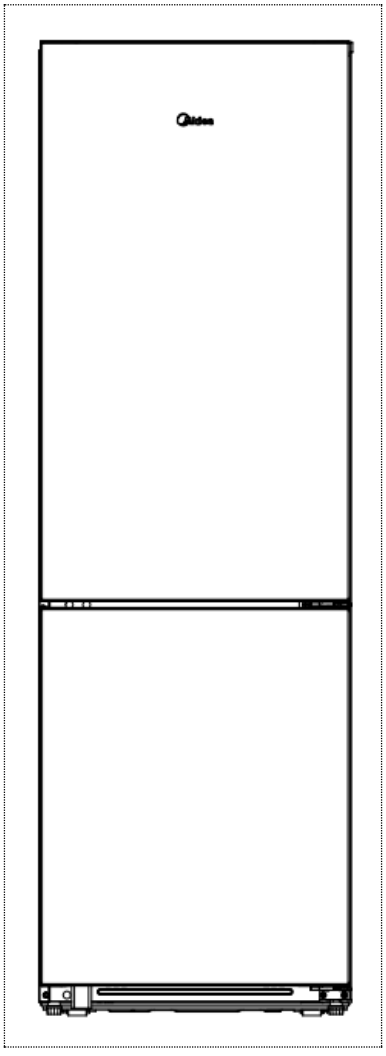
Service Manual

BMF No Frost SERIES

Market Model	Product Model	Product Code
HD-527RWEN	CE-BCD405WX-JQ	22031020012381
MDRB548M****		



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

(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.

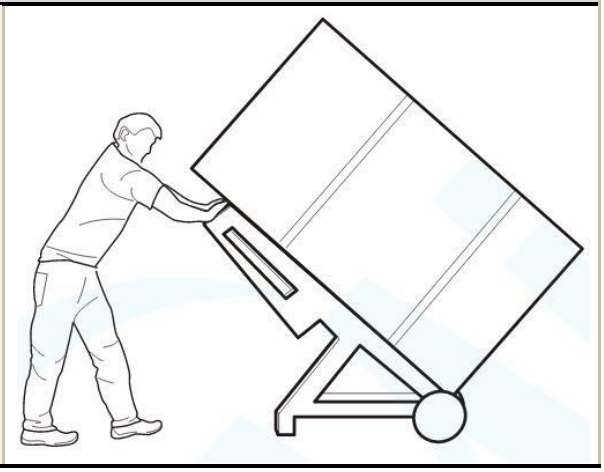
Keep flammable materials and vapors, such as gasoline, away from freezer. Failure to do so can result in fire, explosion, or death.

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

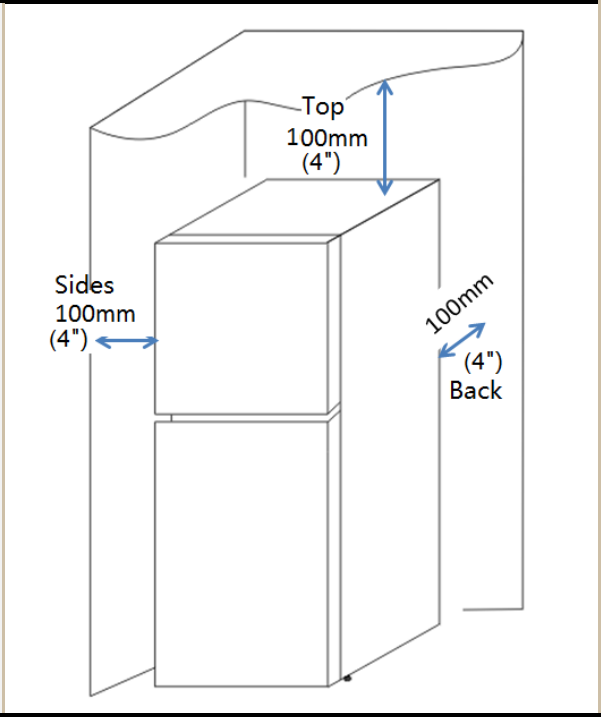
3.1 Handling

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.	

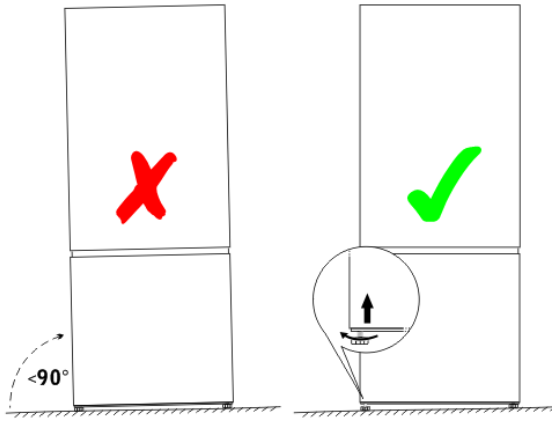
3.2 Door Disassembly and Assembly

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

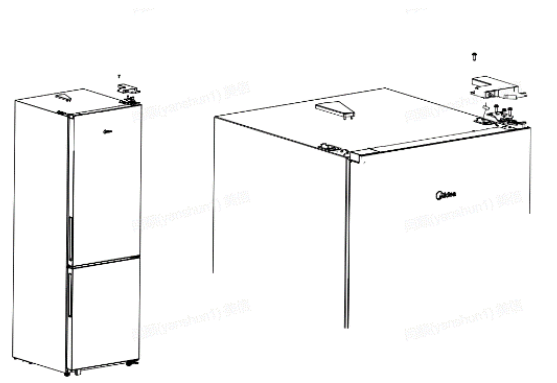
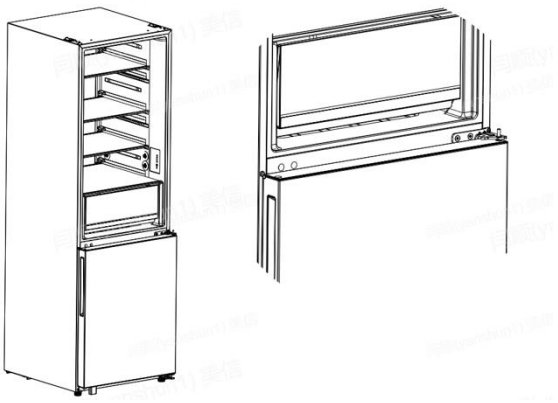
3.3 Installation location

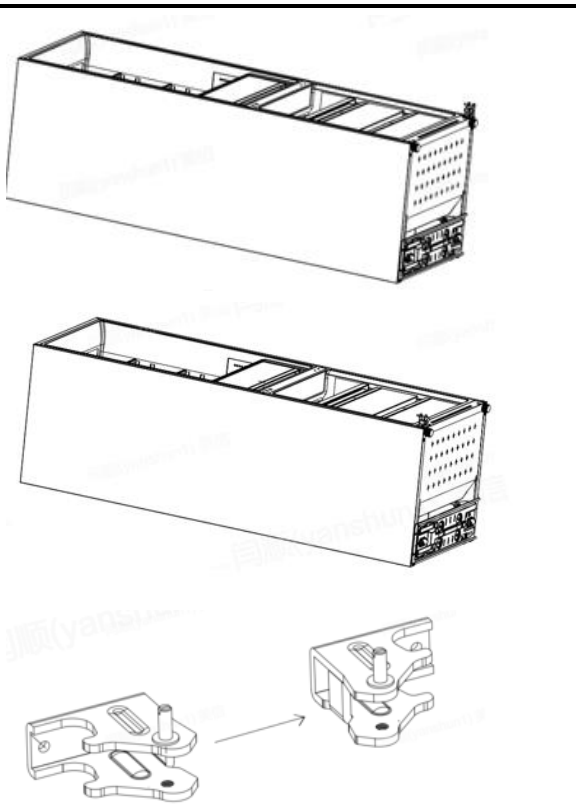
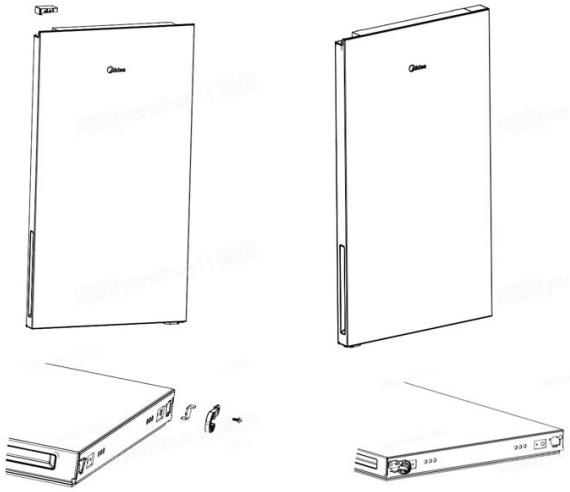
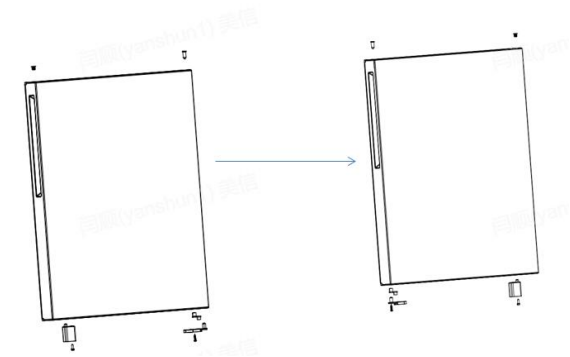
Installation location	
Please select a ventilated place to place the refrigerator, and reserve space according to the recommended size in the picture, which is conducive to heat dissipation, performance improvement and energy consumption reduction.	

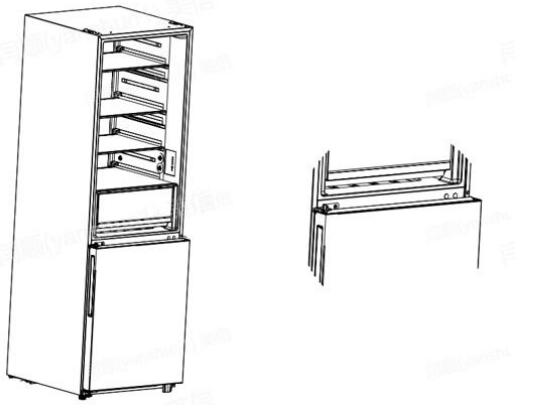
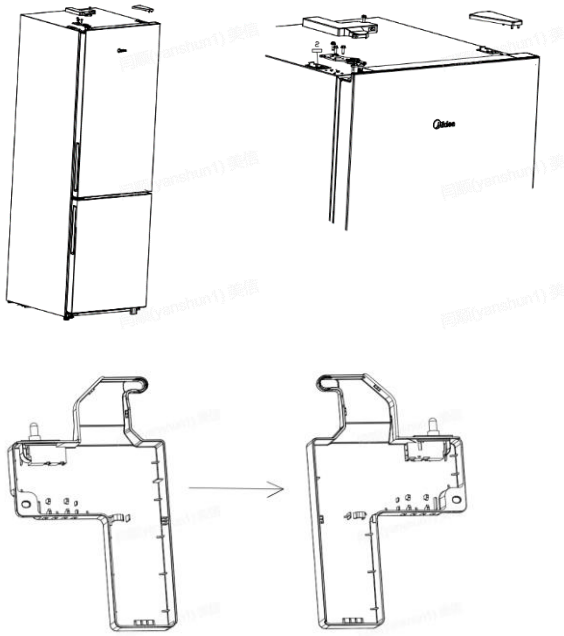
3.4 Leveling of the refrigerator

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

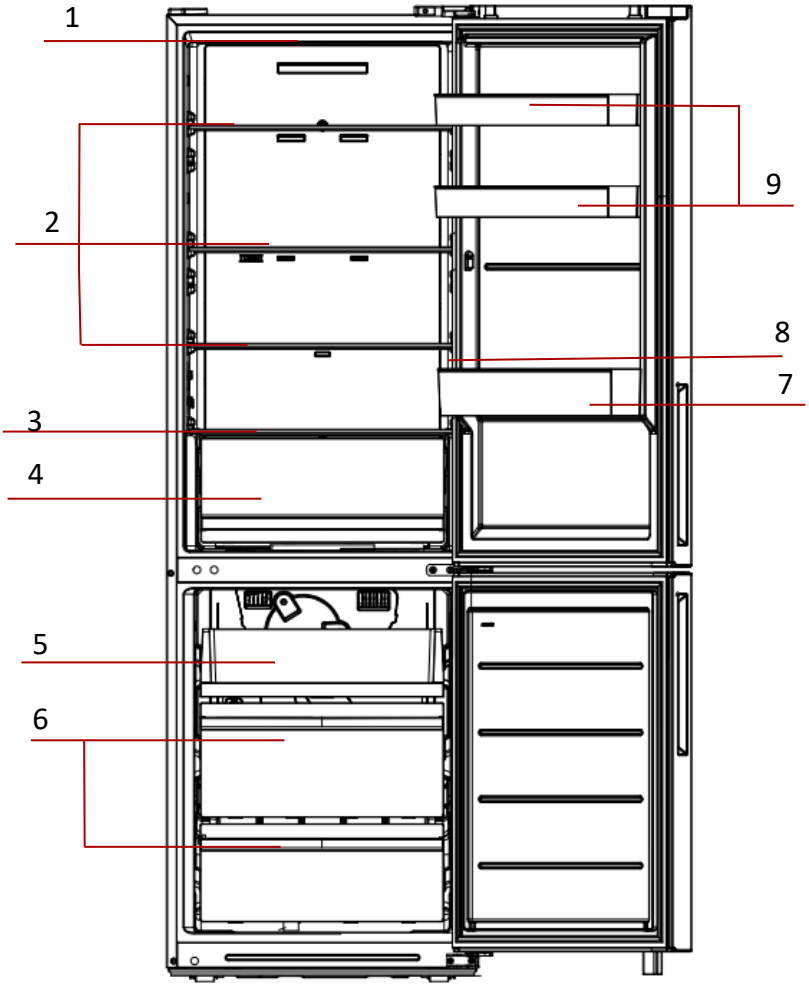
Door reversal	
1) Power off and remove all food from the fridge.	
2)Dismantle the upper hinge cover, screws and upper hinge from the right top, and remove the cover plate from the left top. Remove right hinge cover light switch terminal connection.	
3)Take off the refrigerator door. 4)Remove the center hinge, and remove the other side hinge hole trim cap, cap, and screw.	

5)Remove the freezer door. 6) Remove the lower hinge, remove the lower hinge shaft and install it on the other side of the hinge, and install the modified lower hinge on the other side of the box.	
7)Remove the left trim cover, remove the right trim cover from the accessory pack and install it on the other side of the top cover. 8) Remove freezer door self-locking, door stop. 9）Take out the left door self-lock from the accessory bag, and install the door stop and left door self-lock to the left side of the lower end cover.	
10)Remove the shaft sleeve and cover of the upper end cover of the freezer door, and install it in the left and right positions. 11) Remove the door self-lock, door stop, and door support, take out the left door self-lock from the accessory bag, install the door stop and left door self-lock to the left of the lower freezer cover, and install the door support to the right of the lower freezer cover.	

12)Install the reassembled freezer door on the lower hinge, then install the middle hinge, and cover the hinge hole decoration cover	
13)Take out the upper left hinge cover and upper left hinge from the accessory bag, remove the switch installed on the right hinge cover and install it on the upper left hinge cover; Place the refrigerated door body on the middle hinge and install the upper left hinge; Connect the signal wire 2 at the top of the left side of the refrigerator to the switch on the left hinge cover, cover and secure the left hinge cover, and finally install the hinge cover decoration cover to the right side of the box.	

4. Main parts and external dimension

4.1 Main parts

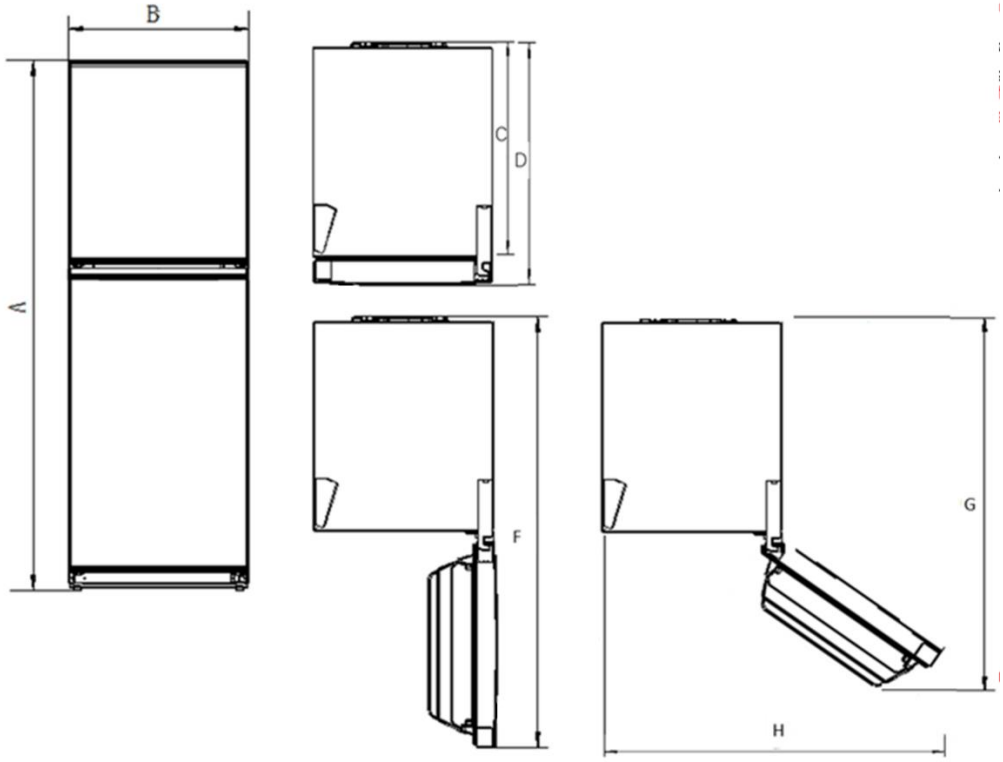


(The picture is only for reference, and specific appearance and configuration are subject to the real product)

1.Led light	6.F drawer assembly
2.R glass shelves	7.R big bottle frame
3.Cover plate of crisper	8. Temperature control assembly
4.Crisper for fruit and vegetable	9.R small bottle frame
5.F upper tray	

4.2 External dimension

Description	Code	Size (mm)	
Height to top of Cabinet	A	1860	
Width	B	595	
Depth w/Cabinet	C	600	
Depth w/Door	D	670	
Depth w/Handle	E	/	
Depth (Door open 90 deg. w)	F	1180	
Depth (Door open 135 deg. w)	G	960	
Width (Door open 135 deg. w)	H	1070	

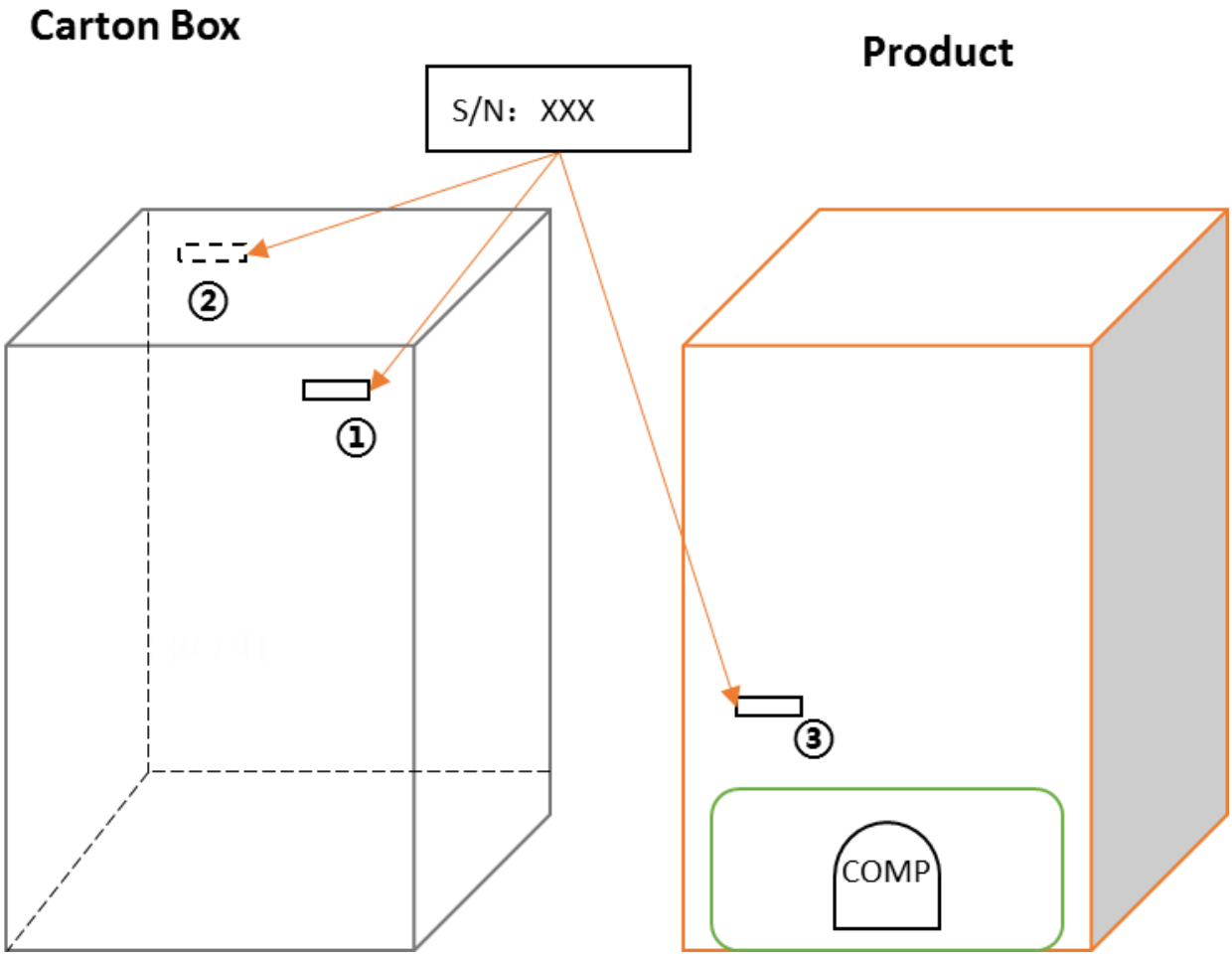


(The picture is only for reference)

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.

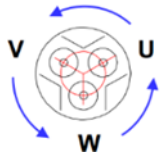
2）Paste location



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

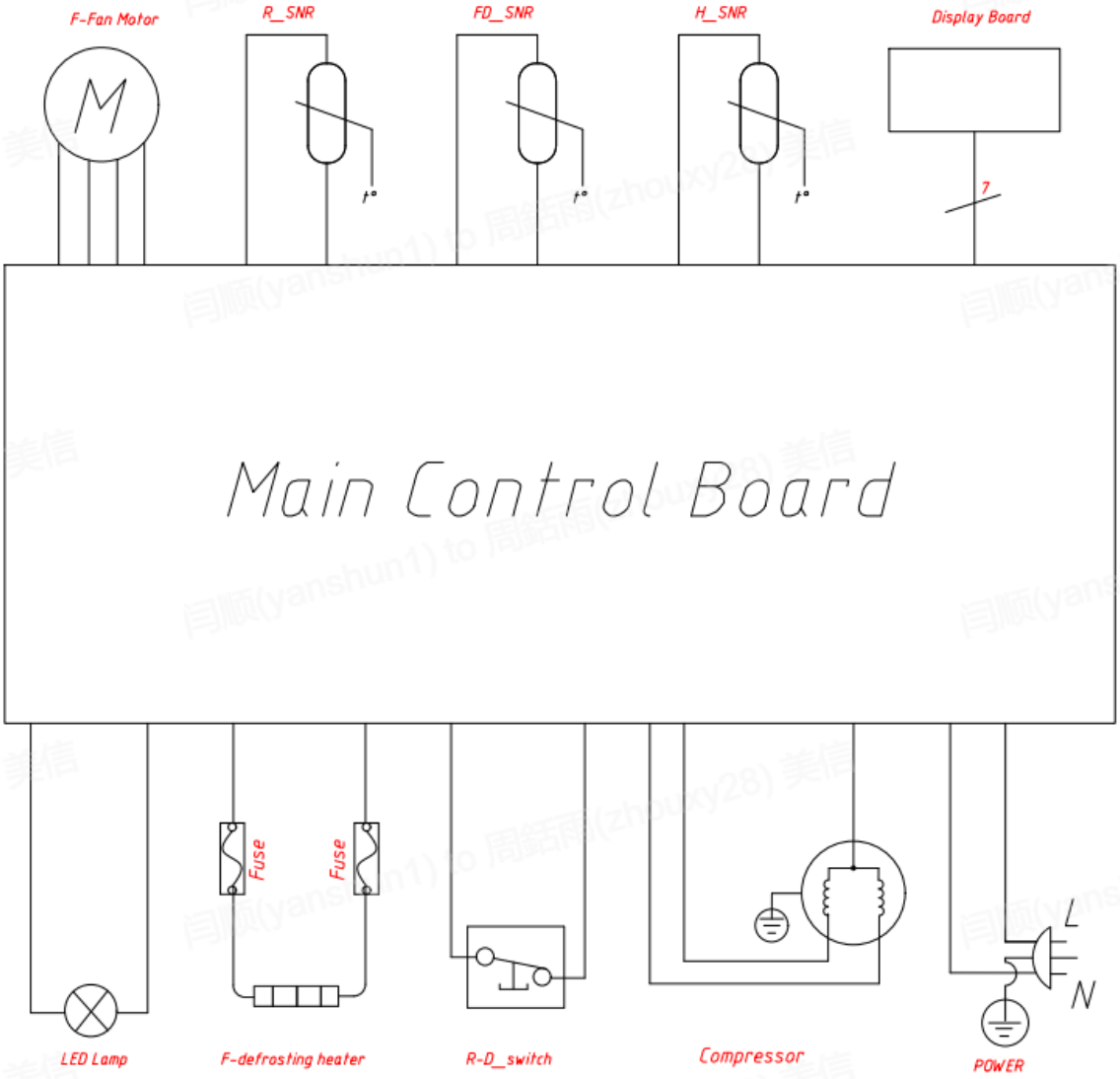
5. Electric control system

5.1 Electrical parts parameters

Applicable Model	MDRB548MME**	
Product Model	CE-BCD405WX-JQ	
Rated Voltage	230V、50Hz	
Item	**Specification**	
Refrigerant	R600a	
Compressor	DZ90Z1A	
Starting device type	Inverter Reciprocating	
The COP of compressor	1.42-1.75(W/W)	
The max cooling capacity of compressor	67-205W	
Winding resistance of compressor wiring terminal (20℃)	U-W: 22.6Ω±7% U-V: 22.6Ω±7% V-W: 22.6Ω±7%	
Winding resistance picture		
Starter(PTC)	None	
Overload protector(OLP)	None	
Integrate PTC+OLP	None	
Variable frequency driver board	None	
Capacitor	None	
Power filter (EMI)	230V 1.2A	
Power reactor (EU EMC)	**MDBX-ZBYT-D-I**	
Motor		
Fan motor of the freezing chamber	DC12V/≤1.92W	
Fan motor of the refrigerating chamber	None	
Electric damper	None	
Lights		
Lights inside the refrigerating chamber	LED DC12V	
Lights inside the freezing chamber	None	
Others Lights	None	
Switch of the light	■Mechanical switch □Magnetism control switch	
Defrosting parts		
Defrosting sensor	NTC B3839 (B5/25=3839K±2%)	

Fuse in freezing chamber	77(0,-4) ℃
Defrost heater in freezing chamber	220V、170W

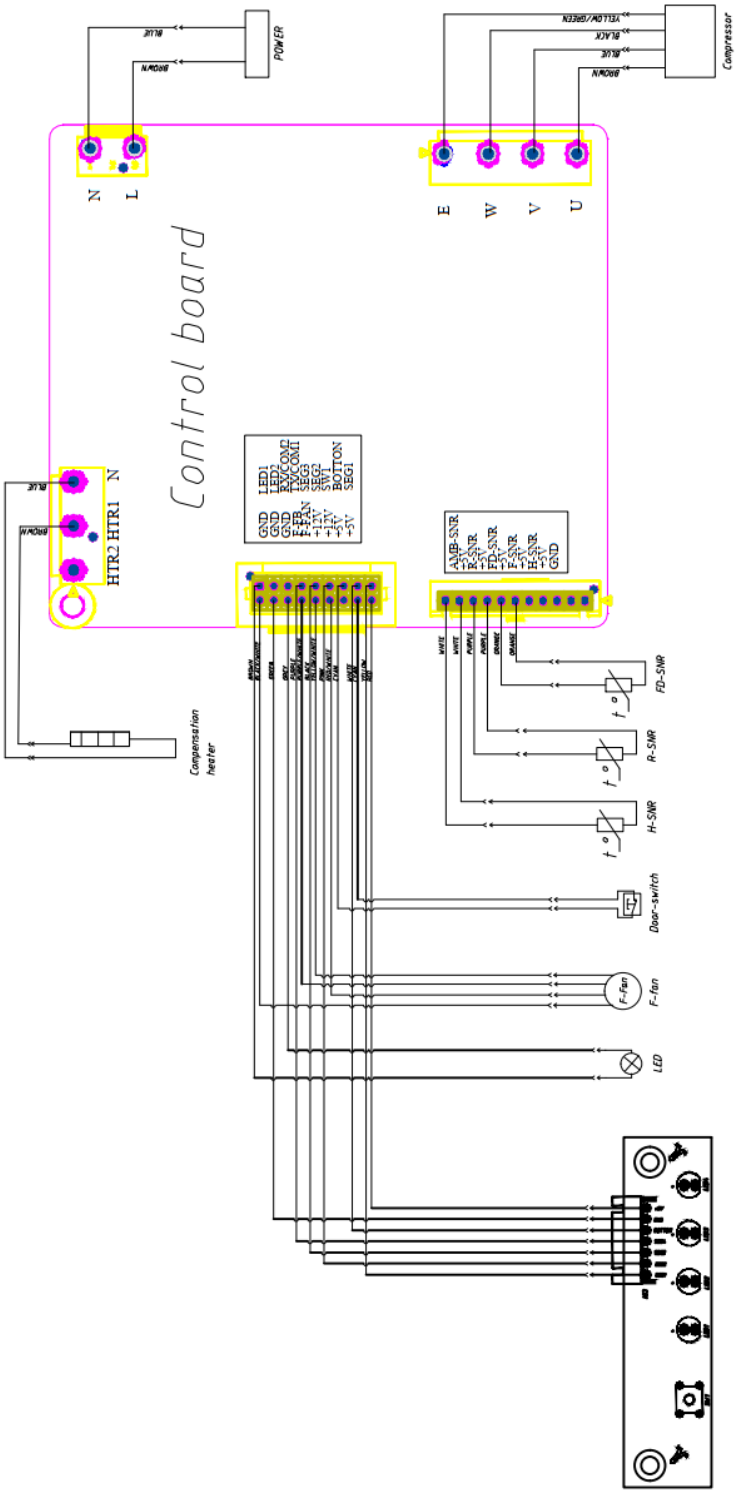
5.2 Circuit diagram



F: Freezer R: Refrigerator

5.3 Wiring diagram

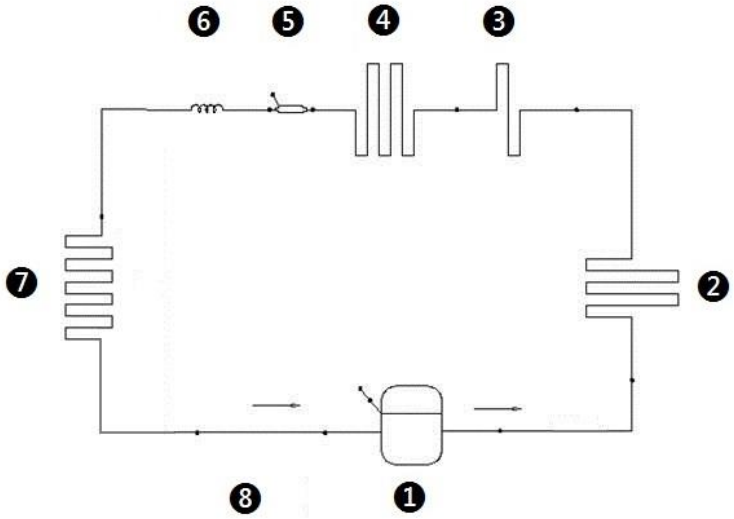
REF_Wiring diagram_CE-BCD4


POWER
Compressor
N
L
E
W
V
U
Control board
HTR2 HTR1
Compensation heater
FD-SNR
R-SNR
H-SNR
Door-switch
F-fan
LED

6.Refrigeration system

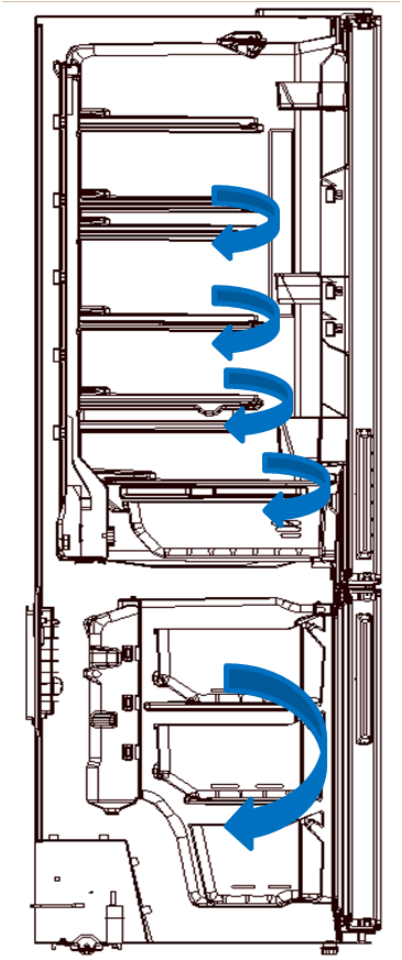
6.1 Refrigeration system working principle

❶Compressor→❷Left condenser→❸Anti-condensation tube→❹Right Condenser→❺Dry filter→❻Capillary tube→❼Evaporator→❽Suction tube→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

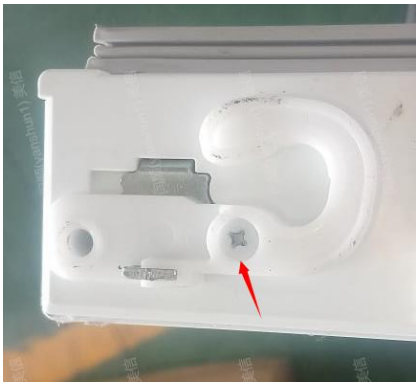
1) Welding points on freezer evaporator		
Welding point	**Pipe outer diameter (mm)**	
1-Freezer capillary and inlet of evaporator	Copper pipe: Φ6	Aluminum pipe: Φ6.35
2-Heat transition tube and outlet of evaporator	Aluminum: Φ6	Aluminum pipe: Φ6.35

6.5 Welding point in the compressor case

Welding point	Pipe outer diameter (mm)	
1-Outlet of left condenser tube and inlet of dry filter	Steel pipe: Φ4. 0	Copper pipe: Φ5.0
2-Outlet of dry filter and inlet of freezer capillary	Copper pipe: Φ2.8	Copper pipe: Φ1.8
3-Return air pipe outlet and suction connection pipe	Copper pipe: Φ6.0	Copper pipe: Φ6.0
4-Compressor process tube and refrigerant filling tube	Copper pipe: Φ8.17	Copper pipe: Φ6.0
5-Compressor outlet tube and inlet of venting connection tube	Copper pipe: Φ6.16	Steel pipe: Φ4.0
6-Suction connection pipe and compressor intake tube	Copper pipe: Φ6.0	Copper pipe: Φ8.16
7-Inlet of condenser tube and outlet of anti-condensation tube	Steel pipe: Φ4.0	Steel pipe: Φ4.0
8-Outlet of exhaust evaporator and outlet of anti-condensation tube	Steel pipe: Φ4.0	Steel pipe: Φ4.0

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.	
Door stopper	
After removing the door, remove the fixing screws at the position shown in the figure, remove the door self-locking and stopper, and complete the stopper replacement.	

7.2 Parts inside the refrigerator

Refrigerator Fruit box cover	
Remove the crisper cover of ref. compartement according to below steps: 1）Take out the crisper firstly. Lift up the Fruit box cover, and then pull out it.	
Shelves	
Lift up the division plate with a proper force and pull it out towards yourself;	
Freezer Drawer	
The drawer is located at the freezing chambers; 1) Pull the drawer out completely; 2) Lift it up slightly and take it out from the refrigerator.	

7.3 Light system

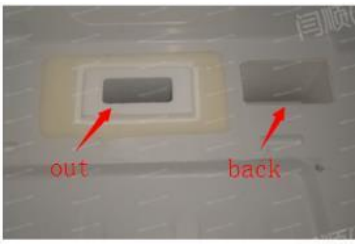
Light	
Light of the refrigerating chamber is located upper chamber(inner display) 1）Remove the lamp cover 2）Remove the light. 3) The reverse process can complete installation.	

	
Light of the freezing	
	None
Light switch	
The switch is located in the hinge cover on the top of cabinet 1）Remove the 1 screws of hinge cover 2）Remove the hinge cover 3）Remove the switch 4）The reverse operation for assembly	  

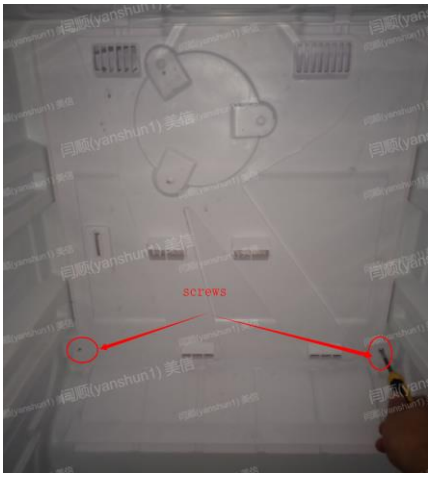
7.4 Air duct components refrigerating chamber and fan motor

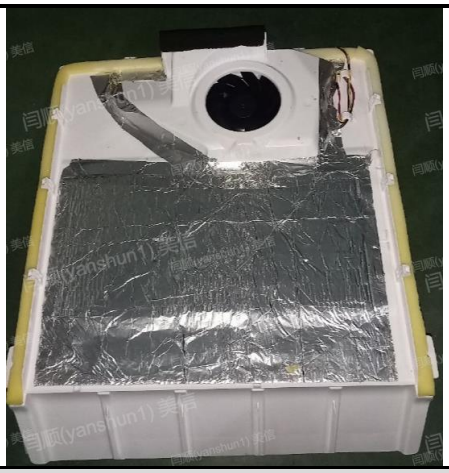
Air duct components in freezing chamber

The refrigerator air duct components is located on the back of the refrigerating chamber.
All accessories in the cooler chamber should be dismantled before removing the air duct components.
1)First remove the screw cap, then remove the air duct fixing screw.

2)Use fingers put into the top air holes to pull out the air duct. 3)Unplug the connector and pull out the air duct	  
Fan motor of air duct	
	None

7.5 Air duct components in freezing chamber and fan motor

Air duct components in freezing chamber	
All accessories in the freezing chamber should be dismantled before removing the air duct components. 1）Remove 2 screws on the freezing air duct using a cross screwdriver;	
2）Hold the top of freezer air duct, pull it then pull it outwards gently.	
3）Pull out the connector terminal.	

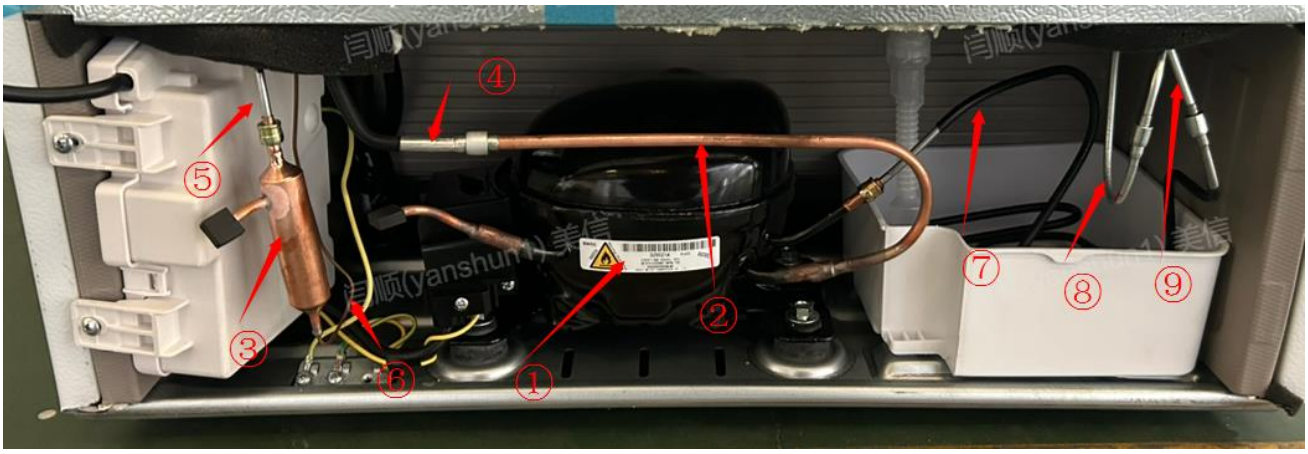
4)Take out the freezing air duct assembly.	
Fan motor of air duct	
1） Remove the aluminum foil and aluminum foil sponge on the air duct back plate, break the 5 clasps on the thick plate of the air duct, and remove the back cover. 2） Remove the 3 screws with a Phillips screw driver to separate the air duct cover and the fan 3） Replace the fan in reverse steps;	  

7.6 Evaporator and Defrost system

Evaporator in freezing chamber	
1）Remove the air duct components in freezing and variable temperature chamber. 2）Disconnect all connecting terminals. 3）Remove the welding on inlet and outlet tubes. 4）Remove the two screws from the return air hood 4）Remove the evaporator.	
Components on the evaporator	
Defrost heater with defrost sensor and fuse, it can be replaced separately. 1） Cut off wiring terminal 2） Cut off the band which fixes the sensor 3） Cut off the band which fixes the fuse 4） Separate the sensor and the evaporator 5） Take off the defrost heater from the supporting plate of evaporator	
Evaporator in refrigerating chamber	
	None

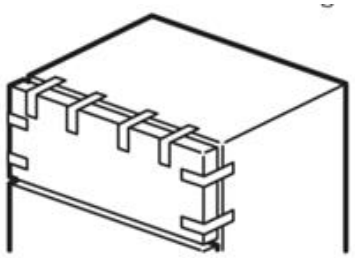
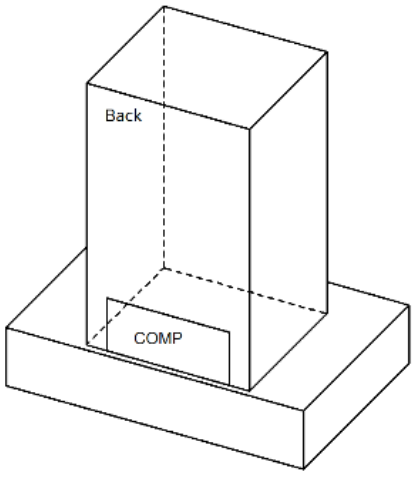
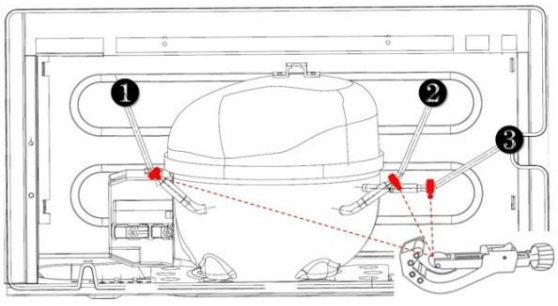
7.7 Compressor case

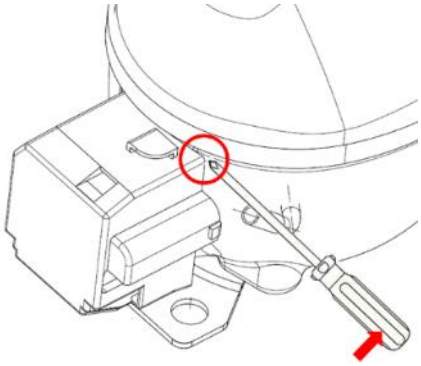
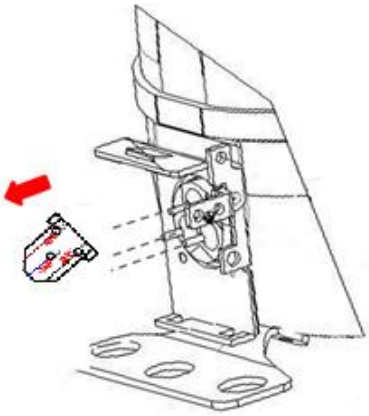
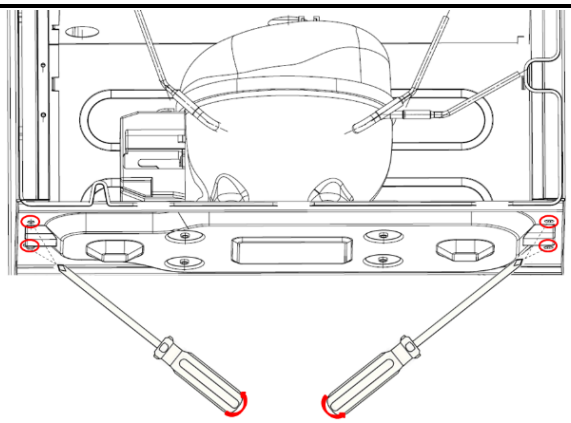
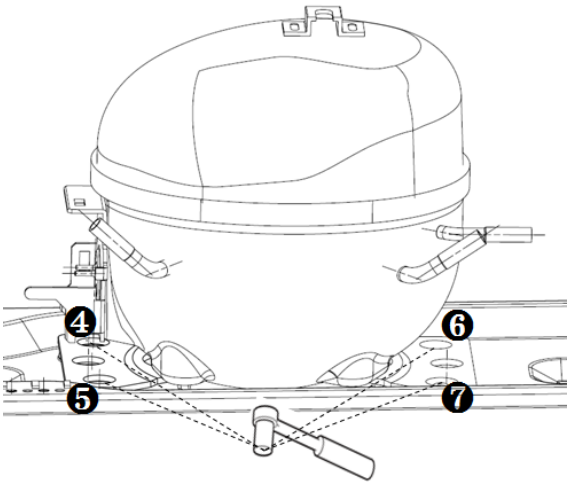
Rear cover	
	None
Piping and parts in the compressor case	

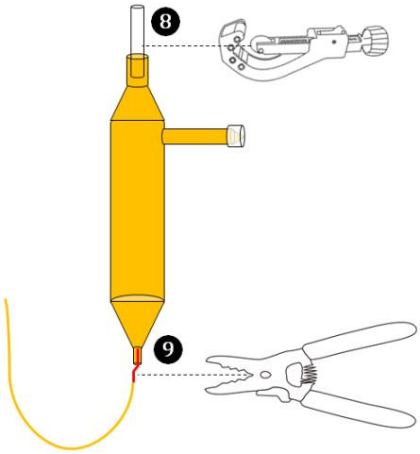
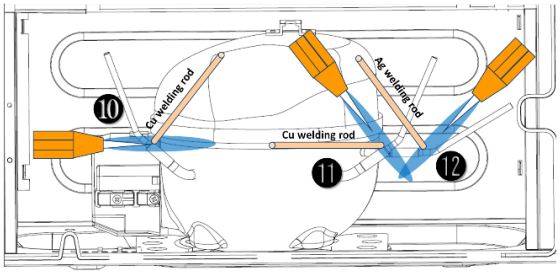
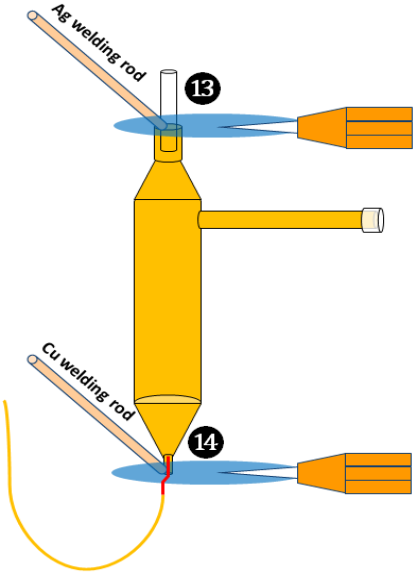
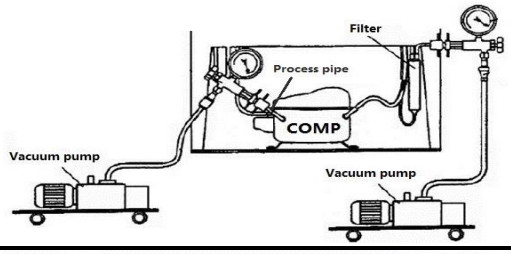
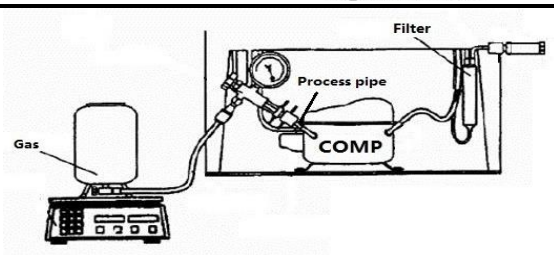


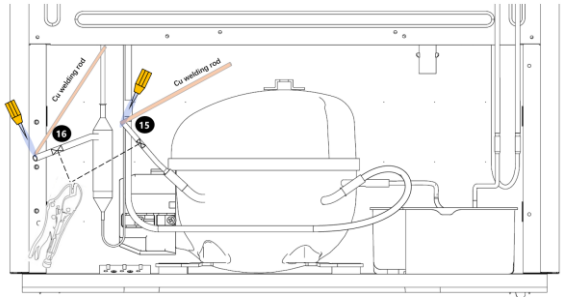
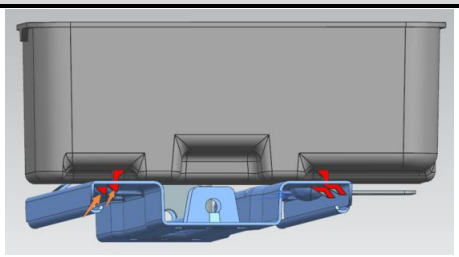
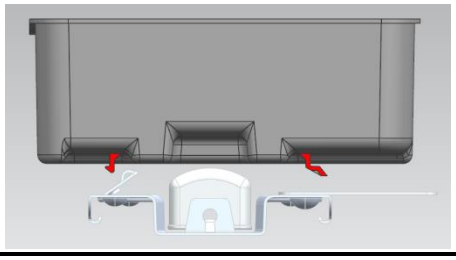
❶ Compressor	❷ Suction connection Pipe
❸ Drier	❹ Return pipe
❺ Condenser	❻ Capillary Tube
❼ Capillary Tube	❽ Condenser
❾ Condenser	

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.	

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)	
6）Loosen the screw of the compressor bottom plate, remove the floor together with the compressor from the box.	
7）Use the wrench to remove the bolts by steps❹❺❻❼, replace the compressor and reverse process can complete installation.	

8）Use Pipe cutter cut off the condenser tube❽, then Shear off capillary ❾ by the capillary tube scissors.	
9）Replace the compressor and welding the compressor pipeline. -❿Welding the process pipeline. -⓫Welding the low-pressure muffler. -⓬Welding the high-pressure exhaust pipe.	
10）Replace the filter, Cu-Fe tubes welding ⓭ used Ag welding rod, Cu-Cu tubes welding⓮ used Cu welding rod.	
11）Vacuum system, The degree of vacuum below 6Pa.	
12）Perfusion refrigerant.	

13）Use the vise grip pliers clamp the middle of the process pipe, then seal welding process tube❶❺❶❻.	
Drain tray	
1）Disengage the drain tray buckle out of the compressor bottom plate installation hole and pull it out, replace a new one.	 

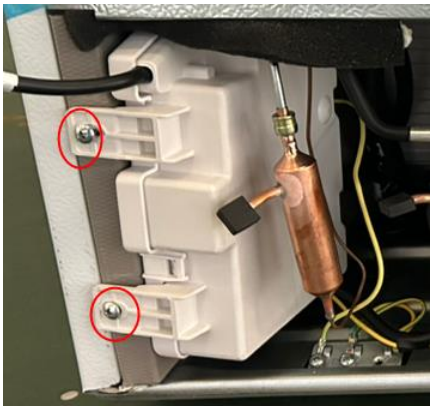
7.8 Display control board

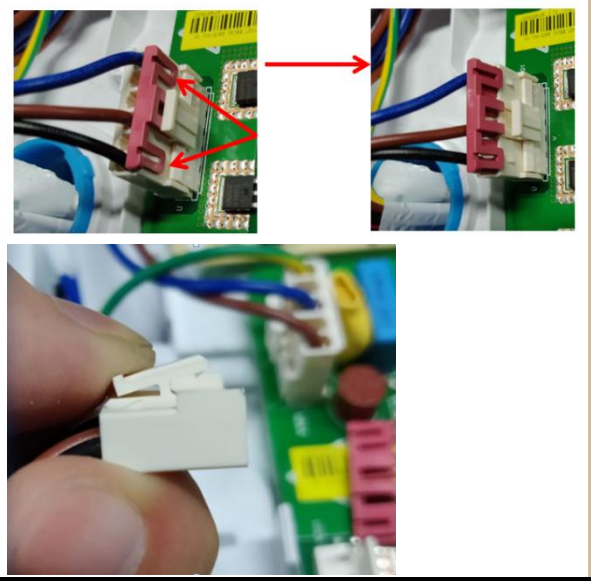
Display control board	
1) Use a flat-head screwdriver to reach into the lower right corner of the display control, remove the display buckle on the right, and separate the display control panel by hand	 

2) The display panel uses two screws to secure the display panel. Remove the screws and take out the display panel
3) There is a terminal on the back of the display board. You can disconnect the terminal by pushing out the terminal buckle
4) Take out the new control panel assembly, connect the terminals, and fix the control panel on the side of the refrigerator.

7.9 Main control board

Main control board

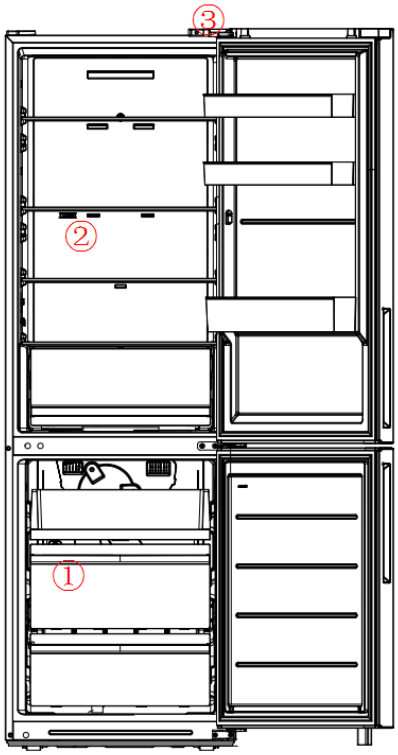
1） Remove 2 fitting screws of main control panel mounting box	
2) Take out the mounting box, pry up the cover, disconnect the wiring terminal. 3)Remove the screws, take out the main control board, and complete the replacement.	   

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	

7.10 Water dispenser（None）

8.Temperature sensing system

8.1 Position of sensors

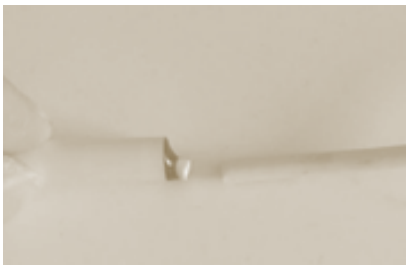
Position of sensors	
Have 3 sensors ① Sensor in freezing chamber ② Sensor in refrigerating chamber ③ Ambient temperature or humidity sensor	

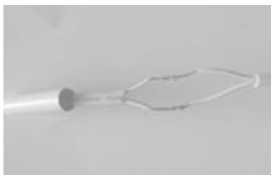
8.2 Replacement of sensors

Sensor in refrigerating chamber	
The refrigerating air duct components should be dismantled before removing this sensor. 1) Strip the tape that secures the wiring harness. 2) Then remove the sensor.	

Ambient temperature sensor	
The sensor is located in the hinge installation box and sends temperature signal to microprocessor. As the sensor connected to the main wire, if you need to replace, you must cut the wire.	 
Defrost sensor in freezing chamber	
1） Cut off wiring terminal; 2） Cut off the band which fixes the sensor;	 

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.	

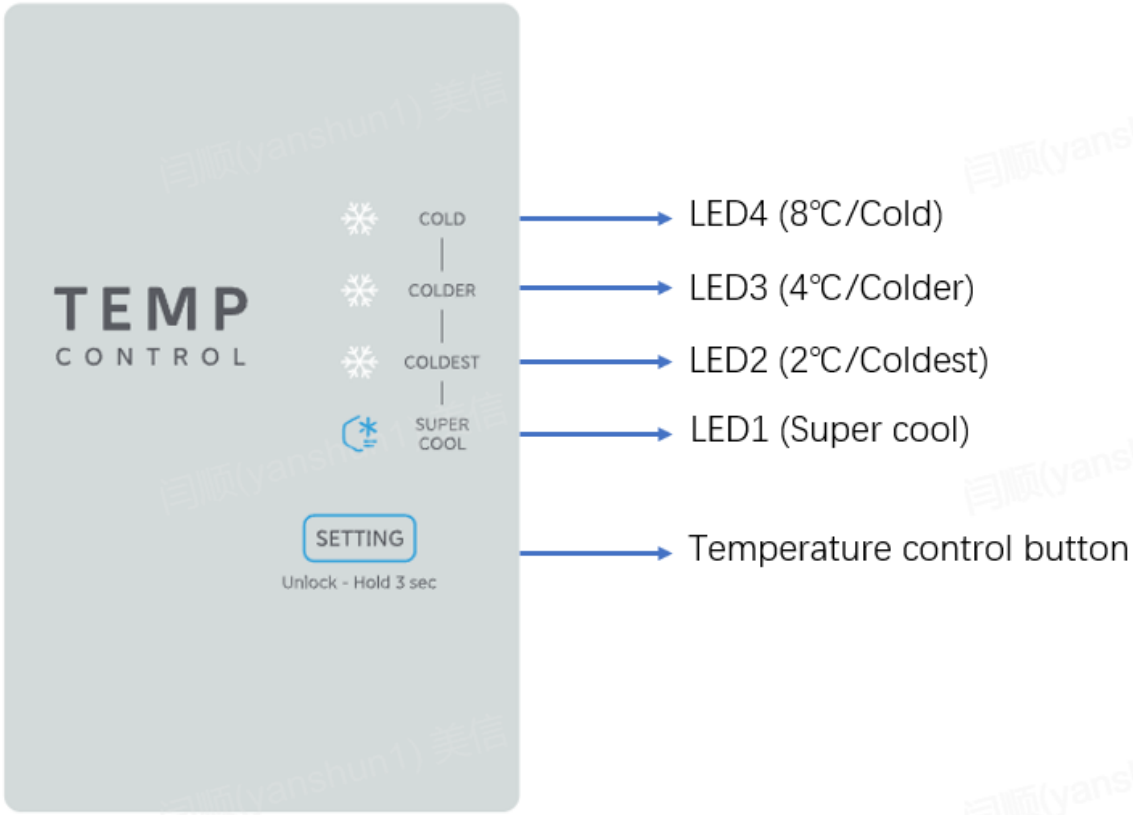
8.4 Sensor R/T table

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



9.2 Display

At the first time of power-on, the display screen will be bright for 3 seconds and then set 4℃ for the first power-on

Normal operation display

When failure occurs, the corresponding LED light group will display fault code (circular display);

If no failure occurs, the current operation gear will be displayed.

Press the button **'SETTING'** once, the gear will be changed once, 15 seconds after setting the gear, the refrigerator will be running in accordance with the set value.

The gear can be set to:

LED4 ->LED3 ->LED2 -> LED1 ->LED4

9.3 Mode setting

9.3.1 Standby mode (None)

9.3.2 Locking and unlocking

Press and hold the button **'SETTING'** for 3 seconds to unlock the device. The LED blinks to indicate that the device is unlocked successfully. After 15 seconds of operation, the device will be automatically locked.

9.4Defrosting function

Defrost in the freezing chamber1）Defrost the freezing chamber as per the accumulative operation time of the compressor.

2）If power failure occurs abruptly to the compressor and the sensor in freezing chamber is less than 0 **ºC** after powering on, then first conduct defrosting once. If more than 0 **ºC**, then defrosting is not needed. After that, conduct defrosting according to using condition and ambient temperature in a period between 6 and 24 hours as per the accumulative operation time of the Compressor.

9.5 Open door alarm (None)

9.6 Error code and solutions

Fault code	Fault content	Steps for maintenance methods
LED ① and LED② bright and flashing	Temperature sensor fault in refrigerating chamber **(E1)**	Step 1: Check whether the terminal of temperature sensor in main control board is welll stuck, pull out the terminal and re-stick it in place Step 2: Check to see if there're foreign matters on the terminal Step 3: Inspect the refrigerating sensor whether contact is bad, and resend contact the fast connector Step 4: Replace main control board
LED ① and LED③ bright and flashing	Defrost sensor fault in freezing chamber **(E3)**	Step 1: Check whether the terminal of defrost sensor in main control board is welll stuck, pull out the terminal and re-stick it in place. Step 2: Check to see if there're foreign matters on the terminal. Step 3: Inspect the defrost sensor whether contact is bad, and resend contact the fast connector Step 4: Replace main control board
LED ① and LED④ bright and flashing	Ambient temperature sensor fault **(E7)**	Step 1: Check whether the terminal of temperature sensor in main control board is welll stuck, pull out the terminal and re-stick it in place Step 2: Check whether the sensor wiring harness are connected. Step 3: Replace main control board. Step 4: Remove the temperature sensor at the hinge, and replace the temperature sensor.

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	Keep pressing the **"SETTING"** button for 5 seconds and release	The indicator lights of LED1、LED2、LED3、LED4together lighten and flashes

	After entering into test mode, if no button is pressed within 15 seconds	then 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 “SETTING” button for the first time	The indicator lights of LED1、LED2、LED3 together lighten, other lights are off, then the compressor and the fan start work
	In forced cooling mode, if no button is pressed within 36 hours,	then the refrigerator will exit the test mode and return to normal operation mode
Select to enter into forced defrosting mode in all rooms	Enterinto test mode and press “SETTING” button for the second time	The indicator lights of LED2、LED3、LED4, other lights are off, then the compressor and the freezing fan will stop working, the freezing defrost heater starts to work.
	In forced defrosting mode, when the freezing and flex. defrosting sensor reach a temperature of 12°C and the defrosting heater has been working for at least 2 minutes.	then the refrigerator will exit the test mode and return to normal operation mode
	In forced defrosting mode, if defrosting sensor temperature is always below 8 °C and defrosting heater has been working for 60 minutes,	then the refrigerator will exit the test mode and return to normal operation mode
Select to exit the test mode	Enter into test mode and press “SETTING” button for the three time	All lights are off, then the refrigerator will exit test mode and return to normal operation mode.

9.8 Demo mode

Mode entry

Press the refrigerated temperature adjustment button for 10s, release the button, enter the mandatory operation setting mode, the four temperature indicators blink, enter the mandatory setting mode, press the setting key three times, enter the commercial mode after 15s lock, the indicator light LED1,LED3,LED4 light up at the same time.

Mode operation

When entering the mall demonstration mode, the refrigerator display board stays on and on, the refrigerator stops cooling request, the compressor does not work, and does not enter defrosting. The lighting fixtures and other components are controlled according to normal logic, and can not be remembered if they are not inspected or returned for inspection.

Mode exit

Keep pressing the refrigerated temperature control button for 10s, release the button, enter the forced operation setting mode, and the four temperature indicators flash. Enter the forced setting mode, press until all leds are off, lock and exit.

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.

10. Compressor

10.1 Compressor on and off control specifications

1.1 When one of the following conditions is met, the compressor stops:

1) Tr ≤ Trt；
2) The compressor runs continuously for more than 3 hours (Stop 7 minutes);

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

1) Tr ≥Trk;
2) Compressor downtime is more than 7min.

★When 1.1 and 1.2 are not satisfied, the compressor maintains the original state

10.2 Inverter board fault analysis（Option）

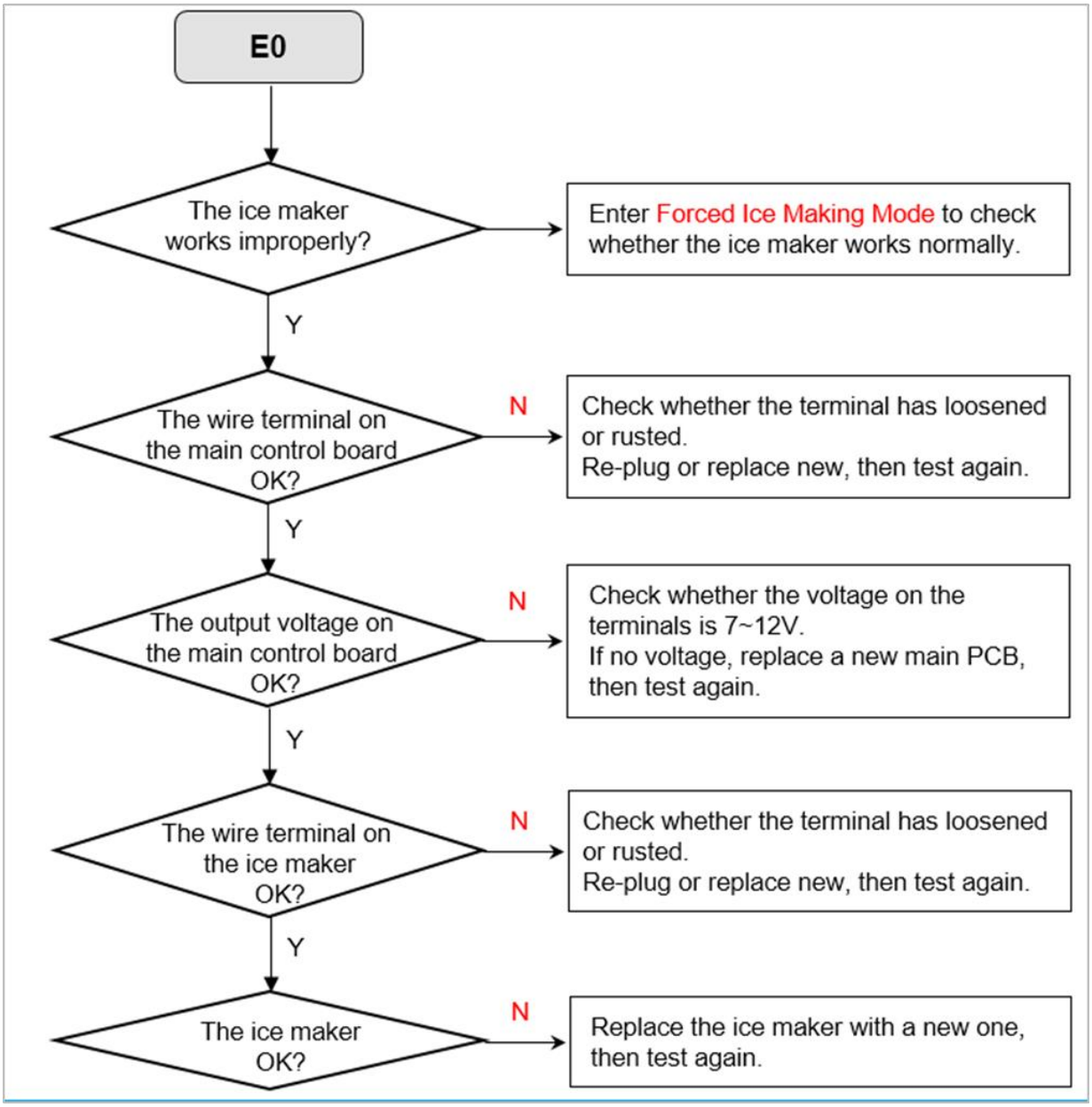
Running status of LED	Fault Type	Troubleshooting and Solutions
Not light	Standby	No repair needed
The light is always on when the power is turned on for the first time, and it is always off after the compressor is turned on and off	Normal working	No repair needed
Blink once: light 0.5 second, extinguish 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, interval time(extinguish) is 2 second	Under voltage protection	Measure the voltage between L and N
		1）If it is less than 160V, replace a new inverter board
		2）If more than 160V, please check the power supply and power cable
Blink four times: light 0.5 second, extinguish 0.5 second,	Hardware over current protection	Step 1: Disconnect the U-V-W wiring harness, measure the resistance between

interval time(extinguish) is 2 second		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.

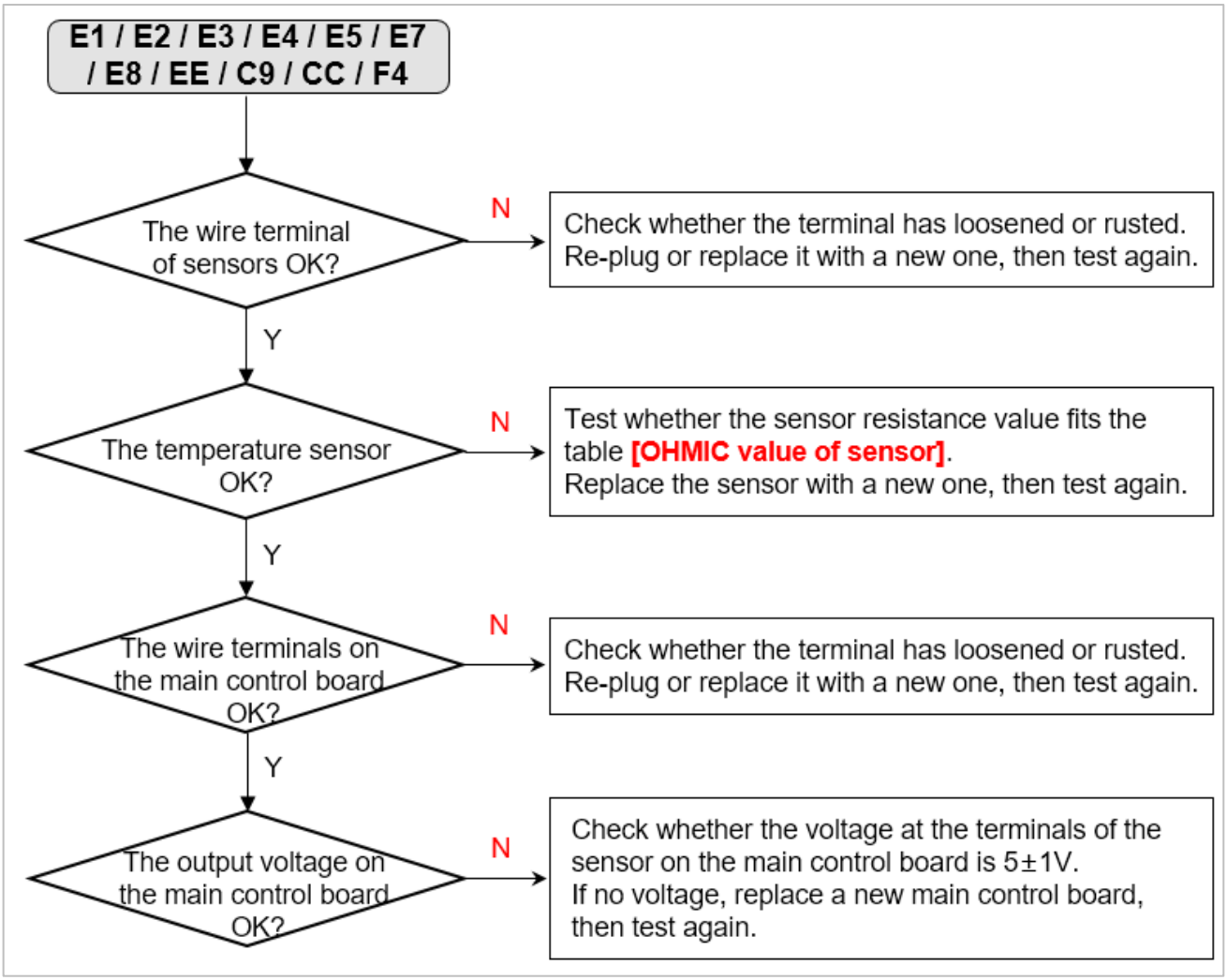
Blink night times: light 0.5 second, extinguish 0.5 second, interval time(extinguish) is 2 second	Running block protection	Step 1: After powering on, touch the compressor and wait for the indicator light on the inverter board to light up.
		Step 2: If the compressor does not respond and the indicator 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

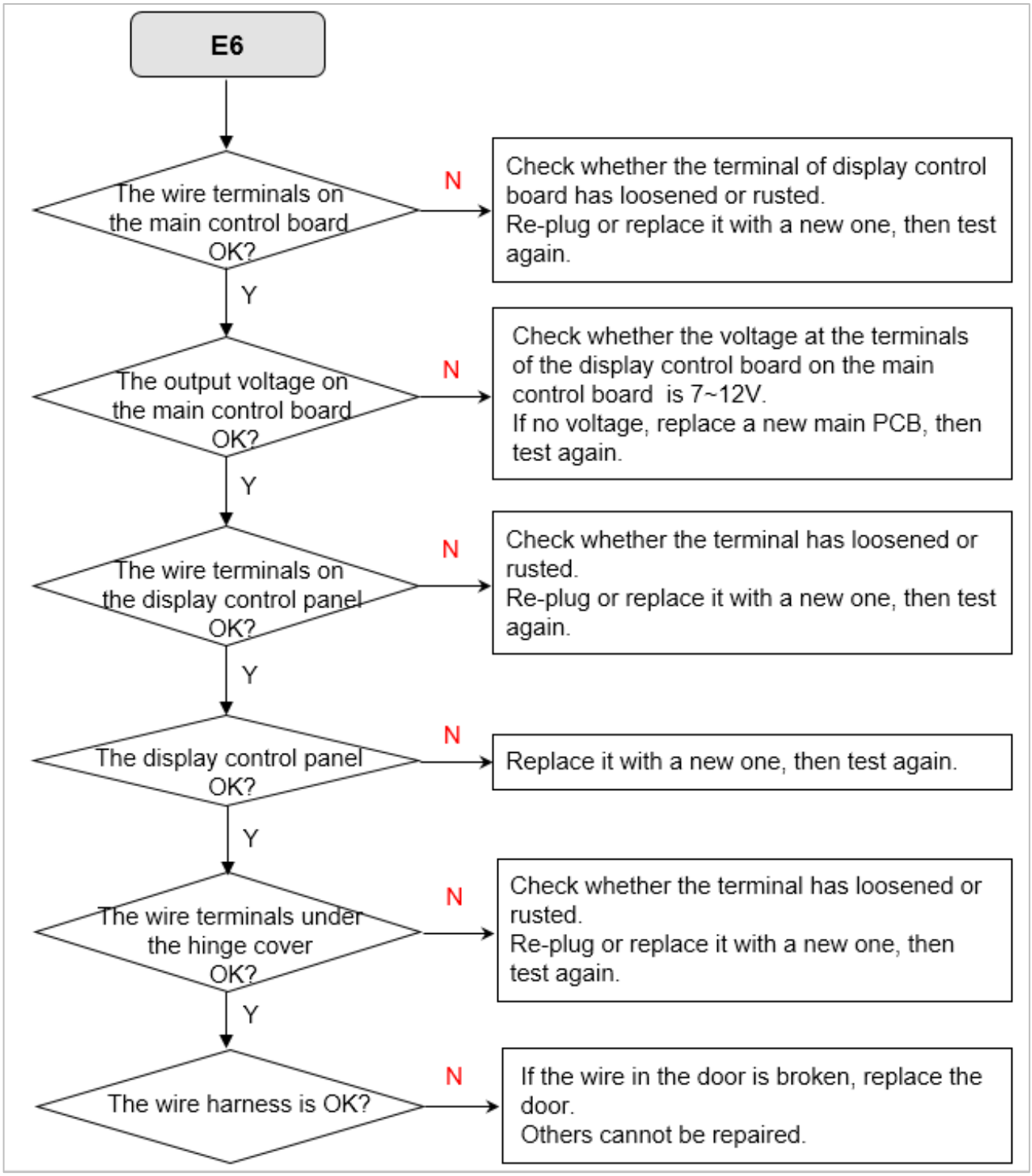
11.1 Error code E0



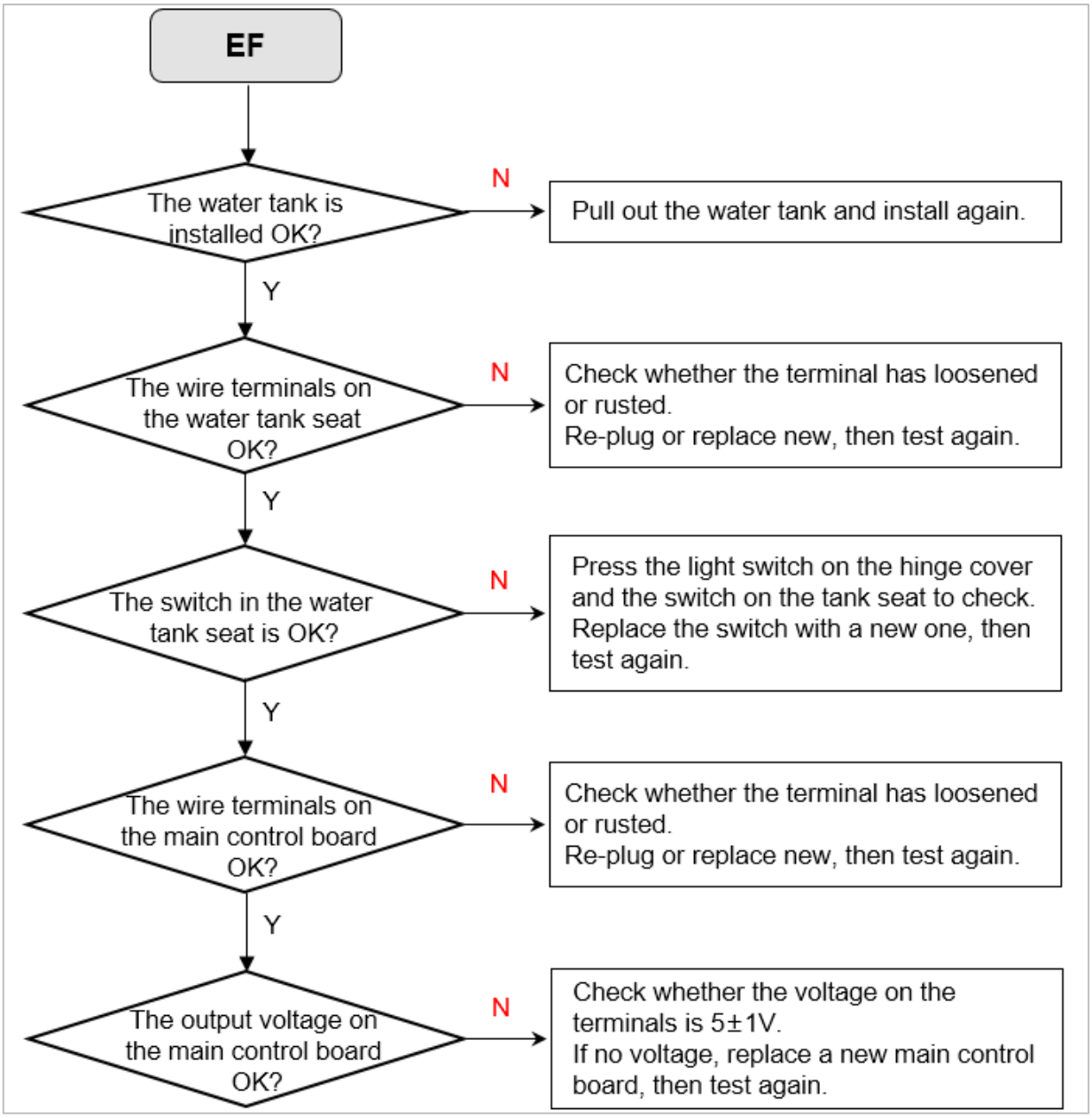
11.2 Error code E1 / E2 / E3 / E4 / E5 / E7 / E8 / EE / C9 / CC / F4



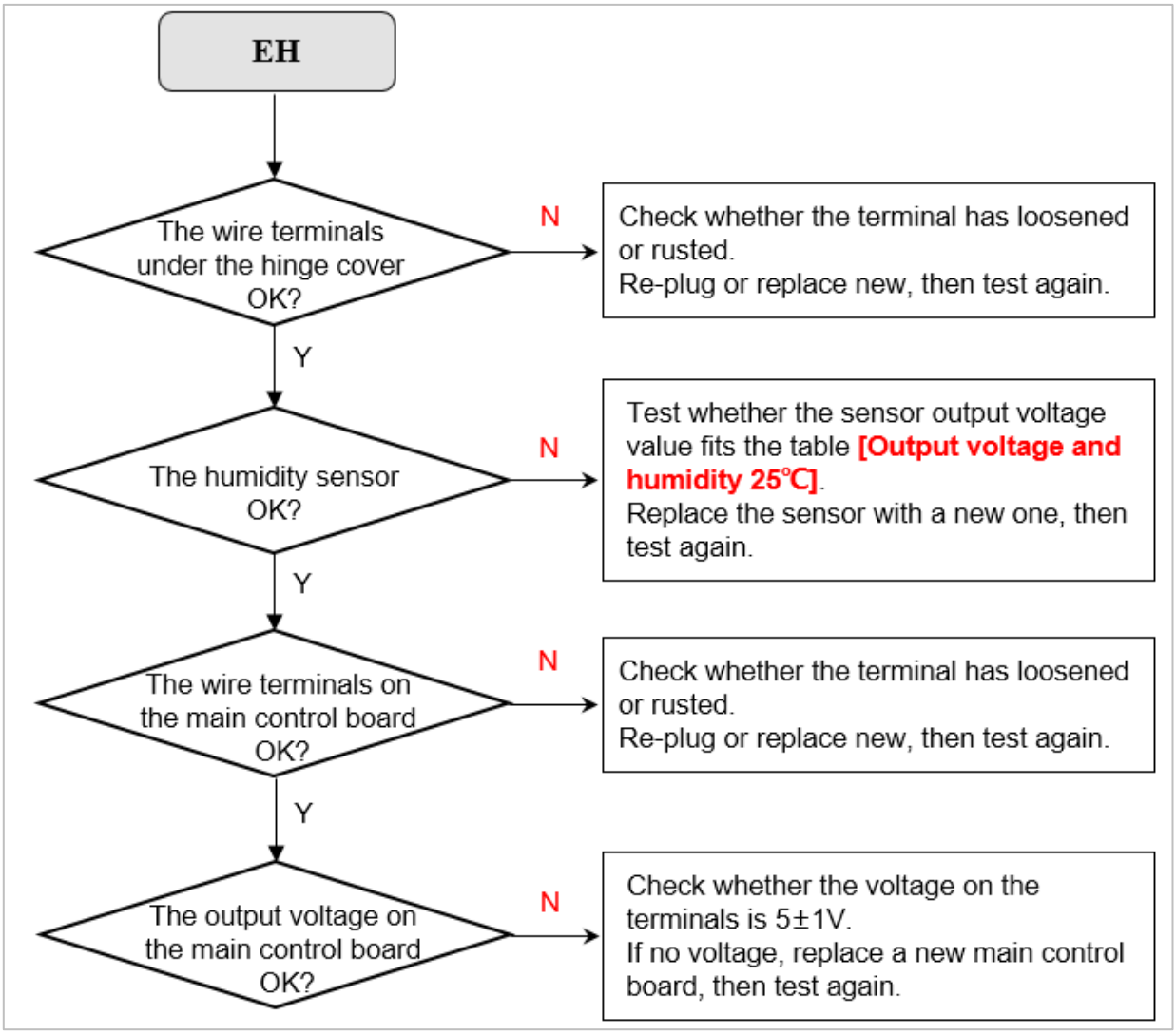
11.3 Error code E6



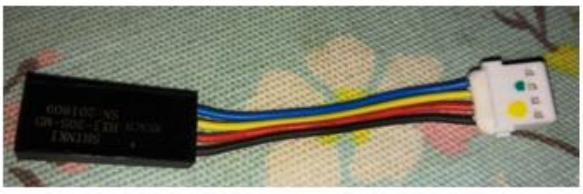
11.4 Error code EF



11.5 Error code EH



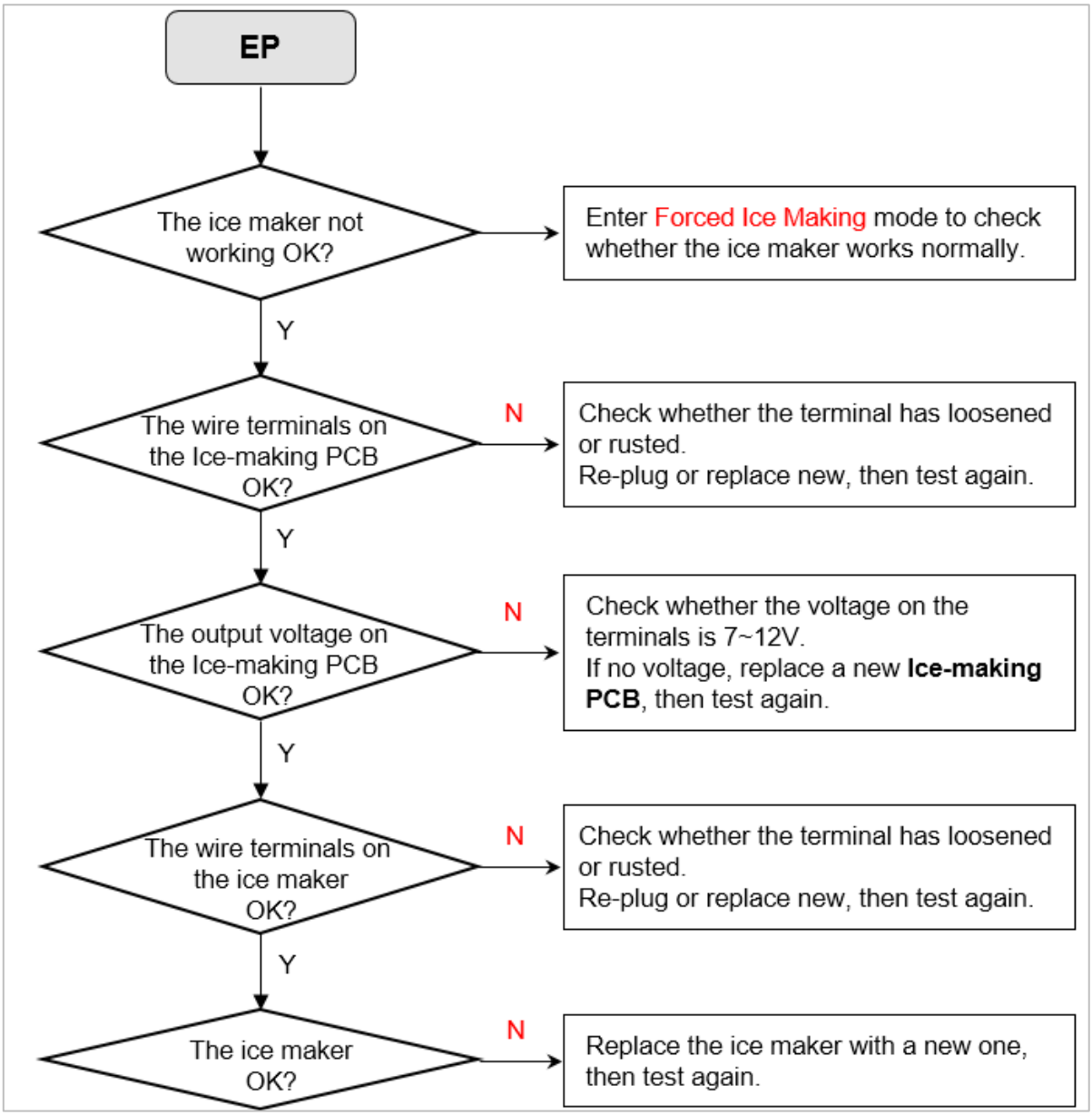
The meaning of different color wires:
Blue: Ambient temperature
Yellow: Humidity
Red: +5V
Black: GND



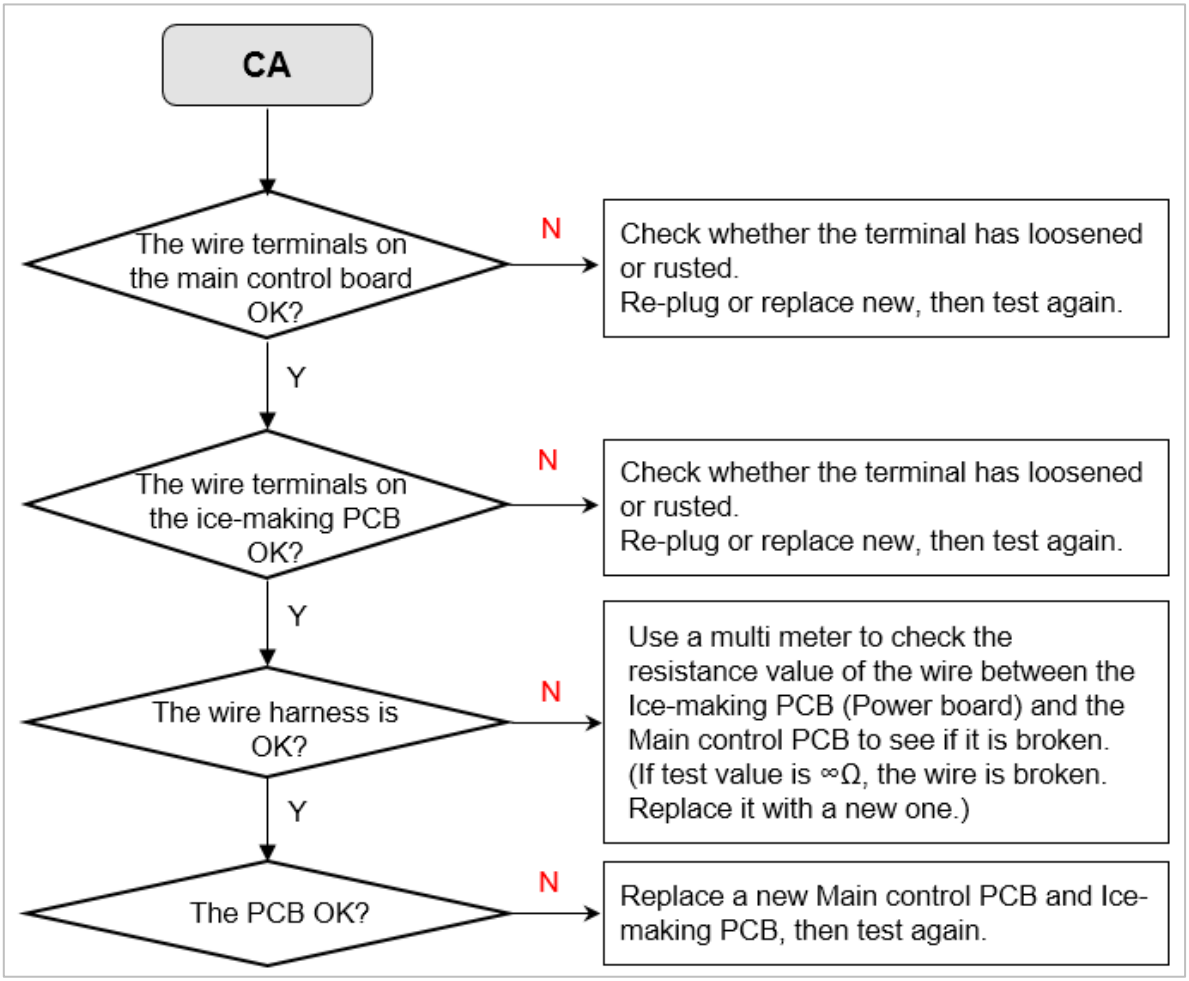
Comparison table of output voltage and humidity at 25℃	
Humidity（%）	Output (V)
20	1.528
40	2.067
60	2.779
80	3.400

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.

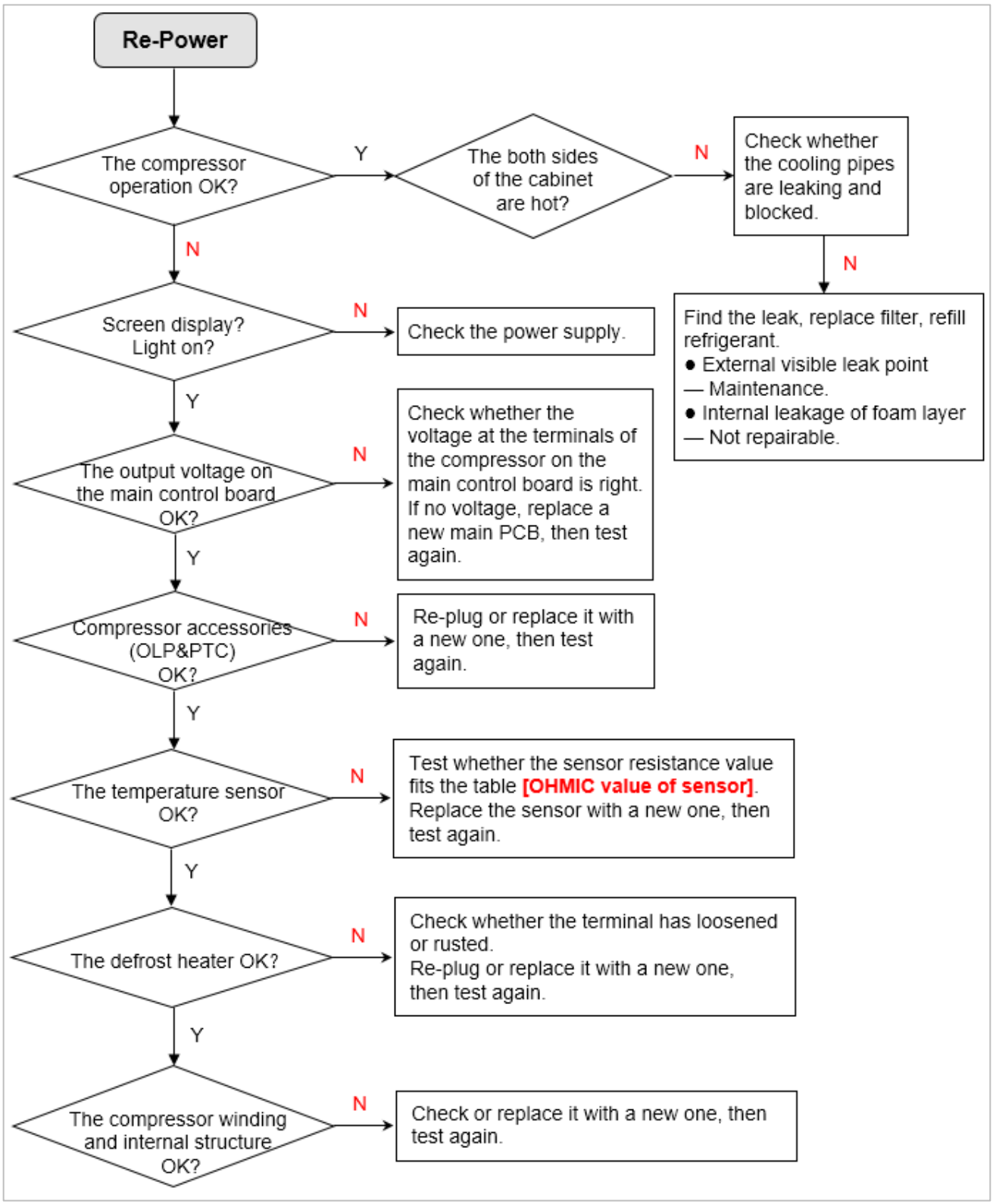
11.6 Error code EP



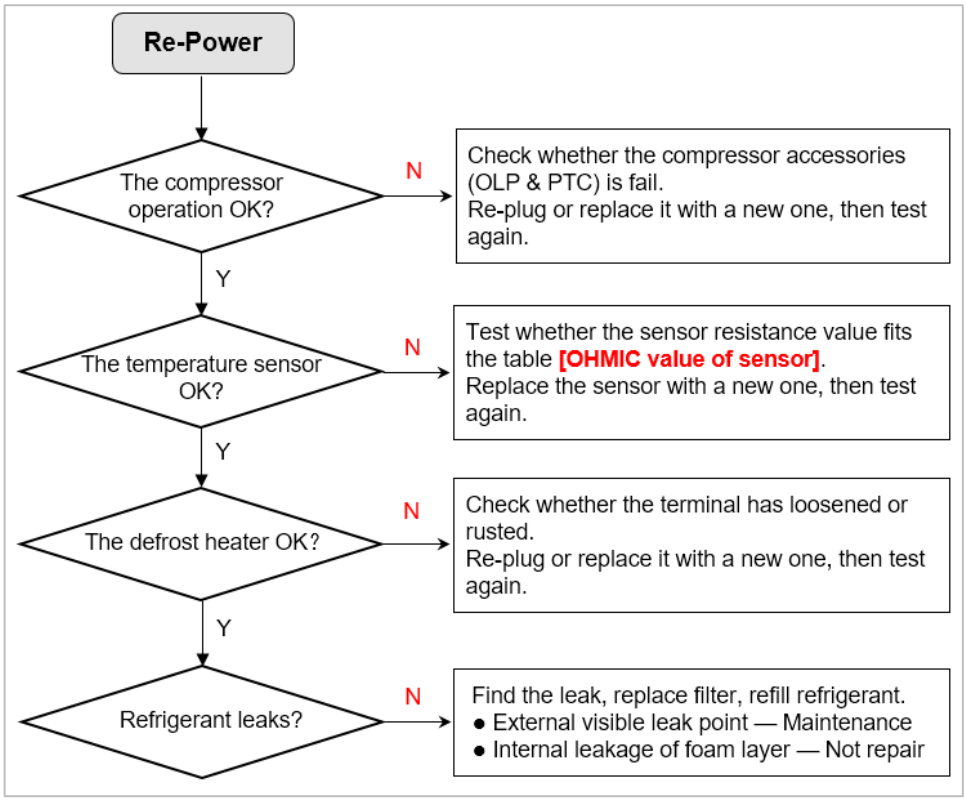
11.7 Error code CA



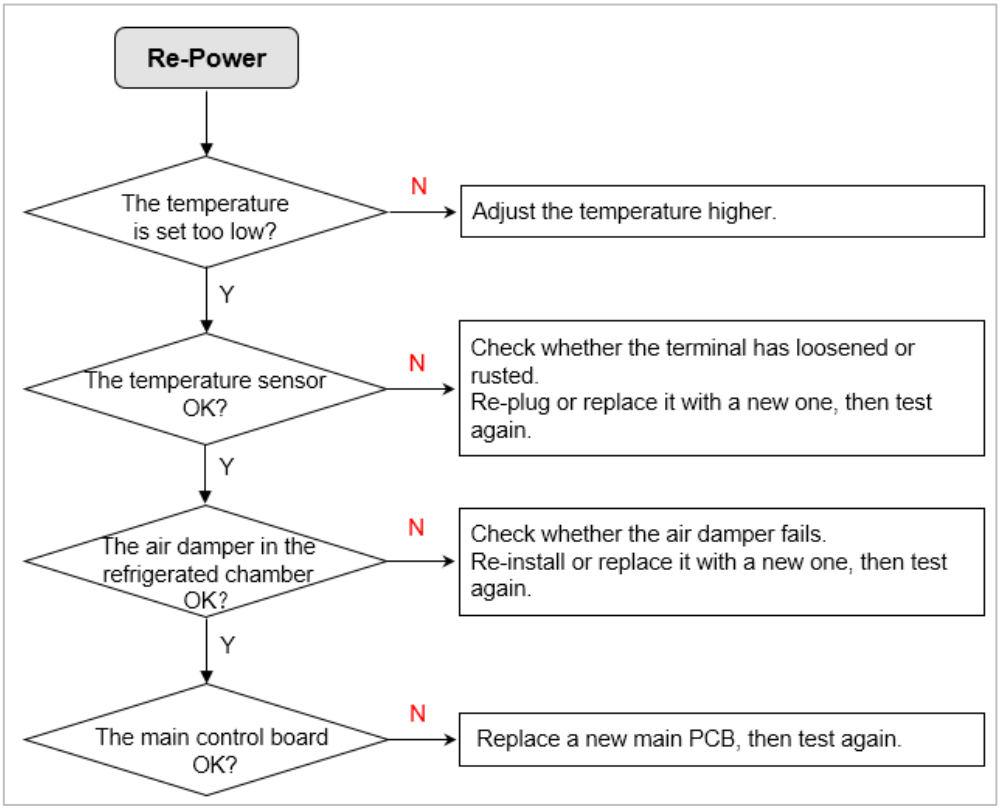
11.8 Not cooling in all the chambers



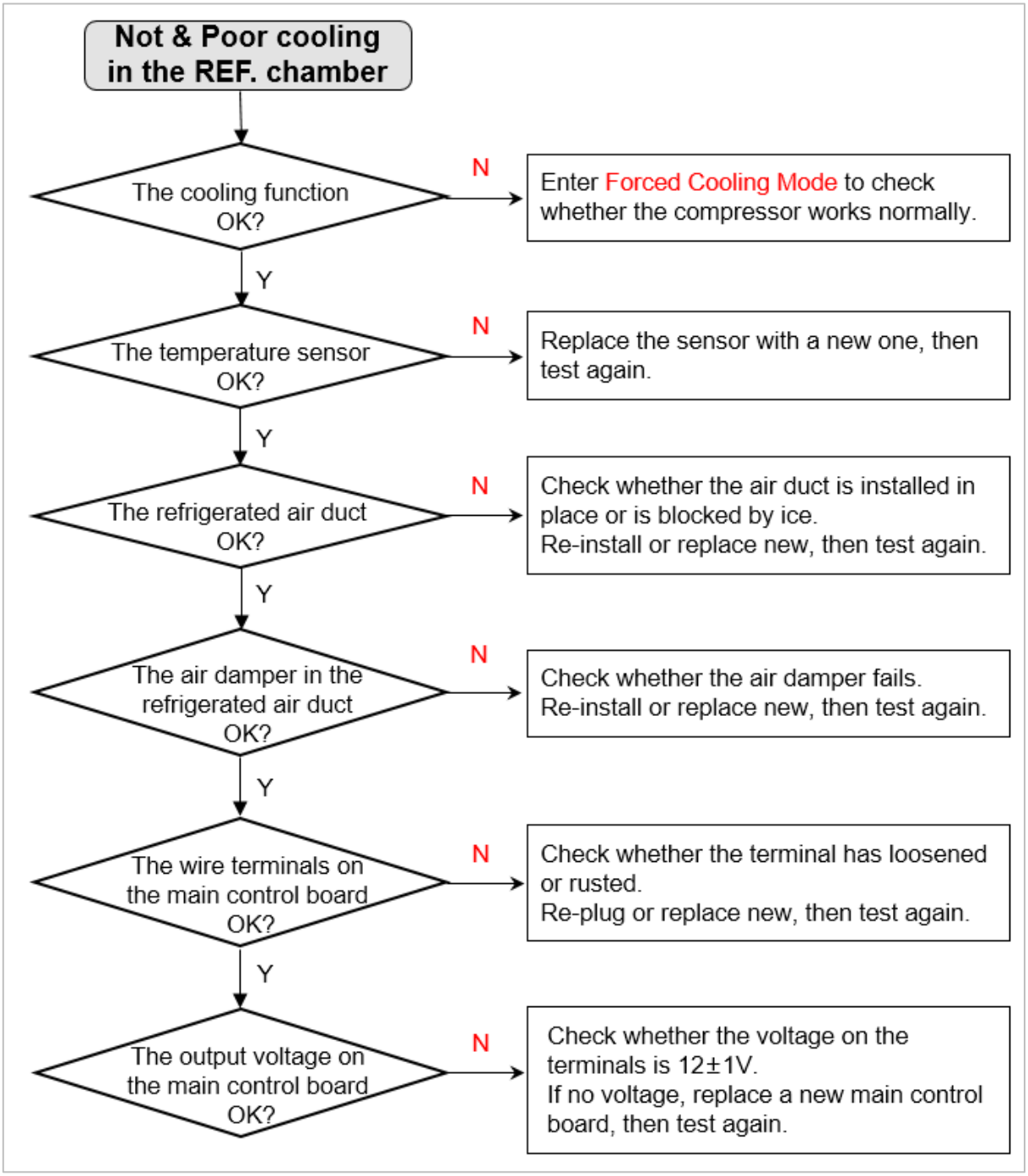
11.9 Poor Cooling in all the chambers



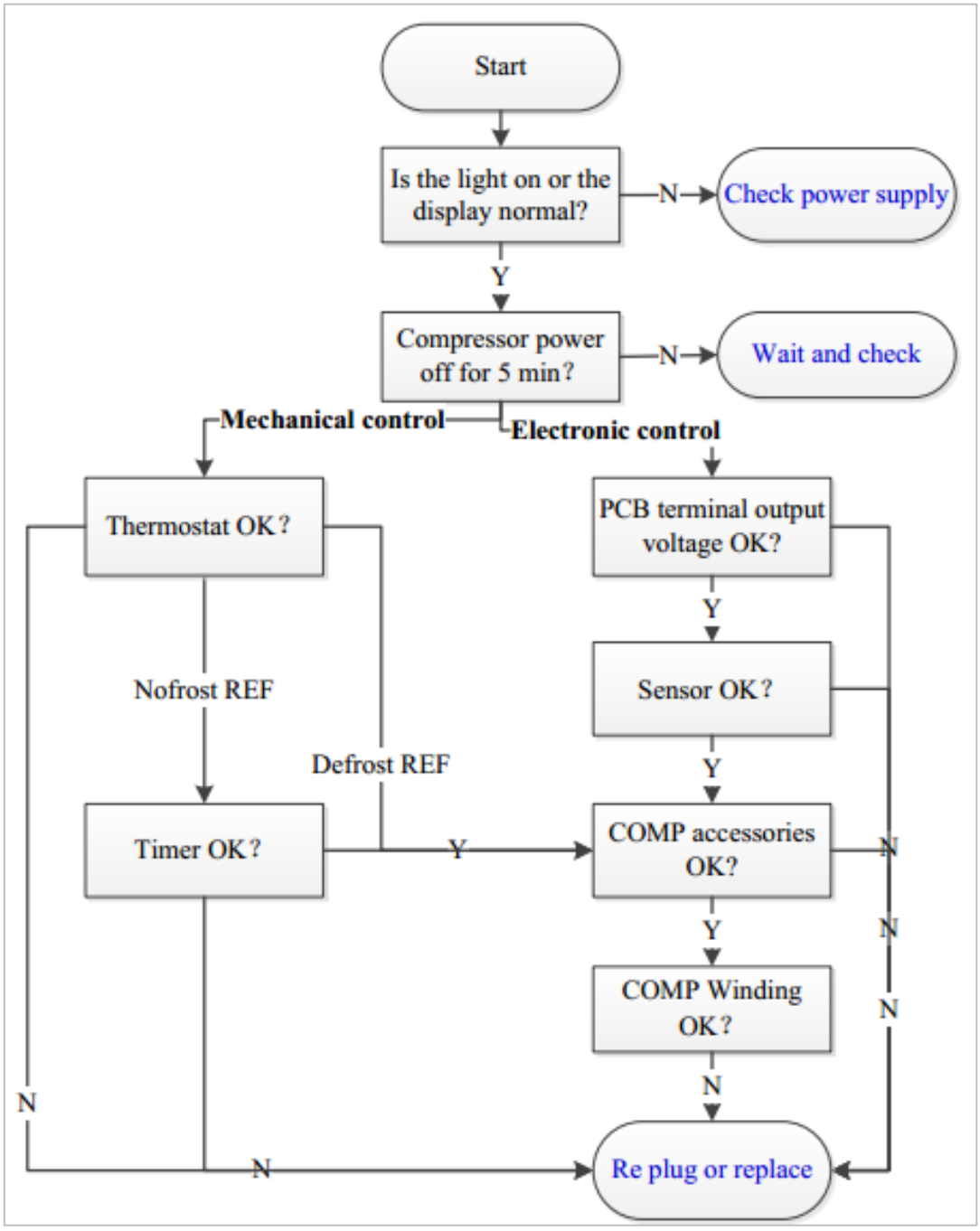
11.10 Overcooling in the refrigerated chamber



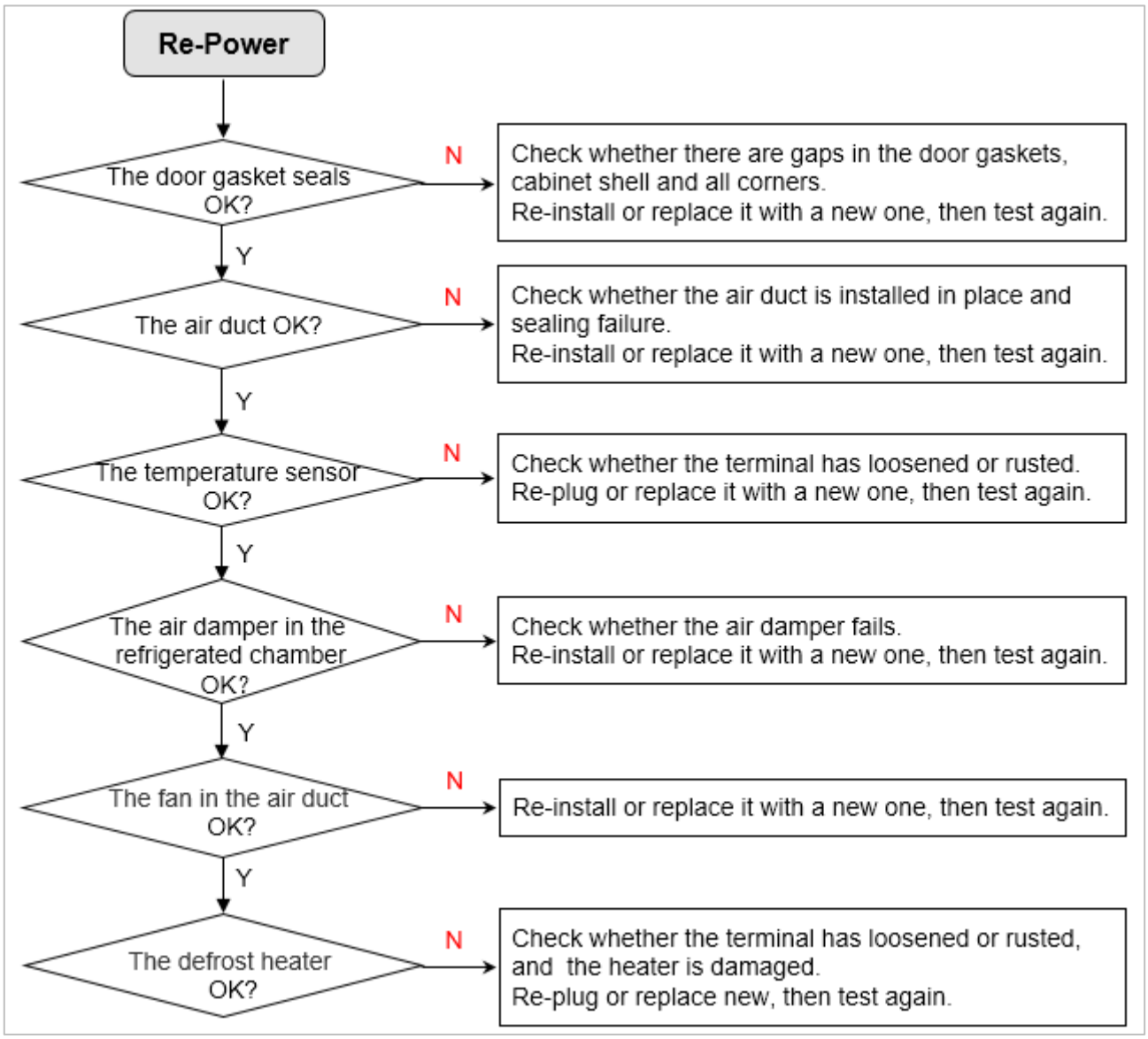
11.11 Not & Poor cooling in the refrigerated chamber



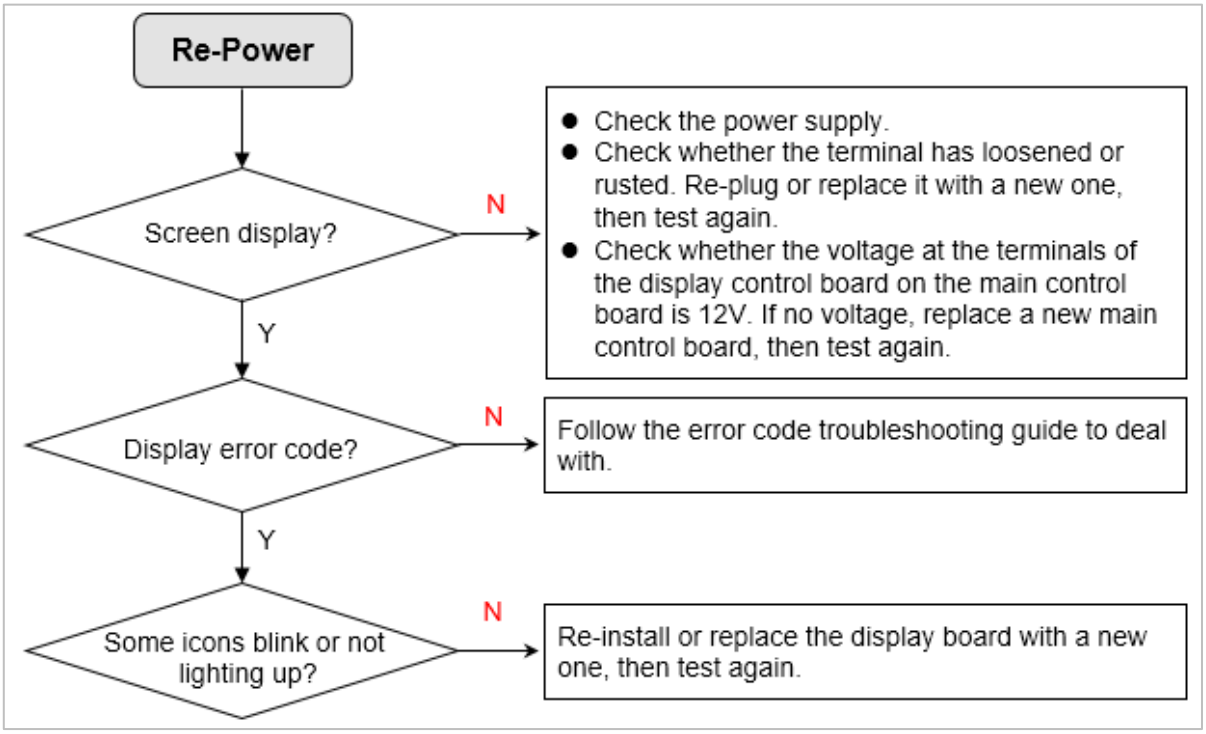
11.12 No working of compressor



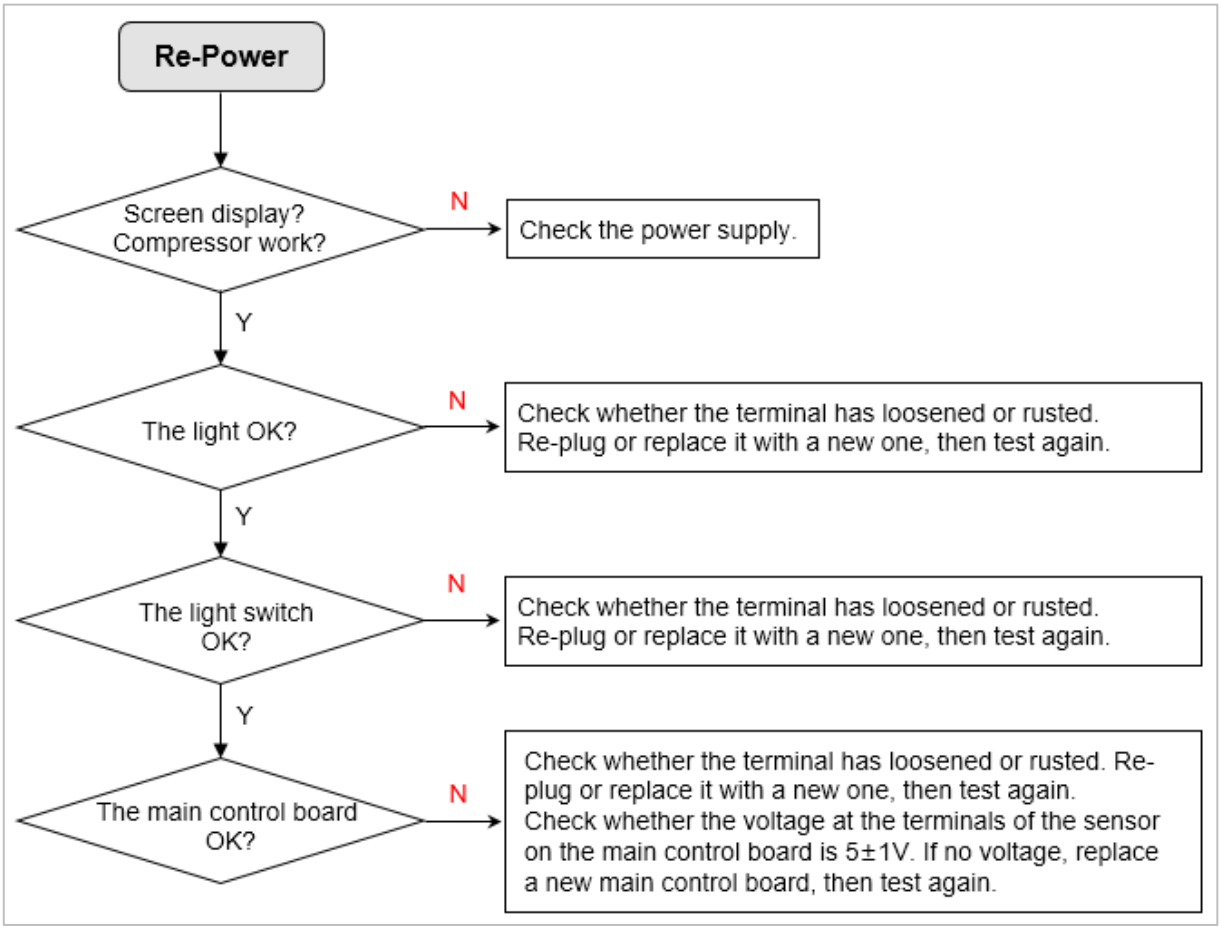
11.13 Condensation & Frost



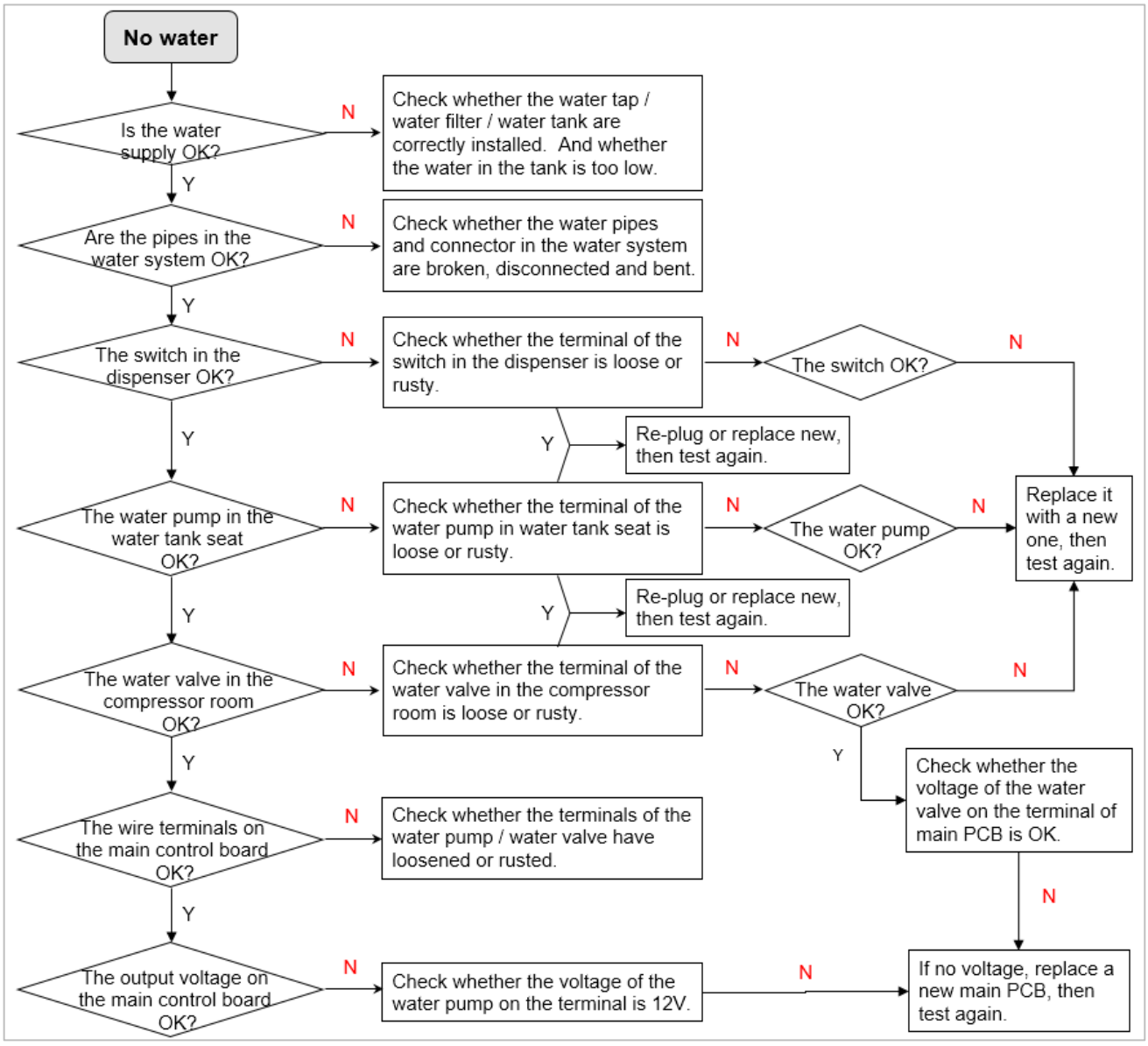
11.14 Display panel failure



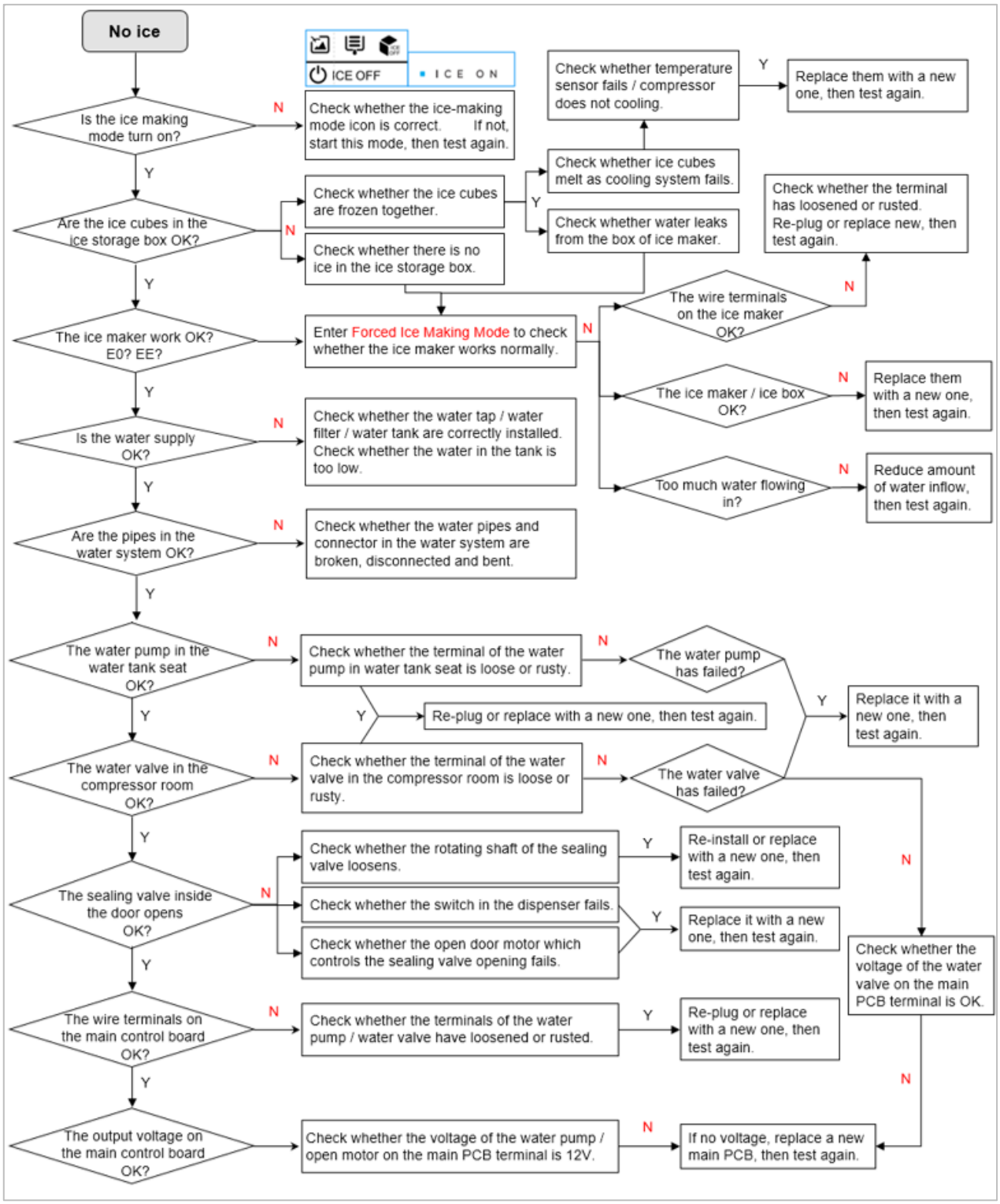
11.15 Light failure



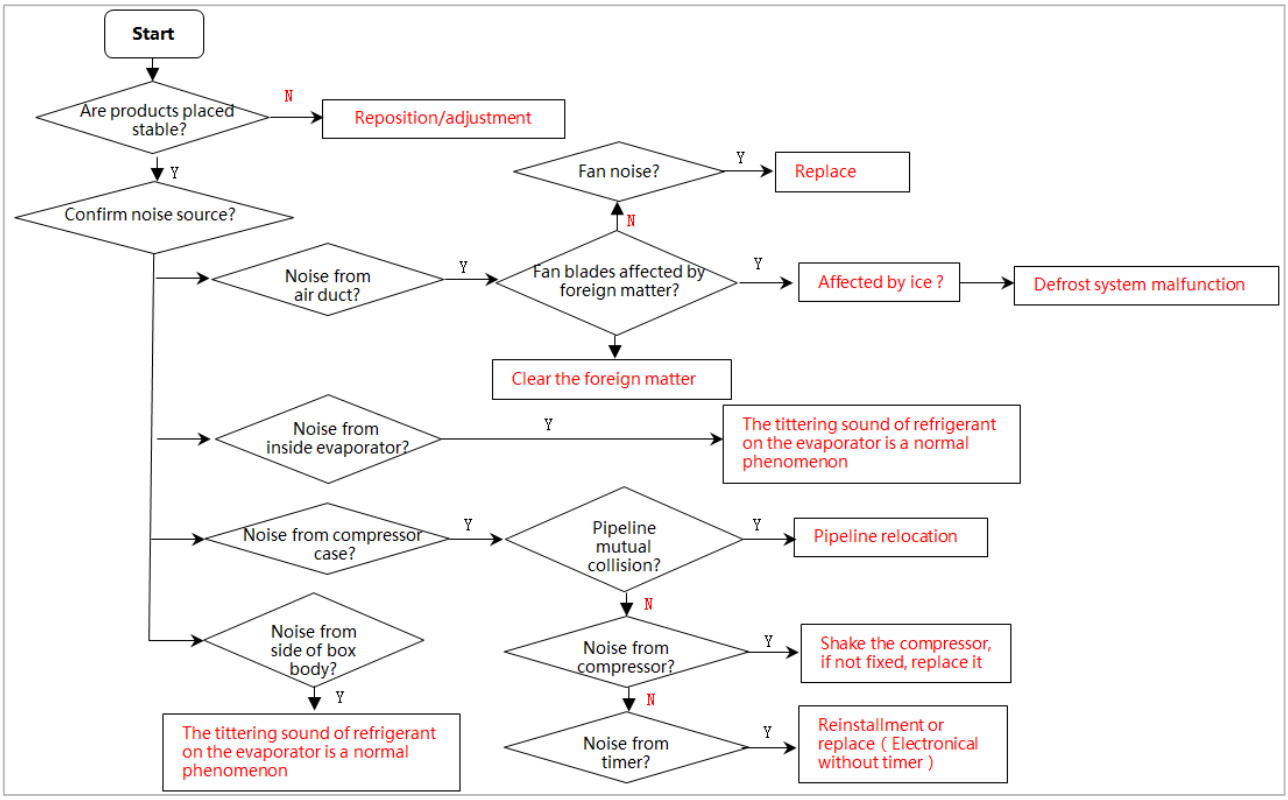
11.16 No water from the ice & water dispenser



11.17 No ice from the ice & water dispenser

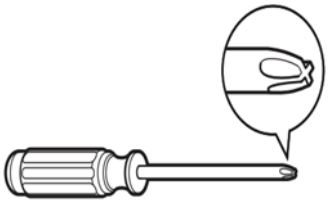
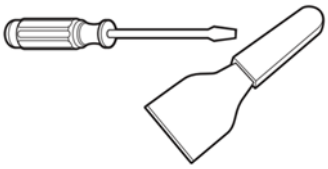
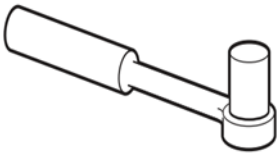


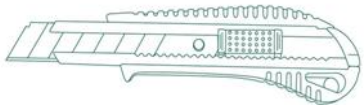
11.18 Noise


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?
Y
Noise from compressor?
Y
Shake the compressor, if not fixed, replace it
N
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

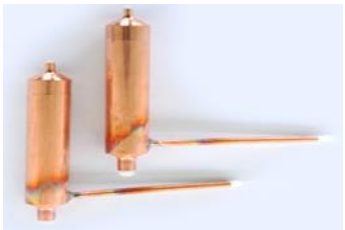
7	Pipe cutter		pipe cutting
8	Knife		assistive tool
9	Nipper pliers		assistive tool
10	Capillary tube scissors		Shear capillary

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

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