Technical Service Manual

Model LPR661
LPR659

Dishwasher

Contents

SAFETY NOTICE

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

Models : LPR661

Electrical supply	220-240V, 50Hz
Supply water pressure	0.04MPa-1.0MPa
Supply water temperature	below 60℃
Settings	12

Models : LPR659

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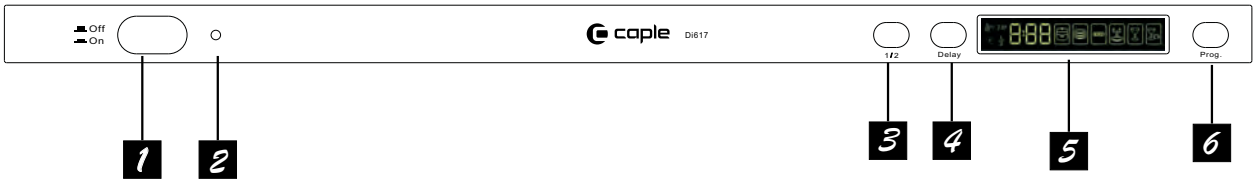
Settings	8

Control Panel



1 ON/OFF Button: Will turn on/off the power supply.

2 Power on light: To come on when Power ON/OFF button is pressed down.

3 Half washing button:To select half washing. (Optional half washing means that the lower spray arm does not run, so you should load the upper basket only).

4 Delayed Start Button: Press this button to set the delayed hours for washing. You can delay the start of washing up to 24 hours. One press on this button delays the start of washing by one hour.

5 Display Window: delay time, running indicator, fault codes etc.

6 Program button: To select washing program when the button is pressed.

Turning on the Appliance

Starting a wash cycle...

1 Draw out the lower and upper basket, load the dishes and push them back. It is commended that loading the lower basket first, than the upper one (see the section entitled “Loading the Dishwasher”).

2 Pour in the detergent (see the section entitled “Salt, Detergent and Rinse Aid”).

3 Insert the plug into the socket. The power supply is 220–240 VAC 50 HZ, the specification of the socket is 10 A 250 VAC. Make sure that the water supply is turned on to full pressure.

4 Open the door,press the ON/OFF button,and the ON/OFF light will turn on.

Press the "prog. "button to select a desired "Wash cycle".(see the section entitled."Wash Cycle Table".)

5 With a little force to ensure the door is properly closed.

NOTE: A click will be heard when the door is closed perfectly.

6 When the washing is over, you can shut off the switch by pressing ON/OFF button.

Change the Programme . . .

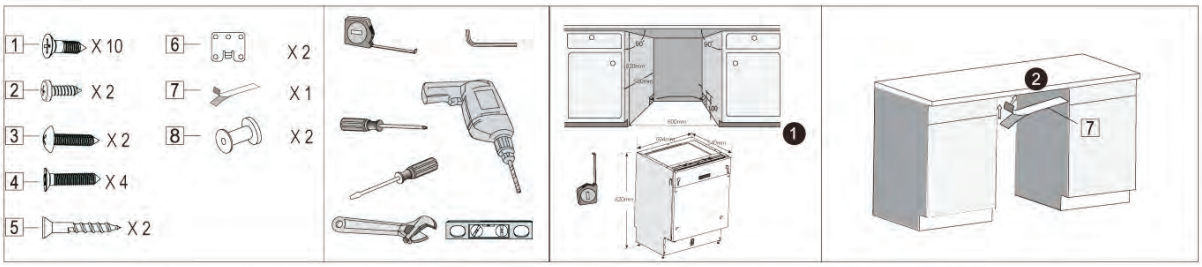
Premise: A cycle that is underway can only be modified if it has only been running for a short time. Otherwise, the detergent may have already been released, and the appliance may have already drained the wash water. If this is the case, the detergent dispenser must be refilled (see the section entitled " Loading the Detergent ").

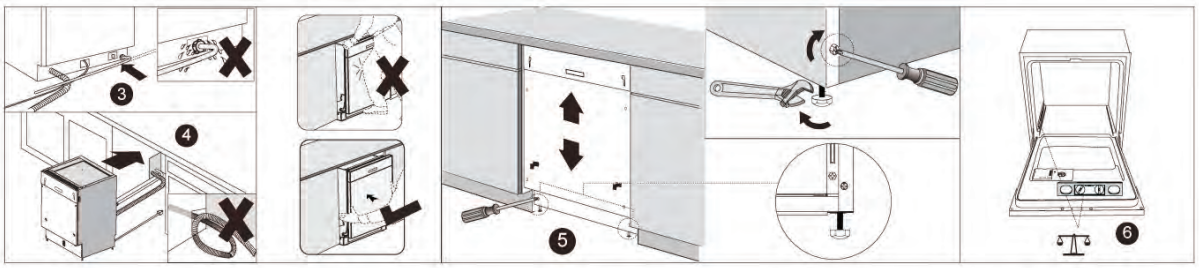
Open the door,Press current prog. button more than three seconds to cancel the program ,then you can change the program to the desired cycle setting (see the section entitled " Starting a wash cycle. . . "). Then, close the door.

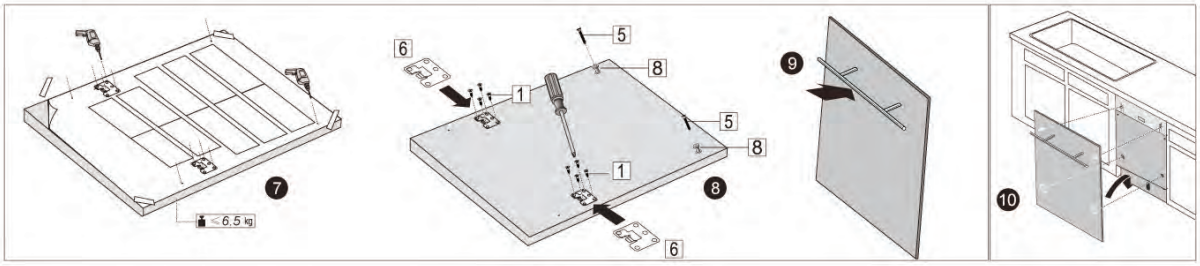
NOTE: If you open the door when washing, the machine will pause. When you close the door , the machine will resume working after 10 seconds.

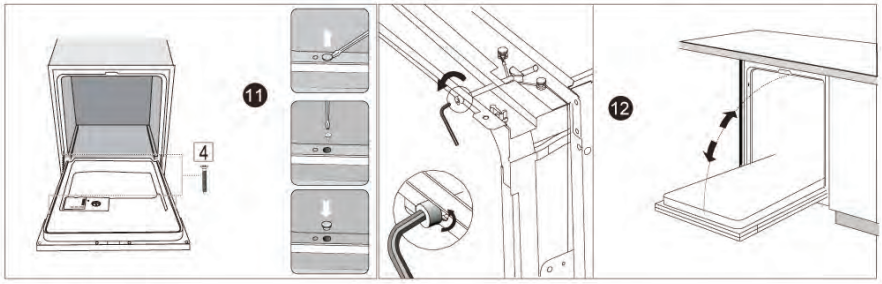
NOTE:

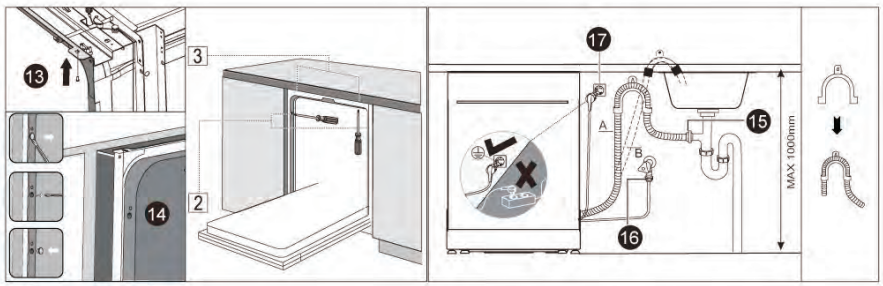
If all the lights begin to glimmer, this indicates the machine has developed a fault, please turn off the main power and water supply before calling a service agent.







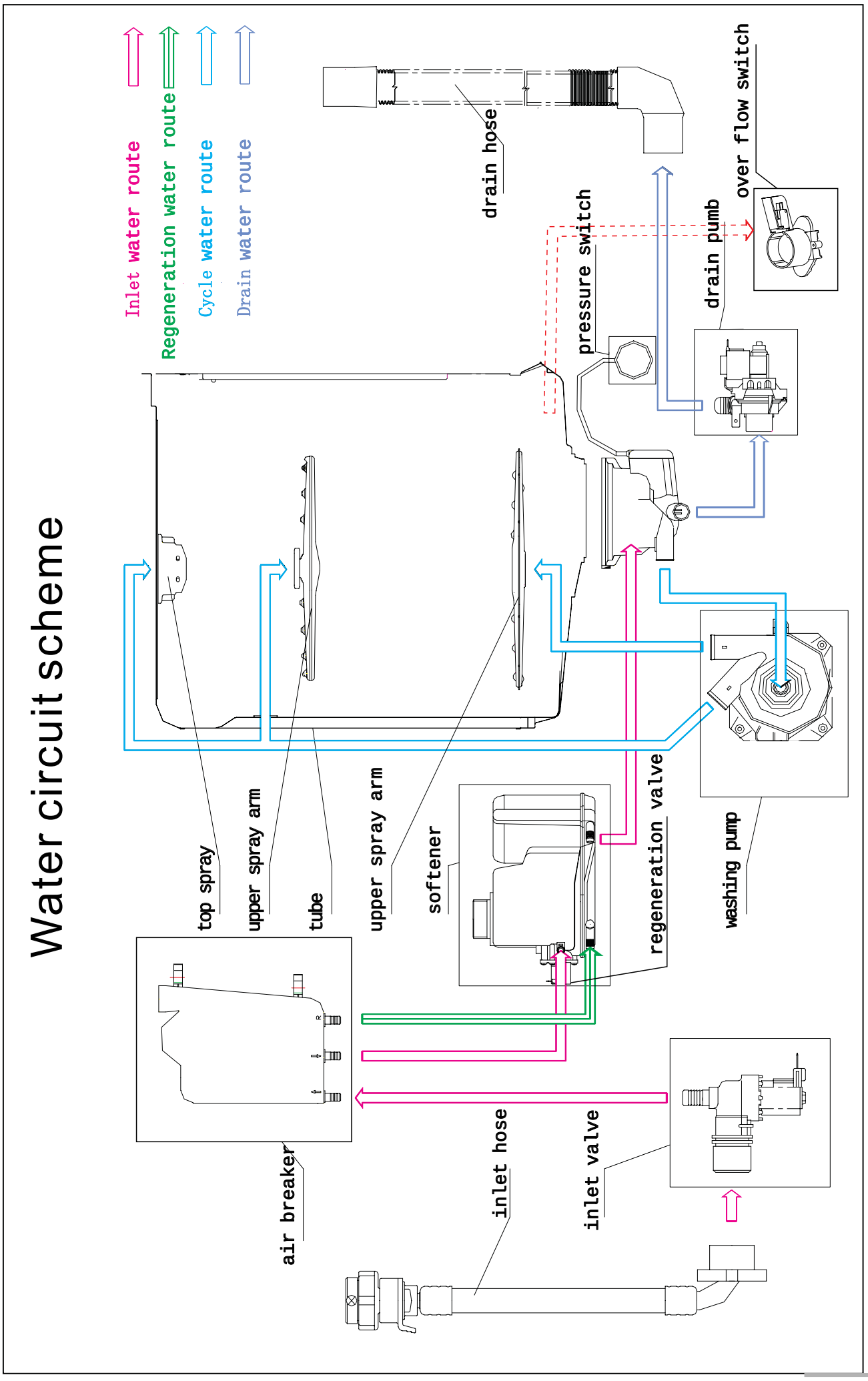




Depth:1.5mm

680 mm

594 mm



For all the models this manual mentioned

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.

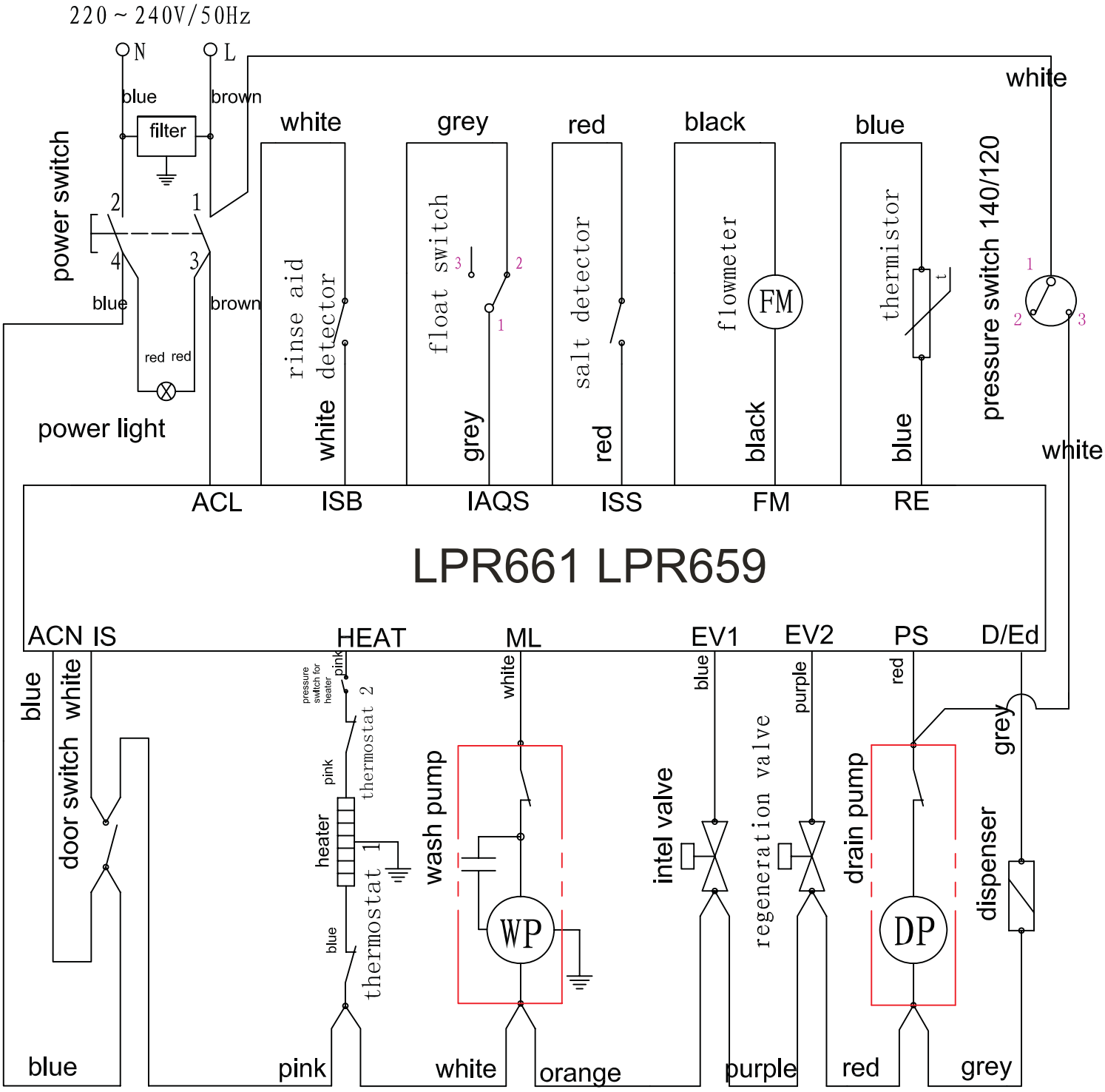
Process of cycle washing (indicated by blue route)

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.

Process of regeneration (indicated by green route)

Regeneration valve is open, the regenerating water dissolve salt in the salt chamber of softener, and then enter in the resin tank to reactivate the resin.

Circuit schematic diagram



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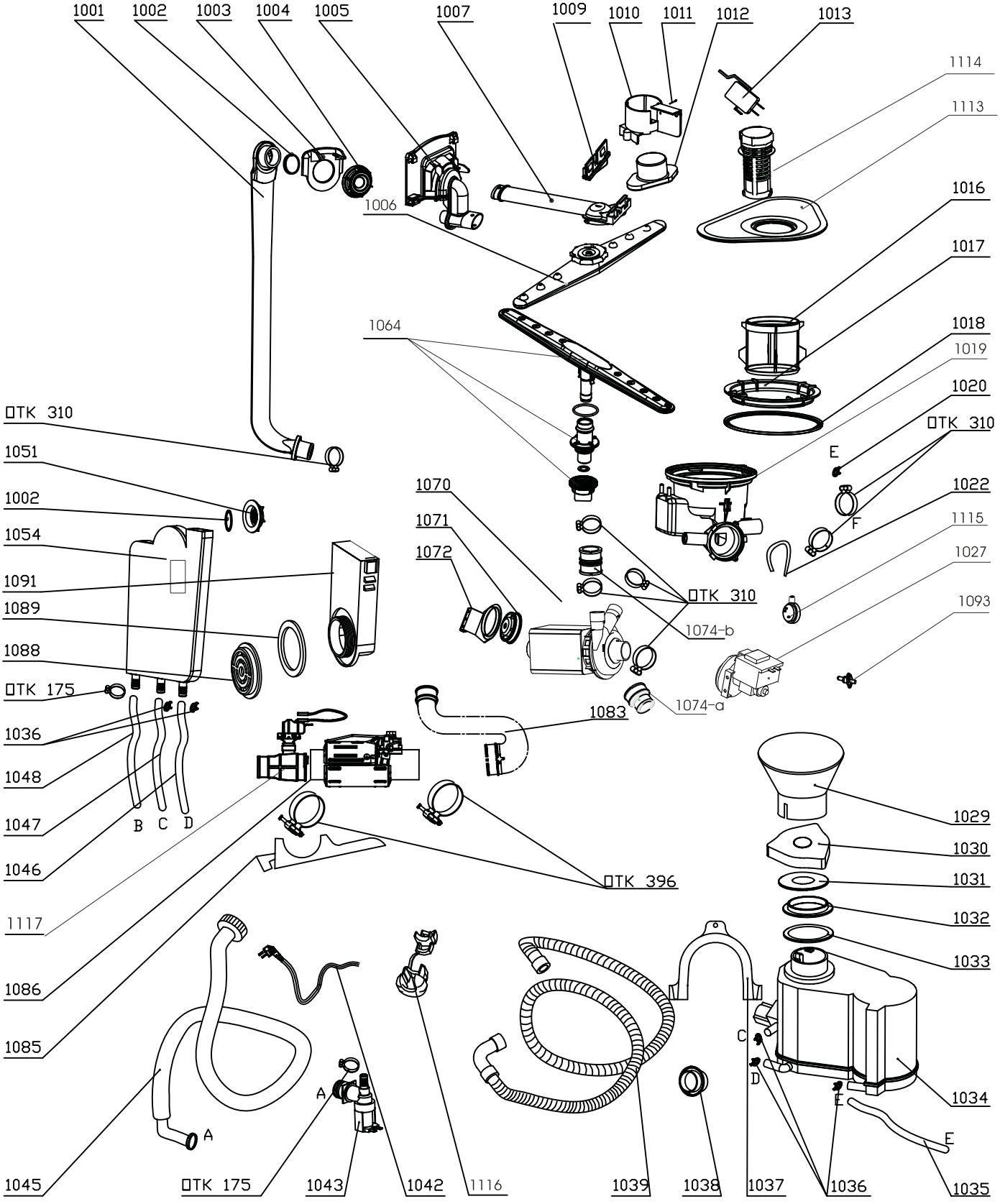
Please Note: Exploded view and part list of each model have some different visions, so please refer to newest vision Midea sent you.



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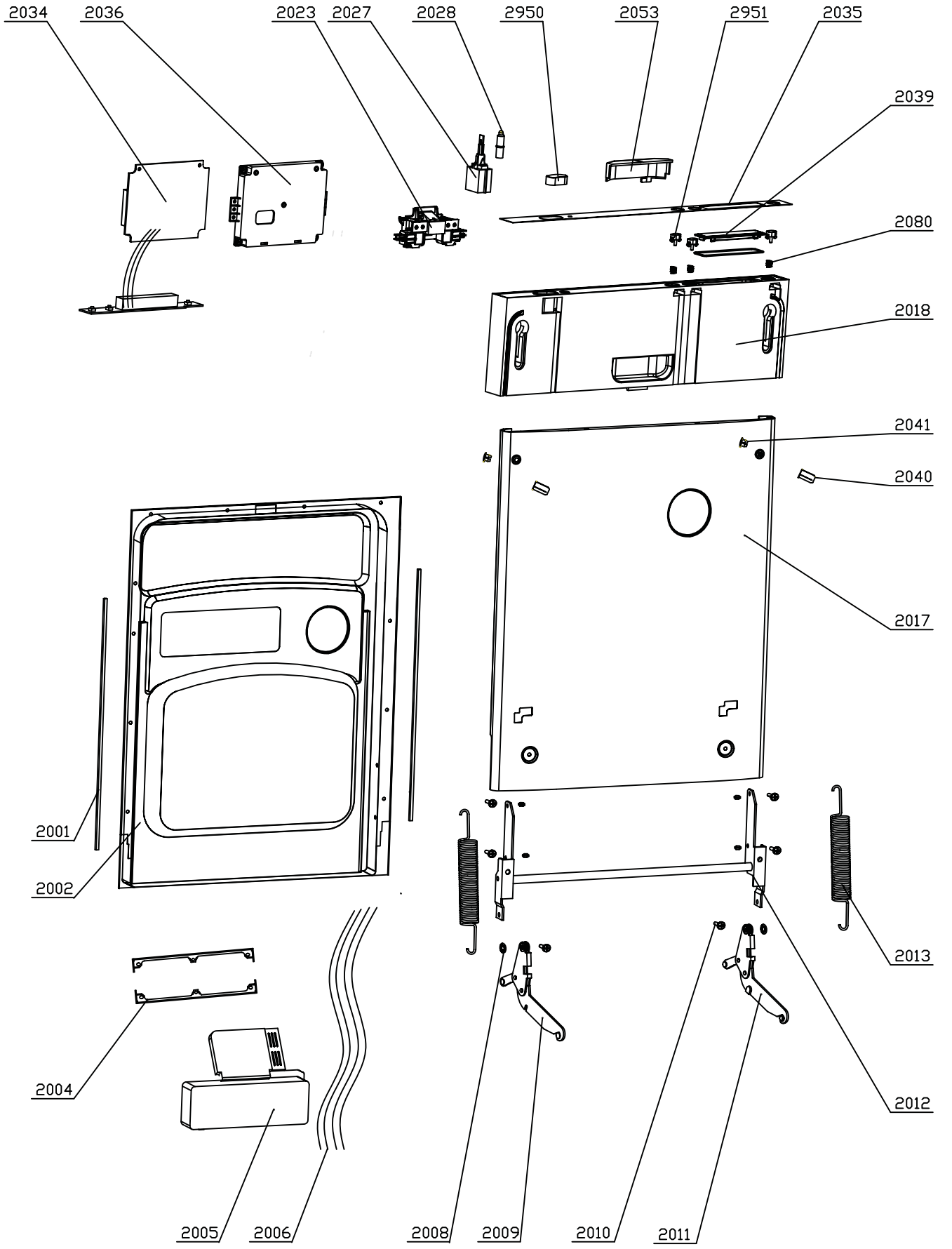
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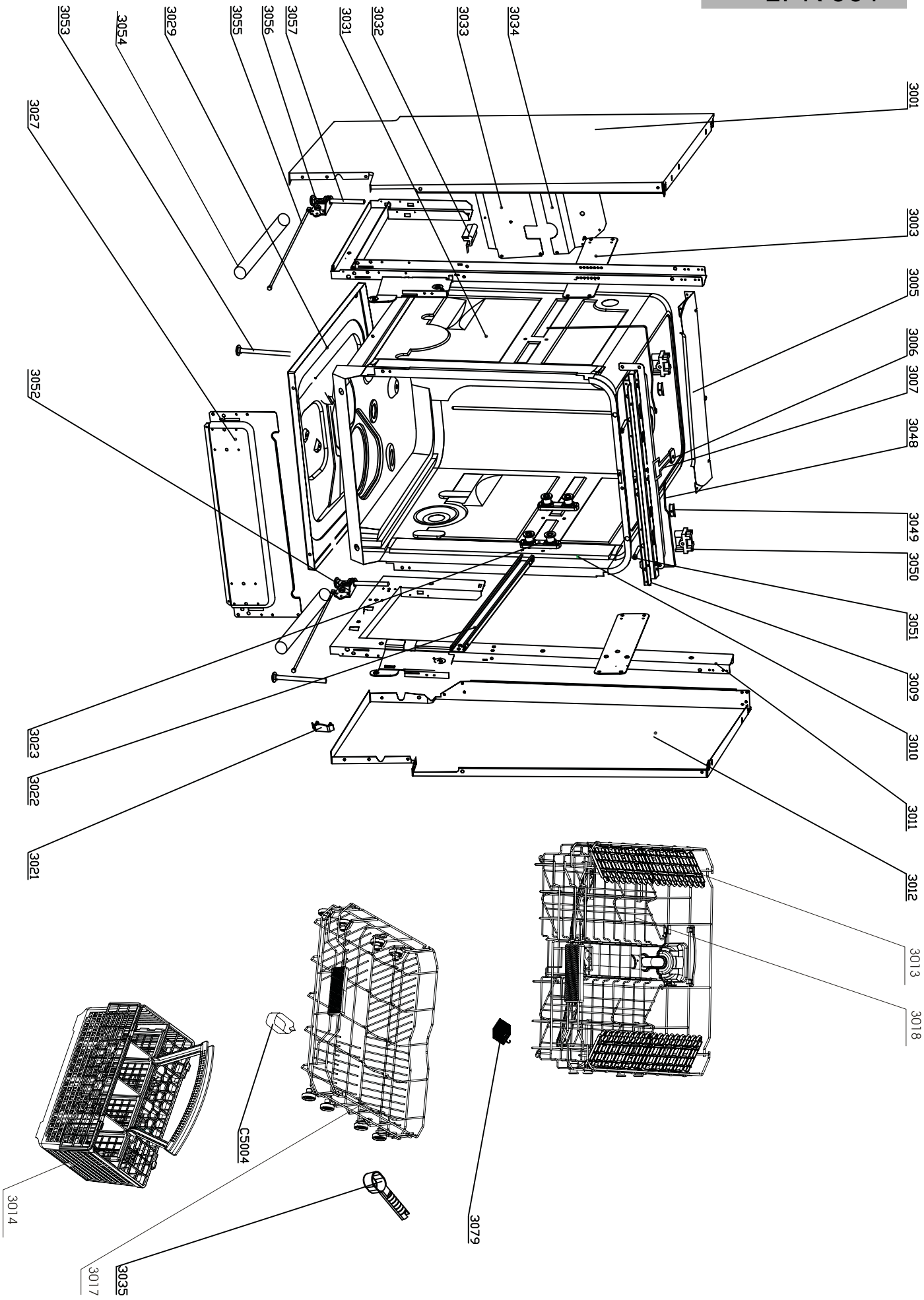
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Serial Number	Code	Description	Quantity
1001	673000900249	External pipe	1
1002	673001500005	O Ring I 31.5X3.55	3
1003	673001800364	Guide casing	1
1004	673001600021	External pipe nut	1
1005	673001900016	Water dispenser	1
1006	673000300067	Upper sprayer	1
1007	673000900089	Upper sprayer pipe	1
1009	673001300041	Upper sprayer holder block	1
1010	673002300002	Float holder	1
1011	672000900012	Screw ST2.9x22	1
1012	673002300003	Float	1
1013	674000300060	Micro switch	1
1016	673002500047	Micro filter	1
1017	673001600022	Sump nut	1
1018	673001500016	Sump gasket	1
1019	673000700081	Sump	1
1020	672000700028	Clamp 12.7 1.8	1
1022	673000900073	PVC hose	1
1027	674000600106	Drain pump	1
1029	673002200043	Salt filler	1
1030	673002800050	Softener cover assembly	1
1031	673001700053	Softener cover gasket	1
1032	673001600039	Softener nut	1
1033	673001700001	Softener gasket	1
1034	674000700021	Softener	1
1036	672000700029	Clamp 14.5 1.8	1
1037	673006200003	Drain hose hook	1
1038	673001500002	Drain hose holder	1
1039	673000900186	Drain hose	1
1042	674000000092	Power cord	1
1043	674000200002	Iniet valve	1
1045	673000900060	inlet hose assembly	1
1046	673000900026	Regeneration hose	1
1048	673000900024	Inlet hose of air breather	1
1051	673001600055	Air breather nut	2
1054	673002700008	AWECO Flowmeter	1
1064	672000600013	Lower sprayer	1
1070	674000600047	Washing pump	1

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Serial Number	Code	Description	Quantity
1083	673000900045	Bend connect hose	1
1085	673001400025	Heating element support	1
1086	674001100039	Heating elements	1
1088	673001600024	Water inlet nut	1
1089	673001500019	Water inlet gasket	1
1091	673002600035	Water inlet	1
1093	674000900038	Sensing device	1
1113	673002500048	plane filter	1
1114	673001300137	Scran collection	1
1115	674000300079	Pressure switch	1
1116	673001400083	power cord clasper	1
1117	674000300067	pressure switch assembly for heating elements	1
2001	673002000042	Door edge guard piece	2
2002	672002200150	Inner door	1
2004	672001700002	Dispenser bracket	2
2005	674000800032	Dispenser	1
2006	674000100453	Wiring harness	1
2008	672000500006	Ring Φ6	4
2009	672001300029	Left hinge	1
2010	672001200012	Joint pin	2
2011	672001300030	Right hinge	1
2012	672001300024	Door gemel assembly	1
2013	672000100008	Door spring	2
2017	672001800315	Outer door	1
2018	673000404251	Front panel	1
2023	673001800513	Handle assembly	1
2027	674000300065	Power switch	1
2028	674000400011	Red pilot lamp	1
2034	674001020203	Control board	1
2035	672000300989	Control panel film	1
2036	673002400095	Control board box	1
2039	673002800090	Window	1
2040	673001800365	Screw sleeve	2
2041	673000700005	Sleeve cover	2
2053	673002800041	Control panel cover	1
2080	672000100012	button spring	3
2950	673000800906	Power button	1
2951	673000800905	Program key	3
3001	672001600212	Left side panel	1
3003	672002100058	Lower rear crosspiece	1

Serial Number	Code	Description	Quantity
3005	672001500008	Upper rear crosspiece	1
3006	673001300061	door clamp	1
3007	672001400039	door lock	1
3009	672001500246	Upper front crosspiece	1
3010	673001700057	Tank gasket	1
3011	672002100057	Upright right assembly	1
3012	672001600211	Right panel	1
3013	673001300102	Upper basket cup holder	4
3014	673002200099	Cutlery basket	1
3017	672000800210	Lower basket	1
3018	672000800255	Upper basket	1
3021	673001300044	Rail block	2
3022	672001700005	Rail	2
3023	673001400056	Rail support assembly	4
3027	672001500303	Lower front crosspiece	1
3029	672002000066	Tray assembly	1
3032	673001700010	Tank band bracing block	2
3033	672001500202	Lower rear crosspiece	1
3034	672001500007	Middle rear crosspiece	1
3035	673002200079	Measurable spoon	1
3048	672001100004	Adjust steel rope	2
3049	672002300002	Adjust nut	2
3050	673001300012	Top board hook	2
3051	672001100003	Adjust screw	2
3052	673001400145	Right adjuster holder assembly	1
3053	672001400005	Front foot	2
3054	673003000001	slide	2
3055	672001100002	Adjustable pole	2
3056	673001400146	Left adjuster holder assembly	1
3057	672001400006	Back foot	2
3079	673002200091	3 in 1 tablet container	1
1035+1047	673000900224	Softener pipe	2
1071+1072	672000200054	Washing motor support	1
1074-a	673000900140	Connect hose a	1
1074-b	673000900182	Connect hose b	1
C5004	673006200004	rinsing agent cup	1
OTK 175	672000700004	OTK 175	4
OTK 286	672000700003	OTK 286	1
OTK 310	672000700001	OTK 310	6
OTK 396	672000700007	OTK 396	3

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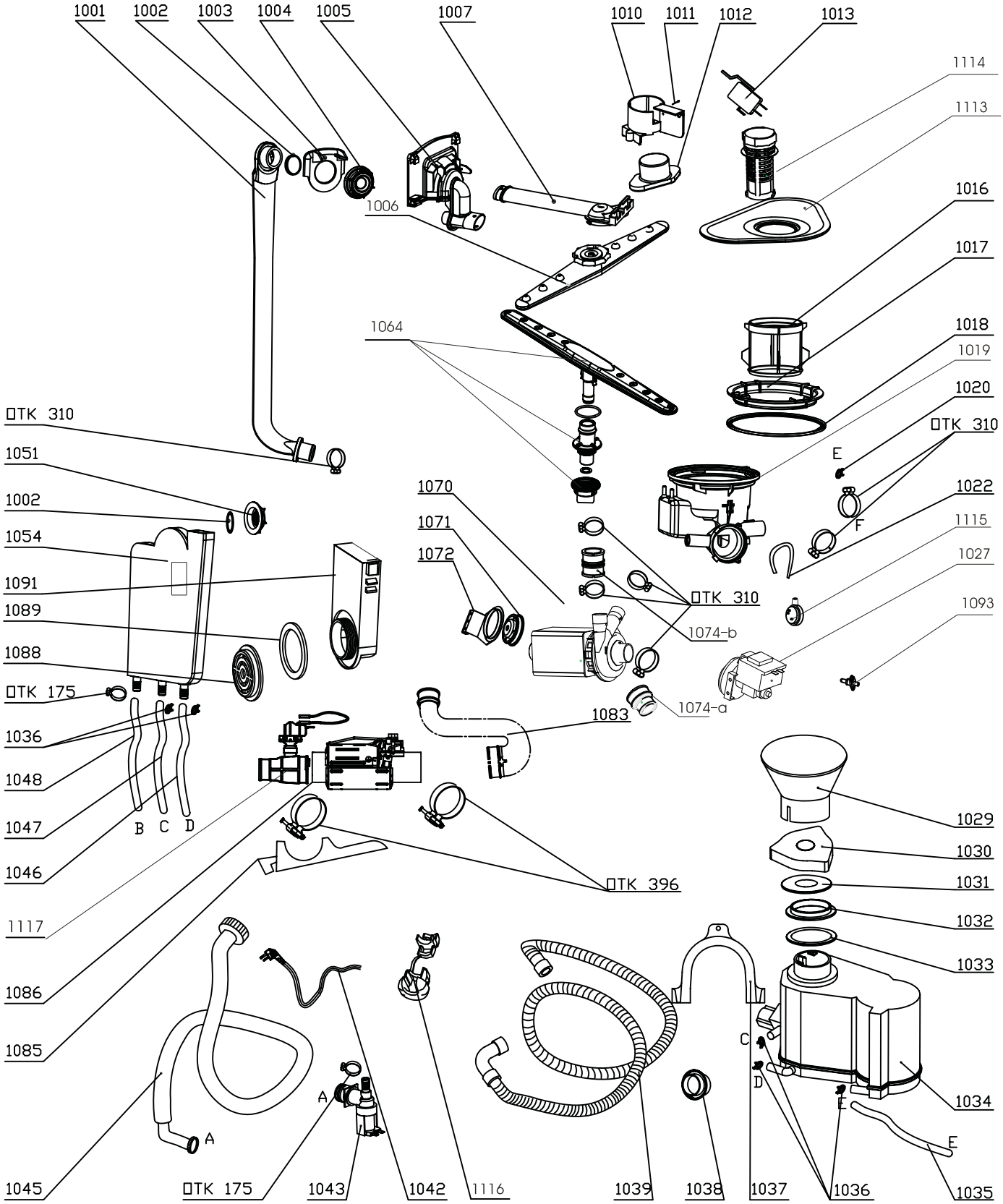
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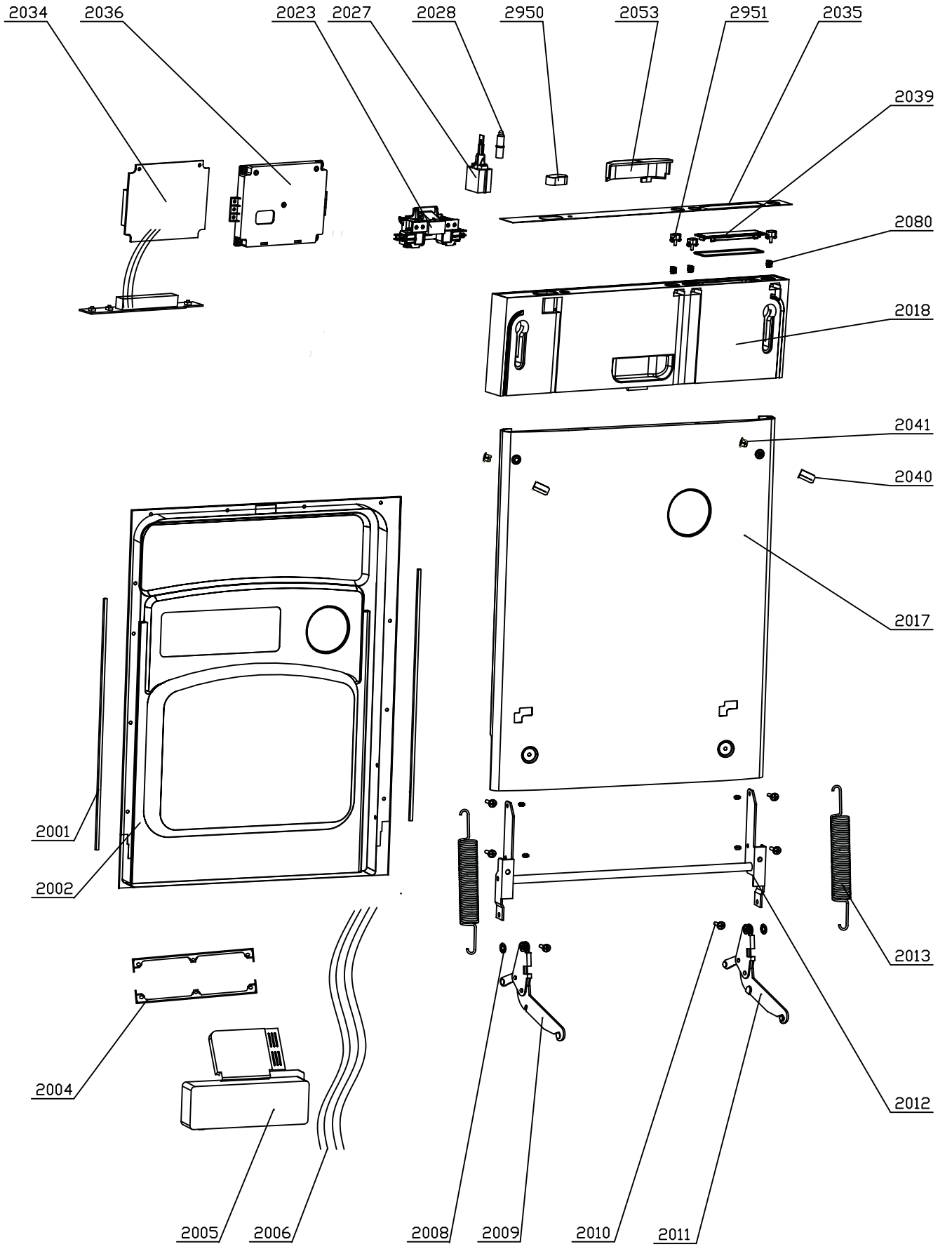
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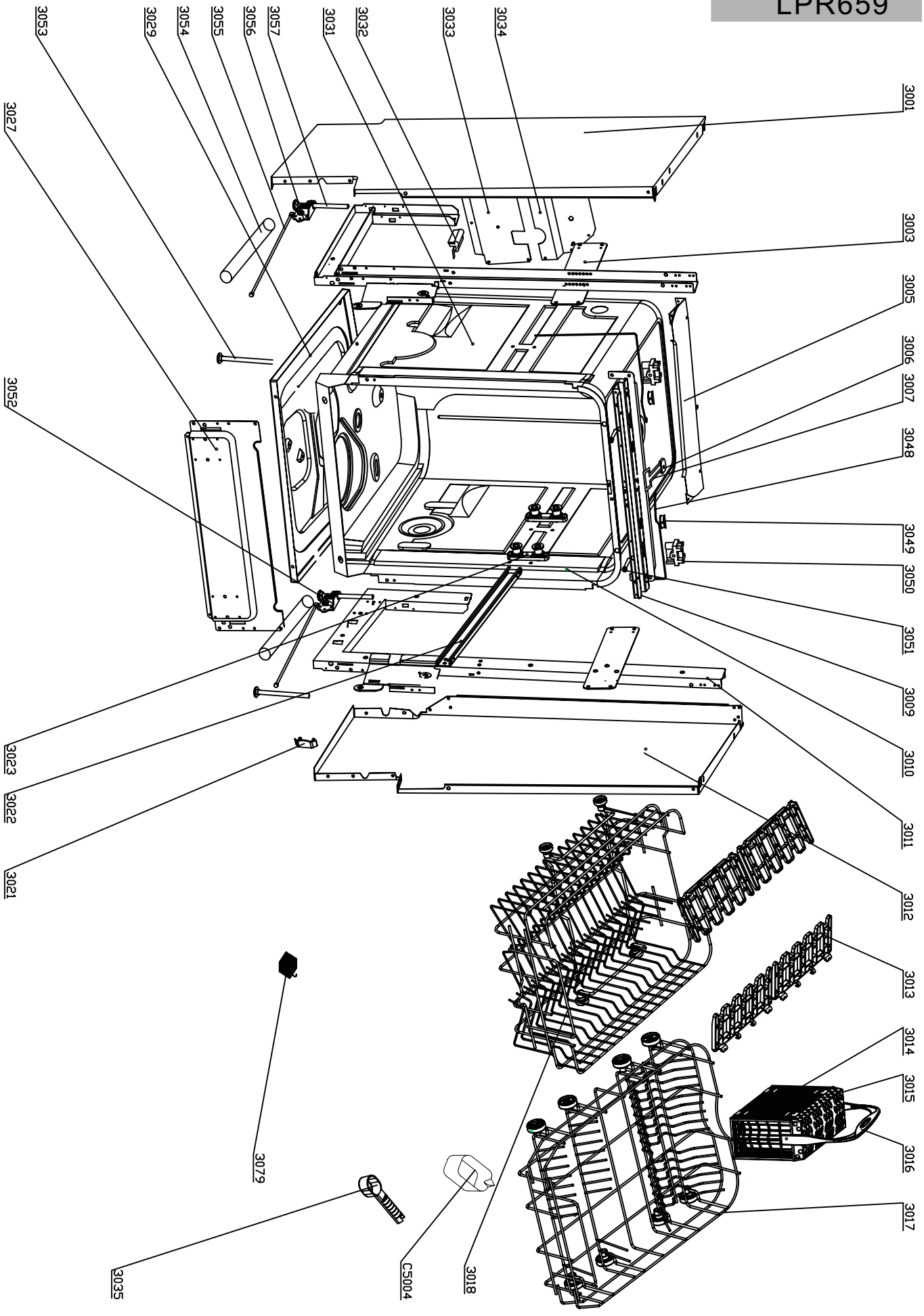
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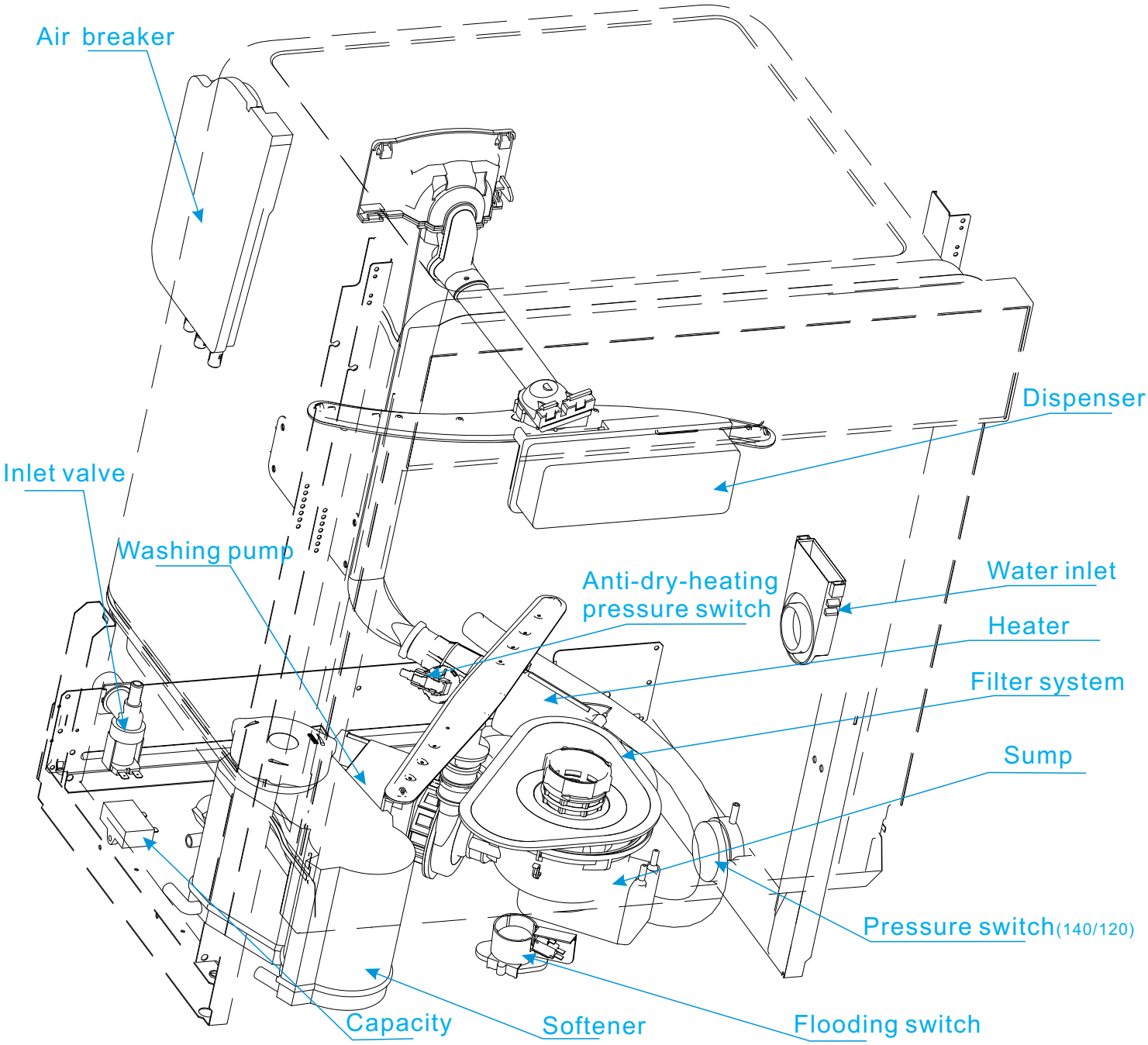
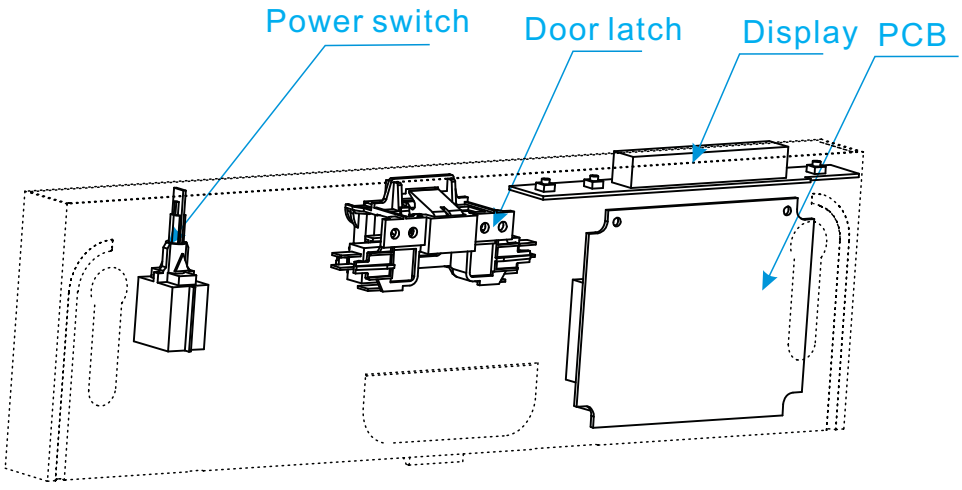
1001	673000900249	External pipe	1
1002	673001500005	O Ring I 31.5X3.55	3
1003	673001800364	Guide casing	1
1004	673001600021	External pipe nut	1
1005	673001900016	Water dispenser	1
1006	673000300050	Upper sprayer	1
1007	673000900195	Upper sprayer pipe	1
1010	673002300002	Float holder	1
1011	672000900012	Screw ST2.9x22	1
1012	673002300003	Float	1
1013	674000300060	Micro switch	1
1016	673002500047	Micro filter	1
1017	673001600022	Sump nut	1
1018	673001500016	Sump gasket	1
1019	673000700081	Sump	1
1020	672000700028	Clamp 12.7 1.8	1
1022	673000900160	PVC hose	1
1027	674000600106	Drain pump	1
1029	673002200043	Salt filler	1
1030	673002800050	Softener cover assembly	1
1031	673001700053	Softener cover gasket	1
1032	673001600039	Softener nut	1
1033	673001700001	Softener gasket	1
1034	674000700021	Softener	1
1036	672000700029	Clamp 14.5 1.8	1
1037	673006200003	Drain hose hook	1
1038	673001500002	Drain hose holder	1
1039	673000900186	Drain hose	1
1042	674000000092	Power cord	1
1043	674000200002	Iniet valve	1
1045	673000900060	inlet hose assembly	1
1046	673000900026	Regeneration hose	1
1048	673000900024	Inlet hose of air breather	1
1051	673001600055	Air breather nut	2
1054	673002700008	AWECO Flowmeter	1
1064	672000600015	Lower sprayer	1
1070	674000600047	Washing pump	1
1083	673000900045	Bend connect hose	1
1085	673001400025	Heating element support	1

Serial Number	Code	Description	Quantity
1086	674001100039	Heating elements	1
1088	673001600024	Water inlet nut	1
1089	673001500019	Water inlet gasket	1
1091	673002600035	Water inlet	1
1093	674000900038	Sensing device	1
1113	673002500048	plane filter	1
1114	673001300137	Scran collection	1
1115	674000300079	Pressure switch	1
1116	673001400083	power cord clasper	1
1117	674000300067	pressure switch assembly for heating elements	1
2001	673002000084	Door edge guard piece	2
2002	672002200165	Inner door	1
2004	672001700002	Dispenser bracket	2
2005	674000800032	Dispenser	1
2006	674000100445	Wiring harness	1
2008	672000500006	Ring Φ6	4
2009	672001300029	Left hinge	1
2010	672001200012	Joint pin	2
2011	672001300030	Right hinge	1
2012	672001300023	Door gemel assembly	1
2013	672000100004	Door spring	2
2017	672001800552	Outer door	1
2018	673000402168	Front panel	1
2023	673001800513	Handle assembly	1
2027	674000300065	Power switch	1
2028	674000400011	Red pilot lamp	1
2034	674001020117	Control board	1
2035	672000300990	Control panel film	1
2036	673002400095	Control board box	1
2039	673002800090	Window	1
2040	673001800365	Screw sleeve	2
2041	673000700005	Sleeve cover	2
2053	673002800041	Control panel cover	1
2080	672000100012	button spring	3
2950	673000800906	Power button	1
2951	673000800905	Program key	3
3001	672001600212	Left side panel	1
3003	672002100058	Lower rear crosspiece	1

Serial Number	Code	Description	Quantity
3005	672001500003	Upper rear crosspiece	1
3006	673001300061	door clamp	1
3007	672001400039	door lock	1
3009	672001500247	Upper front crosspiece	1
3010	673001700056	Tank gasket	1
3011	672002100057	Upright right assembly	1
3012	672001600211	Right panel	1
3013	673001300072	Upper basket cup holder	4
3017	672000800188	Lower basket	1
3018	672000800156	Upper basket	1
3021	673001300044	Rail block	2
3022	672001700005	Rail	2
3023	673001400056	Rail support assembly	4
3027	672001500292	Lower front crosspiece	1
3029	672002000065	Tray assembly	1
3032	673001700010	Tank band bracing block	2
3033	672001500200	Lower rear crosspiece	1
3034	672001500114	Middle rear crosspiece	1
3035	673002200079	Measurable spoon	1
3048	672001100004	Adjust steel rope	2
3049	672002300002	Adjust nut	2
3050	673001300012	Top board hook	2
3051	672001100003	Adjust screw	2
3052	673001400145	Right adjuster holder assembly	1
3053	672001400005	Front foot	2
3054	673003000001	slide	2
3055	672001100002	Adjustable pole	2
3056	673001400146	Left adjuster holder assembly	1
3057	672001400006	Back foot	2
3079	673002200091	3 in 1 tablet container	1
1035+1047	673000900224	Softener pipe	2
1071+1072	672000200054	Washing motor support	1
1074-a	673000900140	Connect hose a	1
1074-b	673000900182	Connect hose b	1
3014+3015+3016	673002200080	Cutlery basket	1
C5004	673006200004	rinsing agent cup	1
OTK 175	672000700004	OTK 175	4
OTK 286	672000700003	OTK 286	1
OTK 310	672000700001	OTK 310	6
OTK 396	672000700007	OTK 396	3


Air breaker
Dispenser
Inlet valve
Washing pump
Anti-dry-heating pressure switch
Water inlet
Heater
Filter system
Sump
Pressure switch(140/120)
Capacity
Softener
Flooding switch


Power switch
Door latch
Display PCB

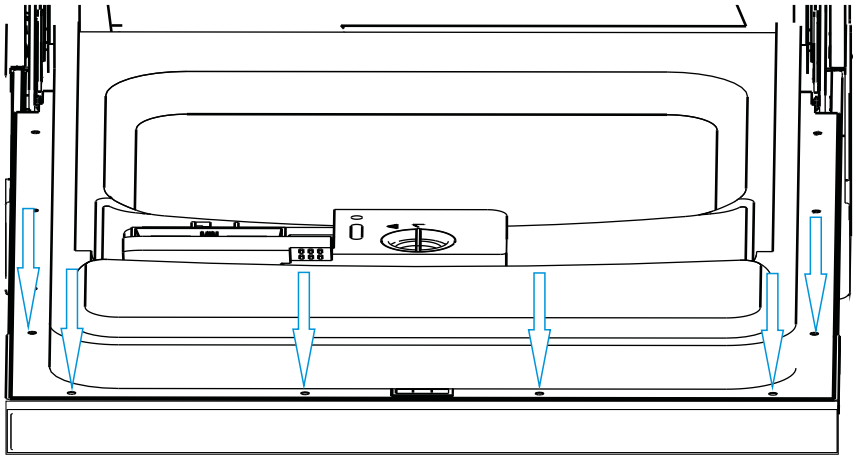
PCB

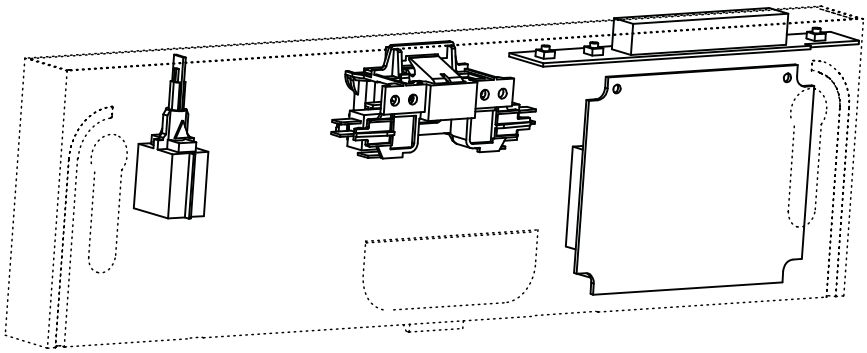
Printed Circuit Board is the control center of dishwasher, which receive and process signal from components, send order to components and deal with the feedback information, etc.

Access PCB

Removing the control panel

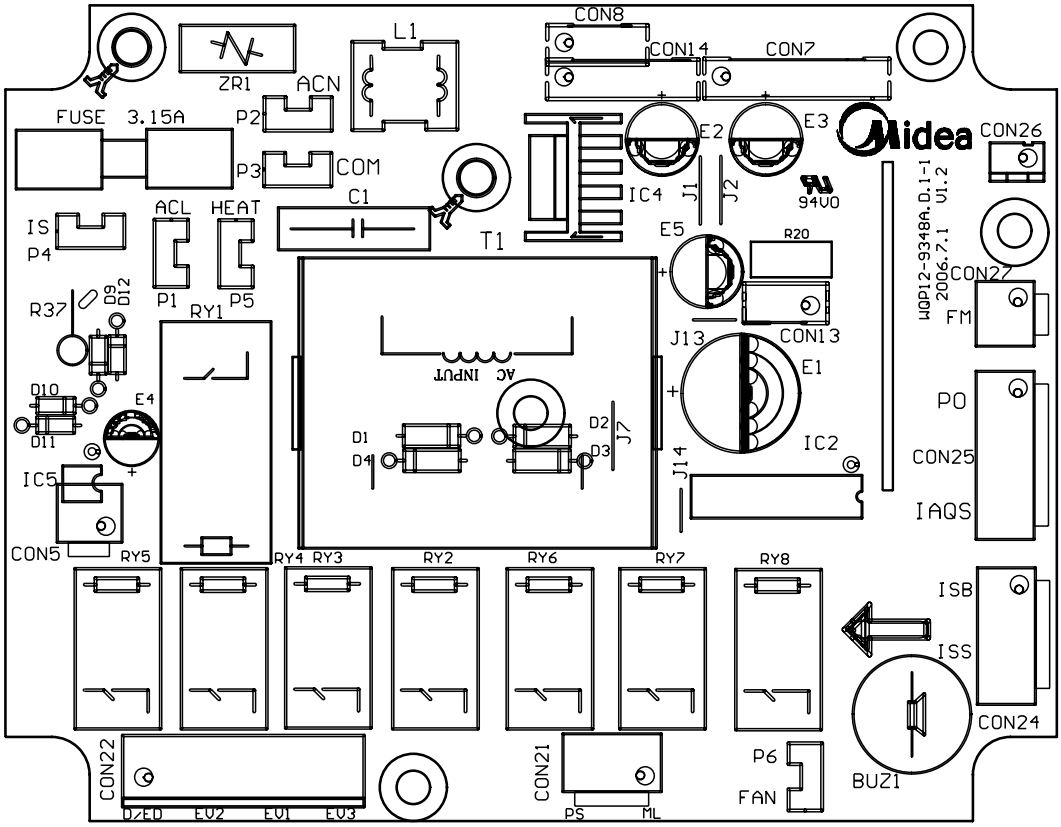
The control panel can be removed from dishwasher door.
1. Remove the six screws securing the control panel to the door.
2. The control panel will drop down and be free of the door. But, the wiring will still connected to the control panel.





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

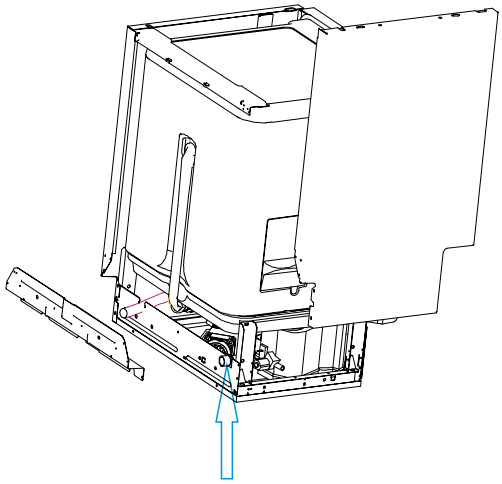
Map of PCB



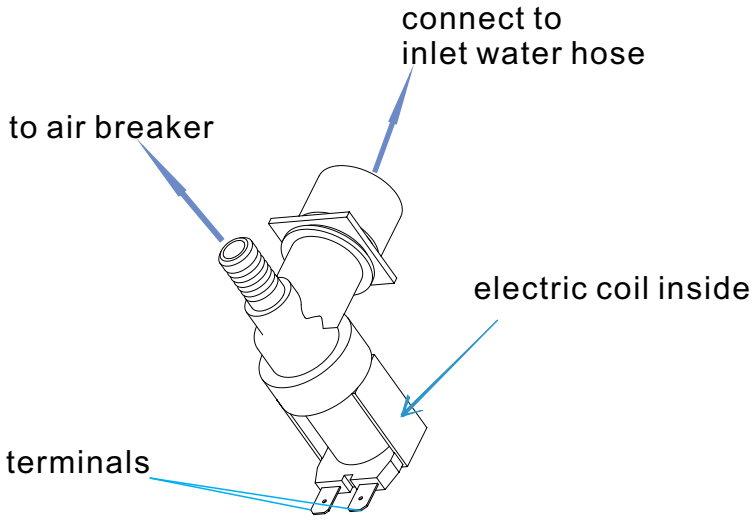
Description

Mark	Function
HEAT	Output for Heating Element
ACL	Input of live wire
ACN	Input of bull line
IS	Input of Door Switch
CON21	Output for Washing Pump(ML) and Drain Pump(PS)
CON22	Ouput for Dispenser(D/ED), Softener(EV2), Halfload Valve(EV3) and Inlet Valve(EV1)
CON24	Salt detect(ISS), Rinse detect(ISB)
CON25	Overflow detect(IAQS), Pressure Switch detect(PO)
CON26	Thermister(RE)
CON27	Flowmeter(FM)

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

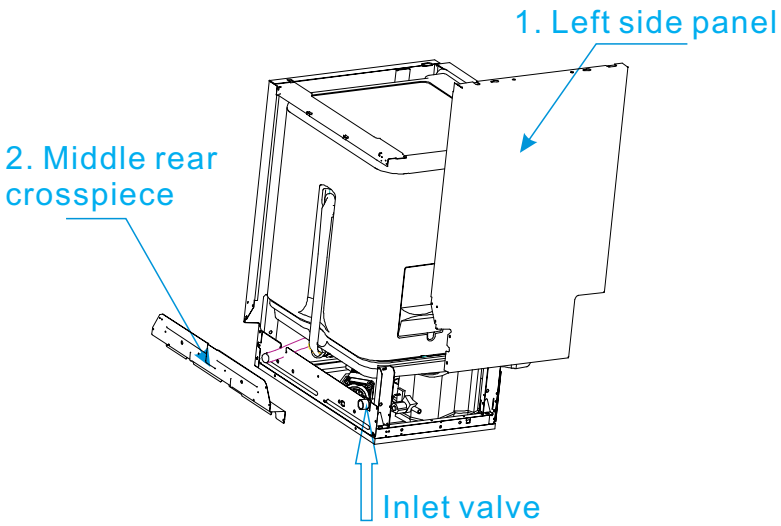
1. The valve coil is broken, so the valve can't open. It will cause the E1 error.
2. The filter is jammed, so water can't enter. It will cause the E1 error.
3. The connector is loose, so the valve can't open. It will cause the E1 error.
4. The valve pole is rusted or locked by dreg, so the valve can't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

Technical data

Nominal voltage	220-240VAC
Frequency	50/60Hz
Resistance	Approx:3.4－4.3kΩ
Work duty	100%ED T25 3min/5min T60
Flux	4L/min ±15%
Power	6W
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 left baseboard and middle rear crosspiece.

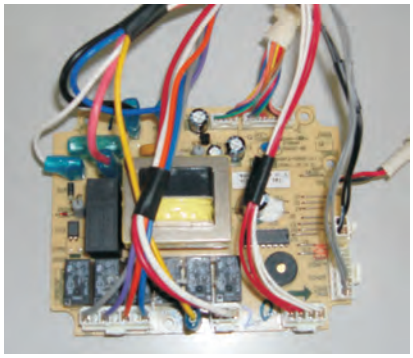


4. Disconnect the 2 terminal lugs from the inlet valve.
5. Push the valve from the lower rear crosspiece to take it off.
6. Remove the clamp and disconnect the inlet hose (to air breaker) from the water valve.
7. Reverse the above procedure to install.

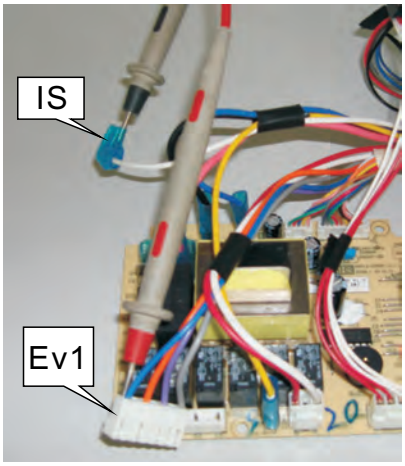
Inspect inlet valve

Check electric part

1.Open the control panel and take out the PCB;
2.Unplug the CON3 and P4 wires , then use the multi-meter Ω shelf to measure resistance between the blue wire (EV1) and white wire (IS), the normal resistance is about 3.4KΩ to 4.3 KΩ.
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.



unplug

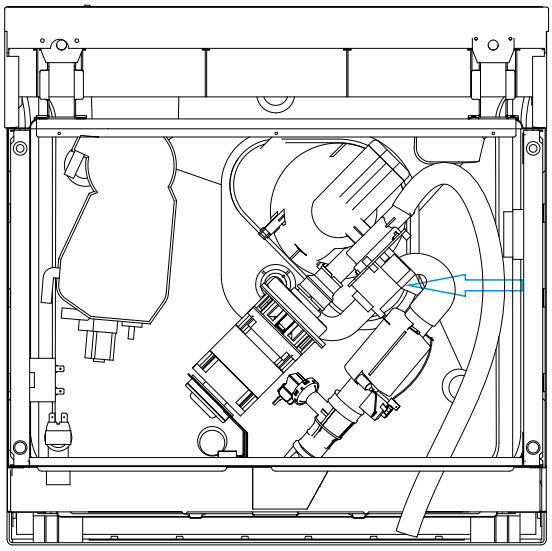


Check machine part

1. If the electric part is OK, we need to check the machine part.
2. Remove the baseboard, left baseboard, top panel, left side panel and middle rear crosspiece.
3. Check the valve filter. if the valve filter is blocked, we need clear the residues.
4. 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.
5. If the water is continue entering, we need replace the valve.

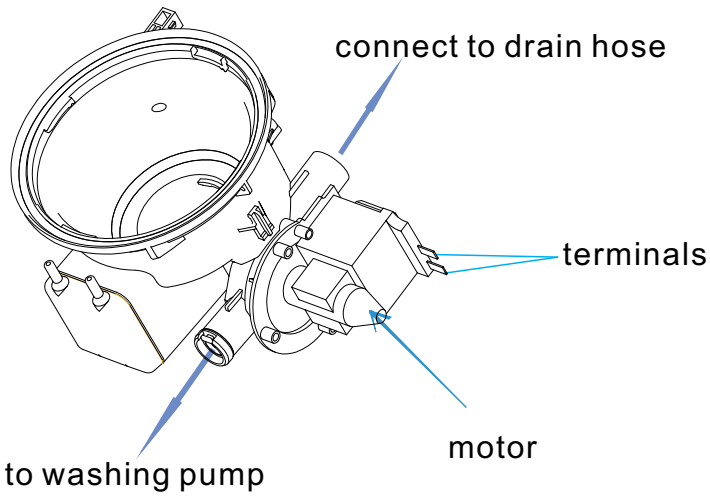
Location of Drain Pump

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.

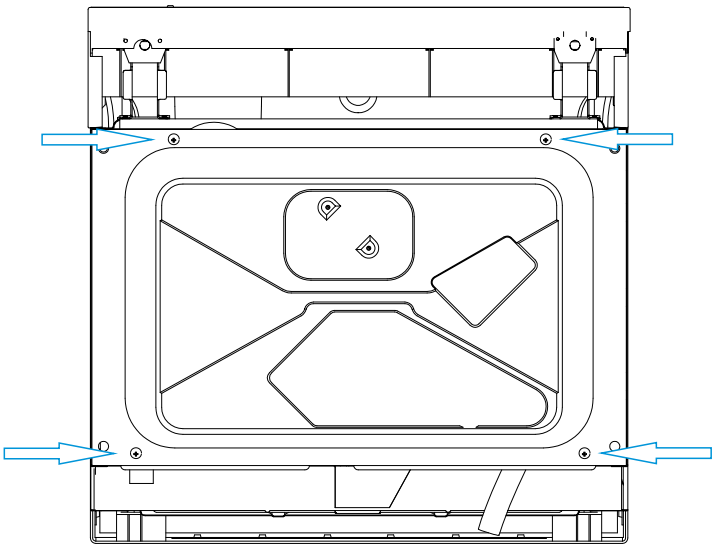
The defeat point

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, because

Technical data

Nominal voltage	220-240VAC
Frequency	50Hz
Resistance	150 - 220Ω
Delivery height	1M
Delivery performance	≥17l/min(230VAC)
Rate current	≤0.20A

Access drain pump

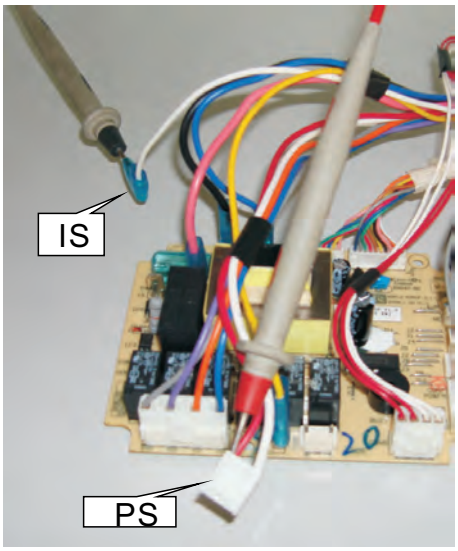


1. Drain off the water in the dishwasher, and disconnect the power supply。
(Note : Make sure to remove remained water in the dishwasher. If not, wet the floor.)
2. Remove four screws on bottom, and then remove bottom board.
3. Label and disconnect the two terminal lugs from the drain pump.
4. Remove screws securing the drain pump to sump, then remove drain pump.
5. Reverse the above procedure to install.

Inspect drain pump

Check the electric part

1.Open the control panel and take out the PCB;
2.Unplug the CON4 and P4 wires, then use the multi-meter Ω shelf to measure the red wire (PS) and white wire (IS), the normal resistance is about 150Ω to 220Ω.
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.

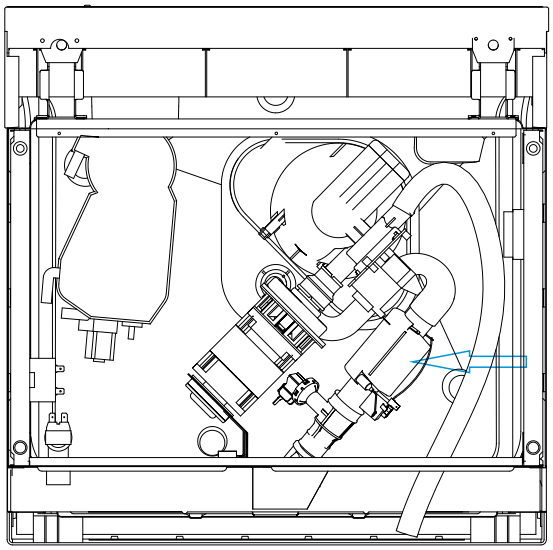


Check the machine part

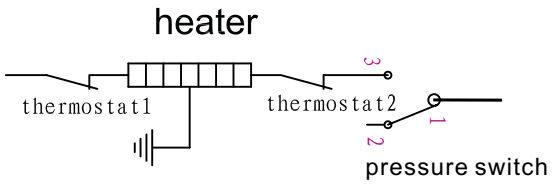
1. If the electric part is OK, we need to check the machine part.
2. Remove bottom board.
3. If the non-return valve is wrongly assembled, the tub will remain much water. We need to re-assemble the non-return valve.
4. If the drain pump is working, but no water drain out or just a little. We should check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

Location of Heater

Bottom View



The work principle

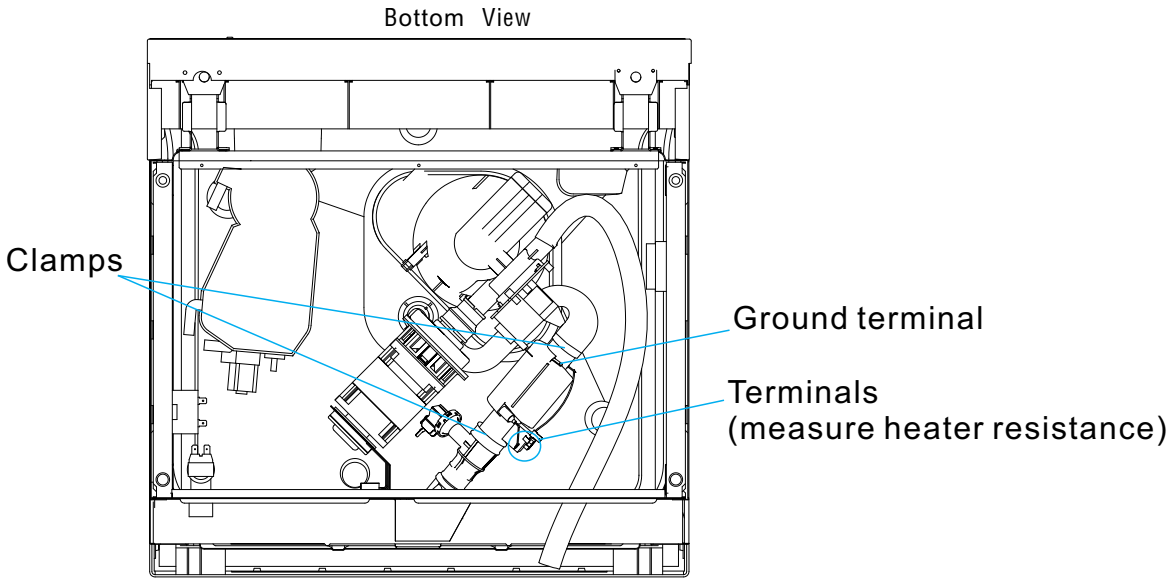


Technical data

Nominal voltage	230VAC
Rating power	1800W
Resistance	29.265 1.463Ω
Thermastat1	98℃
Thermastat2	229 ℃

The defeat point

1. The heater coil is broken, so the heater cannot work. It will cause the E3 error.
2. The thermostat 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

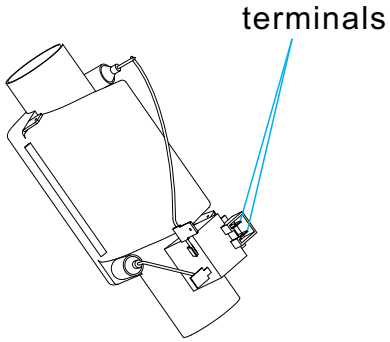
1. Drain off the water in the dishwasher, and disconnect the power supply. (Note : Make sure to remove remained water in the dishwasher. If not, wet the floor)
2. Remove bottom board.
3. Label and disconnect the terminals to and ground wire.
4. Remove the 2 clamps from the Heating element.

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

5. Reverse the above procedure to install.

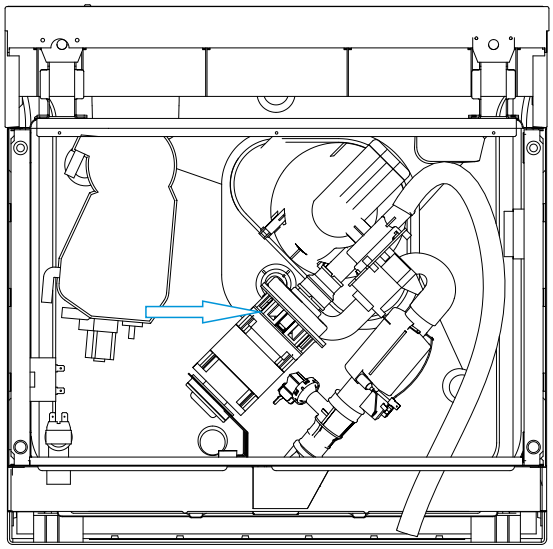
Inspect heater

1. Remove bottom board.
2. Use the multi-meter Ω shelf to measure resistance between the two terminals shown in 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.

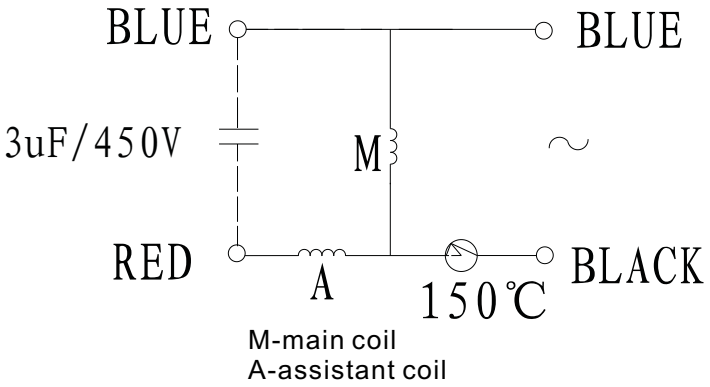


Location of Washing Pump

Bottom View



The work principle



M-main coil
A-assistant coil

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

The defeat point

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

Technical data

Nominal voltage	220-240VAC
Frequency	50Hz
Resistance	Main coil:84.8 7%Ω Assistant:78.6 7%Ω
Delivery height	0.8m
Delivery performance	≥50l/min(230VAC)
Lock rotor current	≤1.50A
Operating current	0.65 10%(230VAC)

Access Washing Pump

1. Disconnect power.
2. Remove bottom board.
3. Label and disconnect the 2 terminals to the capacitor.
4. Label and disconnect the 2 terminals to the motor wire connector.
5. 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 (Dia-31.0mm)

6. Remove the clamp fastening interconnect hose to the lower nozzle .
7. Remove the clamp fastening interconnect hose to heater.
8. Remove the screw and disconnect the ground wire from the wash pump motor assembly.

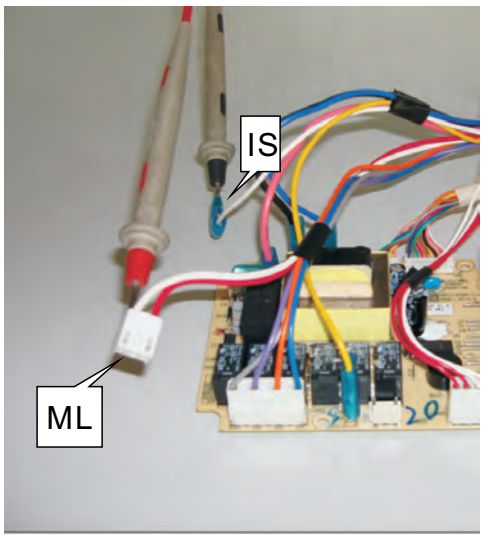
Note: Do not attempt to remove the bolt and locknut connecting the motor mount to the dishwasher frame.

9. Remove the motor pump assembly from the dishwasher.
10. Reverse the above procedure to install.

Inspect Washing Pump

Check the electric part

1.Open the control panel and take out PCB;
2.Unplug the CON4 and P4 wires, then use the multi-meter Ω shelf to test resistance between two white wire (ML and IS), the normal resistance is about 78Ω to 100 Ω.
3. I f the resistance is not correct, it means the pump coil is broken or the connector is loose, In this case, we should check the connection first. If the problem hasn't been solved by re-connection, we would replace the washing pump.
4.If the resistance is OK but it cannot work, it maybe the capacitor weakly, we need to replace the capacitor.



Check the machine part

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

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.

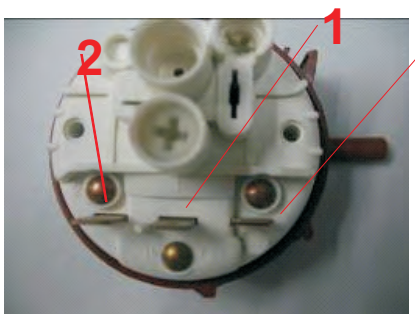
In our production, the pressure switch is to control the level in appliance, like 83/63 serial. May also provide flood protection, like 140/120 serial.

Manufacturer: Elbi

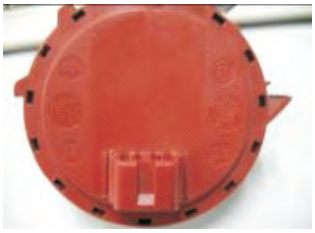
1- COM

2 - NC

3 - NO



Front view



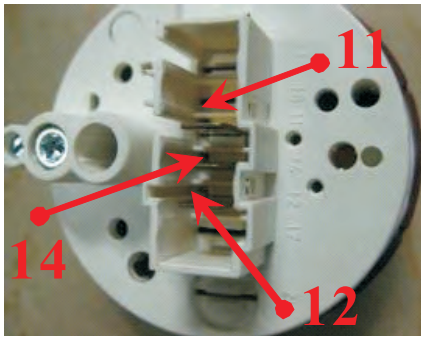
Back view

Manufacturer: EMZ

11 - COM

12 - NC

14 - NO

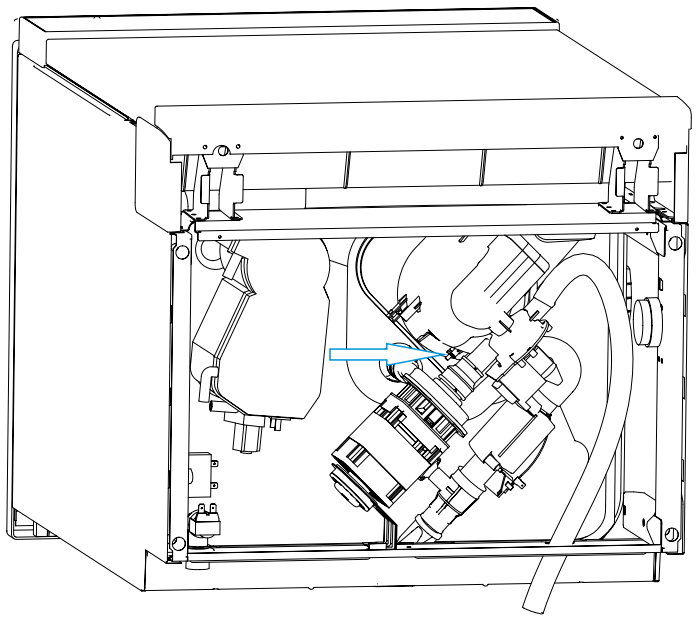


Front view

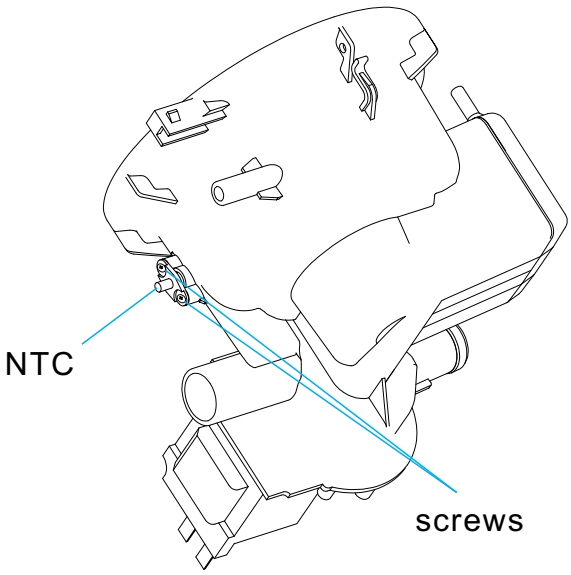
Back view

Location of NTC

Bottom View



The work principle



The work principle

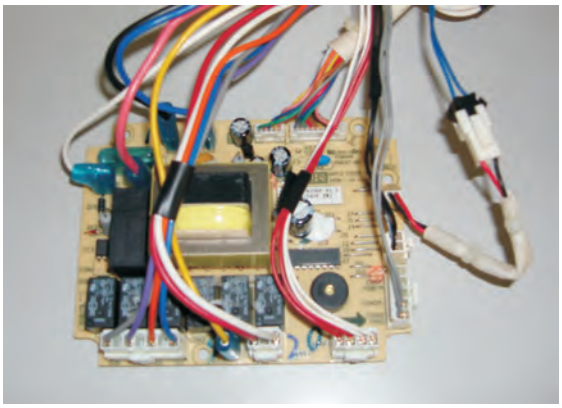
Negative Temperature Coefficient Thermistor is integrated into sump, which is used for measuring temperature of water in the tub.

Access Washing Pump

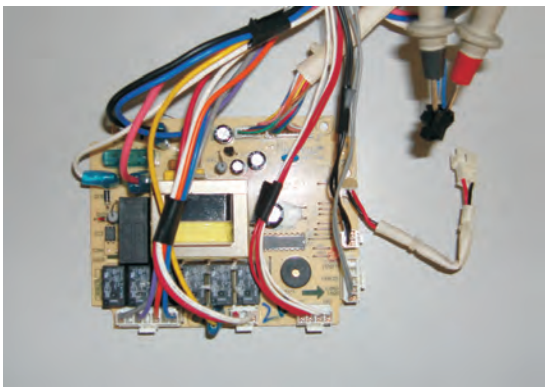
1. Remove bottom board.
2. Remove two screws securing the NTC to sump(shown in above picture).
3. Take out NTC.
4. Reverse the above procedure to install.

Inspect NTC

1.Open the control panel and take out PCB;
2.Unplug the RE connector(shown in below picture), then use the multi-meter Ω shelf to test resistance between two blue wire , 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.



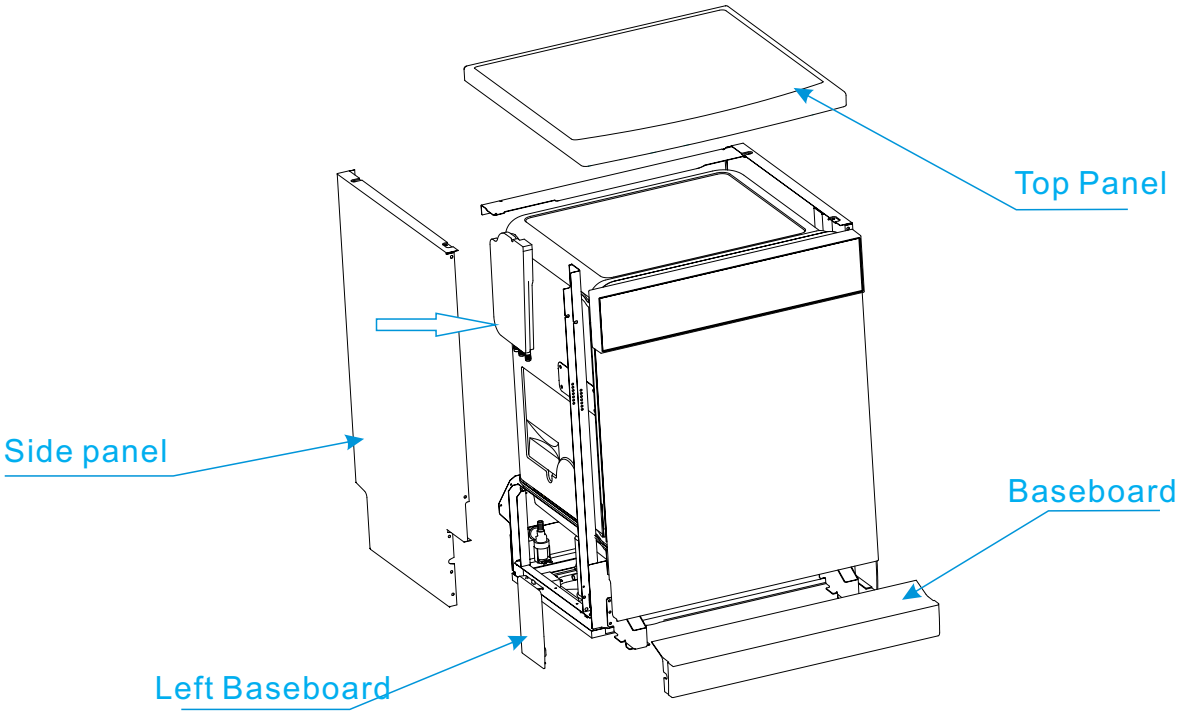
unplug



NTC resistance table

NTC	15℃	17. 48K Ω
	20℃	12. 12K Ω
	25℃	10K Ω
	30℃	8. 299K Ω
	40℃	5. 807K Ω
	50℃	4. 144K Ω
	60℃	3. 011K Ω
	70℃	2. 224K Ω
	80℃	1. 667K Ω
	85℃	1. 451K Ω

Location of Flowmeter



Attention: Build in models have no Baseboard and left and right baseboard, but adjustable baseboard.

The work principle

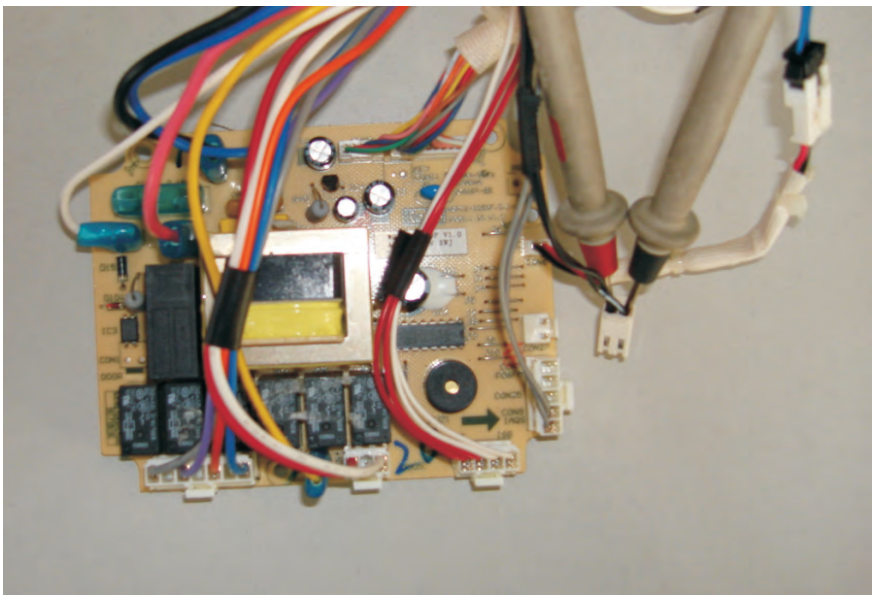
Flowmeter is integrated into Air Breaker. Function of Flowmwter is measure how much water has entered in appliance. it consists of impeller, tongue tube and terminal, etc.
When water pass through the flowmeter, moving water can rotate magnetic impeller, the tongue tube can sense the impeller's magnetic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

Access Flowmeter

1. Remove the baseboard, life baseboard, top panel and life 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 control panel and take out PCB;
2.Unplug the CON27 wire(shown in below picture), then use the multi-meter Diode shelf to test whether electrical pulse is sent out from two black wires 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..



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

With the door opened and machine off, press the Program button. Hold down the Program button and press the POWER button until the machine enter into Test Program. The appliance will pause and stand by(as step 00). At the moment, all the indicator which are under control are light and flash with frequence of 2 Hz. Then, close the door to activate the test program.

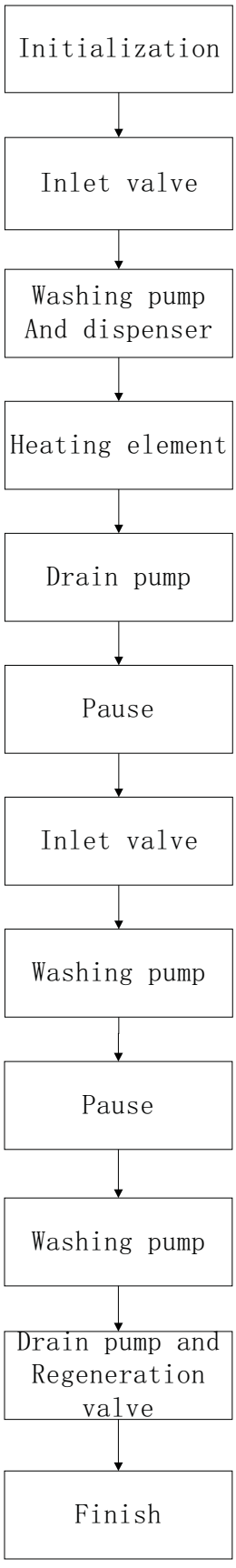
Attention

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

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 and E7 are valid.

Test Program Procedure



00: Power on, standby mode

01: Inlet valve start to work, feeds 3.6 liter water into dishwasher.(45cm appliance feeds 2.8 liter water)

02: Washing pump and dispenser will be running for 60s.

03: Washing pump and hearting element begin to work, hearting element will be running until water temperature reaches 60 degree. Please press program button to entry next step.

04: Make drain pump to be running for 60s.

05: The dishwasher pauses 15s

06: Activate fan and inlet valve, and feed 3.6liter water into dishwasher.(45 cm appliance has no fan and feeds 2.8 liter water)

07: Washing pump will be running for 3 minutes.

08: The dishwasher pauses for 5s

09: Washing pump will be running for 3 minutes.

10: Open regeneration valve and activate drain pump, drain pump will be running for 60s.

11: Buzz one sound, then machine stops. Stand by again.

E1 Longer inlet 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 will come on.

When E1 happens, the drain pump will run until flowmeter keep motionless for 2 minutes and all the other loads will be cut off immediately. At the same time, the buzzer will alarm for 30 seconds and "E1" will be shown on the display.
During program running, if abnormal inlet water, which inlet during program running except inlet water process, has be accounted to 2L(number counter will reset after every inlet water process), E1 will come on too.
If controller measured less than 50 pulses, which regenerated by flowmeter , at the first 45 seconds in water process, E1 would occur.

E3 Longer heating time

If the heating element has been working for 60 minutes but the water temperature detected by NTC hasn't reached desired value. E3 will come on.

When E3 happens, the drain pump will run until flowmeter keep motionless for 2 minutes and all the other loads will be cut off immediately. At the same time, the buzzer will alarm for 30 seconds and "E3" will be shown on the display.
Caution: during washing program, if appliance has detected NTC failure after heating element starting work, the program will jump to next step after heating 10 minutes. If there is no NTC failure detected and water temperature hasn't reached the desired value, the program will jump to next step after heating 20 minutes.

E4 Overflow

At any time, if flooding pressure switch act and keep for longer than 2 seconds, the E4 will com on. When E4 happens, the drain pump will run until flowmeter keep motionless for 2 minutes and all the other loads will be cut off immediately. At the same time, the buzzer will alarm for 30 seconds and "E4" will be shown on the display.

E6 Open-circuit failure of thermistor

In test program, once open-circuit failure of thermistor is detected by controller, The E6 will come on. When E6 happens, the drain pump will run until flowmeter keep motionless for 2 minutes and all the other loads will be cut off immediately. At the same time, the buzzer will alarm for 30 seconds and “E6" will be shown on the display.

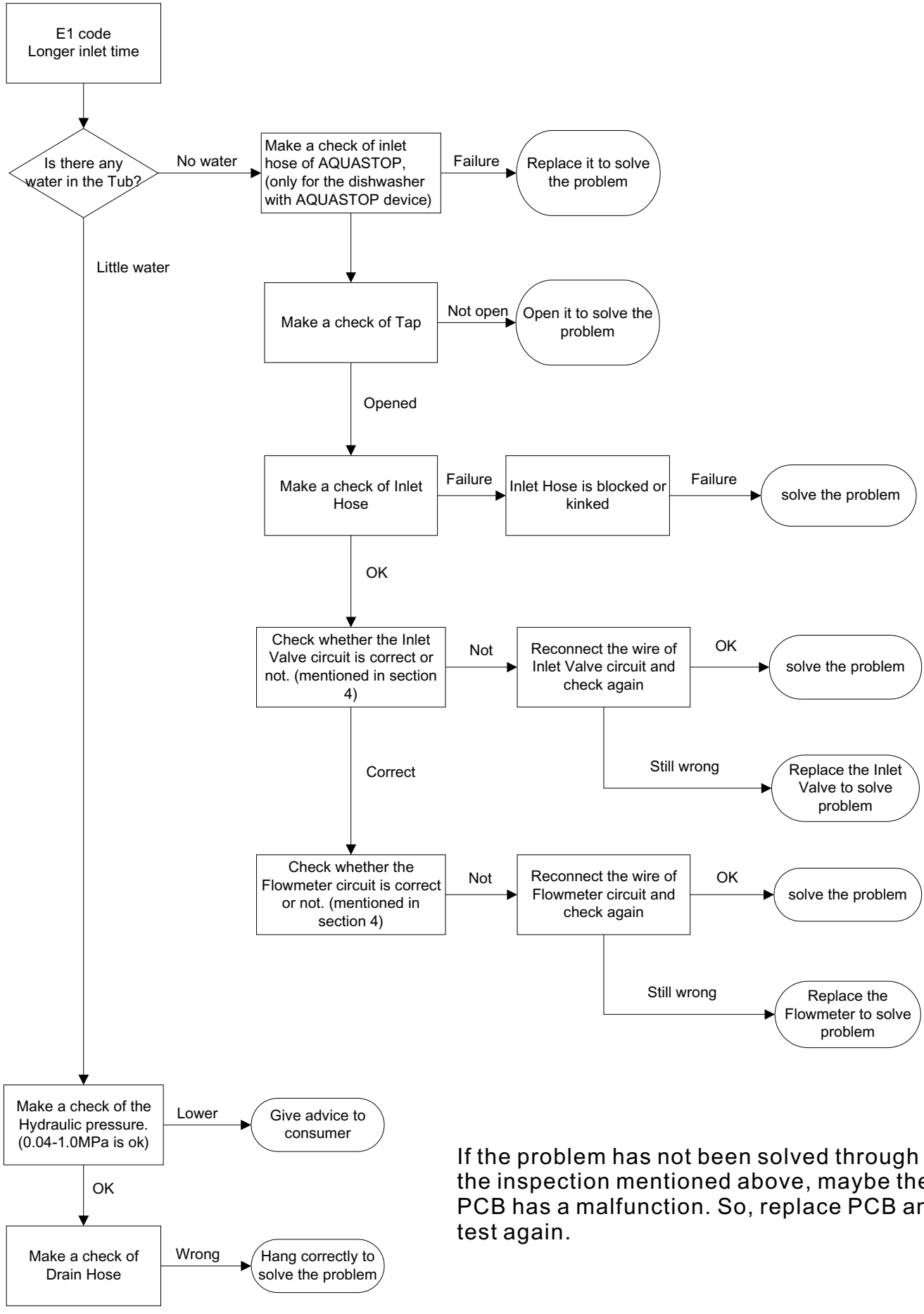
E7 Short-circuit failure of thermistor

In test program, once short-circuit failure of thermistor is detected by controller, The E7 will come on. When E7 happens, the drain pump will run until flowmeter keep motionless for 2 minutes and all the other loads will be cut off immediately. At the same time, the buzzer will alarm for 30 seconds and “E7" will be shown on the display.

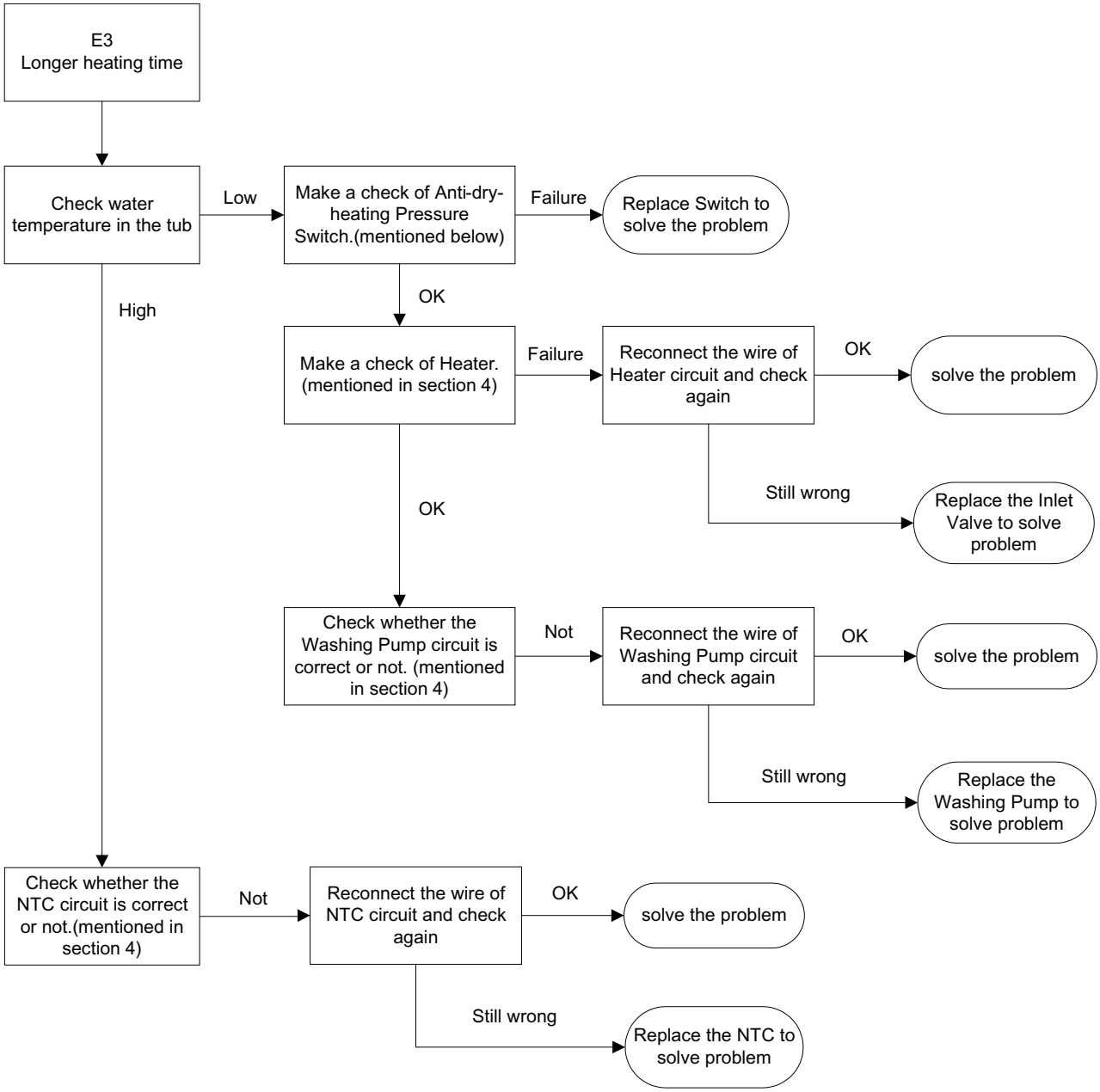
Caution:

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.

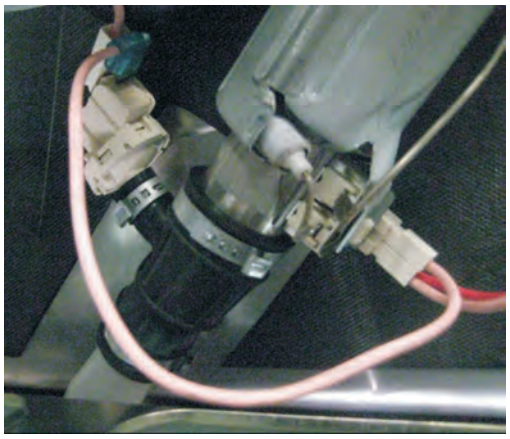
Once any error operation has done, the appliance will operate as below before power up: drain for 2 minutes and cut off all the other loads. Then detect flowmeter cyclically. If flowmeter act, repeat above drain process.



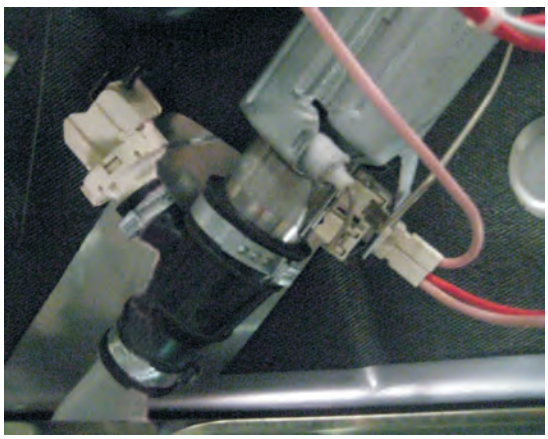
If the problem has not been solved through all the inspection mentioned above, maybe the PCB has a malfunction. So, replace PCB and test again.



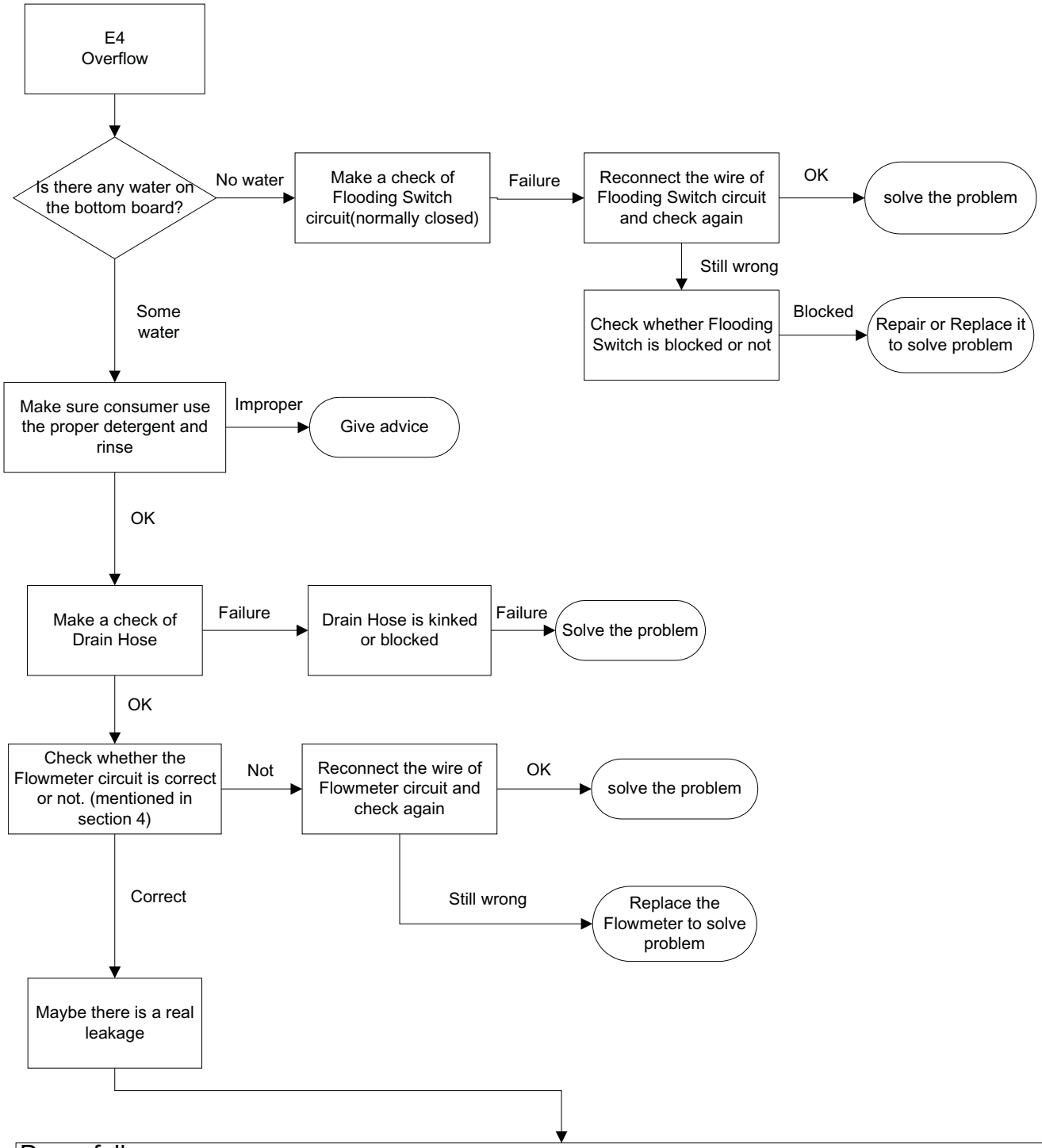
If the problem has not been solved through all the inspection mentioned above, maybe the PCB has a malfunction. So, replace PCB and test again.



Eliminate switch's influence

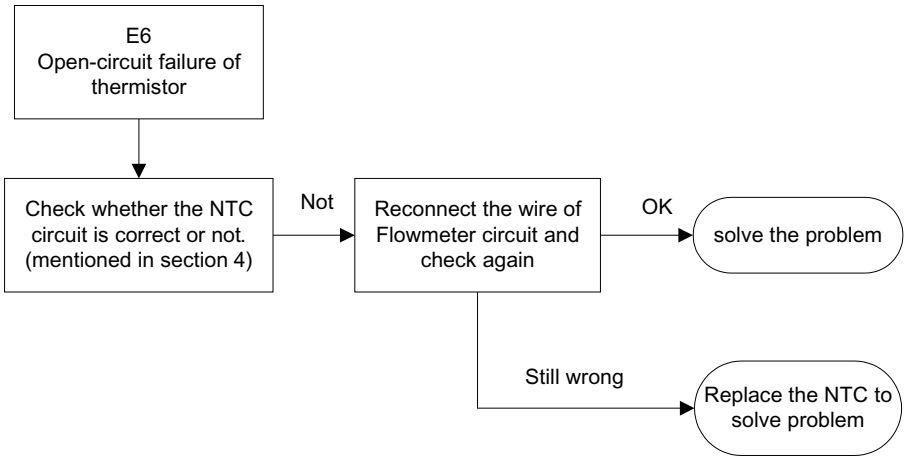


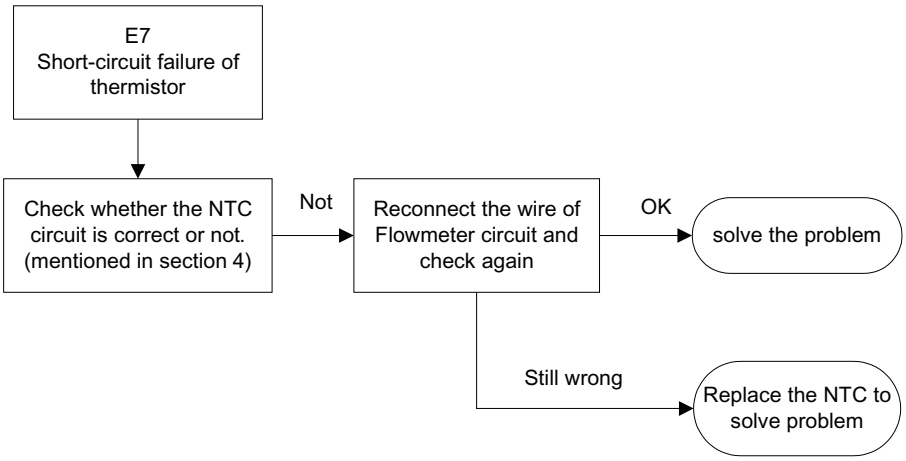
Eliminate the influence of Anti-dry-heating Pressure Switch, as above picture, and run the Test Program to test. If E3 come again, Pressure Switch is normal. If E3 doesn't come, fault Pressure switch needs replacement.



Do as follows

Remove baseboard, two side baseboards, top panel and 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.