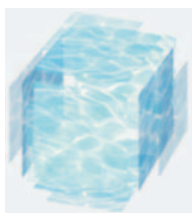


Technical Service Manual



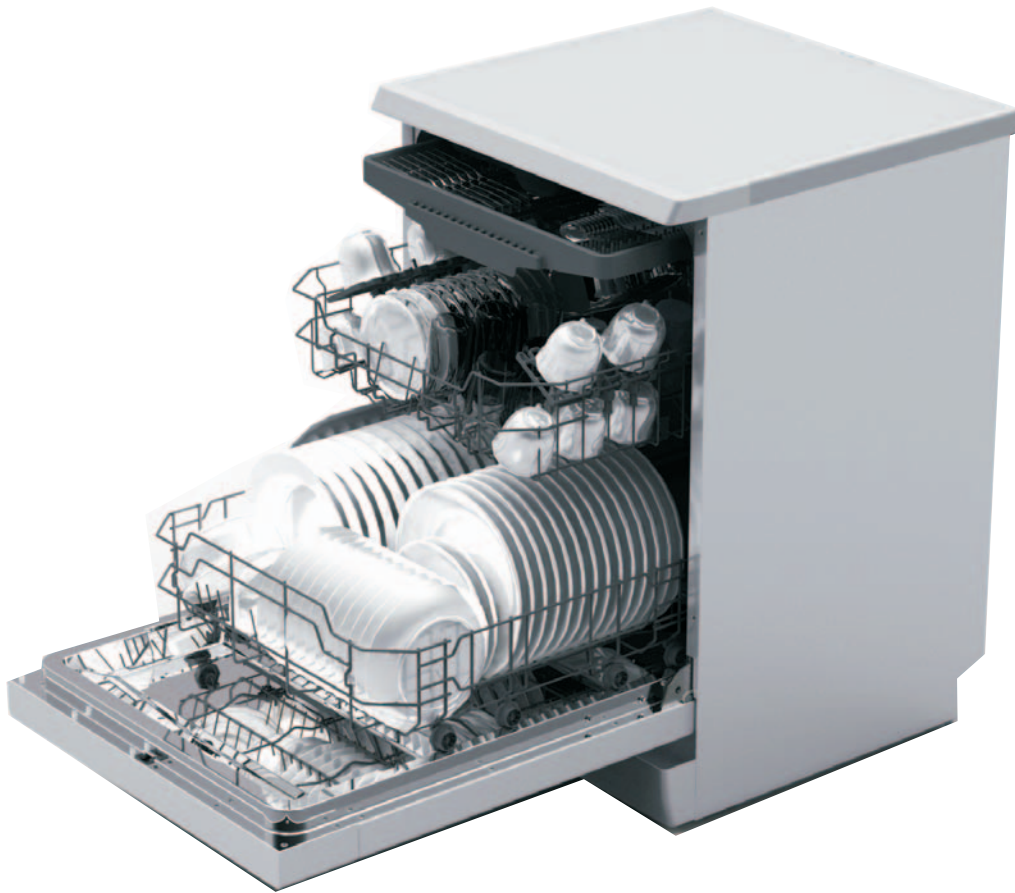
Dishwasher

Contents

| | |
|----------------------|-------|
| Specification | 2 |
| Function Description | 3 |
| Water circuit | 3-4 |
| Theory of parts | 5-27 |
| Location | 5 |
| PCB | 6-7 |
| Inlet valve | 8-10 |
| Drain pump | 11-12 |
| Heater | 13-14 |
| Washing pump | 15-16 |
| Pressure switch | 17 |
| NTC | 18-19 |
| Flowmeter | 20-21 |
| Safety Hose | 22-23 |
| Diverter valve | 24 |
| Test program | 25-28 |
| Procedure | 26 |
| Error code | 27-28 |
| Inspection | 29-33 |
| Troubleshooting | 34-38 |

SAFETY NOTICE

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

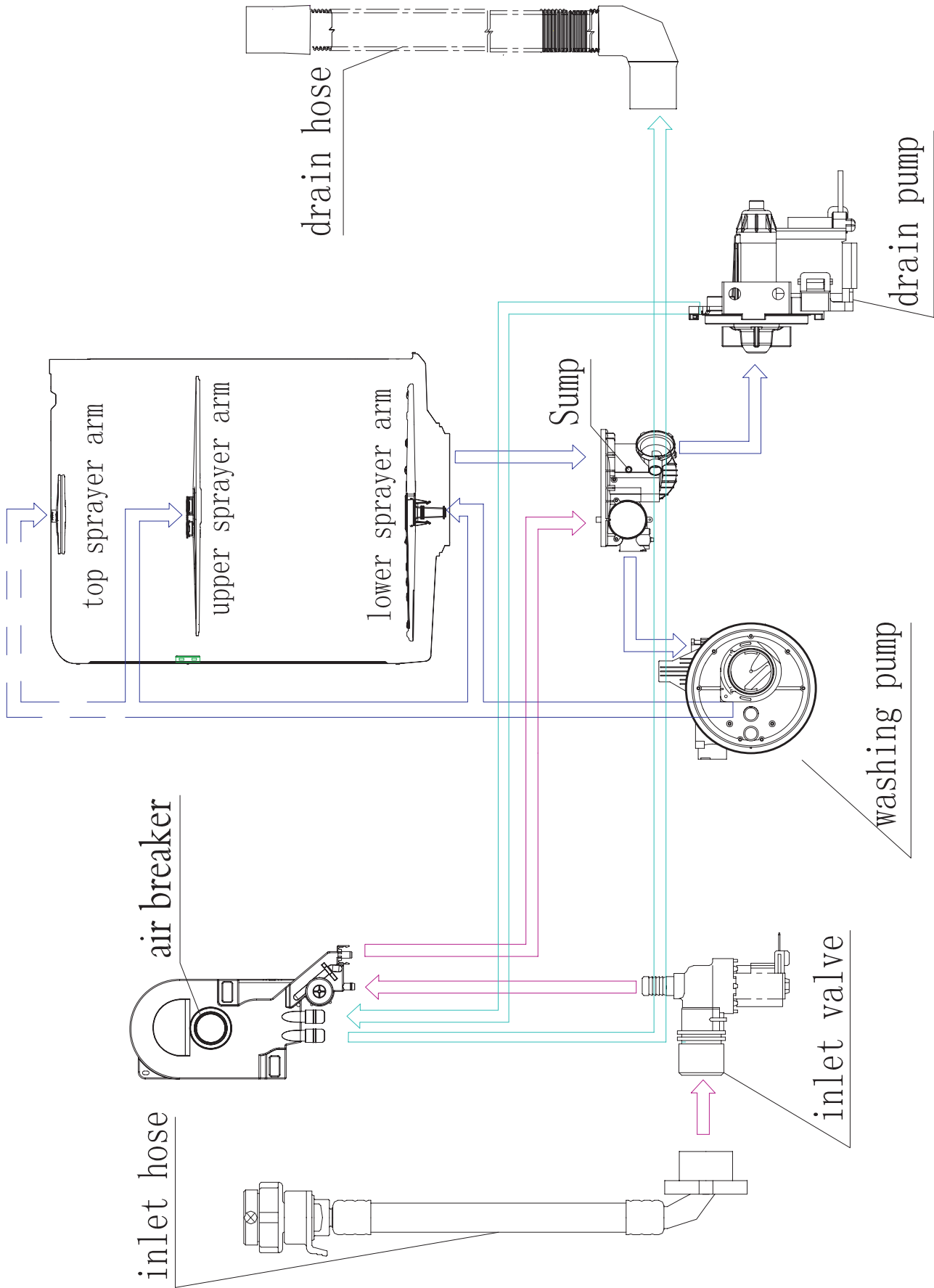


| | |
|--------------------------|-------------------|
| Electrical supply | 220-240V, 50/60Hz |
| Supply water pressure | 0.04MPa-1.0MPa |
| Supply water temperature | below 60℃ |

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

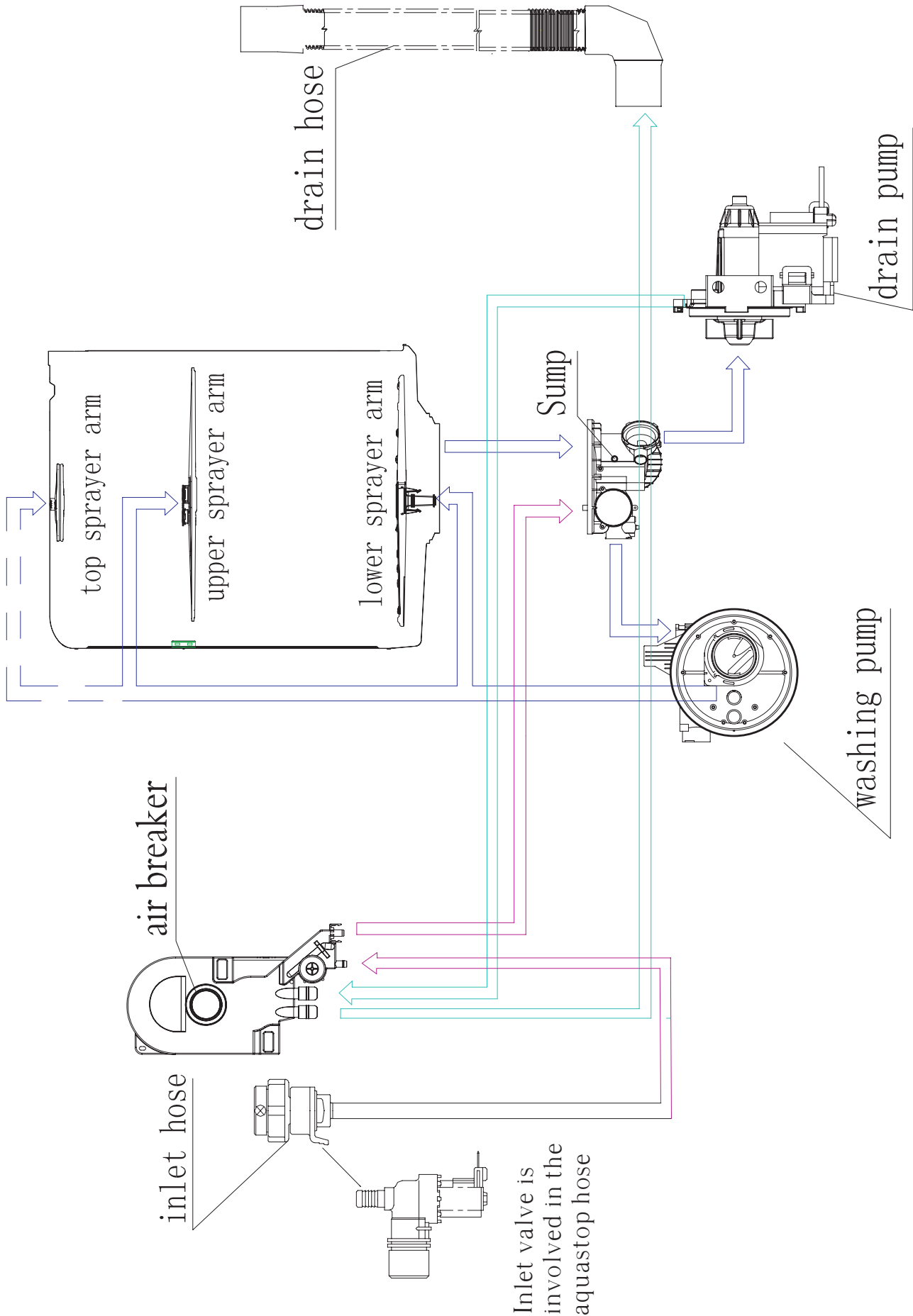
Note: This page is for models with common inlet hose.

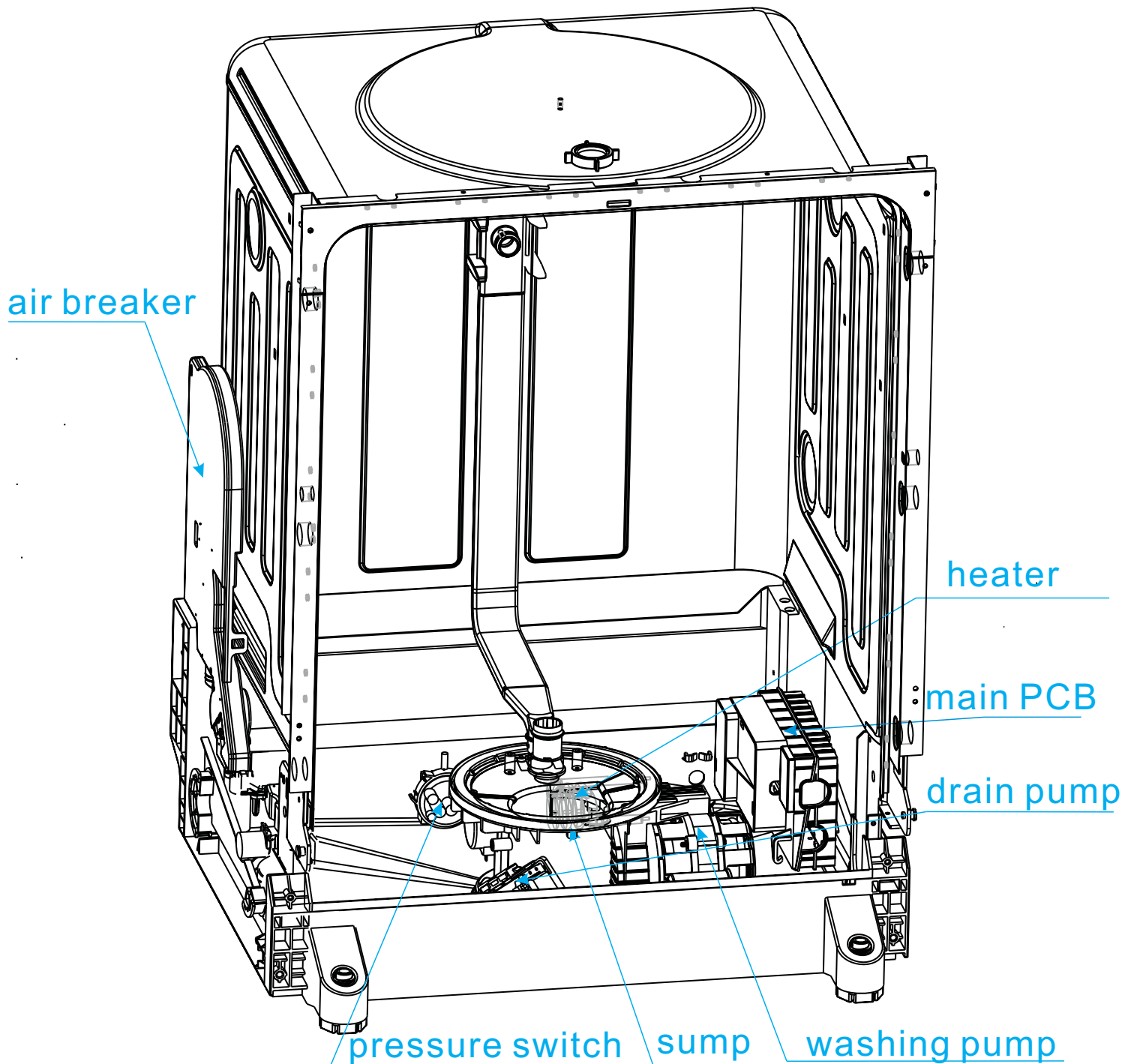
Water circuit scheme



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

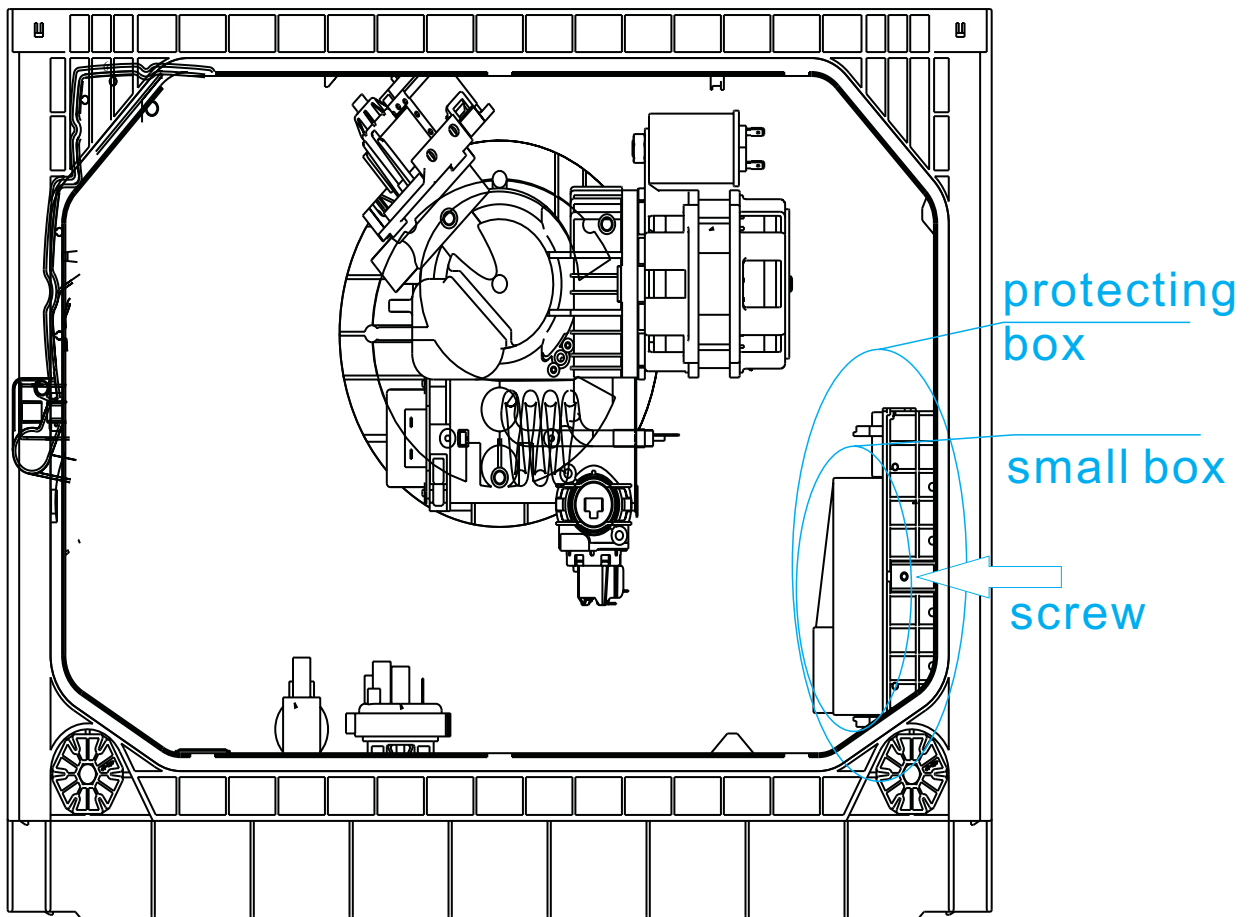
Printed Circuit Board is the control center of dishwasher, which receive and process signal from components, send order to components and deal with the feedback information, etc.

Access PCB

Removing the protecting box.

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

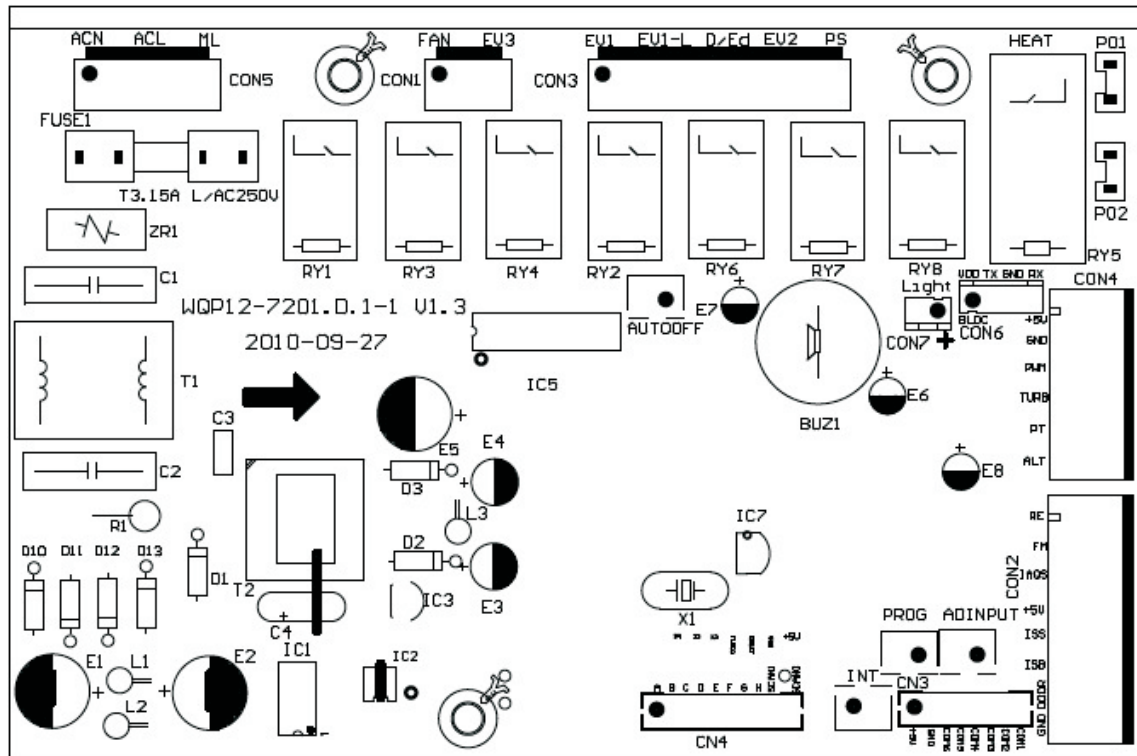
1. Disconnect power supply;
2. Take out cutlery basket, basket and filter system;
3. Open the cover of bottom board.
4. Remove the screws for fixing protecting box and open the protecting box cap.



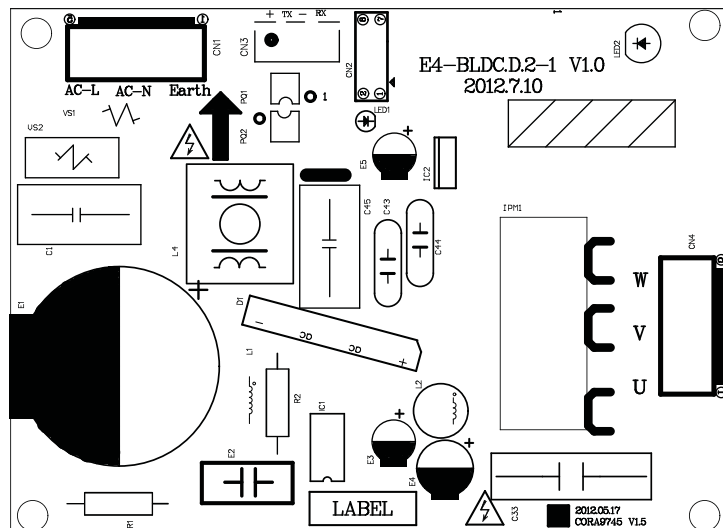
Bottom view

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.



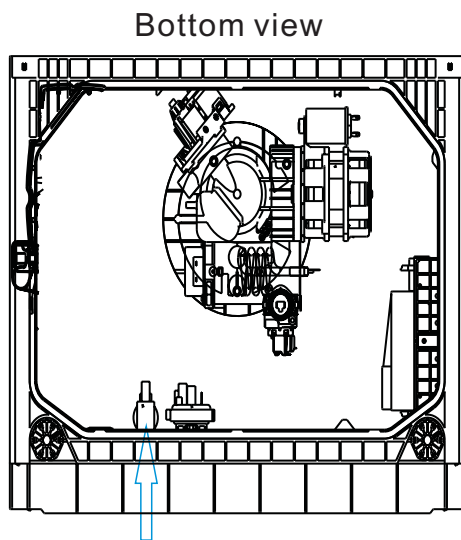
Assistant PCB board

Description

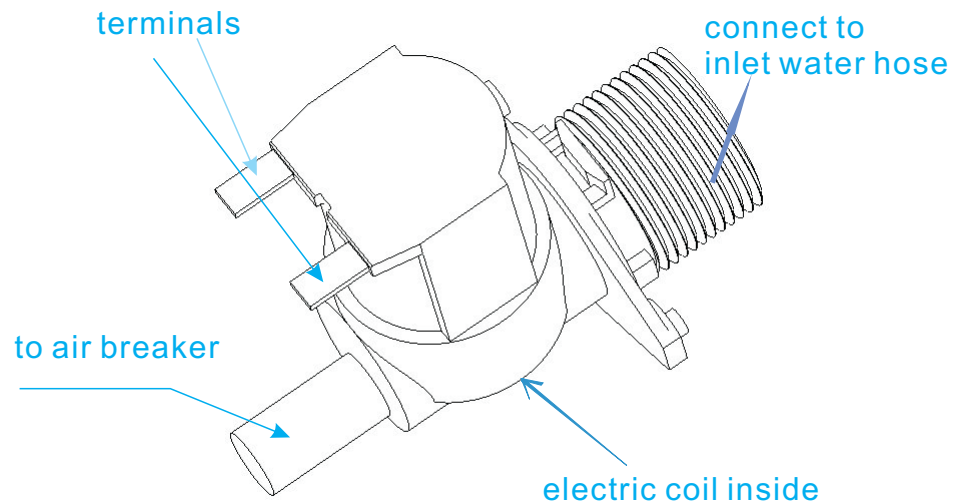
| NO. | Mark | Function |
|-----|------------|--------------------------------|
| 1 | ML | Washing Pump |
| 2 | PS | Drain Pump |
| 3 | EV1 | Inlet Valve |
| 4 | P01/P02 | Heating Element |
| 5 | EV2 | Regeneration Valve of Softener |
| 6 | EV3 | Diverter Valve |
| 7 | D/Ed | Dispenser |
| 8 | FAN | 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 | Flowmeter |
| 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



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

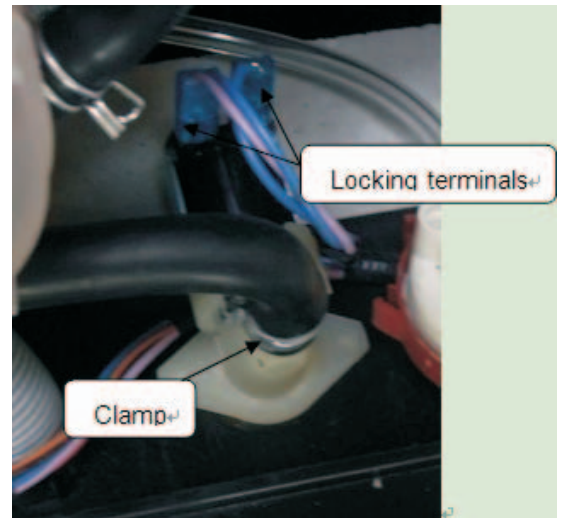
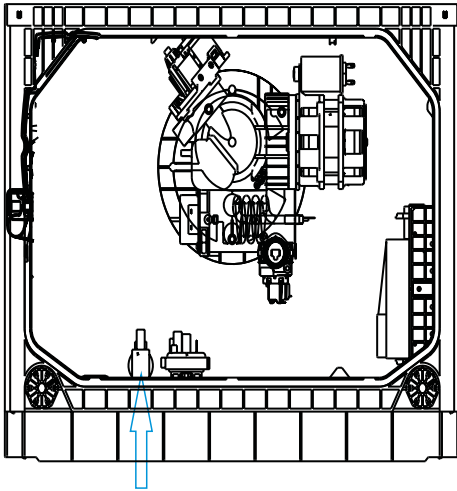
1. The valve coil is broken, so the valve can't open. It will cause the E1 error.
2. The filter is jammed, so water can't enter. It will cause the E1 error.
3. The connector is loose, so the valve can't open. It will cause the E1 error.
4. The valve pole is rusted or locked by dreg, so the valve can't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

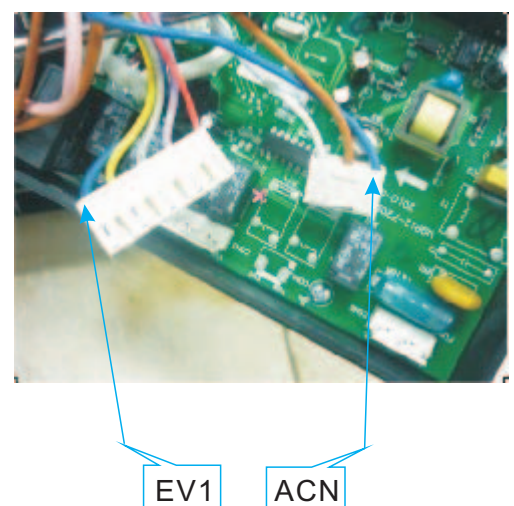


4. Disconnect the 2 terminal lugs from the inlet valve.
5. Pull out the valve a little then contrarotate it to take it off.
6. Remove the clamp and disconnect the inlet hose (to air breaker) from the water valve.
7. Reverse above procedures to install.

Inspect inlet valve

Check electric part

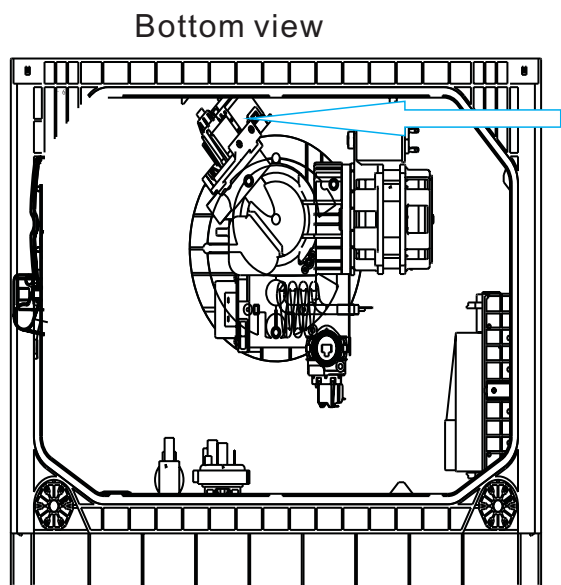
1. Open the protecting box and take out the PCB;
2. With the door closed, unplug the CON3 and ACN wires , then use the multi-meter Ω shelf to measure resistance between the blue wire (EV1) and the blue wire(ACN), the normal resistance is about $3.4K\Omega$ to $4.4K\Omega$.
3. If the measured resistance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



Check machine part

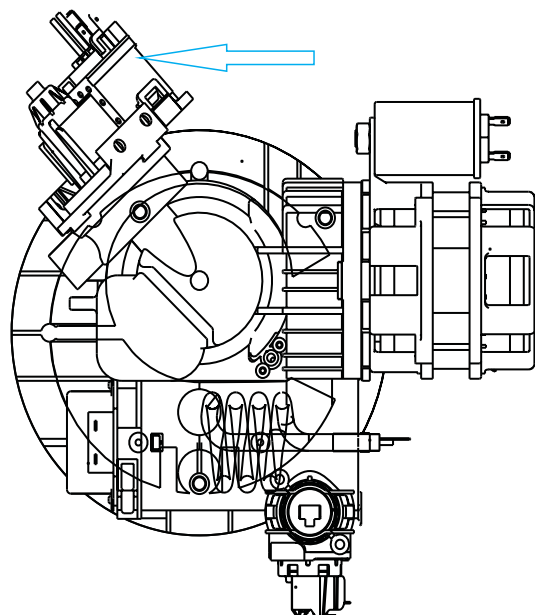
1. If the electric part is OK, we need to check the machine part.
2. Check the valve filter. if the valve filter is blocked, we need clear the residues.
3. If the valve filter is clear and the valve can't inlet water, check whether valve can act or not. If it isn't , we need replace the valve.
4. If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

Location of Drain Pump



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.

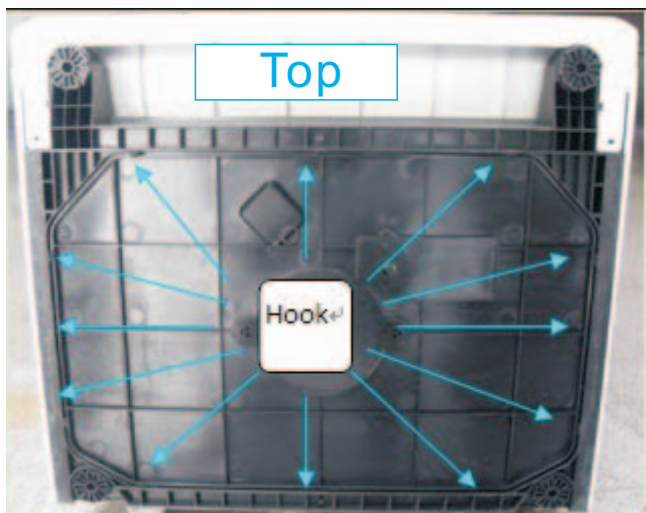
The defeat point

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

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

Access drain pump

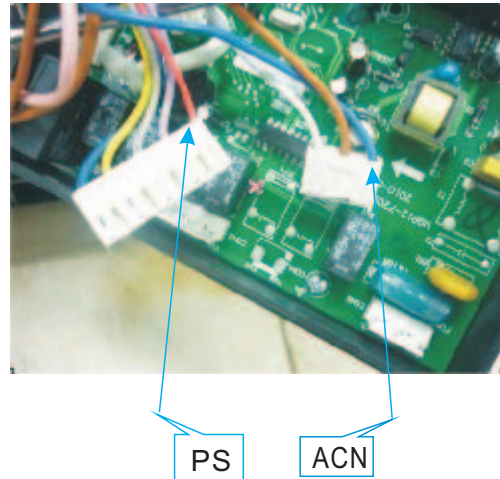


1. Drain off the water in the dishwasher, and disconnect the power supply.
(Note : Make sure to remove remained water in the dishwasher. If not, wet the floor.)
2. Loosen the hooks, and then remove bottom board. (Note: You should first loosen the top hooks, then the left and right hooks. and be care 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.

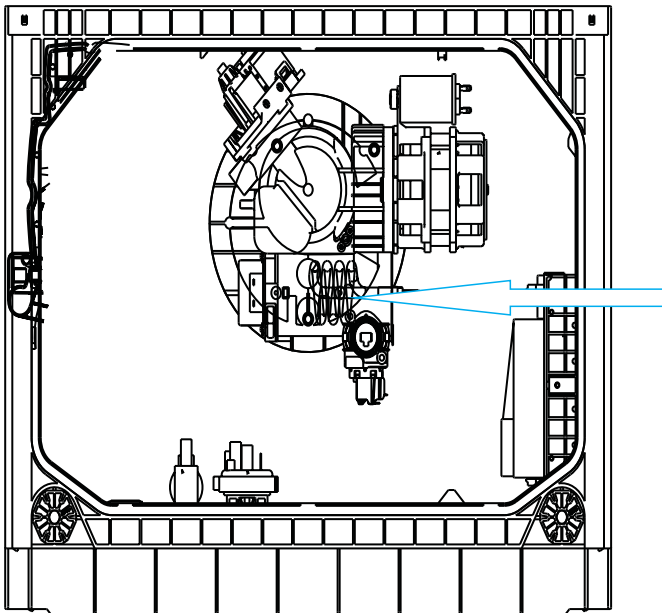


Check the machine part

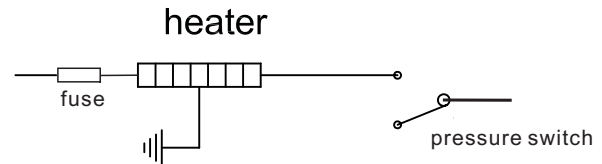
1. If the electric part is OK, we need to check the machine part.
2. Remove bottom board.
3. If the non-return valve is wrongly assembled, the tub will remain much water. We need to re-assemble the non-return valve.
4. If the drain pump is working, but no water drain out or just a little. We should check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

Location of Heater

Bottom view



The work principle

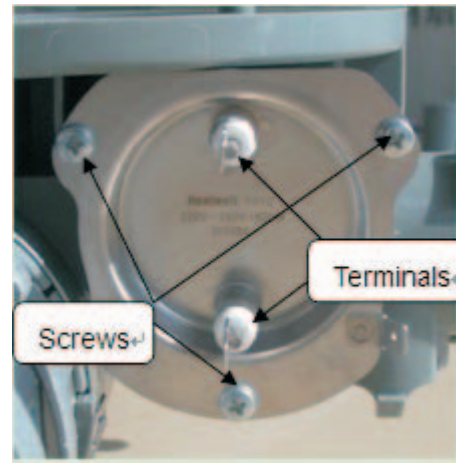
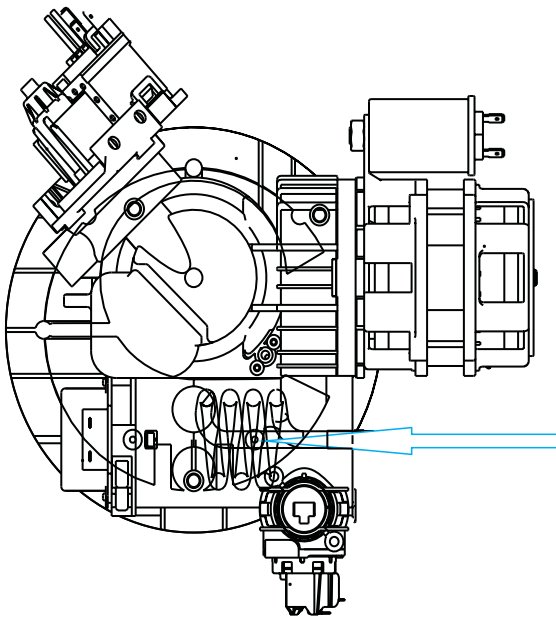


Technical data

| | |
|-----------------|-----------|
| Nominal voltage | 230VAC |
| Rating power | 1800W |
| Resistance | 29.4 10%Ω |
| Fuse | G5/192°C |

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.

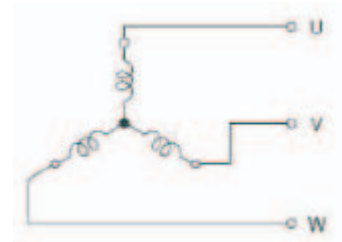
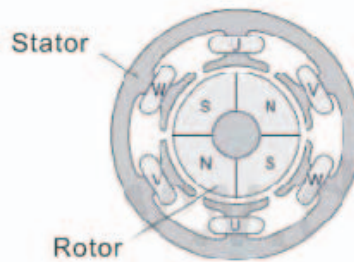
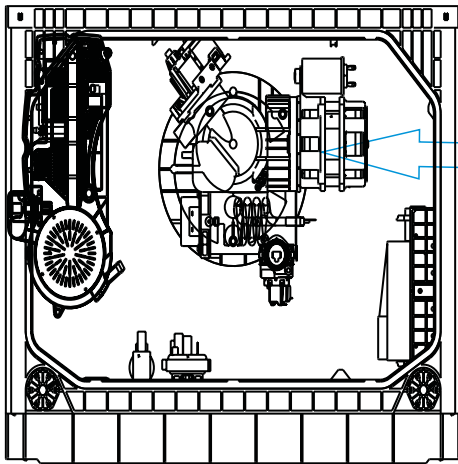
Inspect heater

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

The work principle

Bottom View



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 | DDX50-6A |
|----------------------|--|
| Items | |
| 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

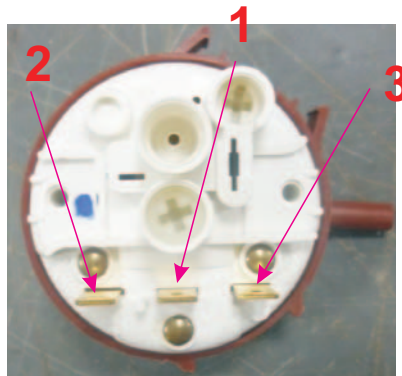
The pressure switch consists of a moving diaphragm and disc which activate a change over contact. The contact can be calibrated to trip and reset at the desired pressure levels, The main application is to control the level of water in appliances. May also provide flood protection.

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

1- COM

2 - NC

3 - NO

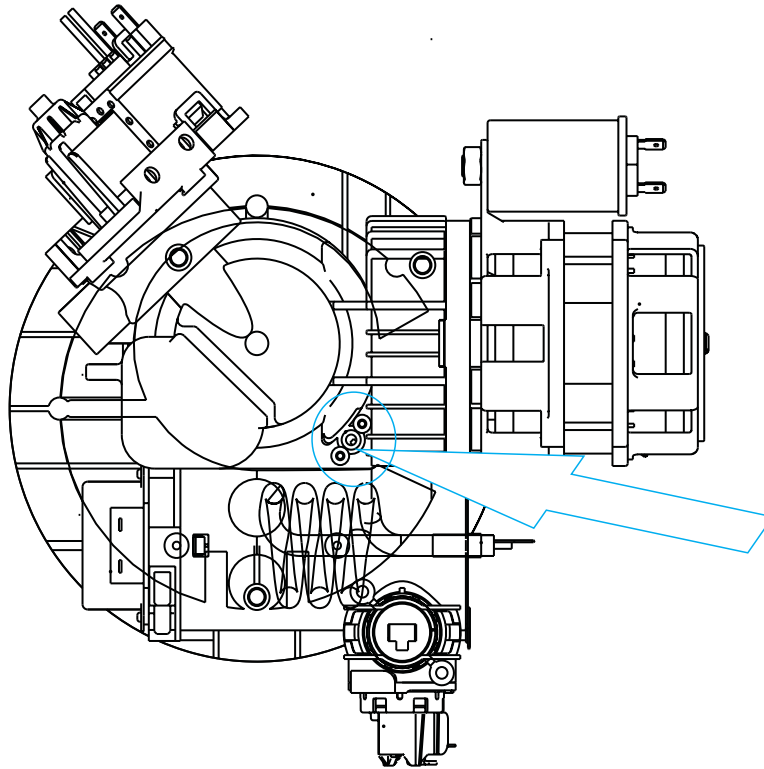


Front view



Back view

Location of NTC



The work principle

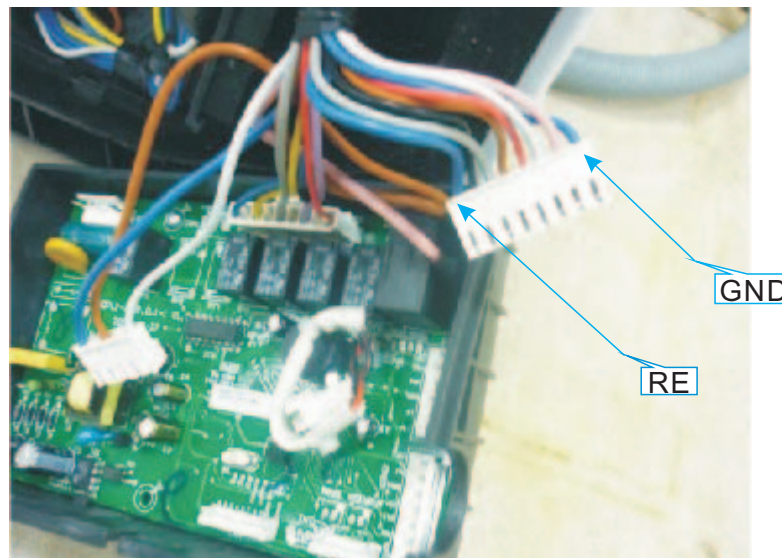
Negative Temperature Coefficient Thermistor is integrated into sump, which is used for measuring temperature of water in the tub.

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

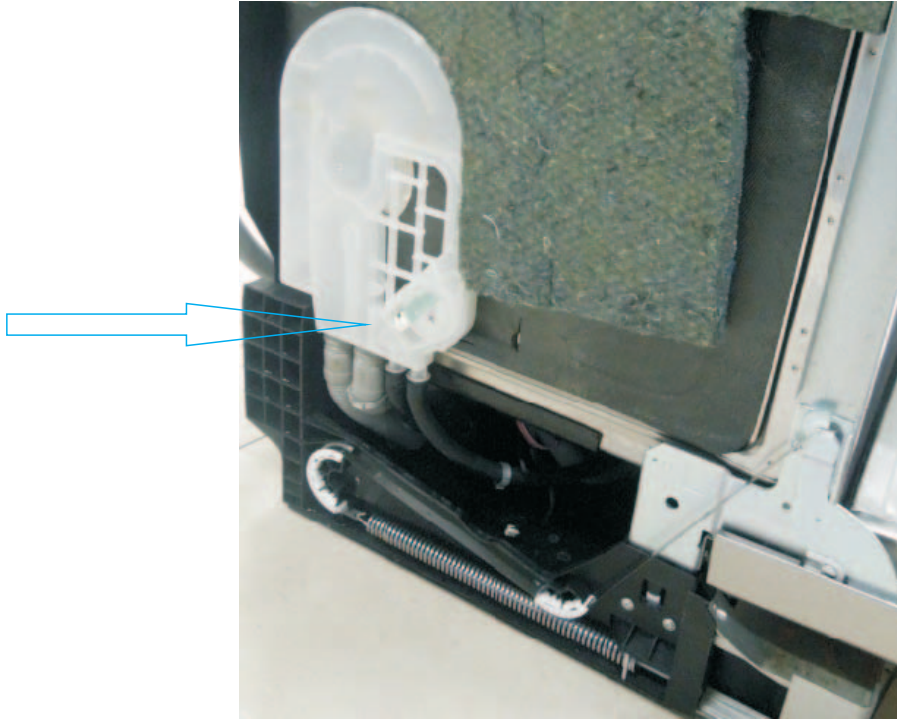
1. Open the protecting box and take out PCB;
2. With the door closed, unplug the RE connector (shown in below picture), then use the multi-meter Ω shelf to test resistance between two blue wires (RE and GND), the normal resistance is shown in below table.
3. If the resistance is not correct, it means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



NTC resistance table

| | | |
|-----|------|-----------------|
| NTC | 15°C | 17.48K 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



The work principle

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

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



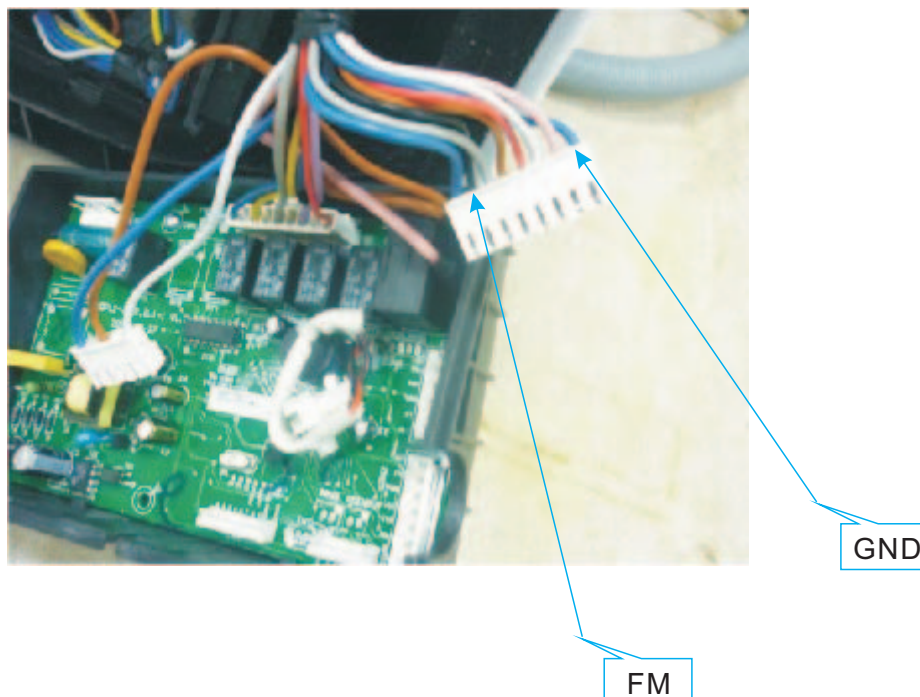
Flowmeter

Access Flowmeter

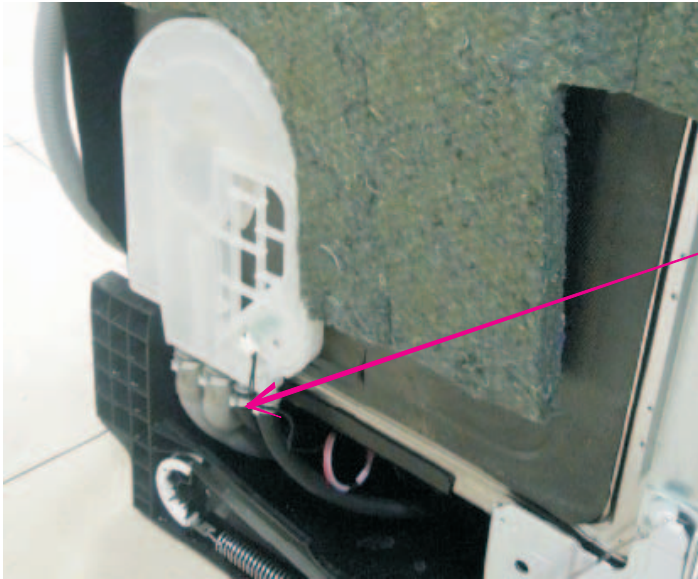
1. Remove the baseboard, top panel and left side panel.
2. Remove the plastic nut inside tub, which secures the air breaker to tub. (Because flowmeter is integrated into air breaker, replace air breaker if flowmeter has failure.)
3. Disconnect the wire and remove clamp fastening hose to air breaker.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



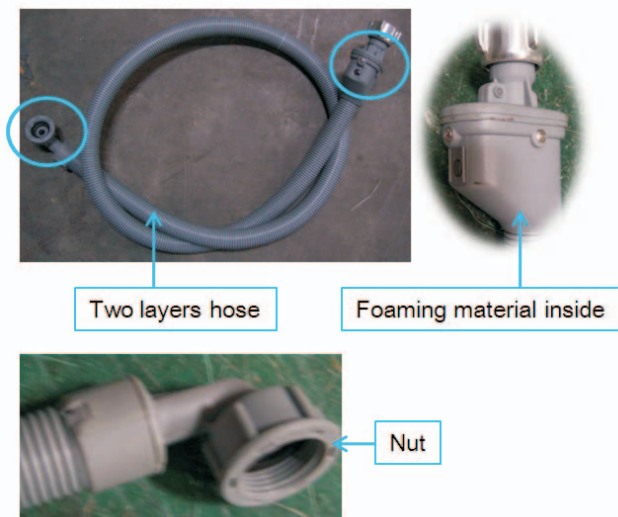
Location of Safety Hose



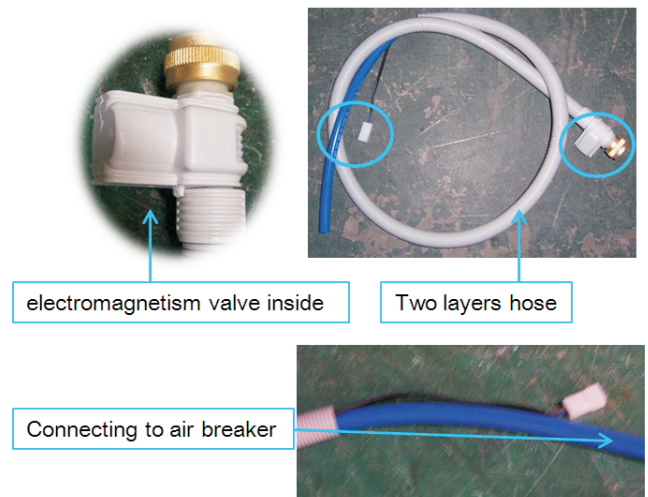
Electronic Aquastop Hose

The work principle

Mechanical Aquastop Hose



Electronic Aquastop Hose

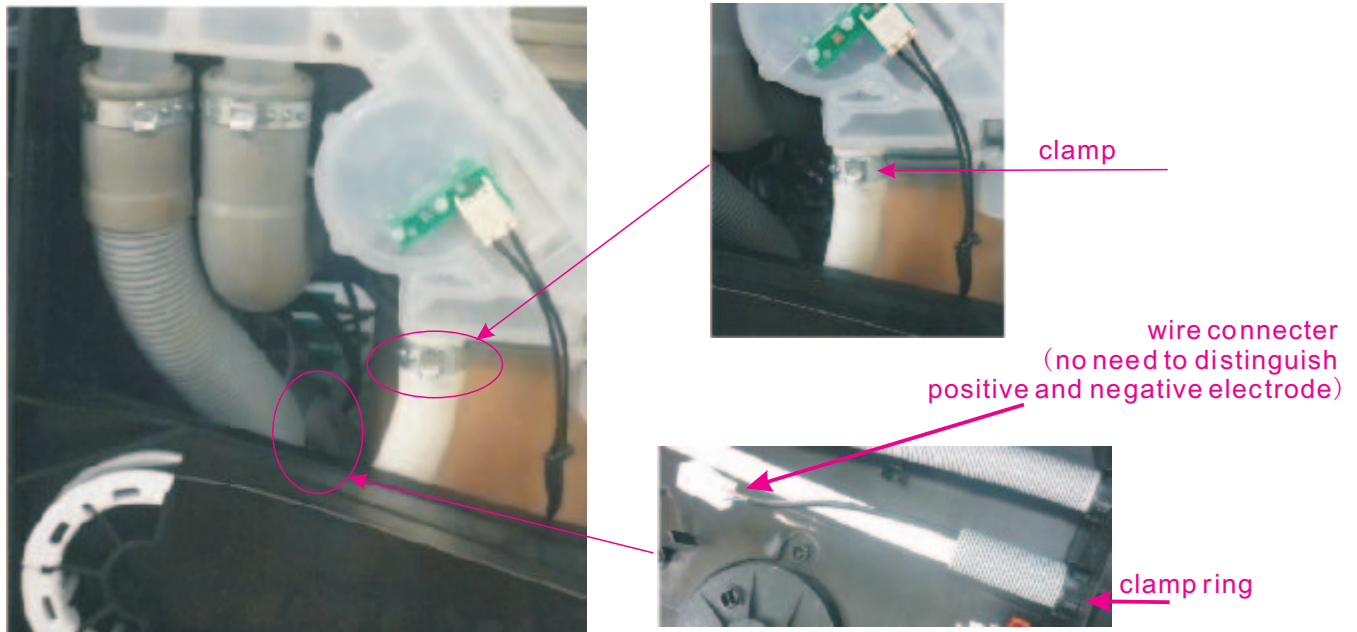


There are two types of Safety Hose, mechanical Aquastop hose and electronic Aquastop hose, which have different principles and assembly modes.

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 can be 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. 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.

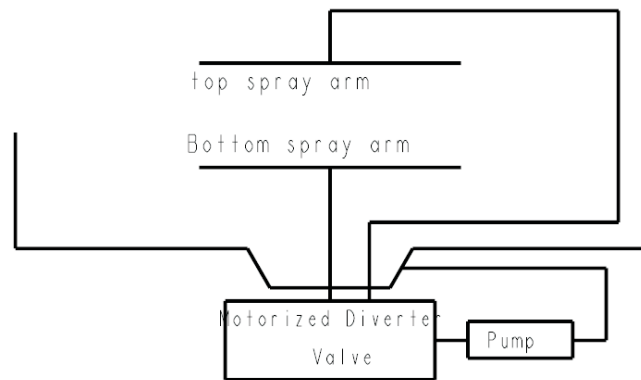
Mechanical Aquastop Hose

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 equipped 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.

