

Service Manual

COMPACT SERIES


Applicable Models	Model Code	Applicable Models
HS-160RN	UR-BC123CM-ST	22031010000481
HS-160RN	UR-BC123CM-ST	22031010001241



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.

Midea Refrigerators

Technical Maintenance Manual

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1. Significant update notes(None)

2. Safety Warning Code

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

 **WARNING**



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

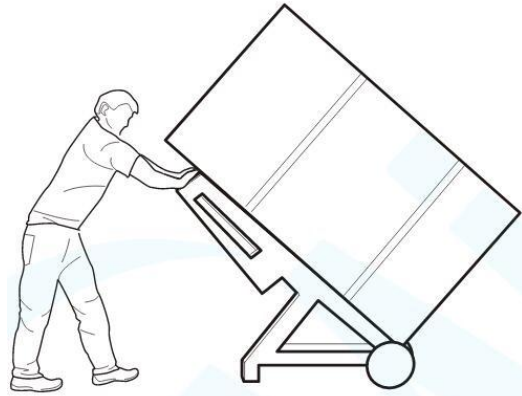
DANGER—Risk of Fire or Explosion. Flammable Refrigerant Used. To Be Repaired Only By Trained Service Personnel. Do Not Use Mechanical Devices. Do Not Puncture Refrigerant Tubing. CAUTION—Risk of Fire or Explosion. Flammable Refrigerant Used. Consult Repair Manual/Owner's Guide Before Attempting To Service 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. Transport

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, then move into house for placement
- 3)After moving it to appropriate location, wait for 2 hours before power on.



4. Installation and commissioning

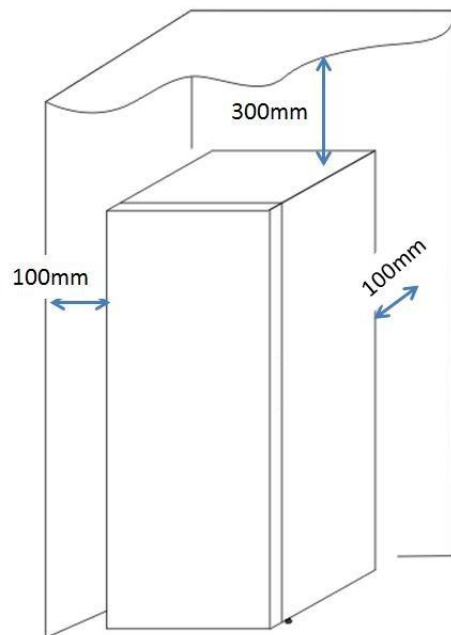
4.1 Door Disassembly and Assembly(None)

The refrigerator door needs to be dismantled if it cannot enter the room in the whole.

4.2 Installation location

Installation location

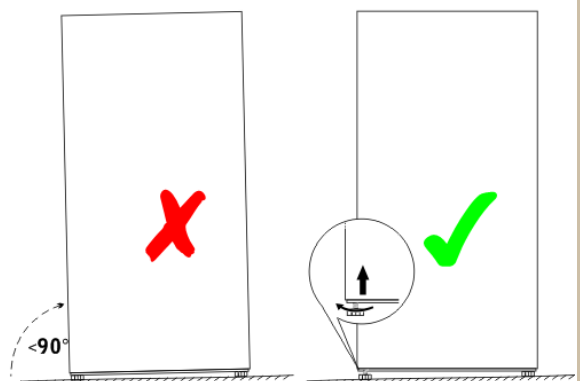
Location that is easy for ventilation shall be chosen to facilitate heat dissipation, enhance its performance and reduce the energy consumption.



4.3 Leveling of the refrigerator

Leveling of the refrigerator

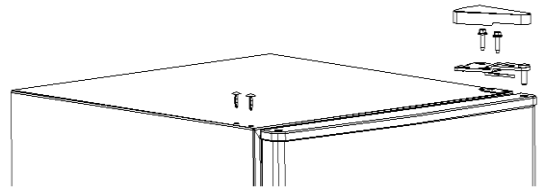
If the refrigerator cannot be placed steadily, adjust the footing to level it.



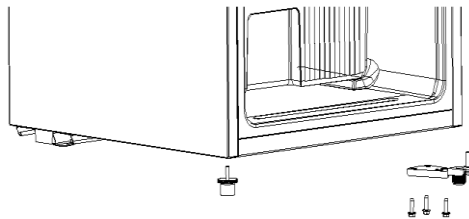
4.4 Left or right open door reversal

Door reversal

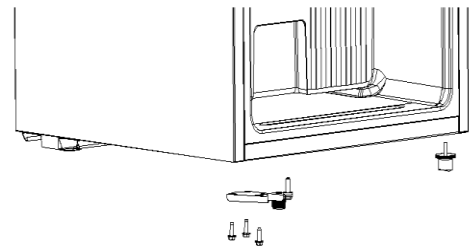
1) Remove the hinge cover.
 Unscrew screws.
 Remove the upper hinge, Insert pins .



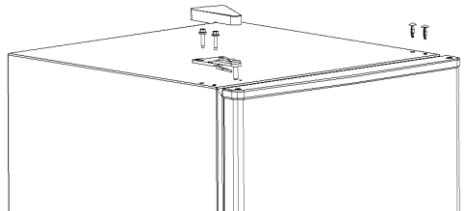
2) Remove the bottom door.
 Unscrew screws and levelling feet.
 Remove the lower hinge adjust feet assembly.



3) Fix the levelling feet, lower hinge adjust feet assembly and screws in the opposite side..



4) Place the up door.
 Place and fix the the upper hinge. Fix the hinge cover,
 Insert pins.

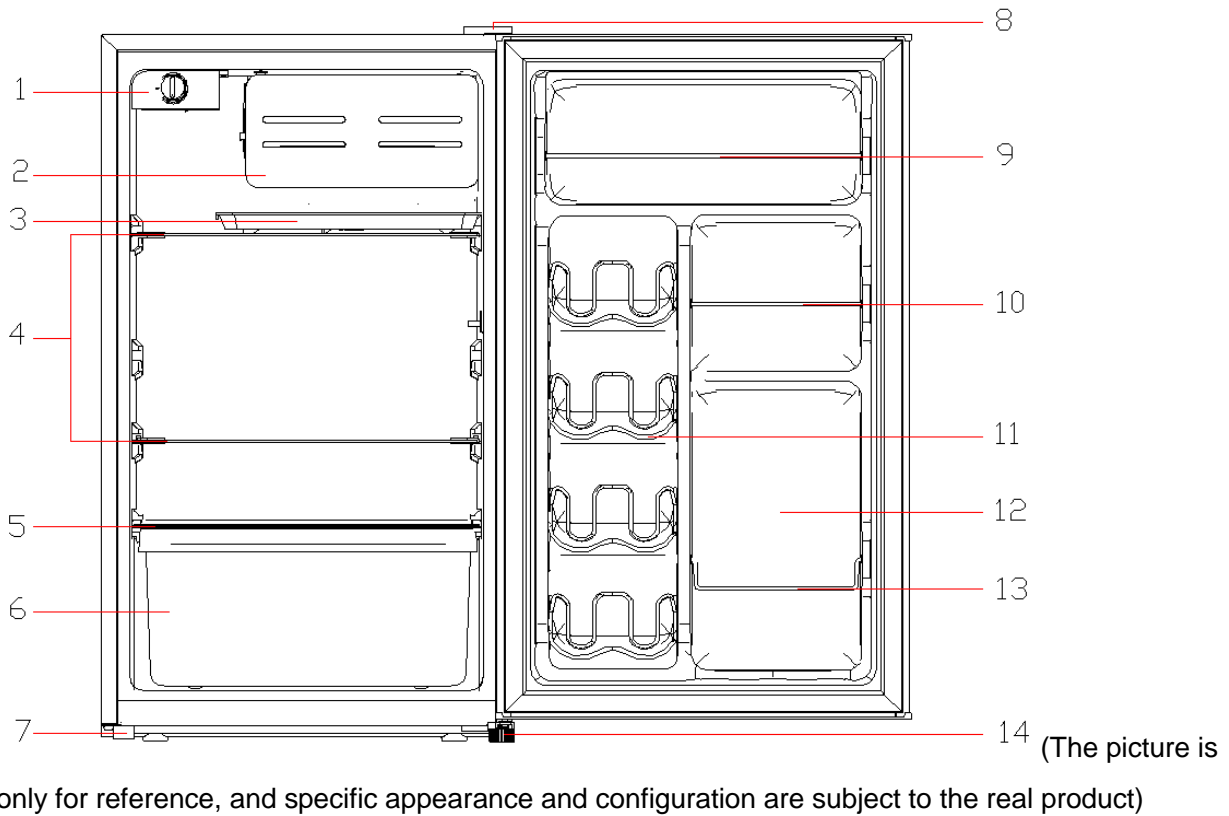


4.5 Installation of handle (None)

4.6 Installation of door lock (None)

5. Product configuration and dimension

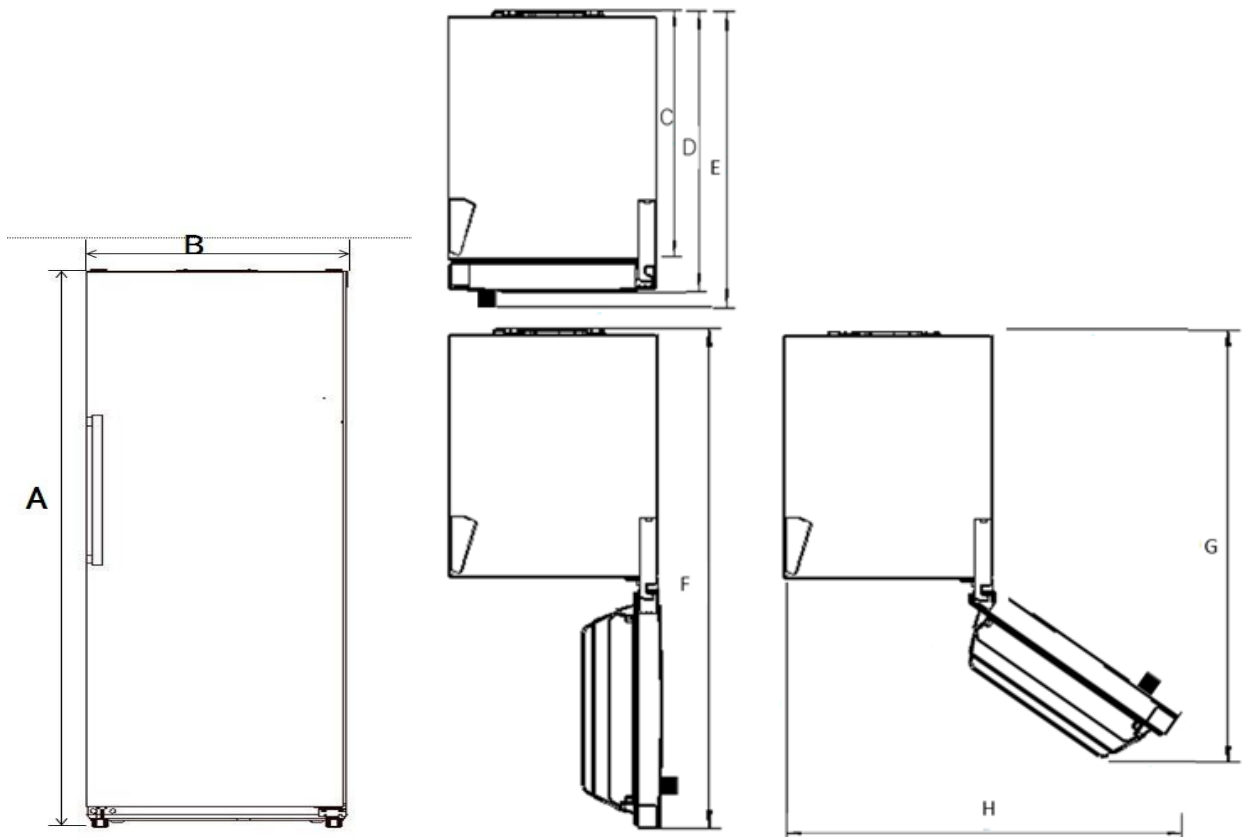
5.1 Main parts and their names



Freezer chamber	Refrigerator chamber
None	1. TEMP control box and knob 2. Freezer door 3. tray 4. Glass shelf 5. Glass shelf 6. Fruits and vegetables box 7. adjustable foot 8. hinge cover 9. steel wire guardrail 10. steel wire guardrail 11. steel wire guardrail 12. 13. steel wire guardrail 14.

5.2 External dimension

Description	Code	Size (mm)
Height to Top of Case	A	859
Width	B	501
Depth w/Cabinet	C	/
Depth w/Door	D	537
Depth w/Handle	E	537
Depth (Door open 90 deg. w)	F	992
Depth (Door open 135 deg. w)	G	1050
Width (Door open 135 deg. w)	H	850

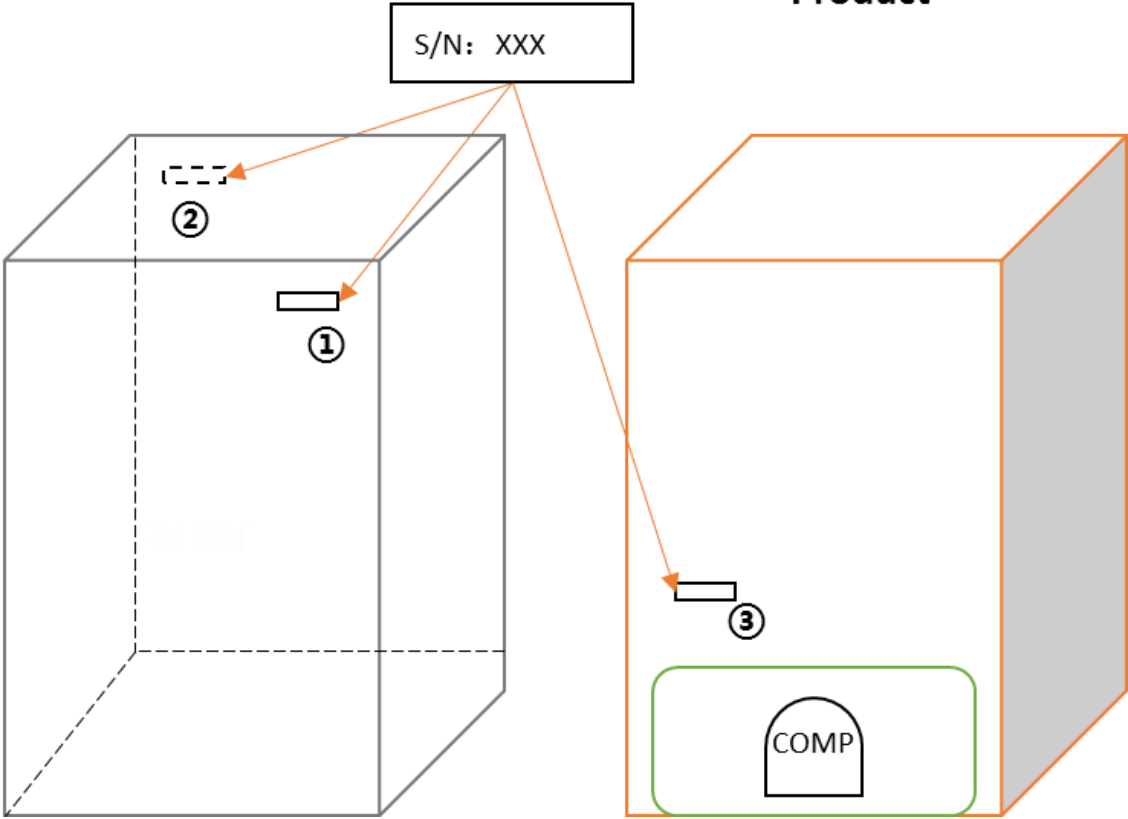


(The picture is only for reference)

5.3 Location of S/N

Carton Box

Product

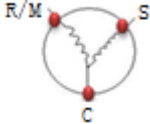
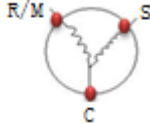


Some

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

6. Product specification

6.1 Electrical parameters

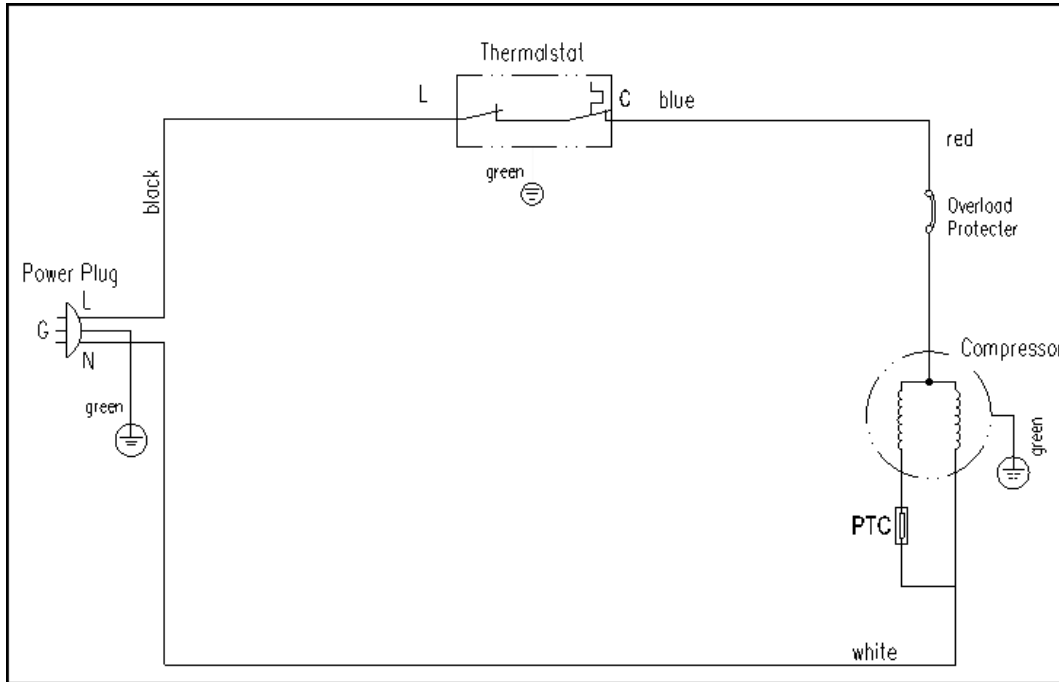
Applicable Models	HS-160RN	HS-160RN
Product Name	UR-BC123CM-ST	UR-BC123CM-ST
Product Code	22031010000481	22031010001241
Item	Specification	Specification
Refrigerant	R600a	R600a
Compressor	FZ40C1J-U	FZ40C1J-U
Starter(PTC)	QP2-4R7	QP2-4R7
Overload protector(OLP)	DRB20T61A1	DRB20T61A1
Integrate PTC+OLP	None	None
Variable frequency driver board	None	None
Capacitor	None	None
Power filter	None	None
Winding resistance of compressor wiring terminal	Rmc:2.5-14.5Ω Rsc:7.4-21.4Ω Rms=Rmc+Rsc	Rmc:2.5-14.5Ω Rsc:7.4-21.4Ω Rms=Rmc+Rsc
Winding resistance picture		
The input power of compressor	48.5W	48.5W
Lights inside the refrigerator		
Lights inside the refrigerating chamber	none	115V/10W
Switch of the refrigerator door	none	<input checked="" type="checkbox"/> Mechanical switch <input type="checkbox"/> Magnetism control switch

6.2 Cooling temperature setting range

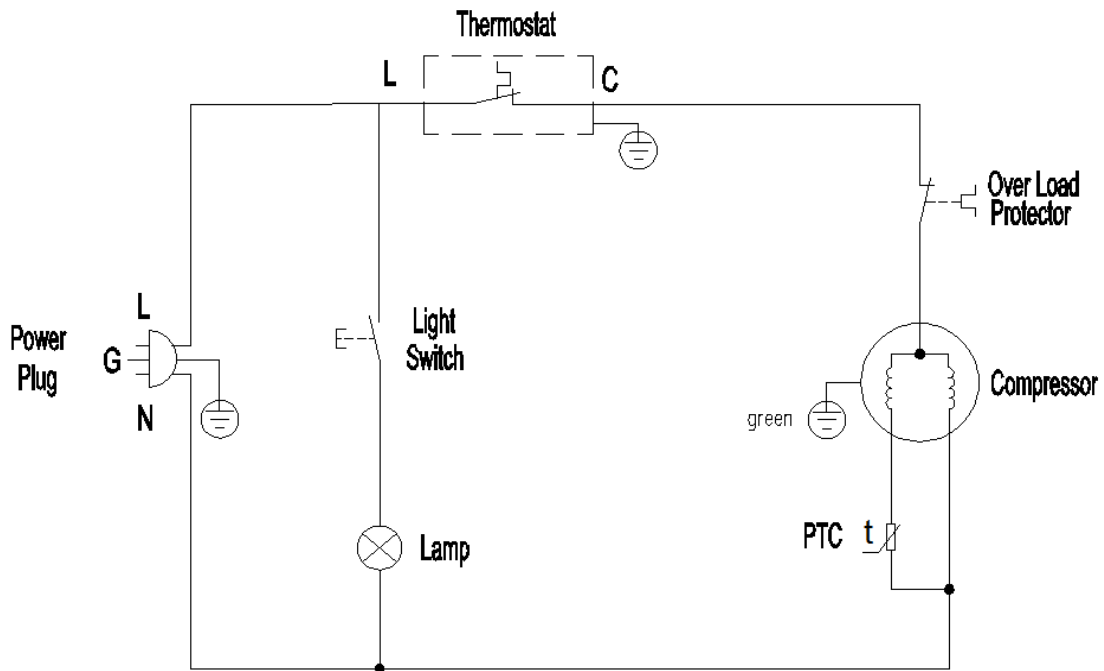
Compartment	The highest (°C)	Lowest (°C)
Freezing	-3	-10
Refrigerating	9	1

6.3 Circuit diagram

UR-BC123CM-SQ_22031010000481



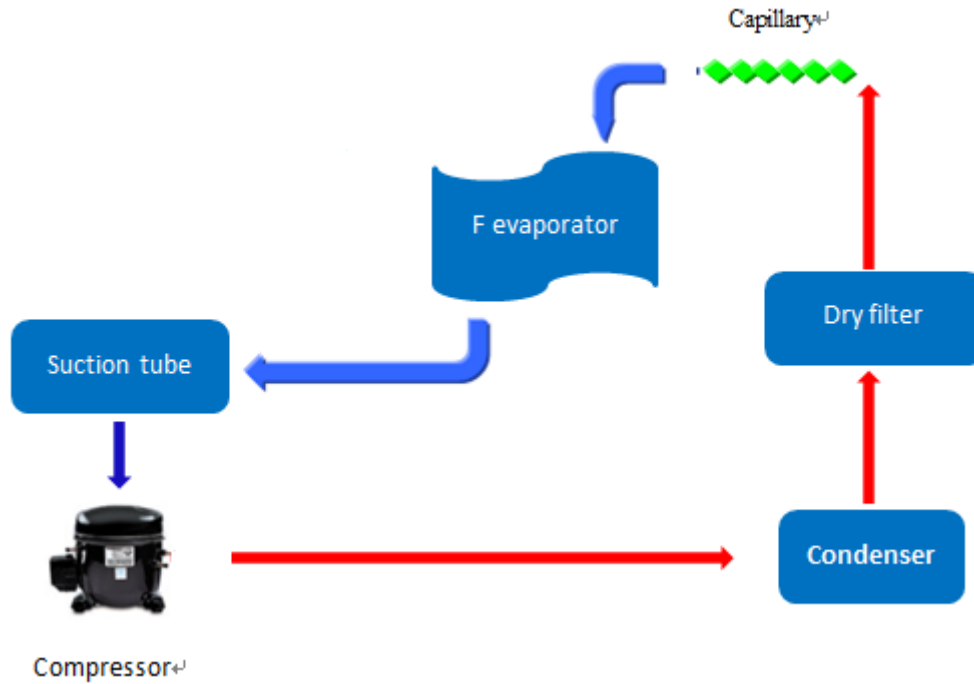
UR-BC123CM-SQ_22031010001241



7.Refrigerating piping system and circulating route of cooling air

7.1 Refrigerating piping system

Compressor→condenser→Dry filter→Capillary tube→Evaporator→Return pipe→Compressor r



7.2 Special soldering position(None)

8. Dismantling of parts

8.1 Parts on the door

Door seal

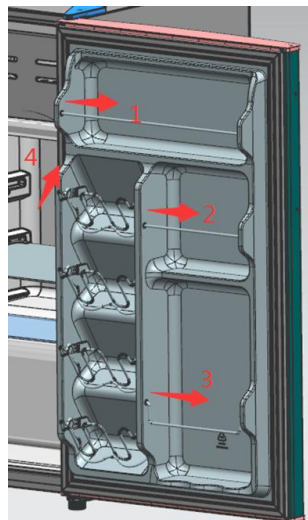
Door seal is installed into door liner groove.

- 1) Open the refrigerator door;
Take the door seal ① out of door liner;

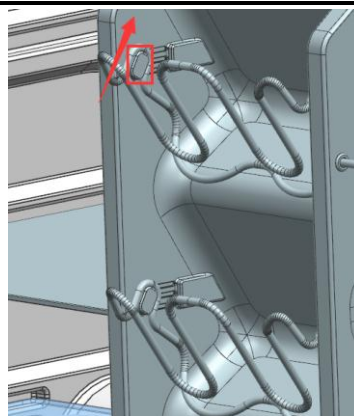


Guardrail

- 1) Guardrail 1、2、3 Grab the Guardrail and squeeze it sideways
- 2) Pull out and remove from the refrigerator



- 1) Guardrail 4 Push it along the direction indicated by the arrow Then dismantle the guardrail



8.2 Parts inside the refrigerator

Shelves

Lift it up and take it out from the refrigerator.



Freezer Drawer

Remove the freezer drawer according to below steps:

- 1) Pull out the drawer
- 2) Lift it up and take it out from the refrigerator.



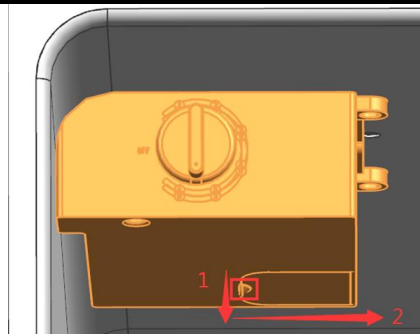
8.3 Light system

Light

Light of the refrigerating

The light at the left of refrigerator chamber

- 1) Separation lamp cover from the temperature control box
- 2) Remove the light bulb

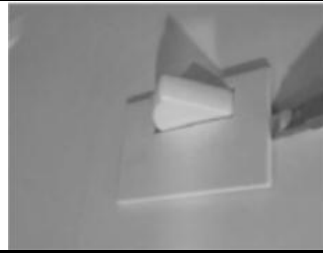


Light of the freezing

None

Light switch

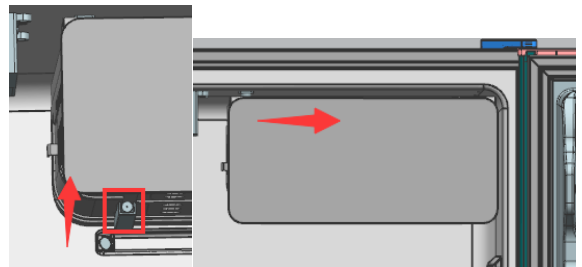
There is a light switch on the side wall of the refrigerating chamber.
Loosen the hook with small normal screwdriver and pull out the switch until the wire connector reveals



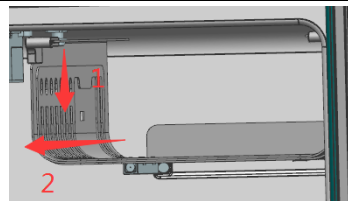
8.4 Evaporator and Defrost system

Evaporator in refrigerating chamber

1) as shown in the picture, dismantle the temperature induced tube from the evaporator, along the direction shown by the arrow, squeeze the small door and dismantle it along opposite direction;



2) Press the evaporator downwards along the direction 1, then pull the evaporator horizontally along direction 2, at last cut off the connected pipe of evaporator



8.5 Compressor case

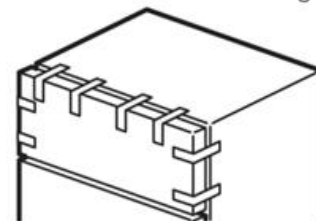
Rear cover and compressor case

Rear cover and compressor case

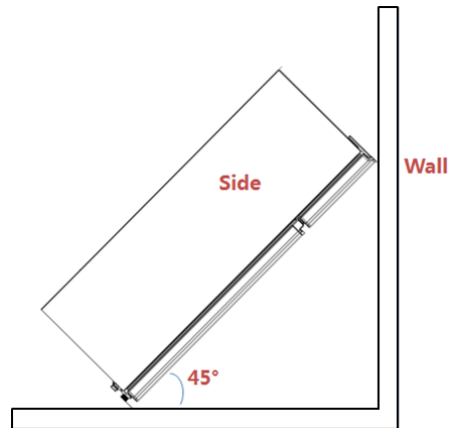
None

Compressor and the cooling system pipe

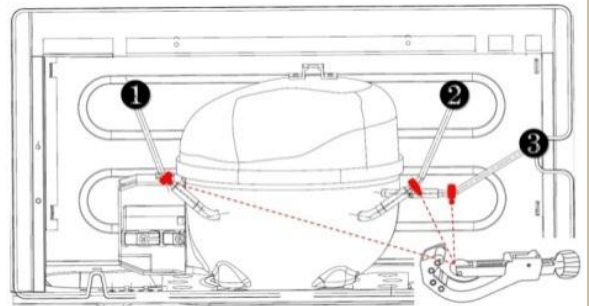
1) Cut off the power, remove the goods in the refrigerator, with the tape to make the door fixed firmly and prevent the door dropping when the refrigerator dumping.



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

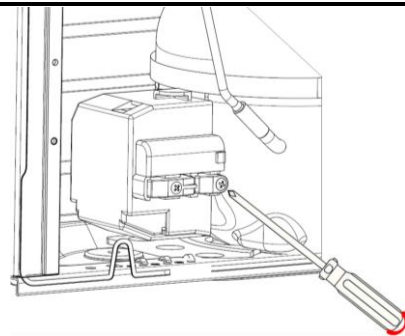


3) Cut off the compressor pipeline.-**1** Cut off the process pipeline.-**2** Cut off the low-pressure muffler.-**3** Cut off the high-pressure exhaust pipe.



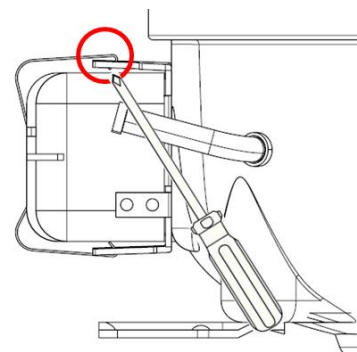
4-1) **Remove the screws(for some models)**

- Two screws outside
- One screw inside



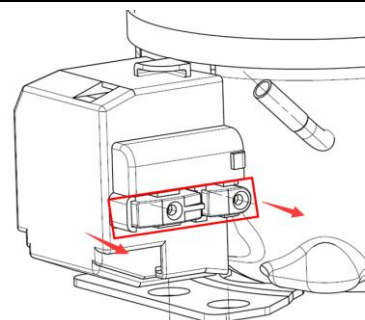
4-2) **Remove the metal clamp(for some models)**

- Disassembly the metal clamp that is fix the electric appliance shield



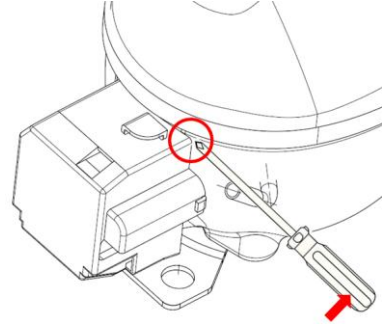
5) **Remove the clipping strip**

Slowly pull it out



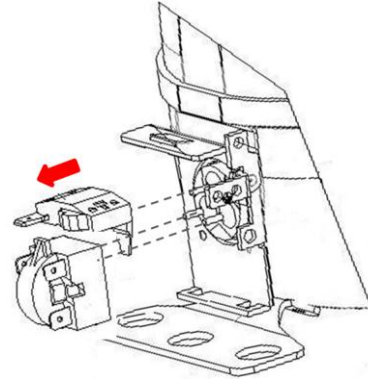
6) **Remove the protective cover**

-Pry the protective cover slowly from the upper part,
-Pull it out and remove it.

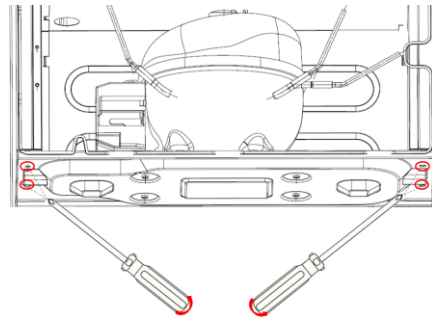


7) **Remove the starter and protector**

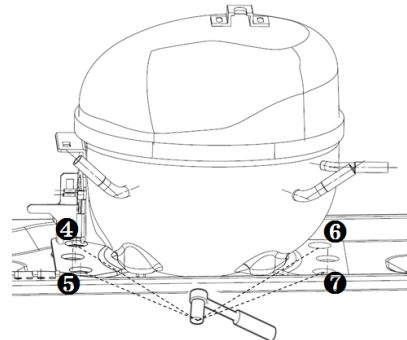
Unplug the starter and protector (you can use a screwdriver to pry it slowly)



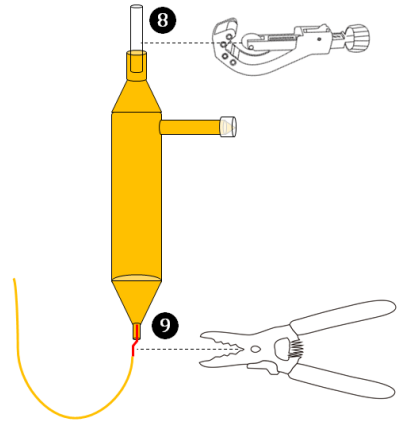
8) Loosen the screw of the compressor bottom plate, remove the floor together with the compressor from the box.



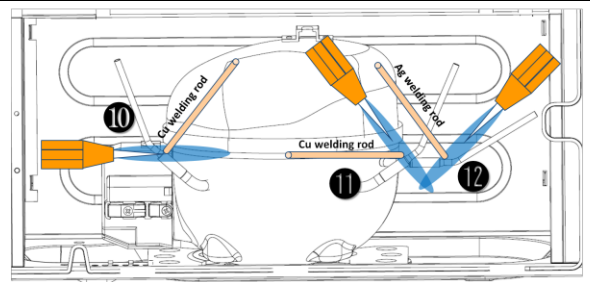
9) Use the wrench to remove the bolts by steps 4 5 6 7, replace the compressor and reverse process can complete installation.



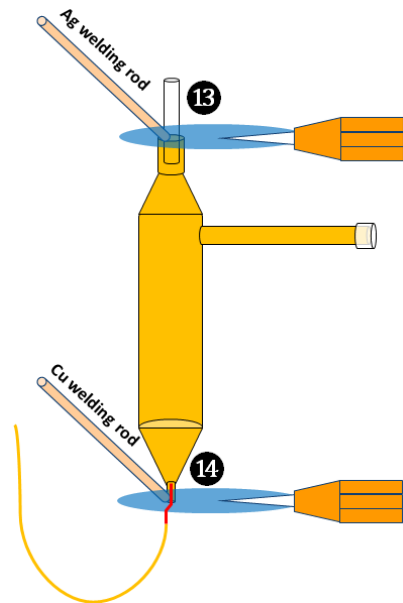
10) Use Pipe cutter cut off the condenser tube ⑧, then Shear off capillary ⑨ by the capillary tube scissors.



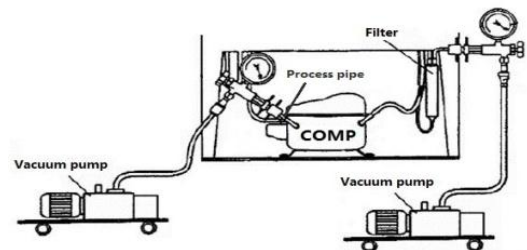
11) Replace the compressor and welding the compressor pipeline.-⑩Welding the process pipeline.-⑪Welding the low-pressure muffler.-⑫Welding the high-pressure exhaust pipe.



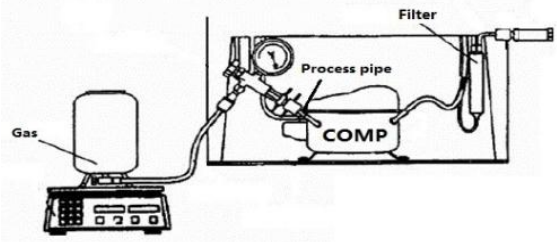
12) Replace the filter, Cu-Fe tubes welding ⑬ used Ag welding rod, Cu-Cu tubes welding ⑭ used Cu welding rod.



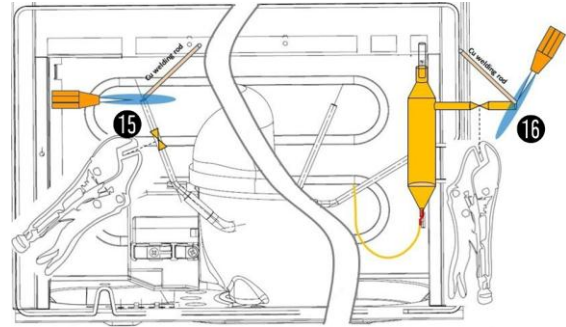
13) Vacuum system, The degree of vacuum below 6Pa.



14) Perfusion refrigerant.



15) Use the vise grip pliers clamp the middle of the process pipe, then seal welding process tube 15 16.



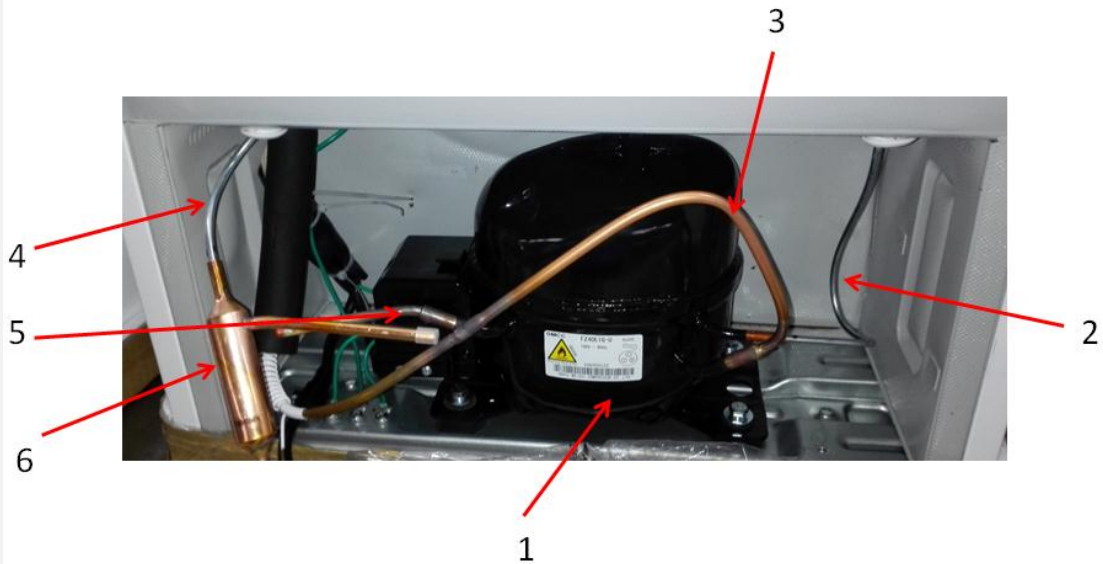
Back hanging wire tube condensor

None

Piping system in the compressor case

- 1.compressor
- 2.left condenser
- 3.suction connect pipe
- 4.right condenser

- 5.suction pipe
- 6.dry filter



Drain tray

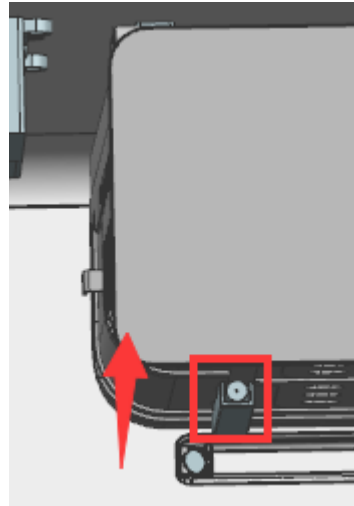
None

9. temperature sensing system

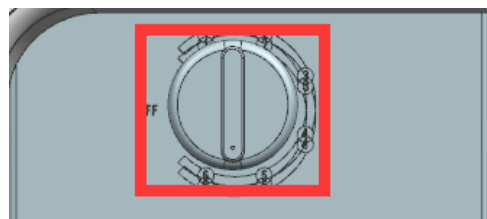
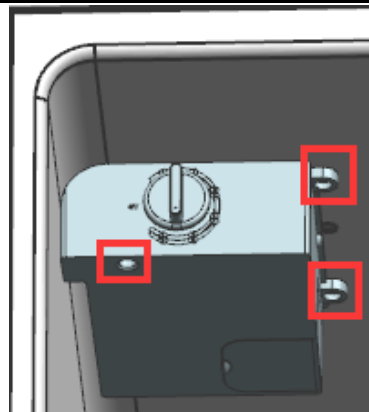
9.1 Thermostat

Thermostat

1.as shown in the picture, dismantle the temperature induced tube from the evaporator

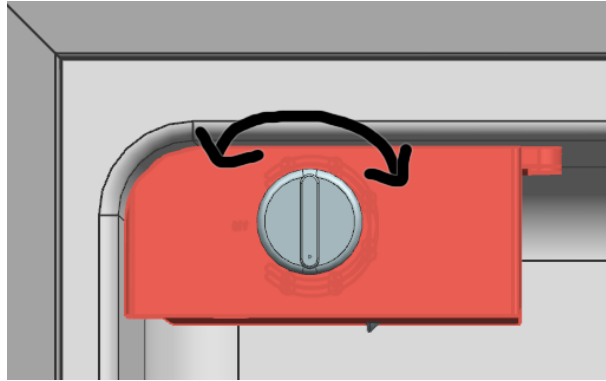


2. use screwdriver to remove the screws of thermostat
3. pull out rotary knob and unplug the wiring connector, then change the thermostat



10. Function and operation

10.1 Operation panel



Direct cooling mechanical refrigerator, through the thermostat knob to adjust the stalls.

10.2 Temperature setting

Turn the temperature control knob to MAX, the internal temperature of the refrigerator becomes lower. Turn the temperature control knob to MIN, the internal temperature of the refrigerator becomes higher.

NOTE: Please adjusting and using between "MAX" and "MIN"

10.3 Open door alarm

When refrigerator door or freezer door is open, the display panel is light on. there is no notification tone when open door; if refrigerator door or freezer door is open last for 120s, there will be buzzer alarm, afterwards give alarm one time per second, press any buttons on control panel can cancel this buzzer alarm.

Note: under the situation of the refrigerator compartment turn off, the door switch and internal lamp works properly.

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

10.4 Defrosting function

Manual defrost

11. Compressor

11.1 Compressor on and off Control specifications

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

- 1) $T_r \leq T_{rt}$;
- 2) The compressor runs continuously for more than 3 hours (Stop 5 minutes);

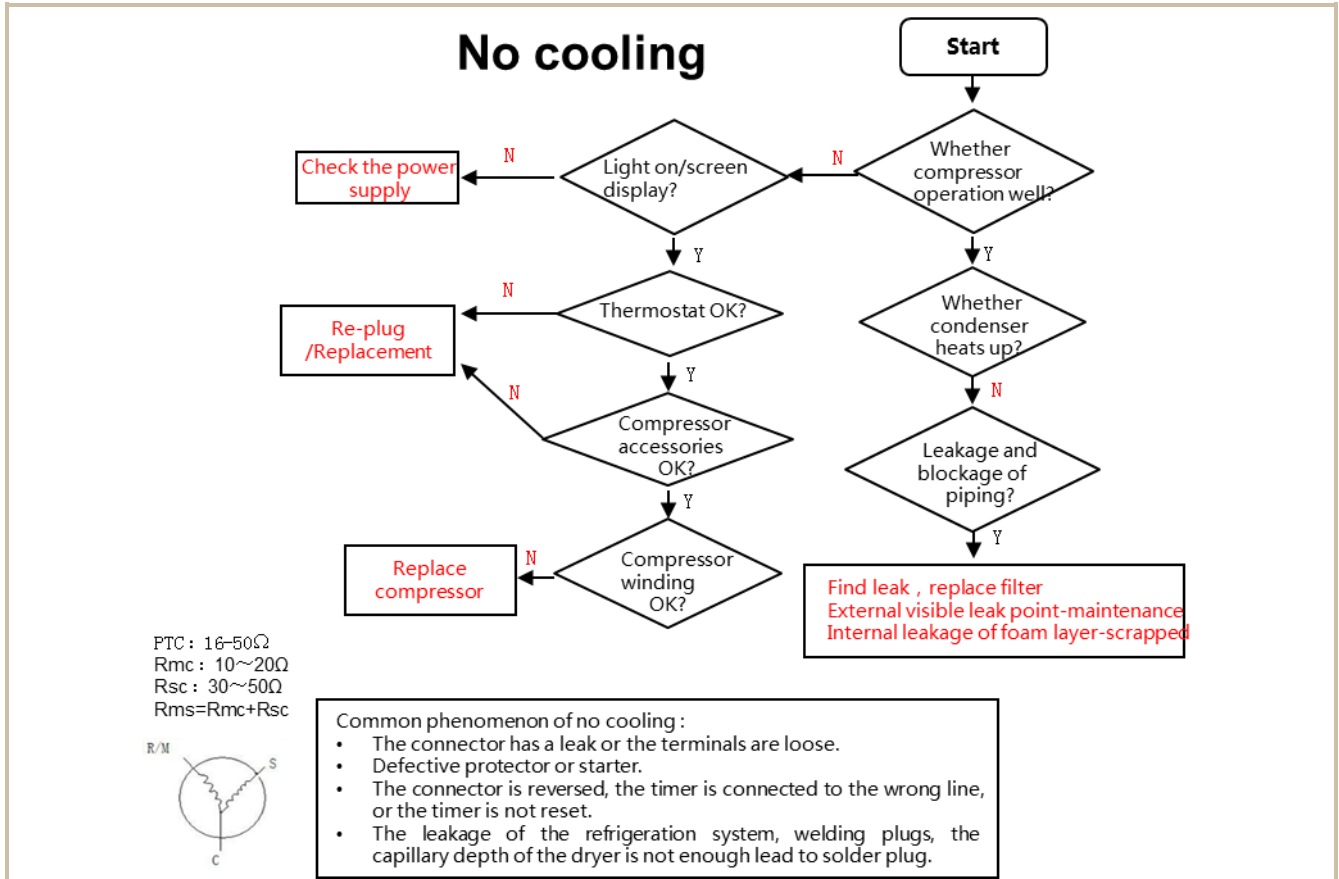
1.2 When all the following conditions are met, the compressor starts up:

- 1) $T_r \geq T_{rk}$;
- 2) Compressor downtime is more than 5min.

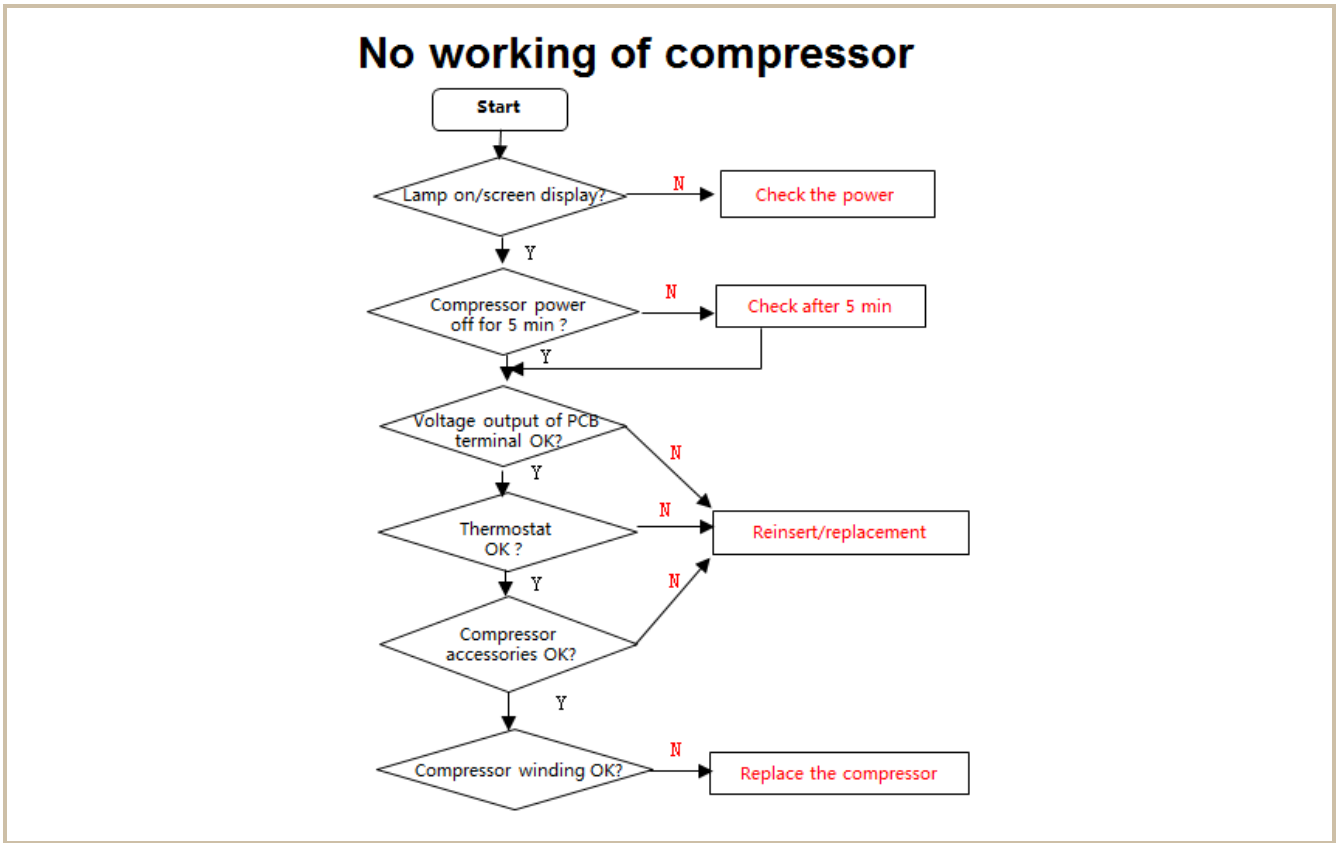
★When 1.1 and 1.2 are not satisfied, the compressor maintains the original state

12. Troubleshooting Method

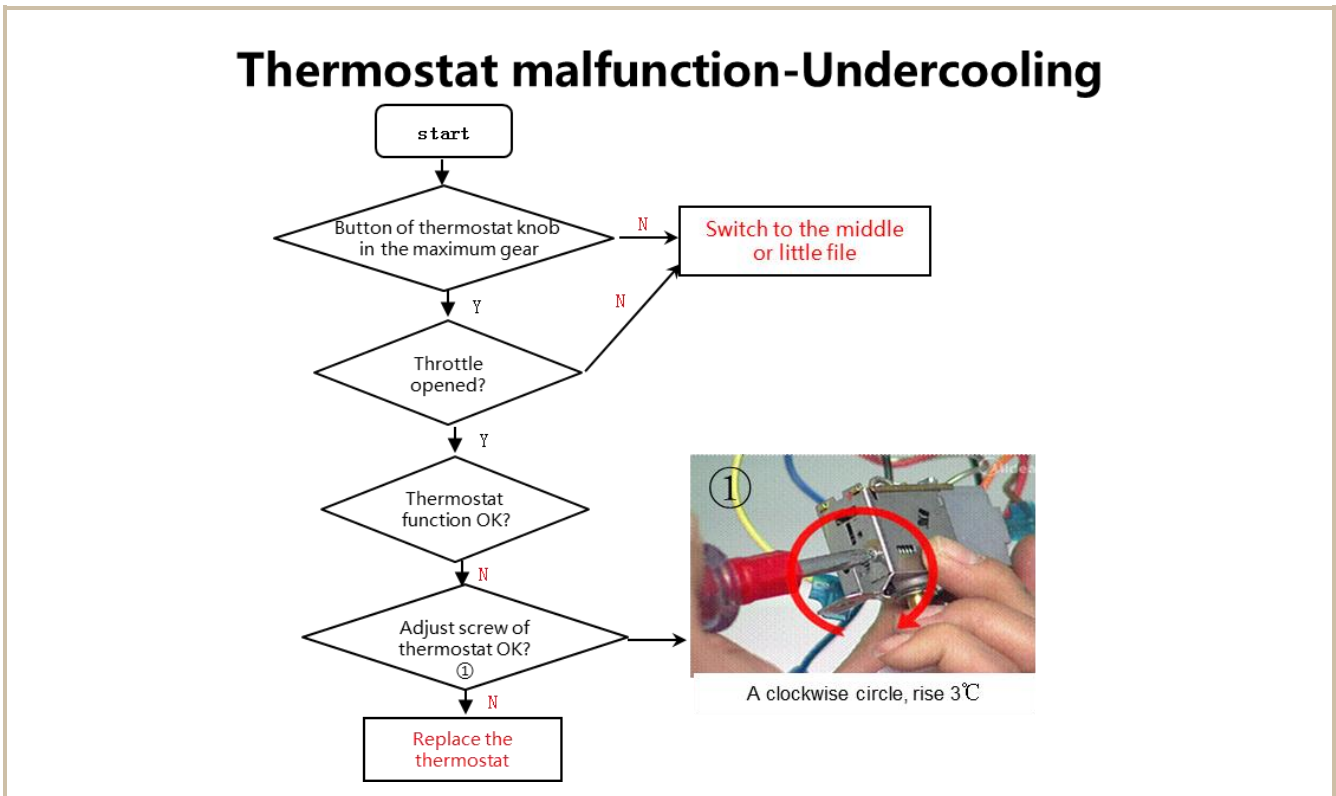
12.1 Not cooling



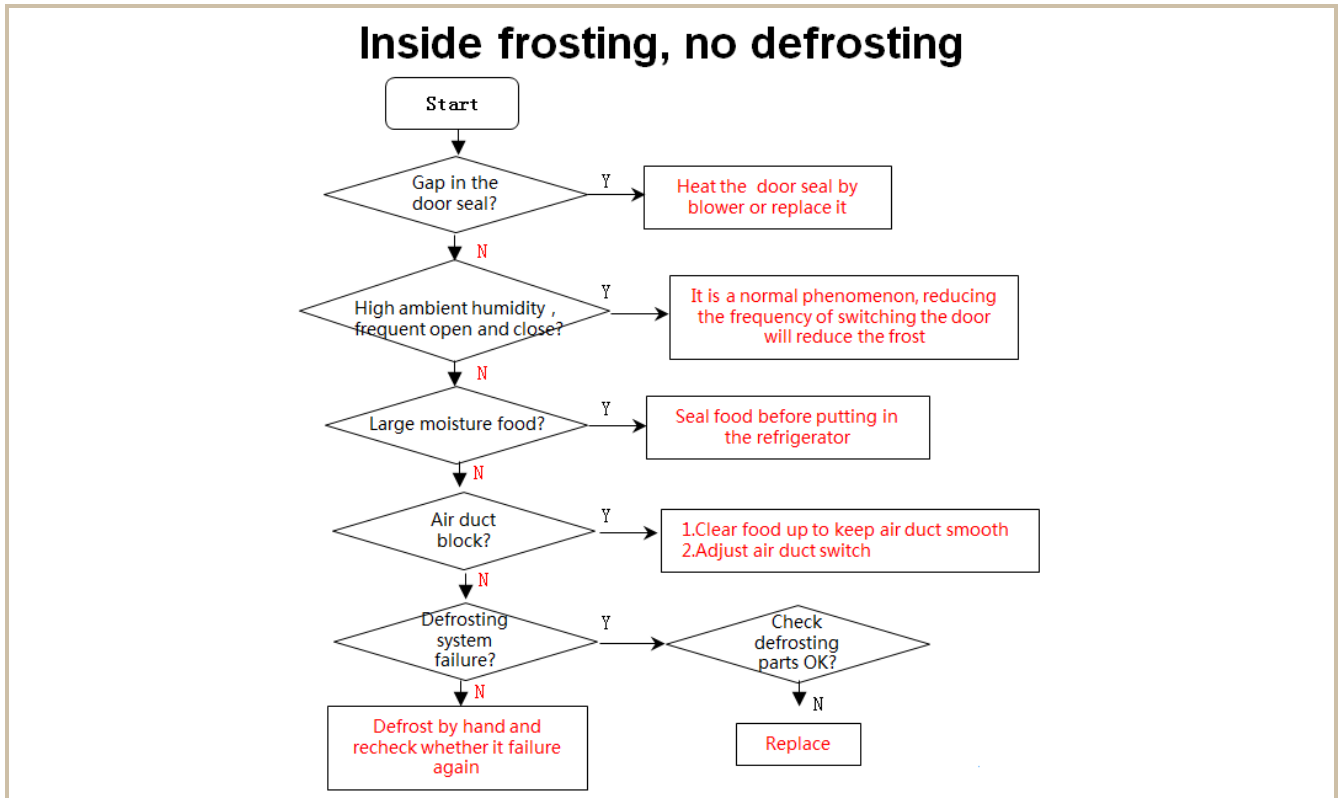
12.2 No working of compressor



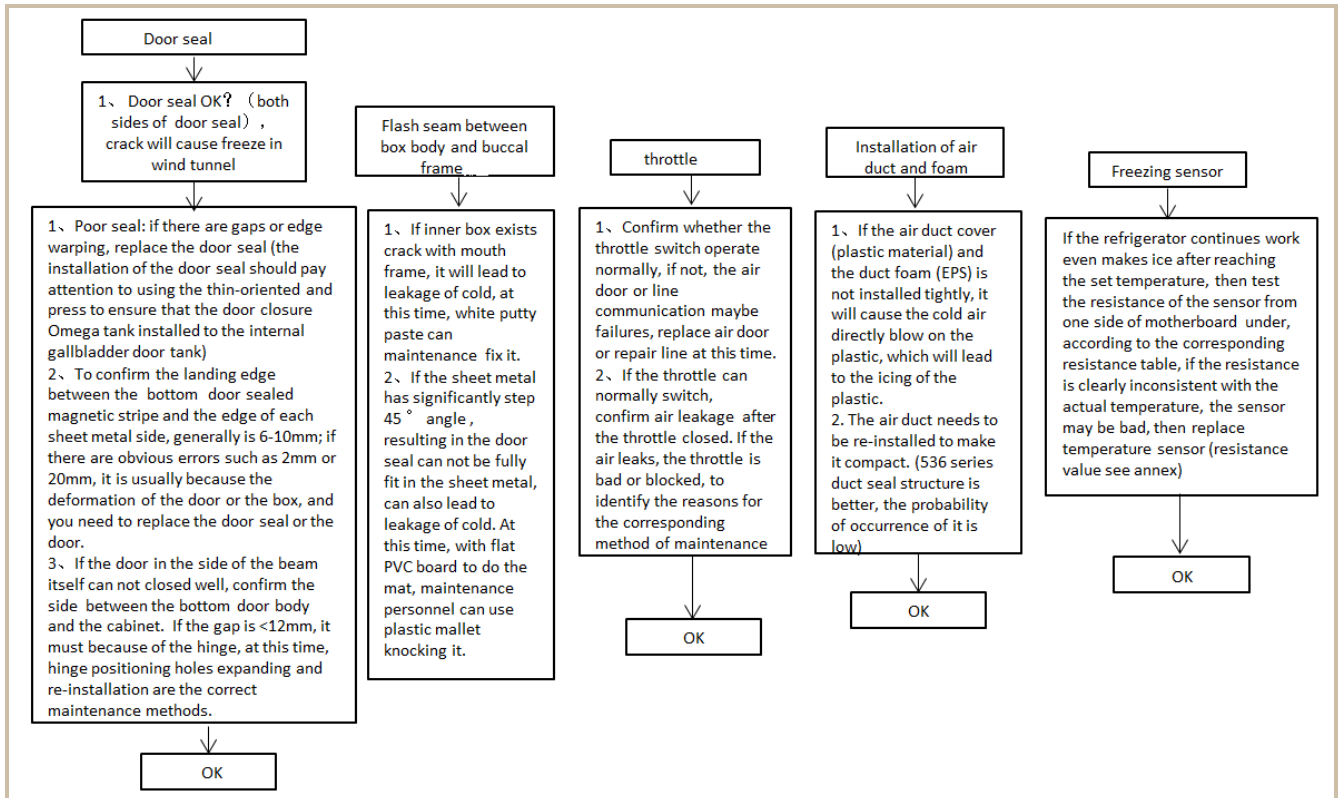
12.3 Thermostat malfunction-Undercooling

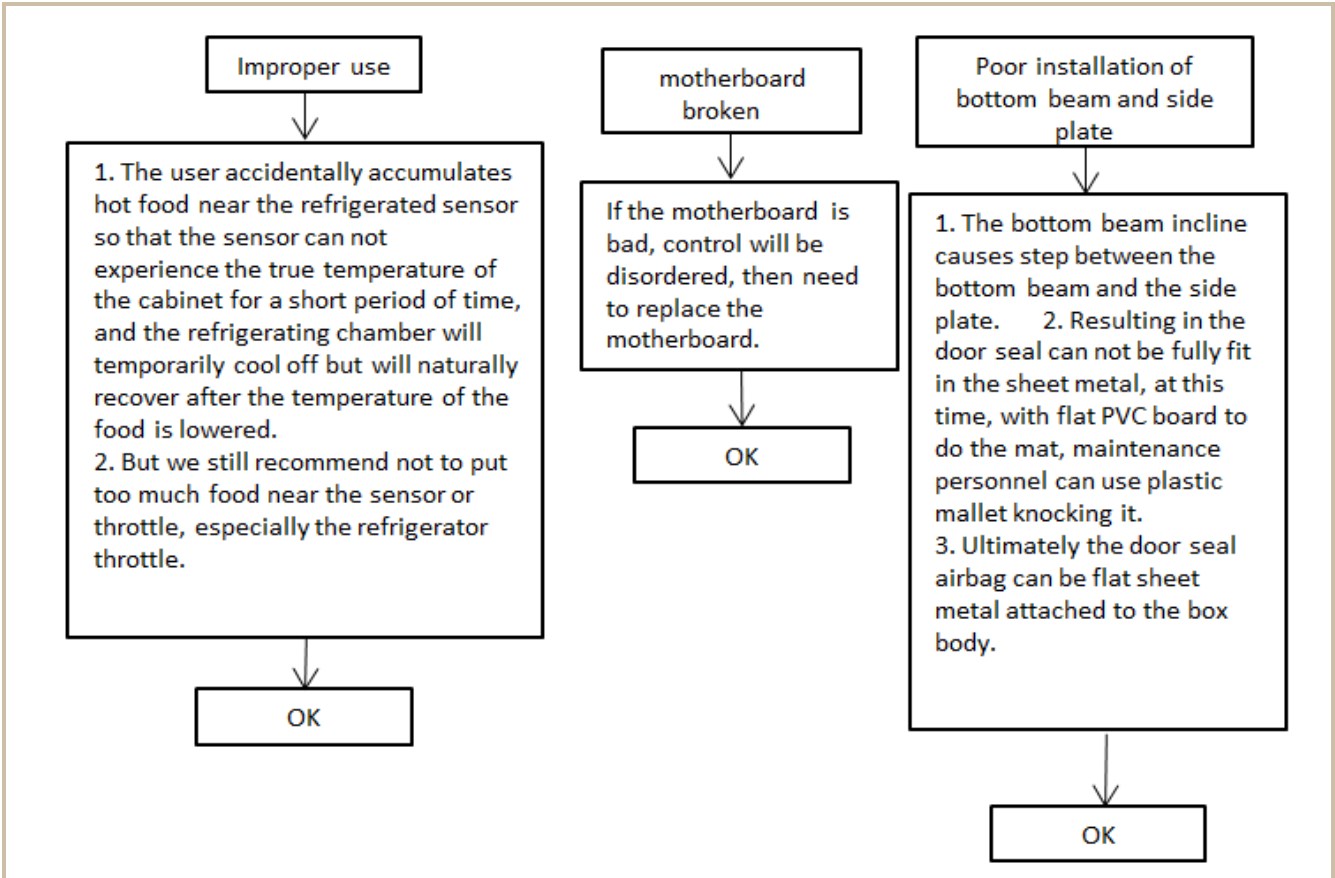


12.4 Inside frosting, no defrosting

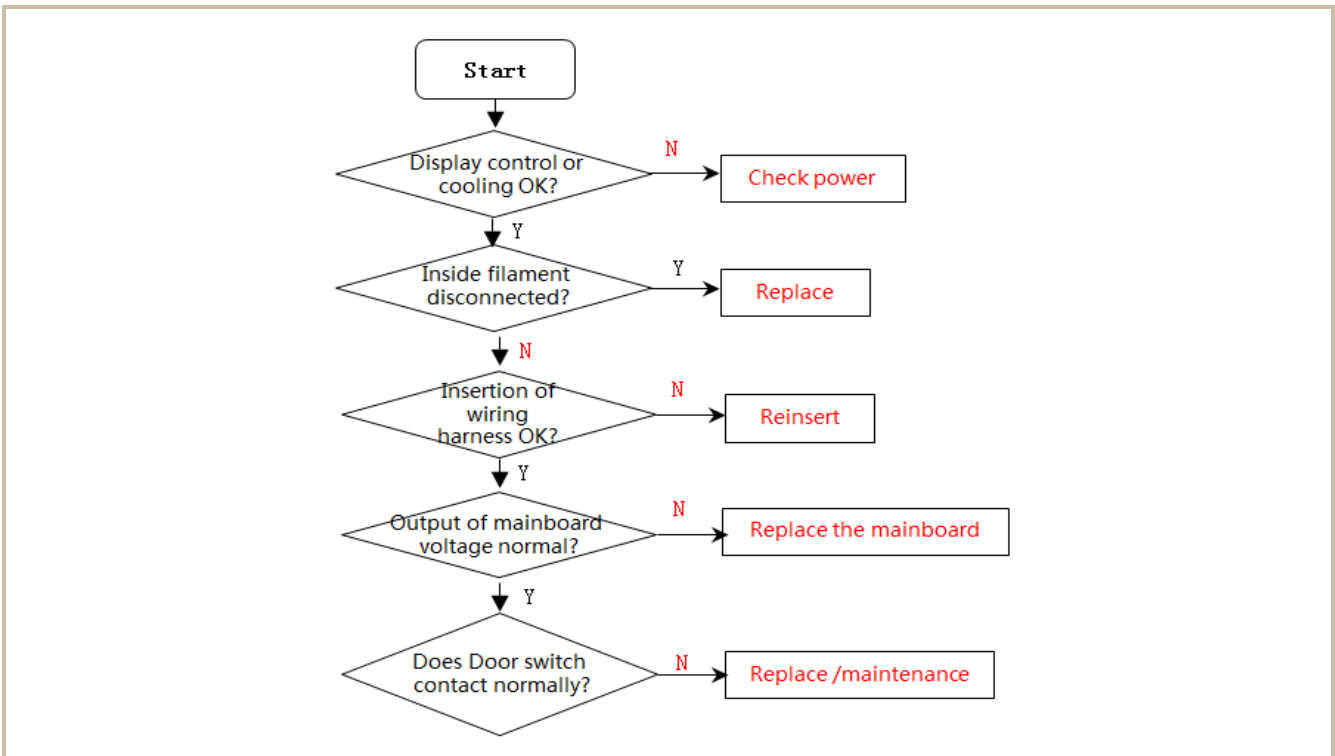


12.5 Inside frosting, no defrosting-Maintenance guidelines

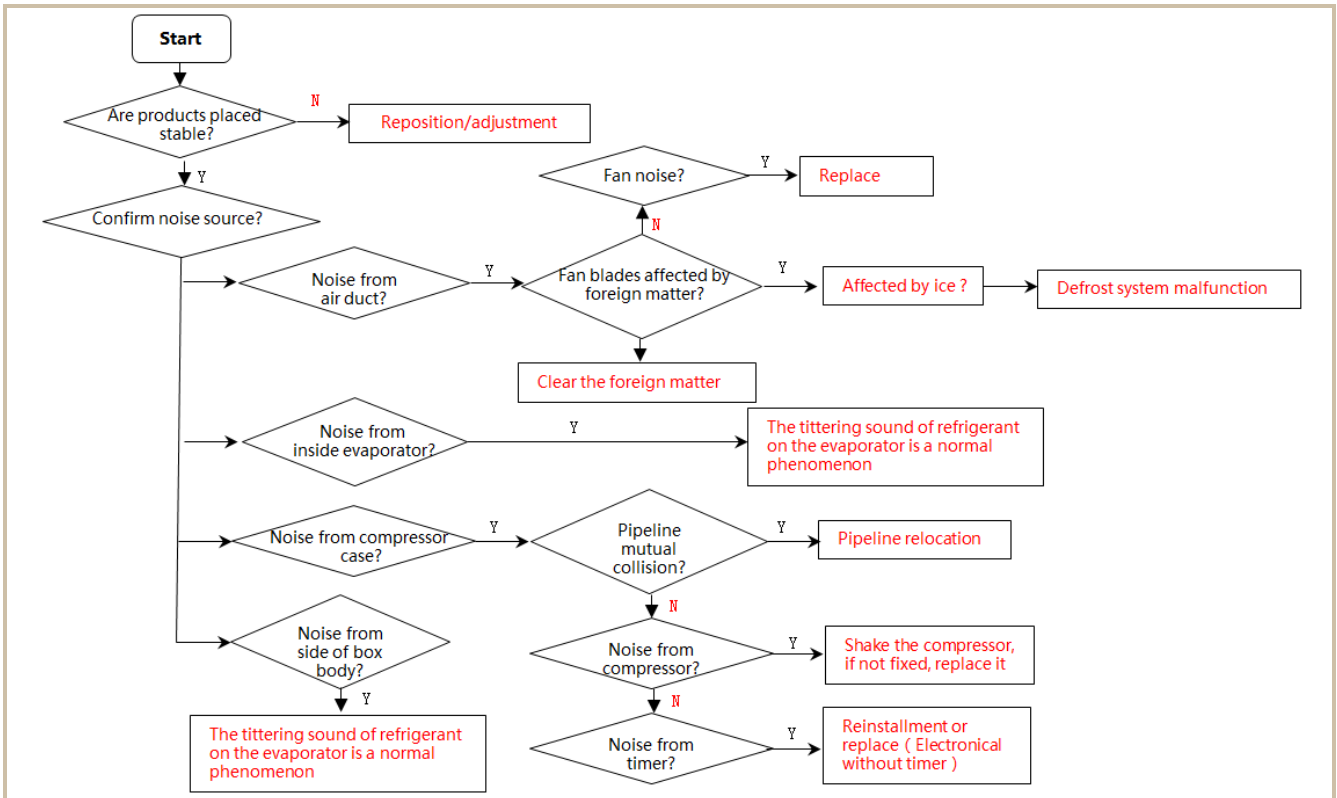




12.6 Light is not on



12.7 Noise



13. Figures and details of repair parts

See this section in the TSP.

Entry Guidelines (TSP System)

■ Where

Chrome


<https://tsp.midea.com>

■ How

- Midea user: Same as your [MIP](#) account & password.
- Overseas customer:

Account: Generated by TSP (provided by administrator).

Each customer have a code in Midea Group, G/E + seven numbers.

If you buy different categories from Midea group, you can see all the product information by one account.

Password: abcd1234 (please revise after login in).

If the input error more than 5 times, account will be locked, need the administrator to unlock.



Admin team:

REF: Jamie Liu(liujc5@midea.com)

IT: Martin He(dingding.he@midea.com)



**ON LINE
ANY TIME
ANY WHERE**



The symbol on the product or its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste for recycling, please contact your local authority, or where you purchased your product.



MIDEA appliances after sales website

For more information about Midea appliances after sales, please visit the tsp.midea.com
For more information about the service manual, please visit the tsp.midea.com
For more information about the EV and SBOM, please visit the tsp.midea.com



How to login TSP system

Use Google browser visit the <https://tsp.midea.com/>

Internal User:

Use MIP account and Password.

Customer:

Access: Generated by TSP (provided by administrator).

Password: abcd1234 (please revise after login in).

Midea Refrigerators

If you need to get detailed technical information from the manufacturer, please contact:

xxx@midea.com

**Refrigeration Division
Overseas Sales Company**

Address: No. 176, Jinxiu Avenue, Economic-Technological Development Area, Hefei, Anhui, China