



DI652

Caple 60cm Fully Integrated Dishwasher

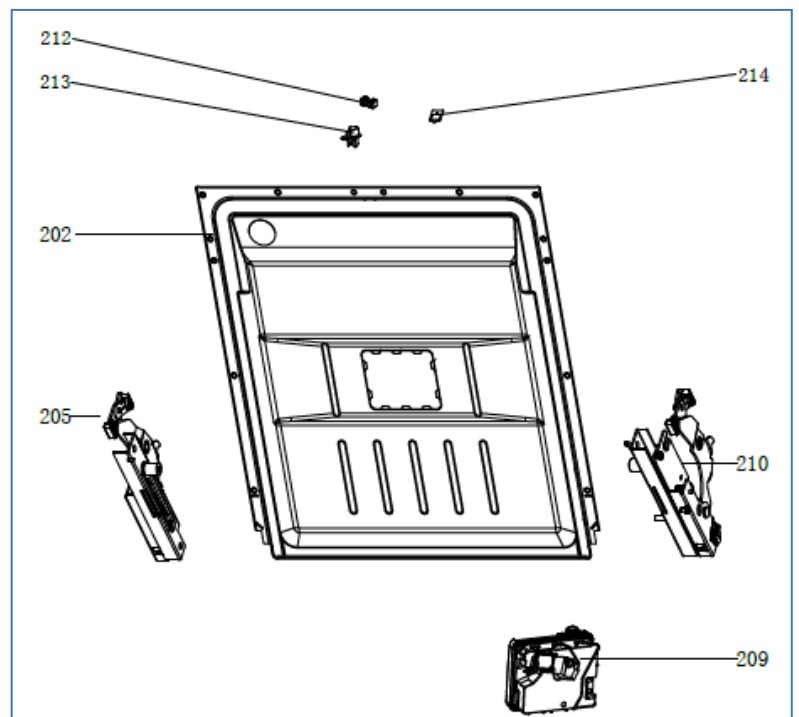
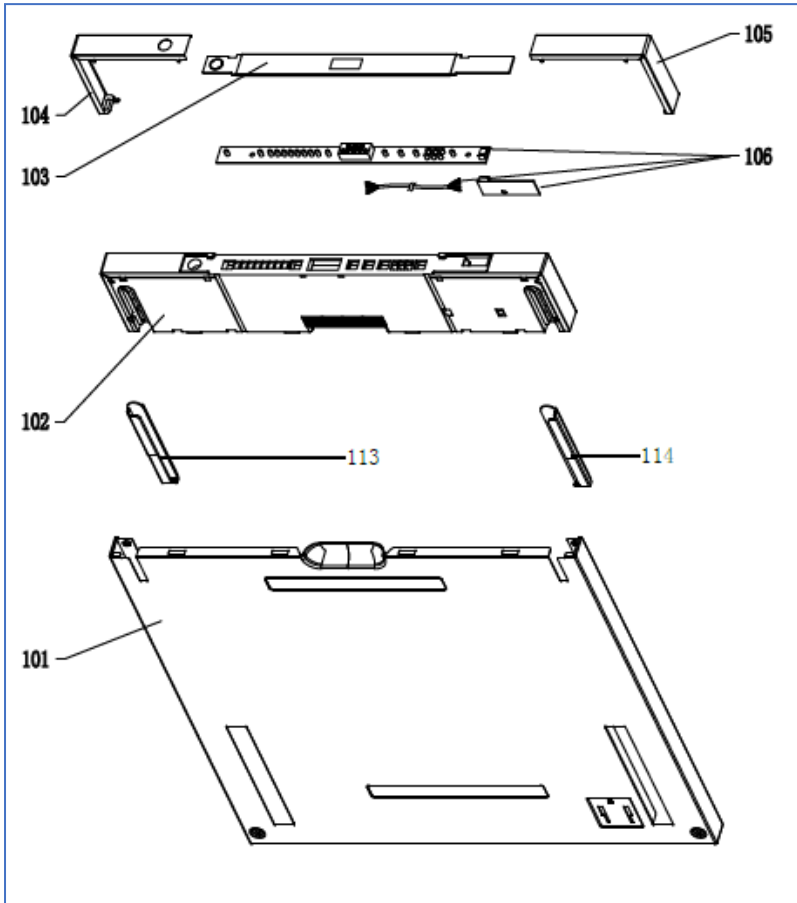


Technical Manual



DI652

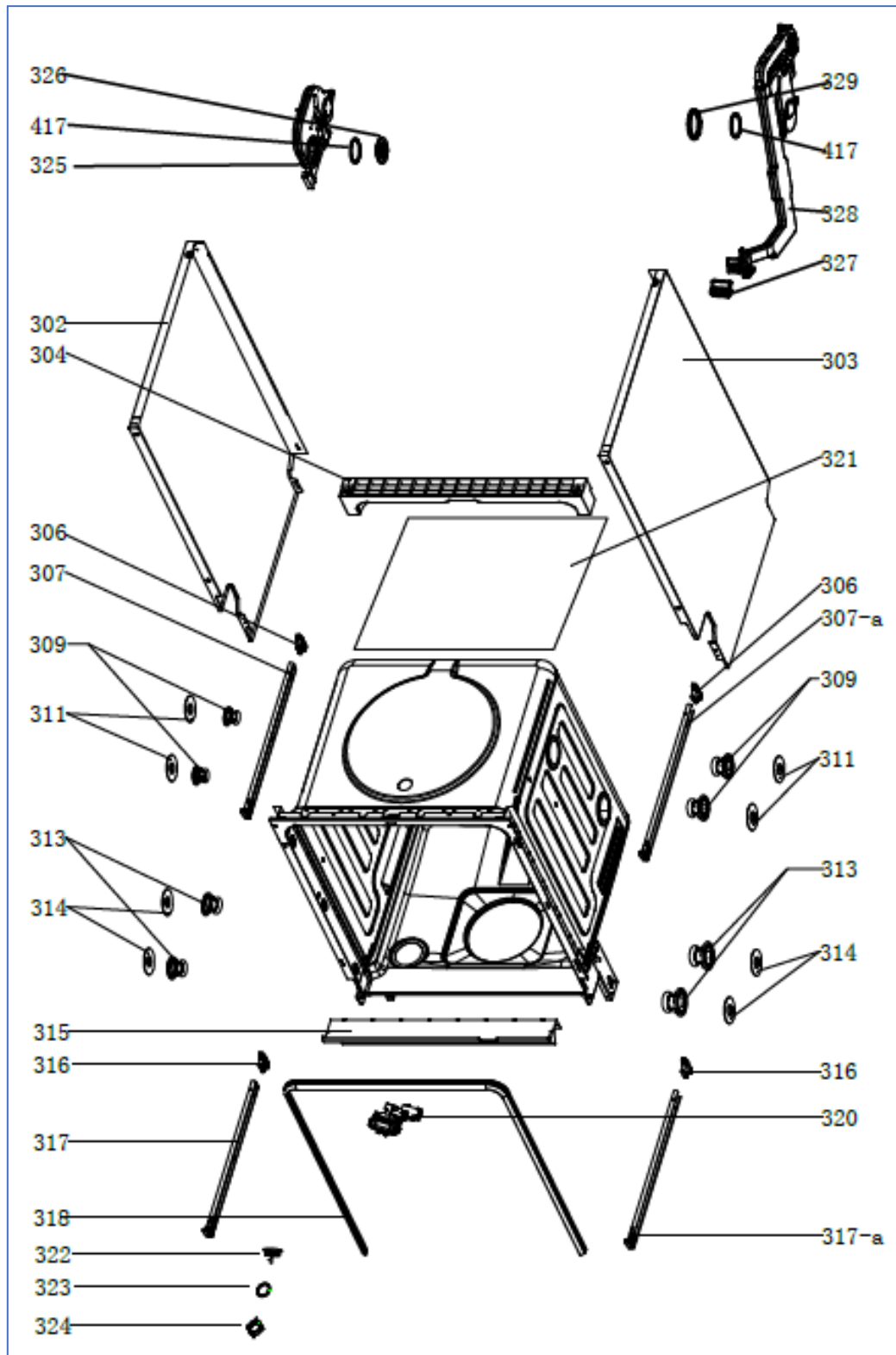
Caple 60cm Fully Integrated Dishwasher





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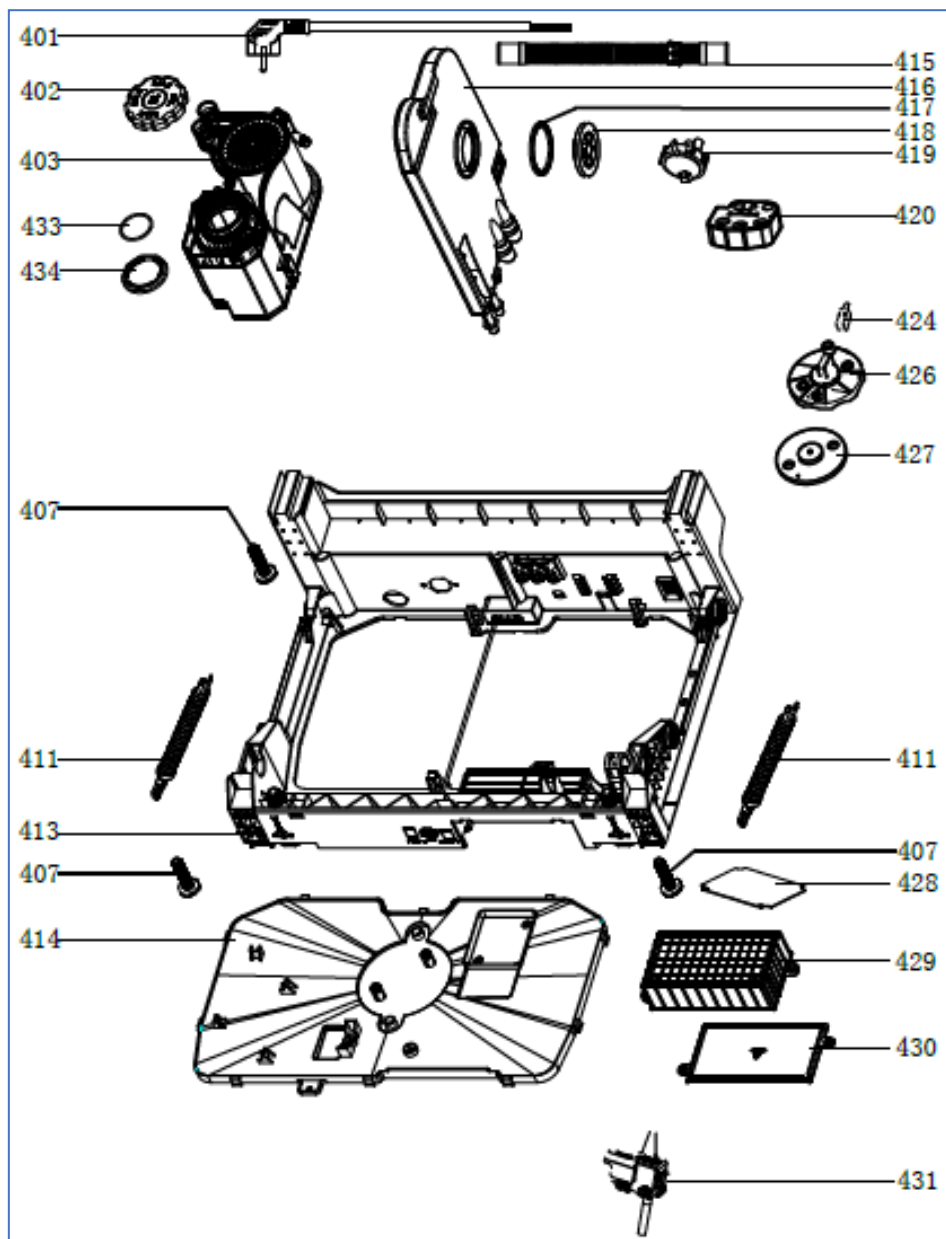
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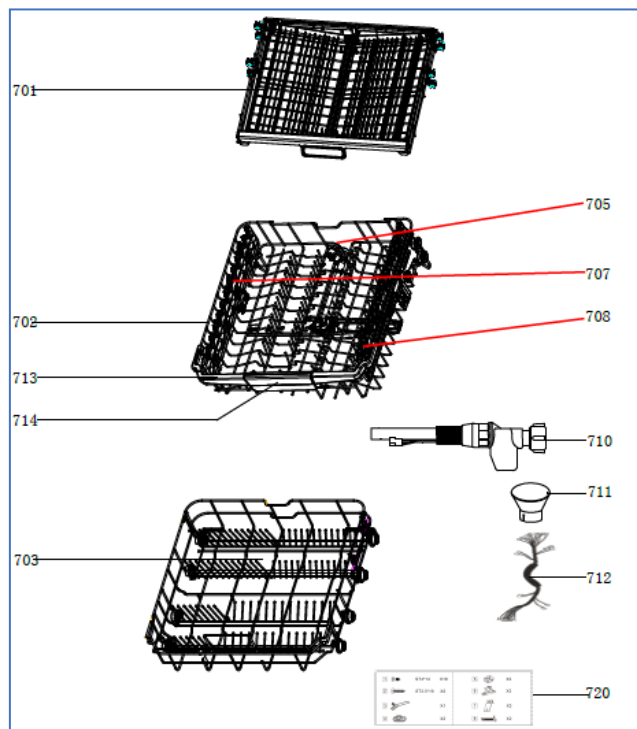
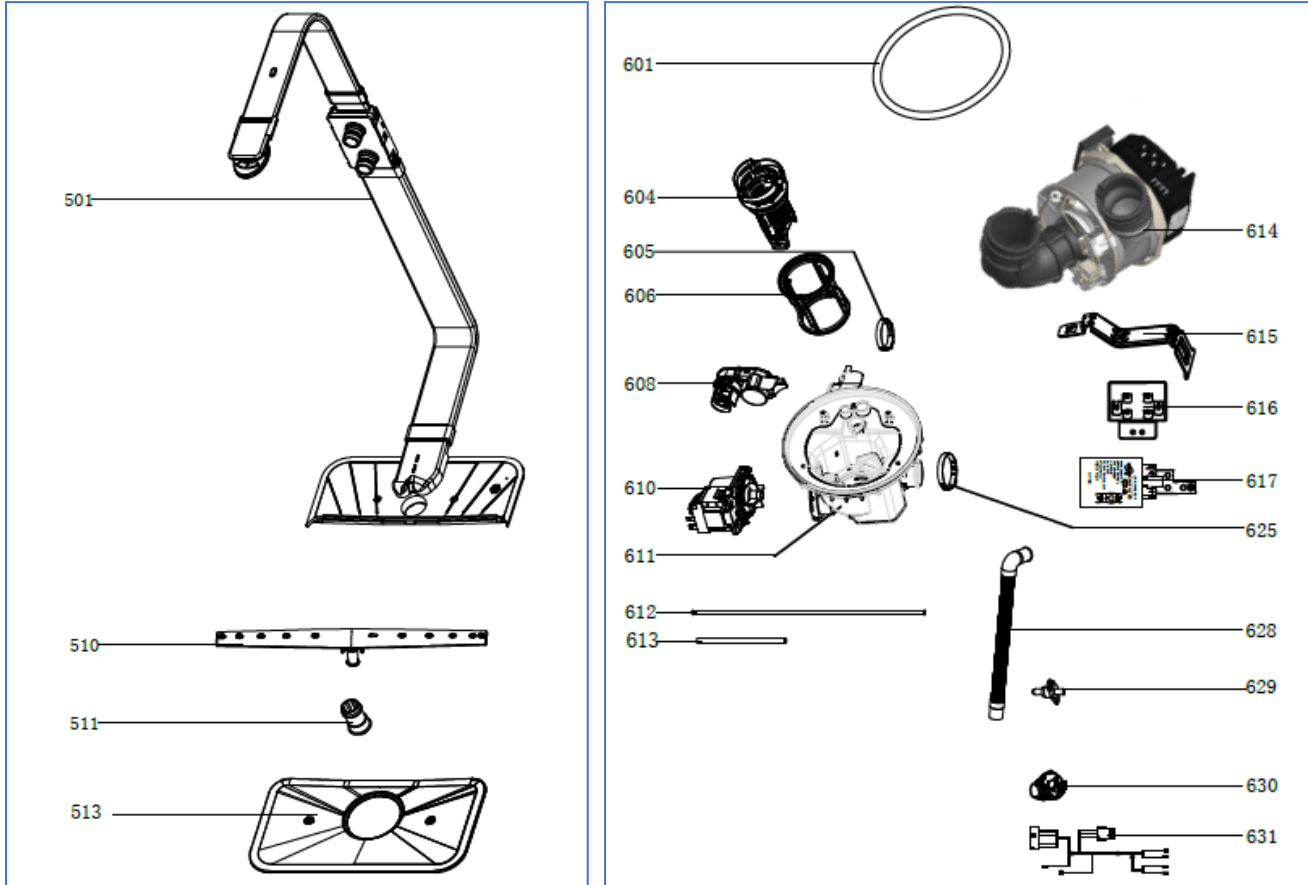
Caple 60cm Fully Integrated Dishwasher





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Caple 60cm Fully Integrated Dishwasher

Item	Part Number	Description	Quantity
101	12276000A20462	Outer door	1
102	12176000025451	Control Panel	1
103	12176000025470	Patch	1
104	12276000A24312	Control Panel Shell	1
105	12276000A25834	Control Panel Shell	1
106	17176000025491	Display panel	1
113	12176000A41112	Guide Rail Support	1
114	12176000A41113	Guide Rail Support	1
202	12276000A22088	Inner Door Assembly	1
205	12276000A20246	Left hinge	1
209	17476000008523	Dispenser	1
210	12276000014446	Right hinge	1
212	12176000008541	Lock Buckle Fixing Block	1
213	12176000009495	Door Lock Hook	1
214	12676000001038	Waterproof Silicone Pad	1
302	12276000001216	Left Side Panel Assembly	1
303	12276000000914	Right Side Plate	1
304	12176000003869	Upper Back Support	1
306	12176000008517	Stopper	2
307	12276000001341	Sword Fork Frame Guider(Left)	1
307-a	12276000001344	Sword Fork Frame Guider(Right)	1
309	12176000026010	Guide Rail Support	4
311	12176000008444	Support Block	4
313	12176000010412	Rail Support Assembly	4
314	12176000008573	Basket Guider Supporting Holder	4
315	12276000001819	Acoustic Panel	1
316	12176000008496	Stopper	2
317	12276000001357	Upper Basket Guider(Left)	1
317-a	12276000001360	Upper Basket Guider(Right)	1
318	12676000003821	Seal	1
320	17476000A03133	Door Switch Assembly	1
321	12176000021784	Absorbent Cotton	1
322	17476000001113	Indicator Lamp	1
323	12676000000745	Seal Ring	1
324	12176000009535	Nut	1
325	12176000014684	Gas Inlet Pipe Assembly	1
326	12176000009563	Fan Nut	1



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Item	Part Number	Description	Quantity
327	12176000008647	Connector	1
328	12176000014685	Vent Pipe Assembly	1
329	12176000009565	Exhaust Pipe Nut	1
401	17476000007542	Power Cord	1
402	12176000010640	Softener Cover Assembly	1
403	17476000001365	Softener	1
411	12976000A00761	Spring	2
413	12176000020605	Base Tray Assembly	1
414	12176000003085	Base Cover	1
415	12676000000138	Drain Pipe Assembly	1
416	12176000003906	Air Breather Assembly	1
417	12676000000713	Washers	3
418	12176000013663	Air Breather Nut	1
419	17476000007426	Pressure Switch	1
420	12676000001502	Wash Pump Holder	1
424	17476000001137	Micro switch	1
426	12176000003125	Switch Seat	1
427	12876000000050	Float	1
428	17176000A01842	Main control panel	1
429	12176000016897	PCB Box Cover	1
430	12176000016896	PCB Box	1
431	17476000001111	Indicator Lamp	1
433	12676000004982	Softener Gasket	1
434	12176000009513	Softener Nut	1
501	12176000009472	Inner Pipe Assembly	1
510	12176000029422	Lower Sprayer	1
511	12176000008645	Lower Sprayer Seat	1
513	12176000003689	Plane Filter	1
601	12676000001461	Seal Ring	1
604	12176000026949	Filter Handle	1
605	12976000004604	Clamp	2
606	12176000003676	Cylindrical Filter	1
608	17476000001269	Diverter	1
610	17476000007443	Induction Pump	1
611	12176000016227	Water Cup Assembly	1
612	12676000000687	Pressure Switch PVC Pipe	1
613	12676000001521	Outlet Pipe	1



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Item	Part Number	Description	Quantity
614	11001012000010	Brushless Dc Pump	1
615	12276000009065	Bracket	1
616	12276000010106	Bracket	1
617	11203602000295	Filter	1
625	12976000000308	Clamp	2
628	12676000000947	Drain Hose	1
629	17176000012008	Temperature Sensor	1
630	17176000000306	Sensor Assembly	1
631	17476000000382	Main Wire Harness	1
701	12176000A48620	Cutlery Assembly	1
702	12976000A02702	Upper Basket Assembly	1
703	12976000A01249	Lower Basket Assembly	1
705	12176000027953	Upper Sprayer Assembly	1
707	12176000A41459	Left Rack	1
708	12176000A41456	Right Rack	1
710	17476000007423	Inlet Hose Assembly	1
711	12176000010312	Salt Filler	1
712	17476000007563	Main Wire Harness	1
713	12176000A33010	Upper Basket Handle	1
714	12276000A15962	Basket Handle Logo	1
720	12976000A00861	Accessory Bag	1



DI652 Service Manual

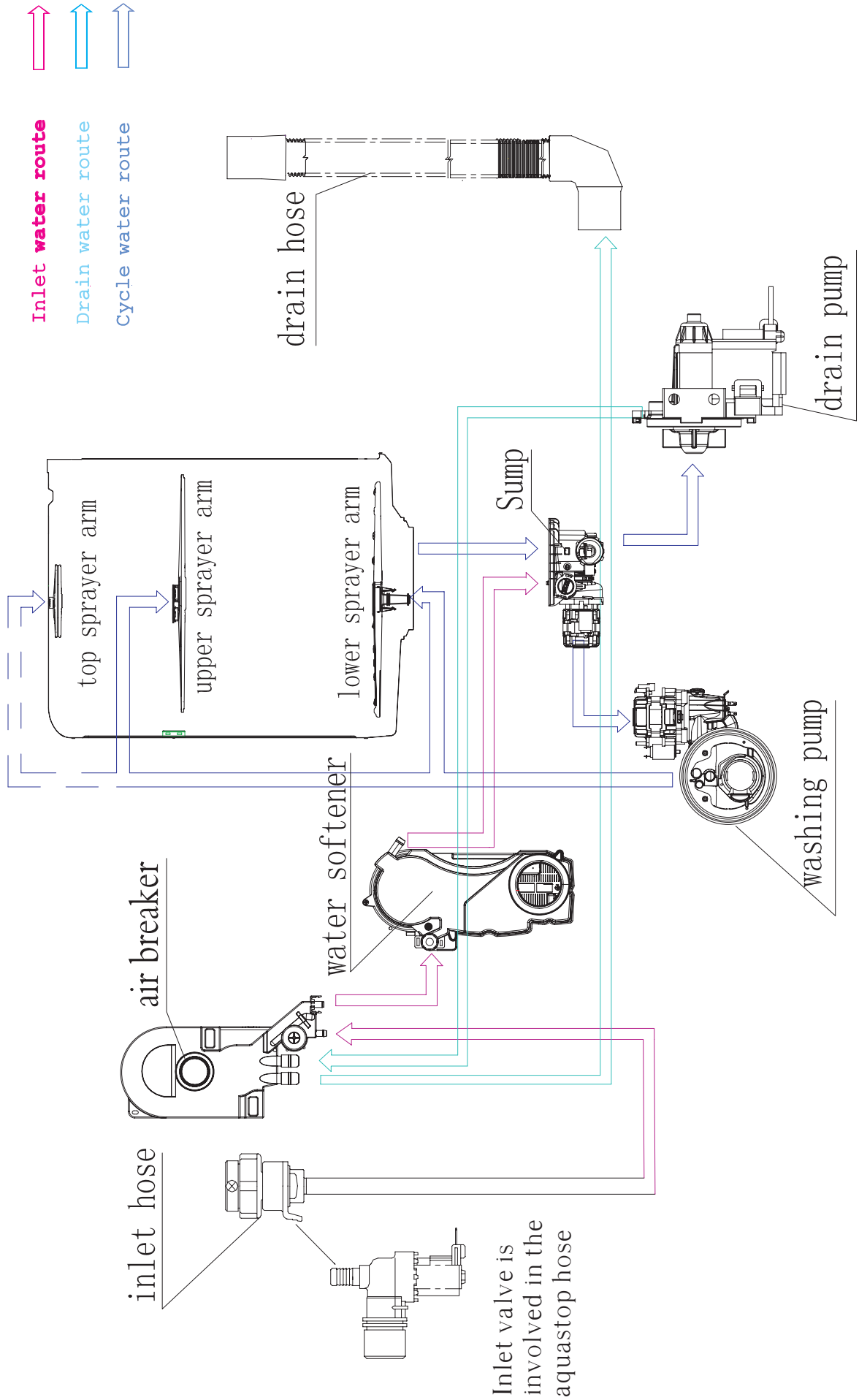


Electrical supply	220-240V, 50Hz
Supply water pressure	0.04MPa-1.0MPa
Supply water temperature	below 60°C

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

Note: This page is for models with aquastop hose.

Water circuit scheme

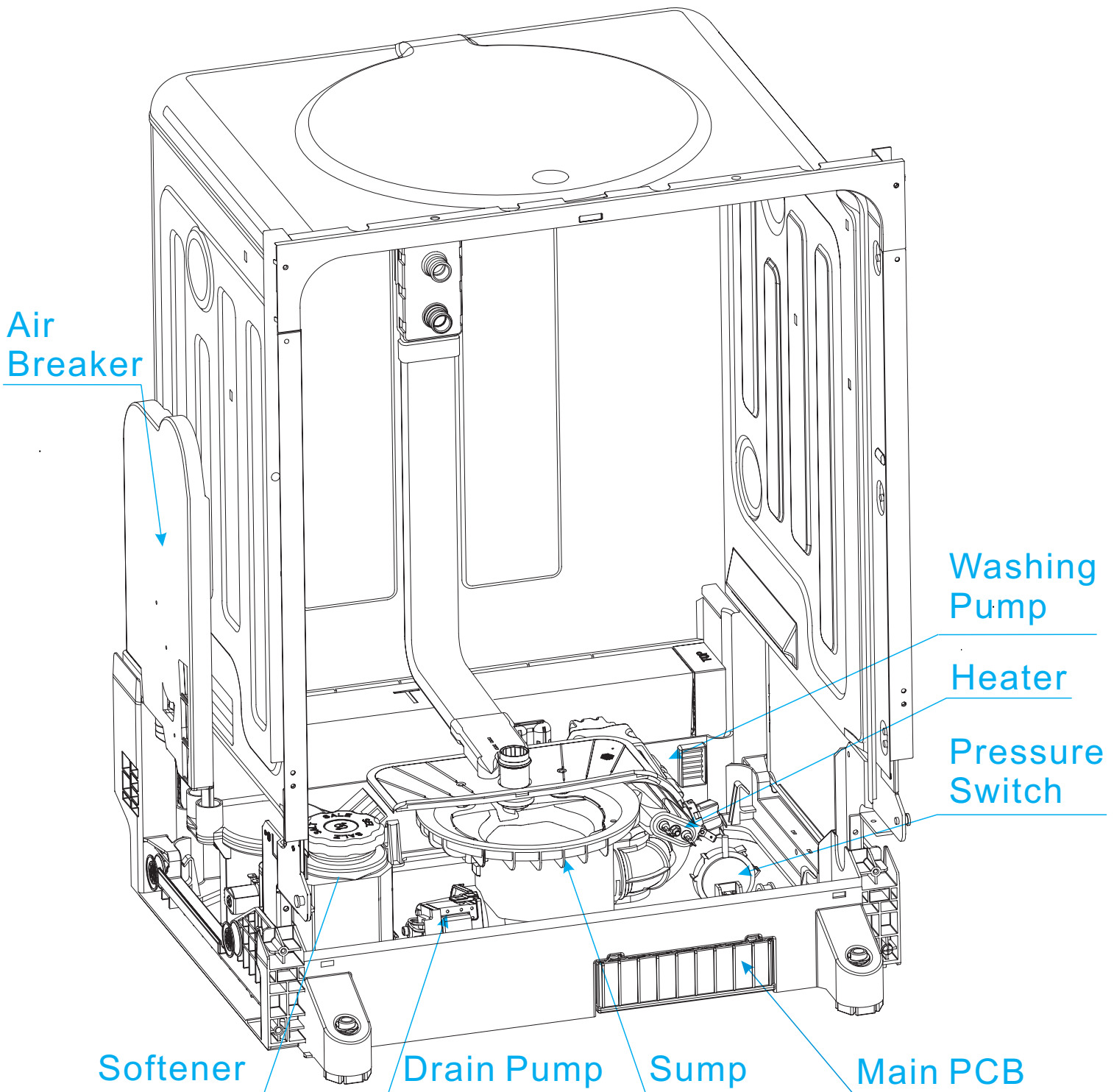


Process of water inlet (indicated by magenta route)

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 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.



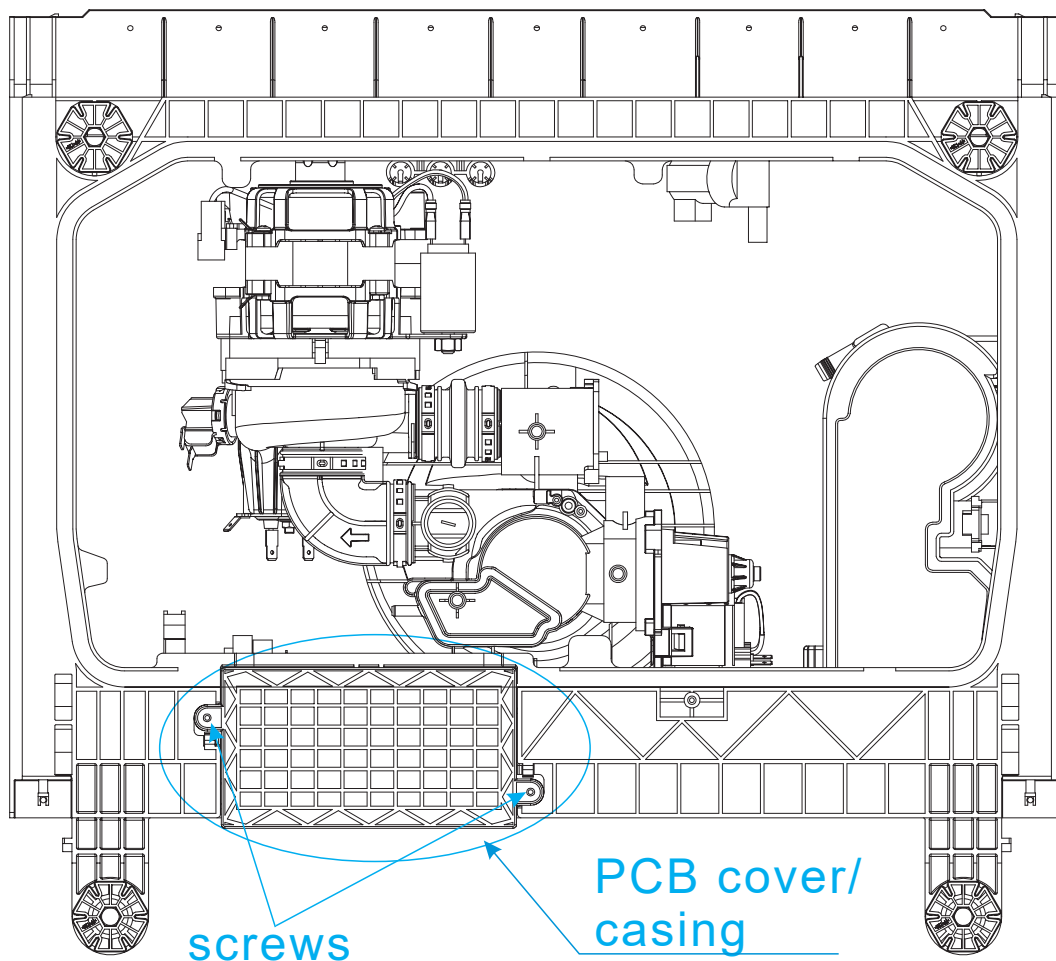
PCB

Printed Circuit Board is the control center of the dishwasher which receives and process signals from components. It sends orders to components and deal with the feedback information, etc.

Removing the PCB.

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

1. Disconnect power supply;
2. Take out cutlery basket, basket and filter system;
3. Remove the screws for the PCB cover and open cover.



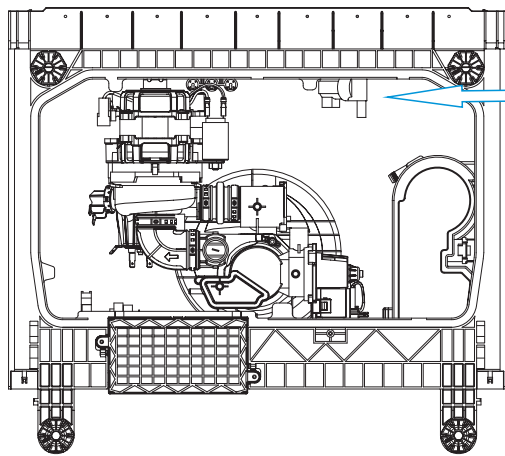
Bottom view

4. Remove the screws securing the PCB to PCB casing;
5. Disconnect the connector from the PCB;
6. Remove the PCB;
7. Reverse the above procedure to install.

PCB Abbreviations

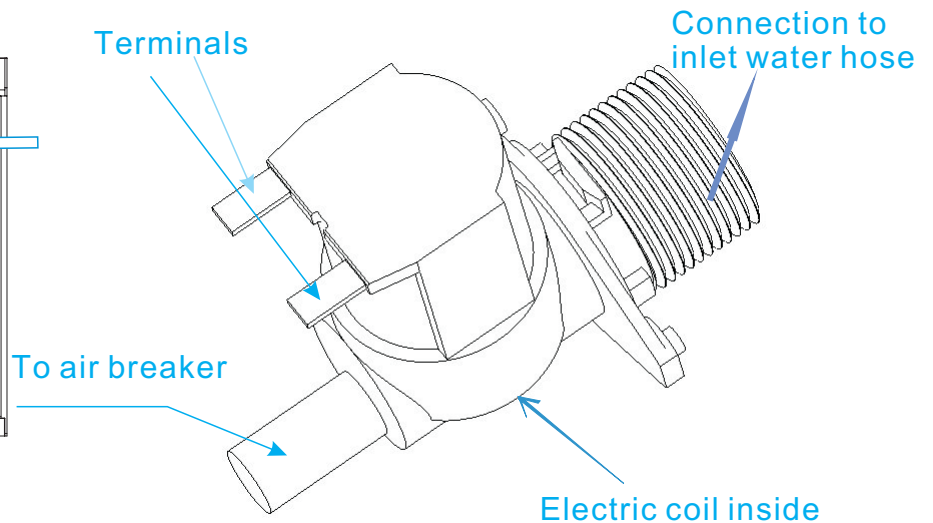
NO.	Mark	Function
1	ML	Washing Pump
2	PS	Drain Pump
3	EV1	Inlet Valve
4	P01/P02	Heating Element
5	EV2	Regeneration Valve of Softener
6	EV3	Diverter Valve
7	ML-L	Lower-speed Washing Pump
8	D/Ed	Dispenser
9	FAN	Fan
10	BUZ1	Buzzer
11	LIGHT	Top light
12	RE	Thermister
13	IS	Door
14	IAQS	Overflow detect
16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

Location of inlet valve



Bottom view

Appearance



Working principle

The inlet valve is an electromagnetic valve that decides whether water enters or not. Valves are normally closed. Each time the appliance requires water, the PCB will convey an electric signal to the coils to open the valve.

The inlet valve consists of an electric coil, valve body, valve pole, filter etc.

In a word, the electromagnetic valve can act to allow water to enter into the machine, when it receives the order given by the PCB.

Faults/Errors

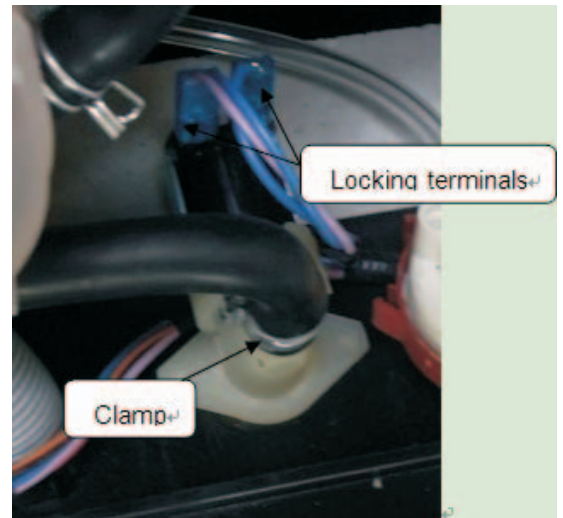
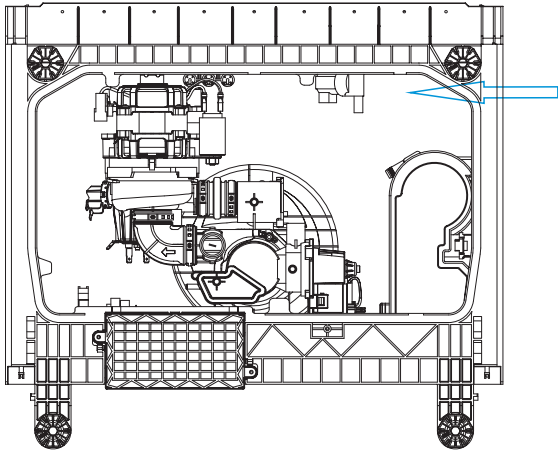
1. If the valve coil is broken so the valve can't open, it will cause the E1 error.
2. If the filter is jammed so water can't enter, it will cause the E1 error.
3. If the connector is loose so the valve can't open, it will cause the E1 error.
4. If the valve is blocked or restricted so the valve can't open or close correctly, it will cause the E1 or E4 error.

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

Access inlet valve

1. Disconnect the power.
2. Remove the water inlet hose. (Note : Be careful of remaining water droplets.)
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 contrarotate 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.

Inspect inlet valve

Check electrical part

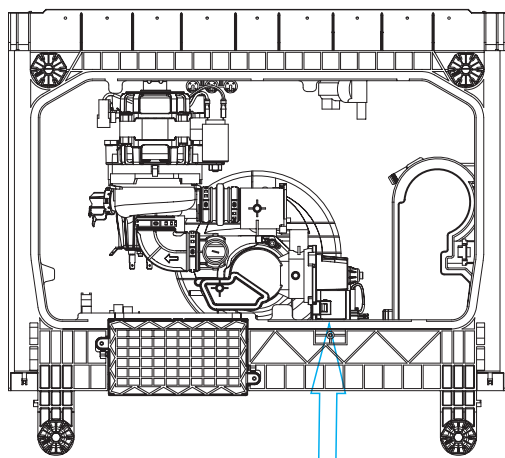
1. Open the PCB casing and take out the PCB.
2. With the door closed, unplug the CON3 and ACN wires, then use the multi-meter Ω shelf to measure resistance between the blue wire (EV1) and the blue wire (ACN), the normal resistance is about 4.4K Ω to 4.8K Ω .
3. If the measured resistance is not correct, it means the valve coil is broken or the connector is loose. In this case, check the connection first. If the problem hasn't been resolved by re-connection, replace the valve.
4. If the resistance is OK, inspect the valve body.



Check mechanical part

1. If the electrical part is OK, we need to check the mechanical part.
2. Check the valve filter, if the valve filter is blocked, we need clear the blockage.
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 water is continuing to entre, replace the valve.

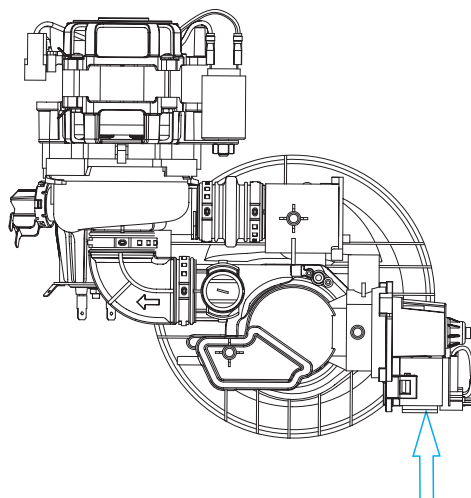
Location of Drain Pump



Bottom view

The work principle

Drain pump integrated into sump



Working principle

Drain pump consists of an 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.

Faults/Errors

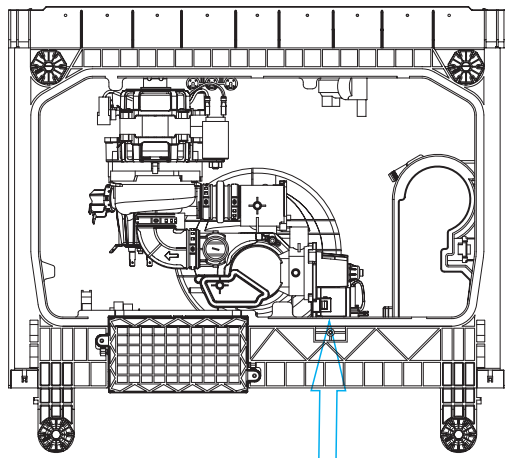
1. If the motor coil is broken and the drain pump doesn't work, it will show the E1 error .
2. If the magnetism of the motor rotor is weak causing the drain pump, it will cause the E1 error.
3. If the connection is loose so the drain pump doesn't work, it will cause the E1 error .
4. If the rotor is blocked by residues so the drain doesn't work, it will cause the E1 error .
5. If the drain pump fixings are loose, it will be noisy.
6. If the non-return valve is faulty there will be too much water remaining.

Notes: failure of the drain pump may cause E1 because if the water has not drained away, in next water intake the pressure switch will operate to cut off the inlet valve, thus no water will get in and E1 error will be displayed.

Technical data

Nominal voltage	220-240VAC
Frequency	50Hz
Resistance	235Ω 15Ω
Delivery height	1M
Delivery performance	≥17l/min(230VAC)

Access drain pump



Bottom view

1. Drain away the water in the dishwasher and disconnect the power supply.
(Note : Make sure to remove any remaining water in the dishwasher.)
2. Remove the cover of the bottom board.
(Note: You should first loosen the top hooks, then the left and right hooks and take care to not break the hooks.)
3. Label and disconnect the two terminal lugs from the drain pump.
4. Contrarotate the drain pump to take it off.
5. Reverse the above procedure to install.

Inspect drain pump

Check the electrical part

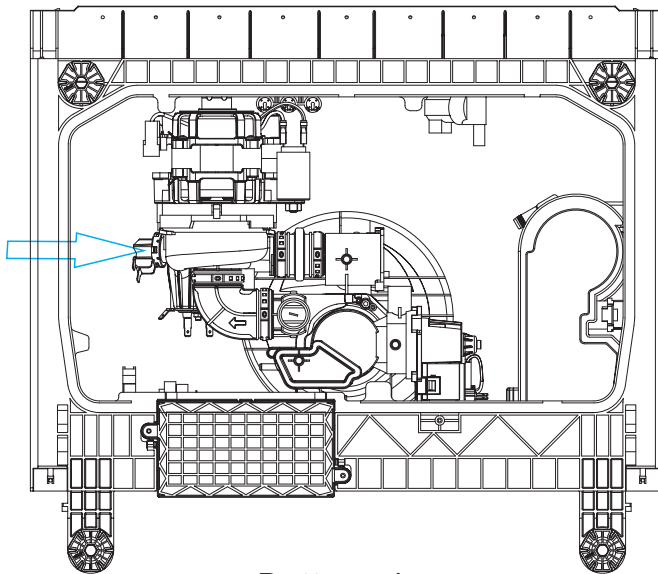
1. Open the PCB casing and take out the PCB.
2. With the door closed, unplug the CON3 and ACN wires, then use the multi-meter Ω shelf to measure the red wire (PS) and blue wire (ACN), the normal resistance is about 220Ω to 250Ω .
3. If the measured resistance is not correct, it means the pump coil is broken or connector is loose. In this case, we should check the connection first. If the problem hasn't been resolved by re-connection, replace the drain pump.
4. If the resistance is OK but it also won't work, the magnetism could be too weak, so replace the drain pump.



Check the mechanical part

1. If the electric part is OK, we need to check the mechanical part.
2. Remove bottom board.
3. If the non-return valve is wrongly assembled and the tub has water remaining, re-assemble the non-return valve.
4. If the drain pump is working but no water draining out or draining a little, check the drain hose or drain body.

Location of Heater



Bottom view

Basic versions

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

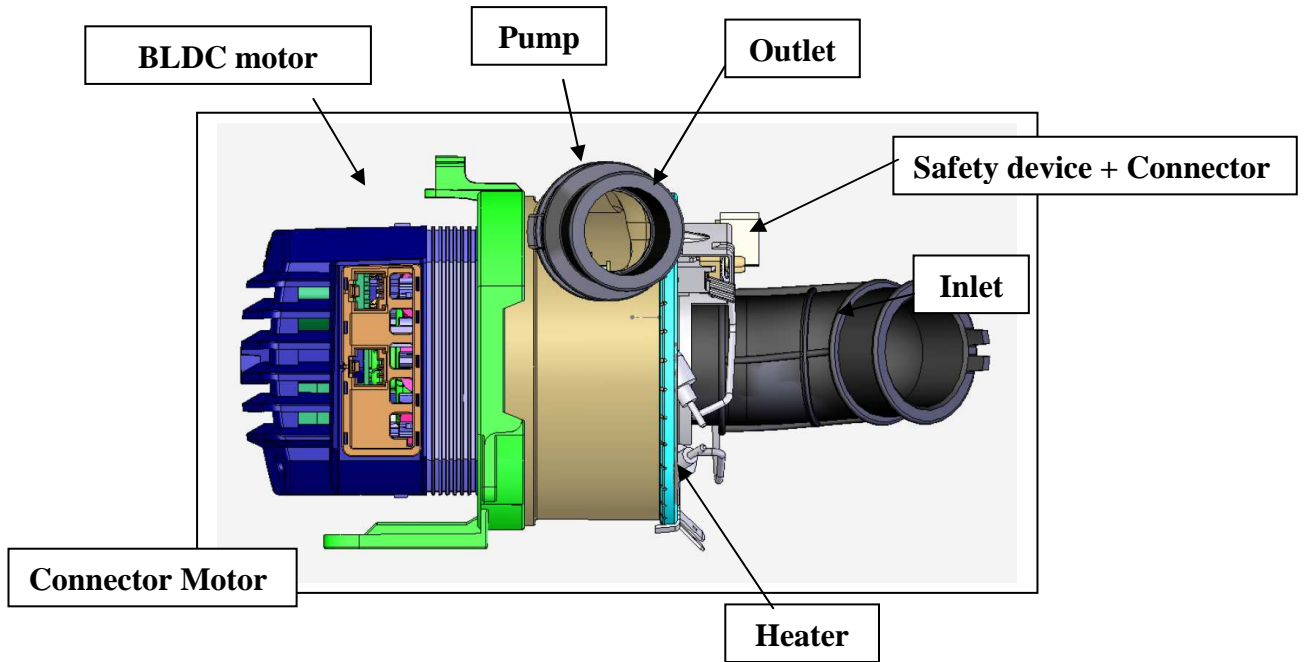
Working temperature

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.

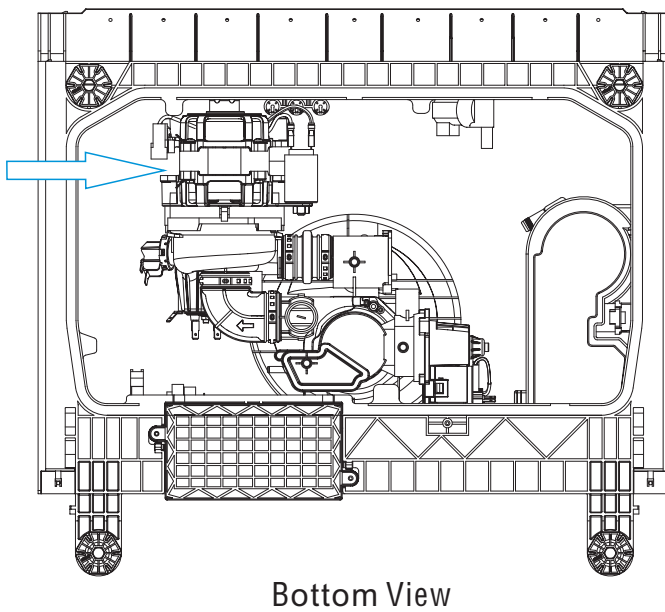
Faults/Errors

1. If the heater coil is broken so the heater doesn't work, it will cause E3 error.
2. If the Fuse is active so the heater doesn't work, it will cause E3 error.
3. If a connection is loose so the heater doesn't work, it will cause E3 error.

The following picture shows the unit:



Location of Washing Pump



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	Units	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)	[%]	41 ± 1
Pump type:		Centrifugal pump
Material of the pump housing:		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 electrical part

If the washpump isn't working well, EC will occur. When EC occurs, do the following.

1. Hold down "<" button and ">" button for 5s, an error code would appear on the screen and disappear when power is turned off. (If the error alarm has occurred, please press the Power button to restart and the error code would display again)

2. If error "L1" appears, it means the BLDC motor or PCB may have a fault, replace the motor or PCB.

3. If error "L4" appears, it means the BLDC motor may have a fault, replace the motor.

4. If error "L2,L3,L5,L6" appears, it means the PCB may have a fault, replace the PCB.

5. If error "L0" appears there is no fault.

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↕

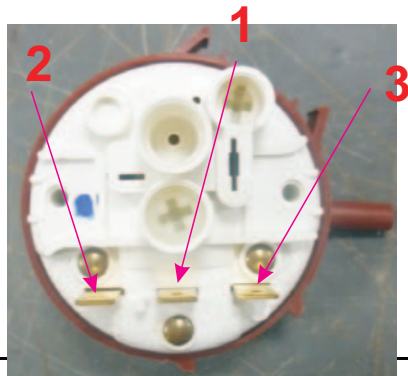
Working principle

The pressure switch consists of a moving diaphragm and disc which activates 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 the appliance and may also provide flood protection. (Only in 135/115 serial)

1 - COM

2 - NC

3 - NO

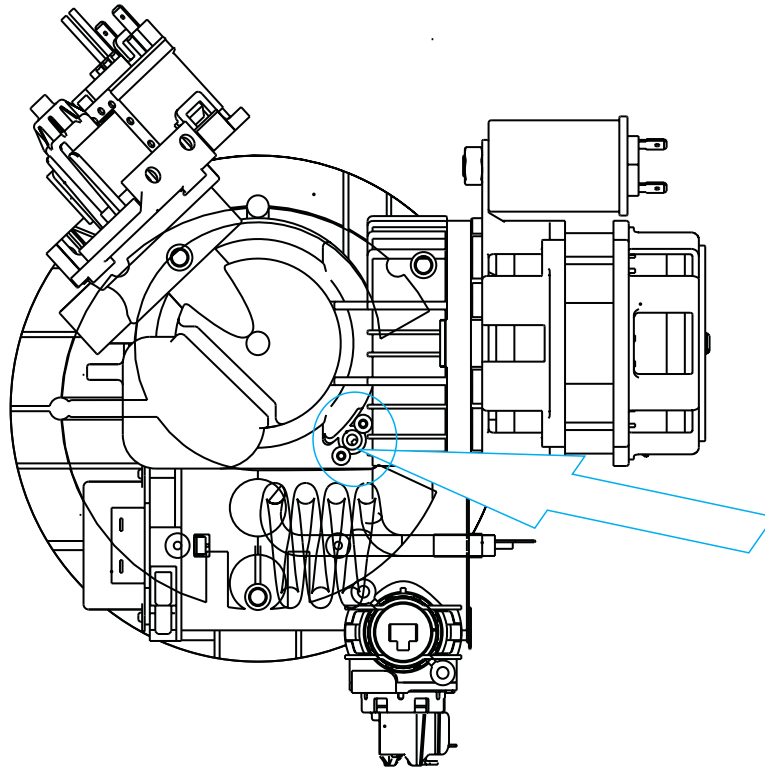


Front view



Back view

Location of NTC



Working principle

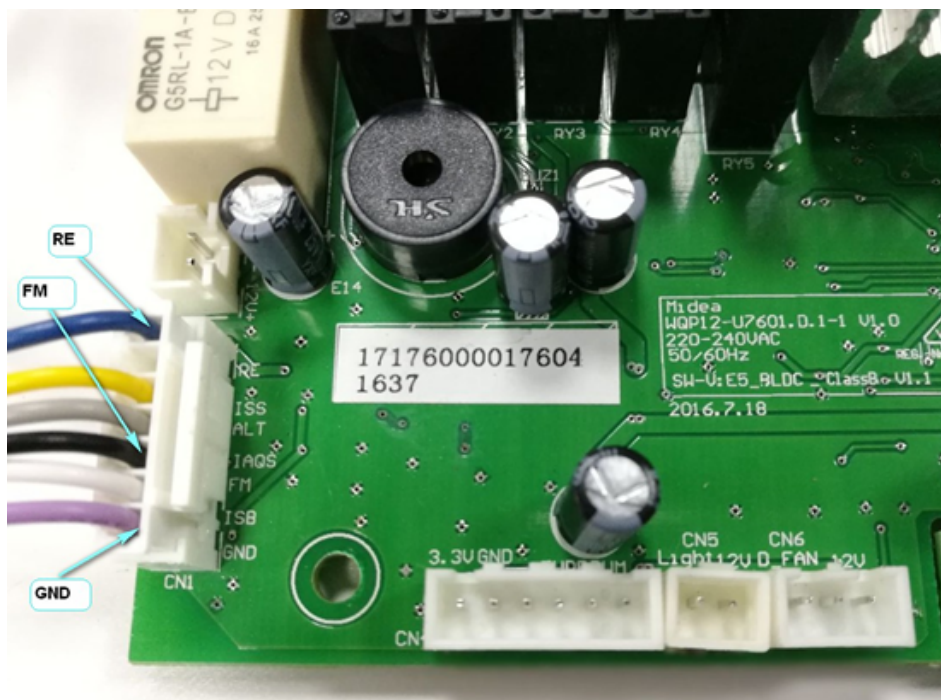
Negative Temperature Coefficient Thermistor is integrated into sump, which is used for measuring temperature of water in the tub.

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.

To inspect NTC

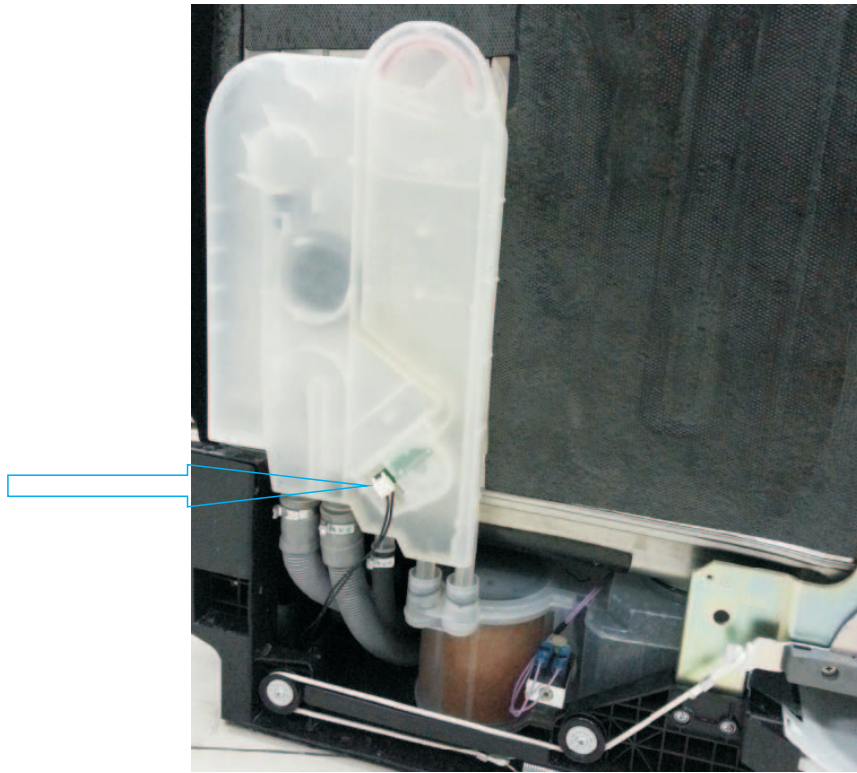
1. Open the PCB box and take out the PCB;
2. With the door closed, unplug the RE connector (shown in below picture), then use the multi-meter Ω shelf to test resistance between two blue wires (RE and GND), the normal resistance is shown in below table.
3. If the resistance is not correct, it means NTC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



NTC resistance table

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

Location of Flowmeter



Working principle

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

When water passes through the flowmeter, moving water rotates the magnetic impeller, the tongue tube can sense the impeller's magnetism and sends electronic pulses.



Flowmeter

Access Flowmeter

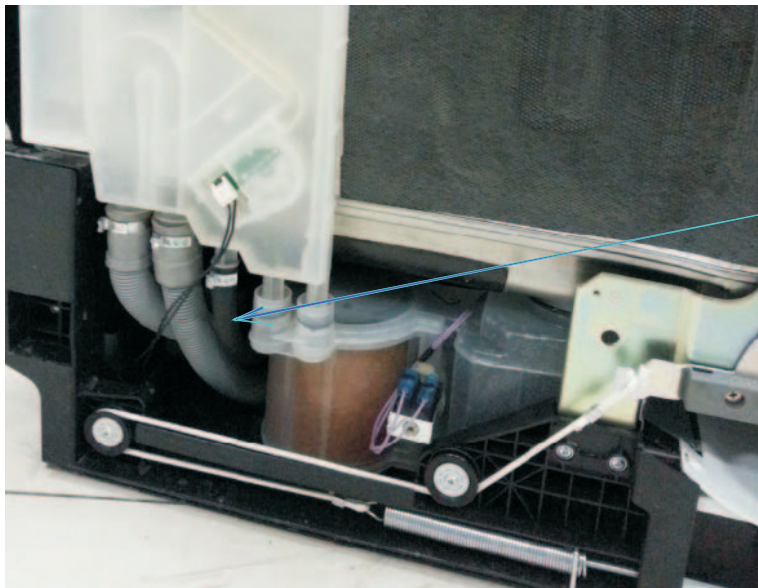
1. Remove the baseboard, top panel and left side panel.
2. Remove the plastic nut inside tub, which secures the air breaker to tub.
(The flowmeter is integrated into air breaker, replace air breaker if flowmeter has failed.)
3. Disconnect the wire and remove clamp fastening hose to the air breaker.
4.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

Inspect Flowmeter

1. Open the PCB box and take out the PCB;
2. With the door closed, unplug the CON2 wire (shown in below picture). Use the multi-meter Diode shelf to test between the black wire (FM) and the blue wire (GND) to confirm whether an electronic pulse is sent out when water passes through the flowmeter.
3. If there is continual electrical pulse, the multi-meter will send out sound "de" continually.
4. If there is no electronic pulse, the multi-meter will not send sound. In this instance something is wrong with the flowmeter circuit. Check the connections first, if the problem hasn't been solved by re-connection, replace the air breaker.



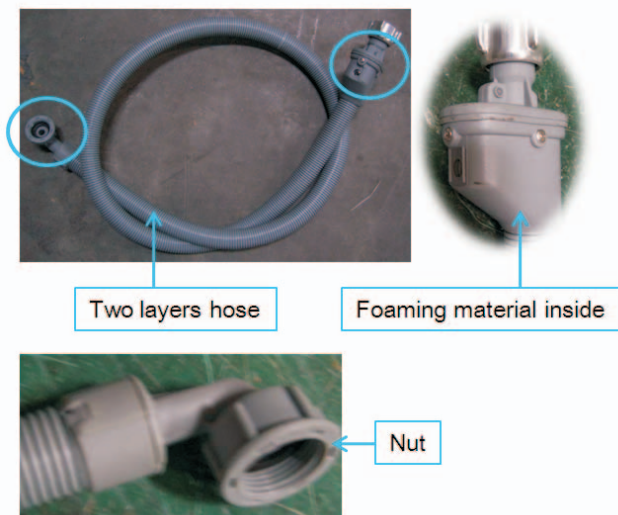
Location of Safety Hose



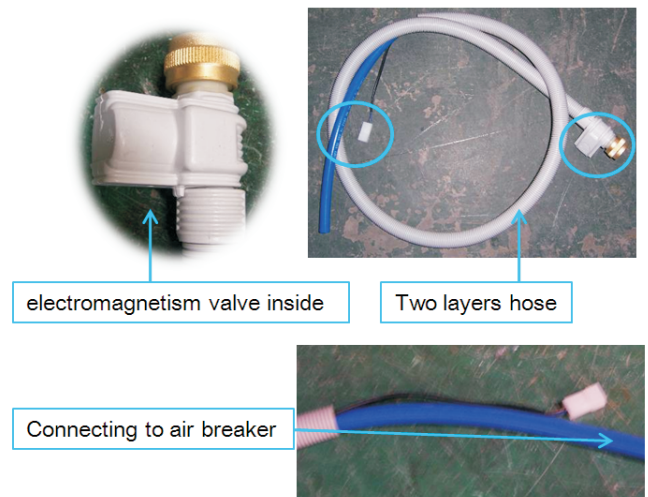
Electronic Aquastop Hose

Working principle

Mechanical Aquastop Hose



Electronic Aquastop Hose

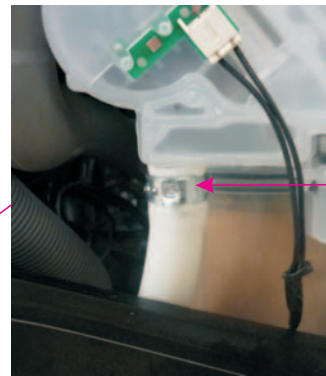
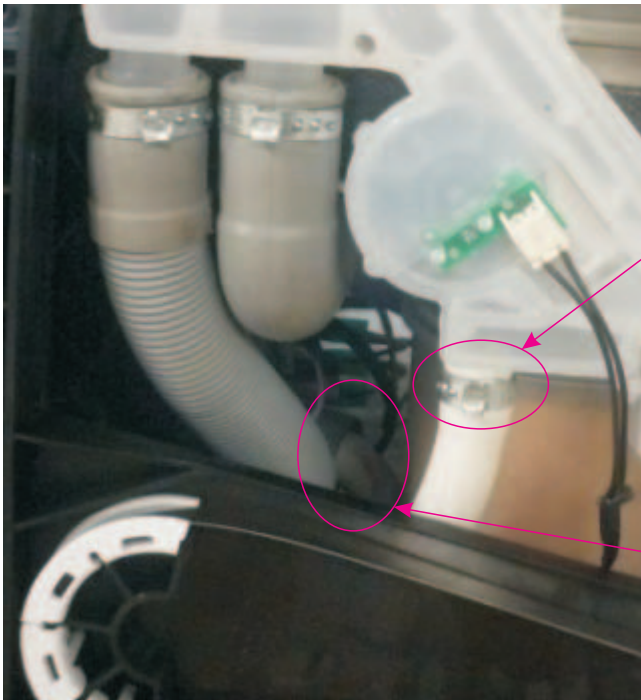


There are two types of Safety Hose, mechanical Aquastop hose and electronic Aquastop hose.

Mechanical Aquastop safety hose has two layers. If water leaks and fills the air space between the 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. The difference from mechanical is that if the water leaks and flows into the bottom tray, the flooding pressure switch on the tray will act. The electromagnetic valve on the hose will cut off the water supply and the machine will set off E4 alarm.

Access Safety Hose



clamp

wire connector
(no need to distinguish
positive and negative electrode)



clamp ring

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 can be pulled out.
3. Reverse the above procedure to assemble.

Mechanical Aquastop Hose

Mechanical Aquastop hose is connected to appliance just like a universal water inlet hose.

Inspect Safety Hose

Electronic Aquastop Hose

1. Open the PCB 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 connection is loose. In this case, check the connections first, if the problem hasn't been resolved by re-connection, replace the safety hose.

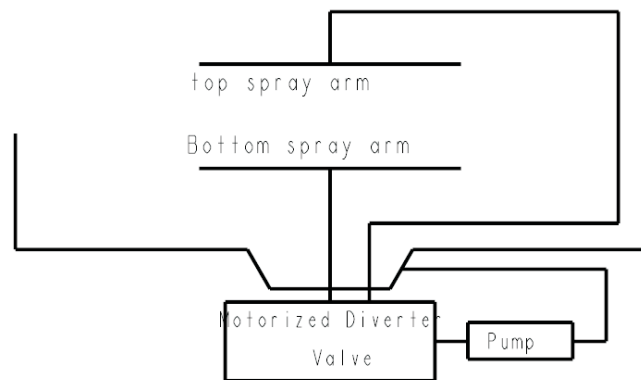
Mechanical Aquastop Hose

Possible moisture absorption of foaming material in mechanical device causes a self-lock fault (can't fill) this cannot be reset.

Working principle

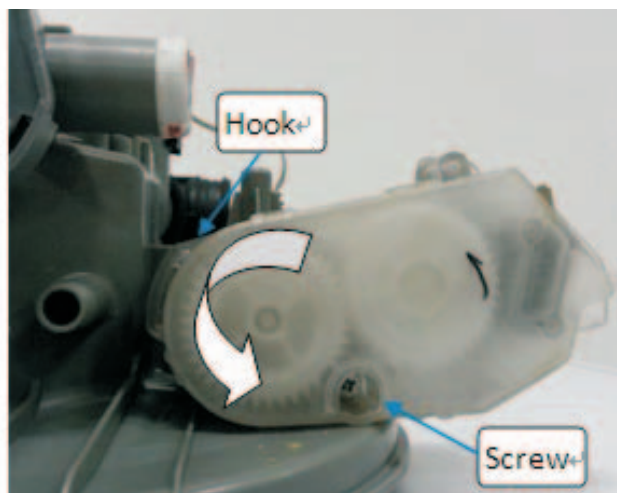
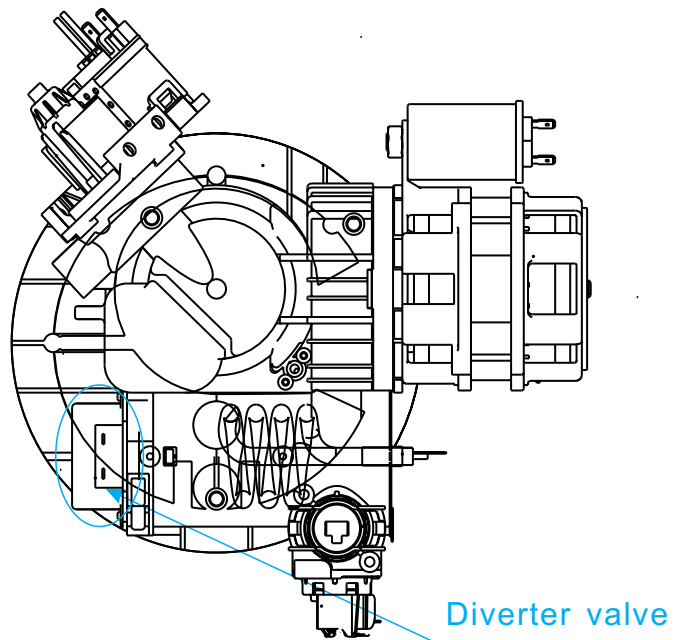
Diverter, also named alternating flow control valve, is used to control the flow of water between the upper and lower spray arms. It can also be used on models to stop the flow of water to the upper spray arm on models equipped with a half load feature.

Hydraulic scheme



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.



Note: This page is only for models with diverter value.

Test Programme

The test programme is designed for the technician to check the operation of the components and check for any failures.

How to activate Test Programme

Test Program Operation	
How to activate Test Program	With door opened, Program>+ Power
Start Test Program	Close the door
Jump into next step	Program>
E1	E1
E2	/
E3	E3
E4	E4
E6	E6
E7	E7
E8	E8
E9	E9
Ed	Ed
EC	EC

To activate the test programme, open the door and press the POWER ON button within 60 seconds. Hold down the programme button and press the POWER button until the machine enters the test programme and then close the door to start the test programme.

During the test programme press the programme button to skip through the steps except the inlet valve step.

Note: 1. The way to activate the test program is slightly different between different models.
2. Switch off the unit at the wall, then switch on before following the instructions above to activate the test programme.

Procedure of Test Program (for models with flowmeter)			
No.	Display on the screen	Process	Description
0	8:88	Initialization	Power on, stand by
1	05 or Turbidity value	Inlet Valve	Open inlet valve and draught fan, the draught fan closed after 10s, control 3.0L water. Turbidity value would be adjusted and shown on the screen.
2	04/Temperature value	Higher-speed Washing Pump and Heating Element	Run higher-speed washing pump and diverter would move to position rotating both upper and lower and 20s later run heating element until the water temperature reaches 57°C. Then the machine will pause. Press Program> button to jump into the next step.
3	03	Lower-speed Washing Pump and Dispenser	Lower-speed washing pump for 10s, dispenser will act for 45s in this step.
4	02	Regeneration Valve	Open regeneration valve for 30s.
5	01	Drain pump	Drain for 30s.
6	F*	Finish	Buzz one sound, stop, and stand by.

How to know which error code has occurred

To know which error code has occurred, refer to the previous table named Test Program Operation.

Take E1 for example, If error 1 has occurred, the buzzer would alarm for 30 seconds and “E1” would be shown on display. Other error alarms would be shown in the same manner.

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

Note: the majority of models follow this regulation.

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: E8 is valid for models equipped with diverter valve(alternative washing function).

Error codes explained

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(measured by pluses), E1 would occur.

When E1 occurs, the drain pump will run until the 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 the test program, once open-circuit failure of thermistor is detected by controller, then 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 the 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 keeps 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.

E8 Diverter valve fault

For models equipped with diverter(alternative washing function)

In the process of test program in which diverter valve should be act, if machine doesn't detect the feeding signal of diverter valve for 15 seconds or doesn't detect the diverter valve being positioned accurately in 60 seconds, the E8 would occur.

In the process of washing program in which diverter valve should be act, if machine doesn't detect the feeding signal of diverter valve for 15 seconds or doesn't detect the diverter valve being positioned accurately in 60 seconds, the diverter valve would stop and the E8 would be set off after ending washing program.

When E8 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 code will be shown.

E9 Button pressed for more than 30 seconds

If the button is pressed for more than 30 seconds, then E9 would occur. If there is water or something on the button, then power on again.

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.

EC BLDC fault

Any motor phase winding current more than 3A, motor restart accumulative 5 times and cause L1;

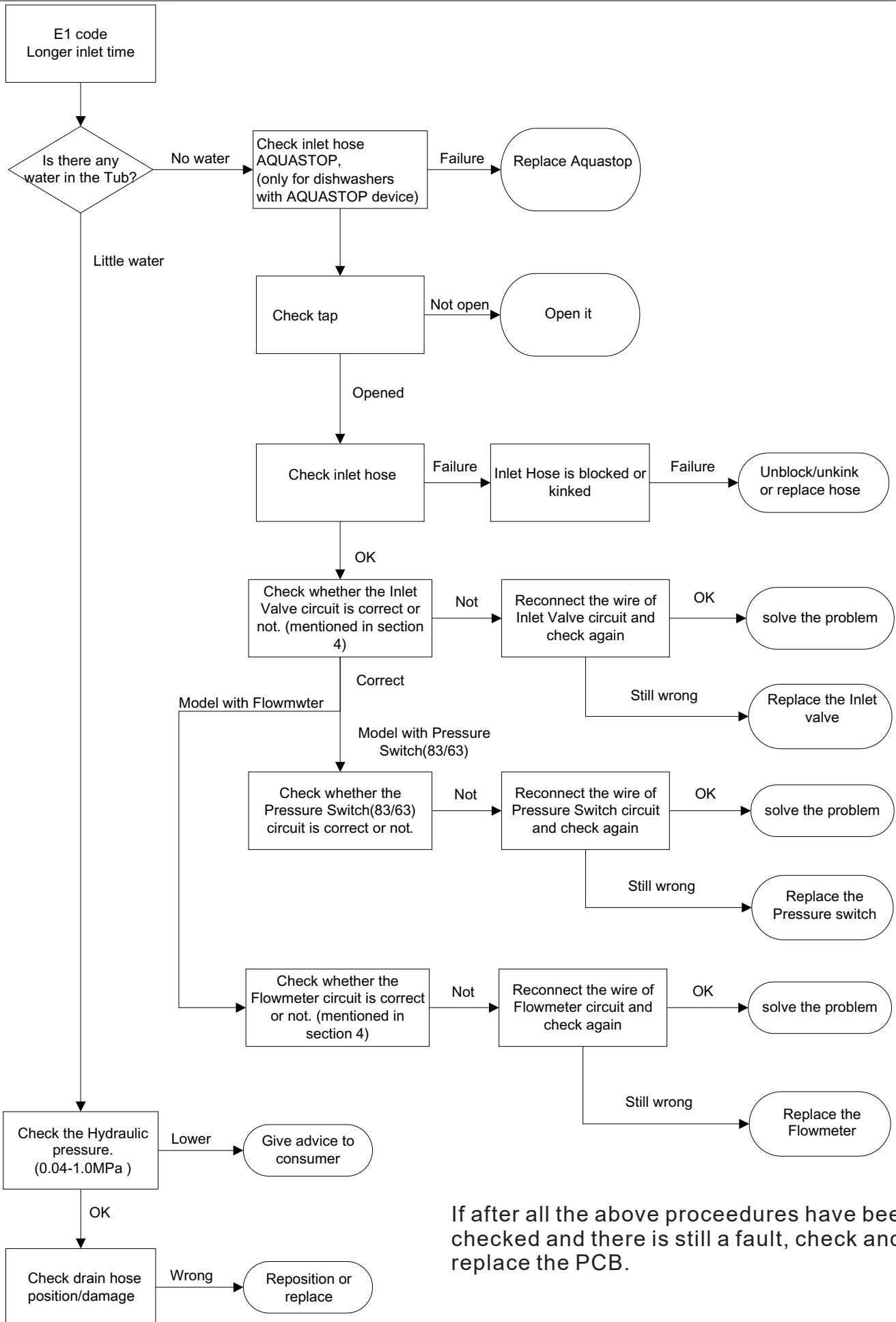
The input voltage for 7 min is greater than $285 \pm 10V$ and cause L2;

The input voltage for 7 min is less than $170 \pm 10V$ and cause L3;

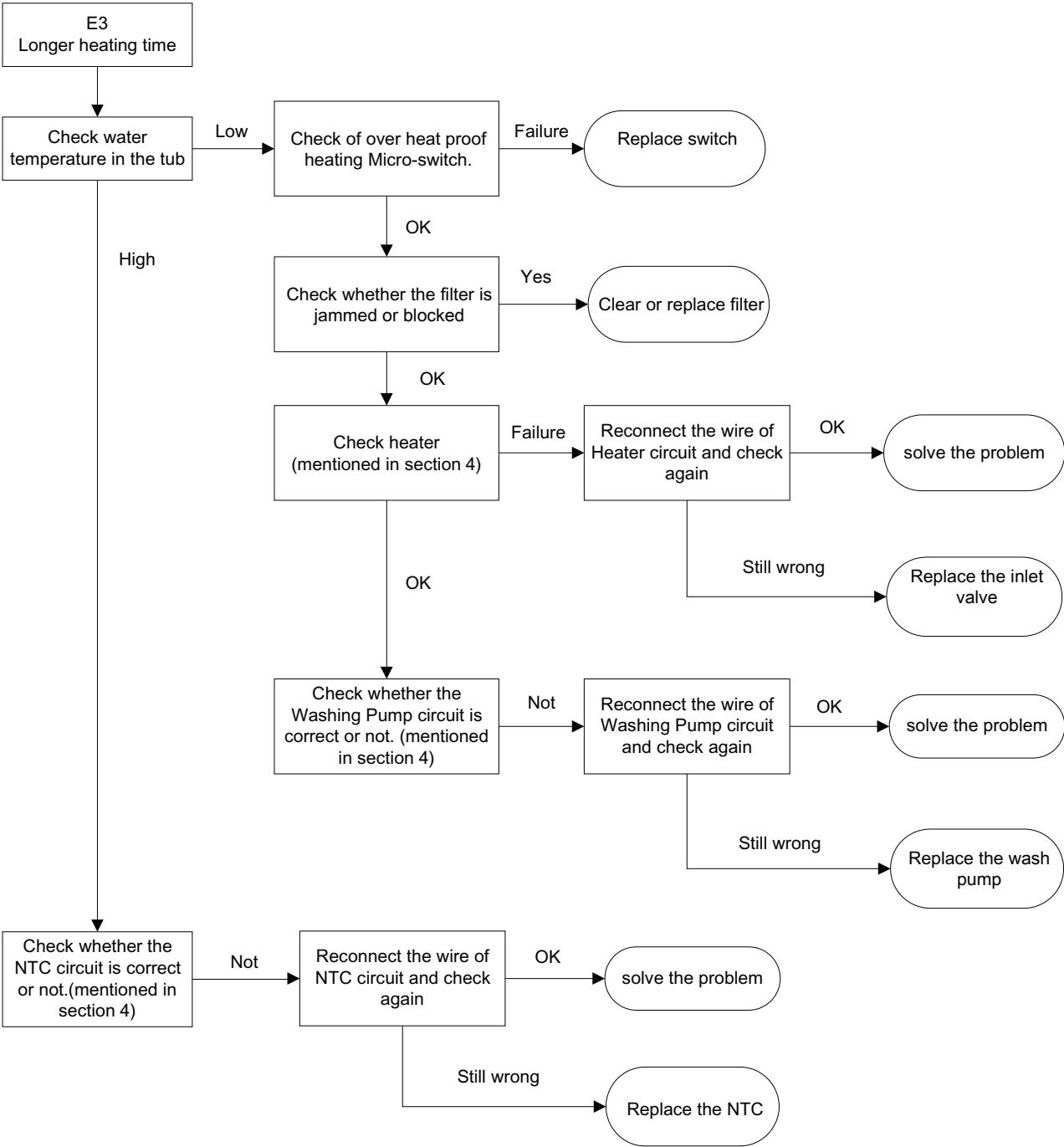
Motor blocked or lack of phase cause restart the cumulative 15 times and cause L4;

IPM module overheating and cause L5;

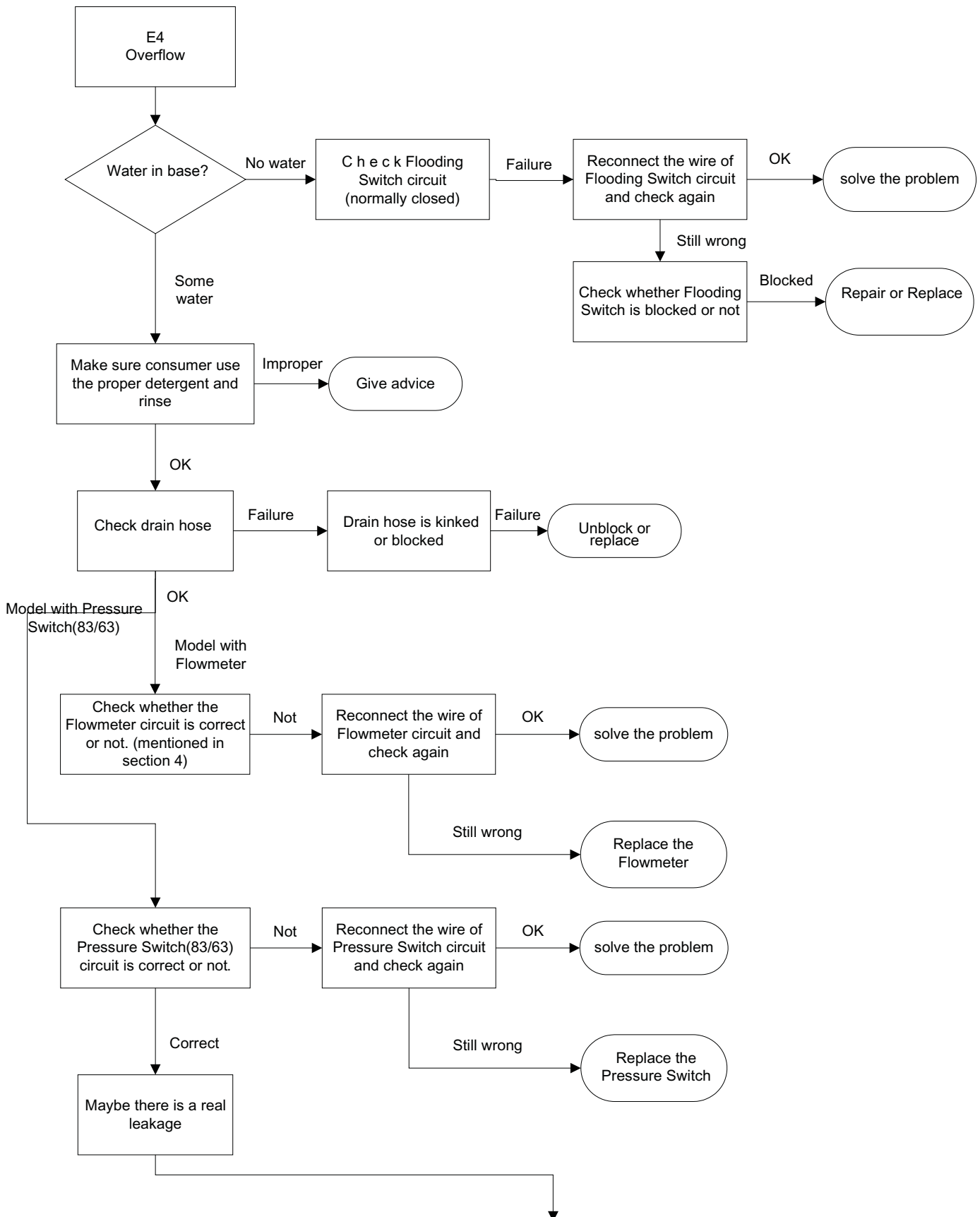
BLDC circuit motors AD sampling error and cause L6.



If after all the above procedures have been checked and there is still a fault, check and replace the PCB.



E4 tree -> Inspection



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.

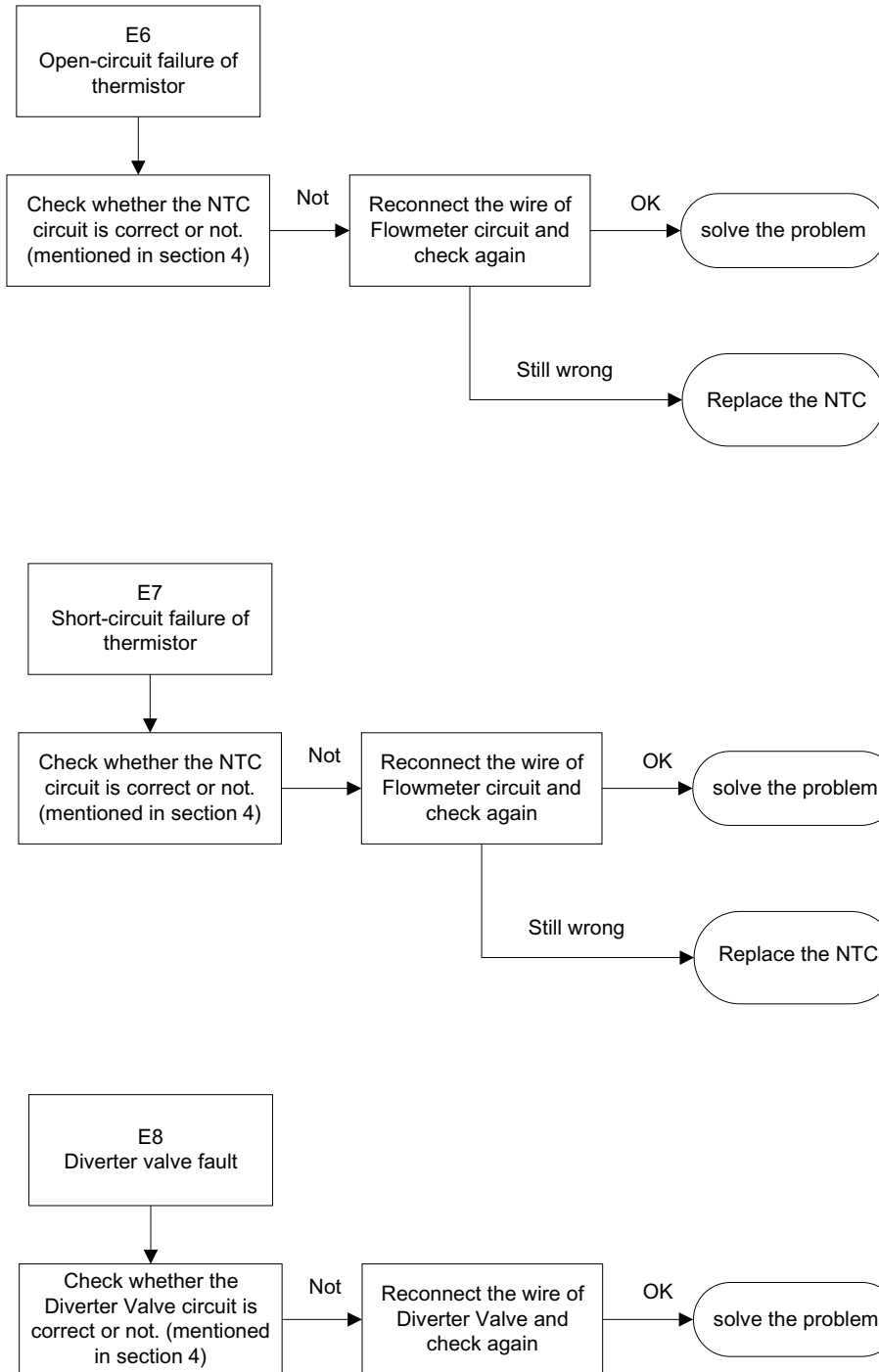
Restart the dishwasher with a strong or standard wash program as a leak could easily repeat at a higher temperature and after a long period of running time.

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.

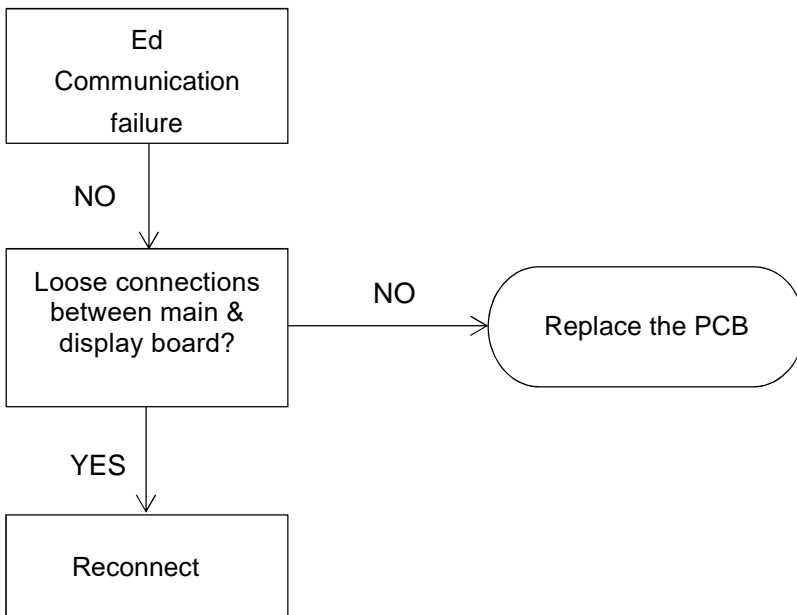
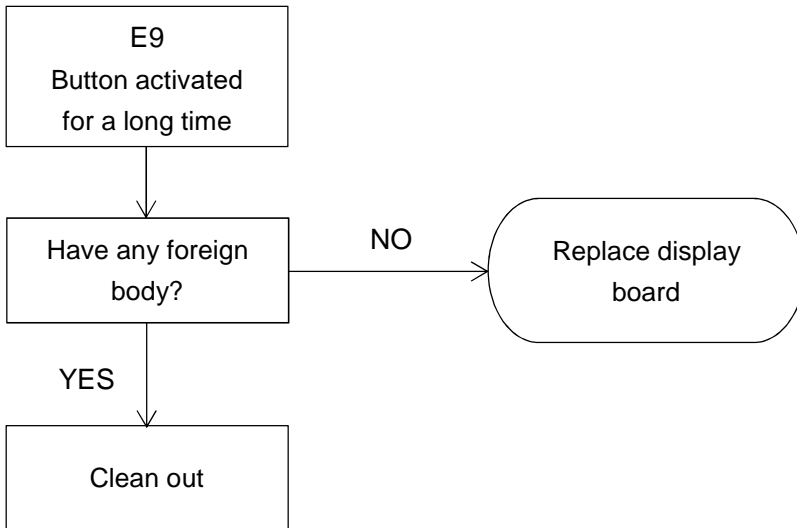
E6, E7 & E8 tree -> Inspection



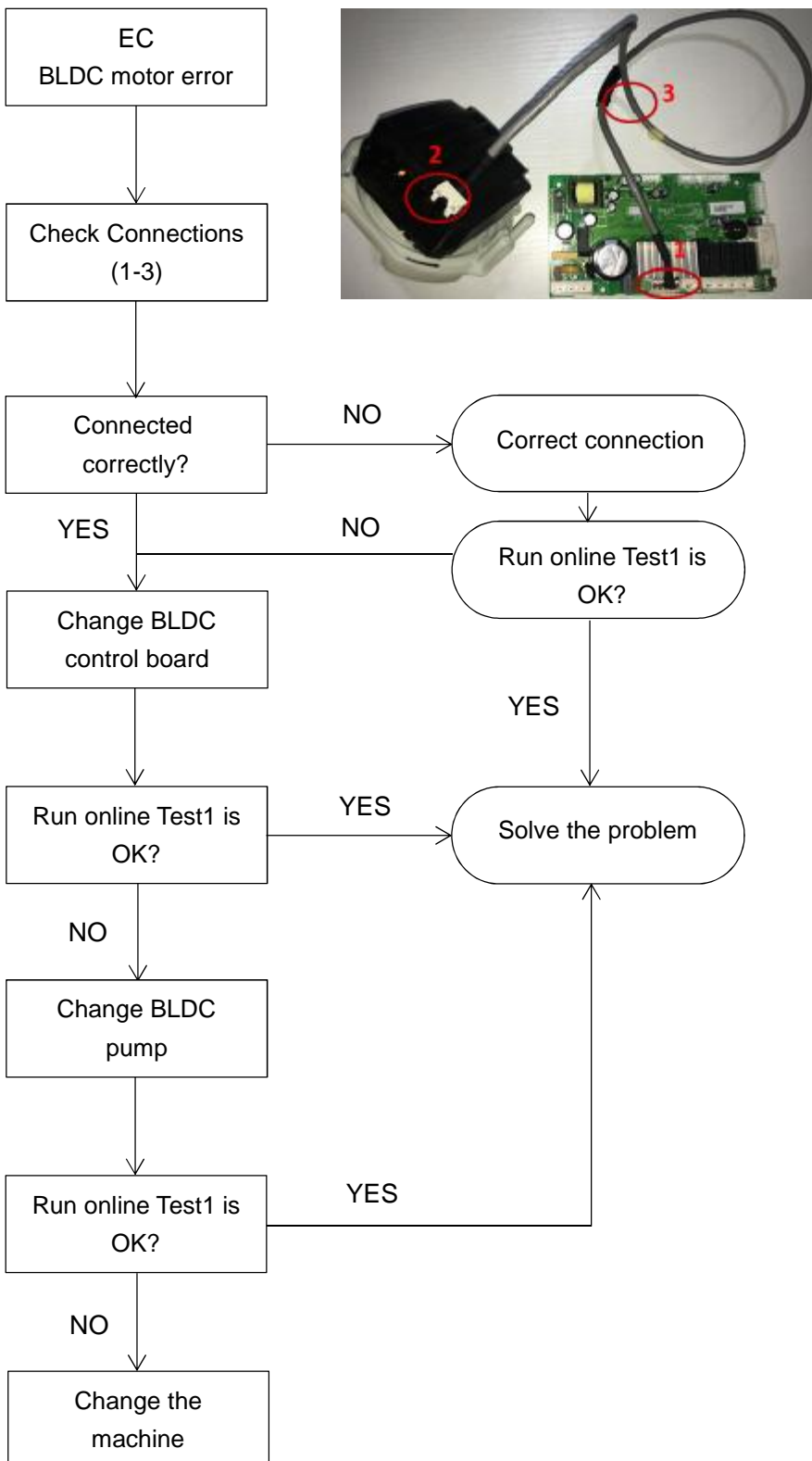
If after all the above procedures have been checked and there is still a fault, check and replace the PCB.

Caution:

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



EC tree -> Inspection



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 PCB might cause the E1 alarm	make sure it is intalled properly.(refer to instruction manual)	reinstall drain hose
			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

Troubleshooting

	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
E4 overflow	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. for models controlling water filling by flowmeter, run test program and check whether the amount of filling water is	repalce the pressure switch(83/63) 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
EC BLDC control failure	Checking the Connecting line	Connecting line failure	Connecting line breakage	Replace the Connecting line
	Motor failure	Motor breakage	Poor contact terminals connecting with the motherboard Cable and motor terminal poor contact	Correct connect Correct connect
	PCB failure	PCB components damage	Replace the motor Replace the PCB	Replace the motor Replace the PCB
	check the loading	improper loading could block the spray arm, so give advice to end customer on how to load dishes and silverware peoperly.	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 dishwahser.	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	clean the filter and give advice

		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	
check the using program	improper program might cause poor performance		refer to instruction manual
check the use of detergent and rinse	improper amount of detergent and rinse aid might cause poor performance		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 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
		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 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.	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
		When you have eliminated other causes of less water, you could roughly judge the pressure switch is something wrong. 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. defective PCB also might cause less filling water, but its probability is small. So, the last choose is replace PCB.	replace pressure switch replace PCB

poor washing performance

Troubleshooting

	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 °C/min) is normal and the appliance pause when the water temperature reach 60 degreee 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
	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
poor drying performance	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
	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