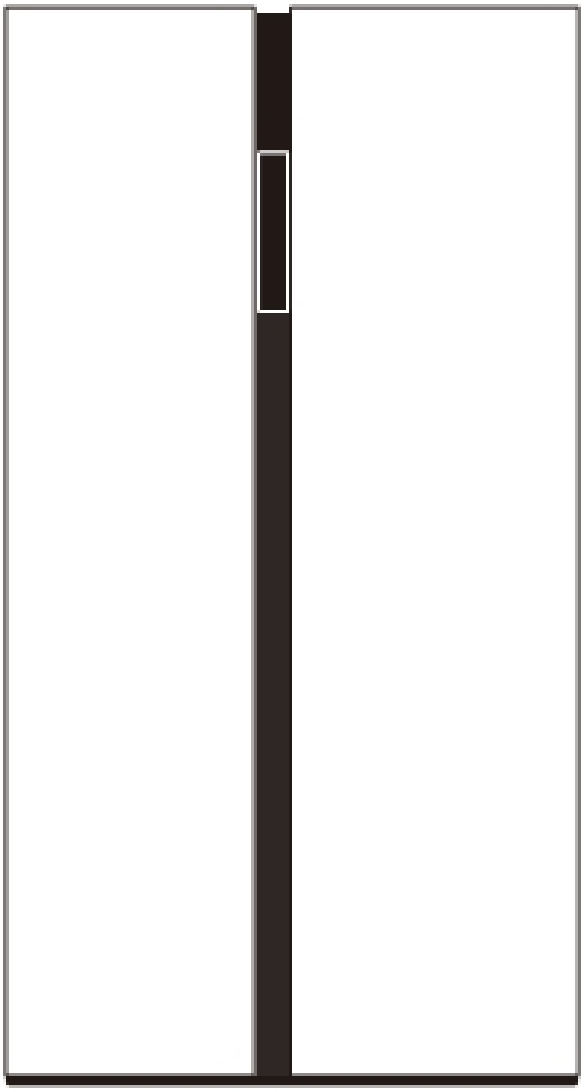
Service Manual

SBS Series

Applicable Models	Product Models	Applicable Models
HC-689WEN	CE-BCD530WE-JT	22031050001522



The picture in this service manual is only for reference, and specific appearance and configuration are subject to the real product.
This manual mainly teaches the method, the specific work skill needs engineer to accumulate through the daily work.

⚠ WARNING

Important Safety Notice

There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagrams, Circuit Board Diagrams, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.

⚠ WARNING

Important Safety Notice

The Maintenance Manual is only for the use of maintenance personnel with certain experience and background in electrical, electronic and mechanical field.

Any attempt to repair main devices may lead to personal injury and property loss.

Manufacturers or distributors are not responsible for the content of the Manual and interpretation thereof.

Contents

1. Significant update notes (None)

2. Safety Warning

2.1 Warning for operation safety

Important Safety Instructions

	**CAUTION** **RISK OF ELECTRIC SHOCK** **DO NOT OPEN** 
	This symbol indicates that dangerous voltage constituting a risk of electric shock is present within your freezer.
	This symbol indicates that there are important operating and maintenance instructions in the literature accompanying your freezer.

WARNING

1) Read these instructions.

2) Keep these instructions.

3) Heed all warnings.

4) Follow all instructions.

5) Do not use this appliance near water.

6) Clean only with a damp cloth.

7) Do not block any ventilation openings.

8) Install in accordance with the manufacturer’s instructions.

9) Do not install near any heat sources, such as radiators, heat registers, stoves, or other apparatus that produce heat.

10) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

11) Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the appliance.

12) Do not attempt to modify or extend the power cord of this appliance.

13) Unplug this appliance during lightning storms or when it will not be used for long periods of time.

14) Make sure that the available AC power matches the voltage requirements of this appliance.

CONNECTING ELECTRICITY

WARNING Electrical Shock Hazard.

Plug into a grounded 3-prong outlet.
Do not remove the ground prong.
Do not use an adapter.

Failure to follow these instructions can result in death, fire, or electrical shock.

WARNING

Electric Shock Hazard
Failure to follow these instructions can result in electric shock, fire, or death.

1) WARNING–Keep ventilation openings, in both the freezer and the built-in structure, clear of obstruction.

2) WARNING–Do not touch the interior of the freezer with wet hands. This could result in frost bite.

3) WARNING–Do not use mechanical devices or other means to accelerate the defrosting process, other than those recommended by the manufacturer.

4) WARNING–Do not damage the refrigerant circuit.

5) WARNING–Do not damage the refrigerant tubing when handling, moving, or using the freezer.

6) WARNING–DANGER–Never allow children to play with, operate, or crawl inside the freezer. Risk of child entrapment. Before you throw away your old freezer:

6-1) Take off the doors

6-2) Leave the shelves in place so that children may not easily climb inside

7) Unplug the freezer before carrying out user maintenance on it.

8) This freezer can be used by children age eight years and older and persons with reduced physical or mental capabilities or lack of experience and knowledge if they are given supervision or instruction concerning the use of the freezer in a safe way and understand the hazards involved. Children should not play with the freezer. Cleaning and maintenance should not be performed by children without supervision.

9) If a component part is damaged, it must be replaced by the manufacturer, its service agent, or similar qualified persons in order to avoid a hazard.

10) Please dispose of the freezer according to local regulations as the freezer contains flammable gas and refrigerant.

11) Follow local regulations regarding disposal of the freezer due to flammable refrigerant and gas. All refrigeration products contain refrigerants, which under the guidelines of federal law must be removed before disposal. It is the consumer's responsibility to comply with federal and local regulations when disposing of this product.

12) This freezer is intended to be used in household and similar environments.

13) Do not store or use gasoline or any flammable liquids inside or in the vicinity of this freezer.

14) Do not use extension cords or ungrounded (two-prong) adapters with this freezer. If the power cord is too short, have a qualified electrician install an outlet near the freezer. Use of an extension cord can negatively affect the freezer's performance.

Grounding requirement

This freezer must be grounded. This freezer is equipped with a cord having a grounding wire with a grounding plug. The plug must be inserted into an outlet that is properly installed and grounded.

Improper use of the grounding plug can result in a risk of electric shock. Consult a qualified electrician or service person if the grounding instructions are not completely understood, or if doubt exists as to whether the freezer is properly grounded.

2.2 Safety instruction for refrigerant

Explosion Hazard.

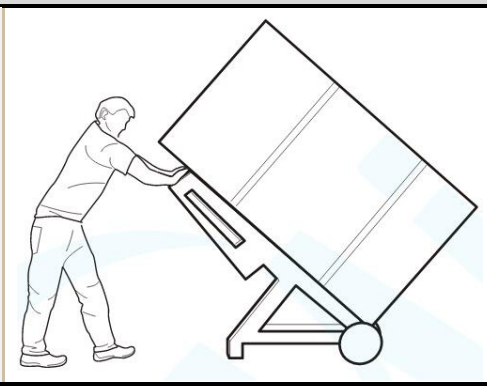
Keep flammable materials and vapors, such as gasoline, away from freezer. Failure to do so can result in fire, explosion, or death.

Safety instruction for refrigerant

DANGER–Risk of Fire or Explosion. Flammable Refrigerant Used. To Be Repaired Only By Trained Service Personnel. Do Not Use Mechanical Devices. Do Not Puncture Refrigerant Tubing. CAUTION–Risk of Fire or Explosion. Flammable Refrigerant Used. Consult Repair Manual/Owner's Guide Before Attempting To Service This Product. All Safety Precautions Must be Followed. CAUTION–Risk of Fire or Explosion. Dispose of Properly In Accordance With Federal Or Local Regulations. Flammable Refrigerant Used. CAUTION–Risk of Fire or Explosion Due To Puncture Of Refrigerant Tubing; Follow Handling Instructions Carefully. Flammable Refrigerant Used.

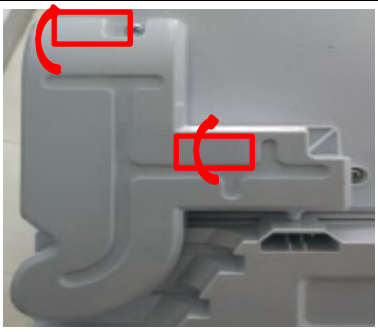
3. Installation and commissioning

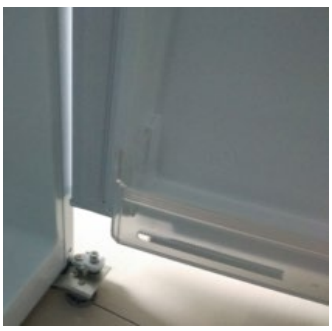
3.1 Handling

Handling	
1) Protect the refrigerator in moving it,Same as shown as left photo, please move it by handcart with cushion 2) Remove all packing materials and bottom cushion, the move into house for placement 3) After moving it to appropriate location, wait for 2 hou rs before power on.	

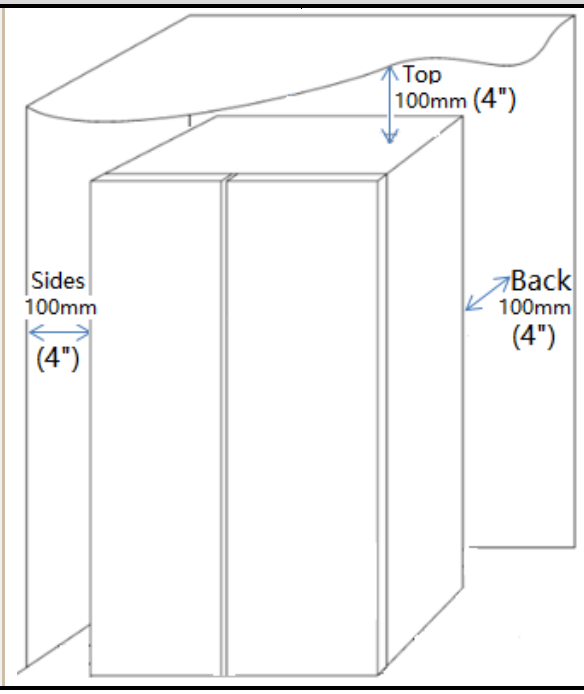
3.2 Door Disassembly and Assembly

When the whole refrigerator cannot enter the room, the door can be disassembled, then assembled after entering separately.

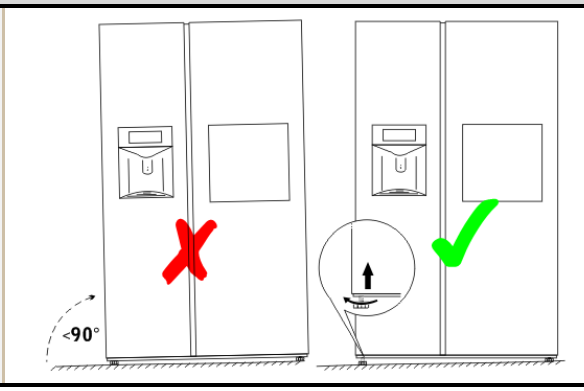
Disassembly of Freezer door	
1) As shown as right photos, use screwdriver to remove the 2 pcs screws, and then remove the upper hinge cover.	
2) Disconnect the fast connectors, then use cross screwdriver or socket spanner to remove the 2pcs M5 screws and 1 pc grounding screw by anticlockwise.	
3) Lift up the freezer door until the hinge axis separated from the axis hole of door, then carry the door to a suitable place.	

Disassembly of refrigerator door	
1) Use screwdriver to remove the 2 pcs screws, and then remove the upper hinge cover.	
2) Use cross screwdriver or socket spanner to remove the 2 pcs M5 screws by anticlockwise, and then remove the upper hinge. Note: please make sure the refrigerator door fit closely to the cabinet; otherwise the refrigerator door may fall down during above operation.	 
3) Lift up the refrigerator door until the hinge axis separated from the axis hole of door, then carry the door to a suitable place.	 

3.3 Installation location

Installation location	
Please select a ventilated place to place the refrigerator, and reserve space according to the recommended size in the picture, which is conducive to heat dissipation, performance improvement and energy consumption reduction.	

3.4 Leveling of the refrigerator

Leveling of the refrigerator	
If the refrigerator cannot be placed steadily, adjust the footing to level it. Turn the feet clockwise to raise the refrigerator; turn the feet counterclockwise to lower the refrigerator.	

3.5Left or right open door reversal (None)

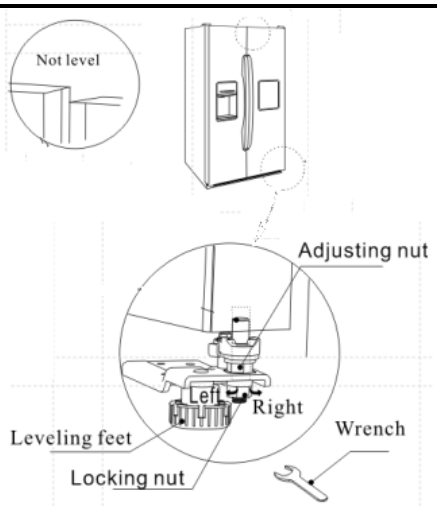
3.6 Installation of handle (None)

3.7 Installation of door lock（None）

3.8 Adjustment to level the door

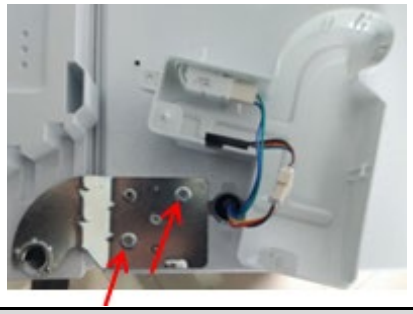
Adjustment to level the door（Up and down ）

1) Refrigerator door lower: loosen locking nut counterclockwise, then rotate the adjusting nut counterclockwise to adjust the height of door, at last tighten the locking nut clockwise.
2) Refrigerator door higher: loosen locking nut counterclockwise firstly, then rotate the adjusting nut clockwise, at last tighten the locking nut clockwise.



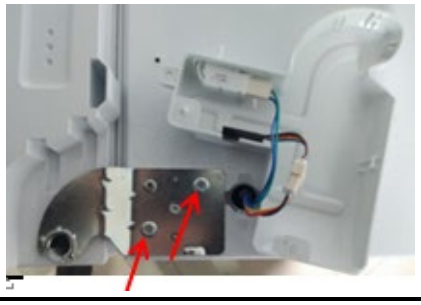
Adjustment to inhomogenous aperture the door (Up and down)

1) Use screwdriver to remove the 2 pcs screws, and then remove the upper hinge cover.2) Use screwdriver to loosen the 2 pcs screws, right and left adjust the upper hinge tomake door aperture be homogeneity.3) Put the hinge cover on suitable position, and then use the screwdriver to fix the 2 pcs screws.



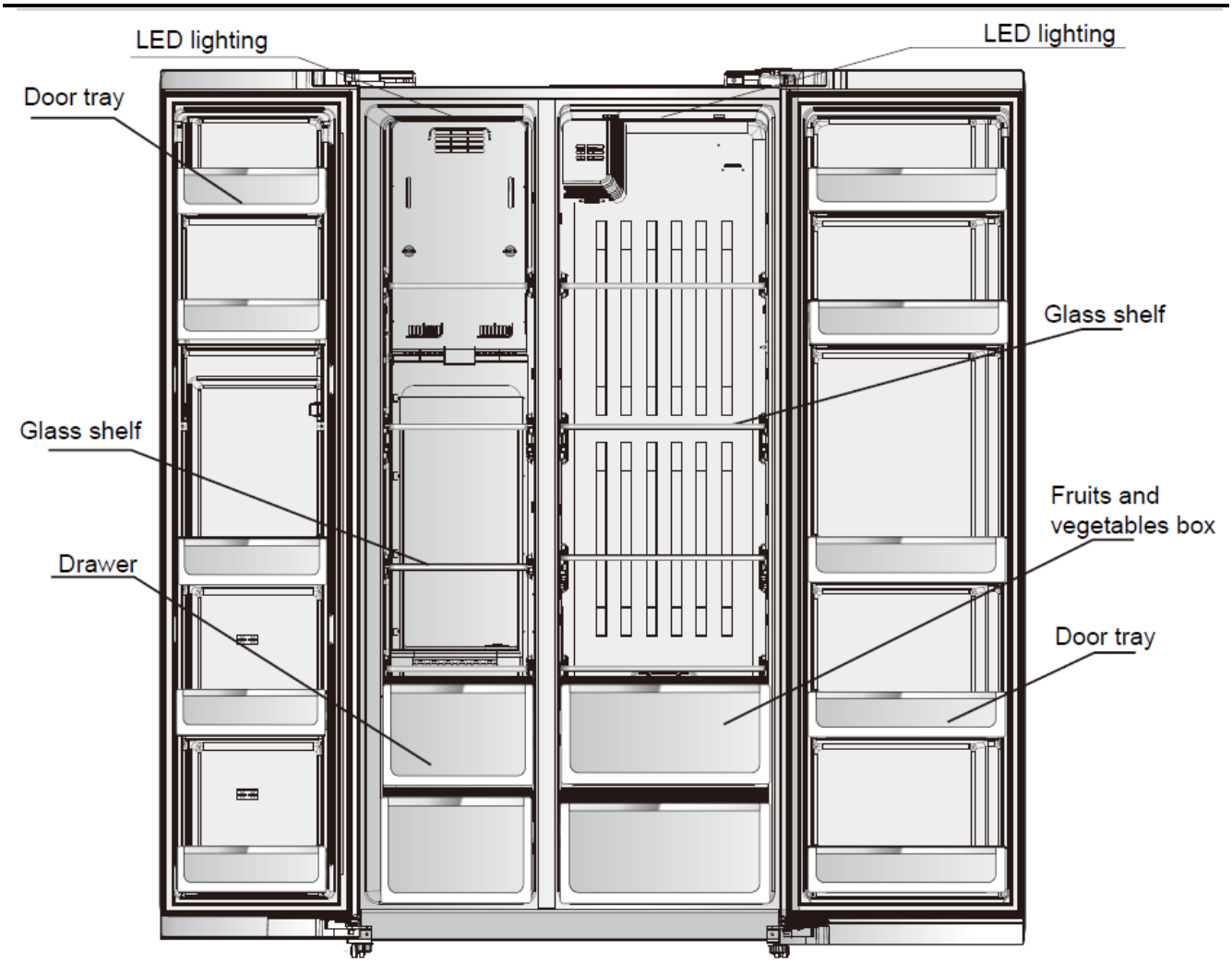
Adjustment to plane the door (left and right)

1) Use screwdriver to remove the 2 pcs screws, and then remove the upper hinge cover.
2) Use screwdriver to loosen the 2 pcs screws, front and back adjust the upper hinge to make door aperture be homogeneity.
3) Put the hinge cover on suitable position, and then use the screwdriver to fix the 2 pcs screws.



4. Main parts and external dimension

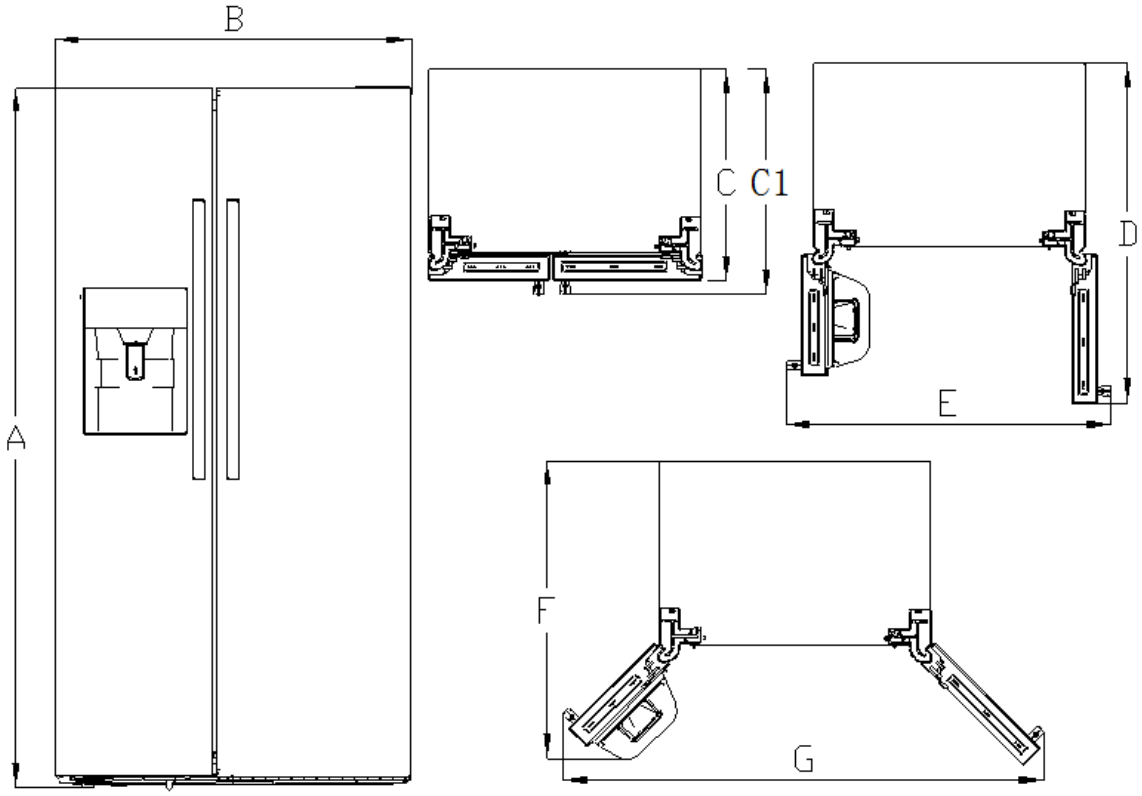
4.1 Main parts



(The picture is only for reference, and specific appearance and configuration are subject to the real product)

4.2 External dimension

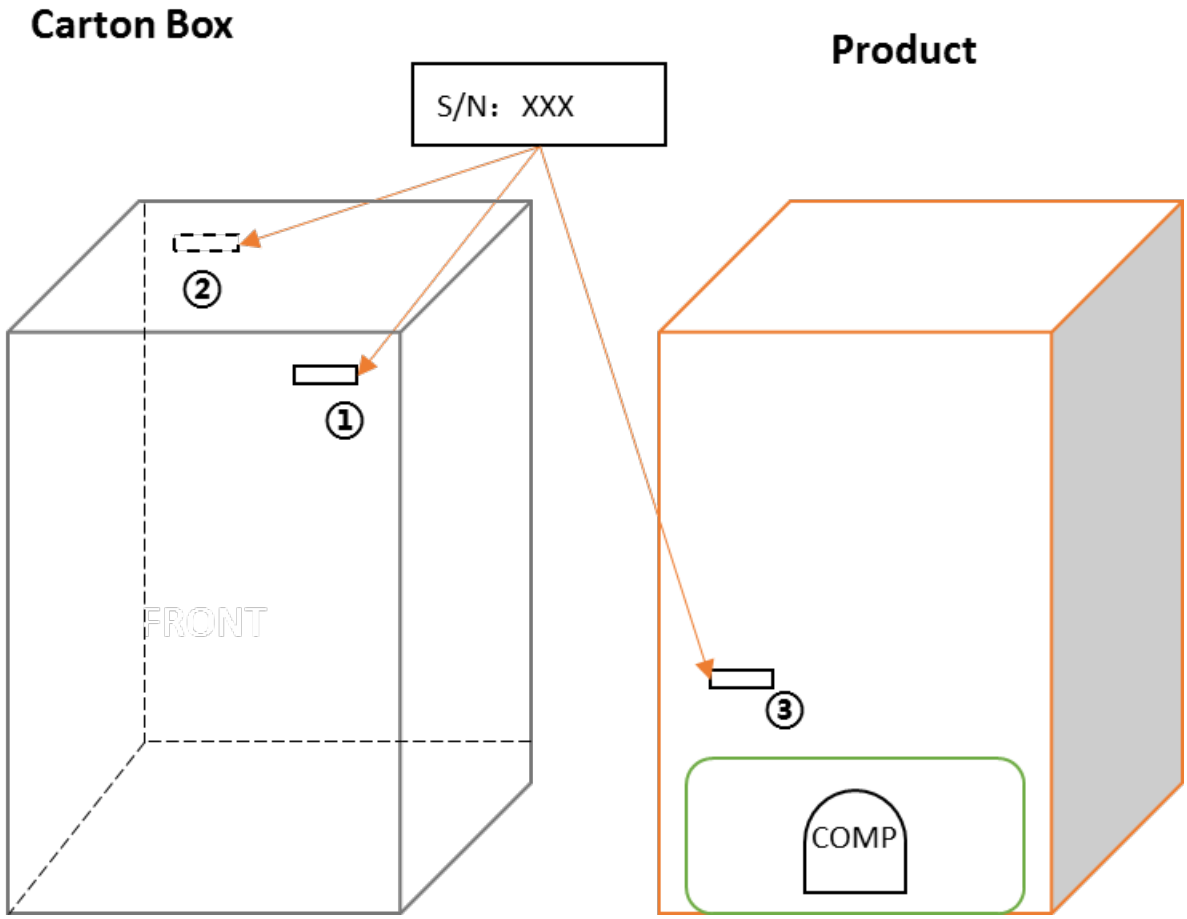
Description	**Code**	**Size** (mm)
Height to top of cabinet	A	**1765**
Width	B	**897**
Depth w/Handle	C	**706**
Depth w/Handle	C1	\
Depth (Door open 90 deg. w)	D	**1129**
Width (Door open 90 deg. w)	E	**966**
Depth (Door open 130 deg. w)	F	**1035**
Width (Door open 130 deg. w)	G	**1544**



4.3 Product serial number and location

1）Product Serial Number — Including order number, production date and other information. When the product occur problem, it needs to be recorded or photographed and provided to us.

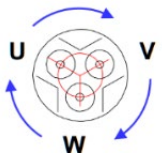
2）Paste location



Some products also have S/N on the lower part of the right side of the Cabinet.

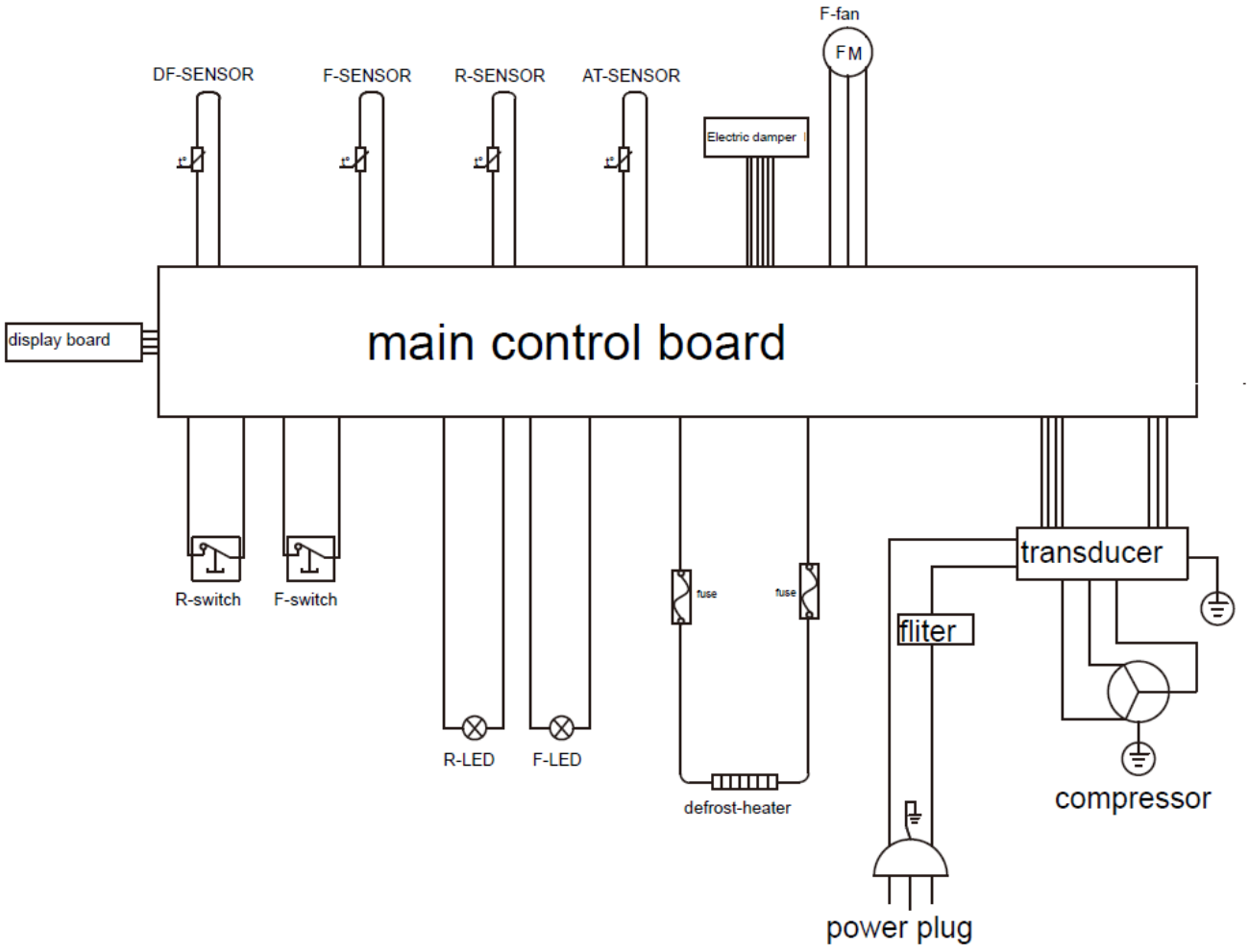
5. Electric control system

5.1 Electrical parts parameters

Applicable Model	HC-689WEN	
Product Model	CE-BCD530WE-JT	
Rated Voltage	220V-240V~50/60Hz	
Item	**Specification**	**Specification**
Refrigerant	R600a	
Compressor	**DZ100A1G-4CPL** (Part code : 11101020005644)	
Starting device type	DC Inverter	
The COP of compressor	1.78 (W/W)	
The max cooling capacity of compressor	255W	
Winding resistance of compressor wiring terminal (20℃)	U-W:12.4Ω ± 5% U-V: 12.4Ω ± 5% W-V: 12.4Ω ± 5%	
Winding resistance picture		
Starter(PTC)	None	
Overload protector(OLP)	None	
Integrate PTC+OLP	None	
Variable frequency driver board	Have (Part code : 17131000003741)	
Capacitor	None	
Power filter (EMI)	250V、4A	
Power reactor (EU EMC)	115/230V、3A	
Motor		
Fan motor of the freezing chamber	DC12V、1250r/min	
Fan motor of the refrigerating chamber	None	
Condensation fan motor in compressor case	None	
Electric damper	DC12V	
Electric damper heater	0.5W	
Ice maker motor	None	
Crushed ice motor	None	
Open door motor	None	
Lights		

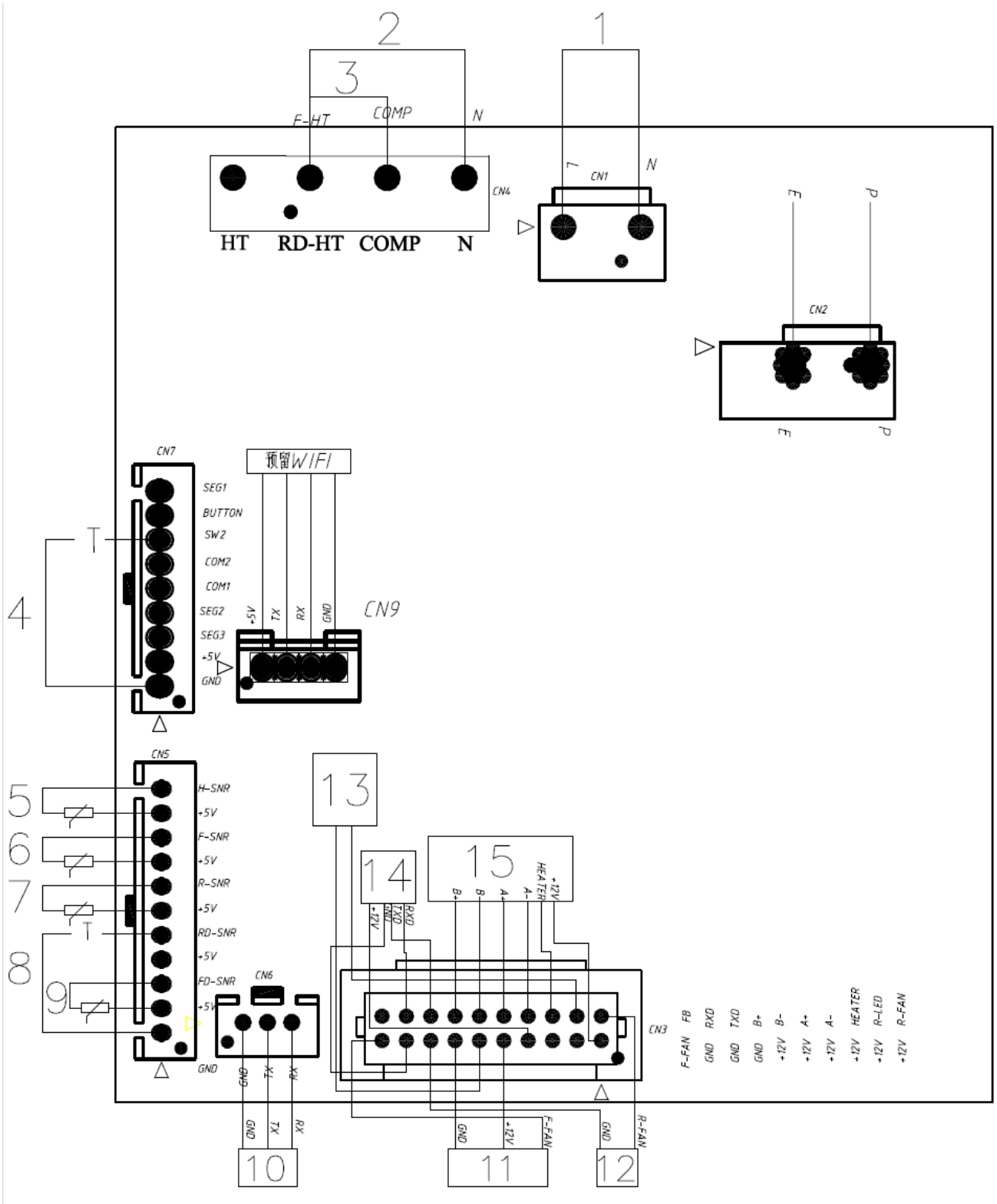
Lights inside the freezing chamber	DC12V、≤2.5W	
Lights inside the refrigerating chamber	DC12V、≤2.5W	
Others Lights	None	
Switch of the lights	■Mechanical switch □Magnetism control switch	
Other electrical parts		
Water valve	None	
Water pump	None	
Electric exchange valve	None	
Defrosting parts		
Defrosting sensor	NTC B3839 (B5/25=3839K±2%)	
Fuse in freezing chamber	230V、77(0,-4) ℃	
Defrost heater in freezing chamber	230V、240W	

5.2Circuit diagram



F: Freezer R: Refrigerator FD: Freezer Defrost AT: Ambient temperature

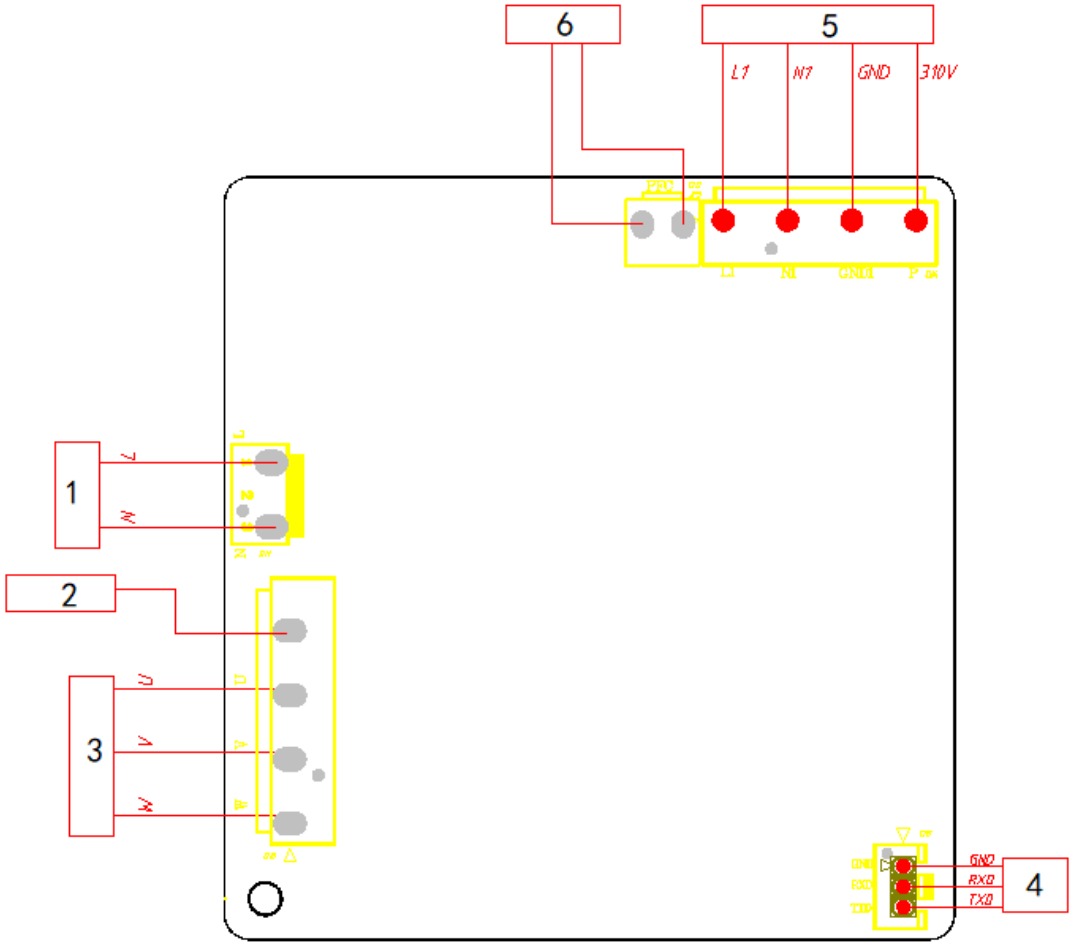
5.3 Main PCB terminal connection diagram



Connecting terminals	Connecting terminals
1. Power supply	9. Freezing defrost sensor
2. Freezing frost heater	10. Inverter board
3. Compressor	11. Freezing fan motor

4. Freezing chamber light switch	12. Freezing chamber light
5. Ambient temperature sensor	13. Refrigerating chamber light
6. Freezing temperature sensor	14. Display control panel
7. Refrigerating sensor	15. Electric damper
8. Refrigerating chamber light switch	

5.4 Inverter board terminal connection diagram（Option）

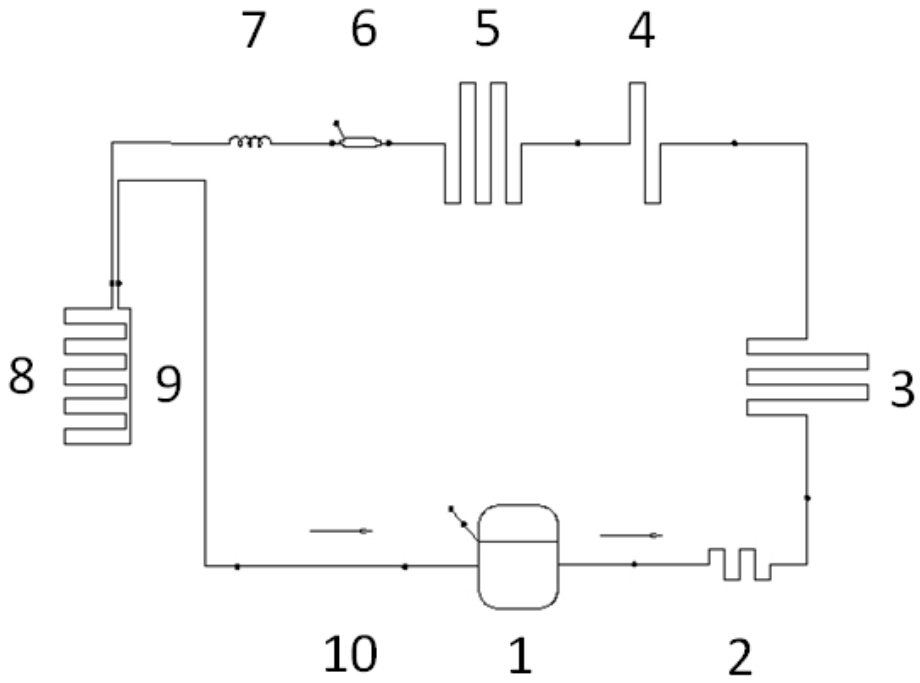


NO.	Connecting terminals	NO.	Connecting terminals
1	power supply	4	Main control board communication
2	Earth cable	5	Main control board power supply
3	compressor	6	Power filter

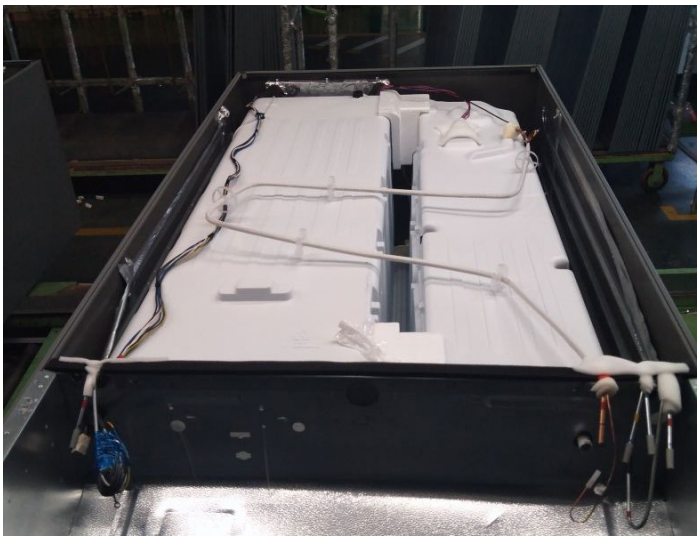
6. Refrigeration system

6.1 Refrigeration system working principle

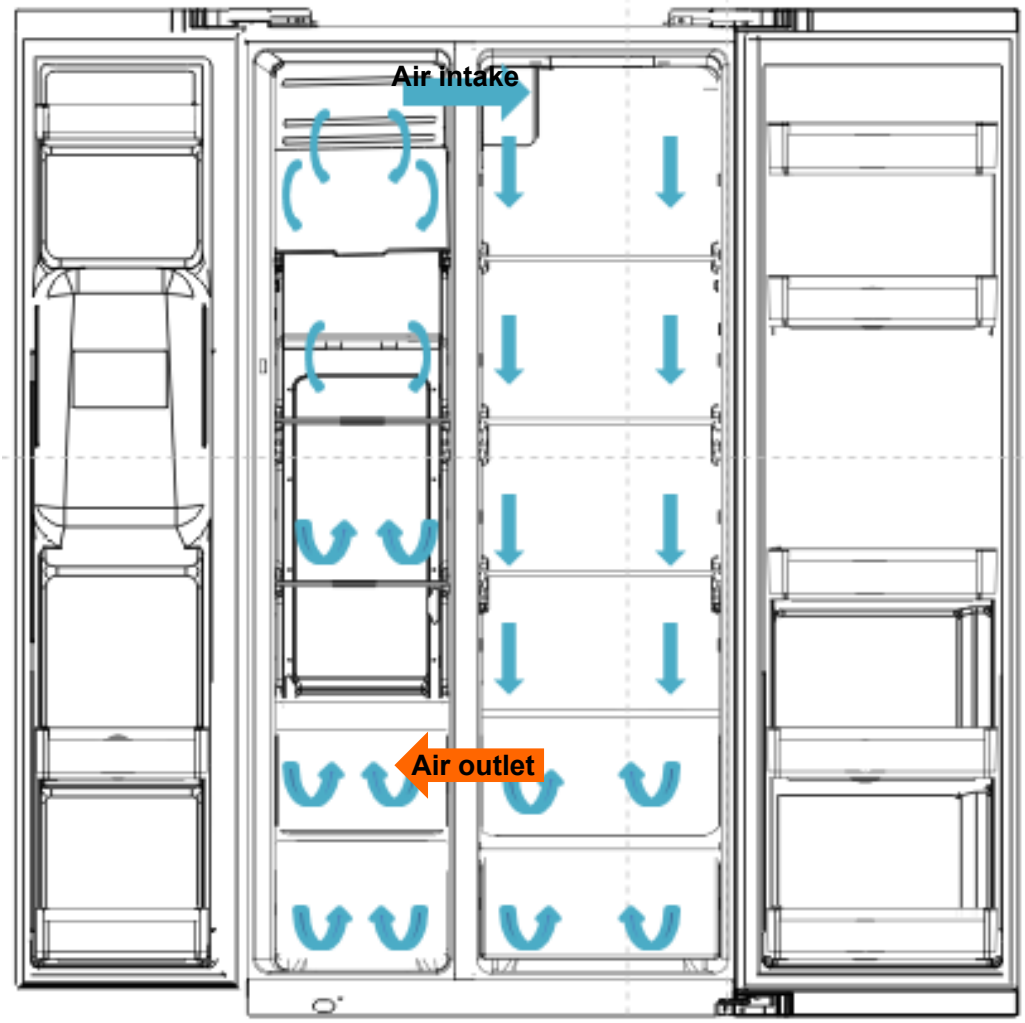
1.Compressor→2.Exhaust transition pipe→3.Left condenser→4.Anti-condensationg tube→5.Right condenser→6.Dry filter→7.Capillary tube→8.Evaporator→9.Return pipe→10.Return transition pipe→1.Compressor



6.2 Cooling pipeline and drain pipe inside the cabinet



6.3 Circulating route of cooling air



6.4 Welding points in chambers or foam layer

Welding points on freezer evaporator		
Welding point	**Pipe outer diameter (mm)**	
1-Freezing capillary and inlet of evaporator	Copper pipe: Φ4.6	Aluminum pipe: Φ8（外径）
2-Heat transition tube and outlet of evaporator	Copper pipe: Φ7（外径）	Aluminum pipe: Φ8（外径）

6.5 Welding point in the compressor case

Welding point	Pipe outer diameter (mm)	
1-outlet of Suction connection tube and inlet of Compressor	Copper pipe: Φ6	Copper pipe: Φ6.17（内径）
2-outlet of Compressor and inlet of Component supplying pipe connector	Copper pipe: Φ4.93（内径）	Steel pipe: Φ4
3-outlet of Component supplying pipe connector and inlet of left condenser	Steel pipe: Φ4.17（内径）	Steel pipe: Φ4
4outlet of left condenser pipe and inlet of Condensation tube	Steel pipe: Φ4.17（内径）	Steel pipe: Φ4
5-outlet of Heat transition tube of sunction pipe and inlet of Suction connection tube	Steel pipe: Φ6.17（扩口）	Copper pipe: Φ6
6-outlet of Condensation tube and inlet of right condenser	Copper pipe: Φ4.0	Copper pipe: Φ4.17（扩口）
7-outlet of right condenser and inlet of Dry filter	Steel pipe: Φ4	Copper pipe: Φ4.2（内径）
8-Dry filter Process pipes	Copper pipe: Φ6	
9-outlet of Dry filter and inlet of Capillary tube	Copper pipe: Φ 内径 2.0	铜管 Steel pipe: Φ1.8
10-Compressor Process pipes	Copper pipe: Φ6.0	

7. Dismantling of parts

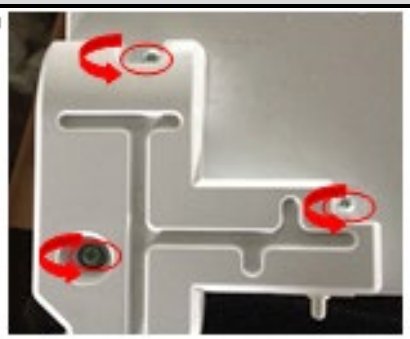
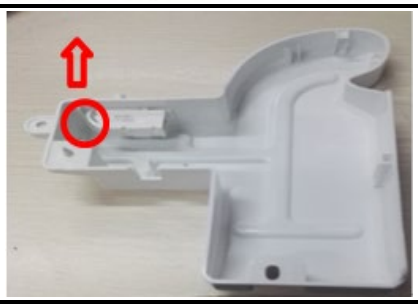
7.1 Parts on the door

Door seal	
Door seal is installed into door liner groove. 1)Open the refrigerator door; 2)Take the door seal ① out of door liner;	
Door tray	
While squeezing it inward, lift up the door tray and take it out from door liner.	

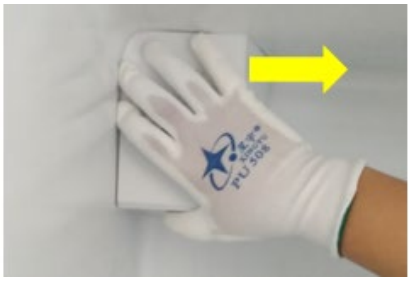
7.2 Parts inside the refrigerator

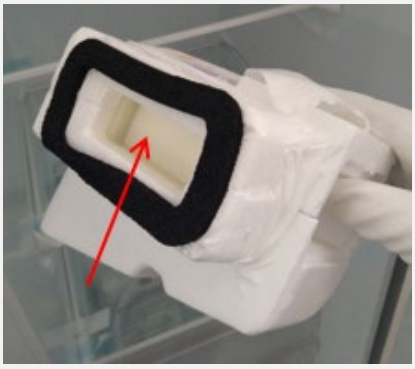
Refrigerator Fruit box cover	
1）Take out the crisper firstly. 2） Lift up the Fruit box cover, and then pull out it.	
Shelves	
1）Lift up the division plate with a proper force and pull it out towards yourself;	
Freezer Drawer	
1)Pull the drawer out completely; 2)Lift it up slightly and take it out from the refrigerator.	

7.3 Light system

Light	
Light of the refrigerating	
1）Turn over the lampshade hard with two flat-blade screwdrivers at two grooves marked with red circles shown in the picture and take it down	
2）Push away the hook with your hand along the arrow direction shown in the picture and separate LED light panel from the hook; then take down LED light panel	
3）Remove the connecting terminals on LED light panel and take down the LED light panel.	
Light of the freezing	
Same to light of the refrigerating	
Light switch	
1）As shown in the picture, loosen by screwdriver 3 fixing screws of the hinge cover and take it down	
2）Press the snap joint in the circle and push it outward along the arrow direction. Complete the disassembly of door light switch.	

7.4 Air duct components refrigerating chamber and fan motor

Air duct components refrigeratingchamber	
1） Remove by cross screwdriver the screws on the positions shown in the picture anticlockwise.	
2） Pull the decoration cover of refrigerating air duct to the right along horizontal direction, take out the decoration cover of refrigerating air duct.	
3） Catch hold of air duct foam in refrigerating chamber and pull it towards the right along the arrow direction shown in the picture.	
4) Remove connecting terminals of ventilation door and take out refrigerating air duct foam.	

Electric damper	
Tear off the adhesive tape, open the foam and remove the electric damper to complete the replacement.	
Fan motor of air duct	
	None

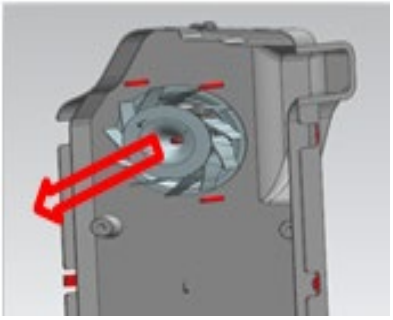
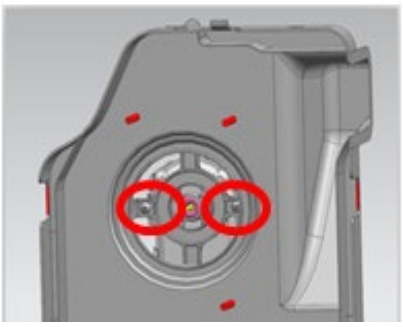
7.5 Ice maker（None）

7.6 Crashing ice motor（None）

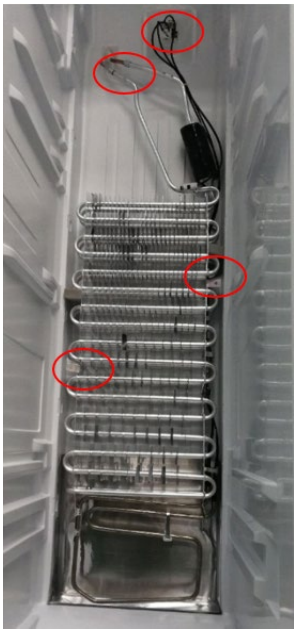
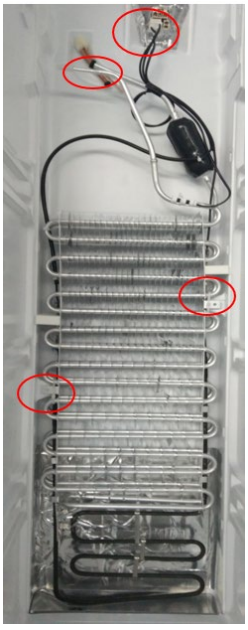
7.7 Air duct components in freezing chamber and fan motor

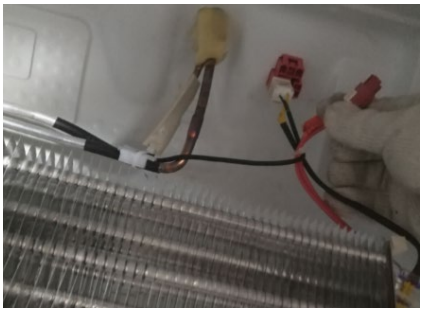
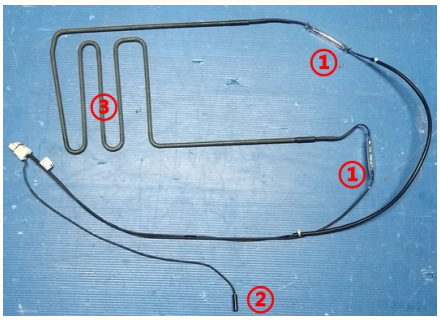
Air duct components in freezing chamber	
1） First, remove the fitting screws of guiding rail (3 pcs fitting screws for each guiding rail) .	
2）Remove aluminum foil on screw hole caps，then use knife to take off the screw hole caps.	
3）Remove the 2 fitting screws of upper front cover of freezer air duct.	

4）Hold the front cover and pull outwards with big force until it is separated from the liner.	
5）Unlock all plastic hooks of back cover, then take it out.	 
6） Unplug the connecting terminals.	
7） After the removal of upper air duct in freezing chamber. Catch hold of cover plate of freezing lower air duct shown in the picture, pull it out along the arrow direction and take it out.	

Fan motor of air duct	
1） After the removal of cover plate of upper air duct in freezing chamber. Pull the motor fan outward to make the fan blade separate from the motor.	
2） Remove by screwdriver the two fixing screws. Complete disassembly of the motor	

7.8 Evaporator and Defrost system

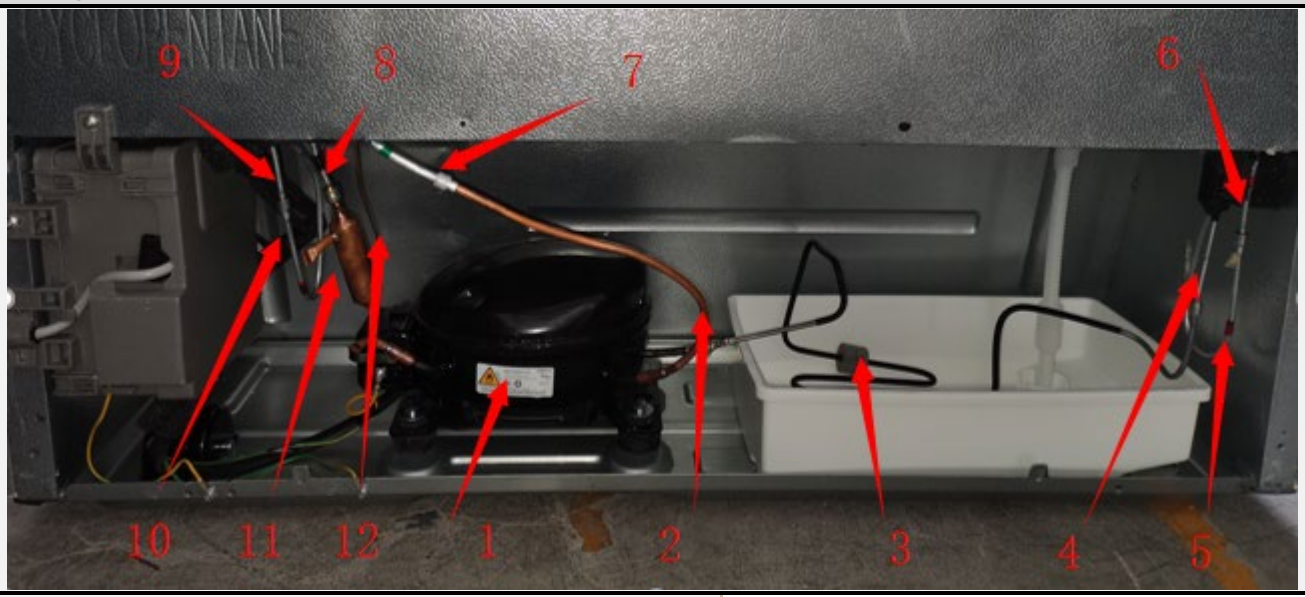
Evaporator in freezing chamber	
1）Remove the air duct components in freezing chamber. 2）Disconnect all connecting terminals. 3）Remove the welding on inlet and outlet tubes. 4）Remove two screws which are used to fix the evaporator and remove the evaporator.	 
Defrost heater components on the evaporator	

This defrost heater with defrost sensor and fuse can be dismantled separately, it DOES NOT need to replace the evaporator assembly if only heater fail to work. **Defrosting fuse ①** **Defrost sensor ②** **Defrost heater ③** 1）Disconnect the connecting terminals. 2）Cut off the band.	 
3）Use nipper plier to unlock all metal hooks of heater pipe, separate the components from the evaporator.	 

7.9 Compressor case

Rear cover	
1）Remove the screws fixing back cover plate. 2）Take down the back cover plate upward.	

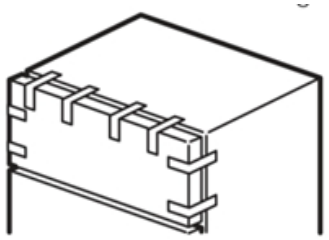
Piping and parts in the compressor case



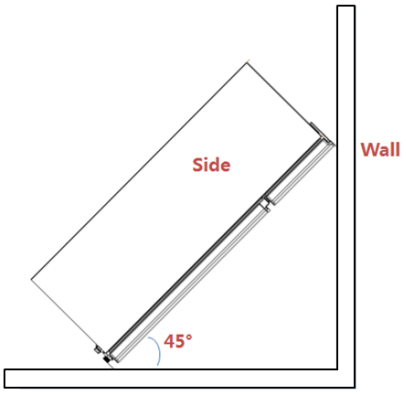
① Compressor	⑦ Suction pipe
② Compresssor suction pipe	⑧ Right condenser
③ Component supplying pipe connector	⑨ Anti-water condensation pipe
④ Left condenser	⑩ Right condenser
⑤ Anti-water condensation pipe	⑪ Filter
⑥ Right condenser	⑫ Capillary

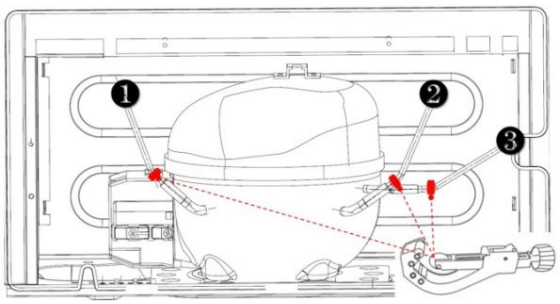
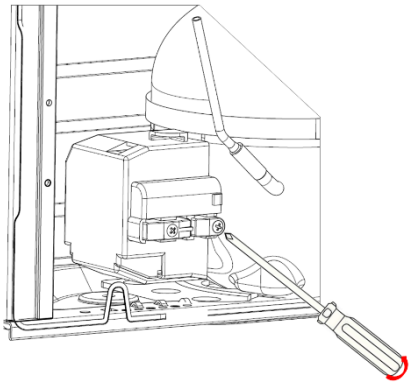
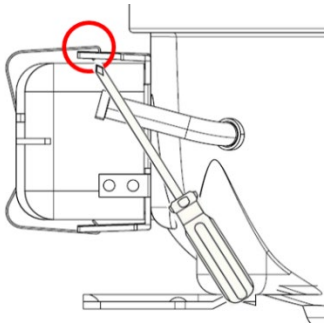
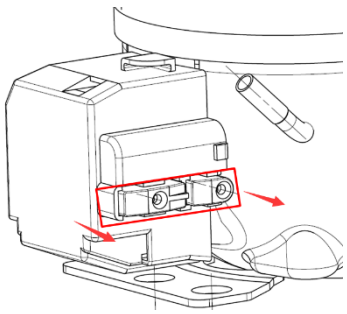
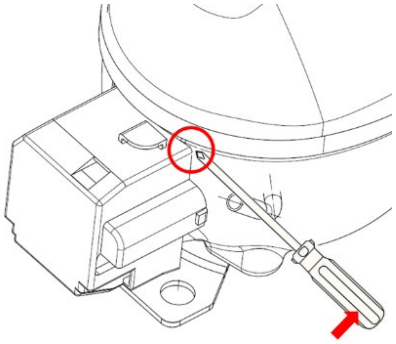
Disassembly and assembly of compressor

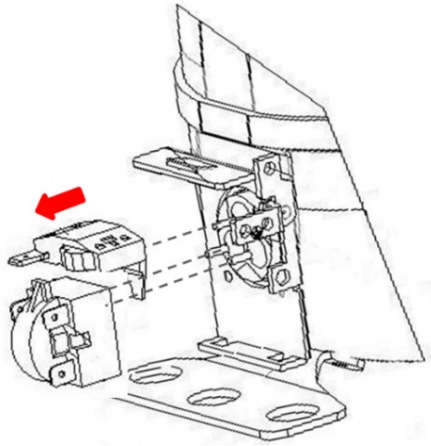
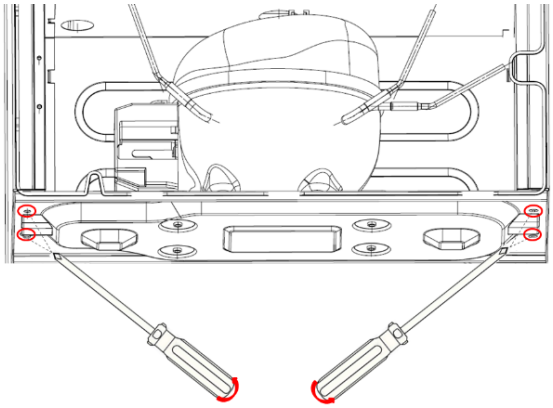
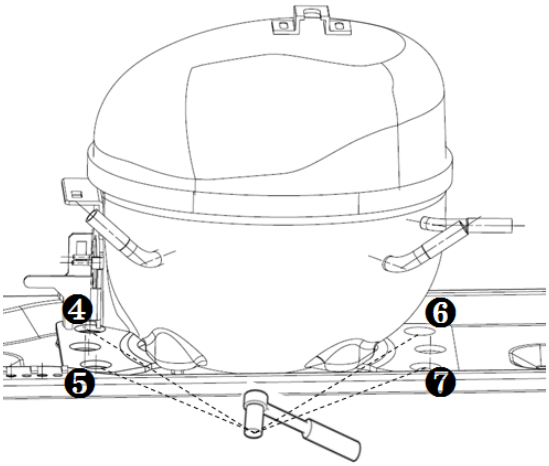
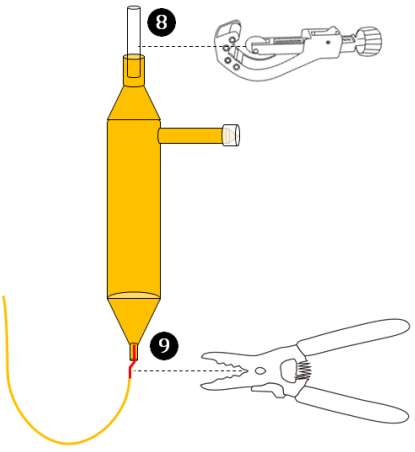
1）Cut off the power, remove the goods in the refrigerator, with the tape to make the door fixed firmly and prevent the door dropping when the refrigerator dumping.

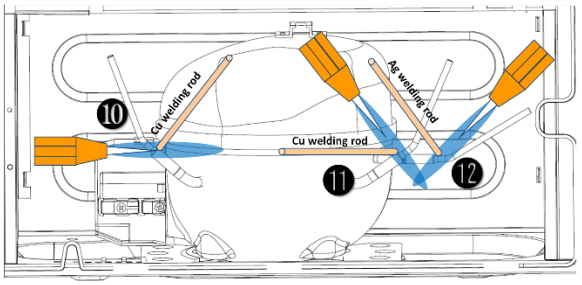
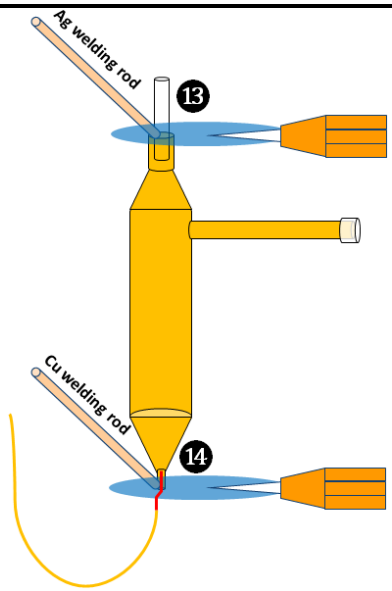
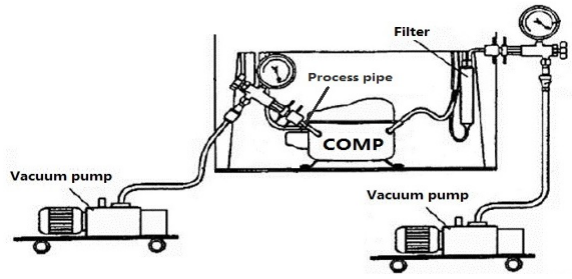
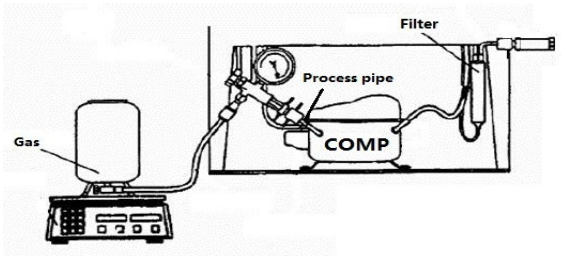
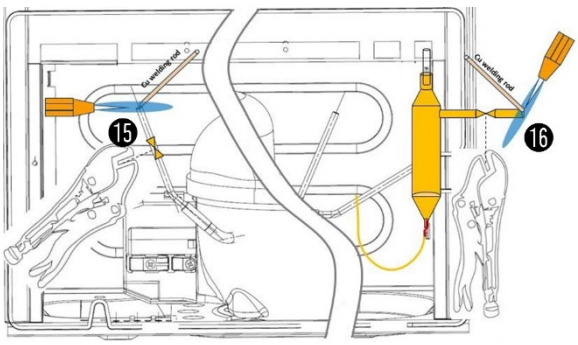


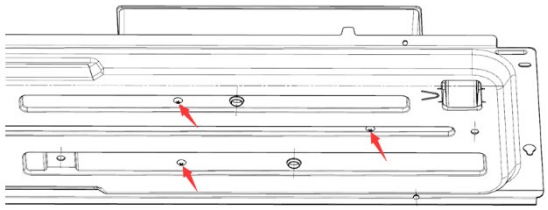
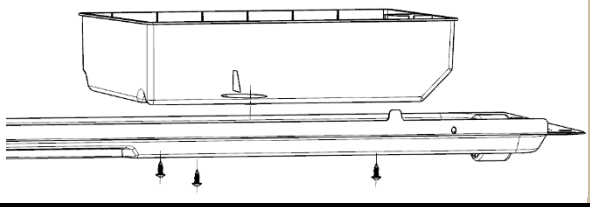
2）Slowly tilt the refrigerator forward, relying on the wall or a solid enough object, leaving space to facilitate the operation. For safety, it should be carried by someone to prevent its falling.



3）Cut off the compressor pipeline.-❶Cut off the process pipeline.-❷Cut off the low-pressure muffler.-❸Cut off the high-pressure exhaust pipe.	
4-1）**Remove the screws(for some models)** -Two screws outside -One screw inside	
4-2）**Remove the metal clamp(for some models)** -Disassembly the metal clamp that is fix the electric appliance shield	
5）**Remove the clipping strip** Slowly pull it out	
6）**Remove the protective cover** -Pry the protective cover slowly from the upper part, -Pull it out and remove it.	

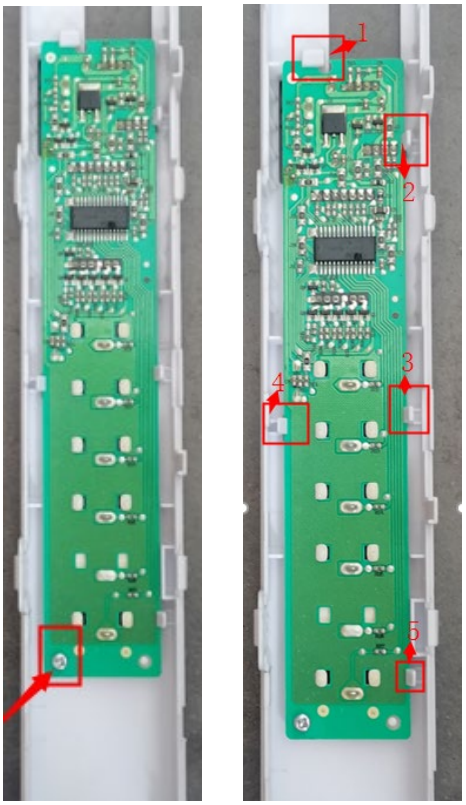
7）**Remove the starter and protector** Unplug the starter and protector (you can use a screwdriver to pry it slowly)	
8）Loosen the screw of the compressor bottom plate, remove the floor together with the compressor from the box.	
9）Use the wrench to remove the bolts by steps❹❺❻❼, replace the compressor and reverse process can complete installation.	
10）Use Pipe cutter cut off the condenser tube❽, then Shear off capillary ❾ by the capillary tube scissors.	

11）Replace the compressor and welding the compressor pipeline.-⑩Welding the process pipeline.-⑪Welding the low-pressure muffler.-⑫Welding the high-pressure exhaust pipe.	
12）Replace the filter, Cu-Fe tubes welding ⑬ used Ag welding rod, Cu-Cu tubes welding⑭ used Cu welding rod.	
13）Vacuum system,The degree of vacuum below 6Pa.	
14）Perfusion refrigerant.	
15）Use the vise grip pliers clamp the middle of the process pipe, then seal welding process tube⑮⑯.	

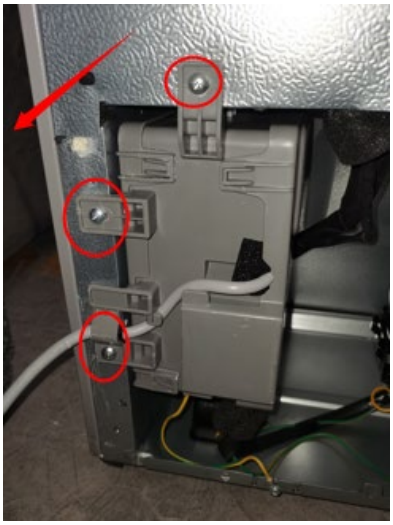
Drain tray	
1）Remove the bottom screws of the compressor bottom plate	
2）Replace the drain tray, the reverse process can complete installation.	

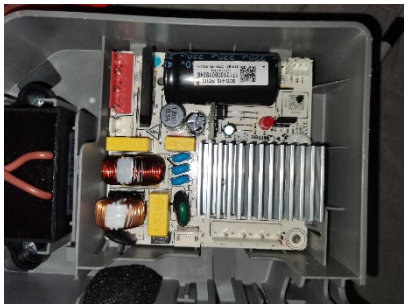
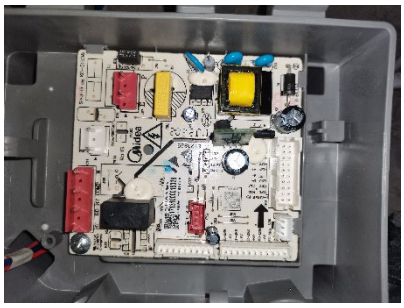
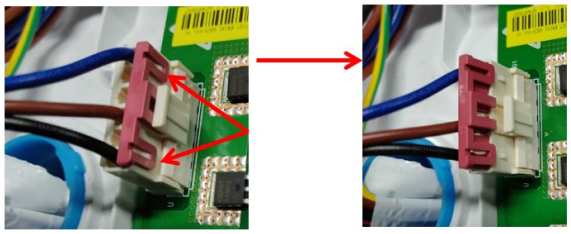
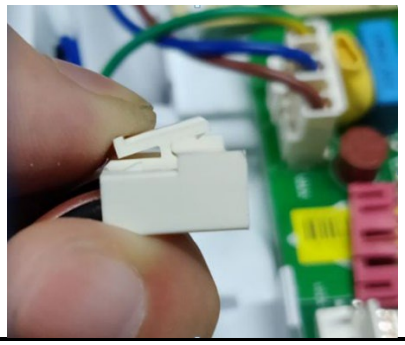
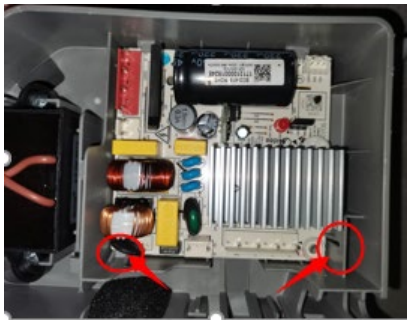
7.10 display control board

Display control board	
1）Use the tool to lift downwards from the top of the display sticker.	
2）Use the tool to lift the display control assembly from the bottom.	

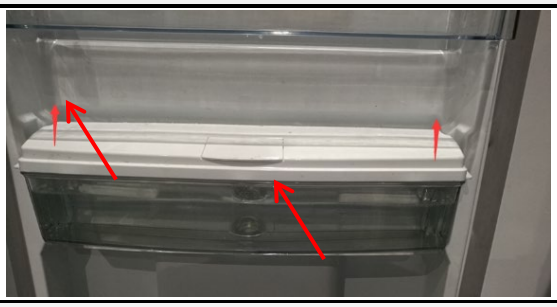
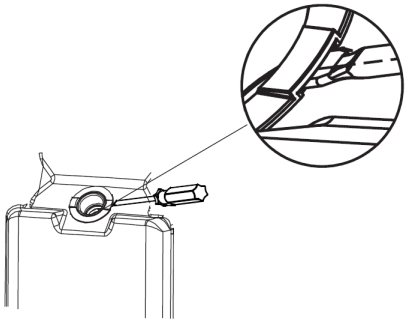
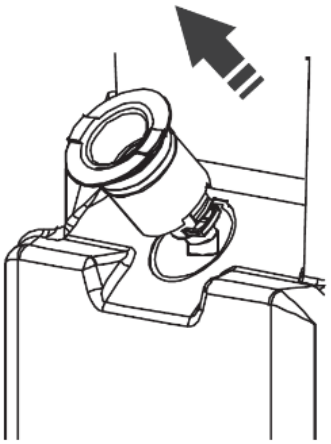
3）Remove 1 screw to open 5 jaws。 NOTE :The ambient temperature sensor is integrated on display PCB	

7.11 Main control board and Inverter driver board

Main PCB and variable frequency driver board	
1)Remove the 3 fixing screws, take out the components, and remove the upper and lower main control board covers。	 

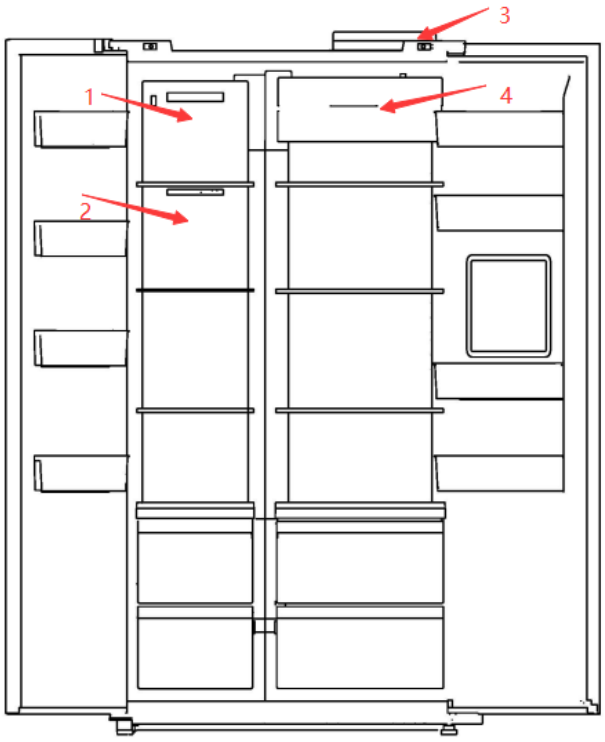
2)Disconnect all the wiring connectors.	 
The connecting terminals remove： a. Use a needle tool to remove the lock at the arrow and remove the lock upward; b. After the lock is removed, press the hook to remove the wiring connectors	 
3)Remove the screws and the lock then remove the main PCB and variable frequency driver board.	

7.12 Water dispenser（Option）

Water dispenser	
Disassembly and installation of water tank	
The water tank is installed on the right side of the refrigerator. Hold both hands to both sides of the water tank when disassembling, then pull the water tank out along the 45-degree direction.	
Disassembly and installation of water valve	
1） Prepare a flat screwdriver and insert the screwdriver into the clearance of the water valve.	
2） Twist the screwdriver to push the water valve out of the door, then pull the water valve out along the 45-degree direction.	

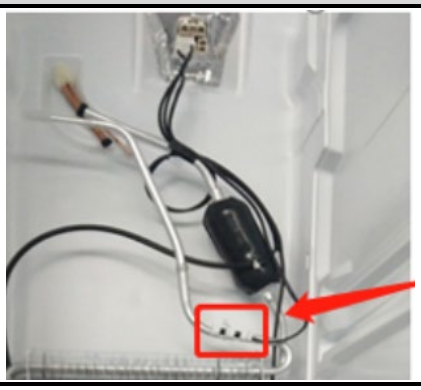
8. Temperature sensing system

8.1 Position of sensors

Position of sensors	
Have 4 sensors ① Sensor in freezing chamber ② Sensor in refrigerating chamber ③ Ambient temperature or humidity sensor ④ Defrost sensor freezing chamber	

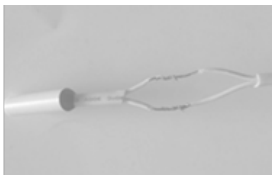
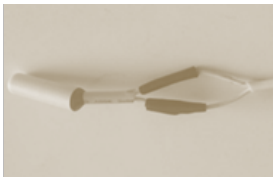
8.2 Replacement of sensors

Sensor in freezing chamber	
1）To remove the sensor cover, you may squeeze it up and down; 2）Take the sensor out from card slot;	
Sensor in refrigerating chamber	

Refer to the method of disassembling the freezer compartment sensor.	
Ambient temperature and humidity sensor	
The sensor used for measurement of ambient temperature is located within upper hinge cover of refrigerating chamber door;	
Defrost sensor in freezing chamber	
The defrost sensor is located on top of the evaporator. 1）Disconnect the connector of defrost sensor 2）Cut off the band which fixes the sensor. 3）Separate the sensor and the evaporator.	

8.3 Sensor without terminal replacement

Sensor replacement guidelines	
Cut off the damaged head of sensor.	

Strip off the sensor wiring.	
Take out a new sensor to cut the head of sensor. (Spare parts code：11201007000795)	
Strip off the head of the sensor and connect it.	 
Wrap the two wires together with insulation tape.	 
Wrap the two wires together.	

8.4 Sensor R/T table

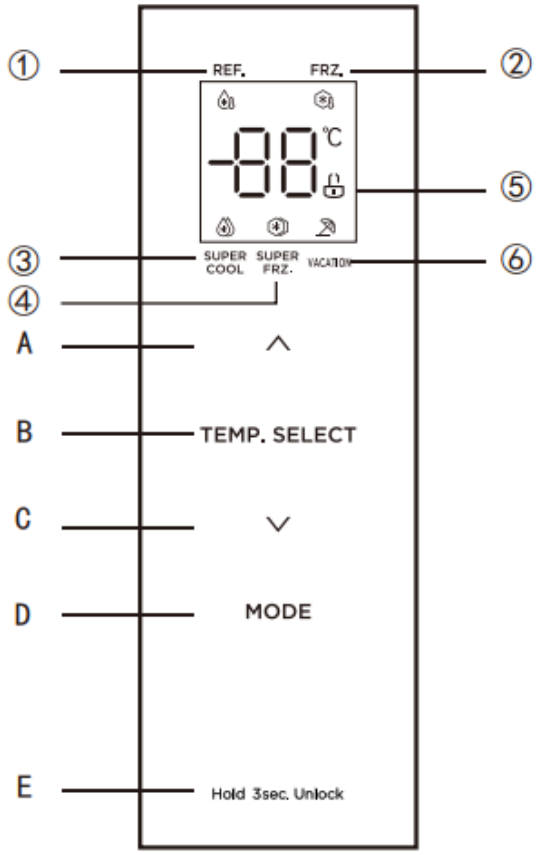
Tx(℃)	Tx(℉)	R（KΩ）	Tx(℃)	Tx(℉)	R（KΩ）	Tx(℃)	Tx(℉)	R（KΩ）
−30	−22. 00	33. 81	−5	23. 00	8. 392	20	68. 00	2. 501
−29	−20. 20	31. 85	−4	24. 80	7. 968	21	69. 80	2. 391
−28	−18. 40	30. 01	−3	26. 60	7. 568	22	71. 60	2. 287
−27	−16. 60	28. 29	−2	28. 40	7. 190	23	73. 40	2. 188
−26	−14. 80	26. 68	−1	30. 20	6. 833	24	75. 20	2. 094
−25	−13. 00	25. 17	0	32. 00	6. 495	25	77. 00	2. 005
−24	−11. 20	23. 76	1	33. 80	6. 175	26	78. 80	1. 919
−23	−9. 40	22. 43	2	35. 60	5. 873	27	80. 60	1. 838

−22	−7. 60	21. 18	3	37. 40	5. 587	28	82. 40	1. 761
−21	−5. 80	20. 01	4	39. 20	5. 315	29	84. 20	1. 687
−20	−4. 00	18. 90	5	41. 00	5. 060	30	86. 00	1. 617
−19	−2. 20	17. 87	6	42. 80	4. 818	31	87. 80	1. 550
−18	−0. 40	16. 90	7	44. 60	4. 589	32	89. 60	1. 486
−17	1. 40	15. 98	8	46. 40	4. 372	33	91. 40	1. 426
−16	3. 20	15. 12	9	48. 20	4. 167	34	93. 20	1. 368
−15	5. 00	14. 310	10	50. 00	3. 972	35	95. 00	1. 312
−14	6. 80	13. 550	11	51. 80	3. 788	36	96. 80	1. 259
−13	8. 60	12. 830	12	53. 60	3. 613	37	98. 60	1. 209
−12	10. 40	12. 160	13	55. 40	3. 447	38	100. 40	1. 161
−11	12. 20	11. 520	14	57. 20	3. 290	39	102. 20	1. 115
−10	14. 00	10. 920	15	59. 00	3. 141	40	104. 00	1. 071
−9	15. 80	10. 350	16	60. 80	2. 999	41	105. 80	1. 029
−8	17. 60	9. 820	17	62. 60	2. 865	42	107. 60	0. 989
−7	19. 40	9. 316	18	64. 40	2. 737	43	109. 40	0. 951
−6	21. 20	8. 841	19	66. 20	2. 616	44	111. 20	0. 914

9. Function and operation

9.1 Display operation panel

Icons	Button
1. Refrigerator **2.** Freezer **3.** Super cool **4.** Super freezer **5.** Lock/unlock **6.** Vacation	A. Temperature up B. Temperature range selection C. Temperature down D. Mode / function setting E. LOCK/UNLOCK



9.2 Temperature control

9.2.1 Temperature setting of refrigerating chamber

The temperature setting range of refrigerating chamber is 2℃ ~ 8℃, the temperature can be set circularly, press the button **"Fridge"** once, the temperature turn by 1℃. The setting is effective after being locked.

8℃→7℃→……...→2℃→3℃→……..→8℃

9.2.2 Temperature setting of freezing chamber

The temperature setting range of freezer chamber is -24℃～-16℃. The temperature can be set circularly, press the button **"Freezer"** once, the temperature turn by 1℃. The setting is effective after being locked.

-16℃→ -17℃→……...→ -24℃→ -23℃→ -22℃→……..→ -16℃

9.3 Mode setting

9.3.1 Super Cooling、Super Freezing、Vacation Mode

◆ Press **MODE** button, fridge mode will cycle in the following order, corresponding icon will illuminate:

Super cooling→ Super freezing → Super cooling and super freezing→ Vacation → None → Super cooling

◆ Running status of each mode

1) **Super cool mode**

The "**super cool"** icon will illuminate, the refrigerating chamber will automatically run at 2℃ for 6 hours and then exit. After exiting, the refrigerating chamber will return to the previous set temperature.

2) **Super freezer mode**

The "**super freezer."** icon will illuminate, the freezing chamber will automatically run at -24℃ for 24 hours and then exit. After exiting, the freezing chamber will return to the previous set temperature.

3）**Vacation mode**

In vacation mode, the temperature of the freezer is automatically set to -18℃, the refrigerating chamber is closed.

9.3.2 Locking and unlocking

In unlocking state, keep pressing the lock button for 3 seconds to lock, and the locking beeping will be rang.

In locking state, keep pressing the lock button for 3 seconds to unlock, and the unlocking beeping will be rang.

The refrigerator enters into locking state automatically 30 seconds after no button operation.

Except for the door open alarm and failure alarm can be carried out in the locking state, others button operations shall be conducted in unlocking state.

9.4 Defrosting function

◆ **Defrosting theory:**

The defrosting of evaporator is realized by the heating of heater, following the temperature rise, the frost on evaporator becomes water, and the water flow into the evaporating pan via the draining system, the water in evaporating pan evaporate away finally

◆ **Defrosting steps:**

Compressor shutdown--- fan motor is turned off --- electric damper closed---the heater start working---the heater stop when the temperature rise to setting--- Throttle open 3min --- Refrigeration fan runs for 15s and stops for 15s ---damper reset--- Wait for the press to turn on

◆ **Meet one of the following conditions , defrost heating exit:**

1) When the frozen defrosting sensor has no fault, the measured temperature Tfd ≥ the set temperature which defrost heating exit
2) When the frozen defrosting sensor has no fault, the defrosting time is ≥ 60 minutes
3) When the frozen defrosting sensor is faulty , the heater will stop after work 25 minutes

9.5 Open door alarm

When the refrigerators door or freezer doors are opened, the light inside the cabinet will turn on, a notification tone will sound. Press **the button "∧" and "∨"** at the same time for 3 seconds, you can turn this tone off or on.

If the refrigerators door or freezer doors are opened last for 120 seconds, there will be a buzzer alarm, afterwards give alarm one time per second until the door is closed. Press any buttons on the control panel can cancel this buzzer alarm.

Note: When open the door, the display panel will light on. When the door is closed, the display panel will be light off after 30 seconds if there is no any operation on display panel.

9.6 Error code and solutions

Note: Full common fault code, combined with the actual product display reference.

Error code	Fault Type	Troubleshooting and Solutions
E0	fault of ice maker	**Step 1**: Check whether the connection terminals on the ice maker and the main PCB are plugged in place and whether there are foreign matters in them; after cleaning the terminals, plug them in again. **Step 2**: Enter the forced ice making mode and check whether the ice maker works normally. **Step 3**: If the ice maker does not work, replace the ice motor. **Step 4**: If the fault still occurs, replace the main PCB.
E1	Temperature sensor fault in refrigerating chamber	**Step 1**: Check whether the connection terminals are plugged in place and whether there are foreign matters in them; after cleaning the terminals, plug them in again. **Step 2**: If the fault still occurs, pull out the corresponding connection terminal on the main PCB, use a multimeter to check the resistance value of the sensor, and confirm whether it is normal. **Step 3**: If the resistance value is wrong, replace the sensor. **Step 4**: If the fault still occurs, replace the main PCB.
E2	Temperature sensor fault in freezing chamber	
E3	Temperature sensor fault in variable chamber	
E4	Defrost sensor fault in refrigerating chamber	**Step 1**: Check whether the connection terminals are plugged in place and whether there are foreign matters in them; after cleaning the terminals, plug them in again. **Step 2**: If the fault still occurs, pull out the corresponding connection terminal on the main PCB, use a multimeter to check the resistance value of the sensor, and confirm whether it is normal. **Step 3**: If the resistance value is wrong, replace the sensor. **Step 4**: If the fault still occurs, replace the main PCB.
E5	Defrost sensor fault in freezing chamber	
E6	Communication failure	**Step 1**: Check whether the connection terminal on the display control panel, hinge cover and main PCB are plugged in place and whether there are foreign matters in them; after cleaning the terminals, plug them in again. **Step 2**: If the fault still occurs, pull out all connection terminals, use a

		multimeter to check the resistance value of the wire between the display control board and the main PCB to see if it is broken. If test value is ∞Ω, the wire is broken.(If the wire in the door is broken, replace the door. Other conditions cannot be repaired.) **Step 3**: If the wire is OK, replace the display control board. **Step 4**: If the fault still occurs, replace the main PCB.
E7	Ambient temperature sensor fault	**Step 1**: Check whether the connection terminals are plugged in place and whether there are foreign matters in them; after cleaning the terminals, plug them in again. **Step 2**: If the fault still occurs, pull out the corresponding connection terminal on the main PCB, use a multimeter to check the resistance value of the sensor, and confirm whether it is normal. **Step 3**: If the resistance value is wrong, replace the sensor. **Step 4**: If the fault still occurs, replace the main PCB.
E8	Defrost sensor fault in variable chamber	
E9	High temperature alarm in freezing chamber	**Step 1**: Check whether the door is not closed, or whether there is leakage between the door gasket and the cabinet. **Step 2**: Check whether the door gasket is deformed and causes leakage, reshape or replaced with a new one. **Step 3**: Check whether the freezing frost is OK, if there is ice on the evaporator and the fan motor is frozen, replace a new defroster heater. **Step 4**: Check whether the light switch is damaged, replace new one. **Step 5**: Check whether the freezer fan stops working, plug and unplug connection terminals, replace a new fan motor. **Step 6**: Check if the pipeline is leaking or blocked. After maintenance, vacuum and refill the refrigerant.
EE	Circuit fault of ice maker sensor	**Step 1**: Check whether the connection terminal s on the ice maker and the main PCB are plugged in place and whether there are foreign matters in them; after cleaning the terminals, plug them in again. **Step 2**: If the fault still occurs, pull out the connection terminal on ice maker, use a multimeter to check the resistance value of the sensor, and confirm whether it is normal. **Step 3**: If the resistance value is wrong, replace the sensor. **Step 4**: If the fault still occurs, replace the main PCB.
EH	Circuit fault of ambient humidity sensor	**Step 1**: Check whether the connection terminal s in the hinge cover and the main PCB are plugged in place and whether there are foreign matters in them; after cleaning the terminals, plug them in again. **Step 2**: If the fault still occurs, pull out the connection terminal on the hinge cover, use a multimeter to check the voltage value of the sensor, and confirm whether it is normal. **Step 3**: If the voltage value is wrong, replace the sensor. **Step 4**: If the fault still occurs, replace the main PCB.

9.7 Test mode

This function is only used during the maintenance test. After the test is completed, the refrigerator needs to be powered off and then on again.

Test items	Setting Method	Setting result
Enter Test Mode	Unlock, press the "**UNLOCK**" and "**TEMP. SELECT**" button at the same time for 3 seconds	LED indicators display "0", then the refrigerator enters into test mode
	After entering into test mode, if no button is pressed within 30 seconds	the refrigerator will exit the test mode and return to normal operation mode
Select to enter into forced cooling mode	Enterinto test mode and press **button "∧" or "∨"** to select display "1"	LED indicators display "1", the air damper opens and the compressor and fan will work all the time after lock.
	In forced cooling mode, if no button is pressed within 72 hours,	the refrigerator will exit this mode and return to normal operation mode
Select to enter into forced defrosting mode in all rooms	Enterinto test mode and press **button "∧" or "∨"** to select display "3"	LED indicators display "3", the compressor and the freezing fan will stop working, the refrigerating air damper close, the freezing defrost heater starts to work.
	In forced defrosting mode, when the freezing defrosting sensor reach a temperature of 8°C and the defrosting heater has been working for at least 3 minutes.	the refrigerator will exit this mode and return to normal operation mode
	In forced defrosting mode, if the temperature of freezing defrost sensor is always lower than 3°C and the defrosting heater has been working for 60 minutes	the refrigerator will exit the test mode and return to normal operation mode
Select to exit the test mode	Enterinto test mode and press **button "∧" or "∨"** to select display "0"	LED indicators display "0", then the refrigerator will exit the test mode and return to normal operation mode.

9.8 Demo mode

1）Enter： After the display board is unlocked, press the button **"Λ" +"MODE"** at the same time for 7 seconds, and then it will take effect after locking.

2）Control： The display board does not go out, the refrigerator stops cooling and defrosting.

3）Exit

Press the button **"Λ" +"MODE"** at the same time for 7 seconds to exit the mode.

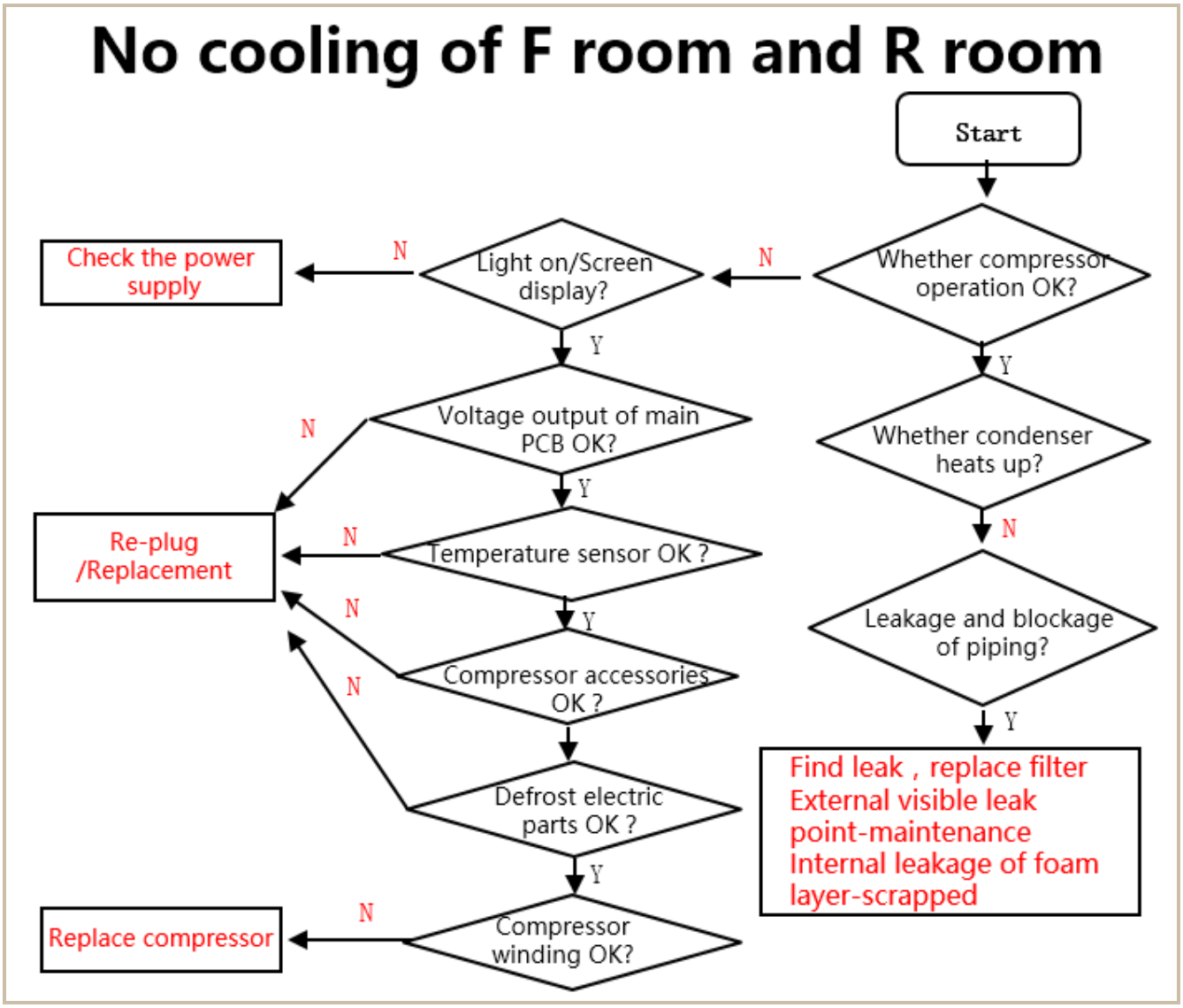
9.10 Backup data for power fail

1) The running state of the refrigerator is remembered after compressor running for 1 hour continuously.
2) The running state of the refrigerator is remembered after change function settings and lock.
3) When the refrigerator is out of power and recharged, the running state of the refrigerator is same as before.

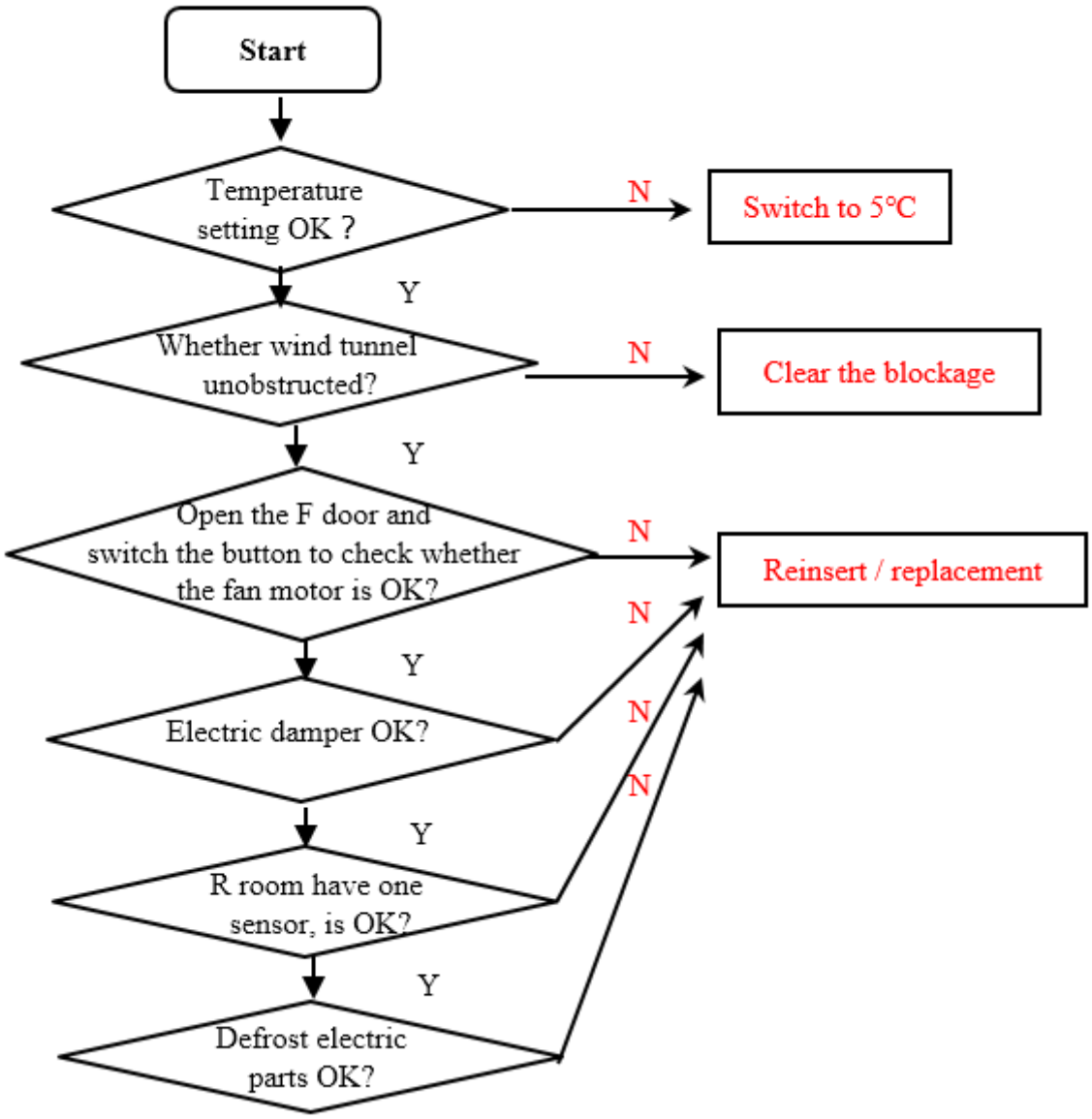
10. Compressor

11. Troubleshooting Method

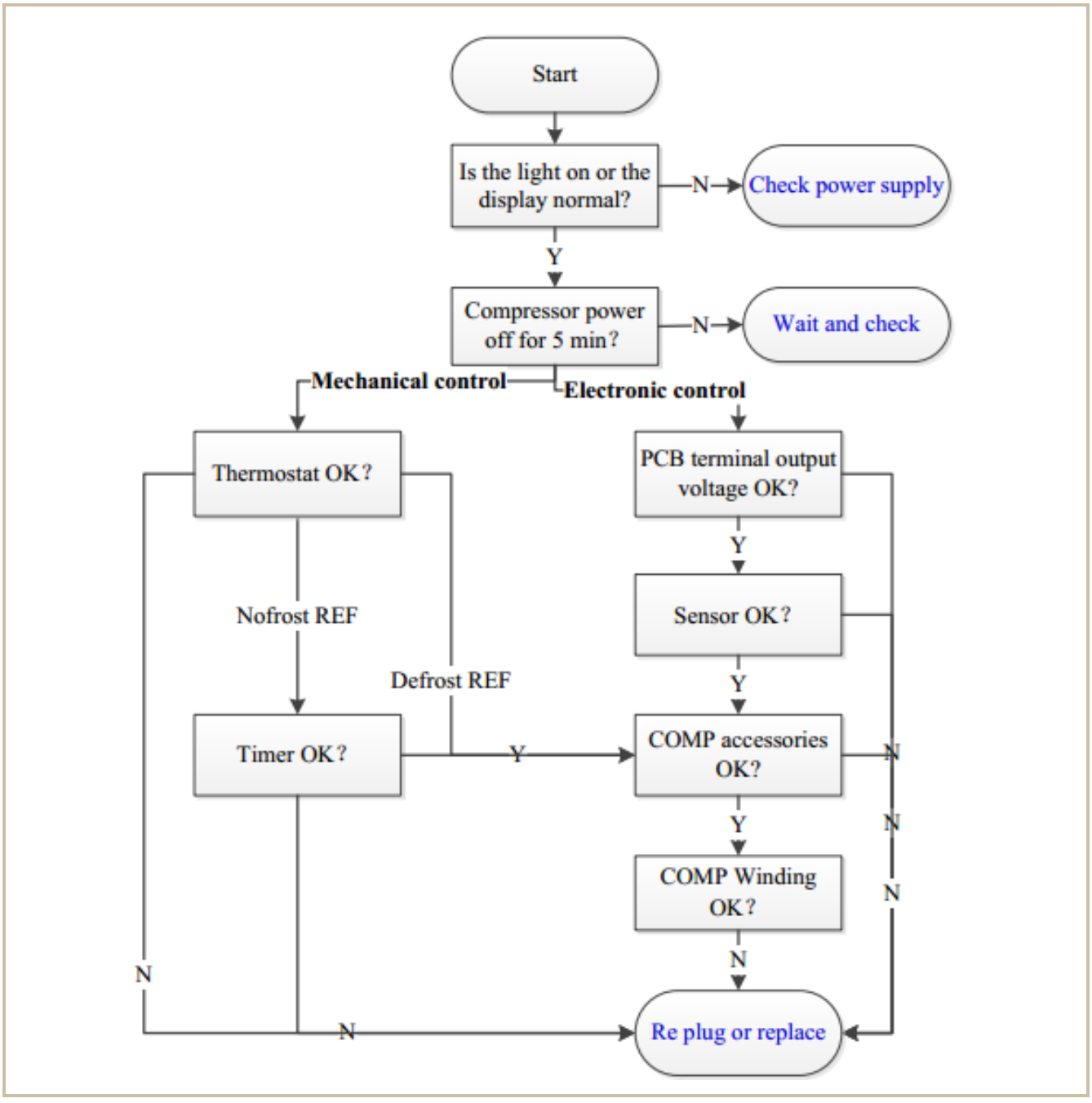
11.1 No cooling (Air cooling-Electronic)



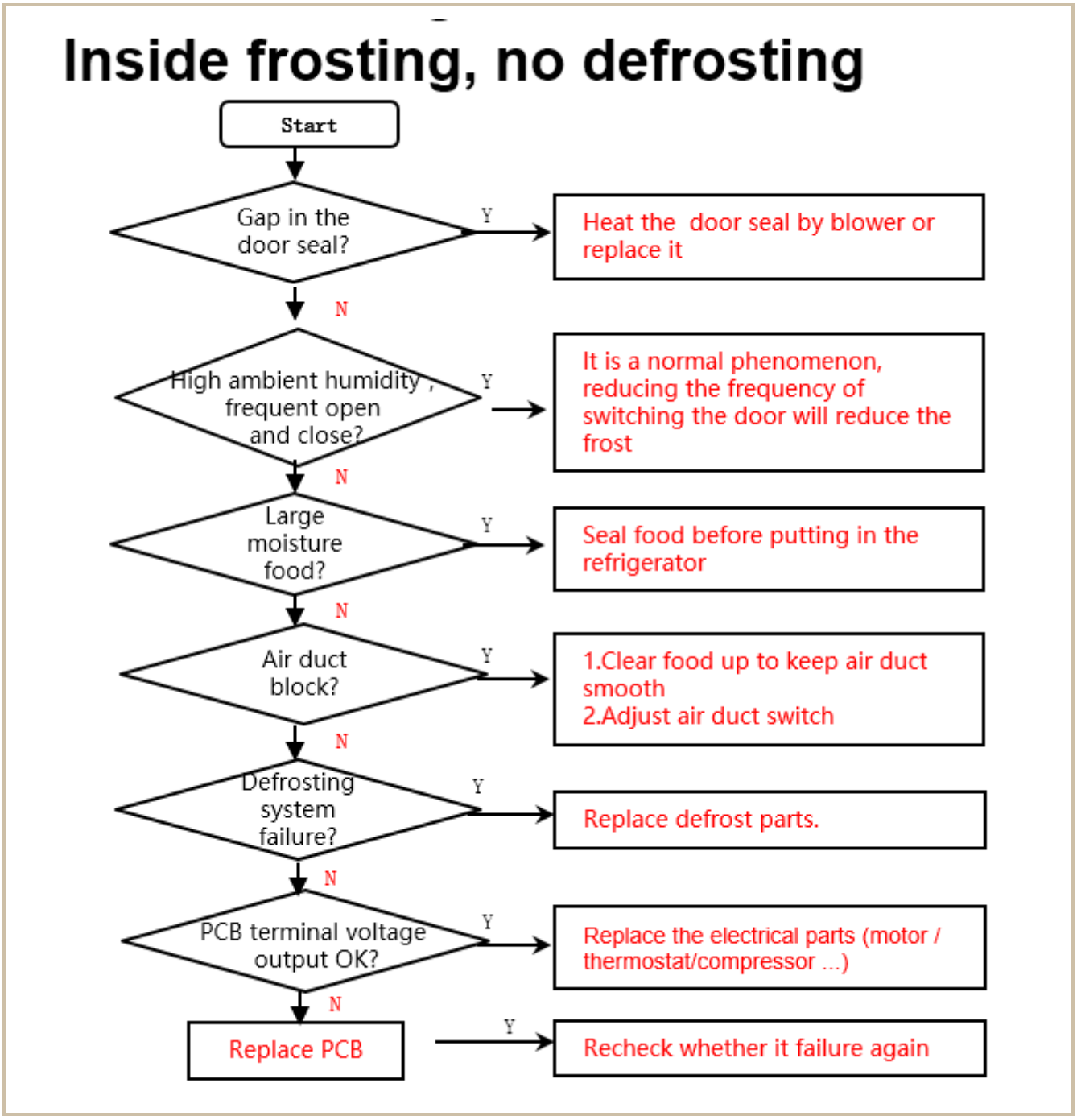
F room cooling、 R room no cooling



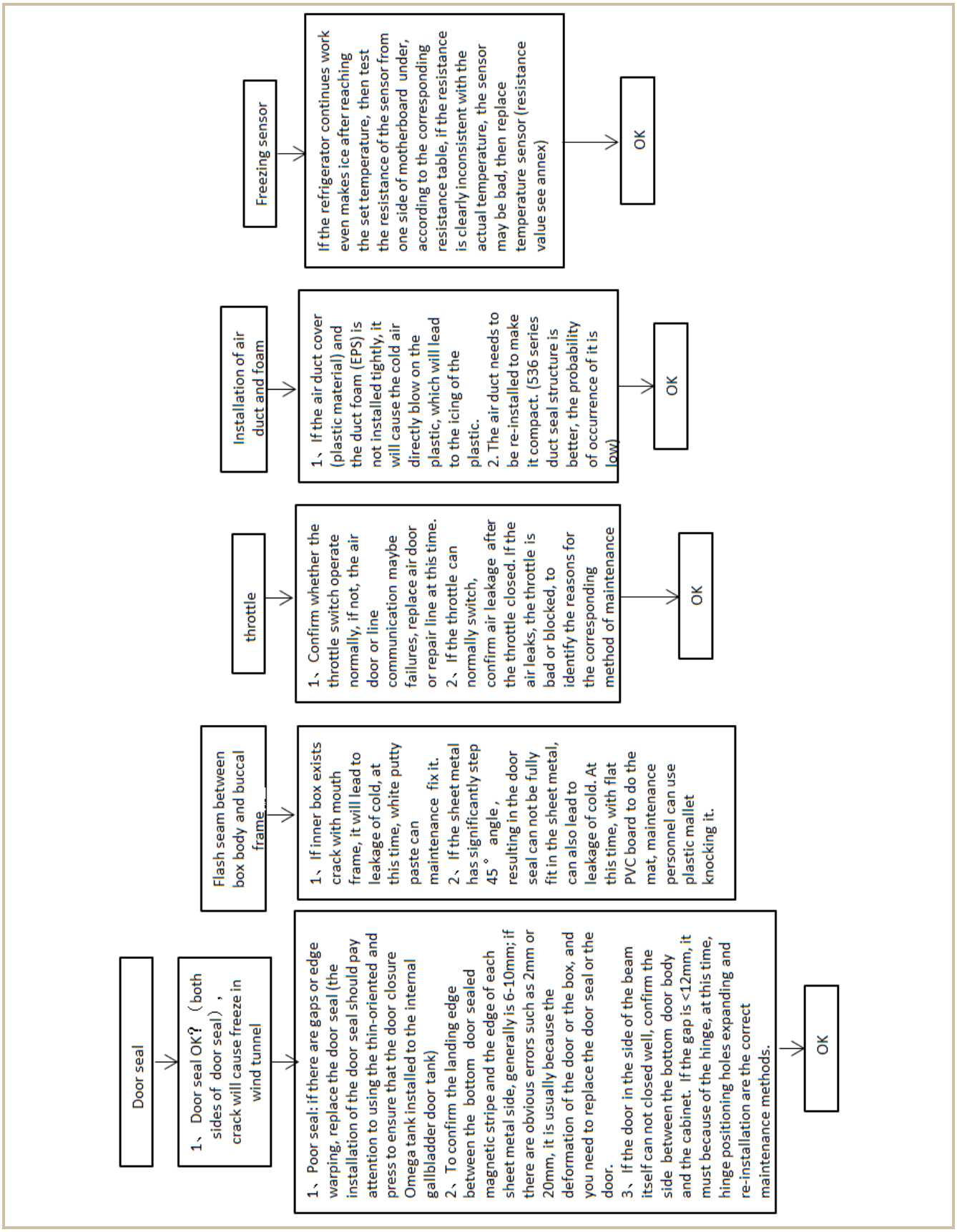
11.2 No working of compressor

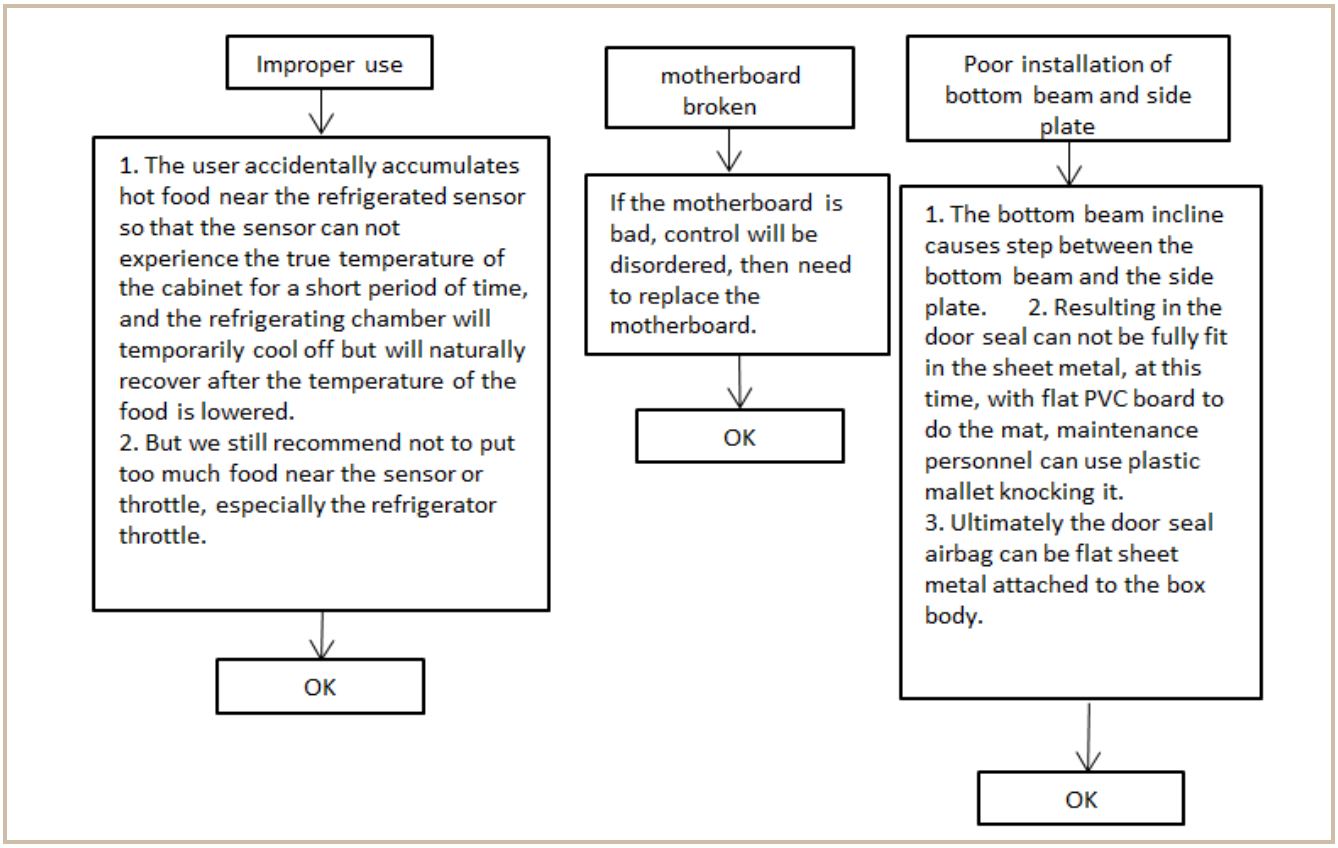


11.3 Inside frosting, no defrosting

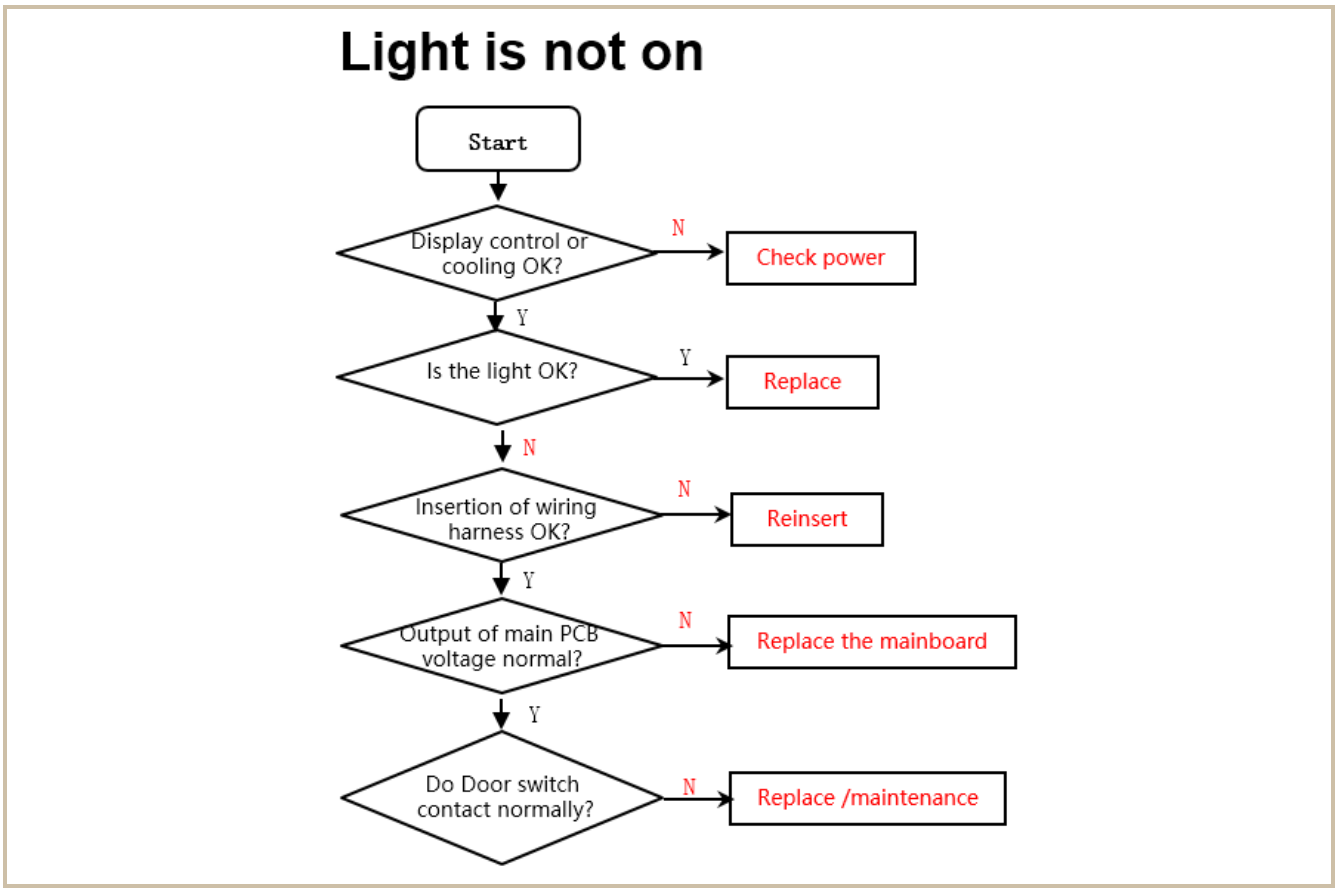


11.4 Inside frosting, no defrosting-Maintenance guidelines

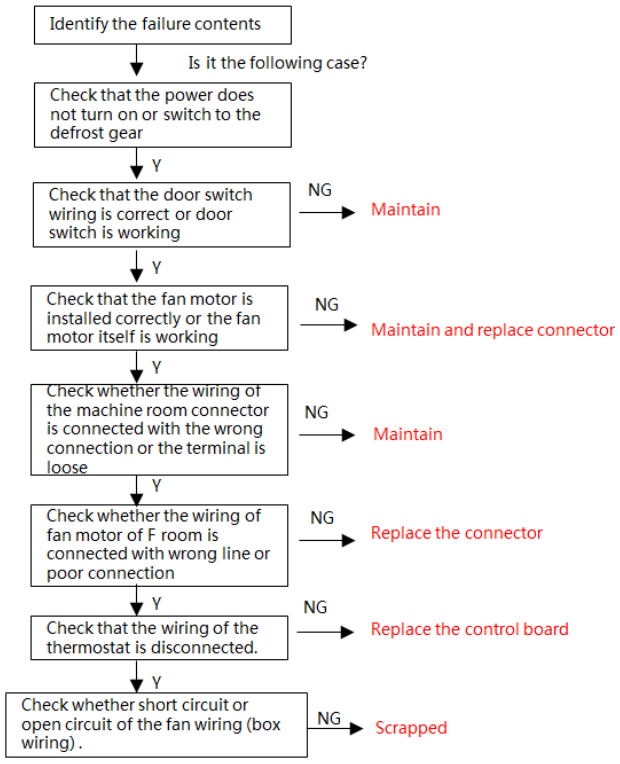




11.5 Light is not on

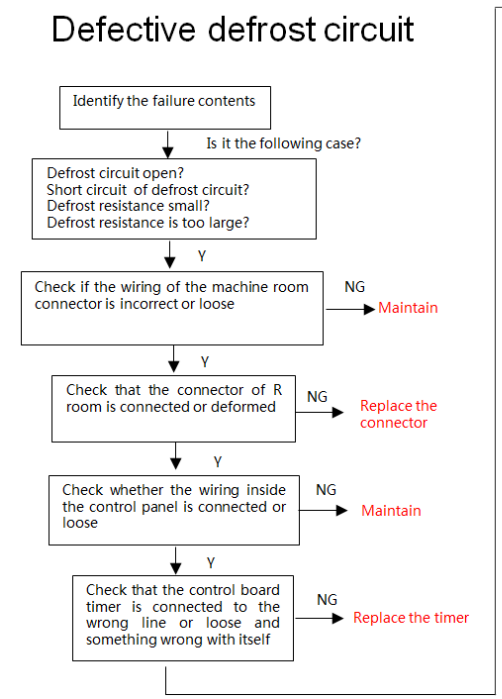


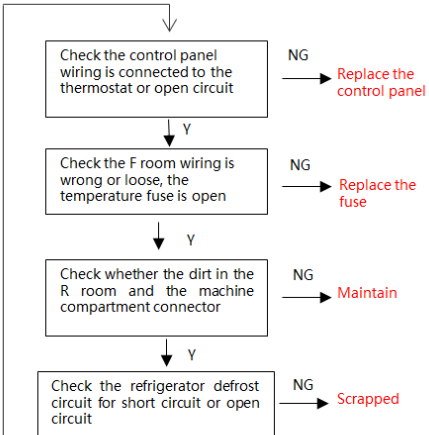
11.6 Fan failure



Normal phenomenon for no working of the fan:
1、Poor fan connection or poor installation, loose or reverse of the door switch connector
2、Poor fan installation, leaf contact with the inner board of the foam or touch the line.
3、Insurance circuit of the fan wiring.
4、The timer is not reset in the defrost position .
5、The wire terminals inside the machine compartment connector or control board connector are loose.
6 . The door switch itself is defective or the circuit board is defective (electronic refrigerator).

11.7 Defective defrost circuit

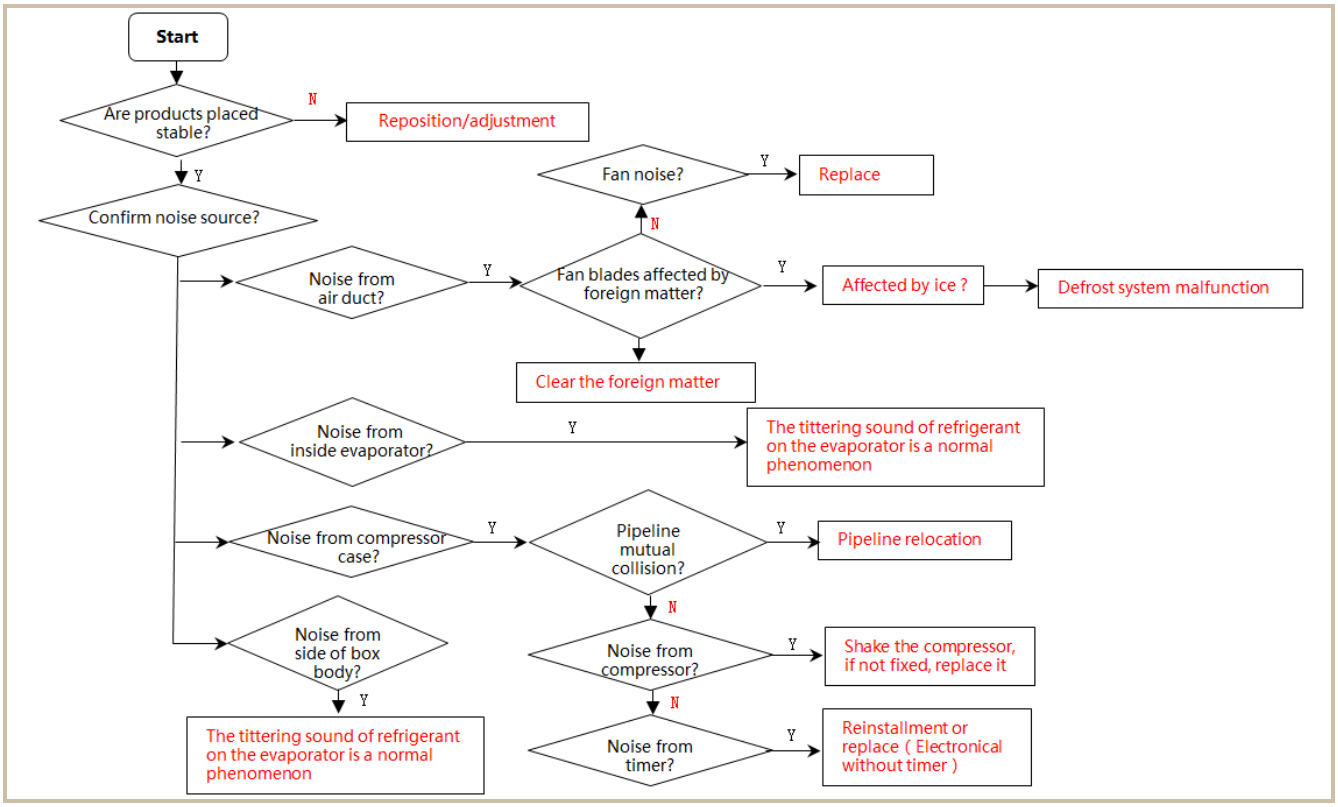




△With a multimeter to measure the refrigerator power plug poles, the timer transferred to defrost position measured resistance should be in the range of 6 ~ 8K for qualified
△Check whether the mating of the terminal and the hole is strong and the wiring of the female and male connector is matched (in general, the color line corresponds to the color line)
△Check that the timers are wired for compliance
△Inspect leaks or deformation of the connector

Common phenomenon of poor defrost circuit :
1、The defrost fuse is open.
2、The timer is connected to the wrong line.
3、The connector has a leaky bubble liquid that is not clean.
4、The connector is not tight enough to be loose.
5、The internal wiring of the box is open.

11.8 Noise



11.9 Air duct not operated