

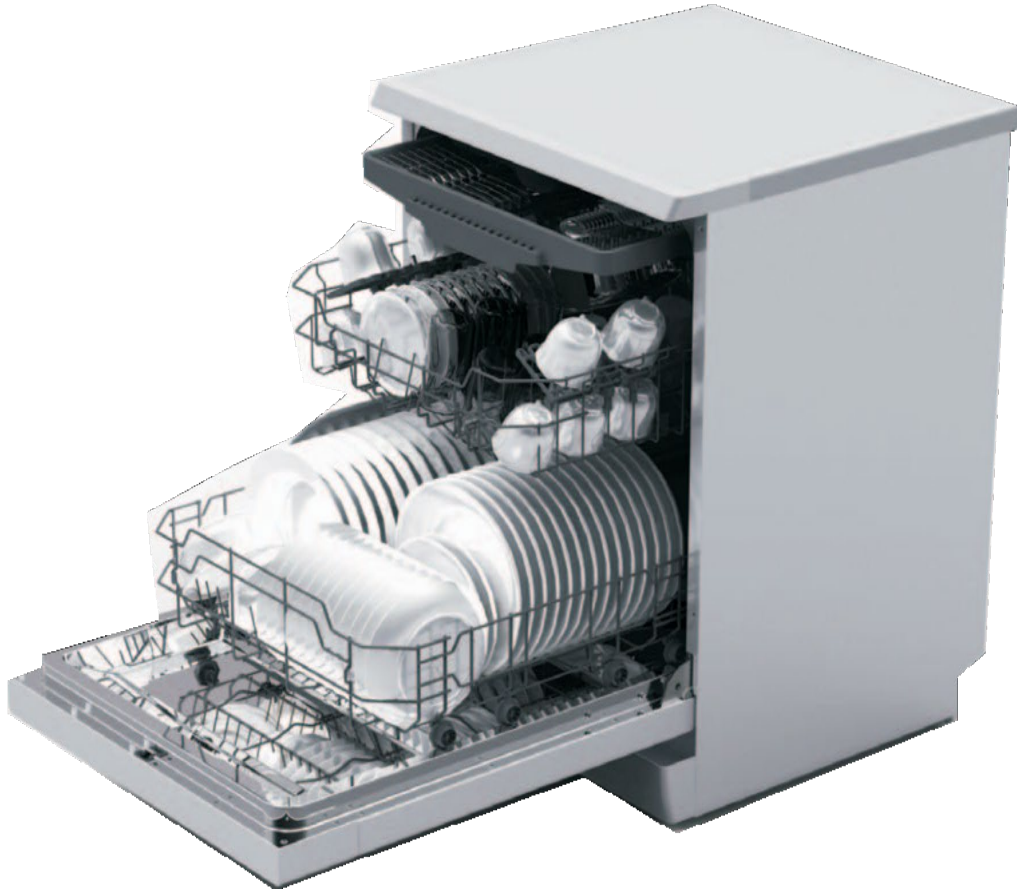
Dishwasher Service Manual

(E5 Platform)
(BLDC)

Applicable model: WQP a – U b x y z (Midea model)
(a=8/12, b=77/76/53/52, x=0~9, y=0~9, z=A~Z or blank)

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Electrical supply: 220-240V, 50Hz

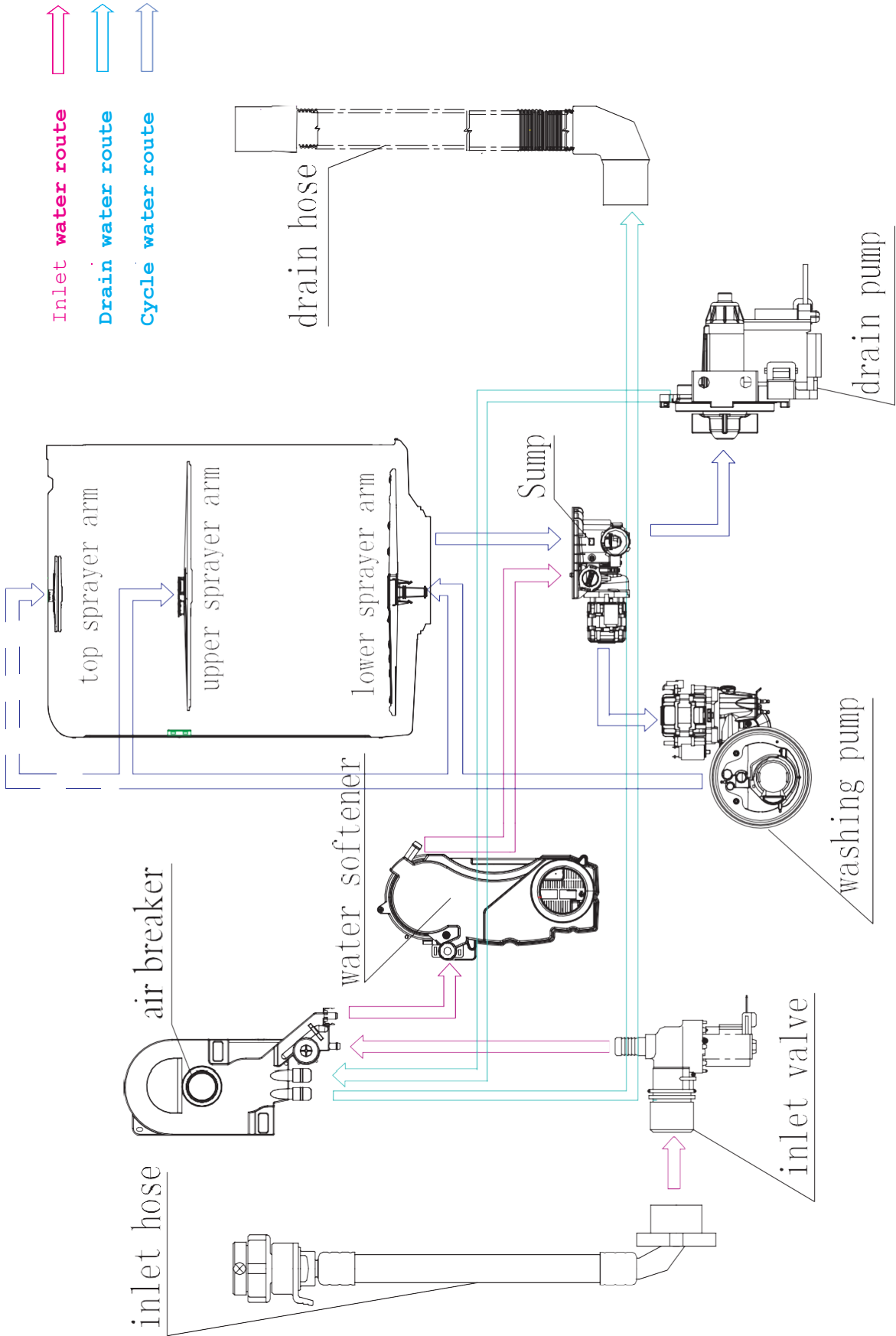
Supply water pressure: 0.04MPa-1.0MPa

Supply water temperature: below 60°C

For the basic operation instructions, please refer to the instruction manual attached with each unit.

Note: This page is for models with common inlet hose.

Water circuit scheme

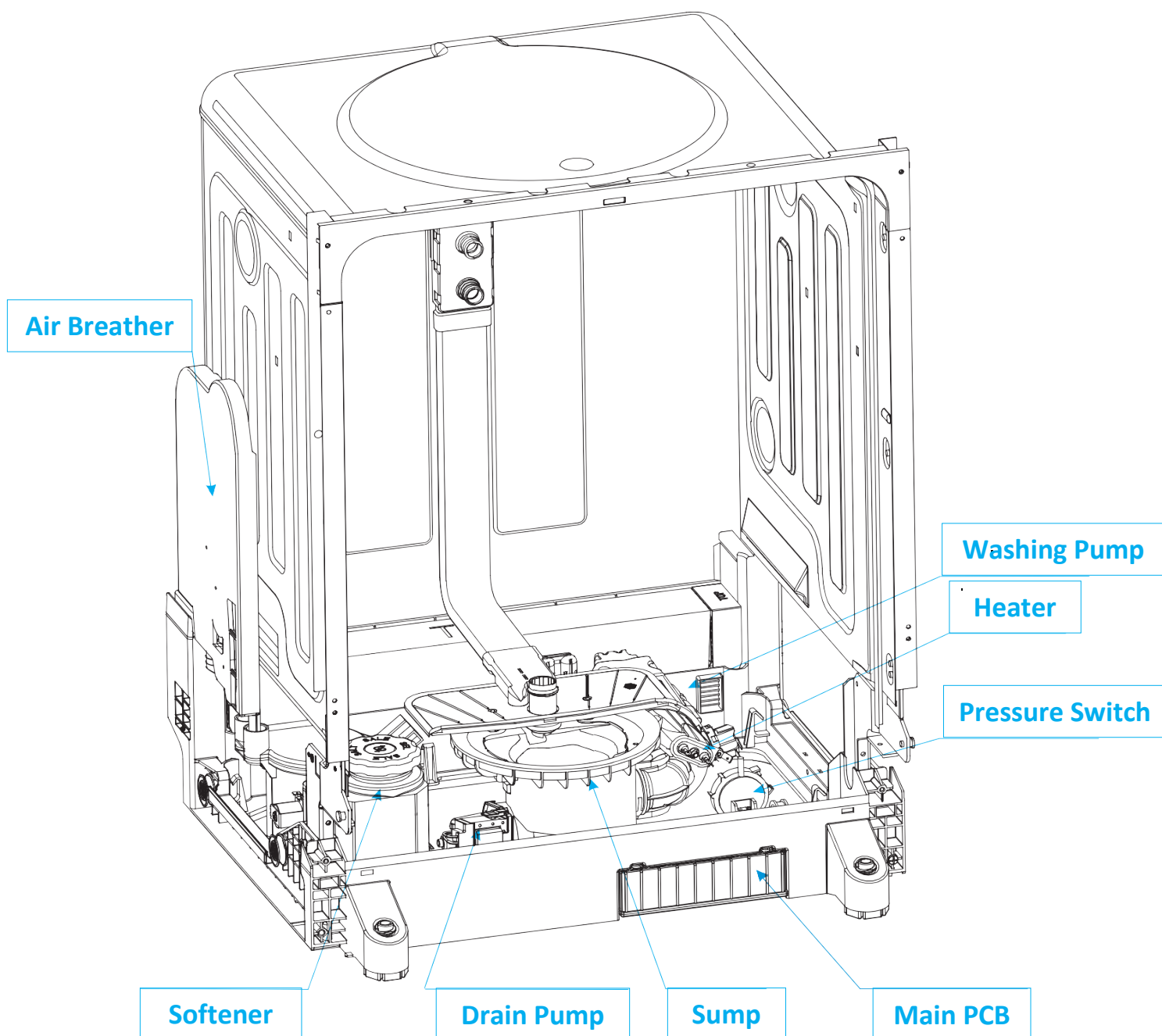


Process of water inlet (indicated by magenta route)

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 breather 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.



Please Note: Explode view and part list of each model have some different visions. So please refer to the newest vision Midea sent you.

Tools for disassembly and reassembly	Applicable models	EN
	General	

Serial number	Tool	Model Specifications	Use	Picture
1	Electric screw driver	Normal	Convenient disassembly and reassembly	
2	Pliers	Normal	Disassemble	
3	Screwdriver	Flat head thin screwdriver	Disassembly and reassembly	
4	Screwdriver	Star hexagonal screwdriver (T15)	Disassembly and reassembly	
5	Screwdriver	Phillips screwdriver (H6 or 6)	Disassembly and reassembly	
6	Clamp pliers	Clamp pliers	Remove the clamp	
7	Multi-meter	Normal	Detect electrical components such as voltage, current, resistance, etc	
8	gloves	Anti cutting and anti-static	Prevent cuts to hands or static electricity	

Maintenance Guidelines

(No electrical components)

Note: Pay attention to power-off maintenance and wear safety gloves when working.

Replacement of tank seal

Replacement of tank seal	Applicable models	EN
	General	
Necessary tools	8	

	1. Remove the old sealing strip Pull the seal outward with your hand until the entire seal is removed.
	2. Install a new seal 2.1 Install sealing strip in the direction shown; 2.2 According to the figure, reserve 3-4cm length to bend at the bottom; 2.3 according to the figure, Install the sealing rings on both sides of the bottom first.

Replacement of tank seal

Replacement of tank seal	Applicable models	EN
	General	
Necessary tools	8	



2.4 Press the seal ring at the corner first according to the figure, pay attention not to pull out the bottom seal ring;



2.5 Press the seal rings around as shown. If not tightly pressed, there may be abnormal closing or water leakage.

2.6 Pay attention to checking if it is installed properly.

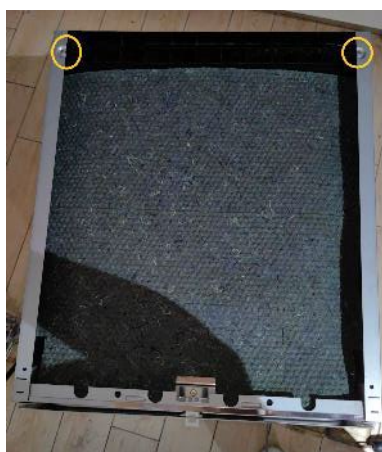
Replacement of Door Hinge

Replacement of Door Hinge	Applicable models	EN
	General	
Necessary tools	1、 4、 5、 8	

 	1. Remove the top plate, only for freestanding dishwashers, if it is embedded dishwashers, proceed directly to the next step. Tool: Phillips screwdriver (H6 or ϕ 6) 1.1 Use a screwdriver to remove the two screws on the top plate;  1.2 Push back the top plate in the direction of the arrow to remove the top plate.
	2. Remove screws from the side panels Note: If only one side of the hinge needs to be replaced, only the required side panel needs to be removed. Tool: Phillips screwdriver (H6 or ϕ 6) 2.1 Take out the dishwasher basket; 2.2 Remove the screws between the side panel and the inner door; 

Replacement of Door Hinge

Replacement of Door Hinge	Applicable models	EN
	General	
Necessary tools	1、 4、 5、 8	



2.3 Remove the screws between the side panels and baseboards;



2.4 Remove the top screw from the side panel;



2.5 Remove screws from back of side panel;

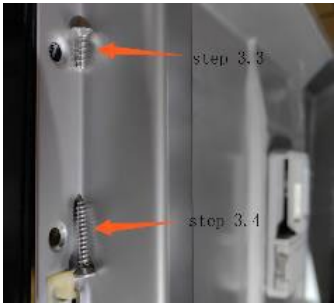
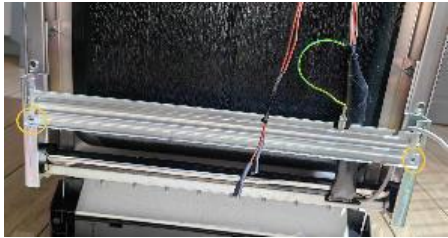


2.6 Remove the side panel with a few slight shakes in the direction shown.

Note: Please wear gloves to prevent cuts.

Replacement of Door Hinge

Replacement of Door Hinge	Applicable models	EN
	General	
Necessary tools	1、 4、 5、 8	

3.1  3.3  3.4 	3. Remove the outer door assembly Tool: Star hexagonal screwdriver (T15) 3.1 Remove the screws from the outer door; 3.2 Note: The outer door will fall and need to be supported by hand. Remove the outer door after removing the screws.  3.3 Remove control panel screws;   3.4 Remove door lock screws Note: The control panel will fall, need to be supported, put the control panel to avoid scratching. 
	4. Remove the screws from the hinge connecting plate Tool: Phillips screwdriver (H6 or $\phi 6$) 

Replacement of Door Hinge

Replacement of Door Hinge	Applicable models	EN
	General	
Necessary tools	1、 2、 5、 8	

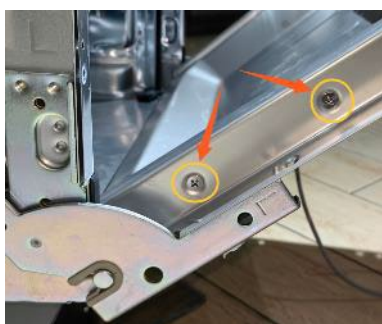


5. Remove the door pull rope

Tools: Pliers

Use pliers to hold the door pull rope and remove it from the buckle of the hinge.

Note: The door assembly may fall after removing the door drawstring.



6. Remove the screws from the door hinge and the inner door

Tool: Phillips screwdriver (H6 or ϕ 6)

Note: After removing the screw, the inner door assembly may become loose. Hold it with your hand.



7. Remove door hinges

Tool: Pliers

7.1 Use pliers to clamp the door hinge clamp ring, as shown in the arrow position on the left;

7.2 While clamping the clamp ring, shake and pull the door hinge in the direction of the arrow on the left until the door hinge is removed.

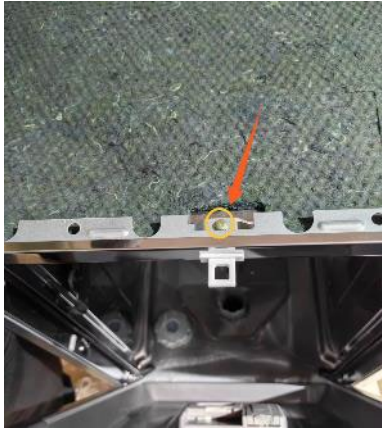
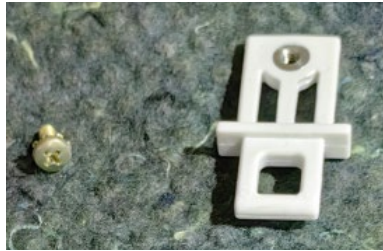
Note: Please wear gloves to prevent cuts.

Replacement of Door Hinge

Replacement of Door Hinge	Applicable models	EN
	General	
Necessary tools	1、 2、 5、 8	
	8. Install new door hinges If the new door hinge does not have a clamp ring, it is OK to insert the door hinge on the clamp ring in the left direction. If the new door hinge has a clamp on it, you need to remove the old clamp ring with pliers, and then clamp the door hinge in place as shown on the left.	
	9.1 Reinstall the component by following the preceding steps. 9.2 Check if the reverse sliding door hinge is installed properly. Note: Be careful not to use the wrong screw.	

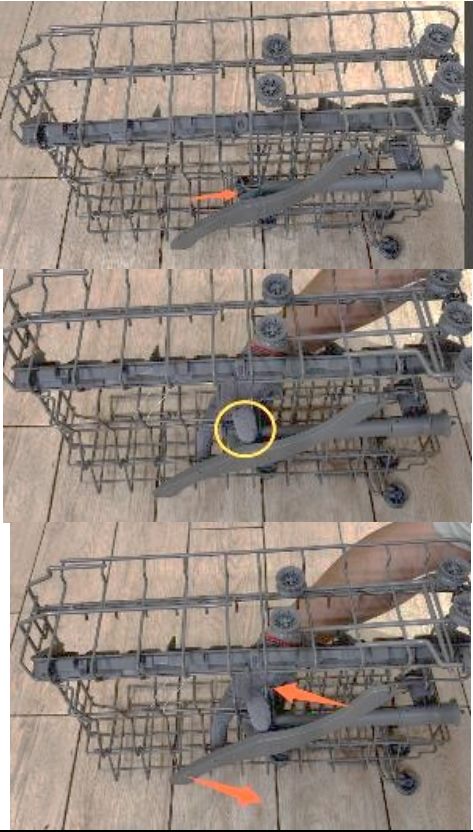
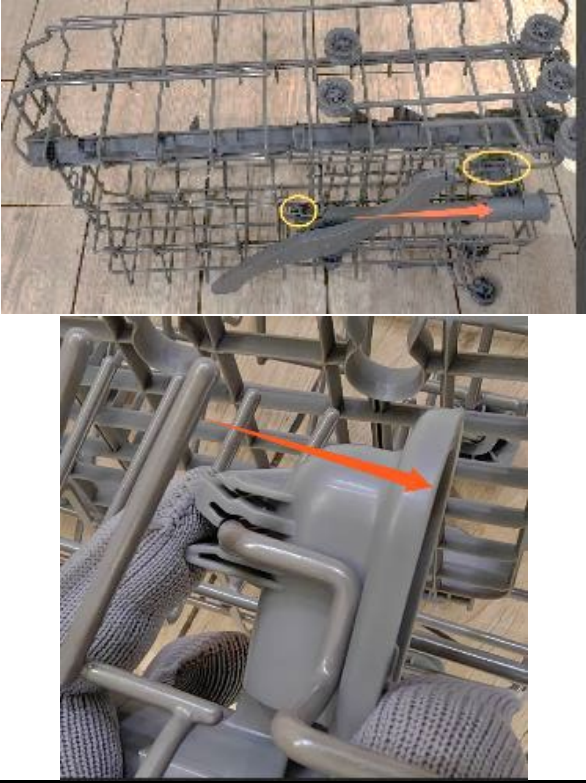
Replacement of Door Lock Hook

Replacement of Door Lock Hook	Applicable models	EN
	General	
Necessary tools	1、 5、 8	

	1. If the dishwasher is a free-standing dishwasher Remove the top plate by referring to steps 1.1 and 1.2 of the Replacement of Door Hinge. If the dishwasher is built-in, proceed directly to the next step.
	2. Remove the lock latch Tool: Star hexagonal screwdriver (T15) Use a screwdriver to remove the screws from the door lock latch.  Note: Please wear gloves to prevent cuts.
	3.1 After replacing the new lock latch, assemble the parts back by following the disassembly procedure. 3.2 Pay attention to checking if it is installed properly.

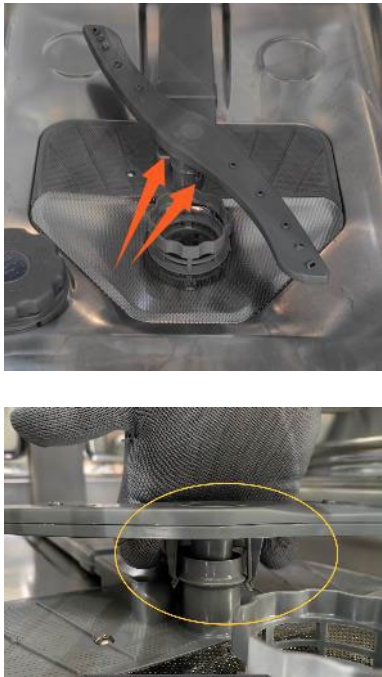
Replacement of Spray Arms

Replacement of Spray Arms	Applicable models	EN
	General	
Necessary tools	8	

	1. Replace the upper spray arm 1.1 Remove the upper bowl basket and pinch the position shown. 1.2 Turn the spray arm counterclockwise and remove the old spray arm. 1.3 After replacing the new spray arm, assemble it again according to the disassembly method.
	2. Replace the spray arm assembly of the upper bowl basket 2.1 Note that the buckle in the circle position in the left figure is the two fasteners fixed on the spray arm assembly, which can be removed in the direction of the arrow. 2.2 Remove the buckle on the right of the image in Step 2.1; Press the clip in the left direction to remove the pipe clip.

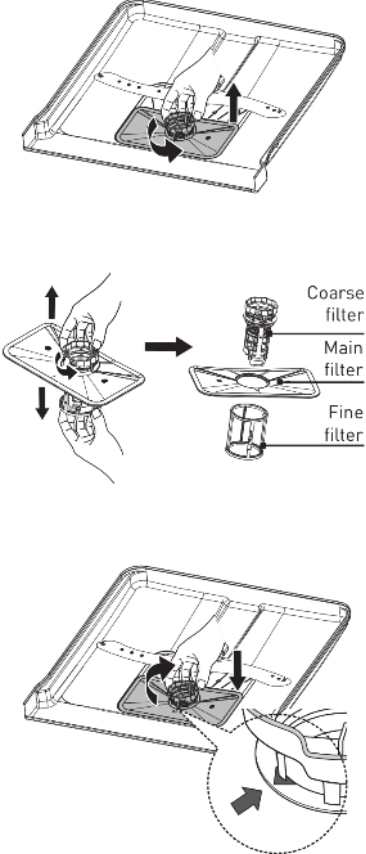
Replacement of Spray Arms

Replacement of Spray Arms	Applicable models	EN
	General	
Necessary tools	8	

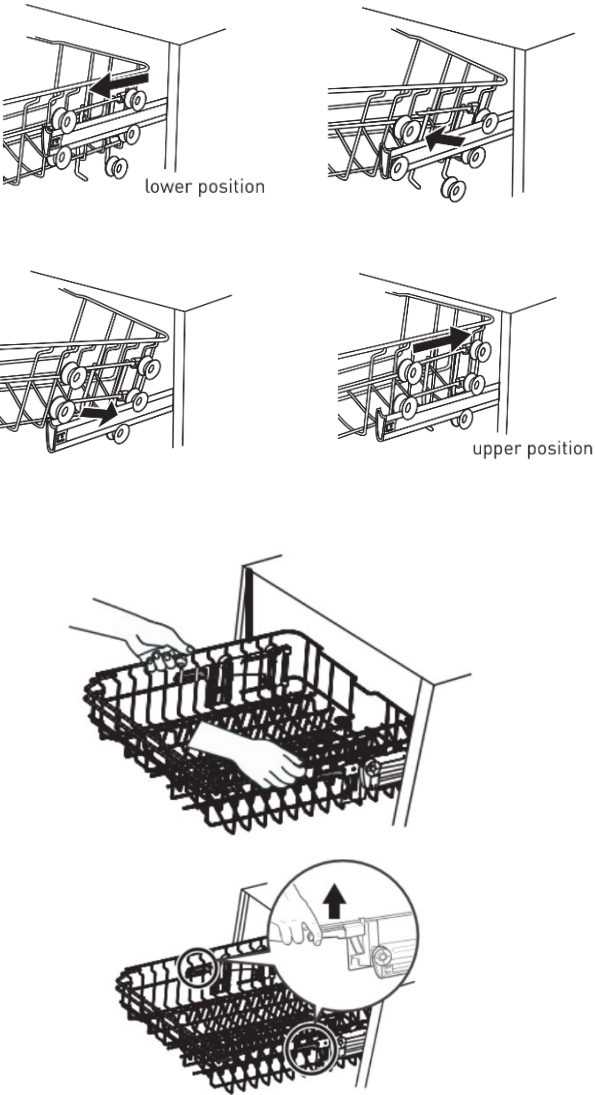
	2.3 Remove the buckle on one side of the spray arm Press the clasp with your hand in the direction shown. 2.4 Reassemble the components according to the procedure for removing them.
	3. Replace the lower spray arm 3.1 Pay attention to the buckle on both sides of the lower spray arm, extract the lower spray arm directly by hand, and remove the spray arm. 3.2 Install the lower spray arm according to the disassembly steps. 3.3 Pay attention to checking if it is installed properly.

Replacement of Drain Filters

Replacement of Drain Filters	Applicable models	EN
	General	
Necessary tools	8	

	1.1 Hold the coarse filter and rotate it anticlockwise to unlock the filter. Lift the filter upwards and out of the dishwasher. 1.2 The fine filter can be pulled off the bottom of the filter assembly. The coarse filter can be detached from the main filter by gently squeezing the tabs at the top and pulling it away. 1.3 Reassemble the filters in the reverse order of the disassembly, replace the filter insert, and rotate clockwise to the close arrow. 1.4 Pay attention to checking if it is installed properly.
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Replacement of Baskets	Applicable models	EN
	General	
Necessary tools	8	

 lower position upper position	Adjusting the upper basket The height of the upper basket can be easily adjusted to accommodate taller dishes in either the upper or lower basket. To adjust the height of the upper rack, follow these steps: Option 1: 1.1 Pull out the upper basket. 1.2 Remove the upper basket. 1.3 Re-attach the upper basket to upper or lower rollers. 1.4 Push in the upper basket. Option 2: 2.1 To lift the top basket, simply lift the top basket in the center on each side until it is fixed to the B top position. There is no need to raise the adjustment handle. 2.2 To lower the top basket, raise the adjustment handles on each side to release the basket and lower it to the lower position.
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Additional Support	Applicable models	EN
	General	

The following parts are available for the customer to undertake repairs at their own risk.
Please carefully follow the guidance given in this manual including all safety measures.

- tank seal
- Door Hinge
- Door lock hook
- Spray arms
- Drain filters
- baskets

All repairs in this manual can be achieved using commonly available tools.

If you are in any doubt of your ability to carry out a repair, please use a professional service, also available through the support service.

Damage sustained to the appliance or future faults arising from poorly carried out repairs will not be covered under warranty.

Maintenance Guidelines

(With electrical components)

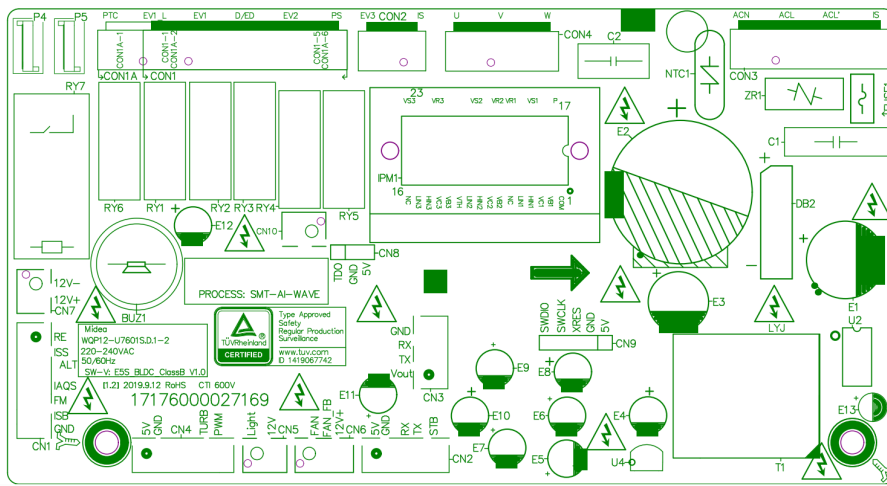
Note: Pay attention to power-off maintenance and wear safety gloves when working.

Main PCB Maintenance	Applicable models	EN
	General	

PCB Function:

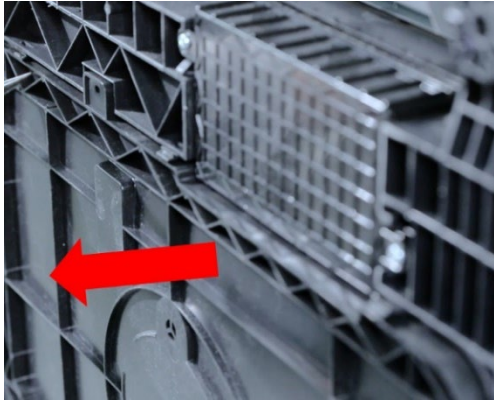
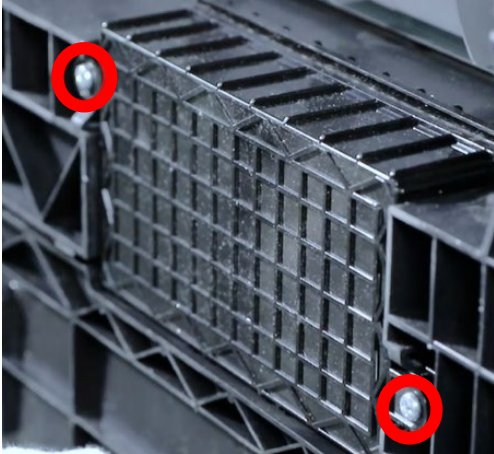
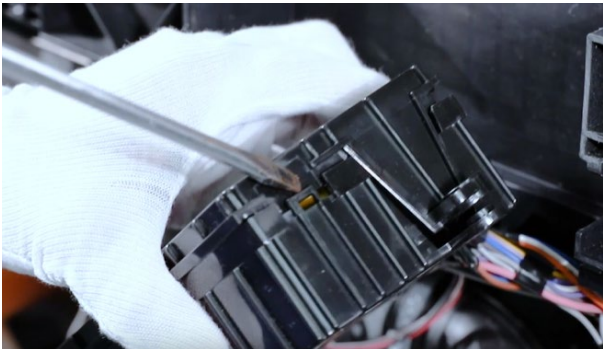
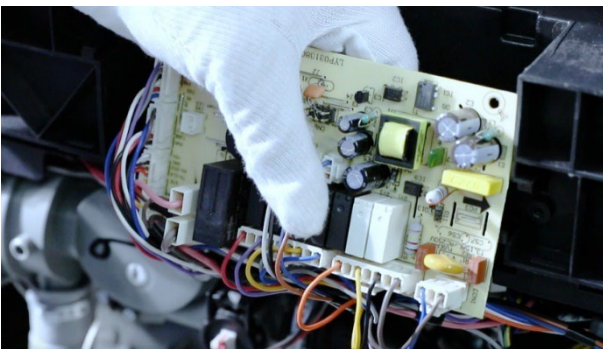
Printed Circuit Board is the control center of dishwasher, which receive and process signal from components, send order to components and deal with the feedback information, etc.

View of PCB (This map is applied to 7601 model)



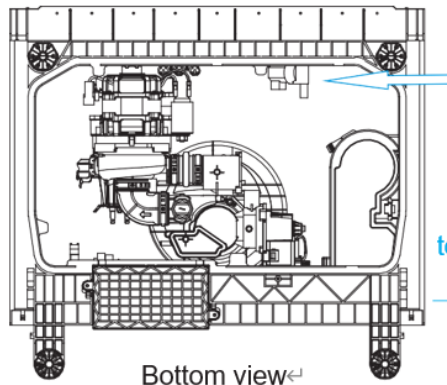
There is small pole's location difference between different models. But the marks on PCB have the same meaning described on the left side.

NO.	Mark	Function
1	ML	Washing Pump
2	PS	Drain Pump
3	EV1	Inlet Valve
4	P01/P02	Heating Element
5	EV2	Regeneration Valve of Softener
6	EV3	Diverter Valve
7	ML-L	Lower-speed Washing Pump
8	D/Ed	Dispenser
9	FAN	Fan
10	BUZ1	Buzzer
11	LIGHT	Top light
12	RE	Thermistor
13	IS	Door
14	IAQS	Overflow detect
16	ISB	Rinse detection
17	FM	Flowmeter
18	TURB	Turbidity detection
19	PTC	Auto open the door

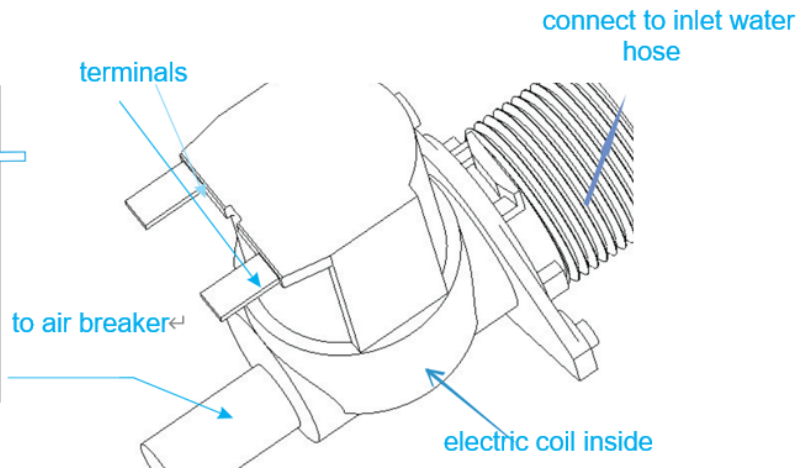
Main PCB Replacement	
Necessary tools	1、 2、 3、 4、 8
   	The PCB can be removed from the protecting box in the bottom of machine. 1.1 Disconnect power supply; 1.2 Take out cutlery basket and filter system; 1.3 Remove the screws for fixing protecting box and open the protecting box cap; 1.4 Remove the screws securing the PCB to protecting box; 1.5 Disconnect the connector form PCB; 1.6 Remove the PCB; 1.7 Reverse the above procedure to install. 1.8 Pay attention to checking if it is installed properly.

Inlet Valve Maintenance	Applicable models	EN
	General	

Location of Inlet valve:



Appearance:



The work 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 valve.

The inlet valve consists of electric coil, valve body, valve pole, filter etc. In a word, the electromagnetic valve can act to allow water enter to machine, when it receives the order given by controller.

Technical data:

Nominal voltage: 220-240VAC

Frequency: 50/60Hz

Resistance: Approx:3.4 – 4.4kΩ

Work duty: 100%ED T25, 3min/5min T60

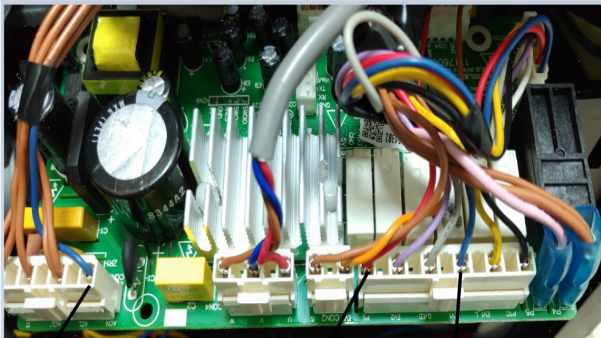
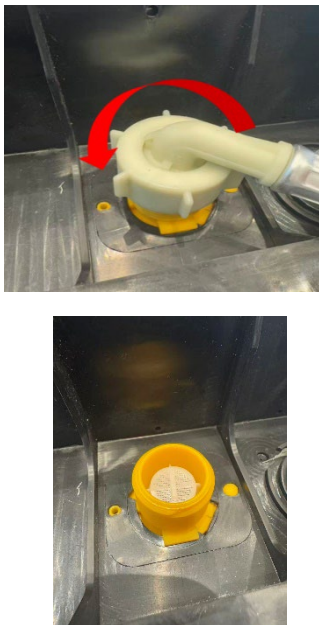
Flux: 2.5L/min, 15%

Power: 5W

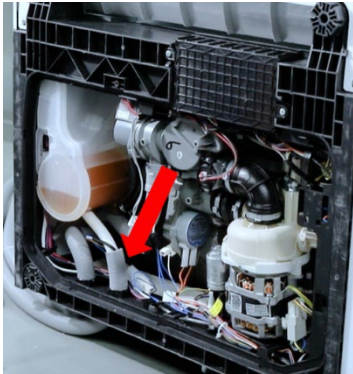
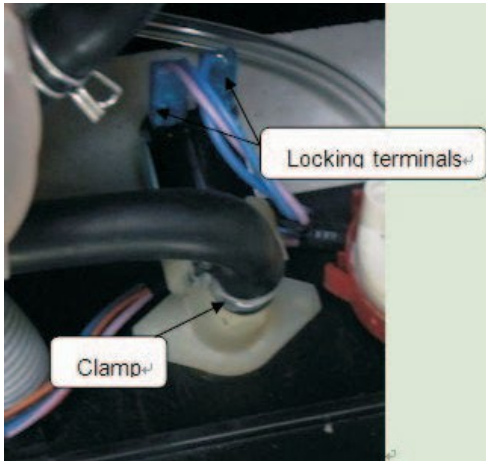
Work Pressure: Max working pressure:1MPa

The defeat point:

- 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.

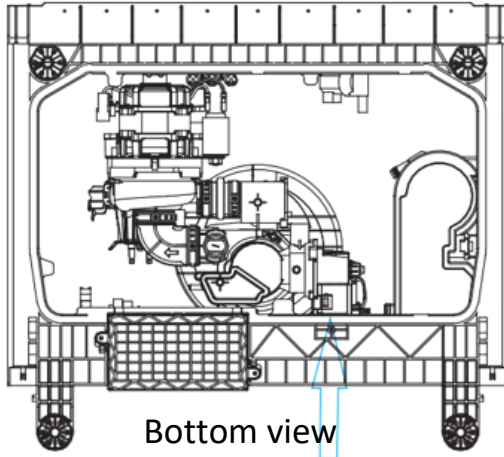
Inlet Valve Inspection	
Necessary tools	1、 2、 3、 4、 7、 8
 ACN PS EV1	Check electric part: 1.1 Open the protecting box and take out the PCB. 1.2 With the door closed, unplug the CON3 and ACN wires, then use the multi-meter shelf to measure resistance between the blue wire (EV1) and the blue wire (ACN), the normal resistance is about 3.4K to 4.4K. 1.3 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. 1.4 If the resistance is OK, we need to inspect the valve body.
	Check machine part: 2.1 If the electric part is OK, we need to check the machine part. 2.2 Check the valve filter. if the valve filter is blocked, we need clear the residues. 2.3 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. 2.4 If the water is continue entering, we need replace the valve.

Inlet Valve Replacement

Inlet Valve Replacement	
Necessary tools	1、 2、 3、 4、 8
	1.1 Disconnect power. 1.2 Remove the water inlet hose. (Note: Be careful of remain water drop.) 1.5 Remove the cover of the bottom board.
	2.1 Disconnect the 2 terminal lugs from the inlet valve. 2.2 Pull out the valve a little then rotate it to take it off. 2.3 Remove the clamp and disconnect the inlet hose (to air breather) from the water valve. 2.4 Reverse above procedures to install. 2.5 Pay attention to checking if it is installed properly.

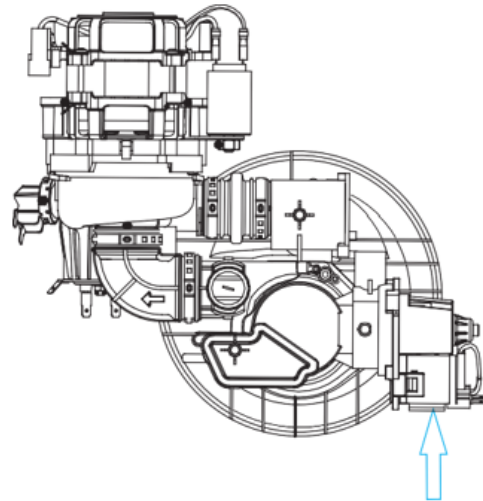
Drain Pump Maintenance	Applicable models	EN
	General	

Location of Drain pump:



Bottom view

Drain pump integrated into sump:



The work 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 consists of silicon steel stack and coil. When the drain pump is on power, the rotor will be very easy to start.

Technical data:

Nominal voltage: 220-240VAC

Frequency: 50Hz

Resistance: 235Ω 15Ω

Delivery height: 1M

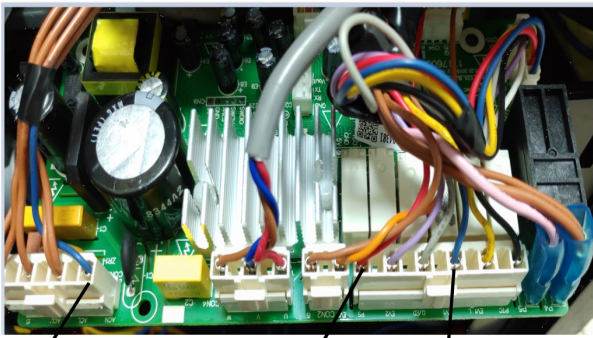
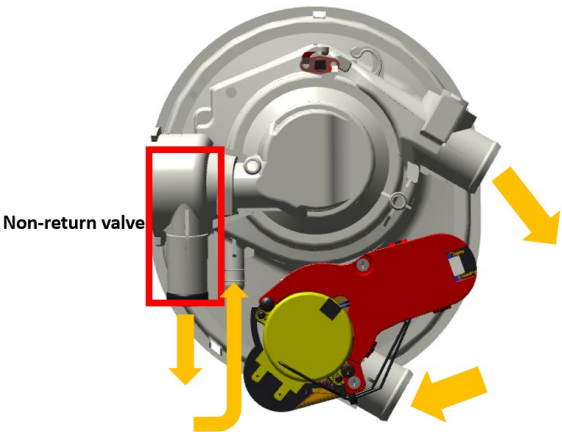
Delivery performance: $\geq 17\text{l/min}(230\text{VAC})$

The defeat point:

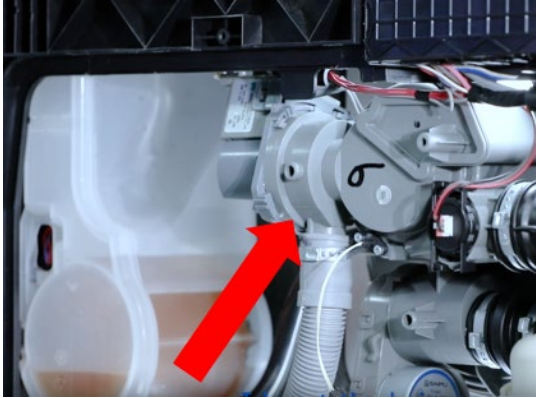
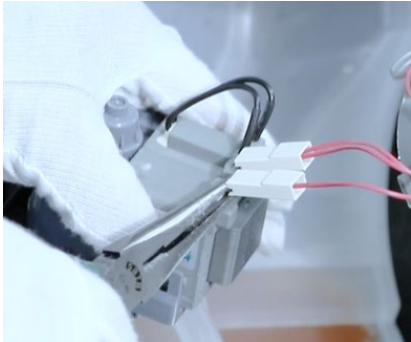
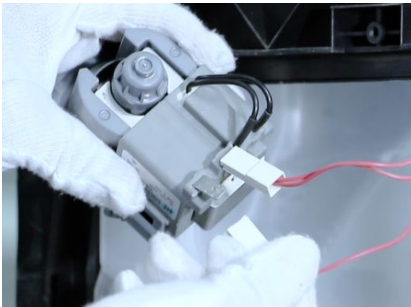
- 1.The motor coil is broken, so the drain pump can't work. It will cause the E1 error.
- 2.The magnetism of motor rotor is weak, so drain pump cannot work. It will cause the E1 error.
- 3.The connector is loose, so the drain pump can't work. It will cause the E1 error.
- 4.The rotor is locked by residues, so the drain can't work. It will cause the 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 if the water has not drained out, in next inflow process the pressure switch will act first to cut down the inlet valve, thus no water will get in and E1 error will occur.

Drain Pump Replacement

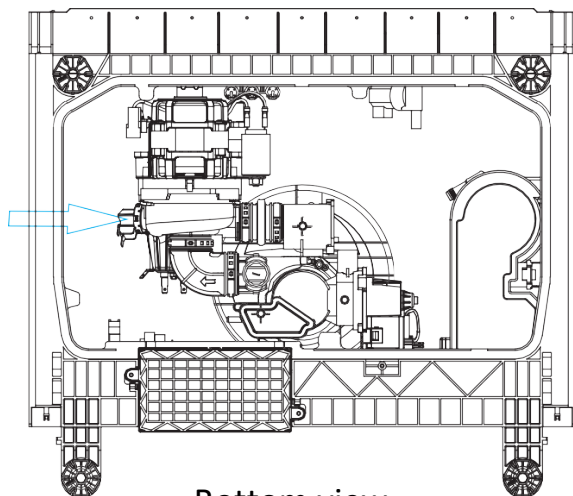
Drain Pump Inspection	
Necessary tools	1、 2、 3、 4、 7、 8
	Check electric part: 1.1 Open the protecting box and take out the PCB; 1.2 With the door closed, unplug the CON3 and ACN wires, then use the multi-meter Ω shelf to measure the red wire (PS) and blue wire (ACN), the normal resistance is about 220Ω to 250Ω. 1.3 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. 1.4 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.
	Check machine part: 2.1 If the electric part is OK, we need to check the machine part. 2.2 Remove bottom board. 2.3 If the non-return valve is wrongly assembled, the tub will remain much water. We need to re-assemble the non-return valve. 2.4 If the drain pump is working, but no water drains out or just a little. We should check the drain hose or drain body.

Drain Pump Replacement

Drain Pump Replacement	
Necessary tools	1、 2、 3、 4、 8
	1.1 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.) 1.2 Remove the cover of the bottom board. (Note: You should first loosen the top hooks, then the left and right hooks. And be care to do not break the hook.)
  	2.1 Contrarotating the drain pump to take it off. 2.2 Label and disconnect the two terminal lugs from the drain pump. And use pliers to pull it off. 2.3 Reverse the above procedure to install. 2.4 Pay attention to checking if it is installed properly. Note: Please wear gloves to prevent cuts.

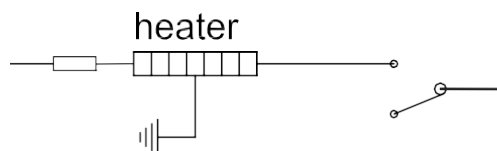
Heater Maintenance	Applicable models	EN
	General	

Location of Heater:



Bottom view

The work principle:



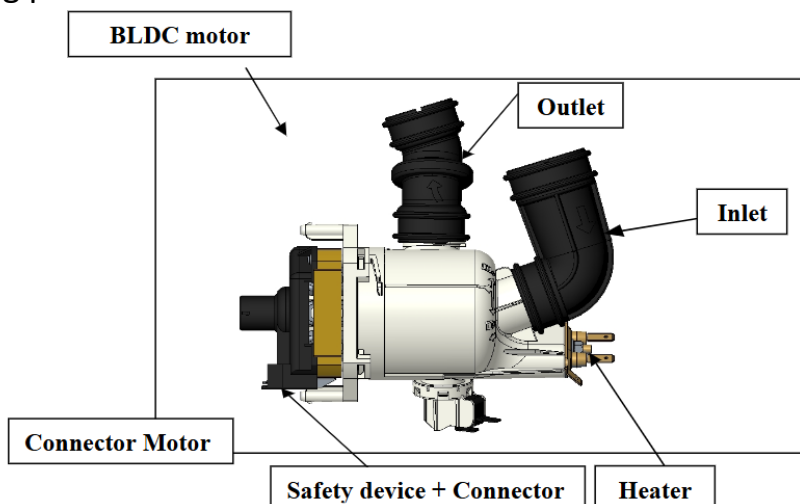
The temperature range of the water flowing through heater and pump in normal conditions during a washing cycle amounts to 0° C - 75° C. The max. ambient temperature is 65°C.

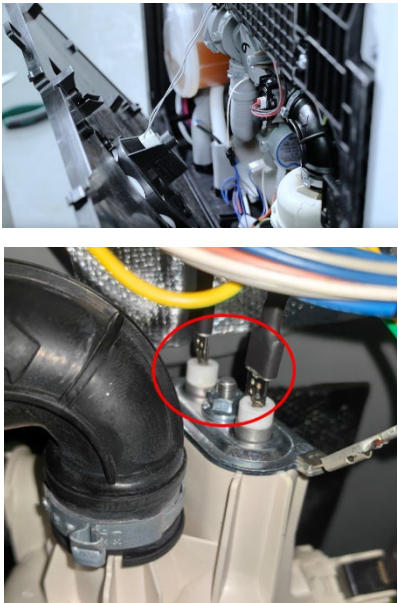
Basic version	Operating Voltage for Heater [V]	Power [W]
220V/240V	230 V, 1 N~ Tolerances: - 220V -6% (206,8V) - 230V +6% (243,8V)	2040W 1567W 2407W
Power range Covered by VDE approval	/	Up to 2150 W

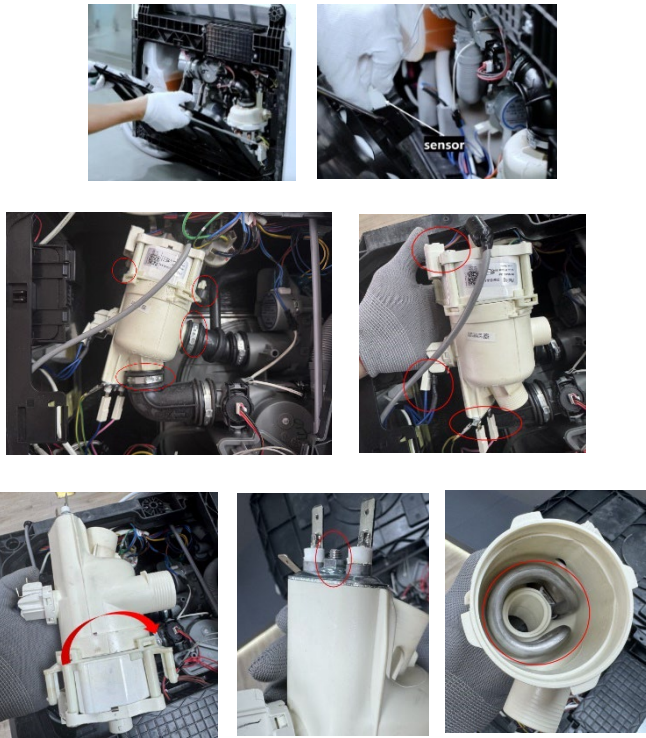
The defeat point:

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.

The following picture shows the unit:



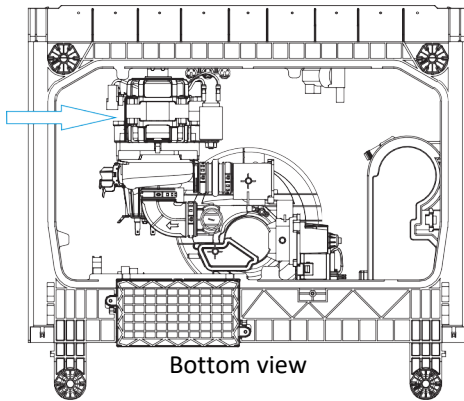
Heater Inspection	
Necessary tools	1、 2、 3、 6、 7、 8
	1.1 Drain off the water in the dishwasher, and disconnect the power supply. (Note: Make sure to remove remained water in the dishwasher.) 1.2 With the door closed, use the multi-meter Ω shelf to measure resistance between the two terminals, the resistance is about 27Ω to 30Ω. 1.3 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.

Heater Replacement	
Necessary tools	1、 2、 3、 4、 8
	1.1 Remove bottom board. Need to remove the sensor installed on the base plate. 1.3 Remove the 2 clamps for fixing the pump hoses. Then you can pull out the hose. Pull the motor out of the rubber mount. 1.4 Pull out all the wires connecting the washing pump and remove the washing pump. 1.5 Rotate and unscrew the washing pump, remove the heater and pump casing, unscrew the heater nut, remove the heater, and reinstall the new heater. Note: Please wear gloves to prevent cuts.
	2.1 To ensure sealing, the sealing ring must be replaced every time it is disassembled. 2.1.1 Remove the sealing ring; 2.1.2 Reinstall the new sealing ring. 2.1.3 Check if the sealing ring is fully inserted into the slot. 2.2 The clamp is easily damaged during removal and can't be reused. Must replace the old clamp. 2.3 Reinstall. After reinstallation, check for water leakage. (Pay attention to replacing the clamp with a new one) 2.4 Pay attention to checking if it is installed properly.

Washing Pump Maintenance

Washing Pump Maintenance	Applicable models	EN
	General	

Location of Washing pump:



The work principle:

Washing pump is a kind of asynchronism motor with capacitor. The stator consists of silicon steel stack and two coils, main and assistant coil.

Spray pump

The nominal working point of the pump is at 45 l/min at 310 mbar (total pressure difference outlet – inlet). At that point the optimum total efficiency is located.

Characteristic	Value
Working points: at nominal voltage 230V, 50Hz and max. temperature - total pressure differences between outlet and inlet	See 2.1
Optimum total efficiency (hydraulic power / electrical input power)	27 ± 1
Pump type	Centrifugal pump
Material of the pump housing: PP +30% GF	PP +30% GF
Water entrance	Axially into Impeller of the Pump
Water exit	Tangentially
Material of the Impeller	PP GF 30
Impeller type	Able to handle liquid with low and high soil level together with foam
Bonding between impeller and the Motor	Press fit
Sealing of the pump housing (heater side)	O-ring
Sealing of the pump housing (motor side)	O-ring

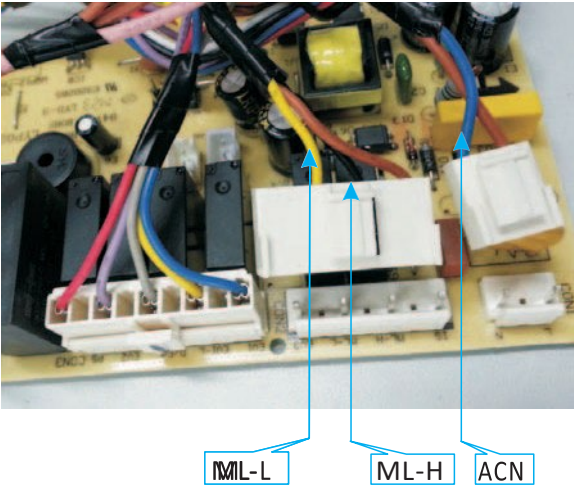
Error Analysis

Check the electric part

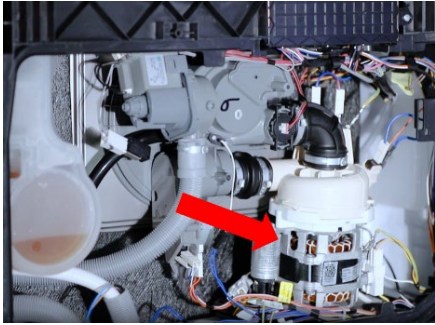
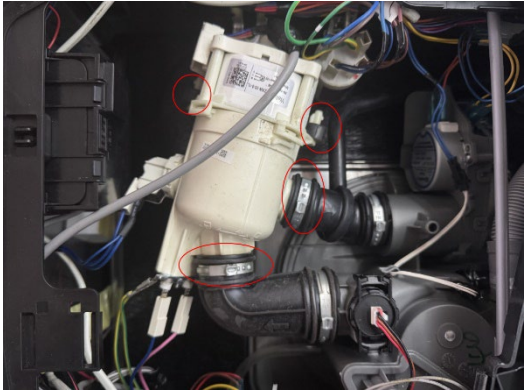
If the washing pump doesn't work well, EC would occur. When EC occurs, do as following.

1. Close the door. Hold down Program button for 5s, a certain code would appear on the screen and disappear when power is cut off. (If the error alarm has occurred, please press the Power button to restart and the certain code would display again)
2. If it appears to be "L1", it means the BLDC motor or PCB may have a failure, so replace the motor or PCB.
3. If it appears to be "L4", it means the BLDC motor may have a failure, so replace the motor.
4. If it appears to be "L2, L3, L5, L6", it means the PCB may have a failure, so replace the PCB.
5. If no error occurs, it will appear to be "L0".
6. If the machine hasn't been used for long time, there is a possibility the wash pump can't starting.

BLDC failure code	Meaning
L1	BLDC motor or PCB failure
L2	PCB failure
L3	PCB failure
L4	BLDC motor failure
L5	PCB failure
L6	PCB failure
L0	No failure

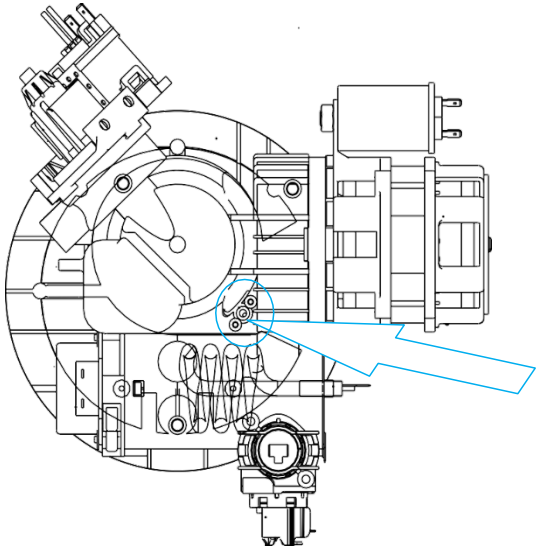
Washing Pump Inspection	
Necessary tools	1、 2、 3、 4、 7、 8
	Check the electric part: 1.1 Open the control panel and take out PCB; 1.2 With the door closed, unplug the CON1 and CON2, then use the multi-meter Ω shelf to test resistance between two wires (ML-H and ACN), the normal resistance is about 100Ω to 130Ω, and test resistance between two wires (ML-H and ML-L), the normal resistance is about 35Ω to 45Ω. 1.3 If any of the resistances 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. 1.4. If the resistance is OK but it cannot work, it maybe the capacitor weakly, we need to replace the capacitor.
	Check the machine part 2.1 If the electric part is OK, we need to check the machine part. 2.2 Remove bottom board. 2.3 Check the pump assembly, if the bracket is loose, it will bring the noise, we need to tighten it. 2.4 If the wash pump cannot start and the machine hasn't been used too long, maybe the seal element is bond. 2.5 If the drain pump is working, but no water out or just a little. We should check the vane wheel.

Washing Pump Maintenance

Washing Pump Replacement	
Necessary tools	1、 2、 3、 4、 8
	1.1 Disconnect power. 1.2 Remove bottom board.
  	2.1 Label and disconnect the terminals. 2.2 Remove the silicone sleeve that fixes the motor. (4 in total) 2.3 Rotate and remove the motor from the upper pump casing. 2.4 Remove the 1 screw foxing the impeller to the pump. 2.5 Remove the 2 screws foxing the lower pump to the motor. 2.6 Reverse above procedures to install. 2.7 Pay attention to checking if it is installed properly. Note: Please wear gloves to prevent cuts.

NTC Maintenance	Applicable models	EN
	General	

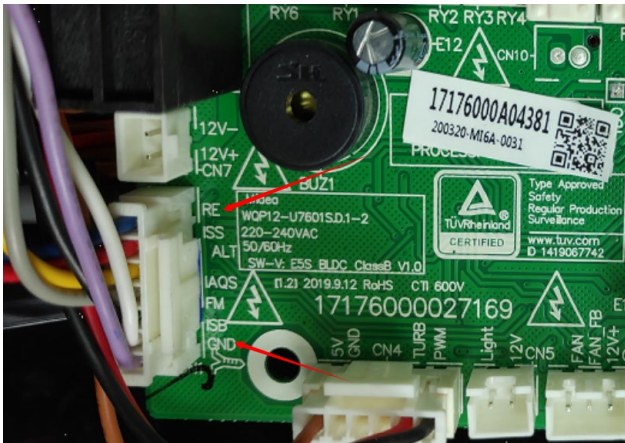
Location of NTC:

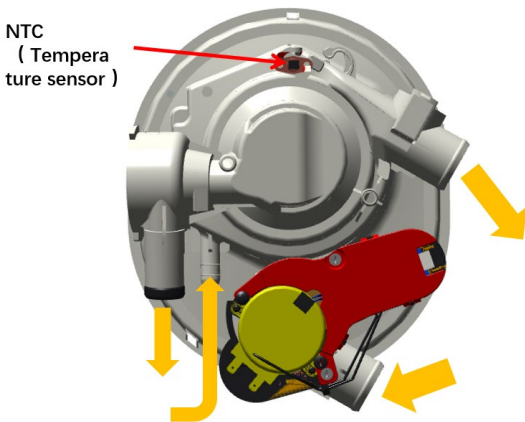


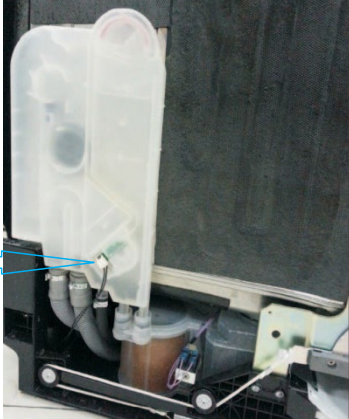
The work principle:

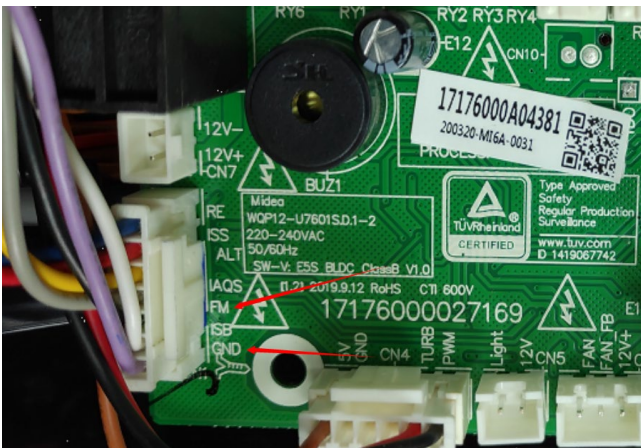
Negative Temperature Coefficient Thermistor is integrated into sump, which is used for measuring temperature of water in the tub.

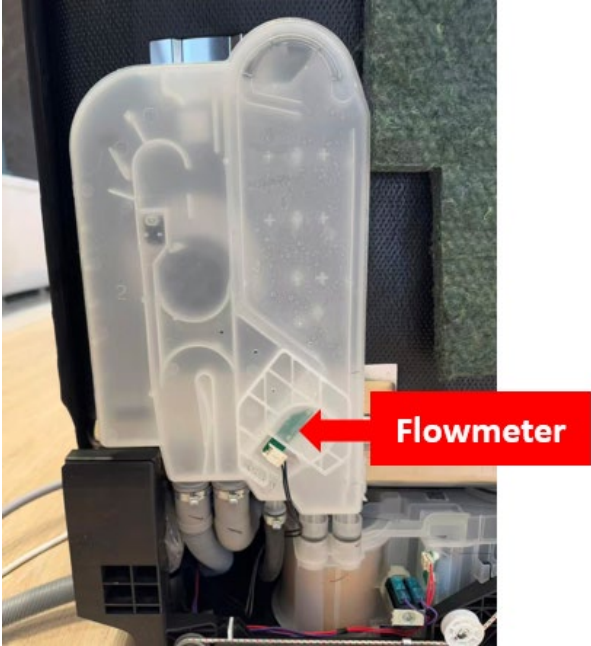
NTC	15°C	17.48KΩ
	20°C	12.12KΩ
	25°C	10KΩ
	30°C	8.299KΩ
	40°C	5.807KΩ
	50°C	4.144KΩ
	60°C	3.011KΩ
	70°C	2.224KΩ
	80°C	1.667KΩ
	85°C	1.451KΩ

NTC Inspection	
Necessary tools	1、 2、 3、 4、 7、 8
	1.1 Open the protecting box and take out PCB; 1.2 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. 1.3 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 Replacement	
Necessary tools	1、 2、 3、 4、 8
	1.1 Remove bottom board. 1.2 Remove two screws securing the NTC to sump (shown in above picture). 1.3 Take out NTC. 1.4 Reverse the above procedure to install. 1.5 Pay attention to checking if it is installed properly.

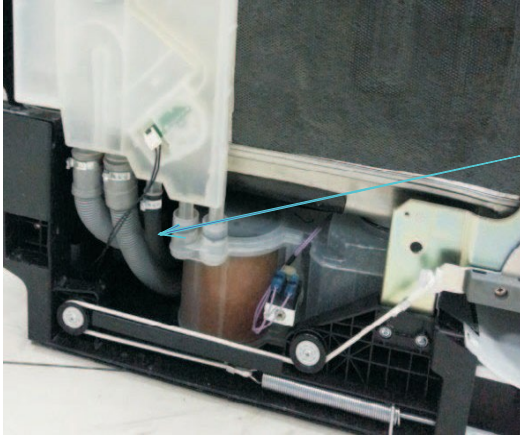
Flowmeter Maintenance	Applicable models	EN
	General	
Location of Flowmeter: 	The work principle: Flowmeter is integrated into Air Breather. Function of flowmeter is measuring how much water has entered in appliance. it consists of impeller, tongue tube and terminal, etc. When water pass through the flowmeter, moving water can rotate magnetic impeller, the tongue tube can sense the impeller's magnetic and send electronic pulses.	

Flowmeter Inspection	
Necessary tools	1、 2、 3、 4、 7、 8
	1.1 Open the protecting box and take out PCB. 1.2 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. 1.3 If there is continual electrical pulse, the multi-meter will send out sound “de” continually. 1.4 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 breather.

Flowmeter Replacement	
Necessary tools	1、 2、 3、 4、 8
	2.1 Remove the baseboard, top panel and left side panel. 2.3 Remove the plastic nut inside tub, which secures the air breather to tub. (Because flowmeter is integrated into air breather, replace air breather if flowmeter has failure.) 2.4 Disconnect the wire and remove clamp fastening hose to air breather. 2.5 Take out air breather. 2.6 Reverse the above procedure to install. 2.7 Pay attention to checking if it is installed properly. Note: Please wear gloves to prevent cuts.

Safety Hose Maintenance	Applicable models	EN
	General	

Location of Safety hose:



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

The work principle:

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



Two layers hose



Foaming material inside



electromagnetism valve inside



Two layers hose



Nut

Connecting to air breaker

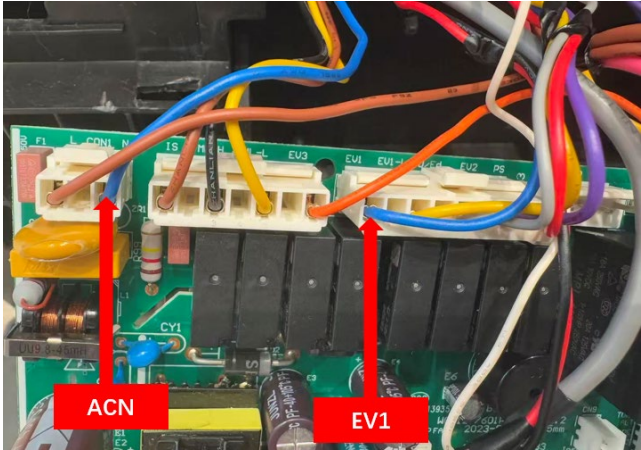


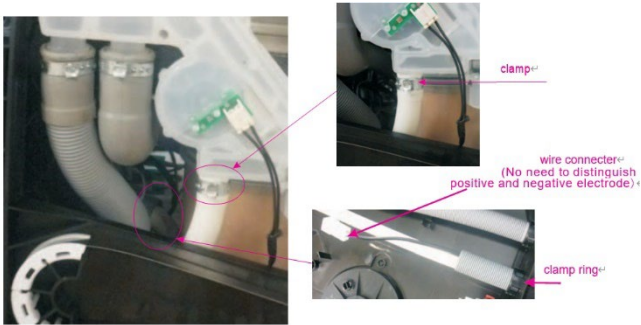
Mechanical Aqua-stop Hose

Electronic Aqua-stop Hose

Mechanical Aqua-stop 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.

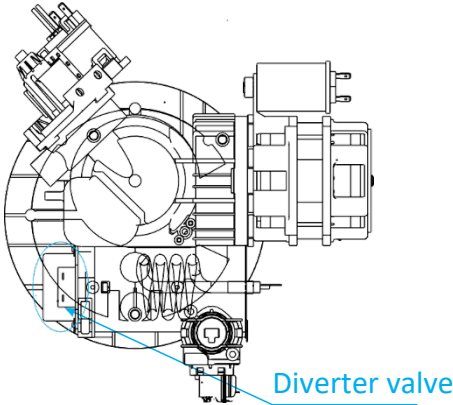
Electronic Aqua-stop safety hose also has two layers. But the difference from mechanical is that if the water leak and flow on the bottom tray, the flooding pressure switch on the tray will act, the electromagnetic valve on the hose will cut off the water road and the machine will set off E4 alarm.

Safety Hose Inspection	
Necessary tools	1、 2、 3、 4、 7、 8
	Electronic Aqua-stop Hose 1.1 Open the protecting box and take out the PCB; 1.2 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. 1.3 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.
/	Mechanical Aqua-stop Hose 2.1 Maybe moisture absorption of foaming material in mechanical device causes a self-lock fault (can't fill the water) and this lock is non-resettable.

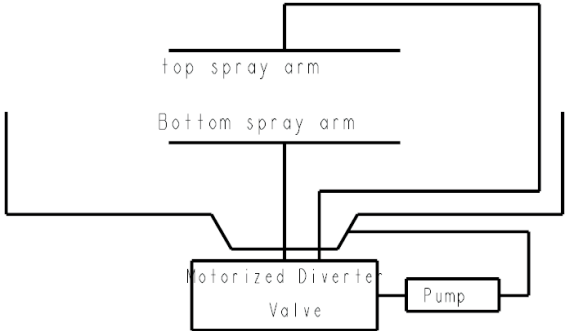
Safety Hose Replacement	
Necessary tools	1、 2、 3、 4、 8
	1.1 Remove baseboard, side baseboard, top panel and left side panel. 1.2 Remove clamp, cut the bound belts and disconnect the wire connector. Then the Inlet hose can be pulled out. 1.3 Reverse the above procedure to assemble.

Diverter Valve Maintenance	Applicable models	EN
	General	

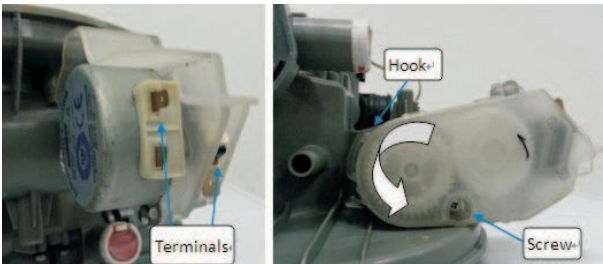
Location of Diverter valve:



Hydraulic scheme



The 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 equip with a half load feature.

Diverter Valve Replacement	
Necessary tools	1、 2、 3、 4、 8
	1.1 Disconnect power. 1.2 Remove bottom board. 1.3 Label and disconnect the 4 terminals. 1.4 Remove 1 screw fastening the diverter valve to sump. 1.5 Contrarotating the diverter valve to take it off. 1.6 Reverse the above procedure to install.

Test Program	Applicable models	EN									
	General										
In order to check the operation of components of appliance and find out the malfunction, we designed this program for technician.											
How to activate Test Program:											
1. Preparation: • Ensure the machine is powered off (unplug the power cord). • Reconnect the power and complete the following steps within 60 seconds. 2. Steps to Activate: • With the door open, hold Button A and press the POWER button until the machine enters the Test Program. All displays will light up and flash at 1Hz. • Close the door to start the Test Program. • During the program, press Button A to skip to the next step (except for the inlet valve step).											
Notes:											
• Button A varies by model: a. If available, Button A is the Start/Pause button. b. If no Start/Pause button exists, Button A is the Program button. c. If there are multiple Program buttons, Button A is the last one (from left to right or top to bottom). • Ensure the power is disconnected before starting the process.											
Procedure of Test Program											
<table><tr><td>No.</td><td>Process</td><td>Description</td></tr><tr><td>0</td><td>Initialization</td><td>Power on, stand by</td></tr><tr><td>1</td><td>Inlet Valve</td><td>Open inlet valve and feeds with 3.6L water (45cm model feeds with 3.0L water). If the model is equipped with diverter, the diverter would move to position rotating both upper and lower spray arms.</td></tr></table>			No.	Process	Description	0	Initialization	Power on, stand by	1	Inlet Valve	Open inlet valve and feeds with 3.6L water (45cm model feeds with 3.0L water). If the model is equipped with diverter, the diverter would move to position rotating both upper and lower spray arms.
No.	Process	Description									
0	Initialization	Power on, stand by									
1	Inlet Valve	Open inlet valve and feeds with 3.6L water (45cm model feeds with 3.0L water). If the model is equipped with diverter, the diverter would move to position rotating both upper and lower spray arms.									

2	Higher-speed Washing Pump and Heating Element	Run higher-speed washing pump and 10s later run heating element until the water temperature reaches 57°C. Then the machine will pause. Press Button A to jump into the next step.
3	Lower-speed Washing Pump and Dispenser	2s later run lower-speed washing pump for 8s, dispenser will act for 45s in this step.
4	Regeneration Valve	Open regeneration valve for 30s.
5	Drain Pump	Drain for 30s.
6	Finish	Buzz one sound, stop, and stand by.

Error Code	Applicable models	EN
	General	

How to know which error code has occurred

Numeric Display (Error code)	Description (EN)	Program LEDs (constantly flashes at 5 Hz, from right to left or from bottom to top, ○ indicates off, ● indicates on)			
		LED4	LED3	LED2	LED1
E1	Water Inlet fault	○	○	○	●
E3	Heating fault	○	○	●	●
E4	Overflow	○	●	○	○
E6	Thermistor open circuit	○	●	●	○
E7	Thermistor short circuit	○	●	●	●
Ed	Communication issue	●	●	○	●

Note:

- Numeric display: the code flashes at 1 Hz for 30 s, then stays solid.
- Number the four program LEDs 1–4 in order, reading right to left or bottom to top (LED 1 = rightmost/bottommost).
- If the model has a numeric display, show the code only; **if it has no display, indicate the fault code using the four program LEDs.**
- E6, E7 are reported only during the test mode.
- If the model has no Program LEDs, use the cycle-stage LEDs to indicate the fault.

For example, when the program sequence of a model is as shown in the table below. When E7 alarm occurs, the buzzer would alarm for 30 seconds and the **Glass(LED3)**, **90min(LED2)** and **Rapid (LED1)** indicators would flash simultaneously.

Error Code	ECO	Glass	90 min	Rapid
	ECO			
E1/Water filling exceed pre-set time	○	○	○	●
E3/Heating exceed pre-set time	○	○	●	●
E4/Overflow	○	●	○	○
E6/Open-circuit failure of thermistor	○	●	●	○
E7/Short-circuit failure of thermistor	○	●	●	●
Ed/Communication Failure	●	●	○	●

The error alarm information of other models without display screens can be read according to the corresponding logic of the four indicator light statuses and error codes.

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.

How does the appliance react When an error code occurs.

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.

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.

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.

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.

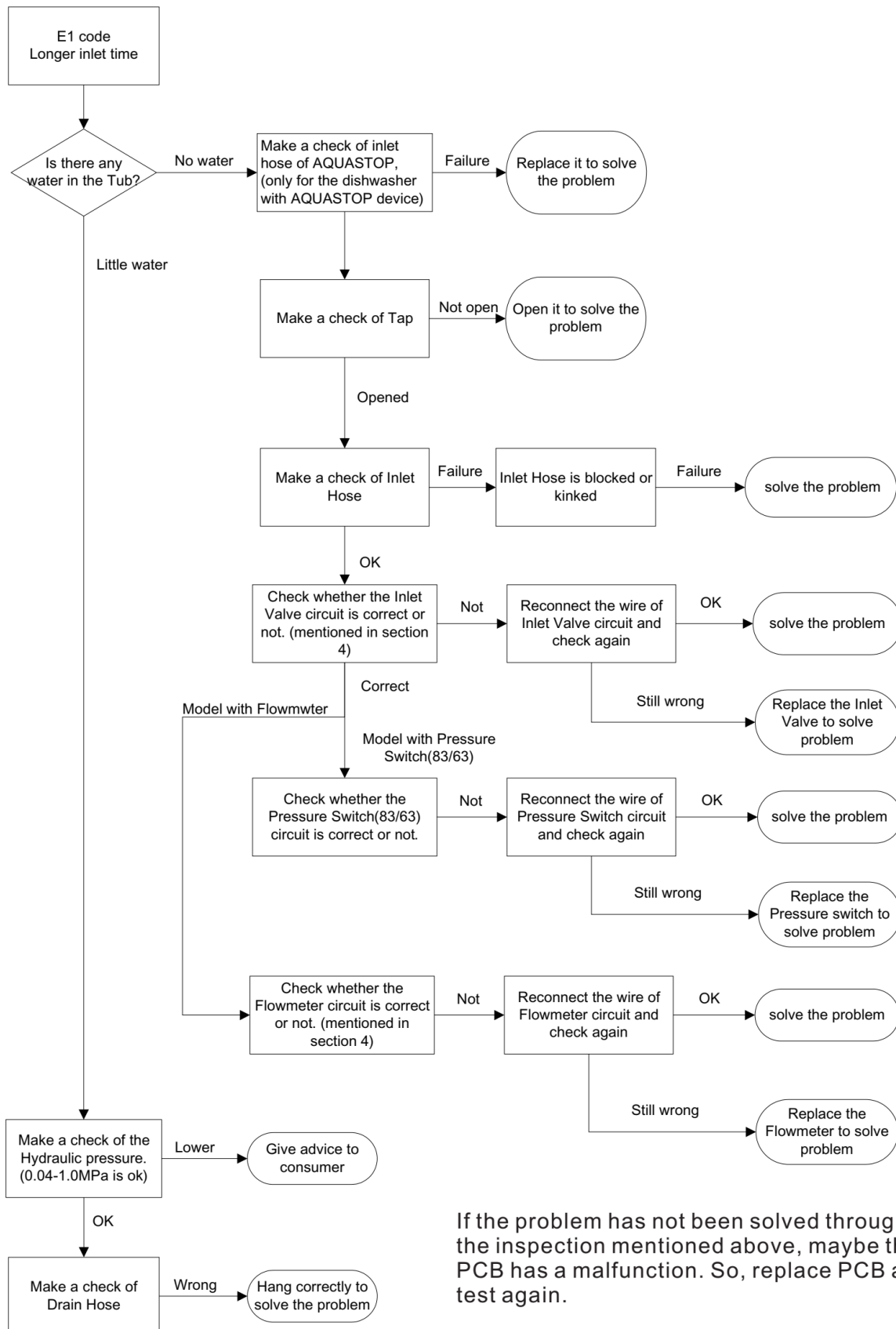
E7 Short-circuit failure of thermistor:

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.

Ed Communication failure:

If display board for 20 seconds communications data anomalies detected, the Ed would occur. Check the display board connections, reinsert the connecting line, and power on again.

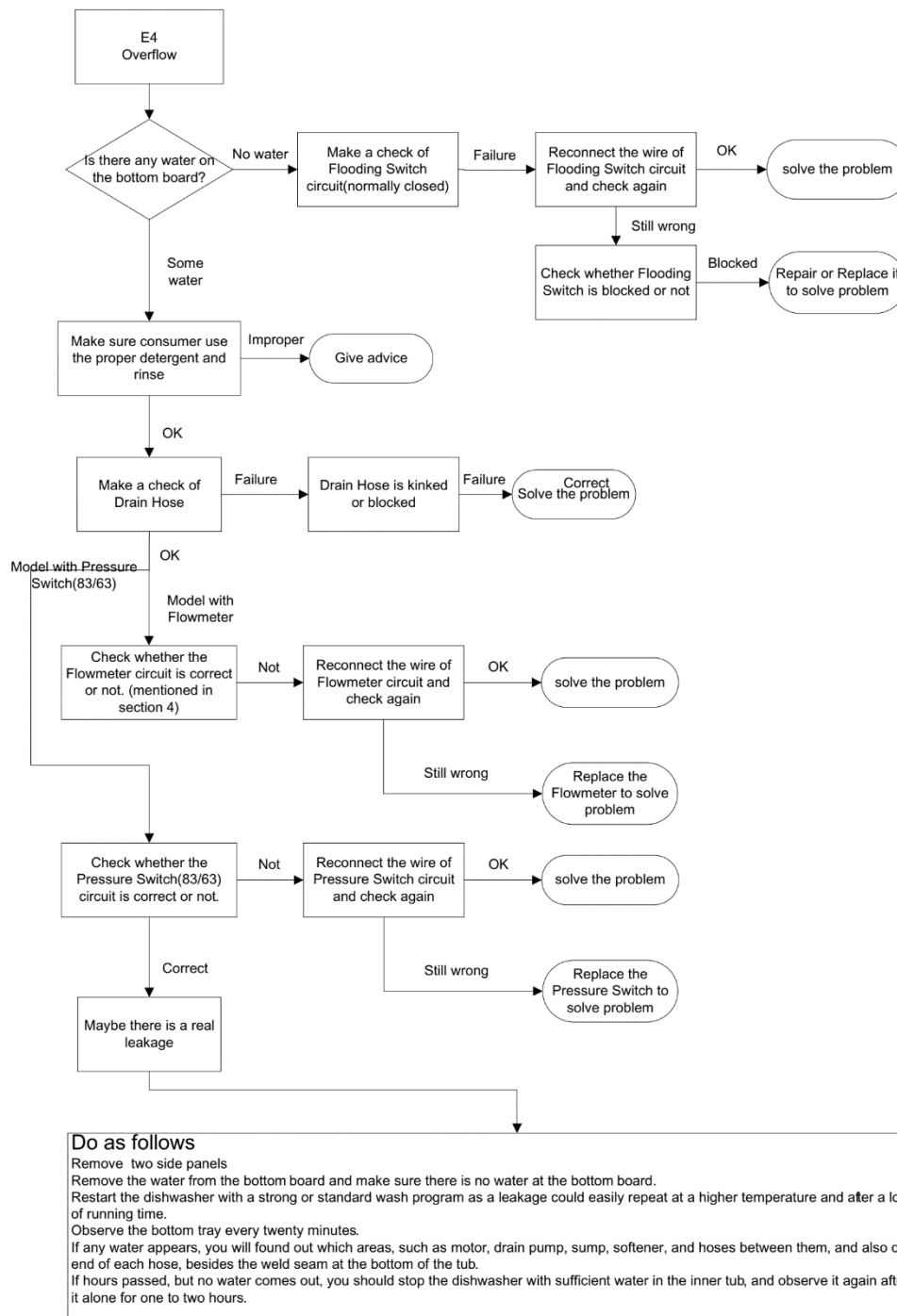
E1 tree



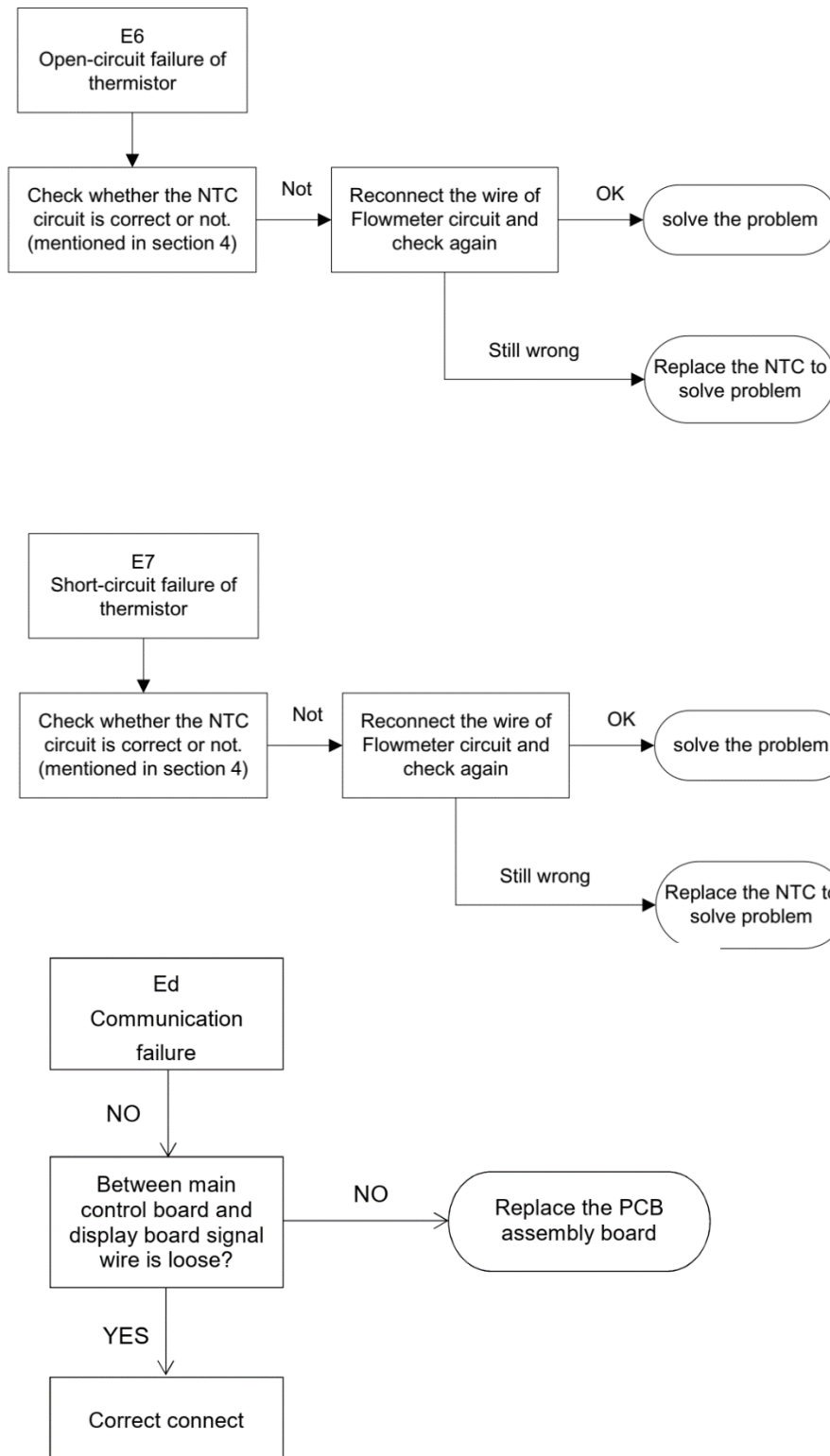
E3 tree



E4 tree



E6/E7/Ed 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.

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

E3 Troubleshooting

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. make sure the hydraulic pressure in the range from 0.04 to 1.0 Mpa.	clean the filter and give advice
	check the hydraulic pressure	low hydraulic pressure might cause the less filling water		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 casue 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 (aproximate 2 °C/min) is normal and the appliance pause when the water temperature reach 60 degreeee 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

E4/E6/E7 Troubleshooting

E4 overflow	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
	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.	replace the pressure switch(83/63)
	check the float microswitch	sticking float microswitch could cause the E4 alarm	for models controlling water filling by flowmeter, run test program and check whether the amount of filling water is	replace the flowmeter
	find where leakage is	if there is a real leakage, finding where leakage is and solving the problem would be	disassemble the bottom tray and check whether the float microswitch moves freely up and down	repair or replace the float microswitch
	check the NTC	if the appliance detect the malfunction of NTC thermistor, E6 or E7 would be set off	to find and solve problem, do as suggestion mentioned in service manual	repair or replace the defective component
	check the PCB	if the NTC thermistor is ok, but the alarm still be set off, the PCB might have defect	check the NTC circuit and measure the resistance of NTC thermistor	reconnect or replace the NTC thermistor
			change the PCB to see if the appliance is run normally	reconnect or replace PCB

Poor washing performance Troubleshooting

	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		
	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 performance	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 adapt 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
			make sure the appliance 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 hydraulic pressure in the range from 0.04 to	give advice
	check the water level	less water might cause the poor performance	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. measure temperature of water in tub continuously when test program is running to see whether temperature increasing (approximate 2 °C/min) is normal and the appliance pause when the water temperature reach 60 degree or not.	replace PCB
	check heater and NTC	malfunction of heater or NTC might cause E3 alarm		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 / Noise Troubleshooting

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
	check whether the noise is normal	some audible sound are normal	-	give advice
noise	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

END