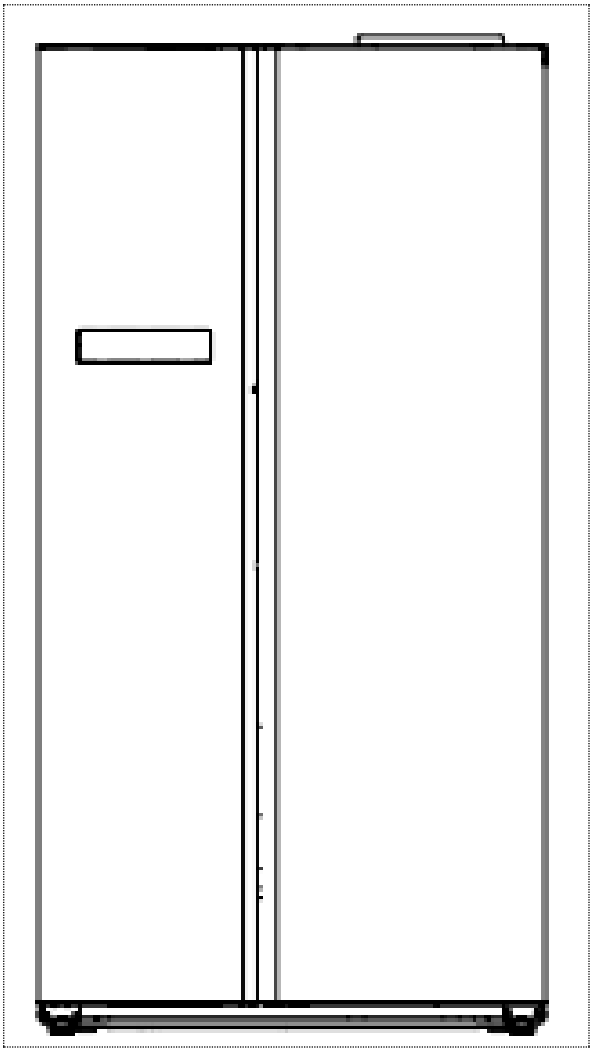
Service Manual

SBS No Frost Series

Market Model	Product Model	Product Code
MDRS791MIC46	CE-BCD592WE-CT	92031050Z03242



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 5

2. SAFETY WARNING 6

2.1 WARNING FOR OPERATION SAFETY 6
2.2 SAFETY INSTRUCTION FOR REFRIGERANT 8

3. INSTALLATION AND COMMISSIONING 9

3.1 HANDLING 9
3.2 DOOR DISASSEMBLY AND ASSEMBLY 9
3.3 INSTALLATION LOCATION 13
3.4 LEVELING OF THE REFRIGERATOR 13
3.5 ADJUSTMENT TO LEVEL THE DOOR 14

4. MAIN PARTS AND EXTERNAL DIMENSION 16

4.1 MAIN PARTS 16
4.2 EXTERNAL DIMENSION 17
4.3 MIDEA PRODUCT SERIAL NUMBER AND LOCATION 17

5. ELECTRIC CONTROL SYSTEM 19

5.1 ELECTRICAL PARTS PARAMETERS 19
5.2 CIRCUIT DIAGRAM 20
5.3 MAIN PCB TERMINAL CONNECTION DIAGRAM 21
5.4 INVERTER BOARD TERMINAL CONNECTION DIAGRAM 22

6. REFRIGERATION SYSTEM 23

6.1 REFRIGERATION SYSTEM WORKING PRINCIPLE 23
6.2 COOLING PIPELINE AND DRAIN PIPE INSIDE THE CABINET 23
6.3 CIRCULATING ROUTE OF COOLING AIR 24
6.4 WELDING POINTS IN CHAMBERS OR FOAM LAYER 24
6.5 WELDING POINT IN THE COMPRESSOR CASE 25

7. DISMANTLING OF PARTS 26

7.1 PARTS ON THE DOOR 26
7.2 PARTS INSIDE THE REFRIGERATOR 26
7.3 LIGHT SYSTEM 27
7.4 AIR DUCT COMPONENTS REFRIGERATING CHAMBER AND FAN MOTOR 28
7.5 AIR DUCT COMPONENTS IN FREEZING CHAMBER AND FAN MOTOR 29
7.6 EVAPORATOR AND DEFROST SYSTEM 31
7.7 COMPRESSOR CASE 32
7.8 DISPLAY CONTROL BOARD 37
7.9 MAIN CONTROL BOARD AND INVERTER DRIVER BOARD 38
7.10 WIRELESS FIDELITY NETWORK MODULAR（OPTION） 40
7.11 WATER DISPENSER（OPTION） 41

8. TEMPERATURE SENSING SYSTEM 43

8.1 POSITION OF SENSORS 43
8.2 REPLACEMENT OF SENSORS 43
8.3 SENSOR WITHOUT TERMINAL REPLACEMENT 45
8.4 SENSOR R/T TABLE 46

9. FUNCTION AND OPERATION 47

9.1 DISPLAY OPERATION PANEL 47
9.2 TEMPERATURE CONTROL 47
9.3 MODE SETTING 48
9.4 DEFROSTING FUNCTION 48
9.5 OPEN DOOR ALARM 49
9.6 ERROR CODE AND SOLUTIONS 49
9.7 TEST MODE 50
9.8 DEMO MODE 51
9.9 BACKUP DATA FOR POWER FAIL 51
9.10 IOT PRODUCT NETWORKING CONTROL（OPTION） 51

10. COMPRESSOR 53

10.1 COMPRESSOR ON AND OFF CONTROL SPECIFICATIONS 53
10.2 INVERTER BOARD FAULT ANALYSIS 53

11. TROUBLESHOOTING METHOD 56

11.1 ERROR CODE E1 / E2 / E3 / E4 / E5 / E7 / E8 / EE / C9 / CC / F4 56
11.2 ERROR CODE E6 57
11.3 ERROR CODE EF 58
11.4 ERROR CODE EH 59
11.5 NOT COOLING IN ALL THE CHAMBERS 60
11.6 POOR COOLING IN ALL THE CHAMBERS 61
11.7 OVERCOOLING IN THE REFRIGERATED CHAMBER 61
11.8 NOT & POOR COOLING IN THE REFRIGERATED CHAMBER 62
11.9 NO WORKING OF COMPRESSOR 63
11.10 CONDENSATION & FROST 64
11.11 DISPLAY PANEL FAILURE 65
11.12 LIGHT FAILURE 65
11.13 NOISE 66

12. MAINTENANCE TOOLING, EQUIPMENT AND MATERIAL 67

13. PRODUCT EXPLODED VIEW AND SPARE PARTS LIST 71

1. Significant update notes

(SM No.)	Date	Author	Description

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.

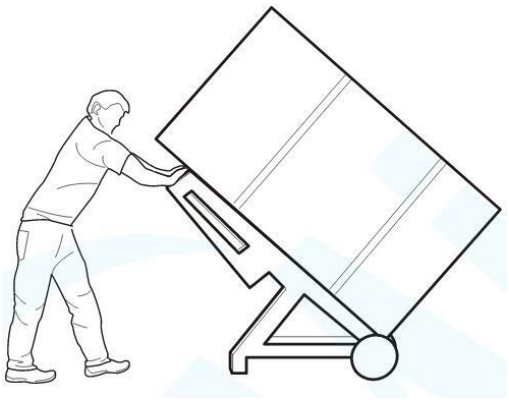


Safety instruction for refrigerant

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.	

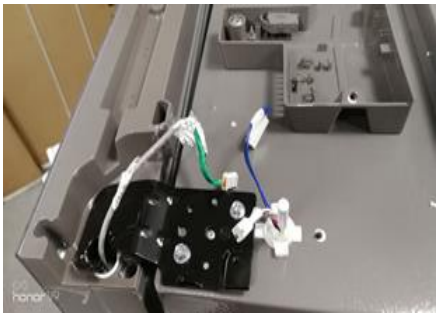
3.2 Door Disassembly and Assembly

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

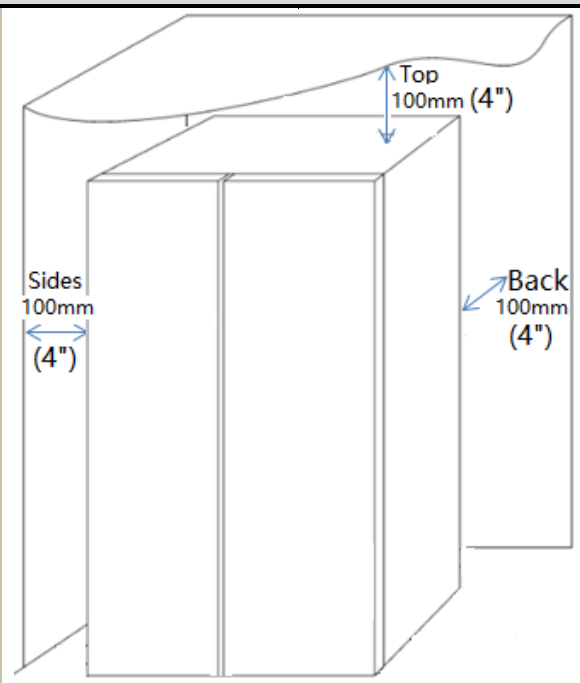
Disassembly of Freezer door	
1) As shown as right photos, use screwdriver to remove 1 pcs screw, and then remove the upper hinge cover.	
2) Disconnect the connectors, then use cross screwdriver or socket spanner to remove the 2pcs M5 screws by anticlockwise, then remove the upper hinge.	

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 screw, 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.	 

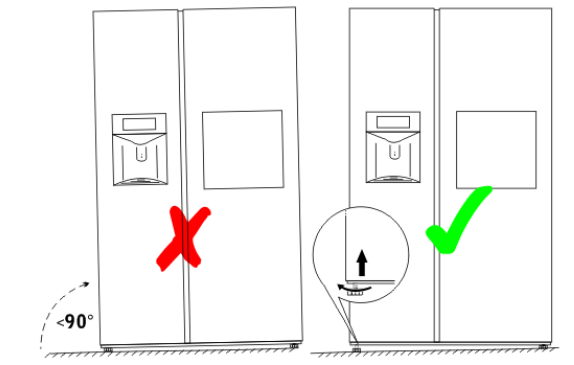
3) Lift up the refrigerator door until the hinge axis separated from the axis hole of door, then carry the door to a suitable place.	
Assembly of freezer door	
1) Put the freezer door down gently until the axis of hinge inserted into the axis hole of door completely.	
2) Put the upper hinge on suitable position, then use cross screwdriver or socket spanner to fix the 1 pcs M5 screw by clockwise, and connect the wiring connectors.	
3) Put the cover of upper hinge on suitable position, then use screwdriver to fix the 2 pcs screws	

assembly of refrigerator door	
1) Put the refrigerator door down gently until the axis of hinge inserted into the axis hole of door completely, and then closes the door, to make sure the refrigerator door fit the cabinet closely.	
2) Put the upper hinge on suitable position, then use cross screwdriver or socket spanner to fix the 2 pcs M5 screws.	
3) Put the hinge cover on suitable position, and then use the screwdriver to fix the 1 pcs screw..	

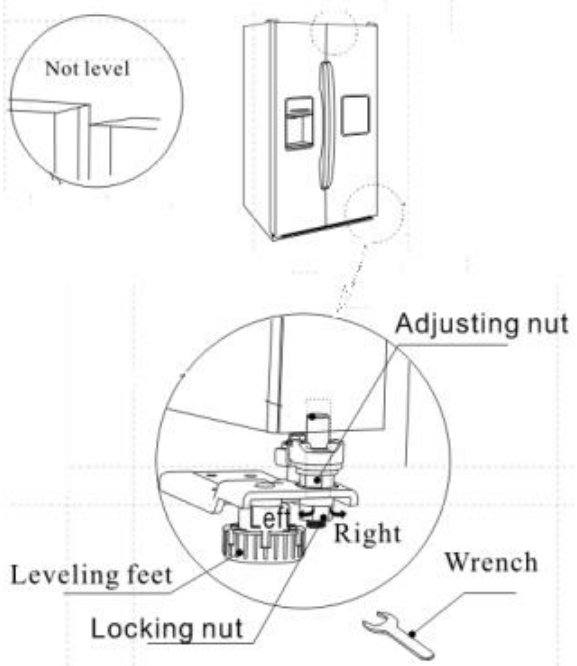
3.3 Installation location

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.	

3.5 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 1 pcs screw, and then remove the upper hinge cover. 2) Use screwdriver to loosen the 2 pcs screws, right and left 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 1 pcs screw.	 

Adjustment to plane the door (left and right)

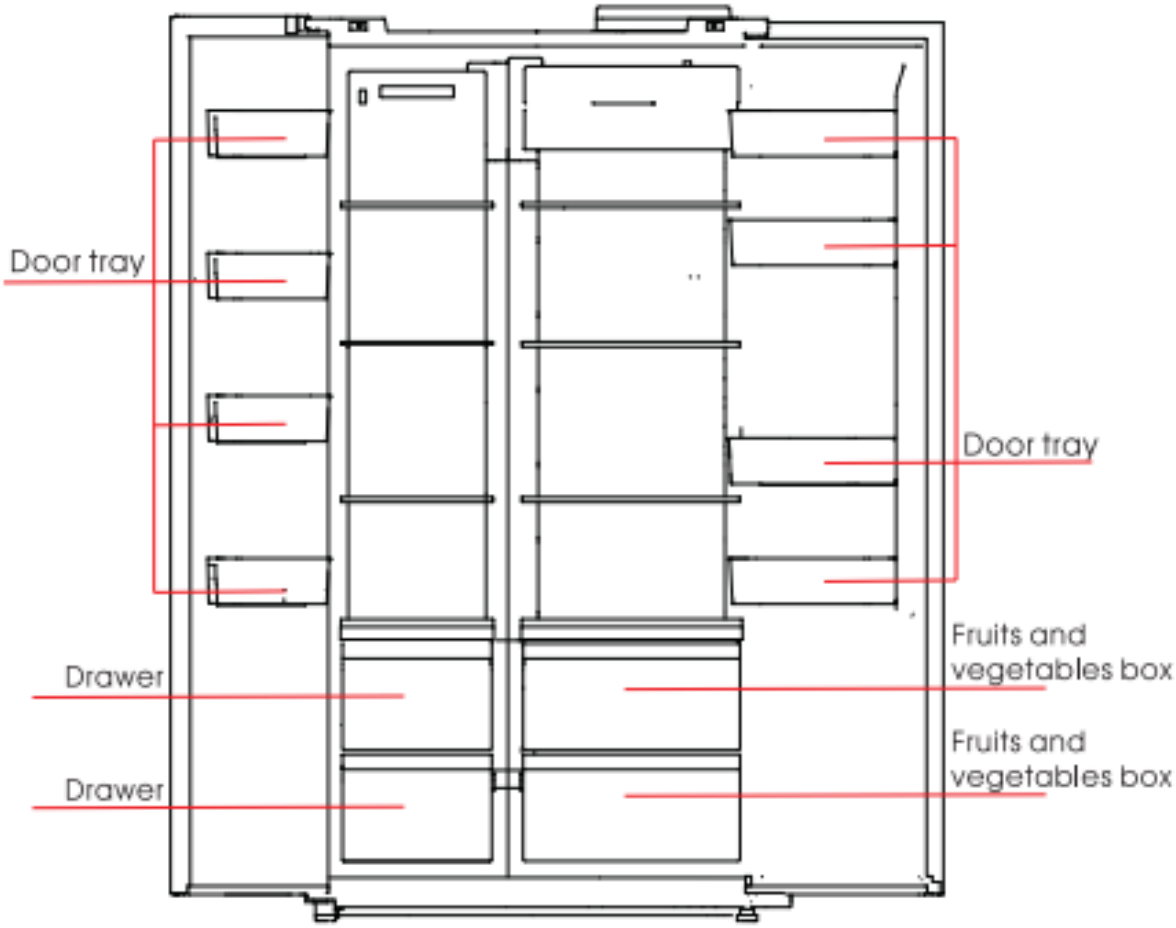
1) Use screwdriver to remove the 2 pcs screws, and then remove the upper hinge cover.
2) Use screwdriver to loosen the 2 pcs screws, front and back adjust the upper hinge to make door aperture be homogeneity.
3) Put the hinge cover on suitable position, and then use the screwdriver to fix the 2 pcs screws.





4. Main parts and external dimension

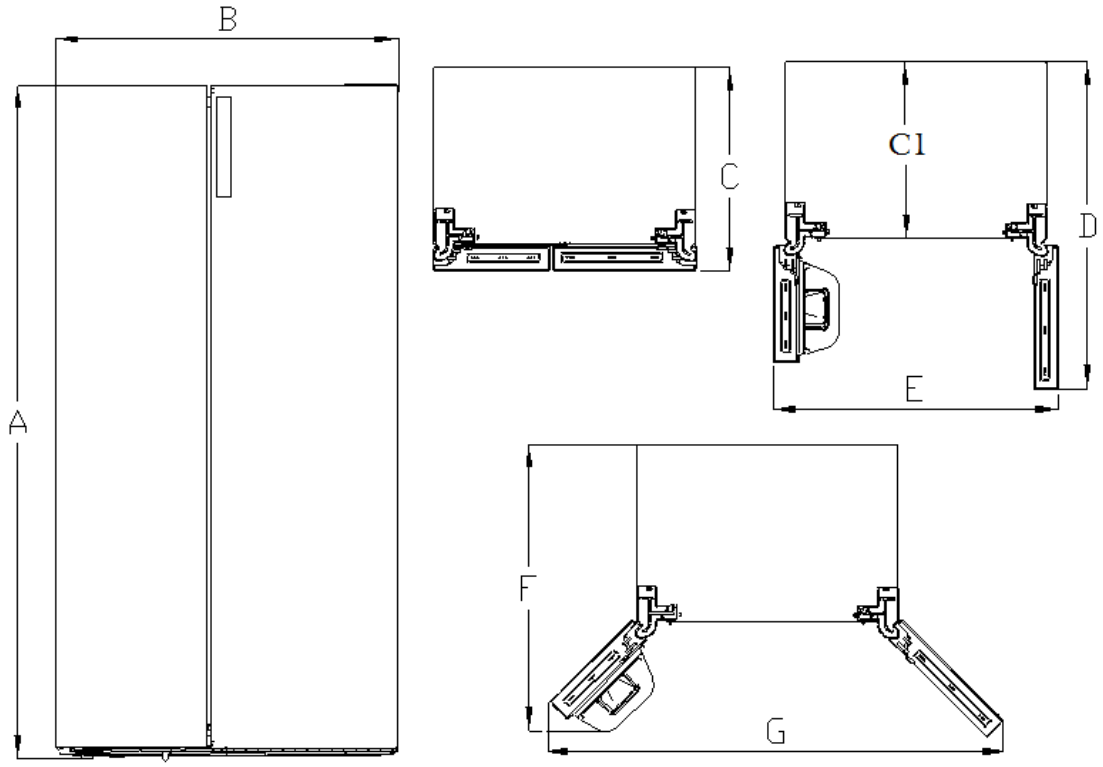
4.1 Main parts



(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	**1793**	
Width	B	**910**	
Depth w/Cabinet	C1	**610**	
Depth w/Handle	C	**698**	
Depth (Door open 90 deg. w)	D	**1140**	
Width (Door open 90 deg. w)	E	**975**	
Depth (Door open 125 deg. w)	F	**1010**	
Width (Door open 125 deg. w)	G	**1470**	



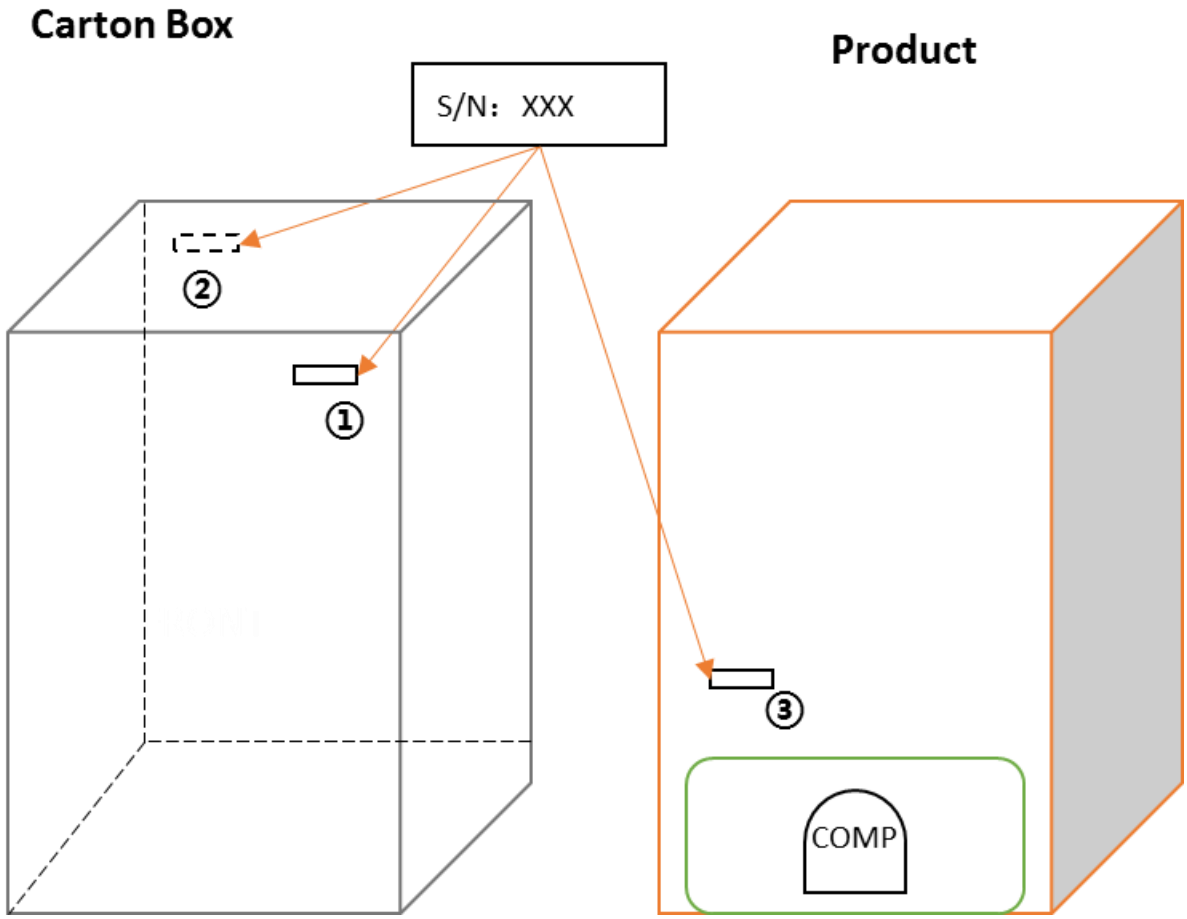
(The picture is only for reference)

4.3 Midea 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.



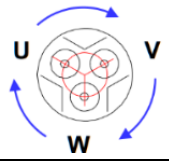
2）Paste location



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

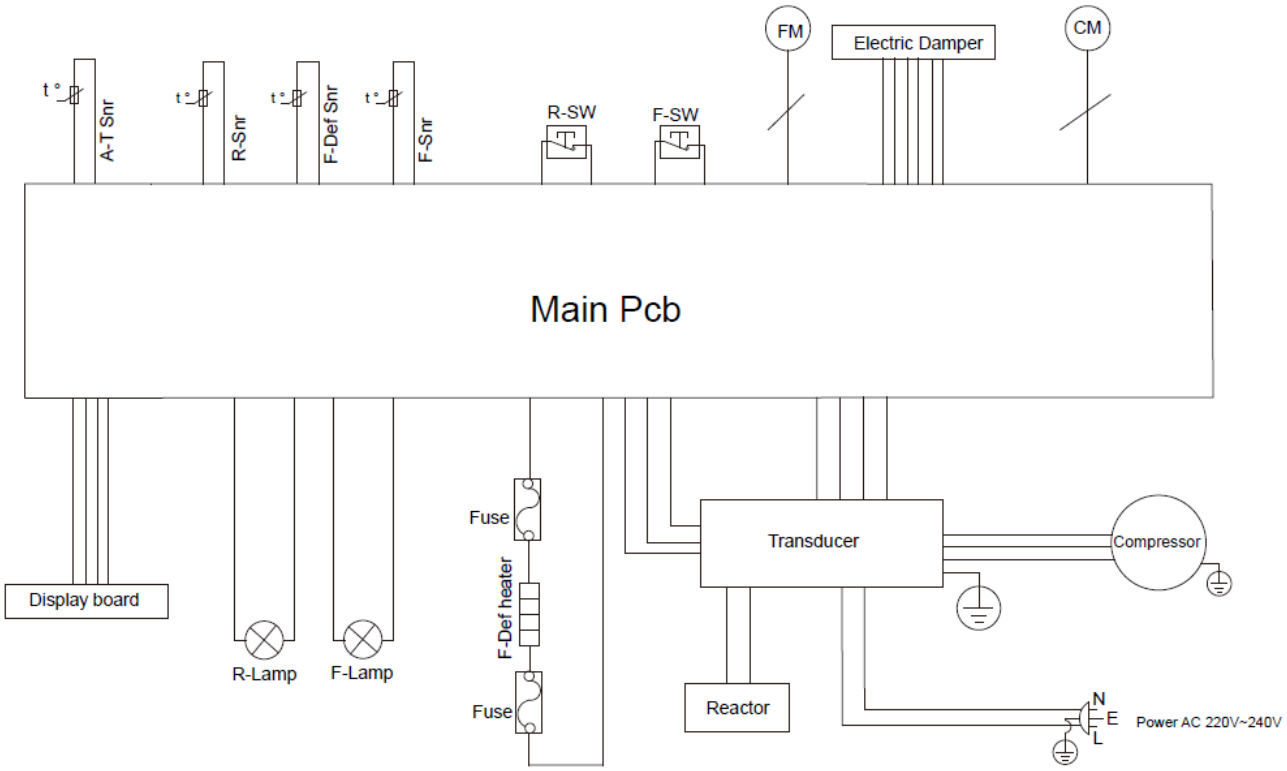
5. Electric control system

5.1 Electrical parts parameters

Applicable Model	HC-769WEN	
Product Model	CE-BCD592WE-CT	
Rated Voltage	220V/60Hz	
Item	**Specification**	
Refrigerant	R600a	
Compressor	DZ90V1S	
Starting device type	**DC Inverter**	
The COP of compressor	2.13 (W/W)	
The max cooling capacity of compressor	215W	
Winding resistance of compressor wiring terminal (20℃)	U-W:14.6Ω ± 7% U-V: 14.6Ω ± 7% W-V: 14.6Ω ± 7%	
Winding resistance picture		
Starter(PTC)	None	
Overload protector(OLP)	B95-120	
Integrate PTC+OLP	None	
Inverter driver board	Have	
Capacitor	None	
Power filter (EMI)	250V、4A	
Power reactor (EU EMC)	115/230V、3A	
Motor		
Fan motor of the freezing chamber	DC12V、≤3W	
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	

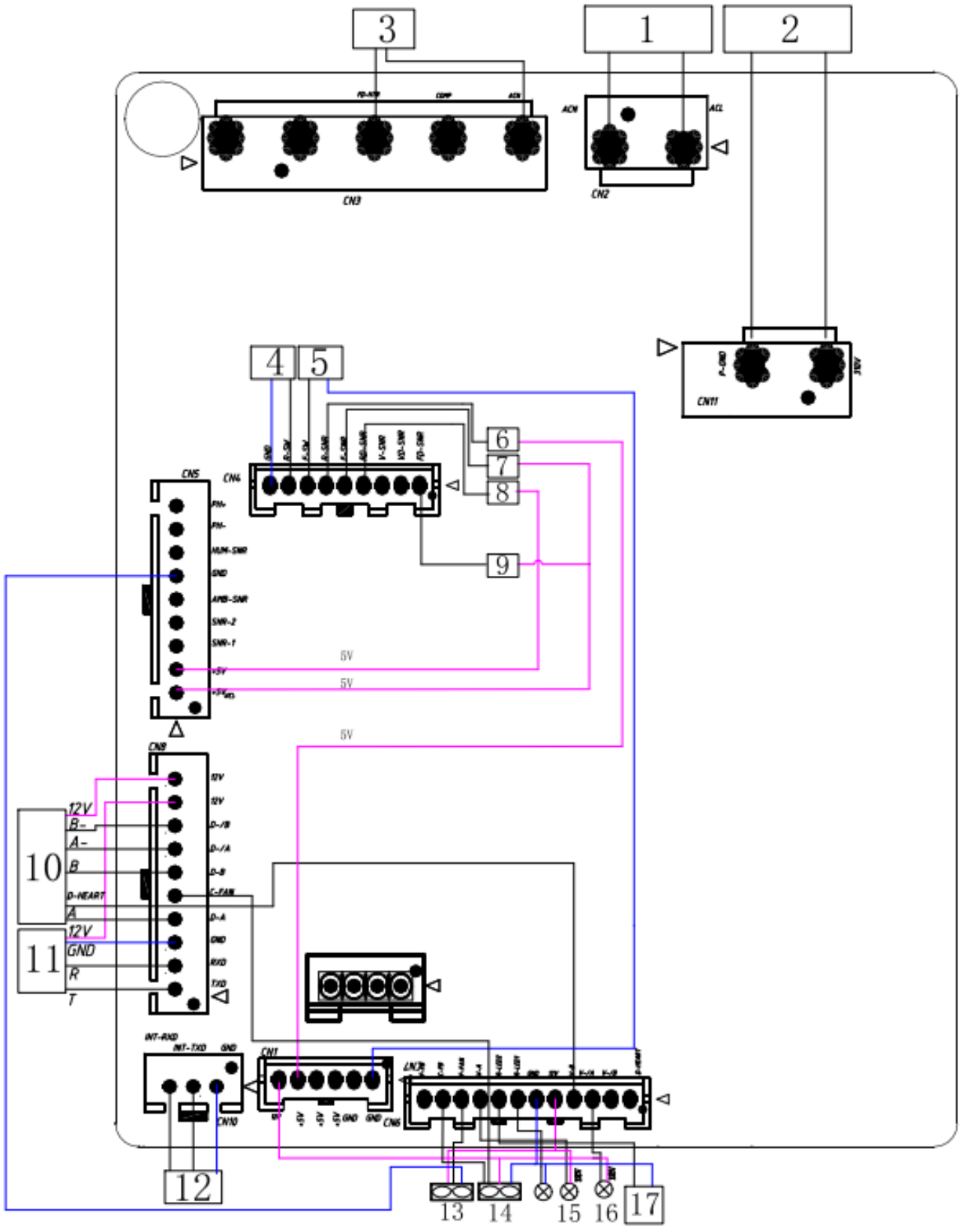
Switch of the lights	■Mechanical switch □Magnetism control switch	
Other electrical parts		
Water valve	None	
Water pump	None	
Electric exchange valve	None	
Defrosting parts		
Defrosting sensor	NTC B3839 (B5/25=3839K±2%)	
Fuse in freezing chamber	AC250V，10A；AC125V,15A； 77(0,-4) ℃	
Defrost heater in freezing chamber	220V、200W	

5.2 Circuit diagram



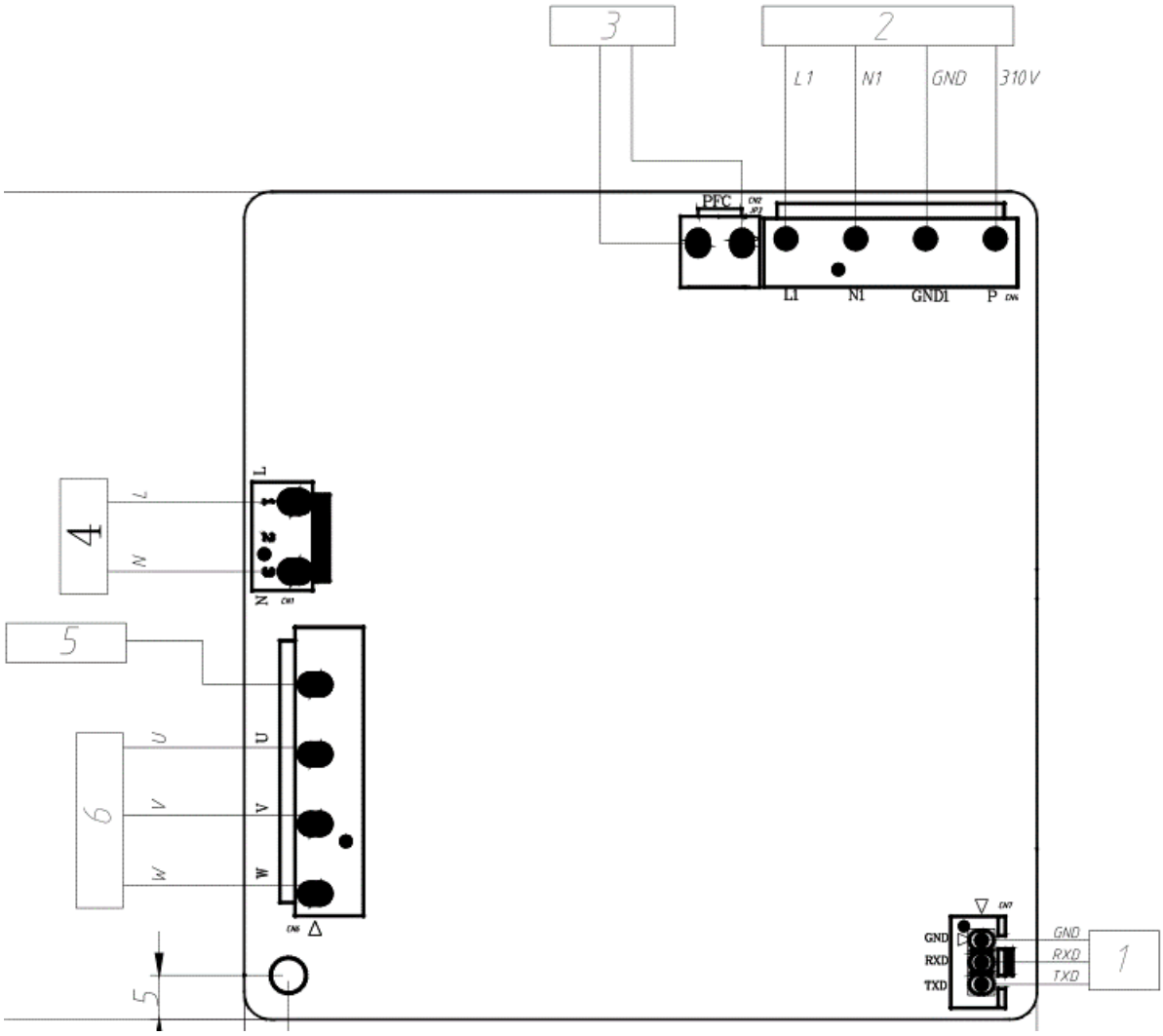
F: Freezer CM: Freezer Defrost R: Refrigerator A: Ambient temperature

5.3 Main PCB terminal connection diagram



Connecting terminals	Connecting terminals
1. AC Power	9. Freezing defrost sensor
2. Inverter board power supply	10. Electric air damper
3. Freezing defrost heater	11. Display control board
4. Refrigerator light switch	12. Inverter board signal
5. Freezing light switch	13. Fan of freezing chamber
6. Refrigeration temperature sensor	14. Condenser fan motor
7. Freezing temperature sensor	15. LED of refrigeration chamber
8. Ambient temperature sensor	16. LED of freezing chamber

5.4 Inverter board terminal connection diagram

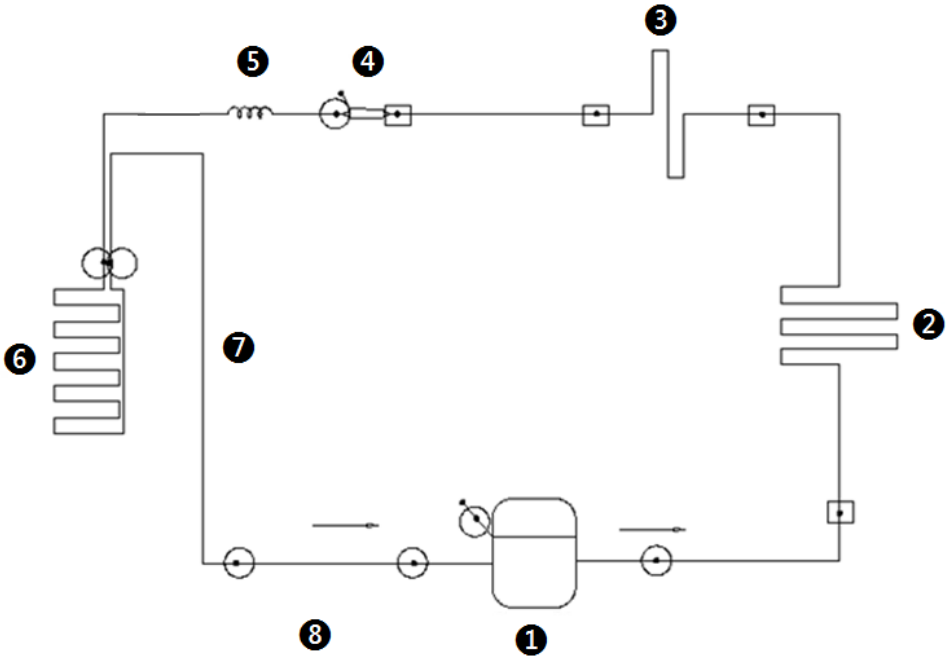


1.Main Control Communication	2.Main Control Power Supply	3. Protecter & Recator
4.Power Cable	5.Ground wire	6.Compressor

6. Refrigeration system

6.1 Refrigeration system working principle

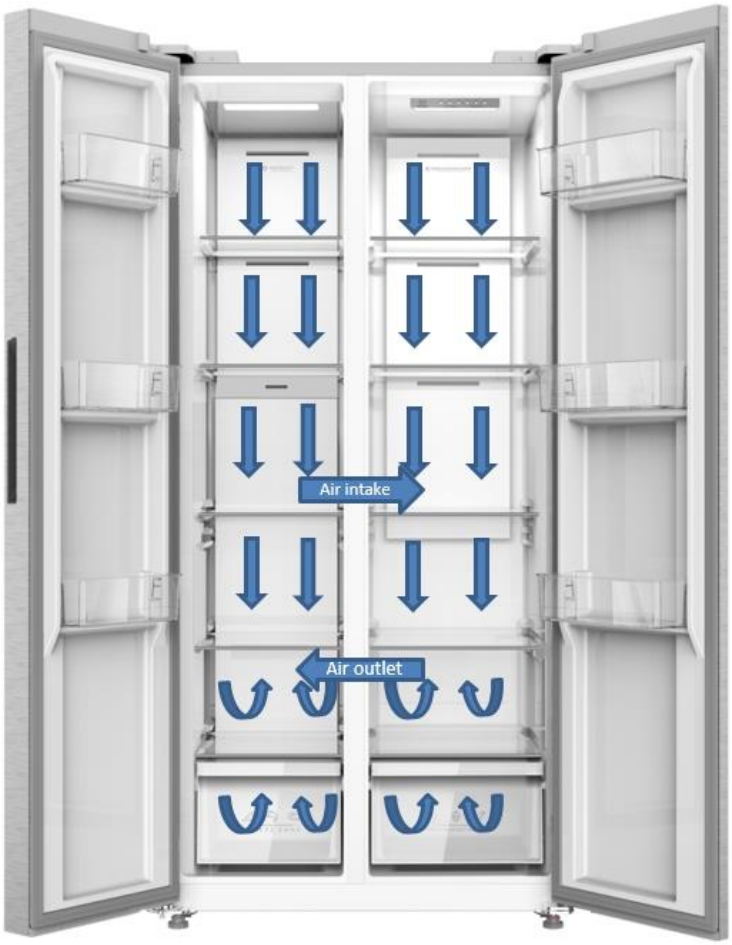
❶Compressor→❷Condenser→❸Anti-water condensed pipe→❹Drier→❺Capillary Tube→❻Evaporator→❼Suction Pipe→❽Suction connection Pipe→❶Compressor



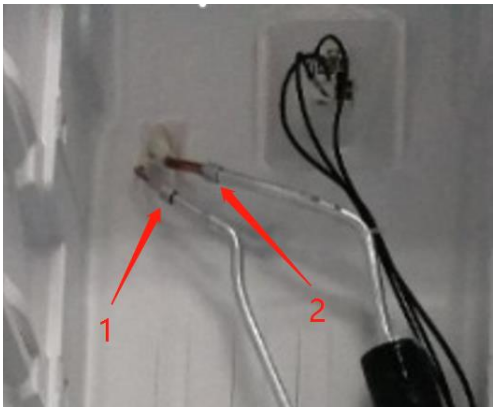
6.2 Cooling pipeline and drain pipe inside the cabinet



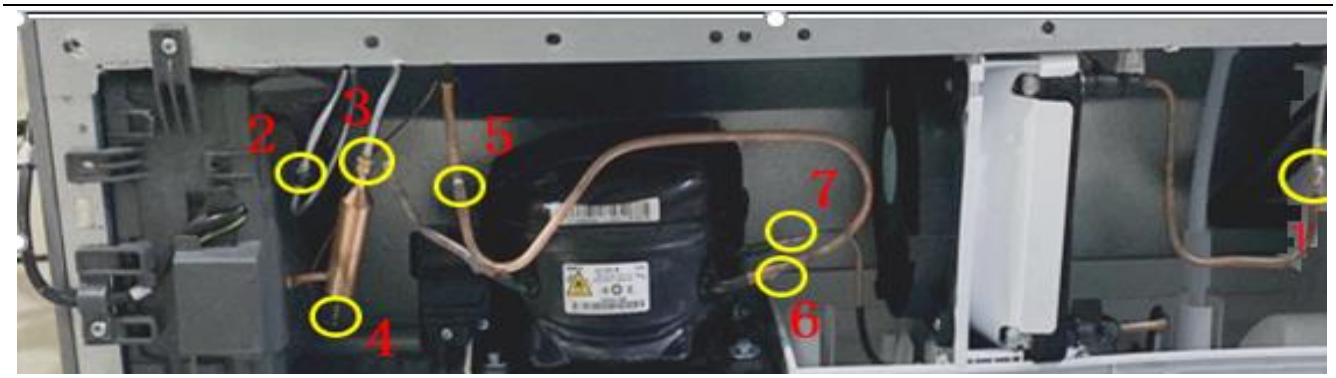
6.3 Circulating route of cooling air



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: Φ3.0	Aluminum pipe: Φ5.1
2-Heat transition tube and outlet of evaporator	Copper pipe: Φ6.35	Aluminum pipe: Φ8

6.5 Welding point in the compressor case



Welding point	Pipe outer diameter (mm)	
1-Inlet of anti-condensation tube and outlet of Parallel flow condenser	Steel pipe: Φ4.76	Copper pipe: Φ4.76
2-Oulet of anti-condensation tube and intlet of condenser	Steel pipe: Φ4.76	Steel pipe: Φ4.76
3- Outlet of condenser tube and inlet of dry filter	Steel pipe: Φ4.76	Copper pipe: Φ6.33
4-Outlet of dry filter and inlet of freezing capillary	Copper pipe: Φ4.0	Copper pipe: Φ1.8
5-Heat transition tube and Suction connection tube	Copper pipe: Φ6.35	Copper pipe: Φ6.0

7. Dismantling of parts

7.1 Parts on the door

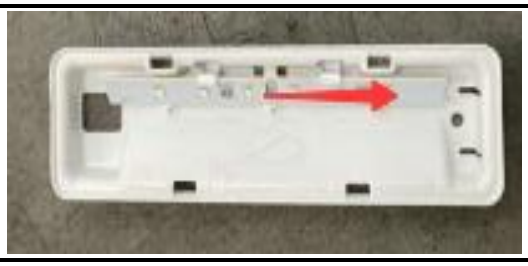
Door seal	
Door seal is installed into door liner groove. 1)Open the refrigerator door; 2)Take the door seal out of door liner;	
Door tray	
While squeezing it inward, lift up the door tray and take it out from door liner.	

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;	

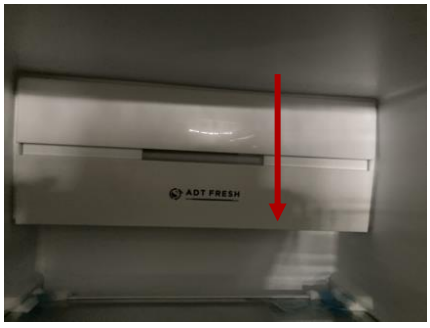
Freezer Drawer	
1)Pull the drawer out completely; 2)Lift it up slightly and take it out from the refrigerator.	

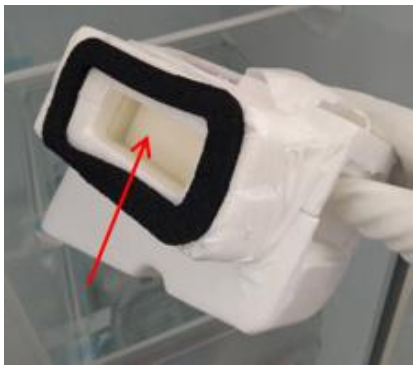
7.3 Light system

Light	
Light of the refrigerating and freezing	
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）Remove the connecting terminals on LED light panel and take down the LED light panel.	
3）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	

Light switch	
1）As shown in the picture, loosen by screwdriver 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.	

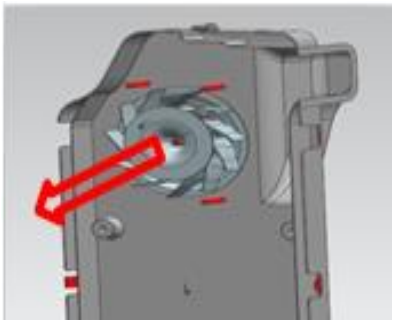
7.4 Air duct components refrigerating chamber and fan motor

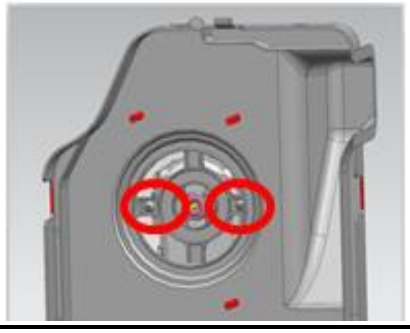
Air duct components refrigeratingchamber	
1） Press and hold the clips on both sides of the lower end of the refrigeration upper air duct inward with your hand, and remove the mask of the upper air duct of the refrigeration outwards with force. Remove the temperature sensor terminal.	 

2） Catch hold of air duct foam in refrigerating chamber and pull it towards the right along the arrow direction shown in the picture.	
3) 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.	

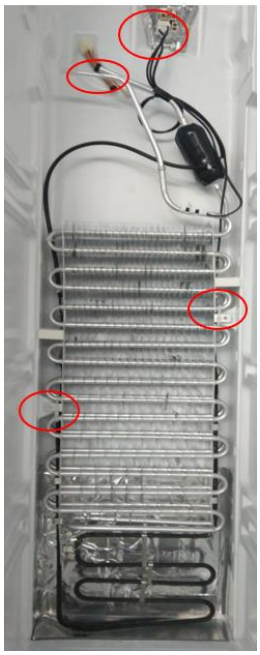
7.5 Air duct components in freezing chamber and fan motor

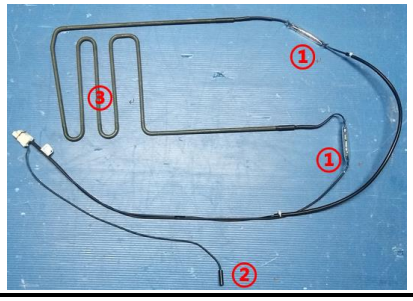
Air duct components in freezing chamber	
Take out the screw cap on the air duct cover with a blade or a thin iron sheet, and take out one screw with an electric gun or a cross screwdriver	

Grasp the upper air duct mask from the upper and lower air duct joints by hand, and remove the upper air duct by force	
Grasp the upper air duct mask from the upper and lower air duct joints by hand, and remove the upper air duct by force	
4）Hold the front cover and pull outwards with big force until it is separated from the liner.	
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	

7.6 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 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.	 

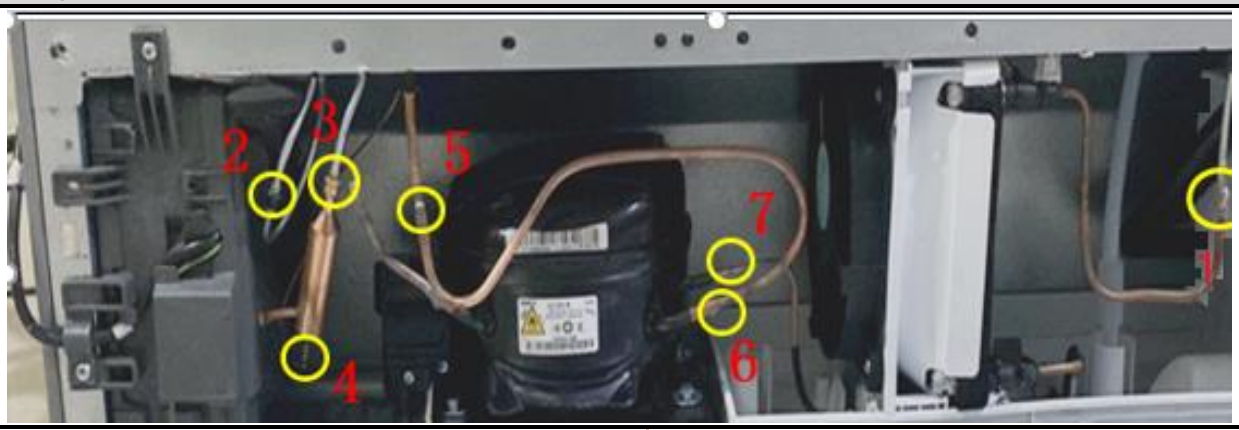
3）Use nipper plier to unlock all metal hooks of heater pipe, separate the components from the evaporator.	 

7.7 Compressor case

Rear cover

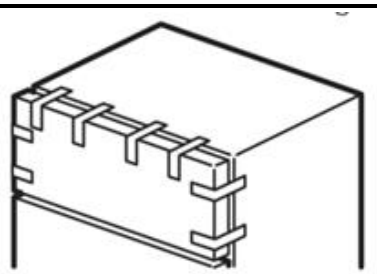
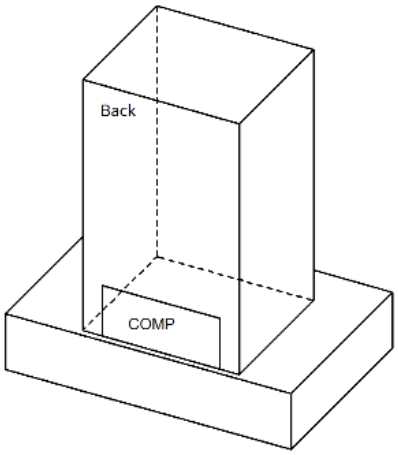
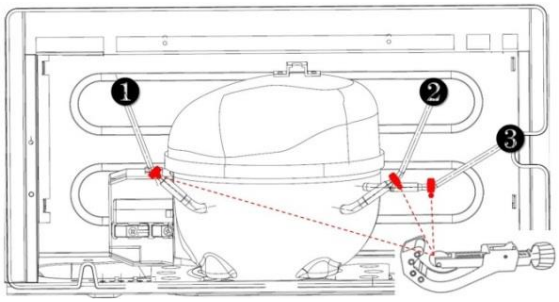
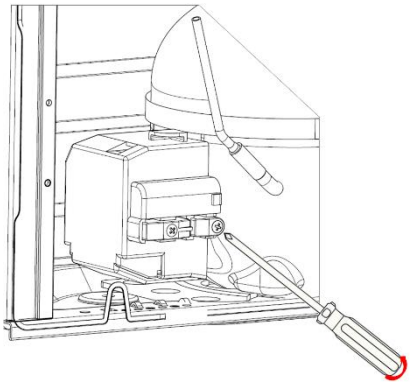
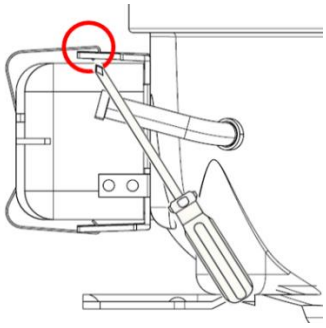
1）Remove the screws fixing back cover plate. 2）Take down the back cover plate upward.	

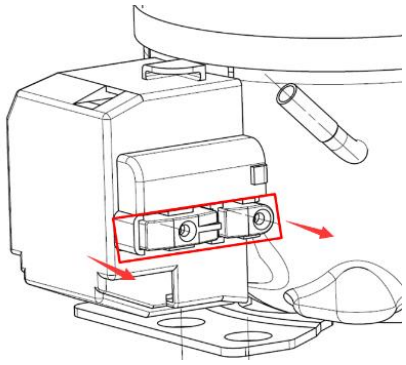
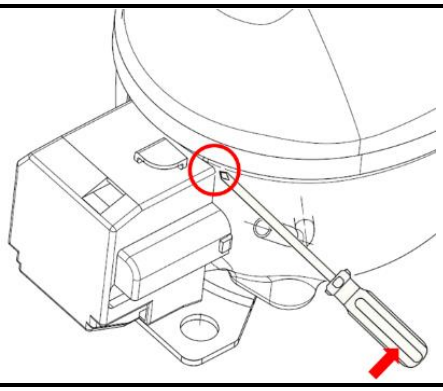
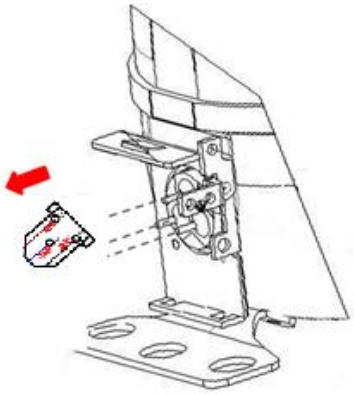
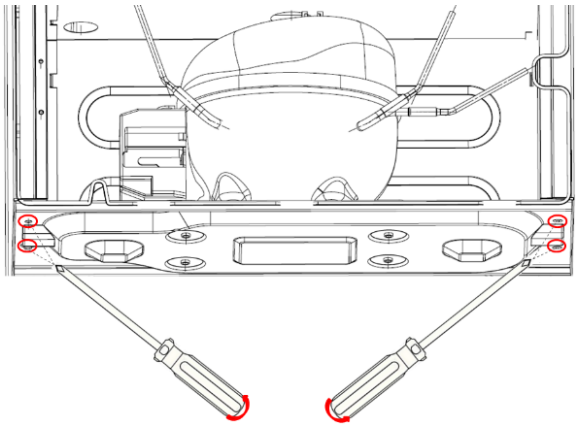
Piping and parts in the compressor case

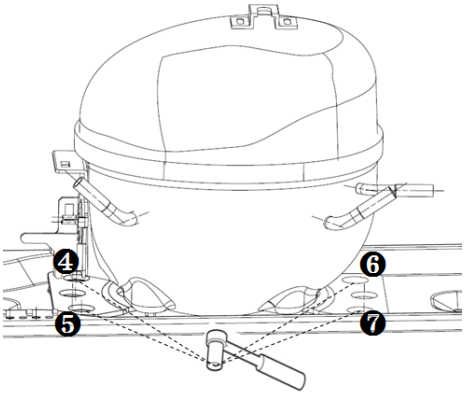
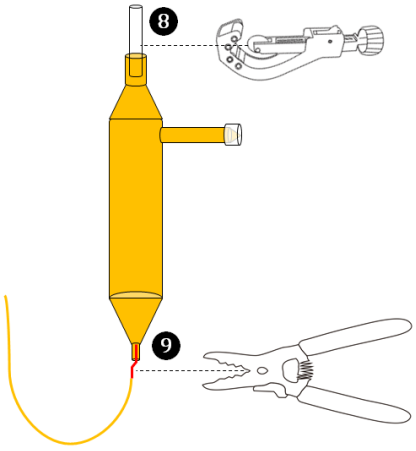
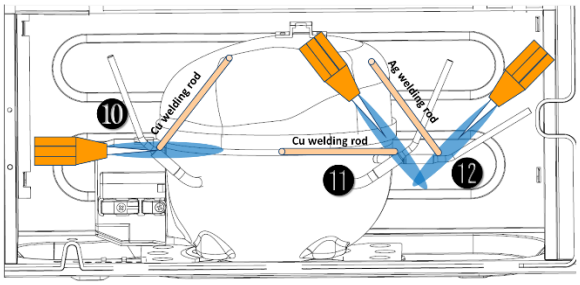
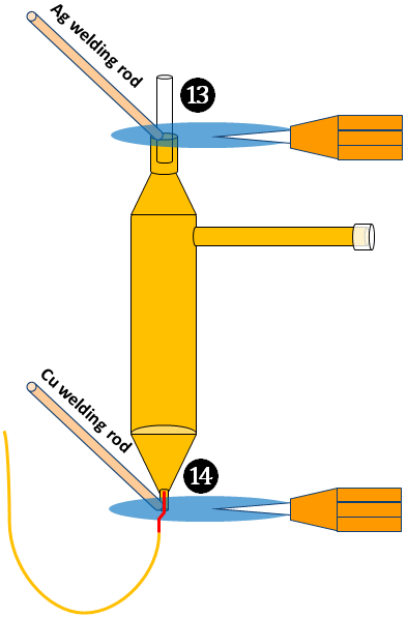


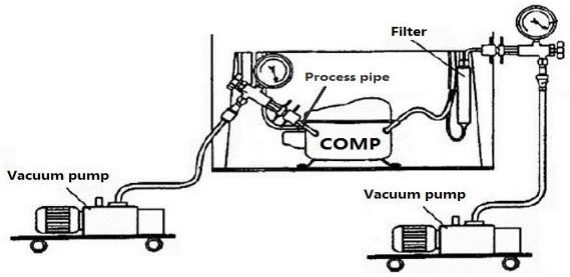
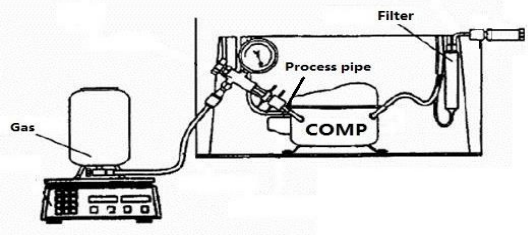
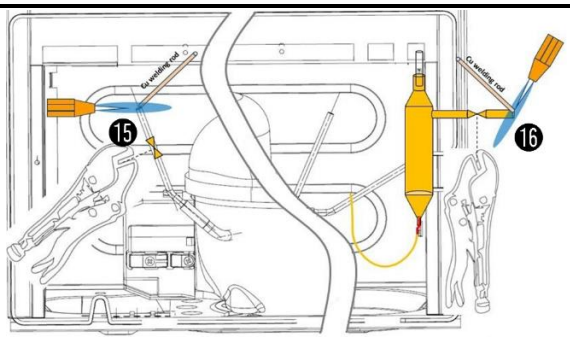
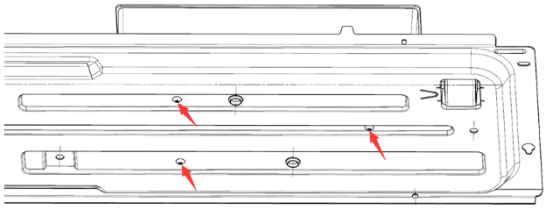
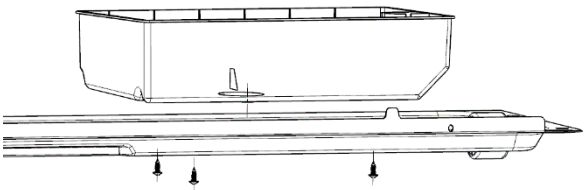
❶Condenser	❺Anti-water condensed pipe
❷Capillary Tube	❻Compressor
❸Suction Pipe	❼Drier
❹Exhaust Pipe	

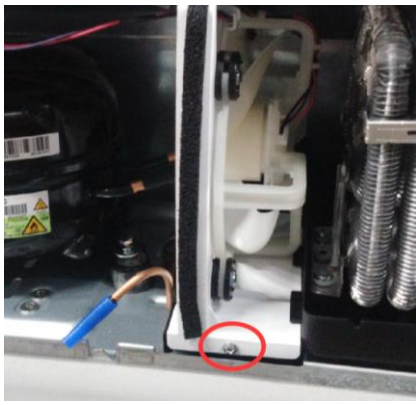
Disassembly and assembly of compressor

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）Place the refrigerator in an area that is open, ventilated, and away from fire sources. Then placing on an operating table and securing it firmly.	
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 connecting terminals** Unplug the connection terminals of a compressor. (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.	

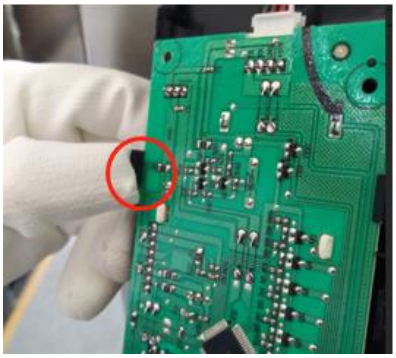
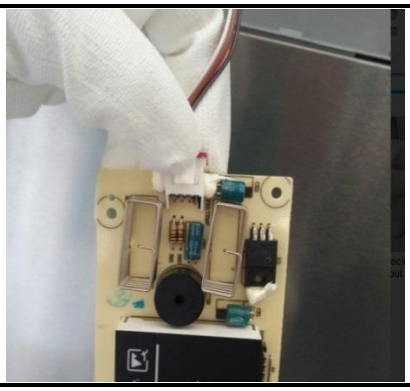
9）Use the wrench to remove the bolts by steps❹❺❻❼, replace the compressor and reverse process can complete installation.	
10）Use Pipe cutter cut off the condenser tube❽, then Shear off capillary ❾ by the capillary tube scissors.	
11）Replace the compressor and welding the compressor pipeline. -❿Welding the process pipeline. -⓫Welding the low-pressure muffler. -⓬Welding the high-pressure exhaust pipe.	
12）Replace the filter, Cu-Fe tubes welding ⓭ used Ag welding rod, Cu-Cu tubes welding⓮ 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 tube⓯⓰.	
Drain tray	
1）Remove the bottom screws of the compressor bottom plate	
2）Replace the drain tray, the reverse process can complete installation.	
Condenser fan motor	
1)Unplug the connection terminal by pressing the terminal lock	

2) Remove the shown screw with a cross screwdriver and pull out the fan holder.	
3）Remove the fan and replace it.	

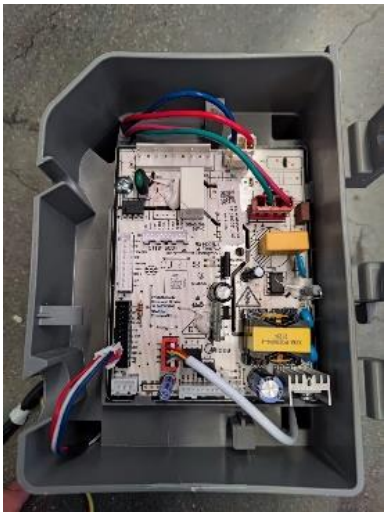
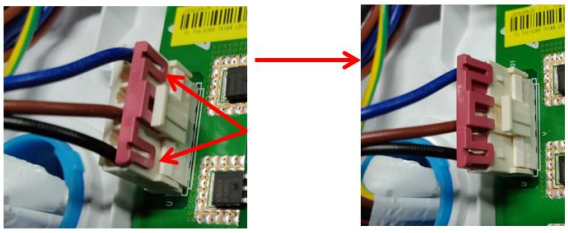
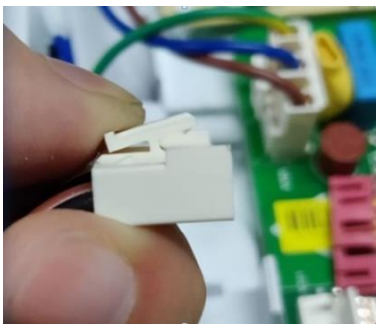
7.8 Display control board

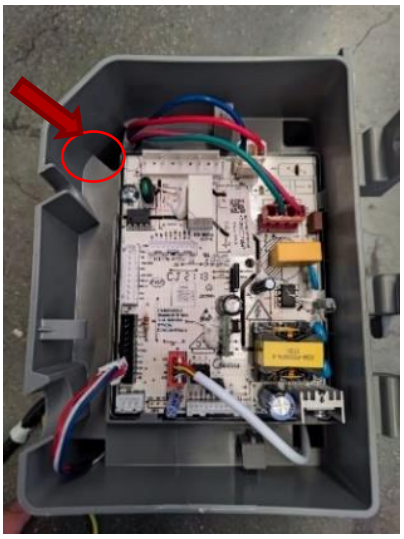
Display control board	
1）Use a suction cup to suck at the upper left corner of the display control panel , pull it outwards with force.	
2）Remove the fitting screws of display control board, unlock all plastic hooks.	

	
3）Disconnect the connecting terminals, then change the display control board and control panel. NOTE :The ambient temperature sensor is integrated on display PCB	

7.9 Main control board and Inverter driver board

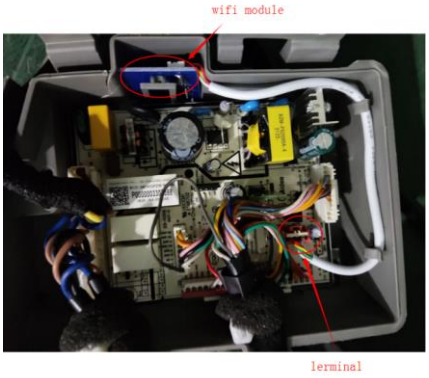
Main PCB and Inverter driver board	
1) Remove 4 screws and lock, then remove the PCB housing cover.	 

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 Inverter driver board.	 

7.10 Wireless Fidelity network modular（Option）

WIFI network modular	
1）Remove the box cover of the main control board 2）Find the WIFI network module terminals shown in the picture, remove the terminals	

3）Remove the main control board and take out the WIFI network module.	 

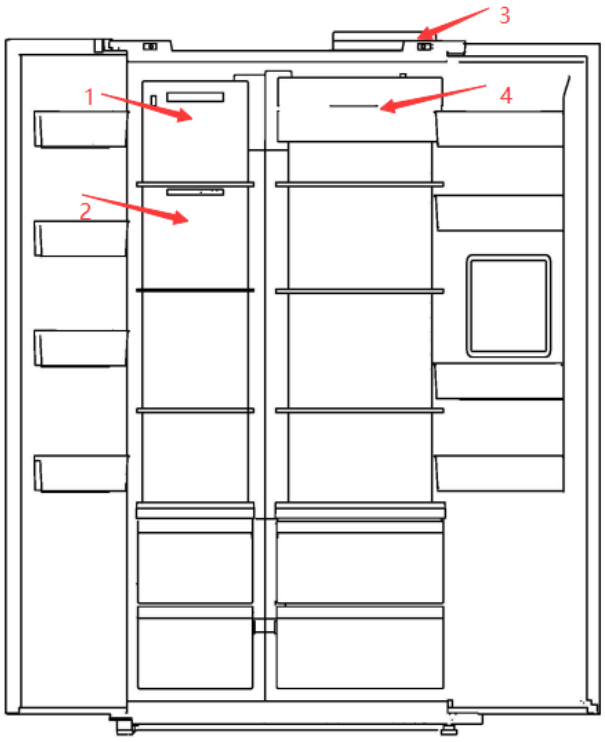
7.11 Water dispenser（Option）

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	
The water valve is connected with the water tank. After taking out the water tank, hold the water valve connected at the water outlet and rotate clockwise to take it out	
Disassembly and installation of water dispenser bracket	

Remove the screws fixed on the left and right sides of the water dispenser bracket	
Pull out the pressure plate of the water dispenser by hand	

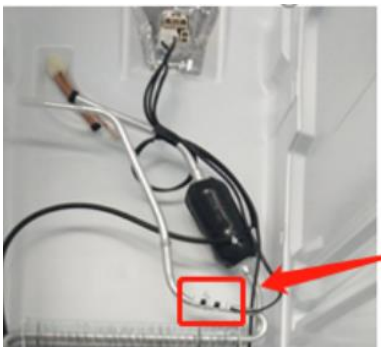
8. Temperature sensing system

8.1 Position of sensors

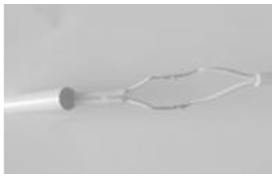
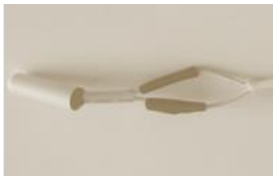
Position of sensors	
Have 4 sensors ① Sensor in freezing chamber ② Defrost sensor freezing chamber ③ Ambient temperatureor humidity sensor ④ Sensor in refrigerating chamber	

8.2 Replacement of sensors

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.	
Sensor in freezing chamber	
The sensor of the freezing chamber is located in the freezing air duct; 1) Remove the screw behind the freezing air duct; 2) Tear off the sponge to remove the sensor.	 
Sensor in refrigerating chamber	
The sensor of the cold storage room is located in the refrigeration air duct;	

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) Its technical specifications apply to all MIDEA refrigerators.	
Strip off the head of the sensor and connect it.	 
Wrap the two wires together with insulation tape.	 
Wrap the two wires together.	

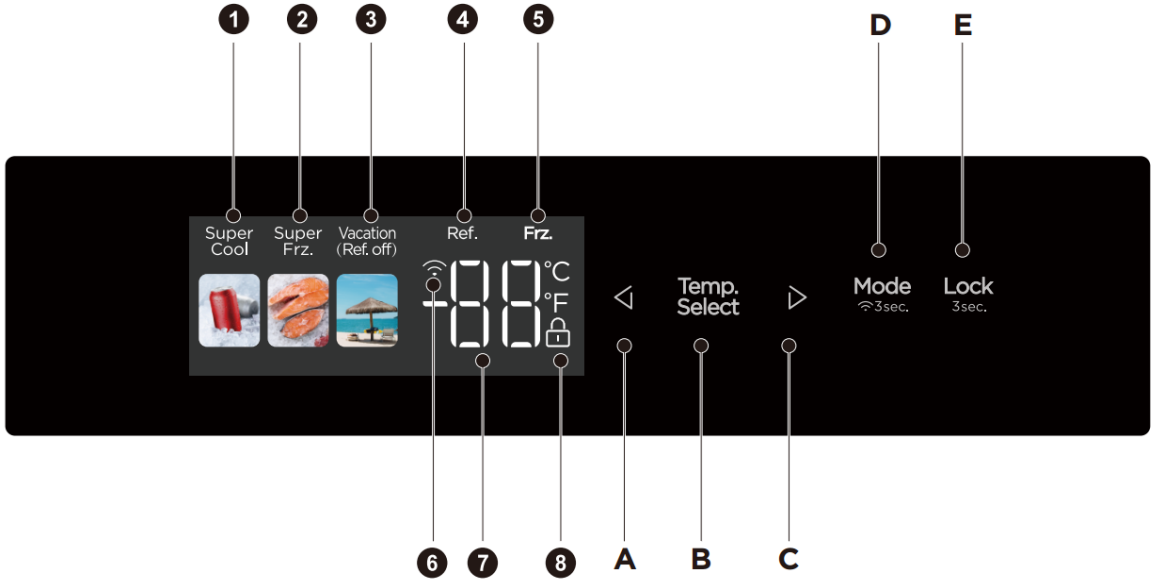
8.4 Sensor R/T table

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 Super Cooling ② Super Freezing ③ Vacation ④ Refrigerating compartment temperature ⑤ Freezer compartment temperature ⑥ Wireless Network ⑦ Temperature display ⑧ Lock	A. Temperature down B. Temperature zone selection C. Temperature up D. Mode / Network connection E. Lock / Unlock



9.2 Temperature control

9.2.1 Temperature setting of refrigerating chamber

Temperature setting range of cold storage room: 2˚C～ 8˚C,

When selecting the cold storage room, press the up temperature button (B) to adjust the temperature upward. Each time you press the button, the temperature will be increased by 1 degree. Press down the A. temperature button (A) to adjust the temperature downward. Press once, the temperature will be reduced by 1 degree

9.2.2 Temperature setting of freezing chamber

Temperature setting range of freezing room: - 16˚C ~ - 24˚C,

When the freezing chamber is selected, press the up temperature button to adjust the temperature upward. Each time, the temperature is increased by 1 degree. Press the down temperature button to adjust the temperature downward. Each time you press the button, the temperature will be lowered by 1 degree;

9.3 Mode setting

9.3.1 Supper cooling, Supper freeze, Vacation mode

Press the mode button (D), the refrigerator will cycle according to the following mode, and the corresponding icon will light up:

Vacation → Supper freeze → Supper cooling → Supper cooling + Supper freeze → None → Vacation

Operation status of each mode:

1) When the supper cooling mode is set, the icon of the supper cooling mode will be on, and the cold storage room will automatically exit after running at 0 ℃ for 6 hours; if the supper cooling mode is exited, the refrigerator will automatically return to the previous set temperature.

2) When it is set to supper freezing mode, the freezer will automatically run at - 24 ℃ and exit automatically after reaching the set time of 26h, after exiting the supper freezing mode, the freezer will automatically return to the previous set temperature.

3) When it is set to vacation mode, the cold storage room will close and the freezer will automatically run at -18℃. When you exit the vacation mode, the set temperature of the refrigerator will automatically return to the set temperature before the vacation mode.

9.3.2 Locking and unlocking

In the non locking state, press and hold the lock button (D) for 3 seconds to enter the locking state, and the lock buzzer sounds.

In the locking state, press and hold the lock button (D) for 3 seconds to enter the non locking state, and the unlocking buzzer sounds.

After 30 seconds of no button operation, it will enter the locking state automatically.

In addition to the door opening alarm alarm and fault alarm release operation can also be carried out in the locked state, other button operations must be carried out in the non locking state.

9.4 Defrosting function

Principle of defrosting:

Evaporator defrosting is the use of defrosting heater heating, the temperature rise to make the accumulated ice and frost on the evaporator melt into water and discharge to the water collecting plate of the press chamber to evaporate.

Defrosting steps:

The compressor is closed, the air door is closed, and the fan is opened for 10min when the door is not opened; - the compressor is closed, the air door is closed, the defrosting heating wire is opened, the fan is closed - the defrosting heating is turned off after the conditions are met - the compressor is closed, the defrosting heating wire is closed, and the air door is opened for 15s after the air door is opened for 15s - if the starting conditions are met, the compressor is started - the electric damper is reset The fan motor starts when the temperature of defrosting sensor is lower than - 20 ℃ after another 3 min delay.

When one of the following conditions is met, defrosting heating is withdrawn:

1) There is no fault in the freezing and defrosting sensor, and the measured temperature TFD of defrosting temperature sensing head is greater than the set temperature of defrosting exit;

2) There is no fault in the defrosting sensor, and the defrosting time is more than 60 minutes;

3) There is a problem with the defrosting sensor. The heater will exit after 25 minutes.

9.5 Open door alarm

When the door of refrigerating or freezer chamber is opened, the light up, a notification tone will sound. Press the "Temperature down button + Temperature up button " at the same time for 3 seconds for the tone to be turned off and on.

If refrigerator door or freezer door is open last for 120s, there will be a buzzer alarm. After the door is closed or press any buttons, the buzzer alarm can cancel.

Note: The display screen lights up when the door is opened, and the display screen will turn off automatically after 30 seconds of closing the door and no button action.

9.6 Error code and solutions

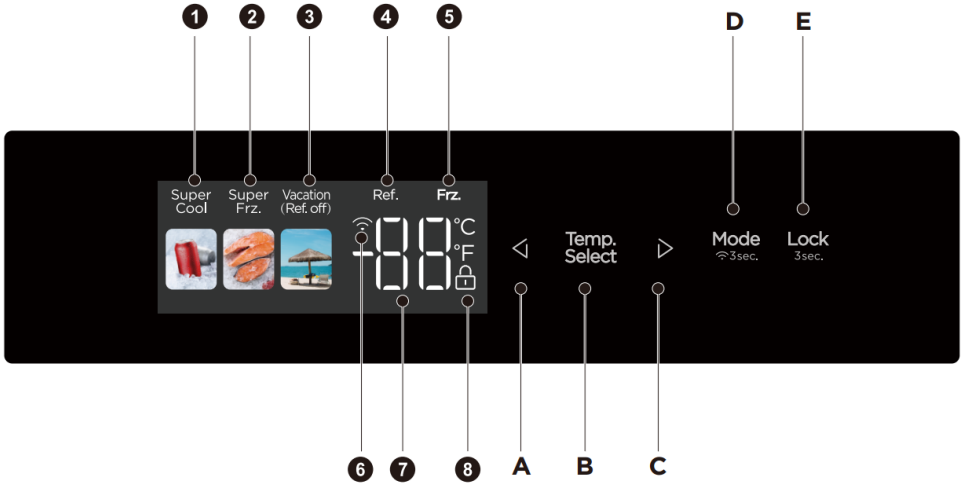
Note: midea full common fault code, combined with the actual product display reference.

Error code	Fault Type	Troubleshooting and Solutions
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	
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 $\infty\Omega$, 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.
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

All below functions are only for diagnosis and test purpose, we advise to restart the refrigerator by power on/off if have used these functions.



Test items	Setting Method	Setting result
Enter Test Mode	Press the "Lock (E)" button and "temperature select (B)" button and hold for 4 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	Enter the test mode and press the "temperature up (C)" button for the first time	LED indicators display “1”, then the air damper opens and the compressor and fan will work all the time after lock.
	In forced operation mode, there is no button operation for 72 hours	then the refrigerator will exit the test mode and return to normal operation mode

Select to enter into forced defrosting mode	Enter the test mode and press the temperature up button (C) for the second time	LED indicators display “3”, then the compressor and the fan will stop working, defrost heater starts to work.
	In the forced defrosting mode, the defrosting sensor temperature reaches 8 ℃, and the defrosting heater is turned on for more than 3 minutes	The refrigerator will exit the test mode and return to normal operation mode
	In forced mode, the defrost 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	In test mode, press the temperature up button (C) several times	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 **"(A)" + “MODE (D)”** at the same time for 7 seconds, display shows “**ON”** 2 seconds to enter mode, 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 **"(A)" + “MODE (D)”** at the same time for 7 seconds again, display shows “**OF”** 2 seconds to exit the mode.

9.9 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.

9.10 IOT product networking control（Option）

9.10.1 Turn on the Wireless Network module

Unlock the display control panel first. Long press the **ICE ON** button for 3 seconds, when the temperature display area shows **AP** character, the WIFI network module starts. After the startup is successful, the **AP** character stops flashing, and the **Wireless Network** icon lights up.

9.10.2 Connect to mobile SmartHome APP

1) First use your mobile phone to download the **SmartHome** APP, follow the instructions in the APP to complete the account registration.

The download method is as follows:



2) Login to **SmartHome** APP, connect to the WIFI network module of this product according to the guide. After completing the setting of related functions, you can open remote control of this product on your mobile phone.

10. Compressor

10.1 Compressor on and off control specifications

1.1 The compressor stops when one of the following conditions is met:

1）The measured temperature TF of the freezer is less than the shutdown temperature TFT of the freezer;

2）Defrosting cycle enters；

3）If the continuous operation time of the compressor exceeds 6 hours, the compressor will be shut down for at least 10 minutes;

1.2 When all the following conditions are met, the compressor starts up:

1）The corrected temperature TFA of the freezer is greater than the startup temperature Tfk of the freezer, or it is set to the forced operation mode;

2）Compressor shutdown time ≥ 10min;

★If the items 1.1 and 1.2 are not satisfied, the compressor will remain unchanged.

10.2 Inverter board fault analysis

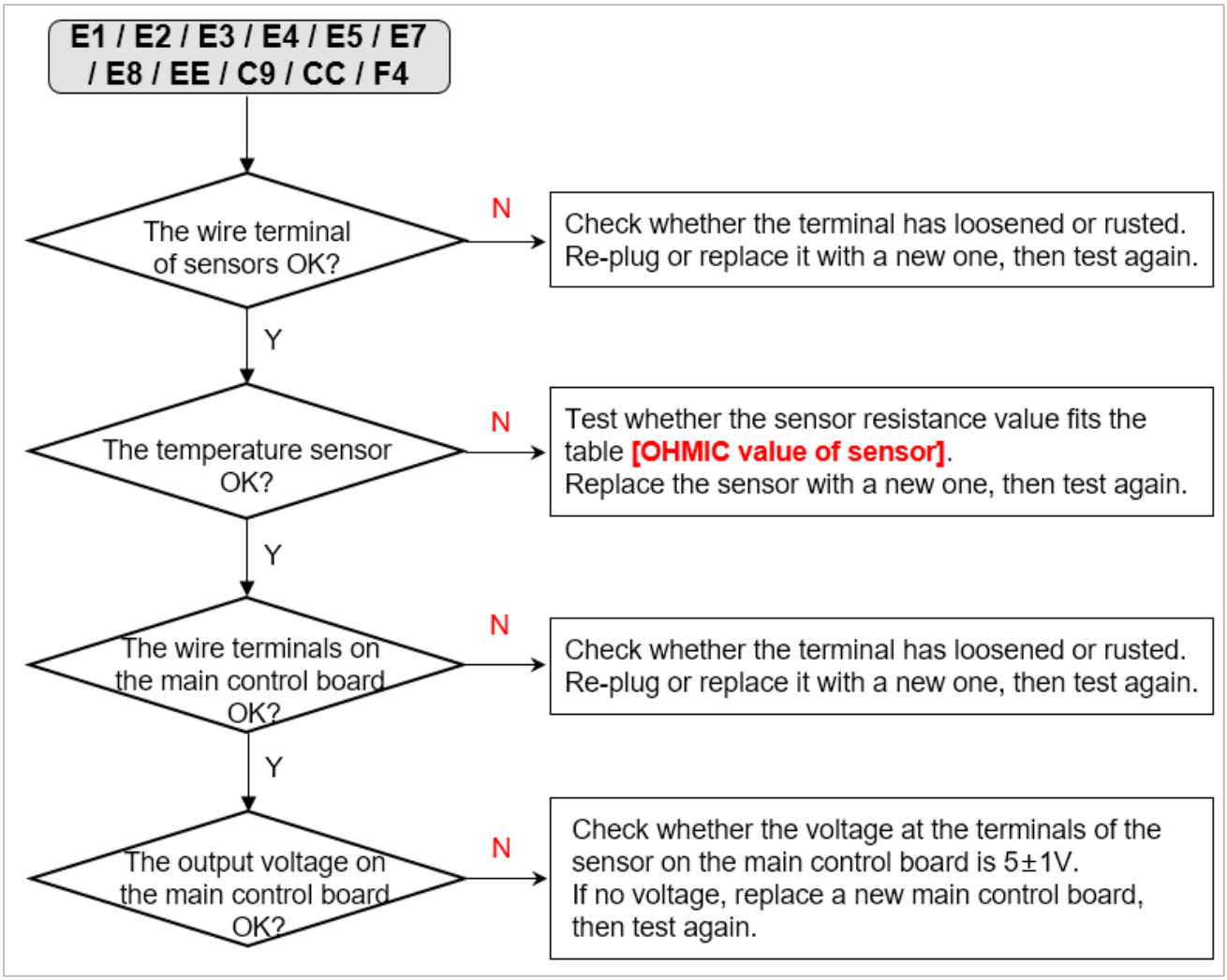
Running status of LED	Fault Type	Troubleshooting and Solutions
Not light	Standby	No repair needed
The light is always on when the power is turned on for the first time, and it is always off after the compressor is turned on and off	Normal working	No repair needed
Blink once: light 0.5 second, extinguish 0.5 second, interval time(extinguish) is 2 second	Software over current protection	Step 1: Disconnect the U-V-W wiring harness, measure the resistance between any two phase of U-V-W terminals (between 5 and 30 Ω and equal in value between any two phase), and measure the resistance between any phase and the fridge metal casing (above 1 MΩ).
		Step 2: If ok, replace a new inverter board
		Step 3: If the fault still occurs, replace a new compressor
Blink twice: light 0.5 second, extinguish 0.5 second, interval time(extinguish) is 2 second	Overvoltage protection	Measure the voltage between L and N
		1）If it is less than 280V, replace a new inverter board
		2）If more than 280V, please check the power supply and power cable
Blink three times: light 0.5 second, extinguish 0.5 second,	Under voltage protection	Measure the voltage between L and N
		1）If it is less than 160V, replace a new inverter board

interval time(extinguish) is 2 second		2）If more than 160V, please check the power supply and power cable
Blink four times: light 0.5 second, extinguish 0.5 second, interval time(extinguish) is 2 second	Hardware over current protection	Step 1: Disconnect the U-V-W wiring harness, measure the resistance between any two phase of U-V-W terminals (between 5 and 30 Ω and equal in value between any two phase), and measure the resistance between any phase and the fridge metal casing (above 1 MΩ).
		Step 2: If ok, replace a new inverter board
		Step 3: If the fault still occurs, replace a new compressor
Blink five times: light 0.5 second, extinguish 0.5 second, interval time(extinguish) is 2 second	IPM Hardware temperature throttling	In this case, the inverter is usually normal. If the refrigerator cooling function is working, it may be due to insufficient lubrication inside the compressor. If it is not cooling, then there may be a blockage in the refrigeration circuit.
Blink six times: light 0.5 second, extinguish 0.5 second, interval time(extinguish) is 2 second	Lack of phase protection	Step 1: Check if the UVW wiring harness is securely connected to the inverter board and compressor.
		Step 2: Disconnect the UVW wiring harness, measure the resistance between any two phases of UVW terminals. If the resistance between any one or two phases is infinite, replace the compressor.
		Step 3: Re-power and if the compressor runs for a period of time before tripping, it may indicate a blockage in the piping system.
		Step 4: If the fault still occurs, replace a new inverter board.
Blink seven times: light 0.5 second, extinguish 0.5 second, interval time(extinguish) is 2 second	Voltage bias fault	Step 1: Power off and restart.
		Step 2: If the fault still occurs, replace a new inverter board.
Blink eight times: light 0.5 second, extinguish 0.5 second, interval time(extinguish) is 2 second	Misstep protection	Step 1: After powering on, touch the compressor and wait for the indicator light on the inverter board to light up.
		Step 2: If the compressor does not respond and the indicator light is flashing, it means the compressor is damaged, replace a new compressor.

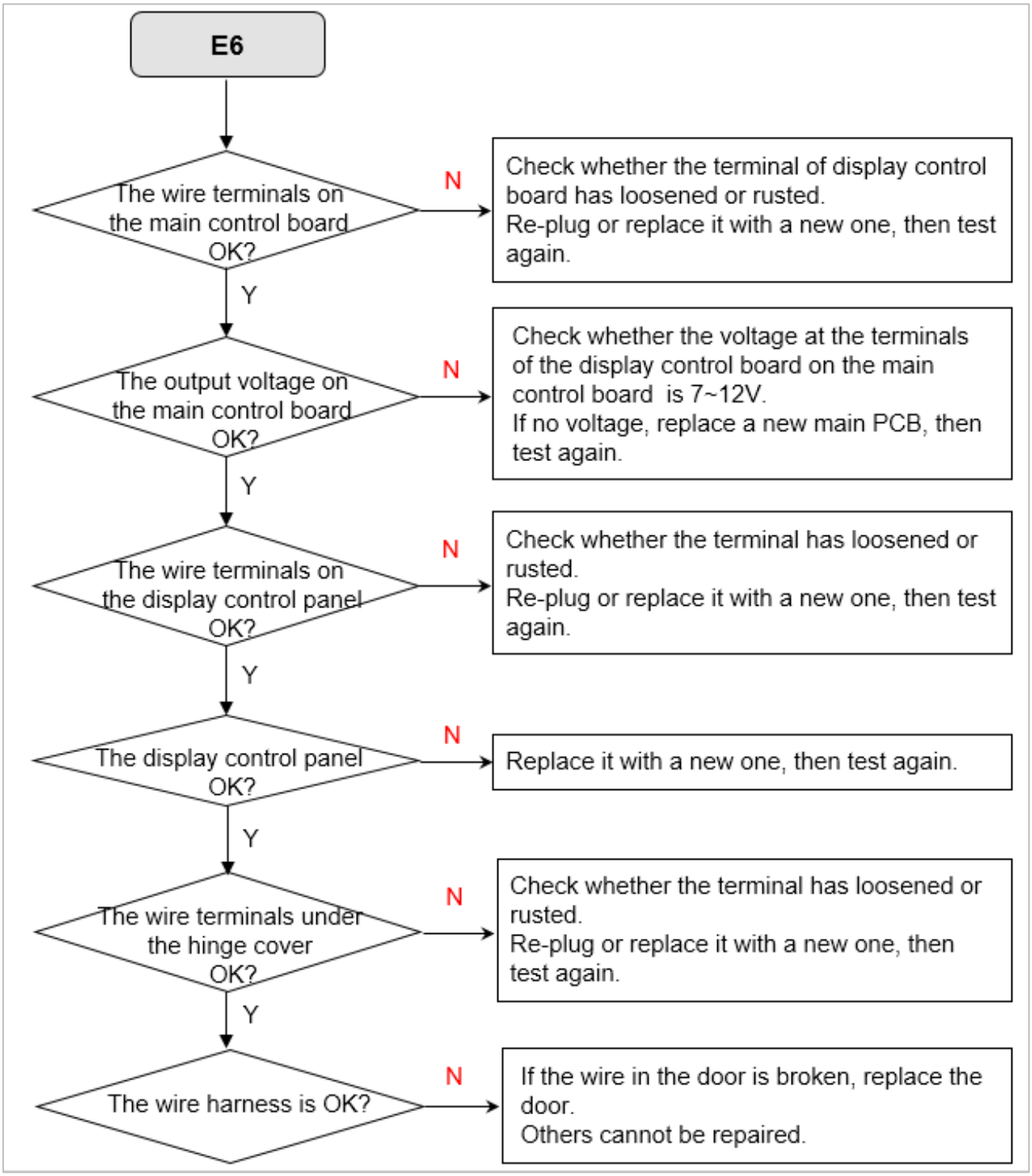
		Step 3: If the compressor shakes when starting and then protects, replace a new inverter board.
Blink night times: light 0.5 second, extinguish 0.5 second, interval time(extinguish) is 2 second	Running block protection	Step 1: After powering on, touch the compressor and wait for the indicator light on the inverter board to light up.
		Step 2: If the compressor does not respond and the indicator light is flashing, it means the compressor is damaged, replace a new compressor.
		Step 3: If the compressor shakes when starting and then protects, replace a new inverter board.
Blink ten times: light 0.5 second, extinguish 0.5 second, interval time(extinguish) is 2 second	Over-temperature and over-power shutdown protection for variable frequency board	In this case, the inverter is usually normal. If the refrigerator cooling function is working, it may be due to insufficient lubrication inside the compressor. If it is not cooling, then there may be a blockage in the refrigeration circuit.
Blink eleven times: light 0.5 second, extinguish 0.5 second, interval time(extinguish) is 2 second	Starting failure	Step 1: After powering on, touch the compressor and wait for the indicator light on the inverter board to light up.
		Step 2: If the compressor does not respond and the indicator light is flashing, it means the compressor is damaged, replace a new compressor.
		Step 3: If the compressor shakes when starting and then protects, replace a new inverter board.
Blink twelve times: light 0.5 second, extinguish 0.5 second, interval time(extinguish) is 2 second	Power and frequency reduction	In this case, the inverter is usually normal. If the refrigerator cooling function is working, it may be due to insufficient lubrication inside the compressor. If it is not cooling, then there may be a blockage in the refrigeration circuit.
Blink thirteen times: light 0.5 second, extinguish 0.5 second, interval time(extinguish) is 2 second	UART communication failure	Check the communication wiring harness between the main control board and the inverter board. If the connection is good, replace either the main control board or the inverter board.

11. Troubleshooting Method

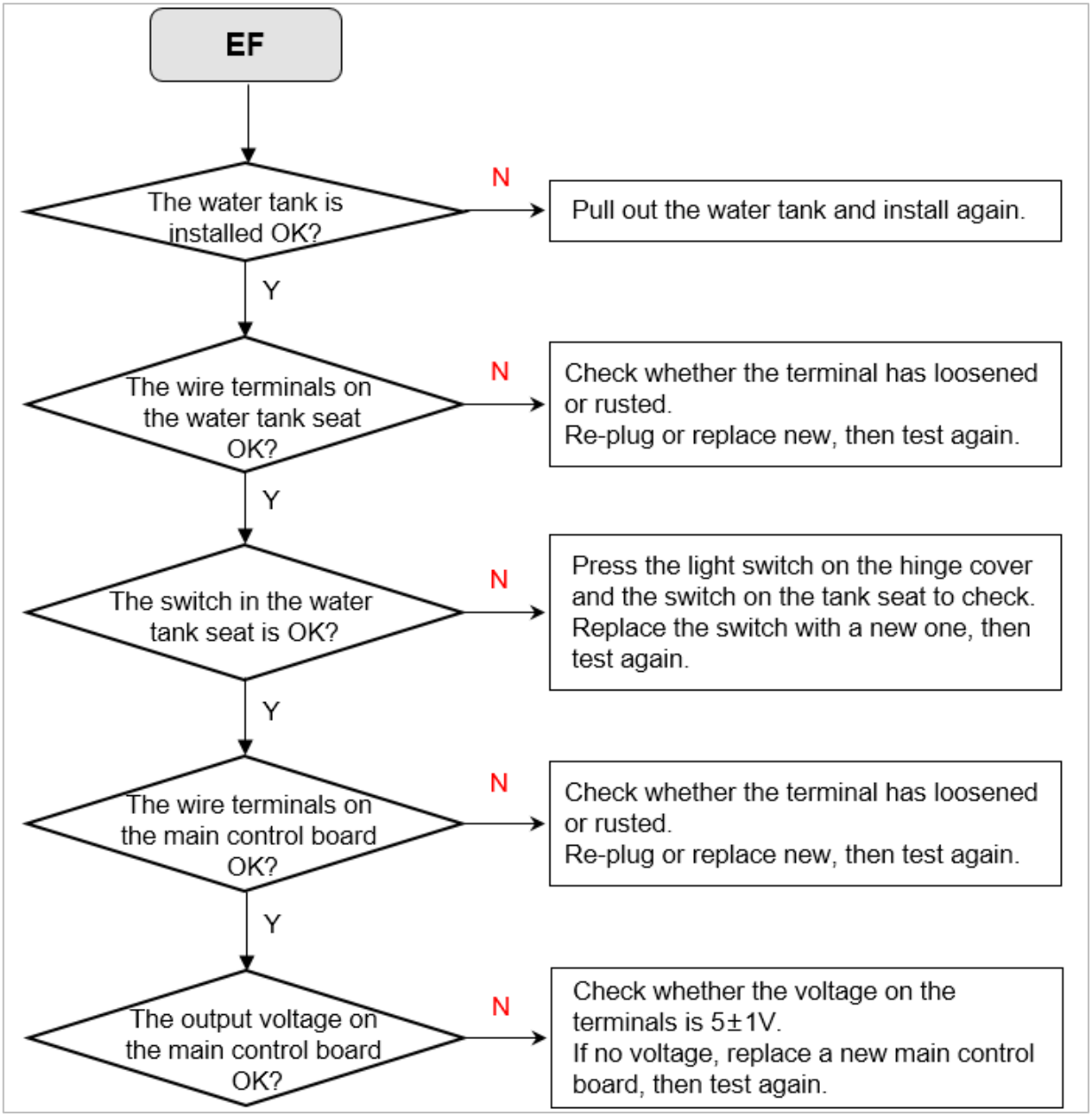
11.1 Error code E1 / E2 / E3 / E4 / E5 / E7 / E8 / EE / C9 / CC / F4



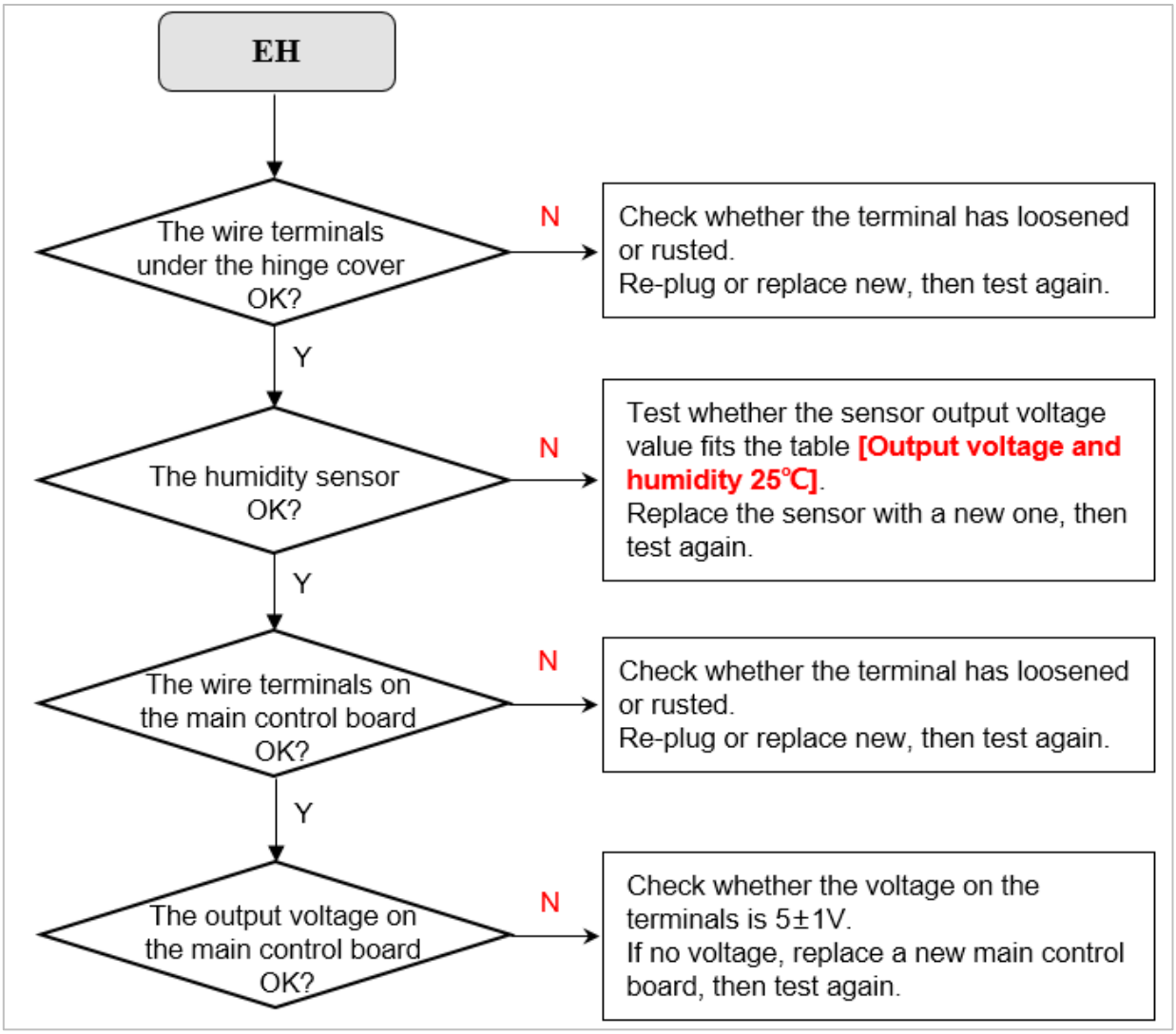
11.2 Error code E6



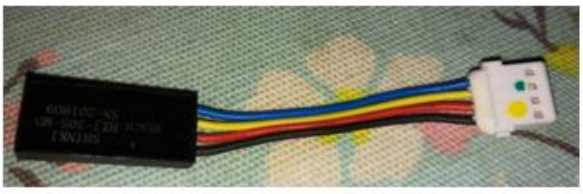
11.3 Error code EF



11.4 Error code EH



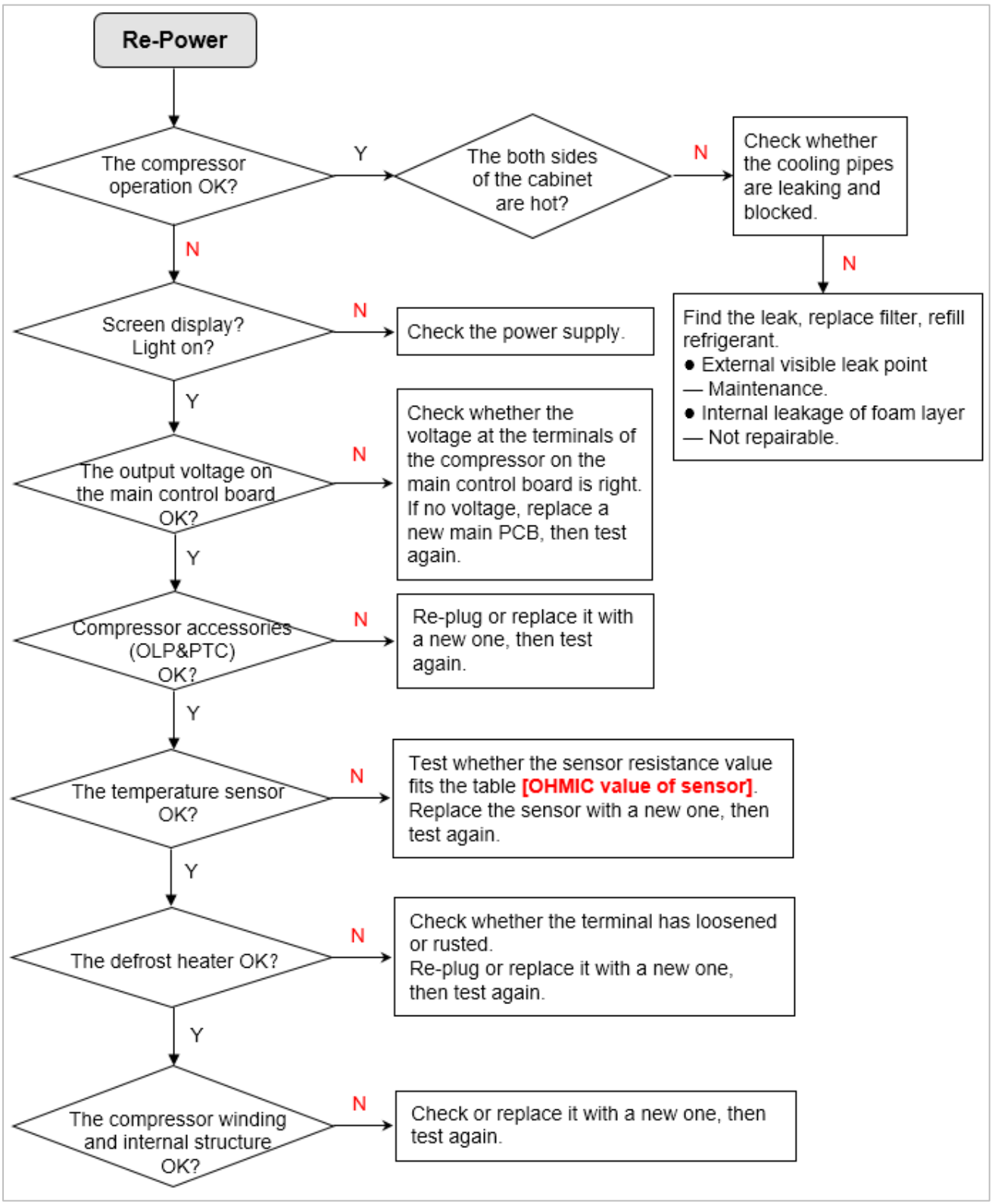
The meaning of different color wires:
Blue: Ambient temperature
Yellow: Humidity
Red: +5V
Black: GND



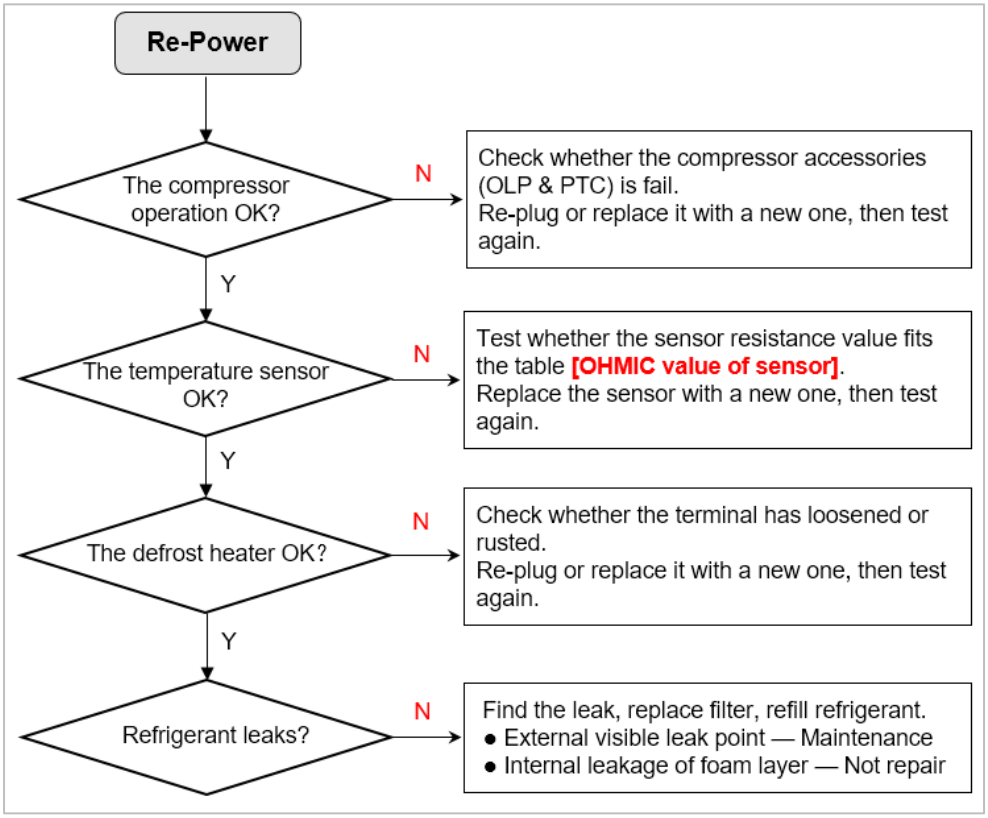
Comparison table of output voltage and humidity at 25℃	
Humidity（%）	Output (V)
20	1.528
40	2.067
60	2.779
80	3.400

1. Check if the sensor has an correct output voltage between **Yellow and Black** wires with a multi meter.
2. If the value is wrong, please replace it with a new one.

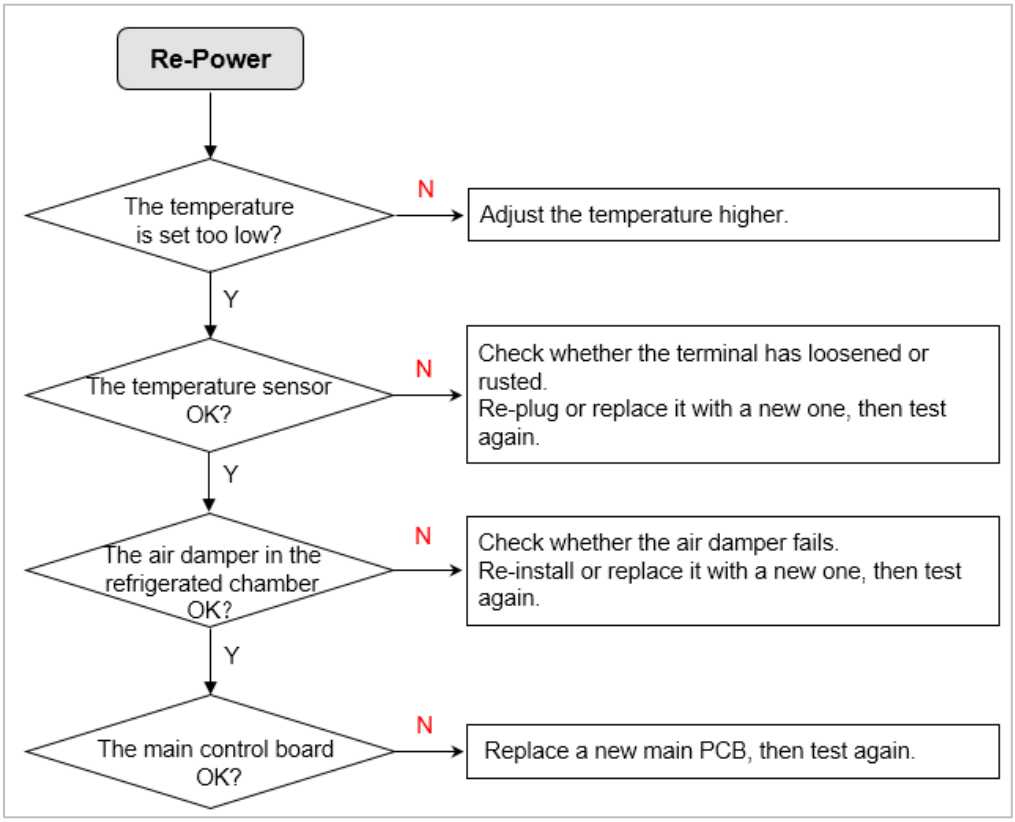
11.5 Not cooling in all the chambers



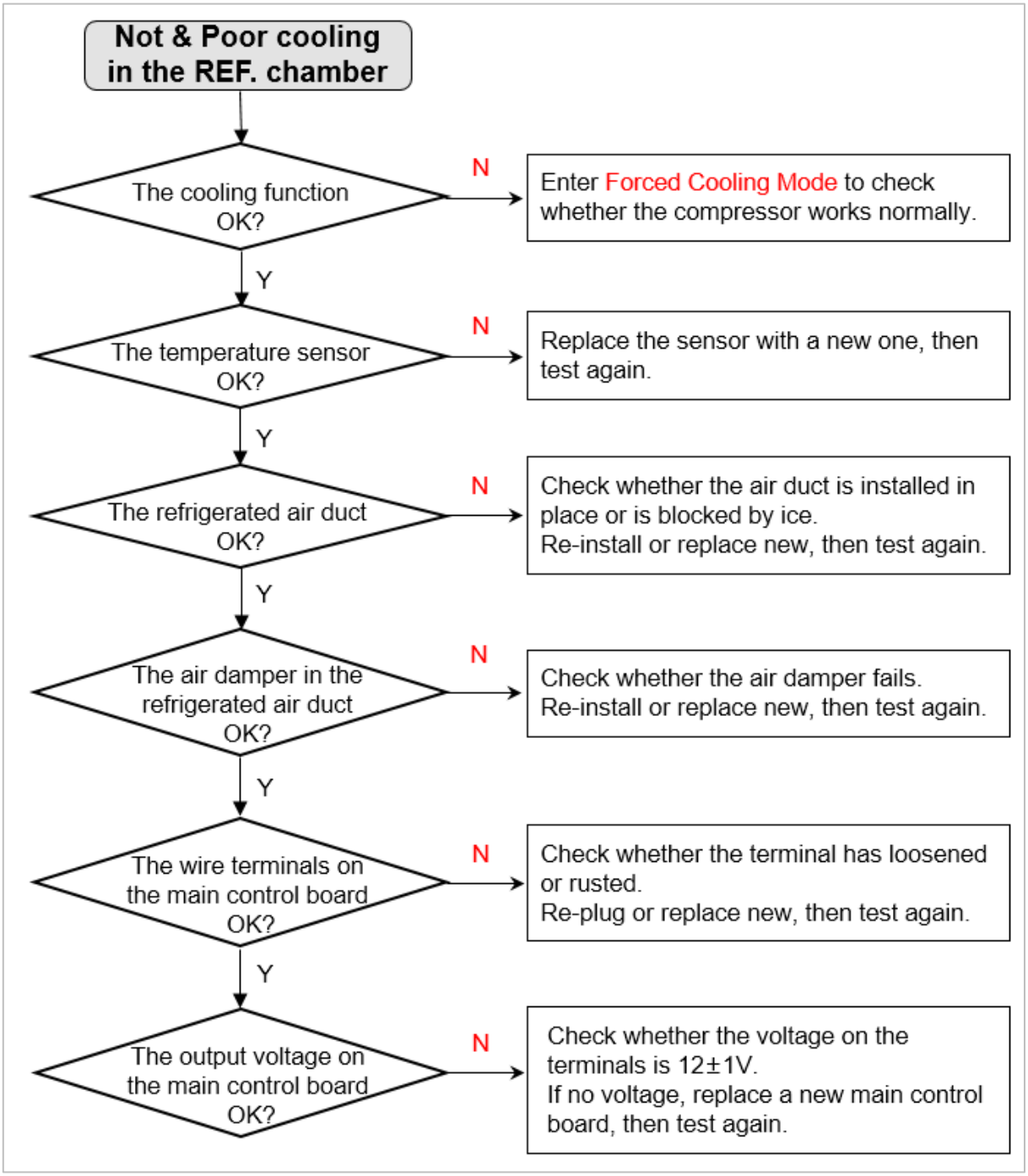
11.6 Poor Cooling in all the chambers



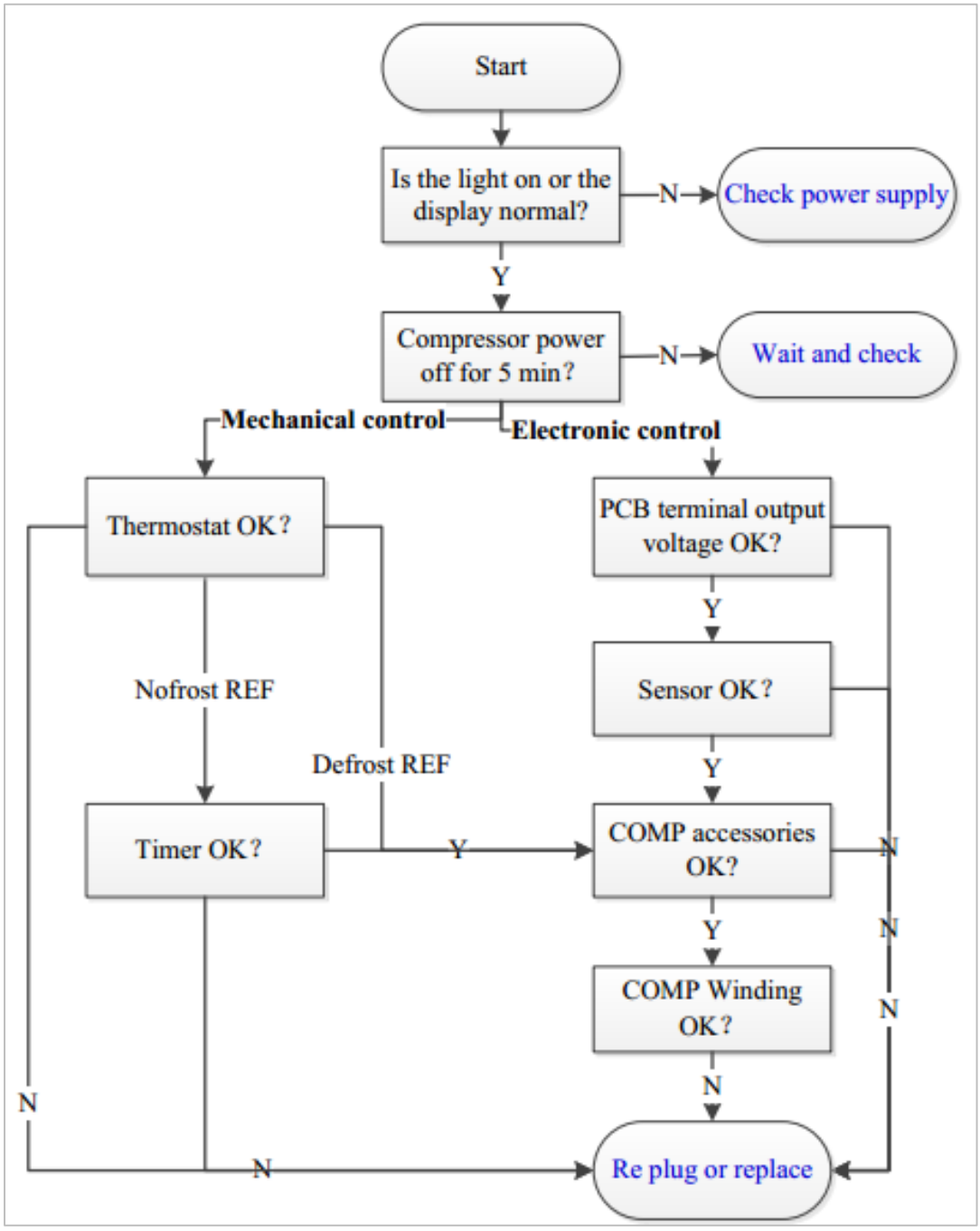
11.7 Overcooling in the refrigerated chamber



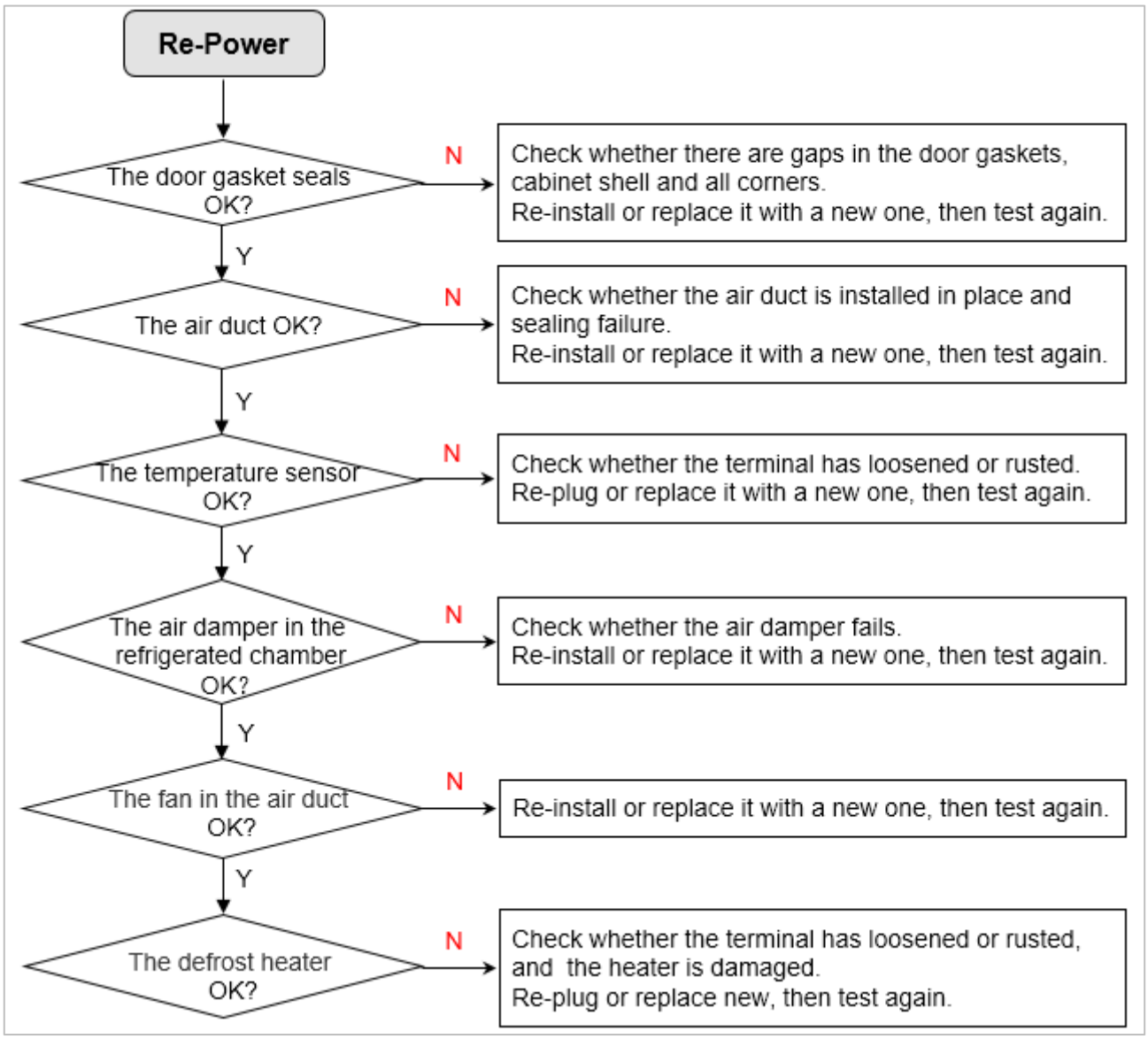
11.8 Not & Poor cooling in the refrigerated chamber



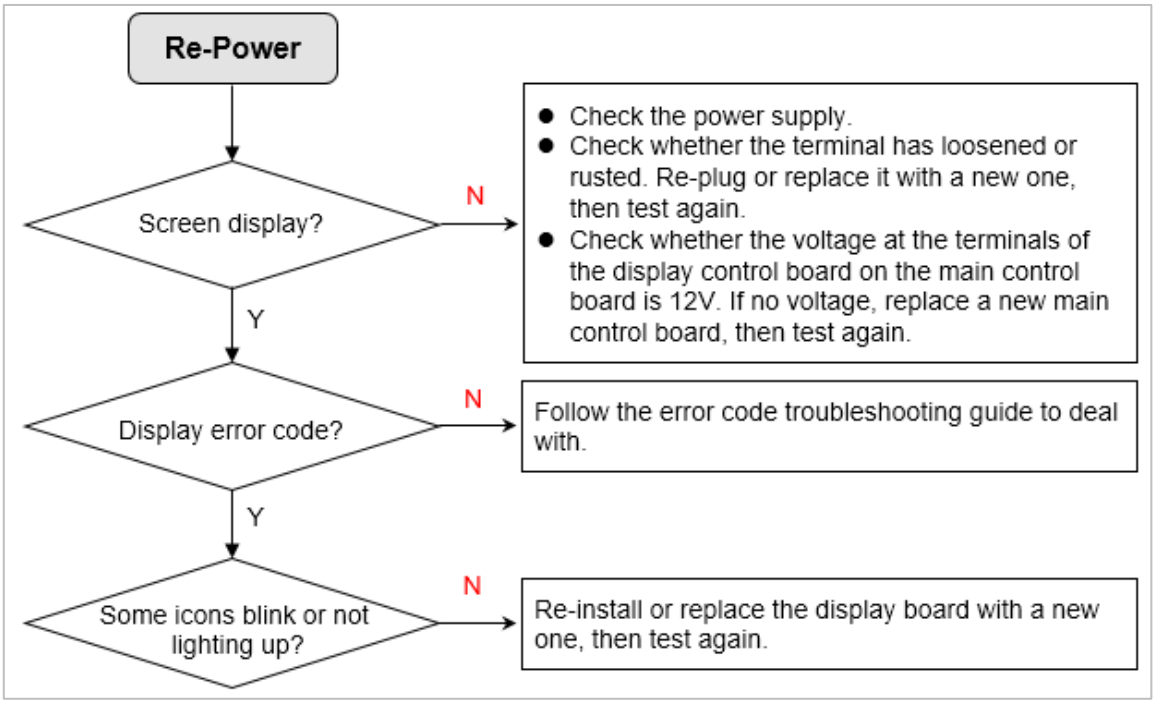
11.9 No working of compressor



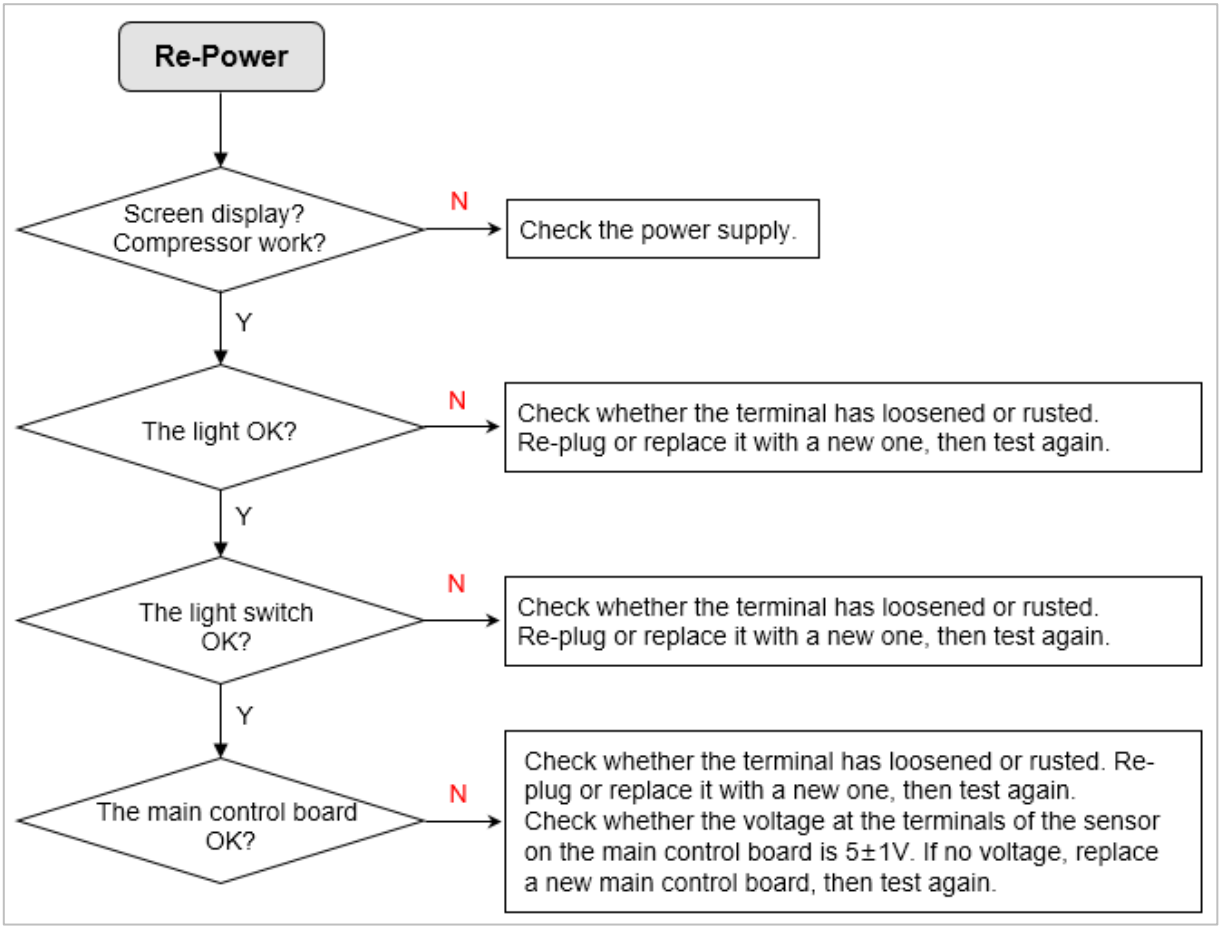
11.10 Condensation & Frost



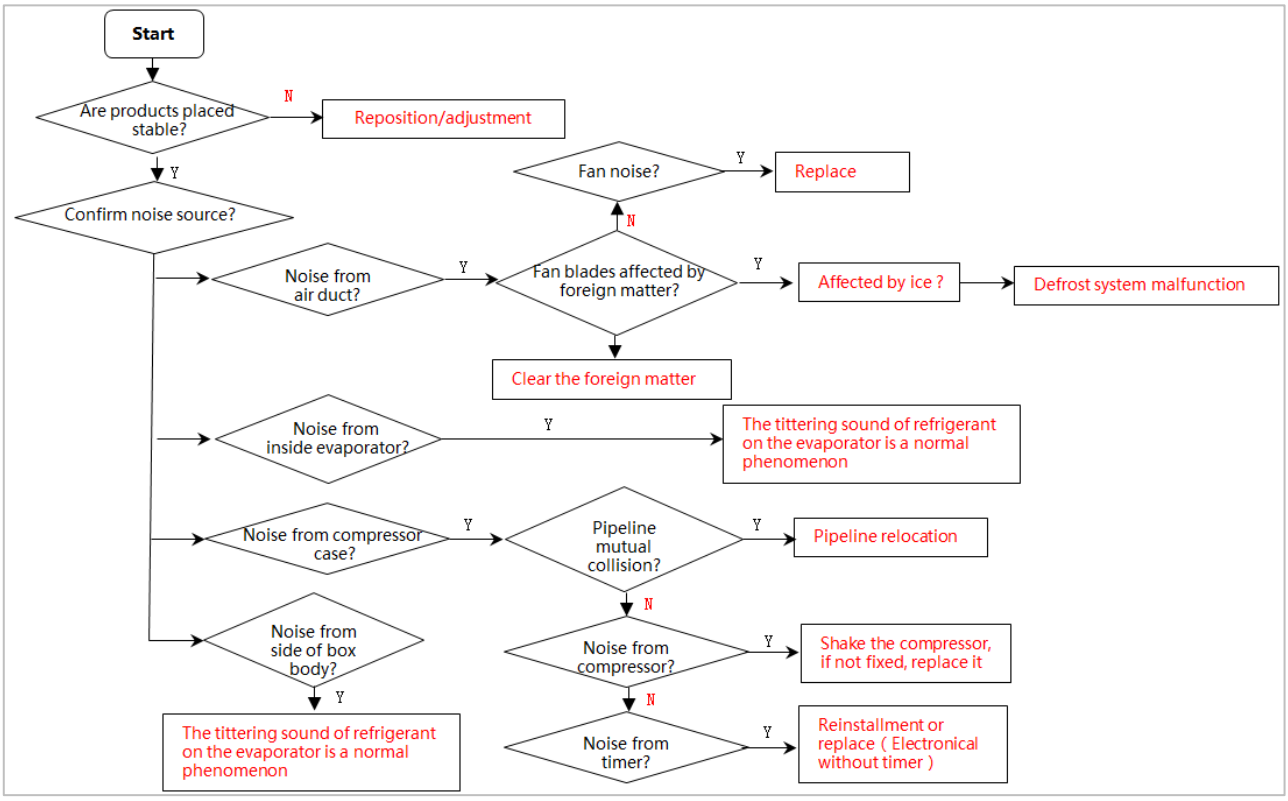
11.11 Display panel failure



11.12 Light failure

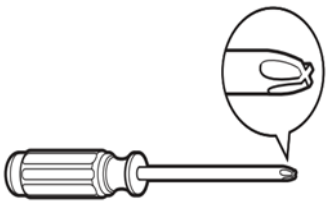
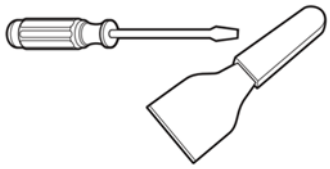
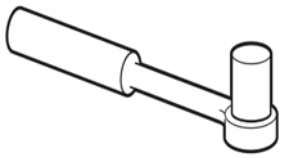


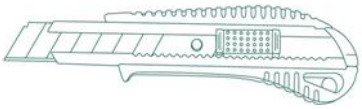
11.13 Noise


Start
Are products placed stable?
N
Reposition/adjustment
Y
Confirm noise source?
Fan noise?
Y
Replace
N
Noise from air duct?
Y
Fan blades affected by foreign matter?
Y
Affected by ice ?
Defrost system malfunction
Clear the foreign matter
Noise from inside evaporator?
Y
The tittering sound of refrigerant on the evaporator is a normal phenomenon
Noise from compressor case?
Y
Pipeline mutual collision?
Y
Pipeline relocation
N
Noise from side of box body?
Noise from compressor?
Y
Shake the compressor, if not fixed, replace it
N
Y
The tittering sound of refrigerant on the evaporator is a normal phenomenon
Noise from timer?
Y
Reinstallment or replace (Electronical without timer)

12. Maintenance tooling, equipment and material

Tooling

No.	Name	Photo	Main Usage
1	Phillips screwdriver		screw assemble and disassemble
2	slotted screwdriver/scraper		screw and rivet assemble and disassemble
3	Socket spanner 5/16″		hinge and compressor screw assemble and disassemble
4	Sucker		display panel and air duct cover disassemble
5	Allen wrench （2.8~4mm）		handle assemble and disassemble
6	Vise grip pliers		sealing process tube

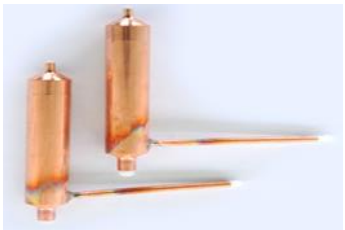
7	Pipe cutter		pipe cutting
8	Knife		assistive tool
9	Nipper pliers		assistive tool
10	Capillary tube scissors		Shear capillary

Equipment

No.	Name	Photo	Main Usage
1	Vacuum pump		vacuum pumping
2	Electronic scale		weighing refrigerant/gas

3	High pressure nitrogen with piezometer		pipe and cooling system(condenser, evaporator, etc) impurities clean
4	Soldering gun		heating and welding
5	Quick coupling		connection process pipeline, vacuum or charge refrigerant will be used.
6	hand leak detector		welding point leakage detect, if no, use soap-suds

Material

No.	Name	Photo	Main Usage
1	Process pipeline		Chargetherefrigerant
2	Dry filter		Involving a system failure to be replaced

3	Copper welding rod		tube welding
4	Refrigerant/gas		Add refrigerant to the system
5	Sealing tape		door fixing for reversible door option

13. Product exploded view and spare parts list

Please log in to I-Service system to view and download these contents.
URL: https://ics.midea.com

APAC: https://ics.midea.com
EMEA: https://ics-eu.midea.com
Americas： https://ics-amer.midea.com

