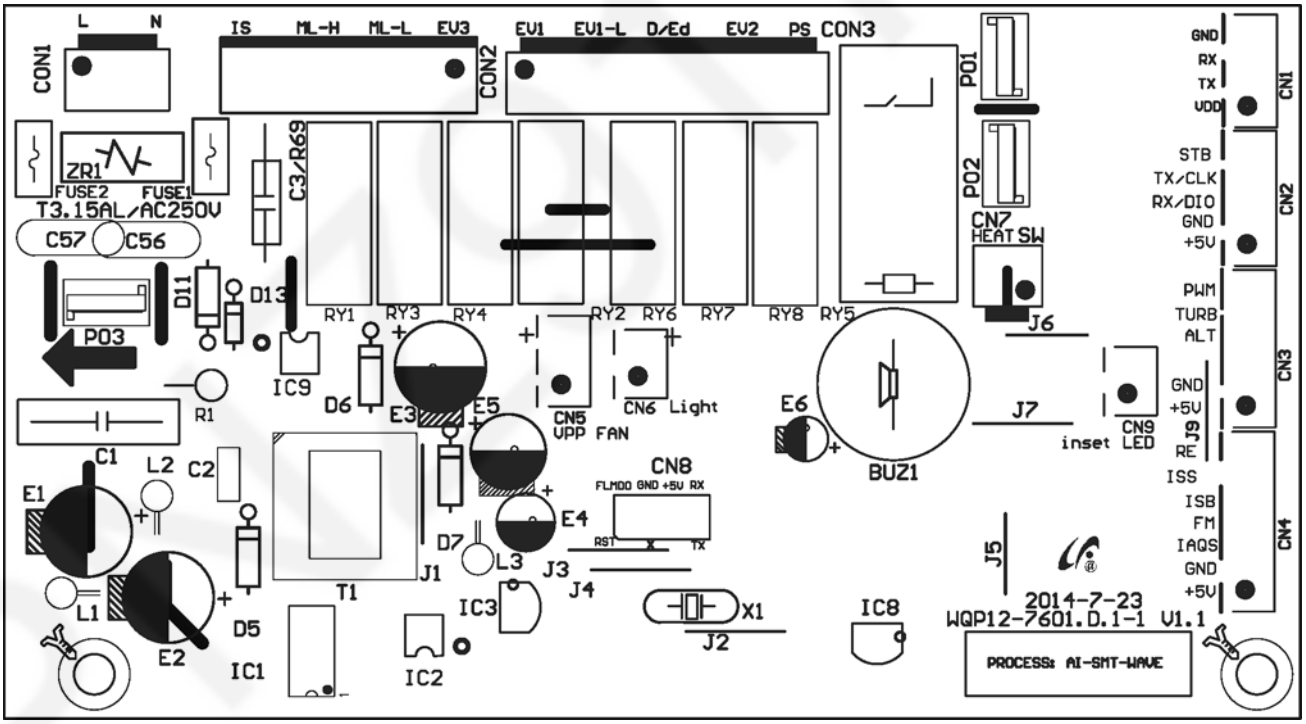
4. Ensure the switch is inserted as the condition below:



5.2. PCB

Printed Circuit Board is the control center of dishwasher, which receive and process signal from components, send order to components and deal with the feedback information, etc.

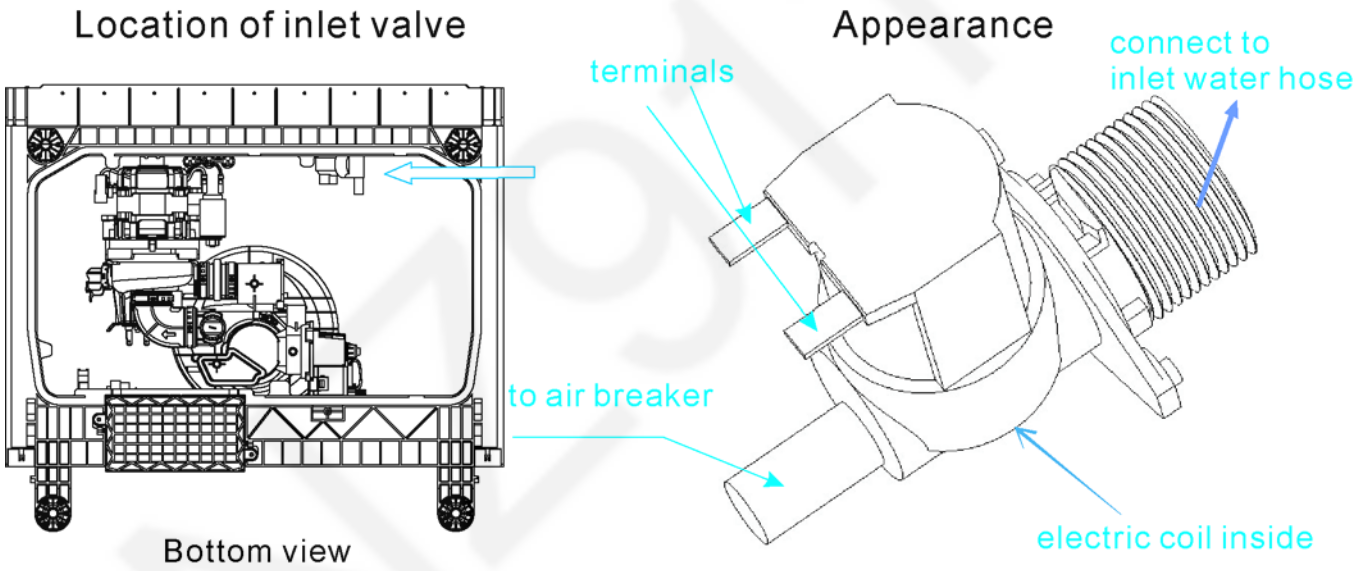
5.2.1. View of PCB



5.2.2. Description

Mark	Function
HEAT	Output for Heating Element
ACL	Input of line
ACN	Input of neutral
EV-L	Input of inlet valve
RE	Thermister
ML	Washing Pump
PS	Drain Pump
D/ED	Dispenser
EV1	Inlet valve
EV2	Softener
EV3	Halfload Valve
ISS	Salt detect
ISB	Rinse detect
IAQS	Overflow detect
FM	Flowmeter
FAN	Fan

5.3. Inlet valve



5.3.1. Working Principle

The inlet valve is electromagnetic valve that decide whether water enter or not. Valves are normally closed. Each time the appliance requires water, the controller will convey an electric signal to the coils to open the valves.
The inlet valve consist of electric coil, valve body, valve pole, filter etc.
In a word, the electromagnetic valve can act to allow water enter into machine, when it receive the order given by controller.

5.3.2. Possible cause of Malfunction

1. The valve coil is broken, so the valve can't open. It will cause the E1 error.
2. The filter is jammed, so water can't enter. It will cause the E1 error.
3. The connector is loose, so the valve can't open. It will cause the E1 error.
4. The valve pole is rusted or locked by dreg, so the valve can't open or close. It will cause the E1 or E4 error.

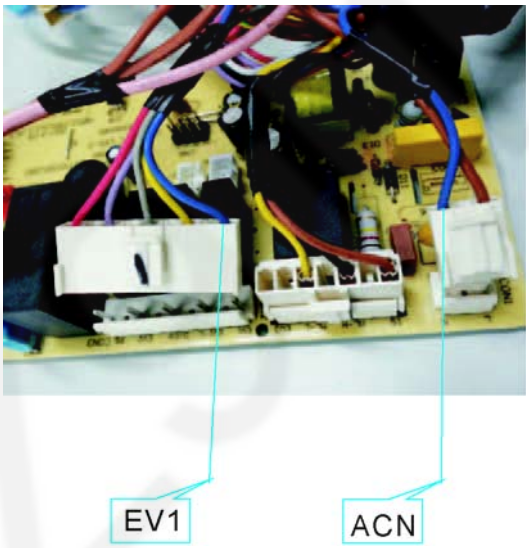
5.3.3. Technical data

Nominal voltage	220-240VAC
Frequency	50/60Hz
Resistance	Approx: 3.4 - 4.4kΩ
Work duty	100%ED T25 3min/5min T60
Flux	2.5L/min 15%
Power	5W
Work Pressure	0.04 - 1MPa

5.3.4. Inspect inlet valve

5.3.4.1. Check electric part

1. Open the protecting box and take out the PCB;
2. With the door closed, unplug the CON3 and ACN wires, then use the multi-meter Ω shelf to measure resistance between the blue wire (EV1) and the blue wire (ACN), the normal resistance is about 3.4KΩ to 4.4KΩ.
3. If the measured resistance is not correct, it means the valve coil is broken or the connector is loose. In this case, we should check the connection first. If the problem hasn't been solved by re-connection, we should replace the valve.
4. If the resistance is OK, we need to inspect the valve body.

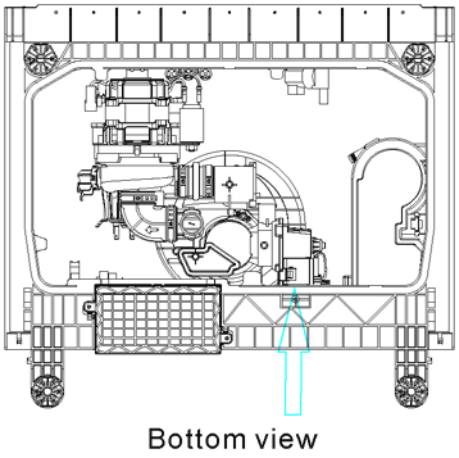


5.3.4.2. Check machine part

1. If the electric part is OK, we need to check the machine part.
2. Check the valve filter. if the valve filter is blocked, we need clear the residues.
3. If the valve filter is clear and the valve can't inlet water, check whether valve can act or not. If it isn't, we need replace the valve.
4. If the water is continue entering, we need replace the valve.

5.4. Drain Pump

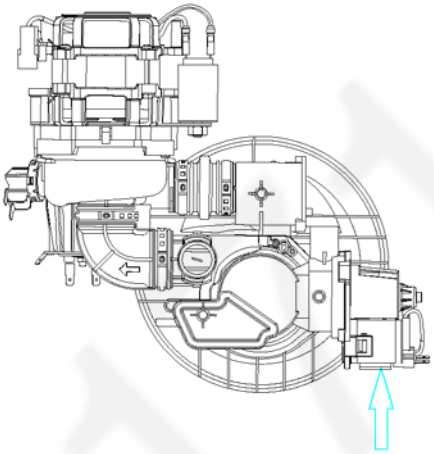
Location of Drain Pump



Bottom view

The work principle

Drain pump integrated into sump



5.4.1. Working Principle

Drain pump consists of electrical motor, impeller, inlet and outlet.

Drain pump is a kind of pump driven by permanent magnet synchronous motor. The rotor is made with permanent magnet material, the running inertia of rotor is very small, the stator consist of silicon steel stack and coil. When the drain pump is on power, the rotor will be very easy to start.

5.4.2. Possible cause of Malfunction

1. The motor coil is broken, so the drain pump can't work. It will cause the E2 , E4 or E1 error.
2. The magnetism of motor rotor is weak, so drain pump cannot work. It will cause the E2, E4 or E1 error.
3. The connector is loose, so the drain pump can't work. It will cause the E2, E4 or E1 error.
4. The rotor is locked by residues, so the drain can't work . It will cause the E2, E4 or E1 error.
5. The drain pump assembly rack is loose, it will cause noise.
6. The non-return valve is bad, the remain water is too much.
   Explanatory notes: failure of drain pump may cause E1, because

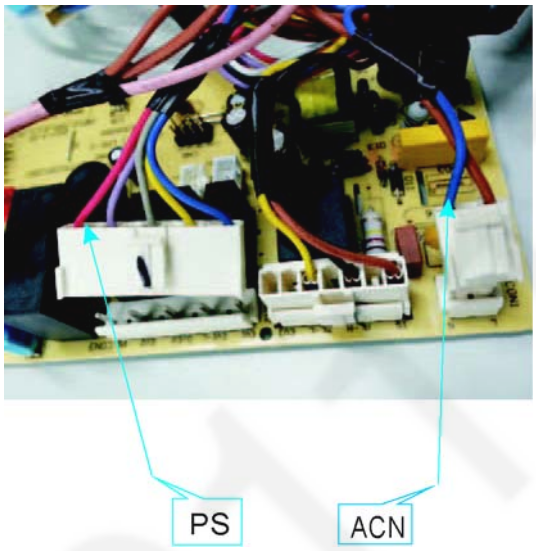
5.4.3. Technical data

Nominal voltage	220-240VAC
Frequency	50Hz
Resistance	167 10%kΩ
Delivery height	1M
Delivery performance	≥ 17l/min(230VAC)

5.4.4. Inspect drain pump

5.4.4.1. Check the electric part

1. Open the protecting box and take out the PCB.
2. With the door closed,unplug the CON3 and ACN wires, then use the multi-meter Ω shelf to measure the red wire (PS) and blue wire (ACN), the normal resistance is about 150Ω to 190Ω.
3. If the measured resistance is not correct, it means the pump coil is broken or connector is loose. In this case, we should check the connection first. If the problem hasn't been solved by re-connection, we should replace the drain pump.
4. If the resistance is OK, but it also can't work, maybe the magnetism is too weak, so we need to replace the drain pump.

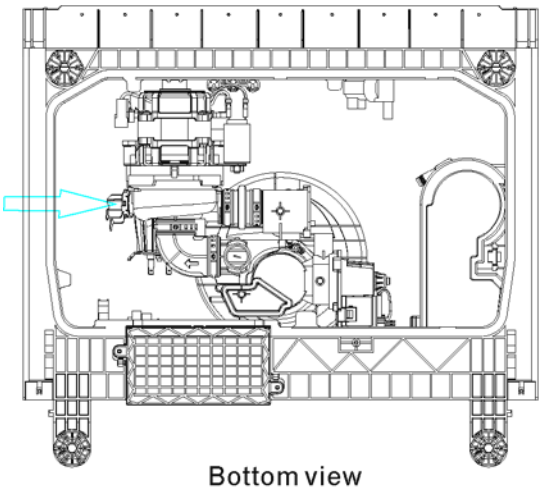


5.4.4.2. Check the machine part

1. If the electric part is OK, we need to check the machine part.
2. Remove bottom board.
3. If the non-return valve is wrongly assembled, the tub will remain much water. We need to re-assemble the non-return valve.
4. If the drain pump is working, but no water drain out or just a little. We should check the drain hose or drain body.

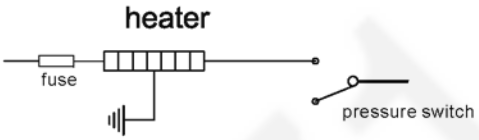
5.5. Heater

Location of Heater



Bottom view

The work principle



5.5.1. Technical data

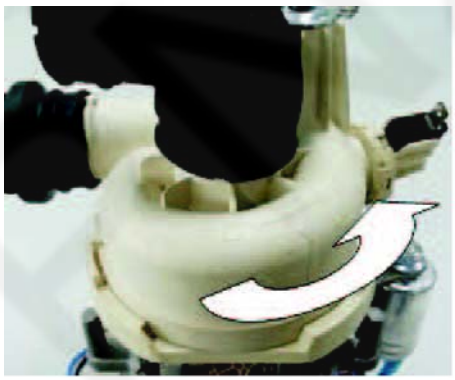
Nominal voltage	230VAC
Rating power	1800W
Resistance	29.4 10%kΩ
Fuse	167°C

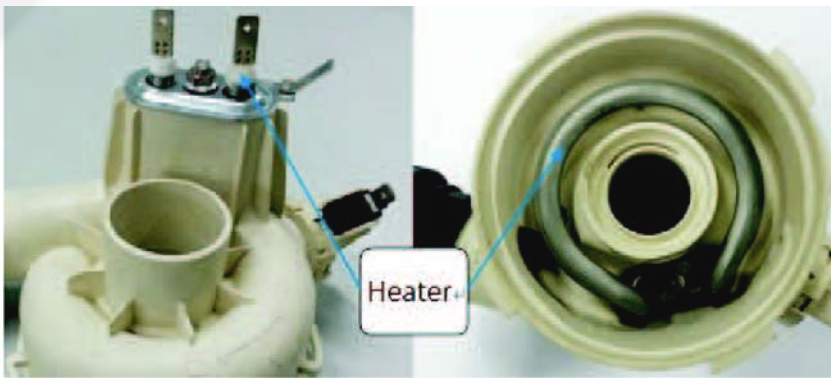
5.5.2. Possible cause of Malfunction

1. The heater coil is broken, so the heater cannot work. It will cause the E3 error.
2. The Fuse is active, so the heater cannot work. It will cause the E3 error.
3. The connector is loose, so the heater cannot work. It will cause the E3 error.

5.5.3. Inspect heater

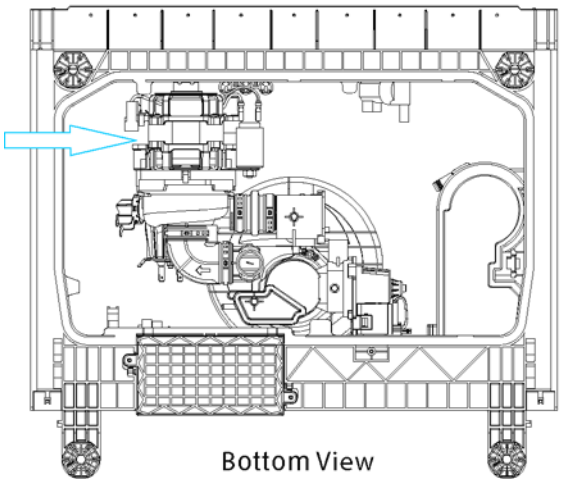
1. Remove bottom board.
2. With the door closed,use the multi-meter Ω shelf to measure resistance between the two terminals shown in above right picture, the resistance is about 29Ω to 31Ω.
3. If the measured resistance is not correct, it means the heater coil or the thermostat is broken, we should replace the heating element or the thermostat.



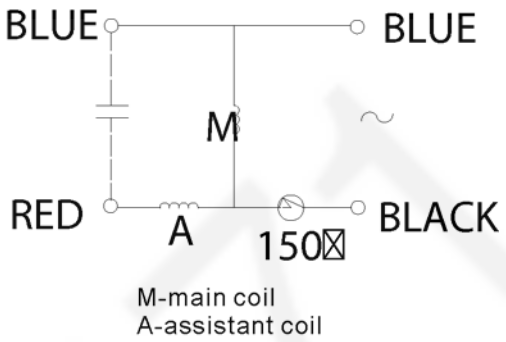


5.6. Washing Pump

Location of Washing Pump



The work principle



5.6.1. Possible cause of Malfunction

1. The motor coil is broken, so the wash pump can't work. It will cause E3 error.
2. The motor rotor capacitor is weaken, so washing pump can't start. In this case, it will send out the electromagnetism noise. If it is continue electrifying motor, the thermal protector will work. It will cause E3 error.
3. The connector is loose, the wash pump can't work. It will cause E3 error.
4. The rotor is locked by residues, so the wash pump can't work. It will cause the E3 error.
5. The drain pump assembly bracket is loose, it will cause noise.
6. If the machine hasn't been used for long time, there is a possibility the wash pump can't starting.

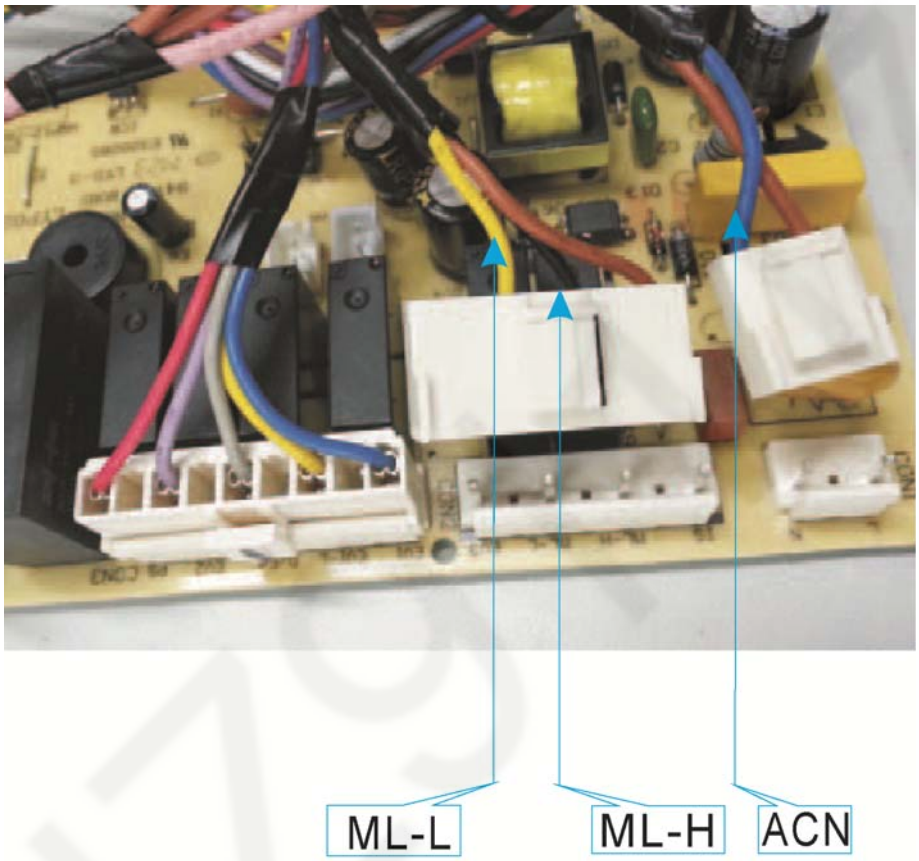
5.6.2. Technical data

Models / Items	YXW48-2F-1	YXW48-2F
Nominal voltage	220-240VAC	220-240VAC
Frequency	50Hz	50Hz
Resistance	Main coil: 159.4 10%Ω	Main coil:120.10 7%Ω
	Assistant coil: 93.3 10%Ω	Assistant:107.7 7%Ω
Delivery height	1m	1m (230VAC)
Delivery performance	≥ 50l/min (230VAC)	≥ 50l/min (230VAC)
Lock rotor current	0.5A 10%	0.85A 10% (230VAC)
Operating current	0.24A 15%	0.37A 10% (230VAC)
Capacitor	3μF/425V	3μF/425V

5.6.3. Inspect Washing Pump

5.6.3.1. Check the electric part

1. Open the control panel and take out PCB;
2. With the door closed, unplug the CON5, then use the multi-meter Ω shelf to test resistance between two wires (ML and ACN), the normal resistance is about 100 Ω to 170 Ω.
3. If the resistance is not correct, it means the pump coil is broken or the connector is loose, In this case, we should check the connection first. If the problem hasn't been solved by re-connection, we would replace the washing pump.
4. If the resistance is OK but it cannot work, it maybe the capacitor weakly, we need to replace the capacitor.



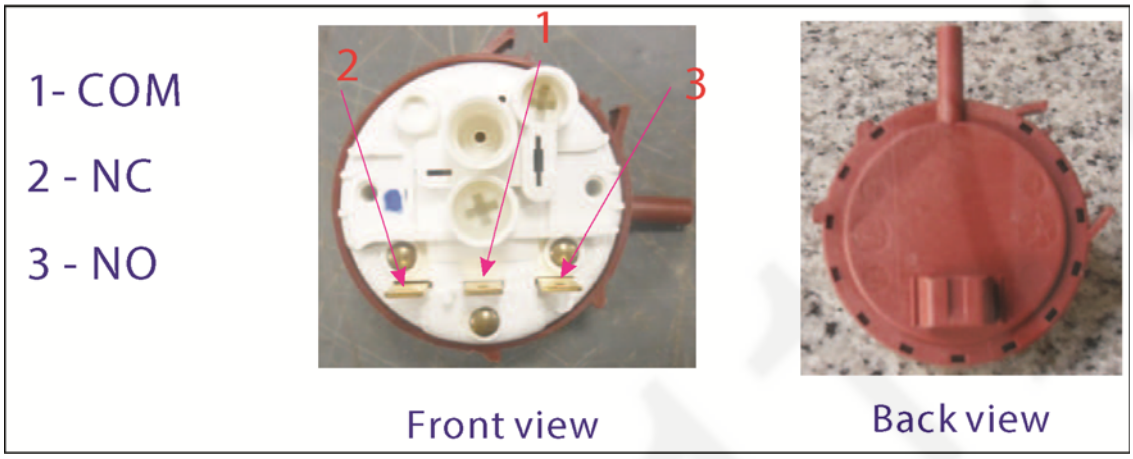
5.6.3.2. Check the machine part

1. If the electric part is OK, we need to check the machine part.
2. Remove bottom board.
3. Check the pump assembly, if the bracket is loose, it will bring the noise, we need to tighten it.
4. If the wash pump cannot start and the machine hasn't been used too long, maybe the seal element is bond.
5. If the drain pump is working, but no water out or just a little. We should check the vane wheel.

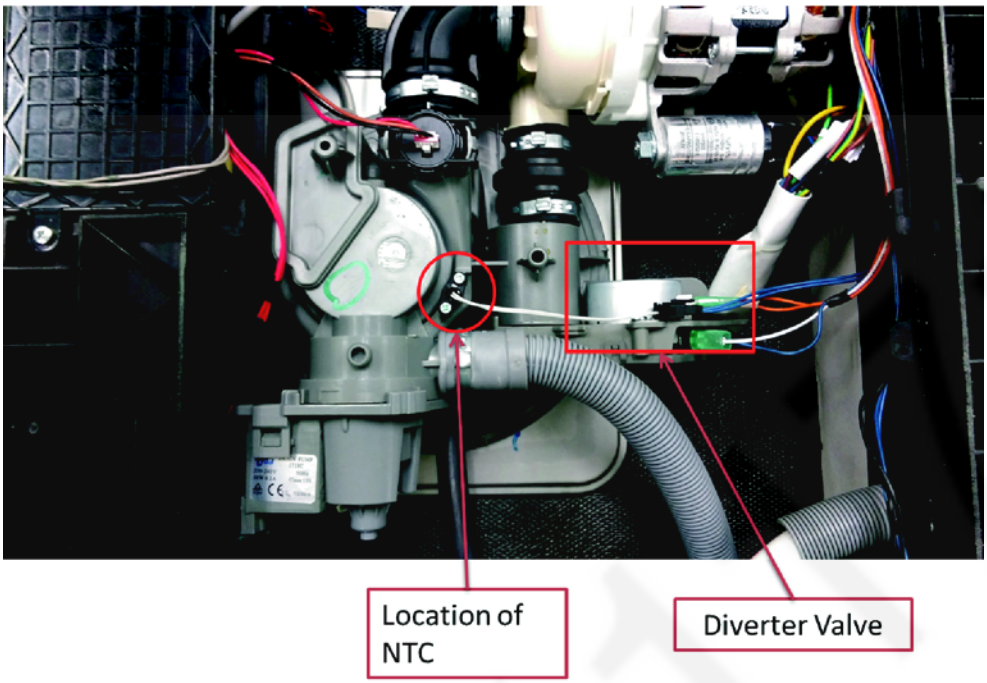
5.7. Pressure Switch

5.7.1. Working Principle

The pressure switch consists of a moving diaphragm and disc which activate a change over contact. The contact can be calibrated to trip and reset at the desired pressure levels, The main application is to control the level of water in appliances. May also provide flood protection.



5.8. NTC

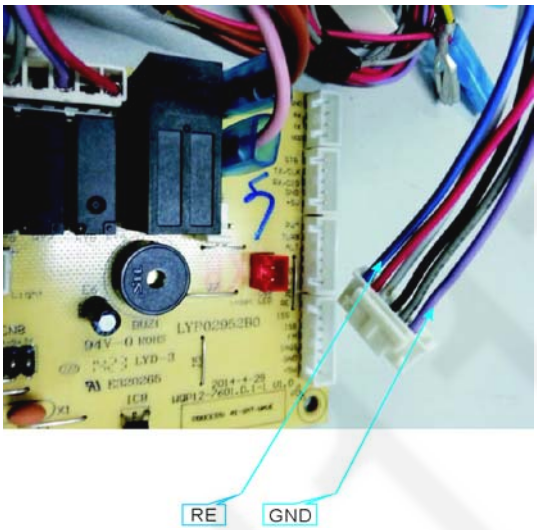


5.8.1. Working Principle

Negative Temperature Coefficient Thermistor is integrated into sump, which is used for measuring temperature of water in the tub.

5.8.2. Inspect NTC

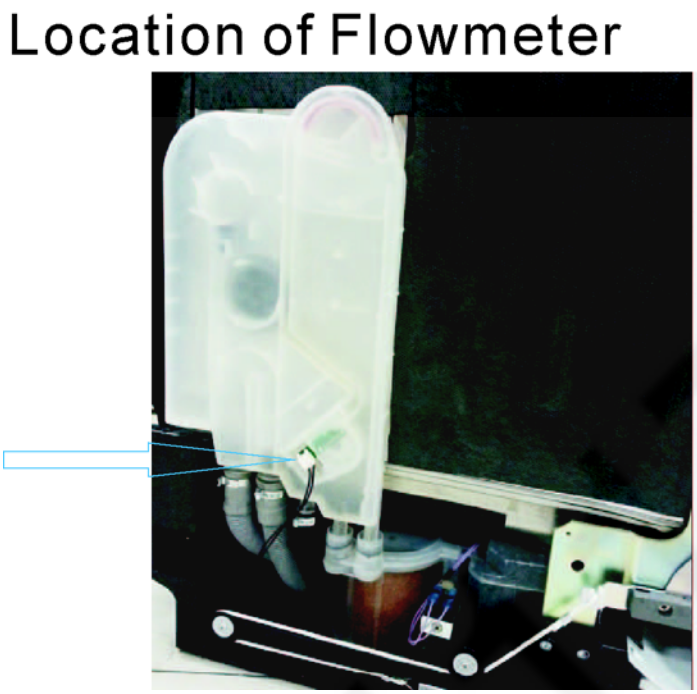
1. Open the protecting box and take out PCB;
2. With the door closed,unplug the RE connector (shown in below picture), then use the multi-meter Ω shelf to test resistance between two blue wires (RE and GND), the normal resistance is shown in below table.
3. If the resistance is not correct, it means NTC circuit has a problem. In this case, we should check the connection first. If the problem hasn't been solved by re-connection, we would replace the NTC.



NTC resistance table

NTC	15°C	17.48KΩ
	20°C	12.12KΩ
	25°C	10KΩ
	30°C	8.299KΩ
	40°C	5.807KΩ
	50°C	4.144KΩ
	60°C	3.011KΩ
	70°C	2.224KΩ
	80°C	1.667KΩ
	85°C	1.451KΩ

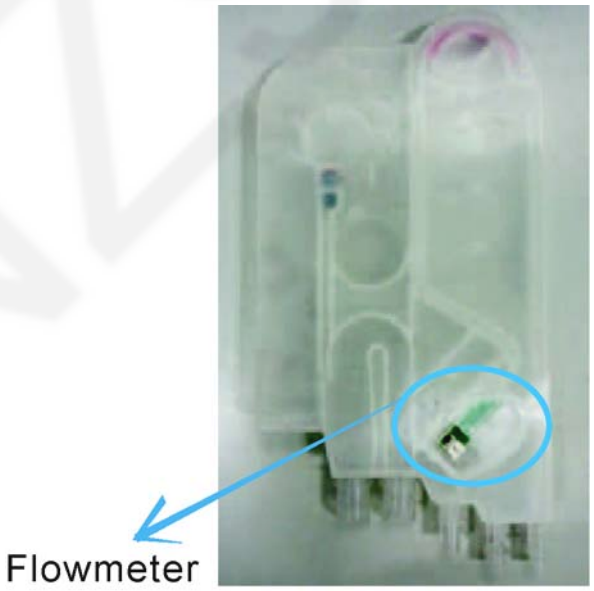
5.9. Flowmeter



5.9.1. Working Principle

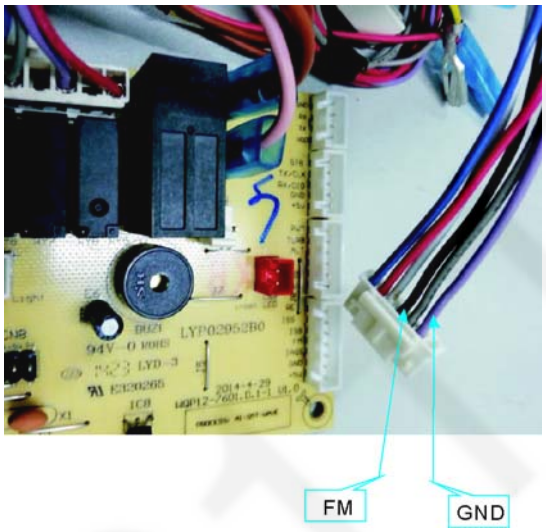
Flowmeter is integrated into Air Breaker. Function of Flowmeter is measure how much water has entered in appliance. it consists of impeller, tongue tube and terminal, etc.

When water pass through the flowmeter, moving water can rotate magnetic impeller, the tongue tube can sense the impeller's magnetic and send electronic pulses.



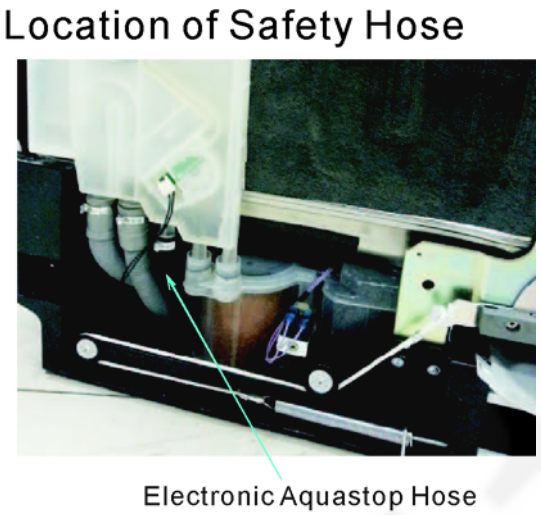
5.9.2. Inspect Flowmeter

1. Open the protecting box and take out PCB;
2. With the door closed, unplug the CON2 wire (shown in below picture), then use the multi-meter Diode shelf to test between black wire (FM) and blue wire (GND) to confirm whether electrical pulse is sent out while water is passing through flowmeter, or not.
3. If there is continual electrical pulse, the multi-meter will send out sound “de” continually.
4. if there is no electrical pulse, the multi-meter will not send sound. In this case, it means something wrong with flowmeter circuit. We should check the connection first. If the problem hasn’t been solved by re-connection, we should replace the air breaker.

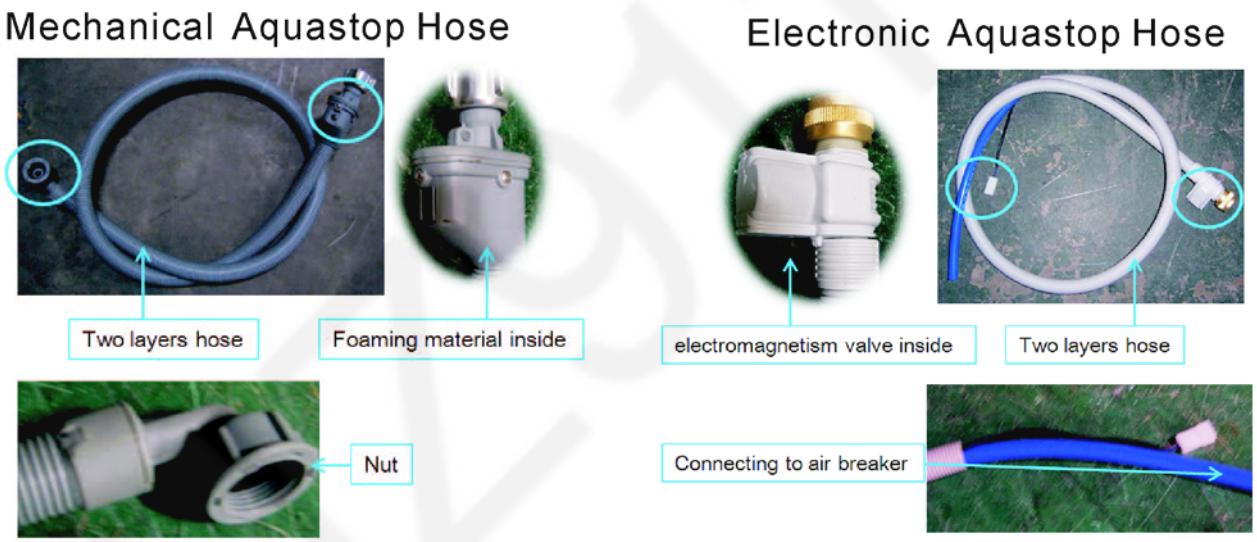


5.10. Safety Hose

5.10.1. Location of Safety Hose



5.10.2. Working Principle



There are two types of Safety Hose, mechanical Aquastop hose and electronic Aquastop hose, which have different principles and assembly modes.

Mechanical Aquastop safety hose has two layers. If water leak and fill the air space between two layers, the foaming material will expand and lock the hose. In this situation, the machine might set off E1 alarm.

Electronic Aquastop safety hose also has two layers. But the difference from mechanical is that if water leak and flow on the bottom tray, the flooding pressure switch on the tray will act, the electromagnetic valve on the hose will cut off the water road and the machine will set off E4 alarm.

5.10.3. Inspect Safety Hose

5.10.3.1. Electronic Aquastop Hose

1. Open the protecting box and take out the PCB;
2. With the door closed, unplug the CON3 and ACN wires , then use the multi-meter Ω shelf to measure resistance between the blue wire (EV1) and blue wire (ACN). Open circuit and short circuit are both incorrect.
3. If the measured resistance is not correct, it means the valve coil is broken or the connector is loose. In this case, we should check the connection first. If the problem hasn't been solved by re-connection, we should replace the safety hose.

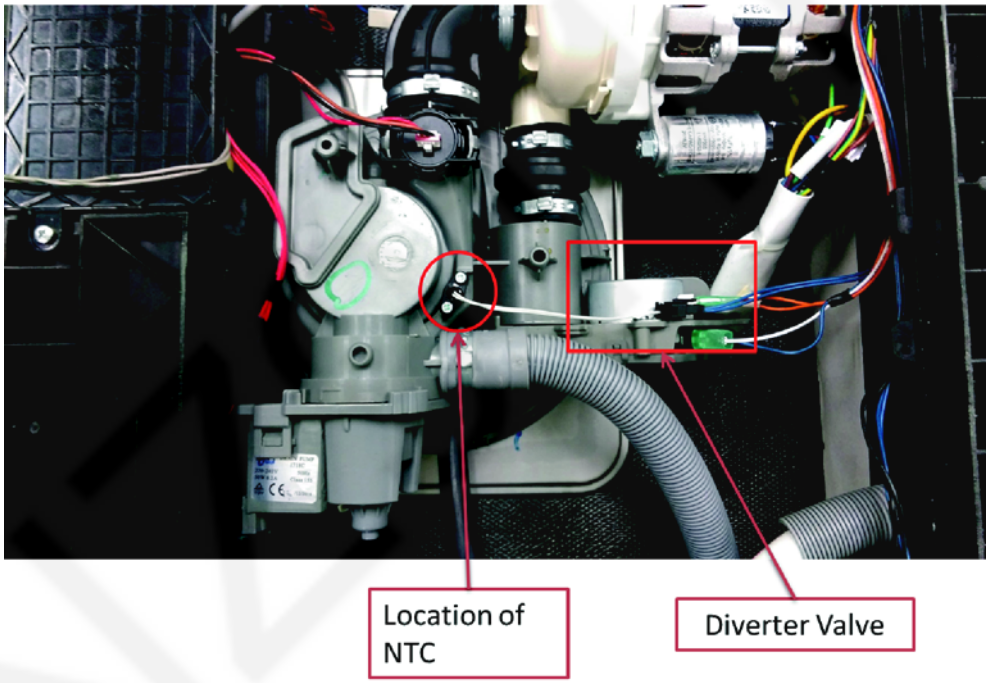
5.10.3.2. Mechanical Aquastop Hose

Maybe moisture absorption of foaming material in mechanical device cause a self-lock fault(can't fill the water) and this lock is non-resettable.

5.11. Diverter Valve

5.11.1. Work Principle

Diverter, also named alternating flow control valve, is used to control the flow of water between the upper and lower spray arms and can also be used on some models to stop the flow of water to the upper spray arm on models equiped with a half load feature.



5.12. Error code

5.12.1. How to know which error code has occurred

To know which error code has occurred, refer to the previous table named Test Program Operation.
For example, if the error 7 has happened, the buzzer would alarm for 30 seconds and the Glass, 1 hour and Rapid indicators would flash simultaneously. Other error alarms can be deduced from this.

	Glass	1 hour	Rapid	binary numeral	decimal numeral
E1	0	0	1	001	1
E3	0	1	1	011	3
E4	1	0	0	100	4
E6	1	1	0	110	6
E7	1	1	1	111	7

The corresponding relation between indicator combination and error code shown in above figure.

5.12.2. Attention

Priority level of E4 is the highest. E4 operation is valid after other error operations have done. When E4 operation has done, all the others are invalid.

In test program, E1, E3, E4, E6, E7 and E8 are valid.
Note:

5.12.3. Error code symptom

5.12.3.1. E1 Water filling exceed pre-set time

If the inlet valve has been opened for 4 minutes but the water quantity hasn't reached the desired value (measure by pluses), E1 would occur.
When E1 occurs, the drain pump will run until flowmeter keep motionless for 2 minutes and all the other components will be stopped immediately. At the same time, the buzzer will alarm for 30 seconds and error 1 will be shown.

5.12.3.2. E3 Heating exceed pre-set time

If the heating element has been working for 60 minutes but the water temperature detected by NTC hasn't reached desired value. E3 would occur.
When E3 occurs, the drain pump will run until flowmeter keep motionless for 2 minutes and all the other components will be stopped immediately. At the same time, the buzzer will alarm for 30 seconds and the error 3 will be shown.

5.12.3.3. E4 Overflow

At any time, if overflow micro-switch act and keep for longer than 2 seconds, the E4 would occur. When E4 occurs, the drain pump will run until flowmeter keep motionless for 2 minutes and all the other components will be stopped immediately.
At the same time, the buzzer will alarm for 30 seconds and error 4 will be shown.

Note: Priority level of E4 is the highest. E4 operation is valid after other error operations have done. When E4 operation has done, all the others are invalid.

5.12.3.4. E6 Open-circuit failure of thermistor

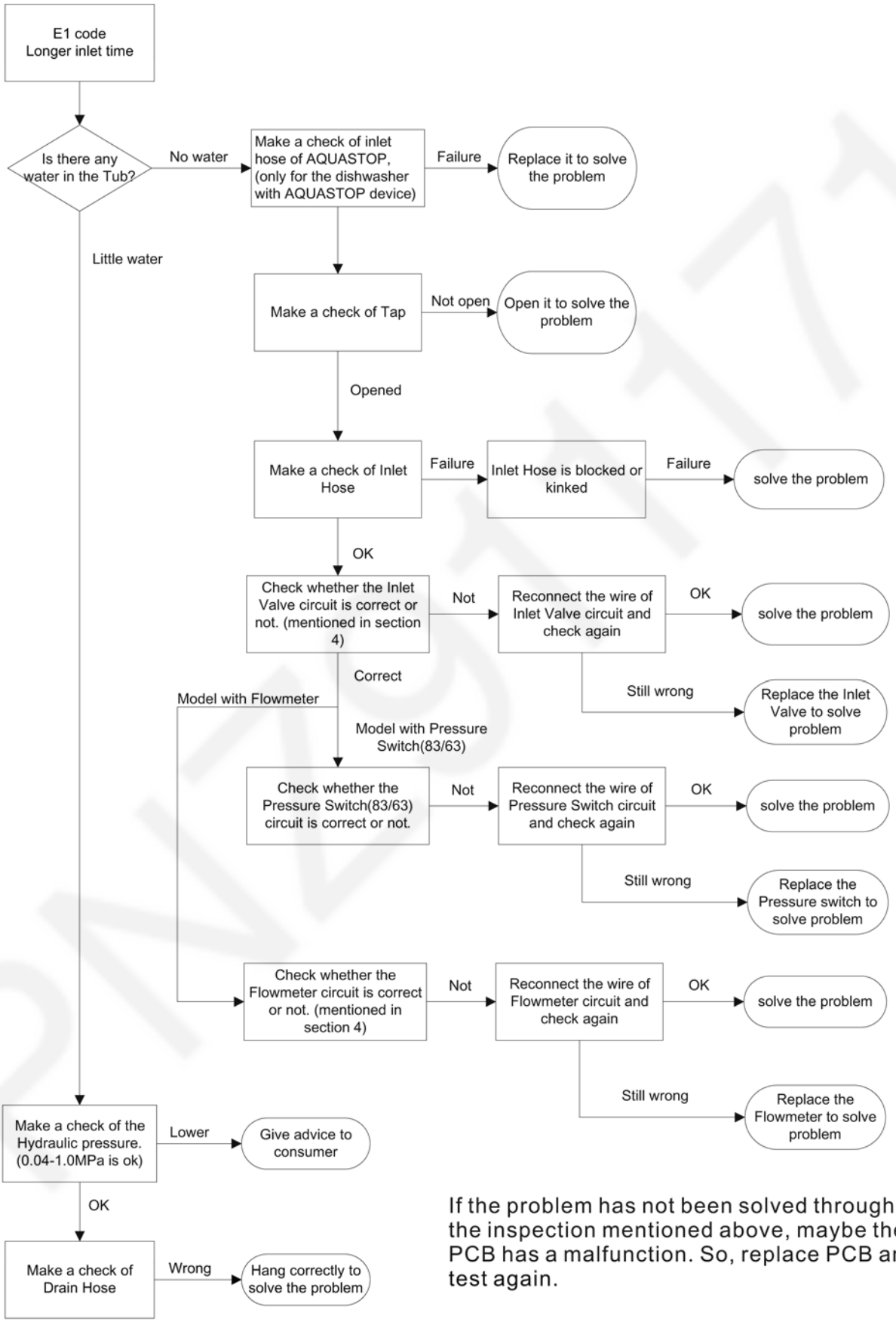
In test program, once open-circuit failure of thermistor is detected by controller, the E6 would occur. When E6 occurs, the drain pump will run until flowmeter keep motionless for 2 minutes and all the other components will be stopped immediately.
At the same time, the buzzer will alarm for 30 seconds and error 6 will be shown.

5.12.3.5. E7 Short-circuit failure of thermistor

In test program, once short-circuit failure of thermistor is detected by controller, the E7 would occur. When E7 occurs, the drain pump will run until flowmeter keep motionless for 2 minutes and all the other components will be stopped immediately. At the same time, the buzzer will alarm for 30 seconds and error 7 will be shown.

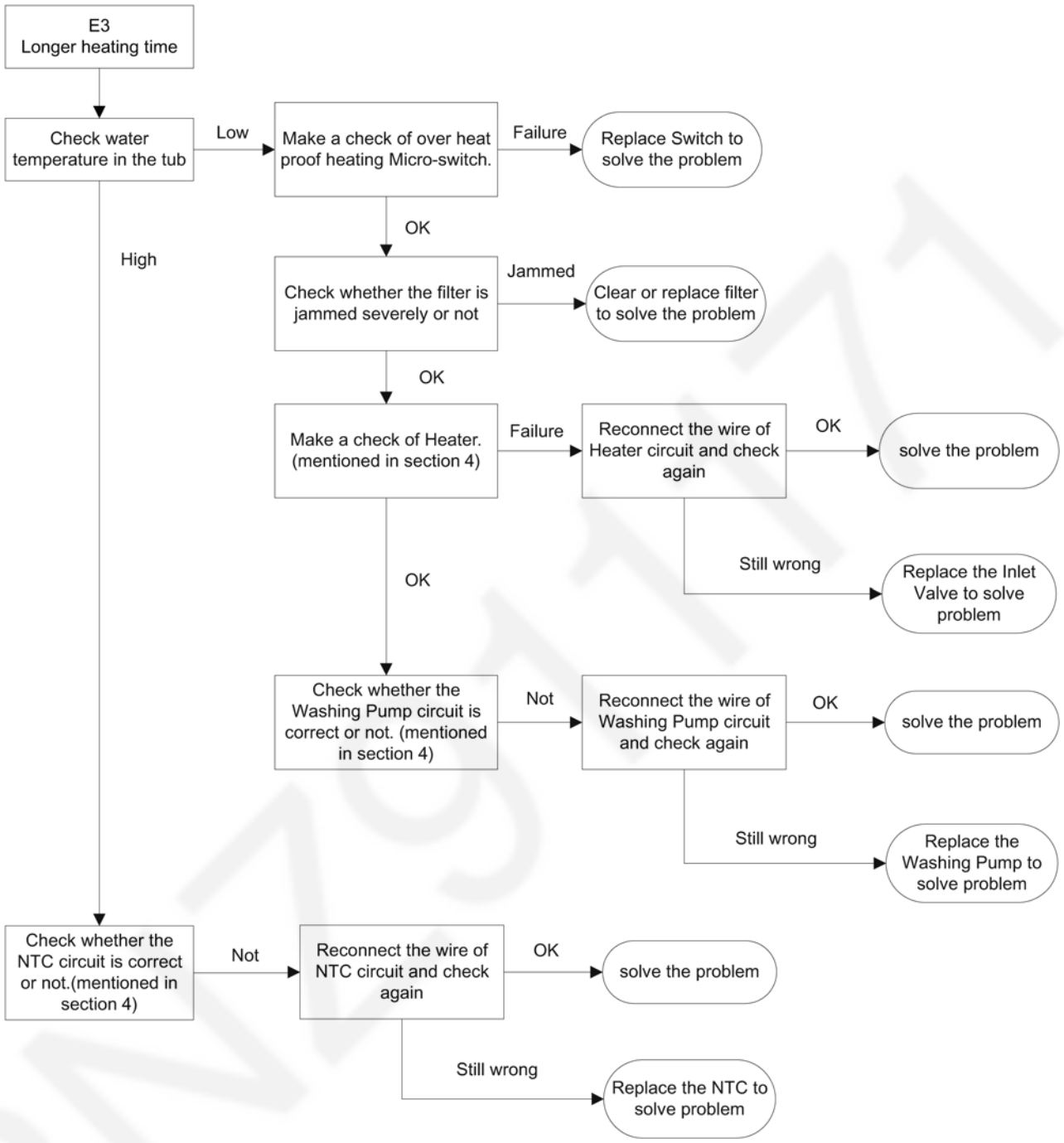
5.13. Inspection

5.13.1. E1 tree

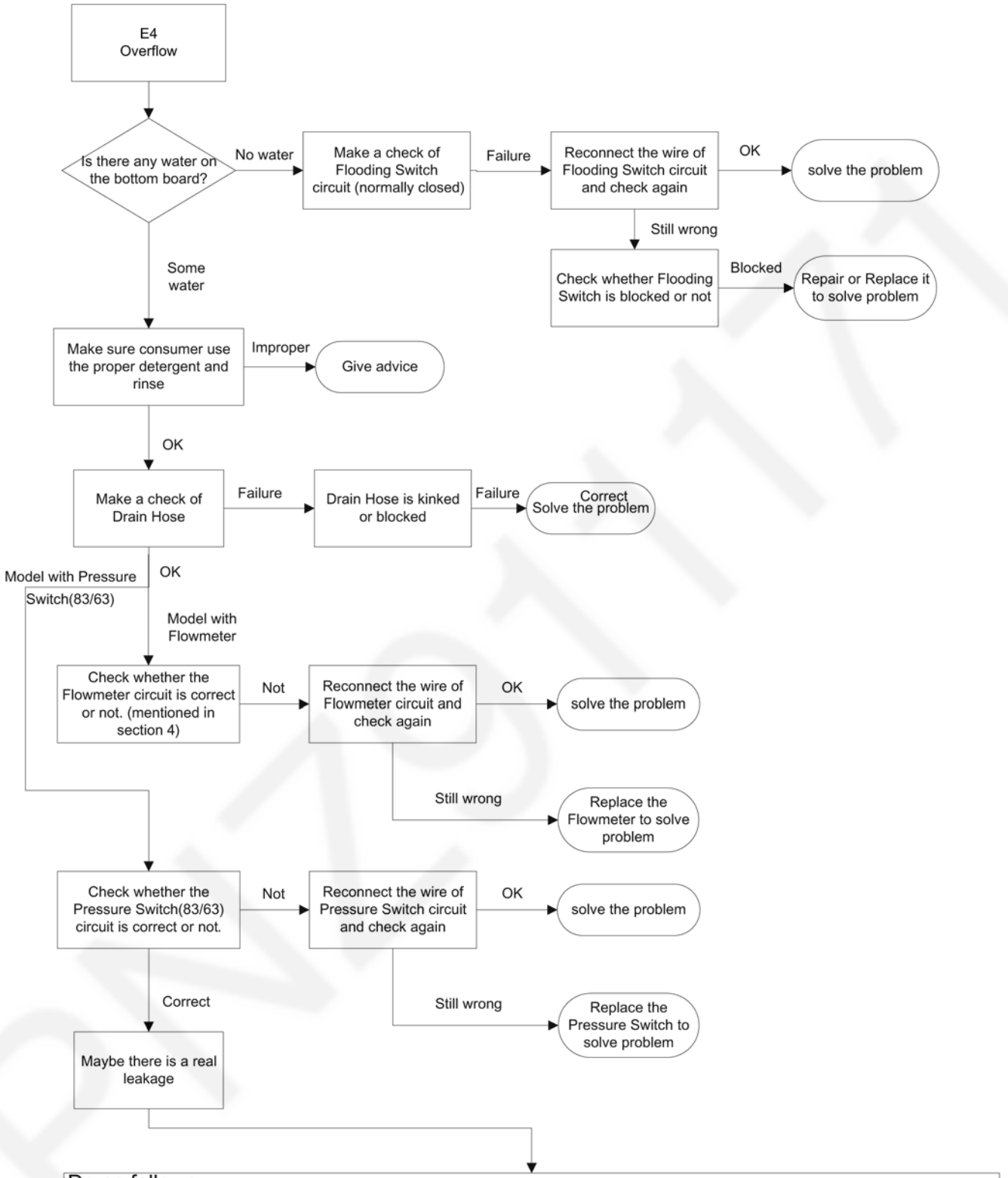


If the problem has not been solved through all the inspection mentioned above, maybe the PCB has a malfunction. So, replace PCB and test again.

5.13.2. E3 tree


E3
Longer heating time
Check water temperature in the tub
Low
Make a check of over heat proof heating Micro-switch.
Failure
Replace Switch to solve the problem
OK
High
Check whether the filter is jammed severely or not
Jammed
Clear or replace filter to solve the problem
OK
Make a check of Heater. (mentioned in section 4)
Failure
Reconnect the wire of Heater circuit and check again
OK
solve the problem
Still wrong
Replace the Inlet Valve to solve problem
OK
Check whether the Washing Pump circuit is correct or not. (mentioned in section 4)
Not
Reconnect the wire of Washing Pump circuit and check again
OK
solve the problem
Still wrong
Replace the Washing Pump to solve problem
Check whether the NTC circuit is correct or not.(mentioned in section 4)
Not
Reconnect the wire of NTC circuit and check again
OK
solve the problem
Still wrong
Replace the NTC to solve problem

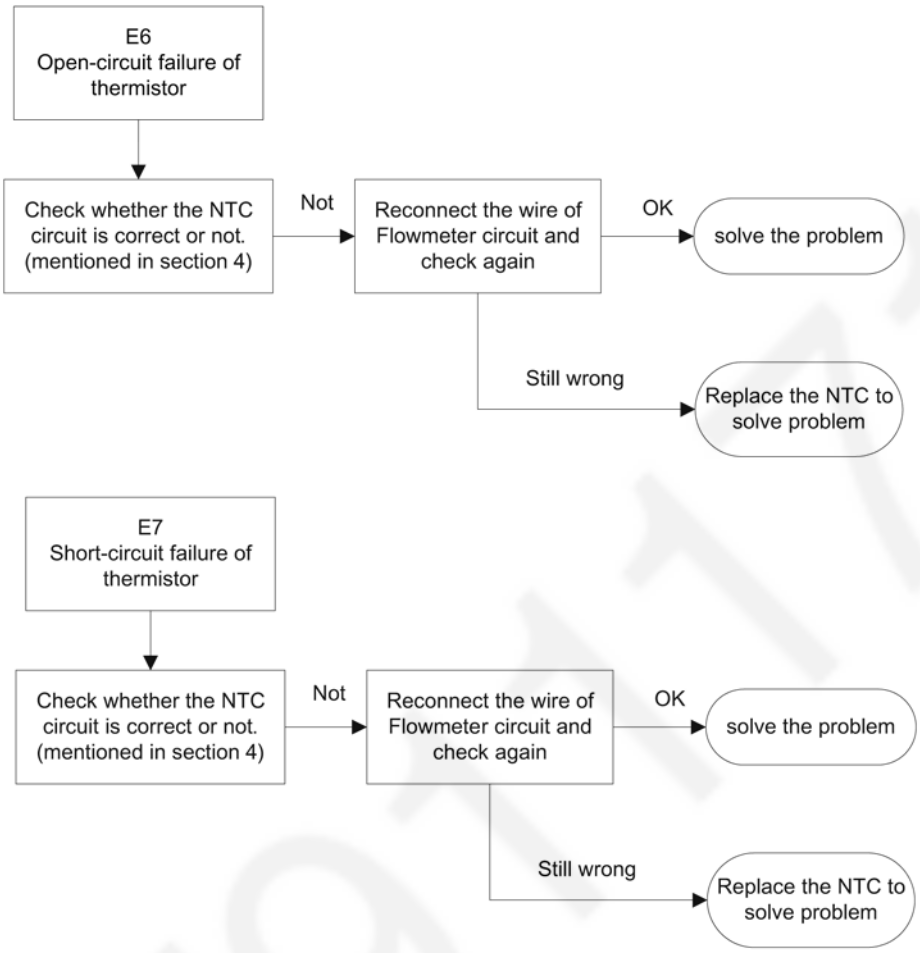
5.13.3. E4 tree



Do as follows

Remove two side panels
Remove the water from the bottom board and make sure there is no water at the bottom board.
Restart the dishwasher with a strong or standard wash program as a leakage could easily repeat at a higher temperature and after a long period of running time.
Observe the bottom tray every twenty minutes.
If any water appears, you will found out which areas, such as motor, drain pump, sump, softener, and hoses between them, and also clips at the end of each hose, besides the weld seam at the bottom of the tub.
If hours passed, but no water comes out, you should stop the dishwasher with sufficient water in the inner tub, and observe it again after leaving it alone for one to two hours.

5.13.4. E6 & E7 tree



If the problem has not been solved through all the inspection mentioned above, maybe the PCB has a malfunction. So, replace PCB and test again.

Caution: Because the real situation is unpredictable, inspection trees mentioned in this manual are for reference only.

5.14. Troubleshooting

symptom	possible reason	analysis	operation	remedy
E1 longer inlet time	check the AQUA STOP hose	defective AQUA STOP hose might cut off the water inlet route	for mechanical AQUA STOP hose, check whether the mechanical device is lock or not	replace the hose
			for electronic AQUA STOP hose, check whether the valve circuit is ok or not	reconnect or replace the hose
	check the water supply	the tap isn't open	check whether the tap open or not	give advice
		lower hydraulic pressure	make sure the hydraulic pressure in the range from 0.04 to 1.0 Mpa	give advice
	check the inlet	inlet hose is blocked or kinked	unblock or unkink	unblock or unkink
	check the inlet valve	loosing connection or defective inlet valve might cause the E1 alarm	check the circuit of inlet valve	reconnect or replace the valve
	check the flowmeter	for models with flowmeter, defective flowmeter might cause the E1 alarm	check the circuit of flowmeter	reconnect or replace flowmeter
	check the pressure switch (83/63)	for models controlling water filling by pressure switch, defective pressure switch might cause the E1 alarm	check the circuit of pressure switch	reconnect or replace the pressure switch
	check the drain	wrong installation of drain hose might cause water siphon out	make sure it is installed properly.(refer to instruction manual)	reinstall drain hose
	check the pressure switch (140/120)	defective pressure switch might cause the drain pump always run	listen the sound to check whether the drain pump is run or not	replace the pressure switch (140/120)
	check the PCB	defective PCB might cause the E1 alarm	When you have eliminated other possible causes, maybe there is something wrong with PCB	reconnect or replace PCB

E3 heating fault	check filter	severely jammed filter might cause E3 alarm, so give advice to end customer on clean regularly the interior of dishwasher.	Advice: Even though a dishwasher is constantly being pounded with water and soap, it needs an occasional cleaning. Food particles, hard water deposits, mildew, mold and bacteria can and do build up along the surfaces and in the crevices of a dishwasher. Cleaning a dishwasher regularly will keep it functioning properly, keep your family healthy and safe, and keep your dishes coming out sparkling	clean the filter and give advice
	check the hydraulic pressure	low hydraulic pressure might cause the less filling water	make sure the hydraulic pressure in the range from 0.04 to 1.0 Mpa.	give advice
	check the drain hose	wrong installation of drain hose might cause water siphon out	make sure it is installed properly.(refer to instruction manual)	reinstall drain hose
	check washing pump	washing pump doesn't running might cause E3 alarm	listen to the sound of appliance to see whether washing pump run or not. Defective motor might cause the washing	replace the washing pump
			measure the capacitance of starting capacitor. Capacitor attenuation could cause the motor can't start	replace the capacitor
	check heater and NTC	malfunction of heater or NTC might cause E3 alarm	measure temperature of water in tub continuously when test program is running to see whether temperature increasing (approximate 2 ºC/min) is normal and the appliance pause when the water temperature reach 60 degree or not.	replace the defective component
	check anti-drying pressure switch	abnormal anti-drying pressure switch might cause E3 alarm	if haven't find the problem after checking the components mentioned above, it is most possible reason that anti-drying pressure switch is abnormal.	replace the anti-drying pressure switch
	check PCB	defective PCB also might cause E3 alarm, but its probability is small.	So, When you have eliminated other possible causes, you can try to change PCB to see if the problem be solved.	reconnect or replace PCB
	check the use of detergent	too much detergent used during the wash cycle could cause the water foams up and overflow on the bottom	give advice to end customer advice on use the amount of detergent used during the wash cycle according to instruction manual	give advice

E4 overflow	check whether the appliance is level	if appliance is not level, it might cause the E4 alarm	make sure the appliance is level	level appliance
	check the drain pump	defective drain pump might cause the E4 alarm	the first step of all the washing program is drain, which could be used to test whether drain pump work normally or not	replace the drain pump
	check the amount of filling water	too much filling water could make a overflow	for models controlling water filling by pressure switch(83/63), run test program and check whether the amount of filling water is normal or not.	repalce the pressure switch(83/63)
			for models controlling water filling by flowmeter, run test program and check whether the amount of filling water is	replace the flowmeter
	check the float microswitch	sticking float microswitch could cause the E4 alarm	disassemble the bottom tray and check whether the float microswitch moves freely up and down	repair or replace the float microswitch
	find where leakage is	if there is a real leakage, finding where leakage is and solving the problem would be	to find and solve problem, do as suggestion mentioned in service manual	repair or replace the defective component
E6 & E7 open-circuit & short-circuit	check the NTC	if the appliance detect the malfunction of NTC thermistor, E6 or E7 would be set off	check the NTC circuit and measure the resistance of NTC thermistor	reconnect or replace the NTC thermistor
	check the PCB	if the NTC thermistor is ok, but the alarm still be set off, the PCB might have defect	change the PCB to see if the appliance is run normally	reconnect or replace PCB
	check the loading	improper loading could block the spray arm, so give advice to end customer on how to load dishes and silverware properly.	following the advice on how to load mentioned in instruction manual, which is the necessary condition of getting good washing performance	give advice
	check filter	severely jammed filter might cause E3 alarm, so give advice to end customer on clean regularly the interior of dishwasher.	Advice: Even though a dishwasher is constantly being pounded with water and soap, it needs an occasional cleaning. Food particles, hard water deposits, mildew, mold and bacteria can and do build up along the surfaces and in the crevices of a dishwasher. Cleaning a dishwasher regularly will keep it functioning properly, keep your family healthy and safe and keep your dishes coming out sparkling	clean the filter and give advice
	check the using program	improper program might cause poor performance		

poor washing performance	check the use of detergent and rinse	improper amount of detergent and rinse aid and poor quality detergent and rinse aid might cause poor performance	refer to instruction manual	give advice
	check the setting of salt consumption	improper salt consumption might cause the poor perpormance	Observe whether there are water spots or white film on washed dishes and glass which caused by hard water mineral. If water is too hard, there is a need to adjust salt consumption to adopt to the situation.(refer to instruction)	adjust salt consumption
	check dispenser	malfunction of dispenser might cause the poor performance	Run the test program to see whether dispenser open normally.	replace the dispenser
	check the water level	less water might cause the poor performance	make sure the aplliance is level	level appliance
			wrong installation of drain hose might cause water siphon out, so make sure it is installed properly. (refer to instruction)	reinstall drain hose
			low hydraulic pressure might cause the less filling water, so make sure the hygraulic pressure in the range from 0.04 to	give advice
			for models controlling water filling by flowmeter, defective flowmeter might cause less filling water. When you have eliminated other causes of less water, you could roughly judge the flowmeter is something wrong.	replace flowmeter
			for models controlling water filling by pressure switch(83/63), defective pressure switch might cause less filling water. When you have eliminated other causes of less water, you could roughly judge the pressure switch is something wrong.	replace pressure switch
			defective PCB also might cause less filling water, but its probability is small. So, the last choose is replace PCB.	replace PCB
	check heater and NTC	malfunction of heater or NTC might cause E3 alarm	measure temperature of water in tub continuously when test program is running to see whether temperature increasing (approximate 2 ºC/min) is normal and the appliance pause when the water temperature reach 60 degree or not.	replace the defective component
	check washing pump	washing pump not running	listen to the sound of appliance to see whether washing pump run or not	replace the washing pump

poor drying performance	check loading	improper loading might cause water remains on the dishes. Make sure tilt the dishes and load the glass bottom-side-up.	following the advice on how to load mentioned in instruction manual, which is the necessary condition of getting good drying performance	give advice
	check the using program	improper program might cause poor performance	refer to instruction manual	give advice
	check rinse aid dispenser	Rinse aid is formulated to ensure that food and chemical residues are not redeposited on your dishes during the final rinse cycle and dishwasher get expected drying performance. Malfunction of dispenser might cause the rinse	make sure the rinse aid container is not empty and rinse aid is normally release in the cycle.	fill rinse aid or replace dispenser
	-	get better drying performance	The air drying process can be speeded up if you open the dishwasher just after it is finished and the dishes are still hot. This will allow the moist air to leave the dishwasher as the dishes cool and dry.	give advice
noise	check whether the noise is normal	some audible sound are normal	-	give advice
	check the loading	dishes are not secure in the rack or something small has dropped	ensure everything is secured in the dishwasher	reload and give advice
	check the washing pump	malfunction of washing pump might make a abnormal noise	check the washing motor whether run normally	replace washing pump
	check the drain pump	blocked or defective drain pump might make a abnormal noise	check the drain motor whether run correctly	replace drain pump