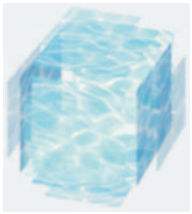
Technical Service Manual



Dishwasher

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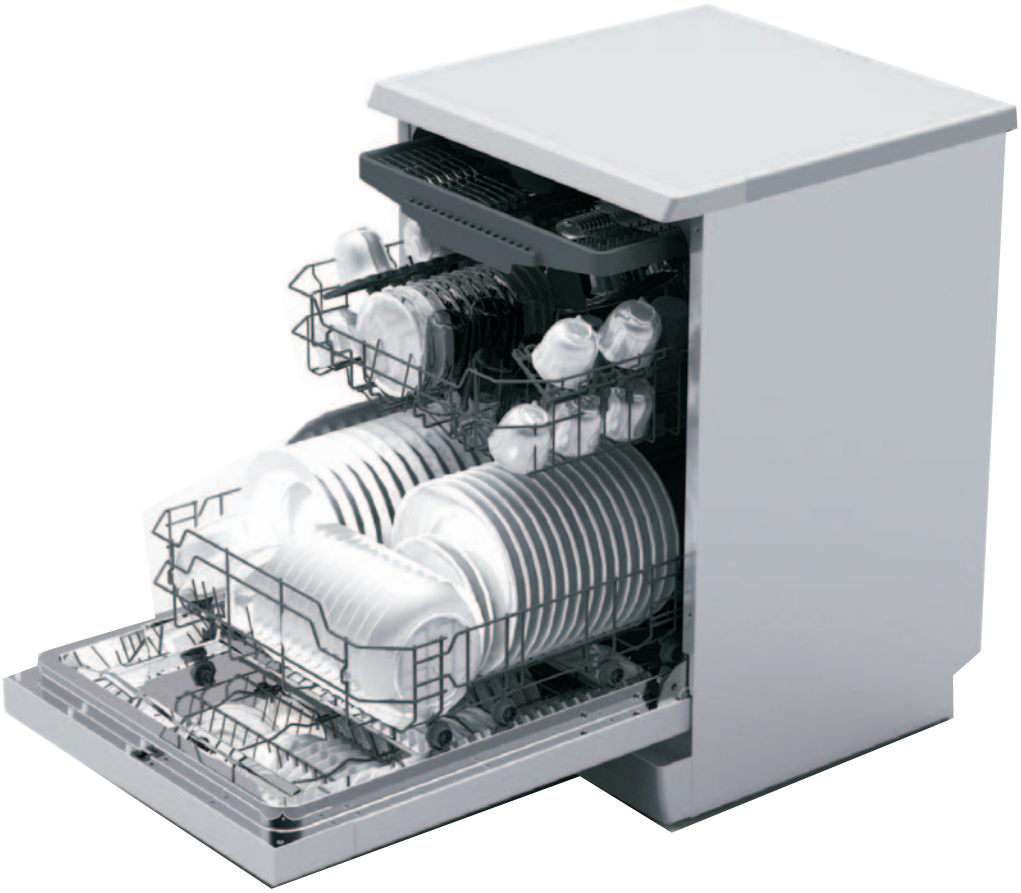
SAFETY NOTICE

This documentation is only intended for qualified technicians who are aware of the respective safety regulations.

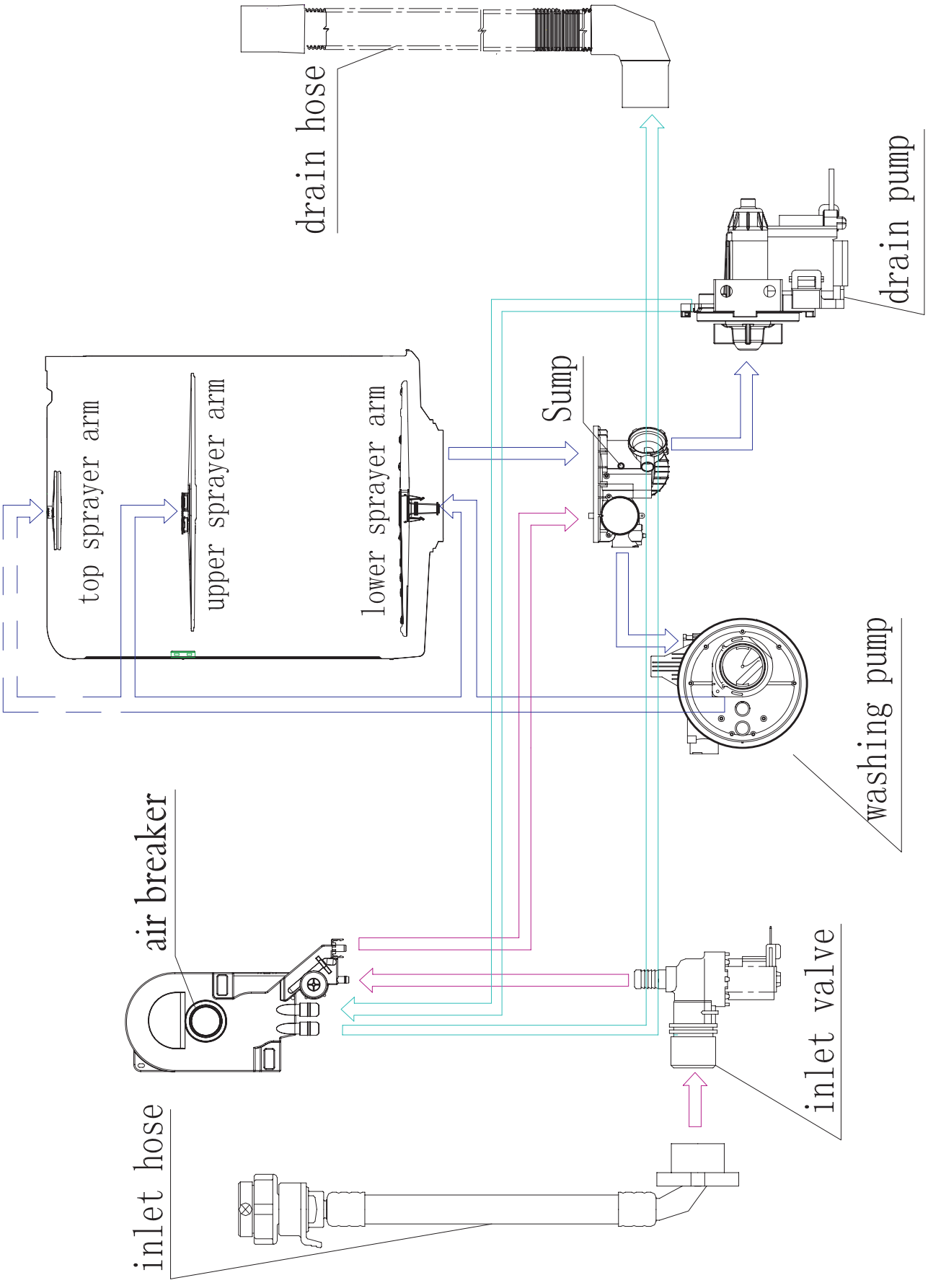


Electrical supply	220-240V, 50/60Hz
Supply water pressure	0.04MPa-1.0MPa
Supply water temperature	below 60℃

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

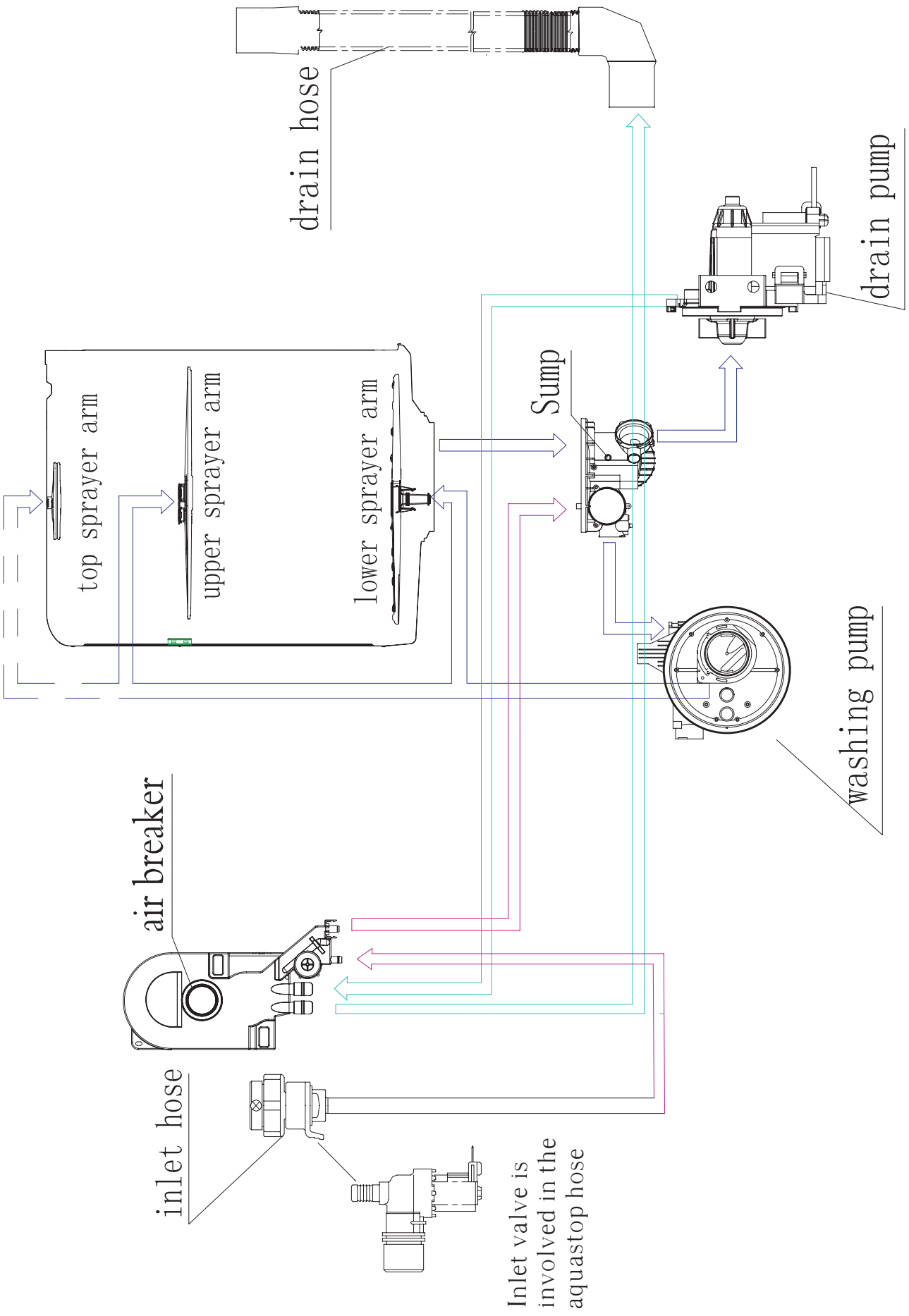
Note: This page is for models with common inlet hose.

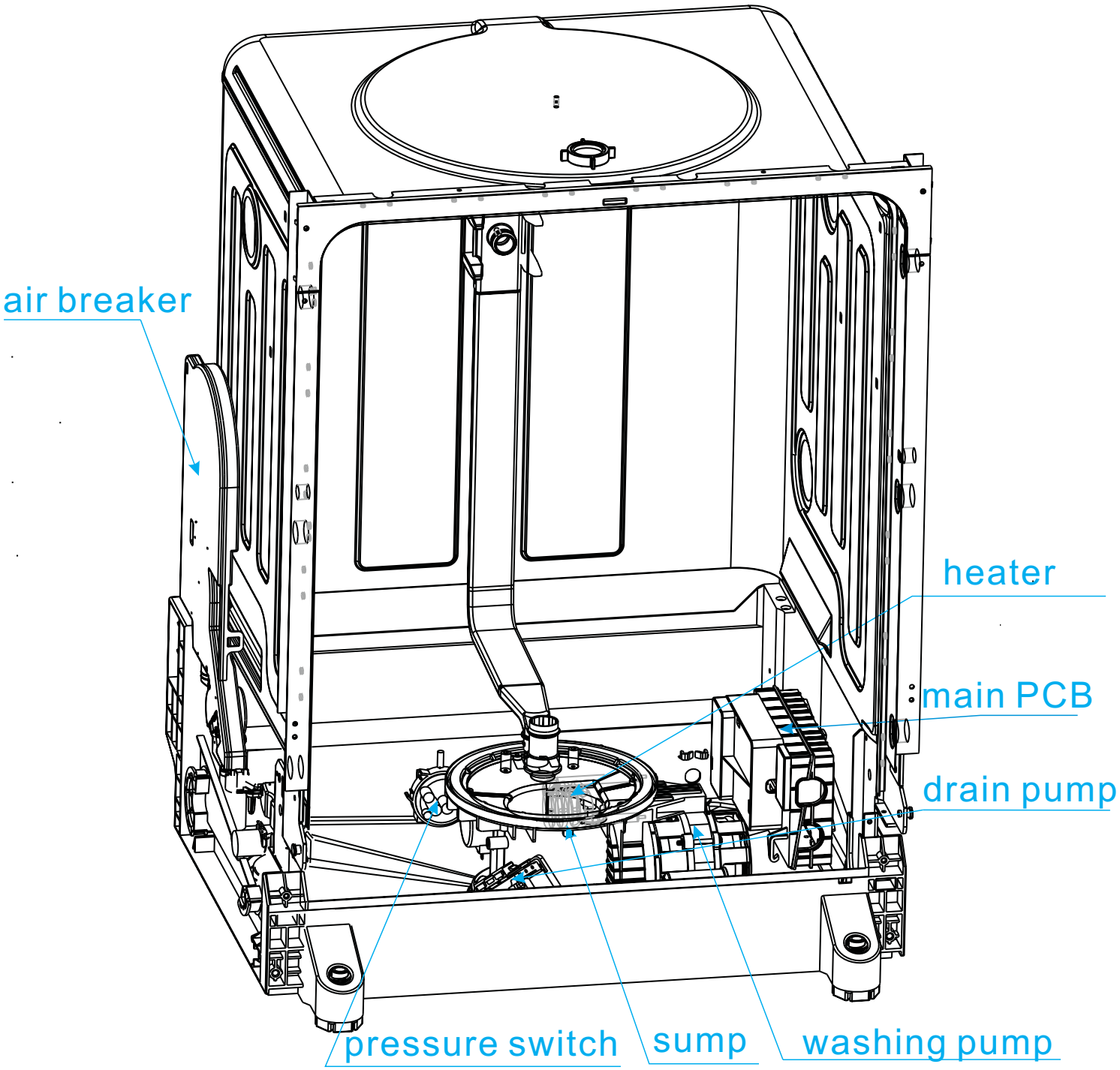
Water circuit scheme



Note: This page is for models with aquastop hose.

Water circuit scheme





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

PCB

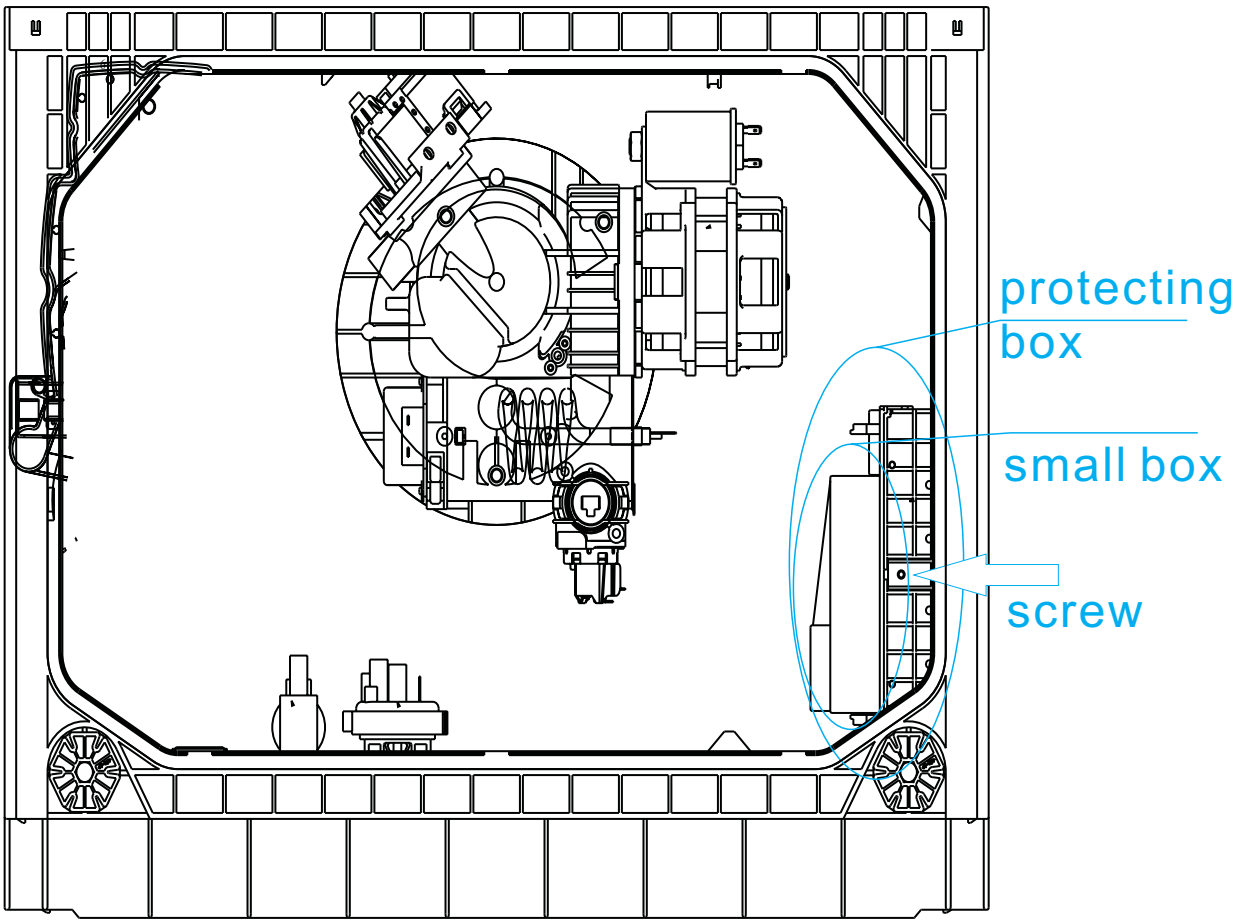
Printed Circuit Board is the control center of dishwasher, which receive and process signal from components, send order to components and deal with the feedback information, etc.

Access PCB

Removing the protecting box.

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

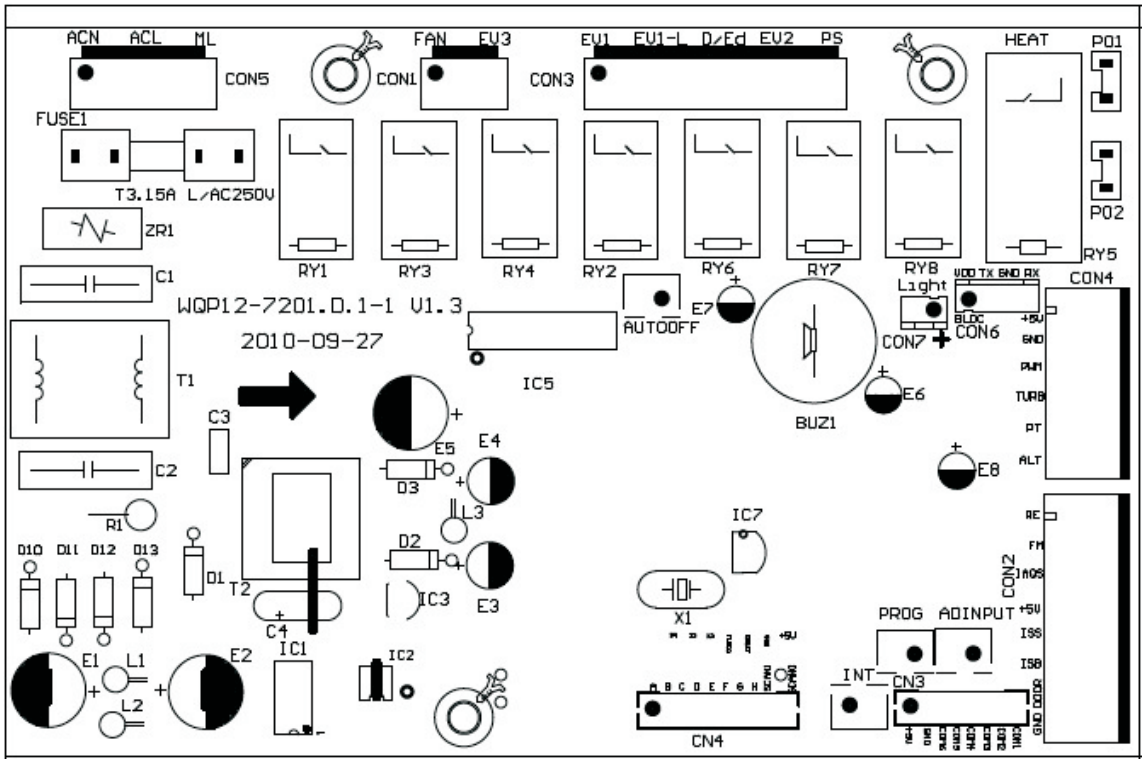
1. Disconnect power supply;
2. Take out cutlery basket, basket and filter system;
3. Open the cover of bottom board.
4. Remove the screws for fixing protecting box and open the protecting box cap.



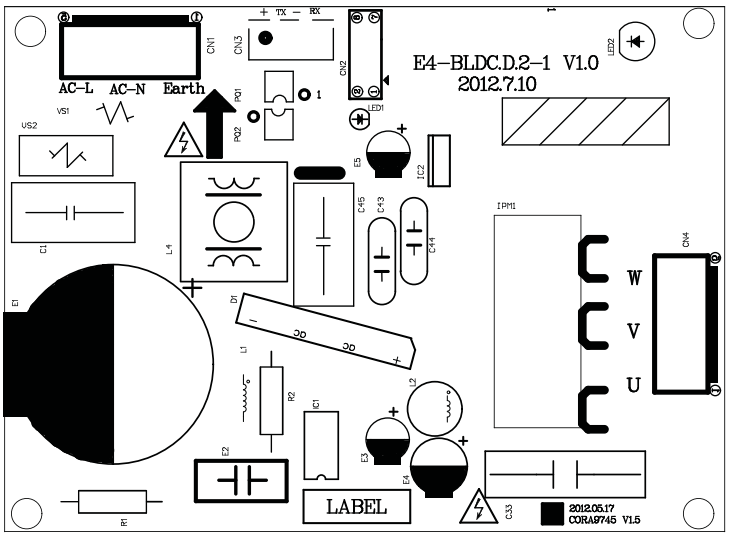
Bottom view

5. Disconnect the connector form PCB.
6. Remove the screws securing the PCB to control panel.
7. Remove the PCB.
8. Reverse the above procedure to install.

View of PCB



Main PCB board
Note: This map is applies to 7201 model.



Assistant PCB board

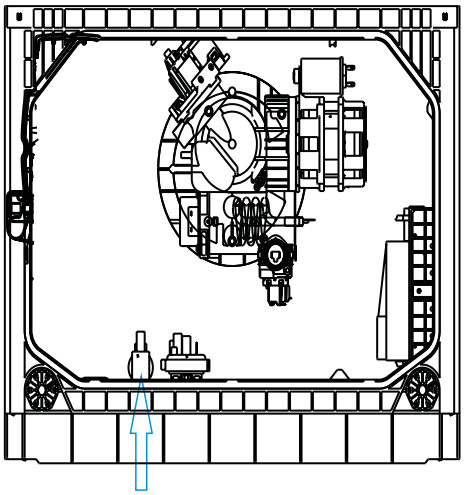
Description

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	D/Ed	Dispenser
8	FAN	Fan
9	BUZ1	Buzzer
10	LIGHT	Top Light
11	RE	Thermister
12	DOOR	Door
13	IAQS	Overflow detect
14	ISS	Salt detect
15	ISB	Rinse detect
16	FM	Flowermeter
17	TURB	Turbidity detect
18	ALT	Diverter detect
19	BLDC(CON6)	BLDC Motor

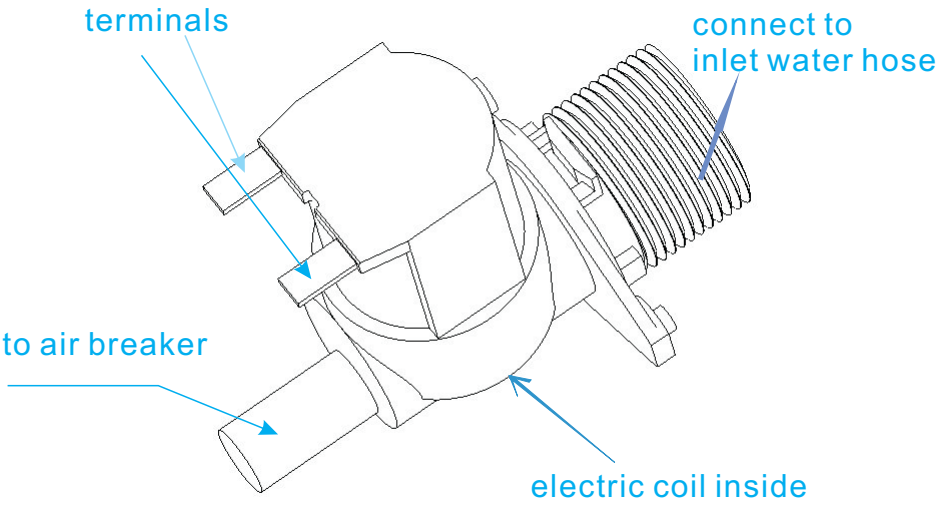
There is small pole's location difference between different models.
But the marks on PCB have the same meaning described on the left side.

Location of inlet valve

Bottom view



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

The defeat point

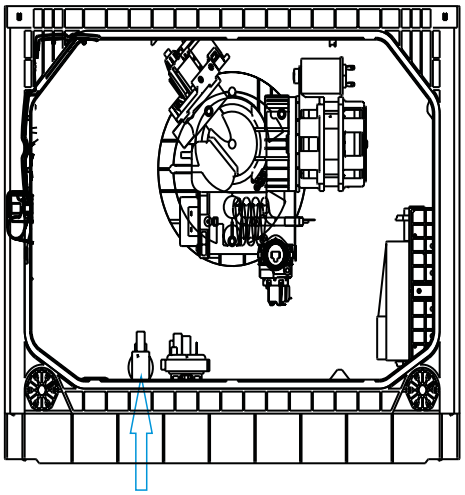
1. The valve coil is broken, so the valve can't open. It will cause the E1 error.
2. The filter is jammed, so water can't enter. It will cause the E1 error.
3. The connector is loose, so the valve can't open. It will cause the E1 error.
4. The valve pole is rusted or locked by dreg, so the valve can't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

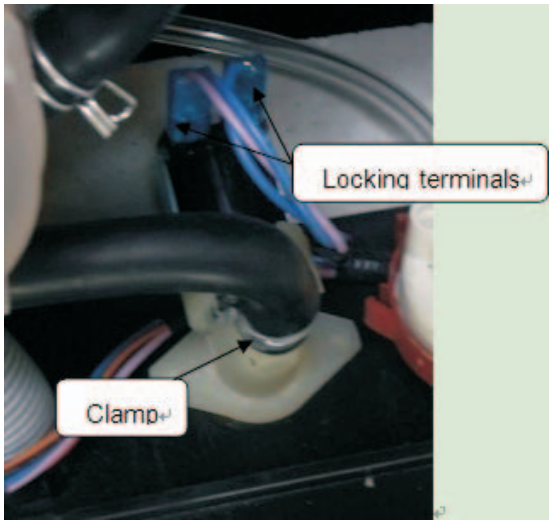
Technical data

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

Access inlet valve

1. Disconnect power.
2. Remove the water inlet hose. (Note : Be careful of remain water drop.)
3. Remove the cover of the bottom board.



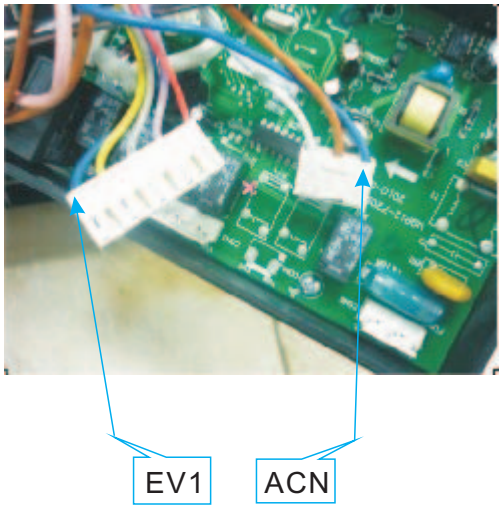


4. Disconnect the 2 terminal lugs from the inlet valve.
5. Pull out the valve a little then contrarotate it to take it off.
6. Remove the clamp and disconnect the inlet hose (to air breaker) from the water valve.
7. Reverse above procedures to install.

Inspect inlet valve

Check electric part

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

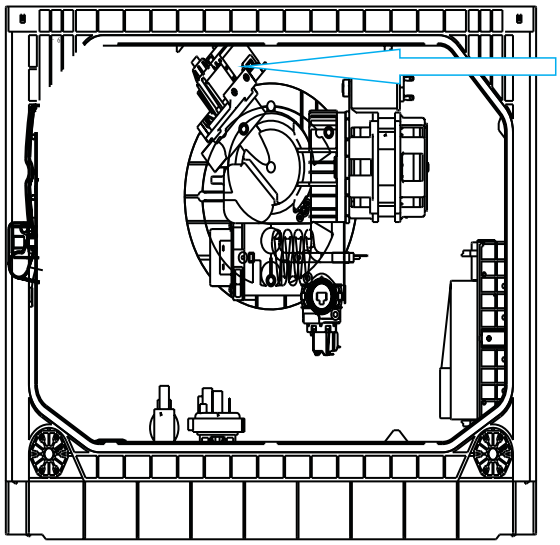


Check machine part

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

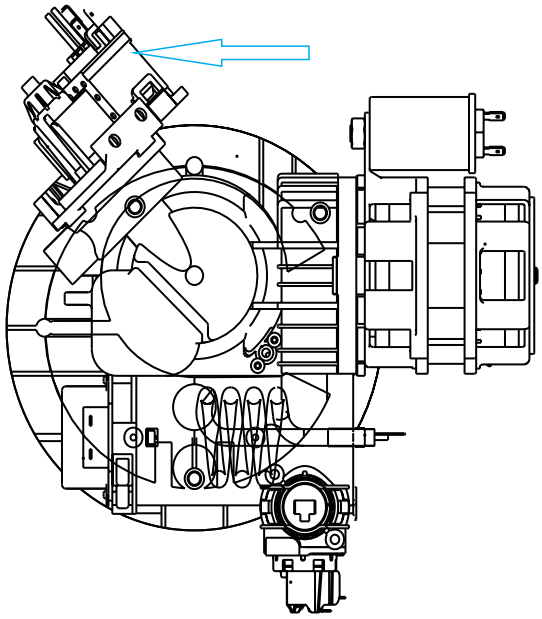
Location of Drain Pump

Bottom view



The work principle

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

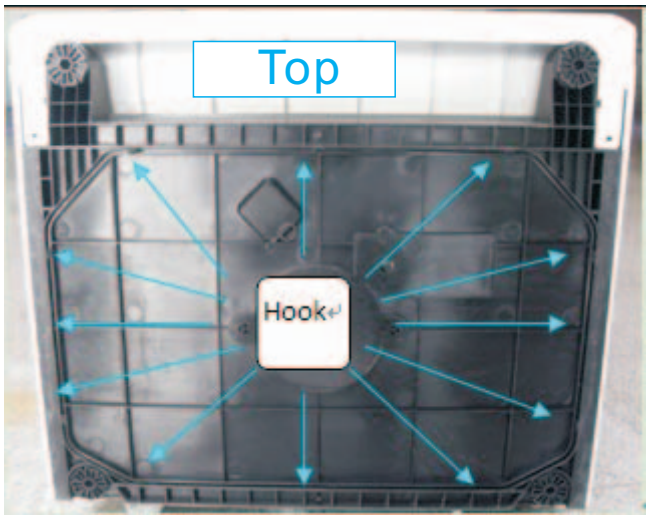
The defeat point

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

Technical data

Items \ Model	PSB-01	B20-5
Nominal voltage	220-240VAC	220-240VAC
Frequency	50Hz	60Hz
Delivery height	1M	1M
Delivery performance	≥17l/min(230VAC)	≥17l/min(230VAC)

Access drain pump

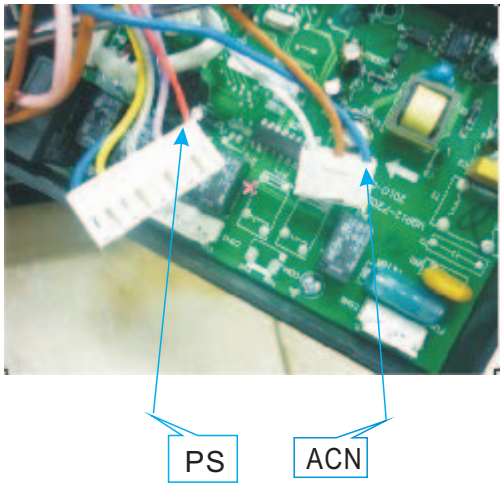


1. Drain off the water in the dishwasher, and disconnect the power supply。
(Note : Make sure to remove remained water in the dishwasher. If not, wet the floor.)
2.Loosen the hooks, and then remove bottom board.(Note:You should first loosen the top hooks, then the left and right hooks. and be care do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

Inspect drain pump

Check the electric part

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

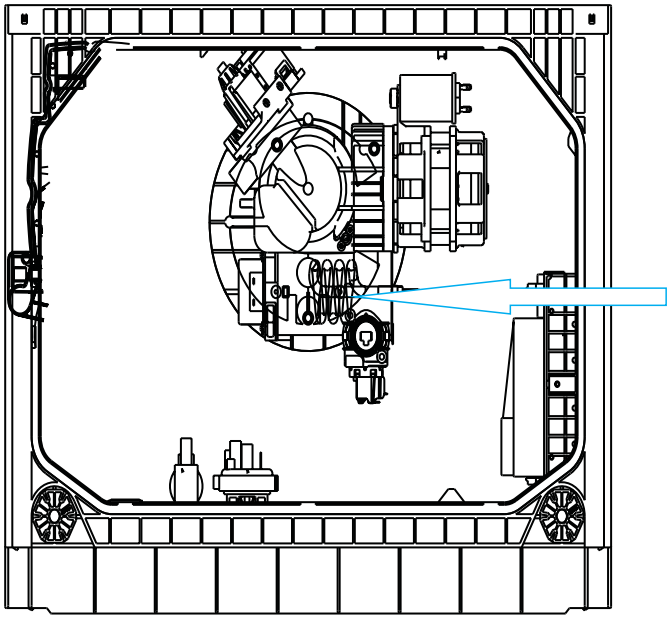


Check the machine part

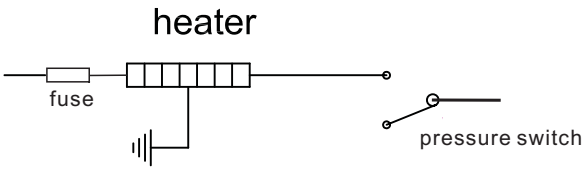
1. If the electric part is OK, we need to check the machine part.
2. Remove bottom board.
3. If the non-return valve is wrongly assembled, the tub will remain much water. We need to re-assemble the non-return valve.
4. If the drain pump is working, but no water drain out or just a little. We should check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

Location of Heater

Bottom view



The work principle

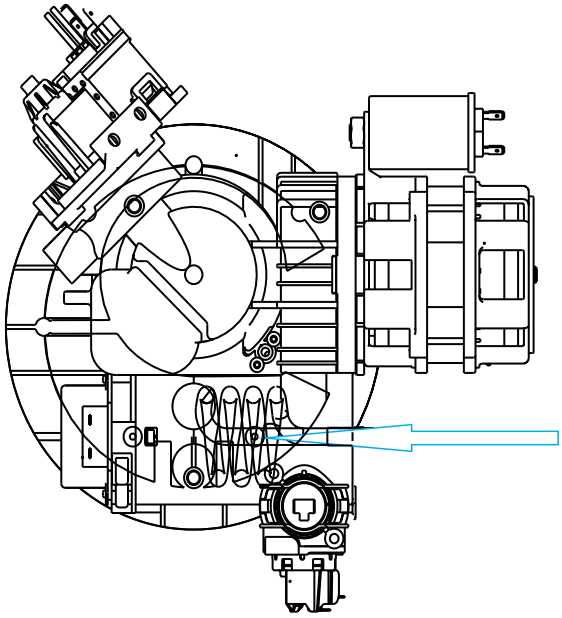


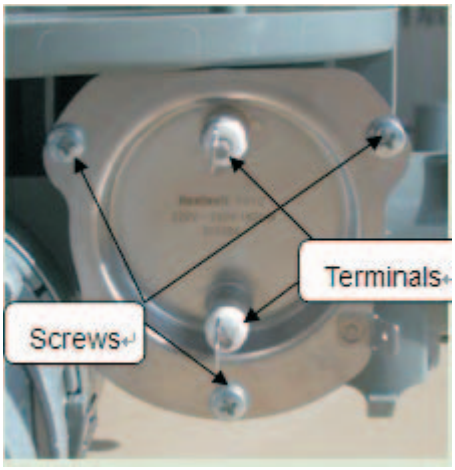
Technical data

Nominal voltage	230VAC
Rating power	1800W
Resistance	29.4 10%Ω
Fuse	G5/192℃

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.





Access heater

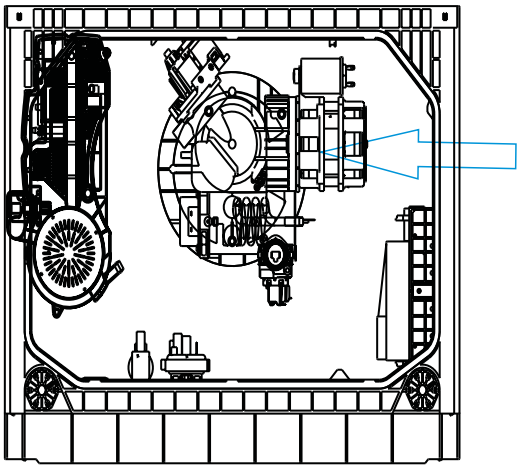
1. Drain off the water in the dishwasher, and disconnect the power supply.
(Note : Make sure to remove remained water in the dishwasher. If not, wet the floor)
2. Remove bottom board.
3. Label and disconnect the terminals.
4. Remove the 3 screws for fixing the heating element.
5. Reverse above procedures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

Inspect heater

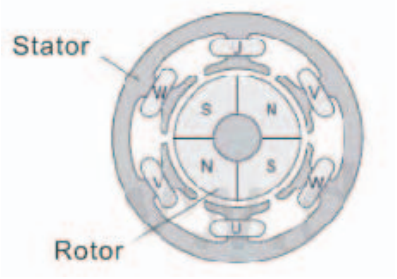
1. Remove bottom board.
2. With the door closed,use the multi-meter Ω shelf to measure resistance between the two terminals shown in above right picture, the resistance is about 29Ω to 31Ω.
3. If the measured resistance is not correct, it means the heater coil or the thermostat is broken, we should replace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

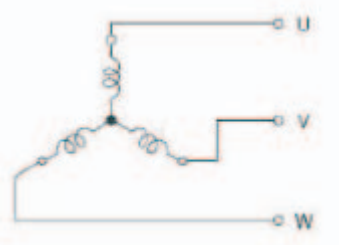
Location of Washing Pump

Bottom View



The work principle





Washing pump is a kind of synchronous motor, and it's called BLDC motor. The stator consists of cast steel stack and inlaid coils. The rotor is a permanent magnet and the north and south poles alternately arranged.

The defeat point

1. The motor coil is broken, so the wash pump can't work. It will cause Error C.
2. The connector is loose, the wash pump can't work. It will cause Error C.
3. The rotor is locked by residues, so the wash pump can't work. It will cause the Error C.
4. If the machine hasn't been used for long time, there is a possibility the wash pump can't starting.

Technical data

Models / Items	DDX50-6A
Nominal voltage	220-240VDC
Frequency	——
Resistance	U-V: 59Ω 7%Ω
	U-W : 59Ω 7%Ω
	V-W : 59Ω 7%Ω
Delivery height	1m
Delivery performance	≥50l/min(230VDC)
Lock rotor current	Software protect
Operating current	0.2A 10%(230VDC)
Capacitor	None

Access Washing Pump

1. Disconnect power.
2. Remove bottom board.
3. Label and disconnect the 2 terminals to the motor wire connector.
4. Remove the clamp fastening the interconnect hose to the sump.

Caution: The clamp is easily damaged during removal and can't be reused. Replace the old clamp with a new universal clamp.

5. Disconnect the ground wire from the wash pump motor assembly.
6. Remove the motor pump assembly from the dishwasher.
7. Reverse above procedures to install.

Error Analysis

Check the electric part

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

1. Hold down "+" button and "-" button for 5s, a certain code would appear on the screen.
2. If it appears to be "L9"~"Lc", it means the BLDC motor may have a failure, so replace the motor.
3. If it appears to be "L1"~"L8" or "Ld", it means the assistant PCB board may have a failure, so replace the assistant PCB board.
4. If no error occurs, it will appear to be "L0".

BLDC failure code	Meaning
L1	PCB board failure
L2	
L3	
L4	
L5	
L6	
L7	
L8	
Ld	
L9	BLDC motor failure
La	
Lb	
Lc	
L0	No failure

The work principle

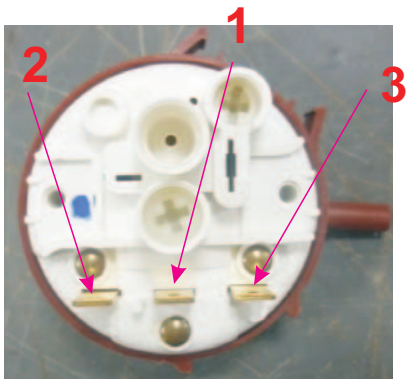
The pressure switch consists of a moving diaphragm and disc which activate a change over contact. The contact can be calibrated to trip and reset at the desired pressure levels, The main application is to control the level of water in appliances. May also provide flood protection.

In our production, May also provide flood protection, like 135/115 serial.

1- COM

2 - NC

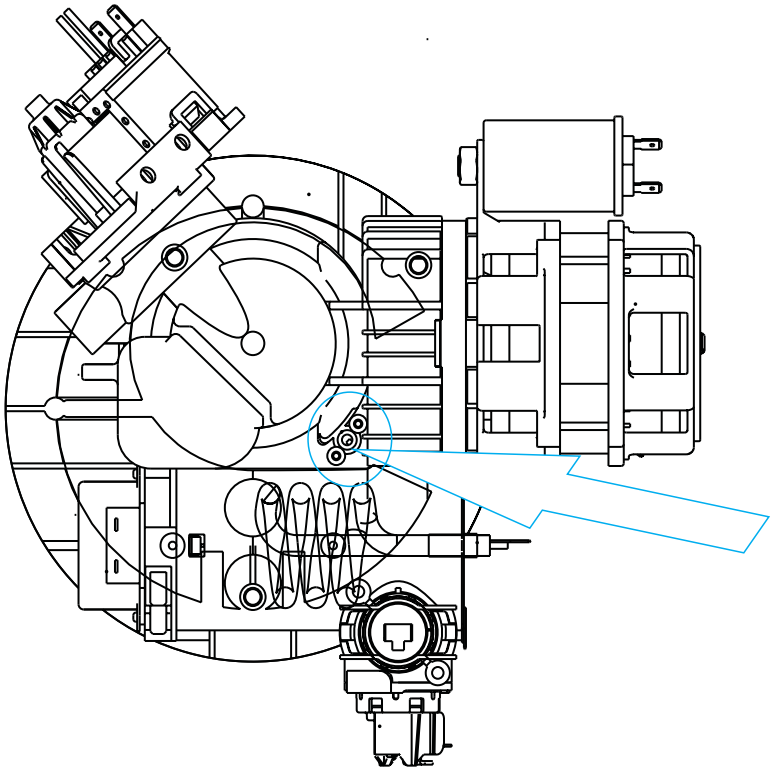
3 - NO



Front view

Back view

Location of NTC



The work principle

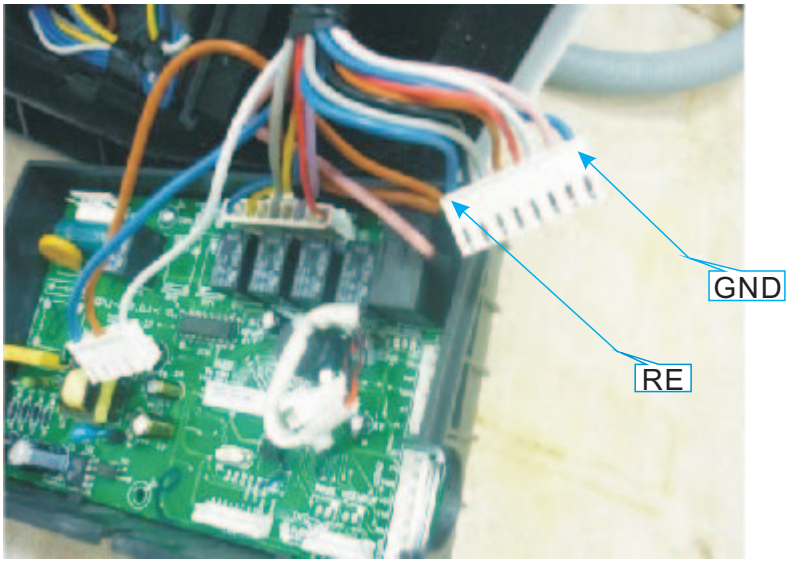
Negative Temperature Coefficient Thermistor is integrated into sump, which is used for measuring temperature of water in the tub.

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.

Inspect NTC

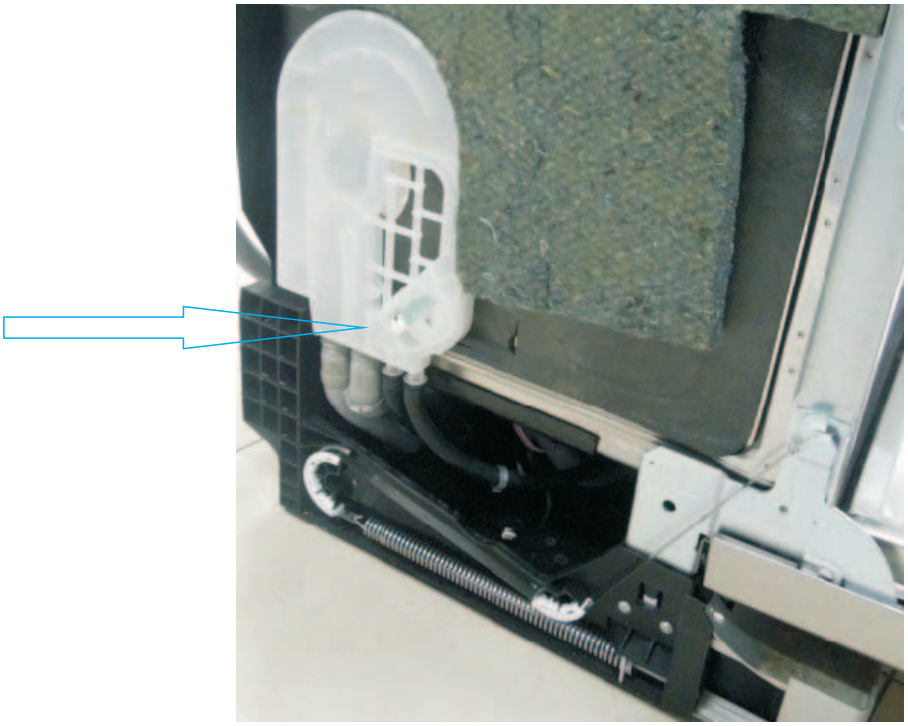
1.Open the protecting box and take out PCB;
2.With the door closed,unplug the RE connector(shown in below picture), then use the multi-meter Ω shelf to test resistance between two blue wires(RE and GND) , the normal resistance is shown in below table.
3. I f the resistance is not correct, it means NTC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



NTC resistance table

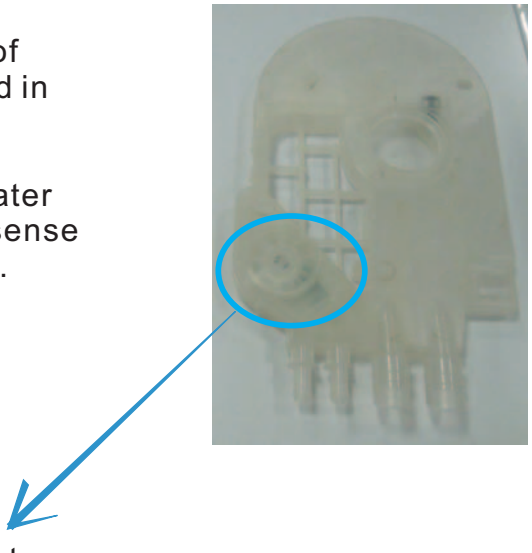
NTC	15℃	17.48KΩ
	20℃	12.12KΩ
	25℃	10KΩ
	30℃	8.299KΩ
	40℃	5.807KΩ
	50℃	4.144KΩ
	60℃	3.011KΩ
	70℃	2.224KΩ
	80℃	1.667KΩ
	85℃	1.451KΩ

Location of Flowmeter



The work principle

Flowmeter is integrated into Air Breaker. Function of Flowmwter is measure how much water has entered in appliance. it consists of impeller, tongue tube and terminal, etc.
When water pass through the flowmeter, moving water can rotate magnetic impeller, the tongue tube can sense the impeller's magnetic and send electronic pulses.

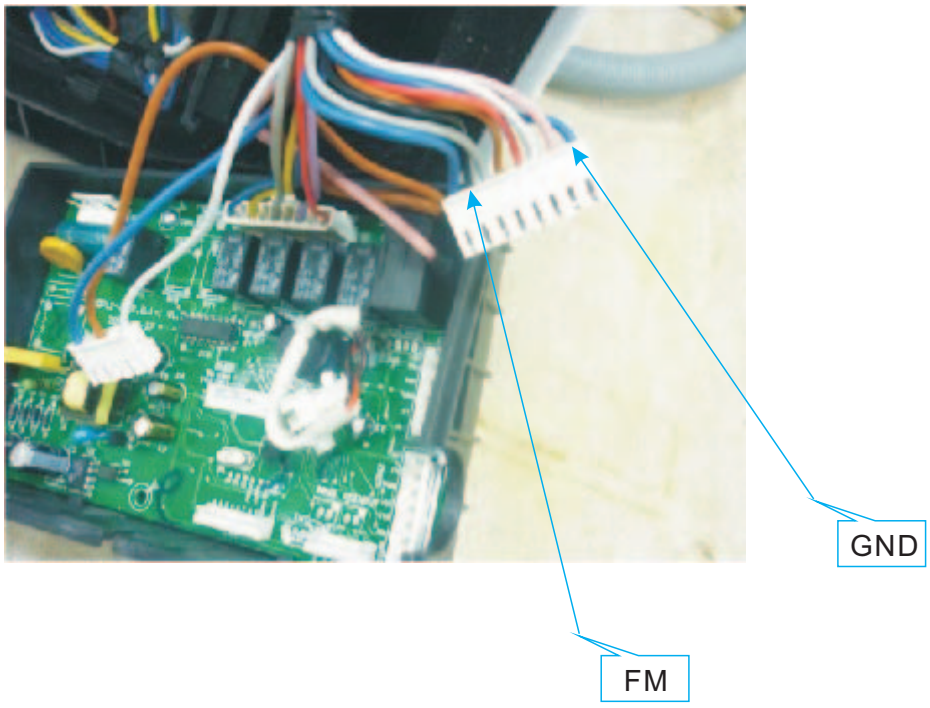


Access Flowmeter

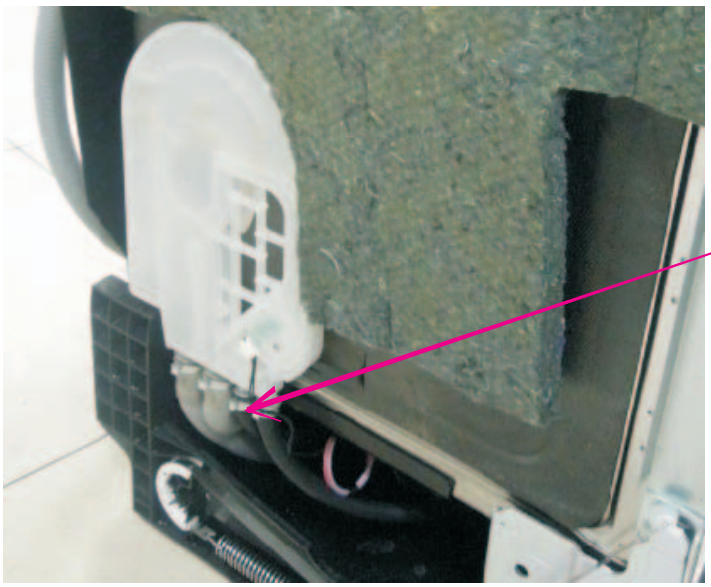
1. Remove the baseboard, top panel and left side panel.
2. Remove the plastic nut inside tub, which secures the air breaker to tub.(Because flowmeter is integrated into air breaker, replace air breaker if flowmeter has failure.)
3. Disconnect the wire and remove clamp fastening hose to air breaker.
4.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

Inspect Flowmeter

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



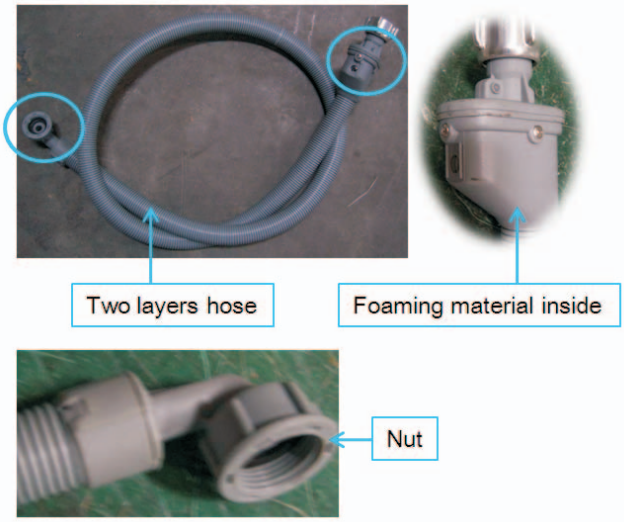
Location of Safety Hose



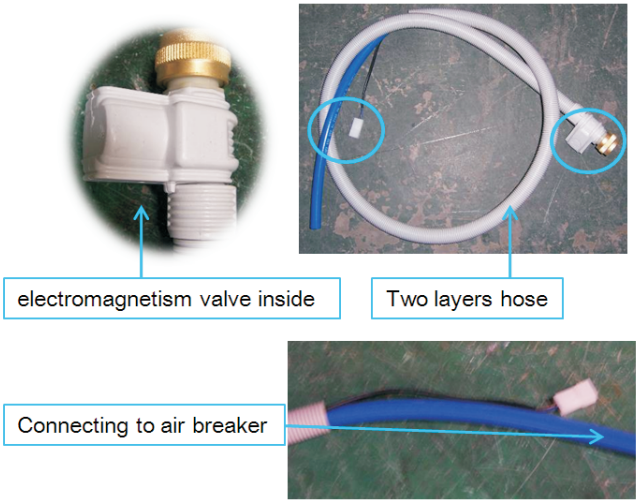
Electronic Aquastop Hose

The work principle

Mechanical Aquastop Hose



Electronic Aquastop Hose

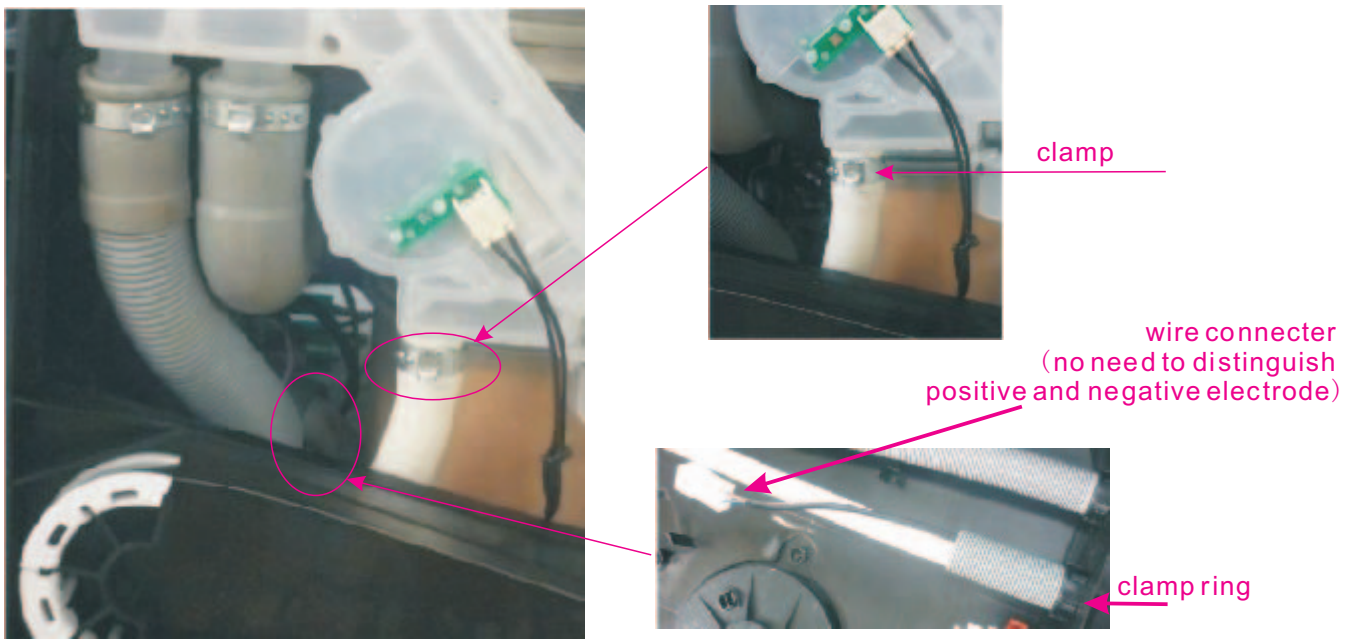


There are two types of Safety Hose, mechanical Aquastop hose and electronic Aquastop hose, which have different principles and assembly modes.

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

Electronic Aquastop safety hose also has two layers. But the difference from mechanical is that if 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.

Access Safety Hose



1. Remove baseboard, side baseboard, top panel and left side panel.
2. Remove clamp, cut the bound belt and disconnect the wire connector. Then the Inlet hose cane pulled out.
3. Reverse the above procedure to assemble.

Mechanical Aquastop Hose

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

Inspect Safety Hose

Electronic Aquastop Hose

1.Open the protecting box and take out the PCB;
2.With the door closed, unplug the CON3 and ACN wires , then use the multi-meter Ω shelf to measure resistance between the blue wire (EV1) and blue wire (ACN). Open circuit and short circuit are both incorrect.
3. I f 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.

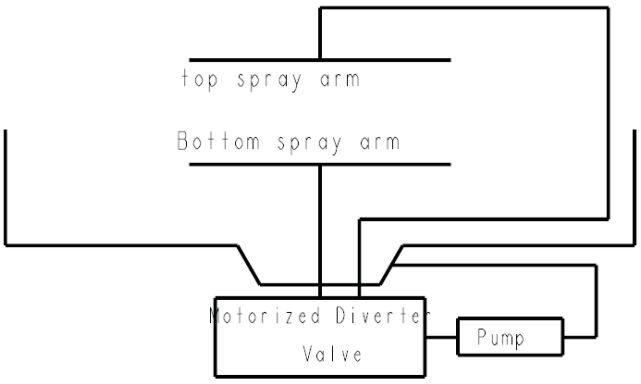
Mechanical Aquastop Hose

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

The work principle

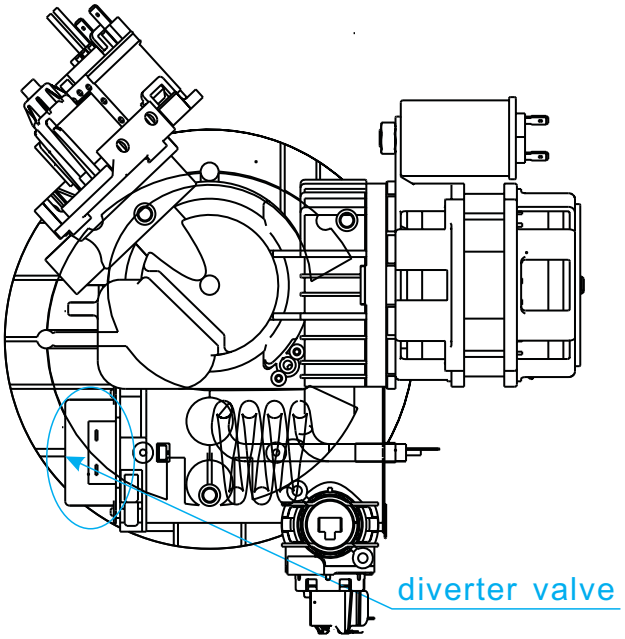
Diverter, also named alternating flow control valve, is used to control the flow of water between the upper and lower spray arms and can also be used on some models to stop the flow of water to the upper spray arm on models equiped with a half load feature.

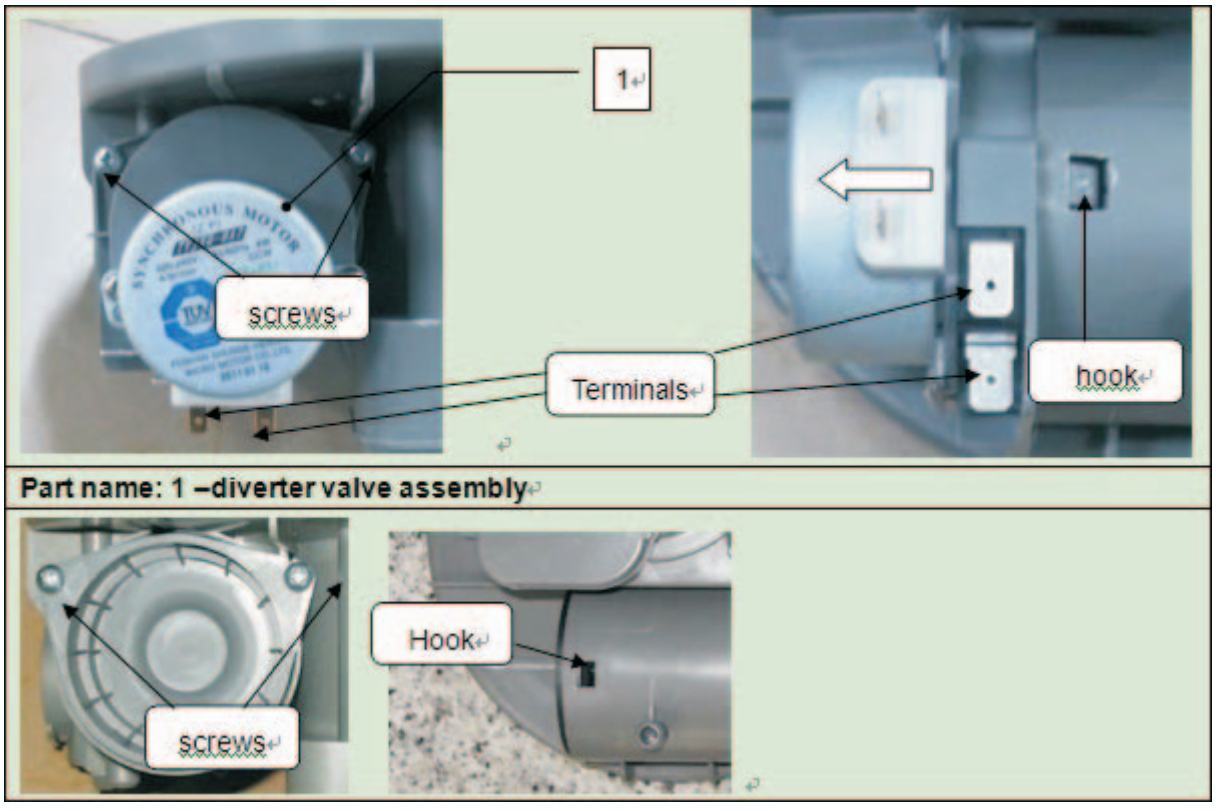
Hydraulic scheme



Access Diverter valve

1. Disconnect power.
2. Remove bottom board.
3. Label and disconnect the 2 terminals.
4. Remove the screws fastening the diverter valve to pump.
5. Reverse the above procedure to install.





Test Program

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

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

To activate test program, with the door opened and within 60s after power on, hold down the Rapid button and press the POWER button until the machine enter into Test Program. The appliance will pause and stand by(as step 00). Then close the door to start the Test Program.

During test program running, you can press Rapid button to jump into next step（except inlet valve step）.

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

Procedure of Test Program (for models controlling water filling by flowmeter)			
No.	Display on the screen	Process	Description
0	8:88	Initialization	Power on, stand by.
1	Turbidity value	Inlet Valve	Open inlet valve and feeds with 3.6L water. The diverter will move to the position rotating both upper and lower sprayer arm. Turbidity value will be adjusted and shown on the screen.
2	04/Temper-ature value	Washing Pump and Heating Element	Run washing pump at speed 2600 RPM and 10s later run heating element until the water temperature reaches 57℃. Then the machine will pause. Press Rapid button to jump into the next step.
3	03	Washing Pump and Dispenser	Dispenser will act once for 45s, and washing pump will run at speed 2400 RPM for 10s in this step.
4	02	Pause	Pause 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 the error 1 has happened, 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.
Notice: the majority of models are 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, E8 and EC are valid.
Note: E8 is valid for models equipped with diverter valve(alternative washing function).
EC is valid for models equipped with BLDC motor.

How does the appliance react when error code occurred

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.

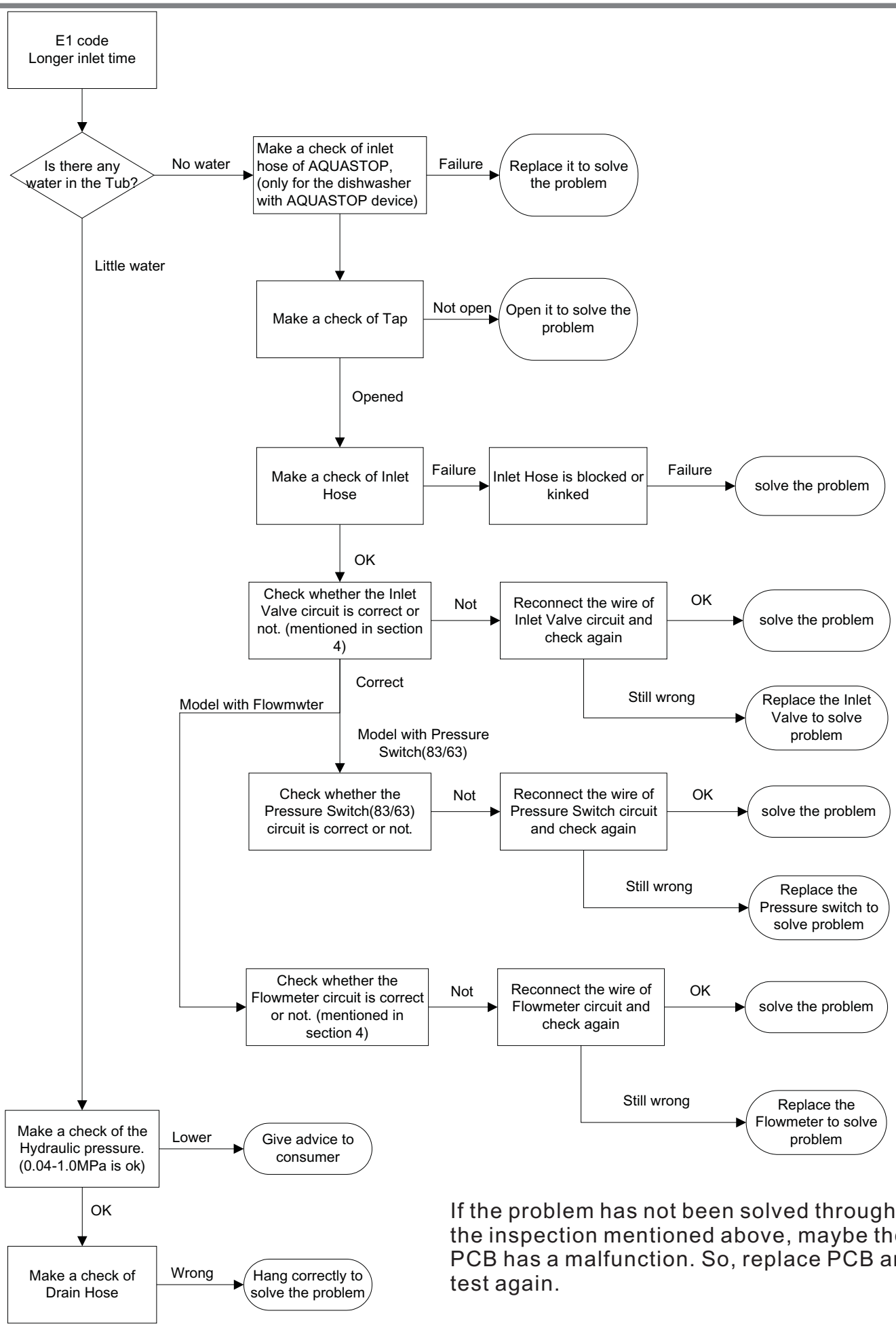
E8 Diverter valve fault

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.

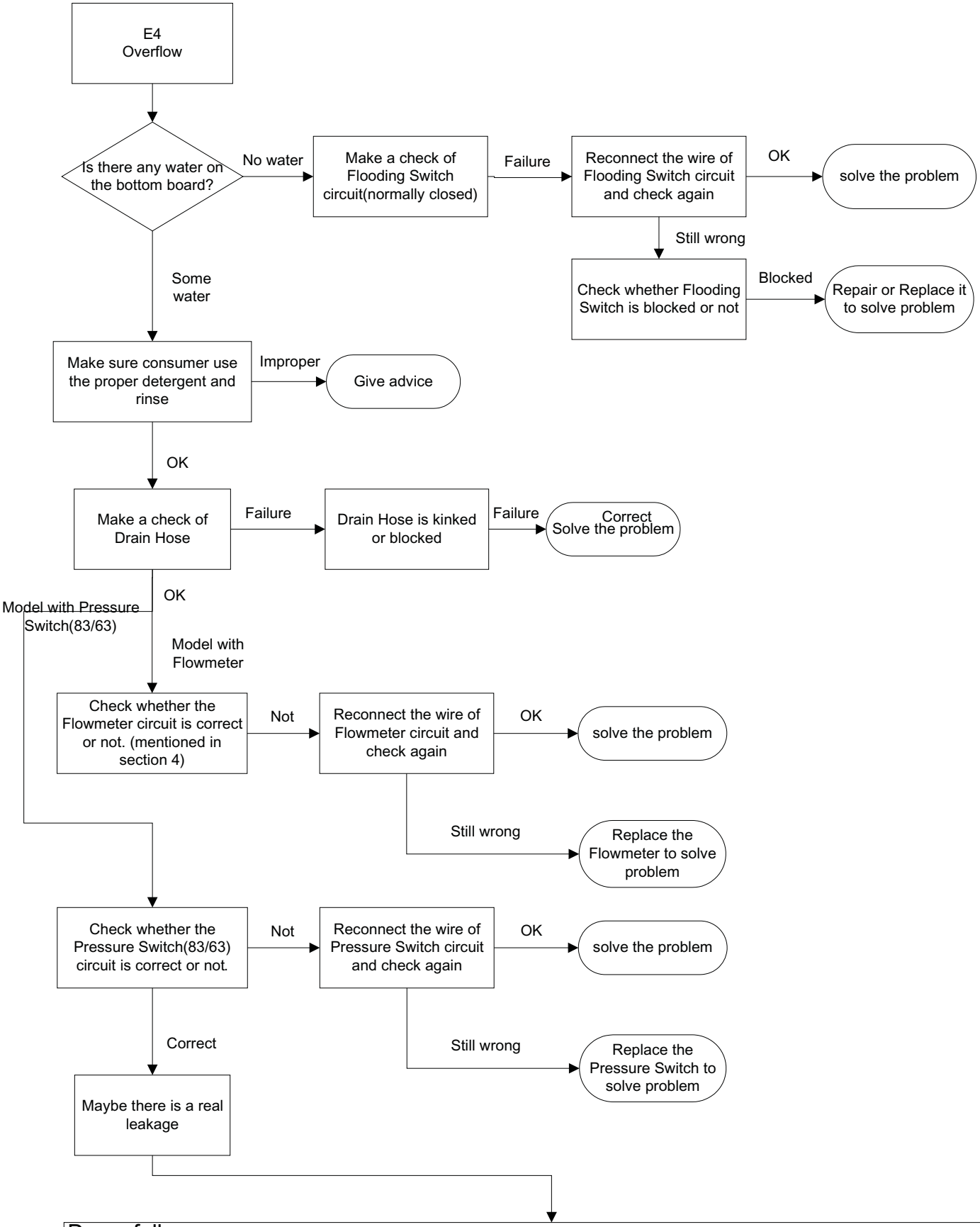
In the process of washing program in which diverter valve should be act, if machine doesn't detect the feeding signal of diverter valve for 15 seconds or doesn't detect the diverter valve being positioned accurately in 60 seconds, the diverter valve would stop and the E8 would be set off after ending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



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.

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



Do as follows

Remove two side panels

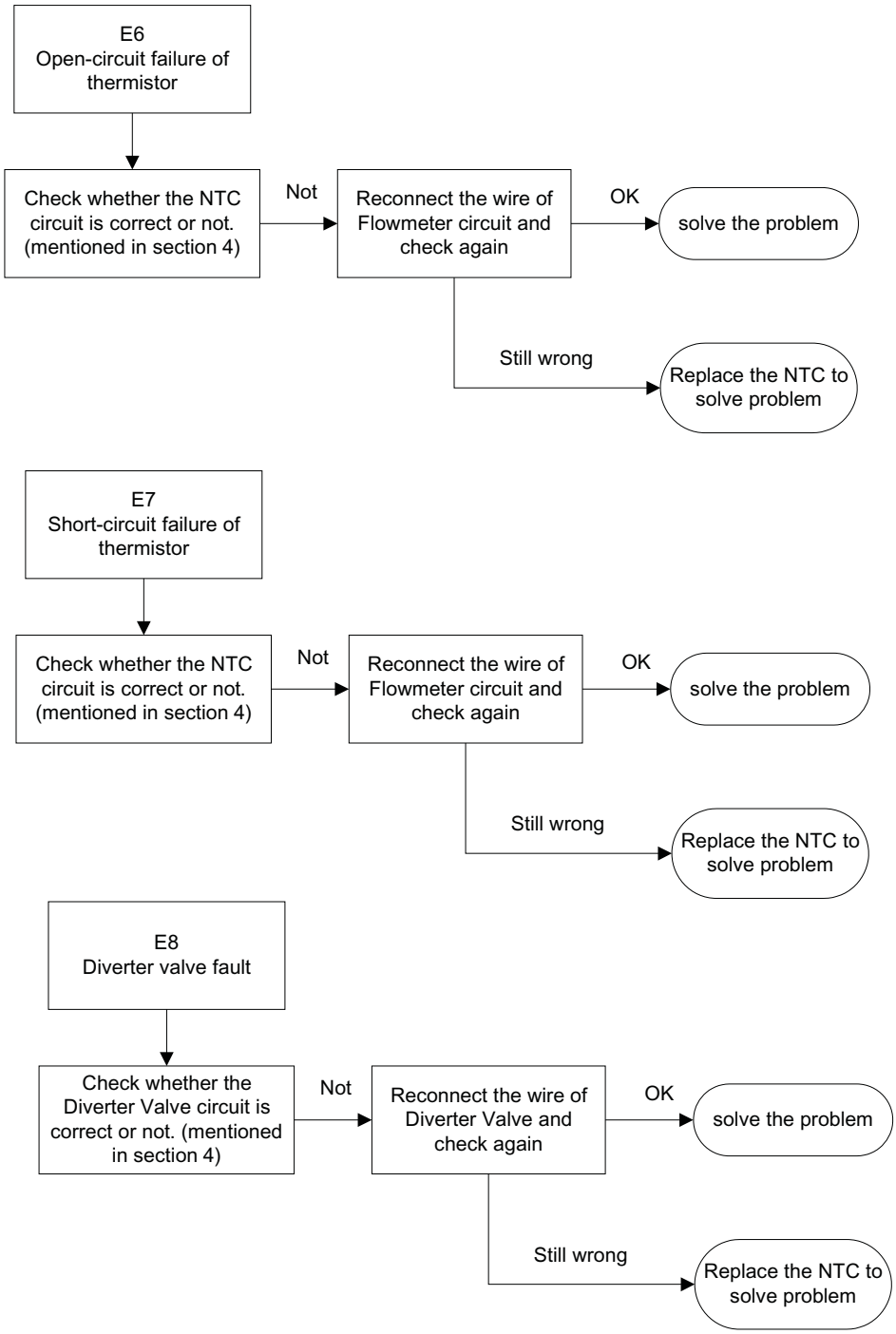
Remove the water from the bottom board and make sure there is no water at the bottom board.

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

Observe the bottom tray every twenty minutes.

If any water appears, you will found out which areas, such as motor, drain pump, sump, softener, and hoses between them, and also clips at the end of each hose, besides the weld seam at the bottom of the tub.

If hours passed, but no water comes out, you should stop the dishwasher with sufficient water in the inner tub, and observe it again after leaving it alone for one to two hours.



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.

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

E3 heating fault	check filter	severely jammed filter might cause E3 alarm, so give advice to end customer on clean regularly the interior of 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 and bacteria can and do build up along the surfaces and in the crevices of a dishwasher. Cleaning a dishwasher regularly will keep it functioning properly, keep your family healthy and safe, and keep your dishes coming out sparkling	clean the filter and give advice
	check the hydraulic pressure	low hydraulic pressure might cause the less filling water	make sure the hygraulic pressure in the range from 0.04 to 1.0 Mpa.	give advice
	check the drain hose	wrong installation of drain hose might cause water siphon out	make sure it is intalled 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 cann'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 ℃/min) is normal and the applaince pause when the water temperature reach 60 degreee or not.	replace the defective component
	check anti-drying pressure switch	abnormal anti-drying pressure switch might cause E3 alarm	if haven't find the problem after checking the components mentioned above, it is most possible reason that anti-drying pressure switch is abnormal.	replace the anti-drying pressure switch
	check PCB	defective PCB also might cause E3 alarm, but its probability is small.	So, When you have eliminated other possible causes, you can try to change PCB to see if the problem be solved.	reconnect or replace PCB
	check the use of detergent	too much detergent used during the wash cycle could cause the water foams up and overflow on the bottom	give advice to end customer advice on use the amount of detergent used during the wash cycle according to instruction manual	give advice

E4 overflow	chech whether the applaince is level	if apliance 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 noramlly or not	replace the drain pump
	check the amount of filling water	too much filling water could make a overflow	for models controlling water filling by pressure switch(83/63), run test program and check whether the amount of filling water is normal or not.	repalce the pressure switch(83/63)
			for models controlling water filling by flowmeter, run test program and check whether the amount of filling water is	replace the flowmeter
	check the float microswitch	sticking float microswitch could cause the E4 alarm	disassemble the bottom tray and check whether the float microswitch moves freely up and down	repair or replace the float microswitch
	find where leakage is	if there is a real leakage, finding where leakage is and solving the problem would be	to find and solve problem, do as suggestion mentioned in service manual	repair or replace the defective component
E6 & E7 open-circuit & short-circuit	check the NTC	if the appliance detect the malfunction of NTC themistor, E6 or E7 would be set off	check the NTC circuit and measure the resistance of NTC thermistor	reconnect or replace the NTC thermistor
	check the PCB	if the NTC thermistor is ok, but the alarm still be set off, the PCB might have defect	change the PCB to see if the appliance is run normally	reconnect or replace PCB
	check the loading	improper loading could block the spray arm, so give advice to end customer on how to load dishes and silverware 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 and bacteria can and do build up along the surfaces and in the crevices of a dishwasher. Cleaning a dishwasher regularly will keep it functioning properly, keep your family healthy and safe, and keep your dishes coming out sparkling	clean the filter and give advice
	check the using program	improper program might cause poor performance		

poor washing performance	check the use of deterhent and rinse	improper amount of detergent and rinse aid and poor quality detergent and rinse aid might cause poor performance	refer to instruction manual	give advice
	check the setting of salt consumption	improper salt consumption might cause the poor perpormance	Observe whether there are water spots or white film on washed dishes and glass which caused by hard water mineral. If water is too hard, there is a need to adjust salt consumption to adopt to the situation.(refer to instruction	adjust salt consumption
	check dispenser	malfunction of dispenser might cause the poor performance	Run the test program to see whether dispenser open normally.	replace the dispenser
	check the water level	less water might cause the poor performance	make sure the aplliance is level	level appliance
			wrong installation of drain hose might cause water siphon out, so make sure it is intalled properly.(refer to instruction	reinstall drain hose
			low hydraulic pressure might cause the less filling water, so make sure the hygraulic pressure in the range from 0.04 to	give advice
			for models controlling water filling by flowmeter, defective flowmeter might cause less filling water. When you have eliminated other causes of less water, you could roughly judge the flowmeter is something wrong.	replace flowmeter
			for models controlling water filling by pressure switch(83/63), defective pressure switch might cause less filling water. When you have eliminated other causes of less water, you could roughly judge the pressure switch is something wrong.	replace pressure switch
			defective PCB also might cause less filling water, but its probability is small. So, the last choose is replace PCB.	replace PCB
	check heater and NTC	malfunction of heater or NTC might cause E3 alarm	measure temperature of water in tub continuously when test program is running to see whether temperature increasing (aproximate 2 ℃/min) is normal and the applaince 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

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 performacne. Malfunction of dispenser might cause the rinse	make sure the rinse aid container is not empty and rinse aid is normally release in the cycle.	fill rinse aid or replace dispenser
	-	get better drying performance	The air drying process can be speeded up if you open the dishwasher just after it is finished and the dishes are still hot. This will allow the moist air to leave the dishwasher as the dishes cool and dry.	give advice
noise	check whether the noise is noraml	some audible sound are noraml	-	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	chech the washing motor whether run normally	replace washing pump
	check the drain pump	blocked or defective drain pump might make a abnormal noise	chech the drain motor whether run correctly	replace drain pump