
SERVICE MANUAL

ELECTROLUX

ESE5401/ESE5441/ESE6101/ESE6141/ESE6645

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1. Functions and features

1. The freezer automatically defrosts, saving you the hassle of manual defrosting.
2. Set frozen, energy saving, noise reduction and other technologies in one, by optimizing the refrigeration system, to achieve energy-saving purposes, and minimize noise.
3. Anti-mold antibacterial removable door seal, clean and hygienic, easy to clean.
4. Hidden hinge system, solid and beautiful, can achieve automatic closing, door opening limit.

2. Structure

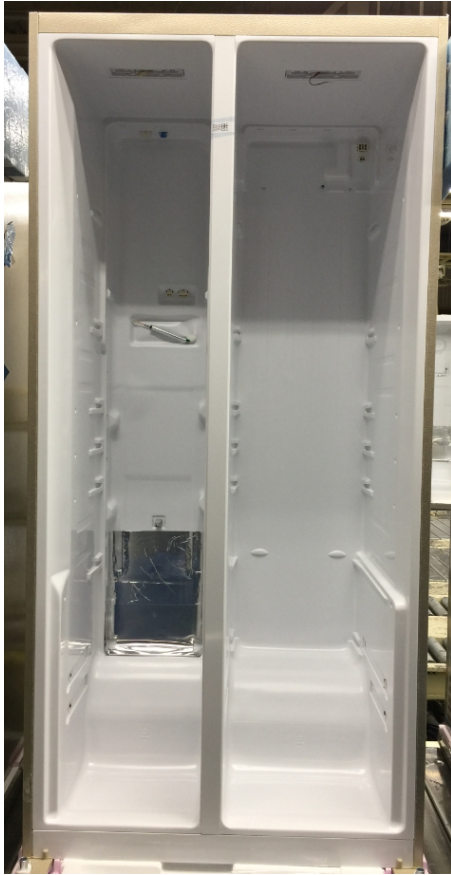
Open from the front



Open from the inside



Without accessories



The back



Compressor room



Location of sensors



Air flow path



Air duct freezer



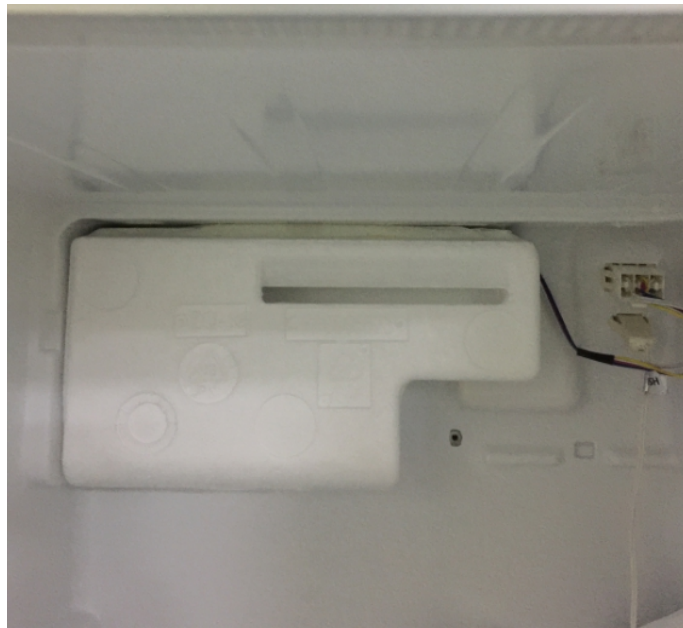
Freezer fan motor



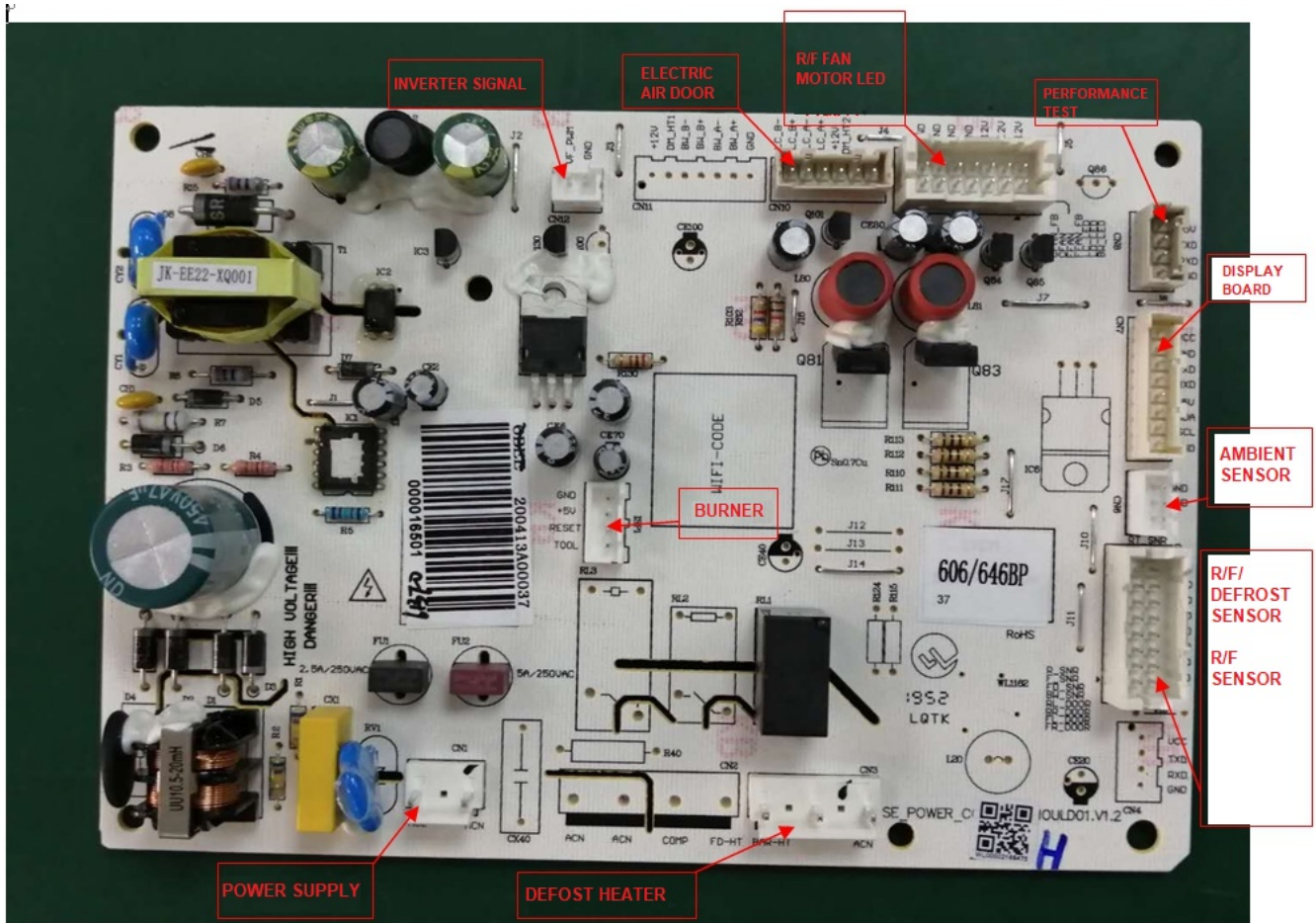
Air supply outlet freezer→cooler



Air duct cover cooler



PCB



Refrigerator return air mouth

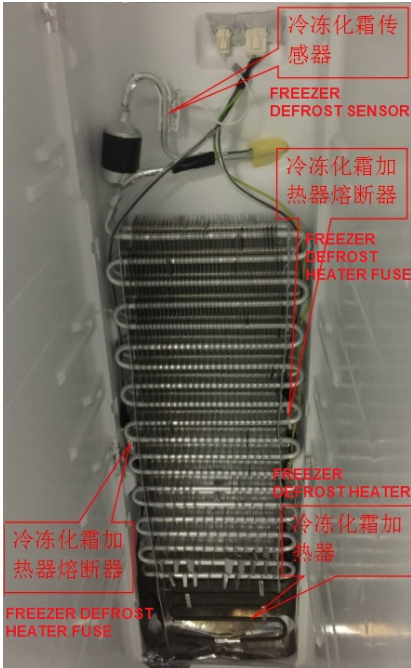
Freezer side



Fridge side

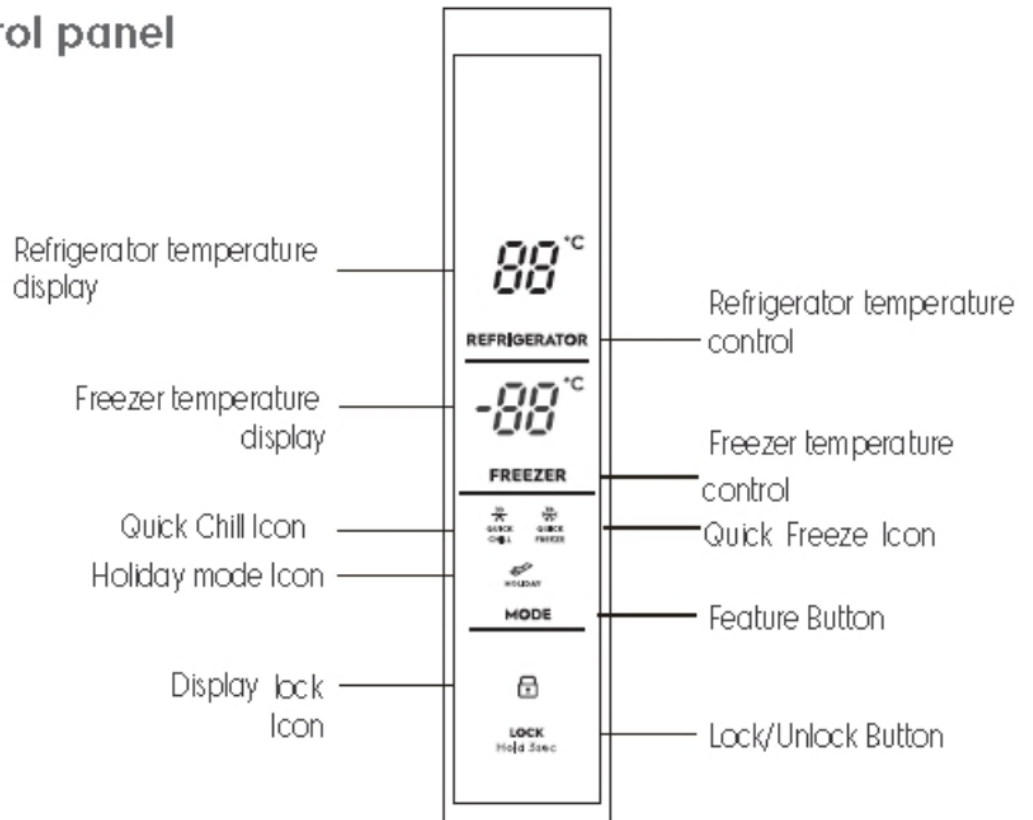


Evaporator



Operating instructions

Using the control panel



1. Display

- When the power is switched on for the first time, the display screen will be displayed according to the factory default setting. If the setting temperature and mode are changed, it will be displayed according to the latest setting;
- No open, close and display screen operation, 20 seconds after the display screen off, open, close or display board touch operation, display screen light up again;

2.Lock and unlock

- Long press the LOCK/UNLOCK button for 3 seconds to LOCK and UNLOCK the screen by touching the key;

3.Cooler room setting and on and off functions

- Refrigerating room temperature and quick cooling mode setting

The temperature setting range of the freezer is 2 °C ~8 °C ; Press reref.TEMP key to adjust the setting of the freezer. Press reref.TEMP key once and the setting of the freezer will change once

- The freezer is closed and open

Long press the reef.temp key to set the refrigerator to close and open. When the refrigerator is closed, display the refrigerator area and display "--".

4.Freezing room setting

The setting range of freezing chamber temperature is -23 °C ~-15 °C . Press frz. TEMP key to adjust the setting of the freezing chamber. Press frz. TEMP key once and change the freezing setting once.

5. Holiday, frozen, cold mode

Each press of the function to select the button once, in the case of trouble-free can be set mode, according to the holiday mode - frozen mode - frozen mode / cold mode - fast cold mode - no - holiday mode cycle setting and exit, mode setting success, group corresponding mode icon lit. When the holiday mode is set, the refrigeration is automatically set at 8 degrees C, the freezer is automatically set to -15 degrees C, when exiting holiday mode, the setting temperature of the freezer and freezer is automatically restored to the setting temperature before the smart mode, and when the cold mode is set, the refrigeration is automatically set at 0 degrees C. When exiting the fast-cooling mode, the refrigerator setting temperature automatically returns to the set temperature before the fast-cooling mode, when setting the freezer mode, the refrigeration and freezer setting temperature remains unchanged, and the compressor and freezer fan are forced to operate for 24 hours or the freezer sensor reaches -28 degrees C or less.

6. Refrigerator door opening tips and open door alarm

When the refrigerator door is open, it does not close for 1 minute, the pushed display interface alarm door opens the alarm information until the refrigerator door closes.

7. Power-off memory

After the refrigerator is powered off, re-powering is still working in the set state before the power is off.

8. Filter tip function

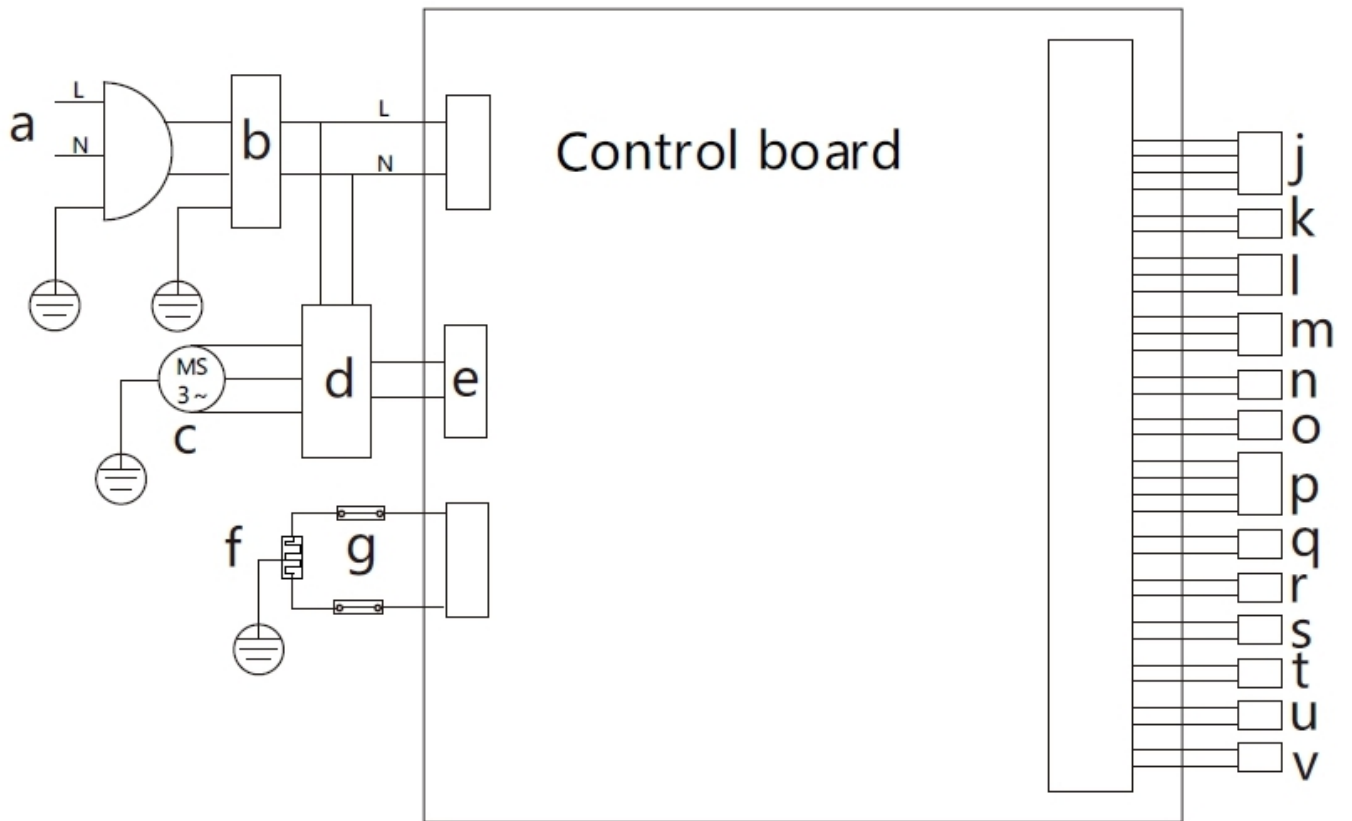
After the initial installation or replacement of the filter element, while pressing the function selection button and frozen temperature adjustment button for 5 seconds, the display plate filter icon lit, filter use time began to time, filter use time is about to expire, filter filter icon flashing, filter use time expired, filter icon extinguished, need to replace the new filter.

9. Fault warning

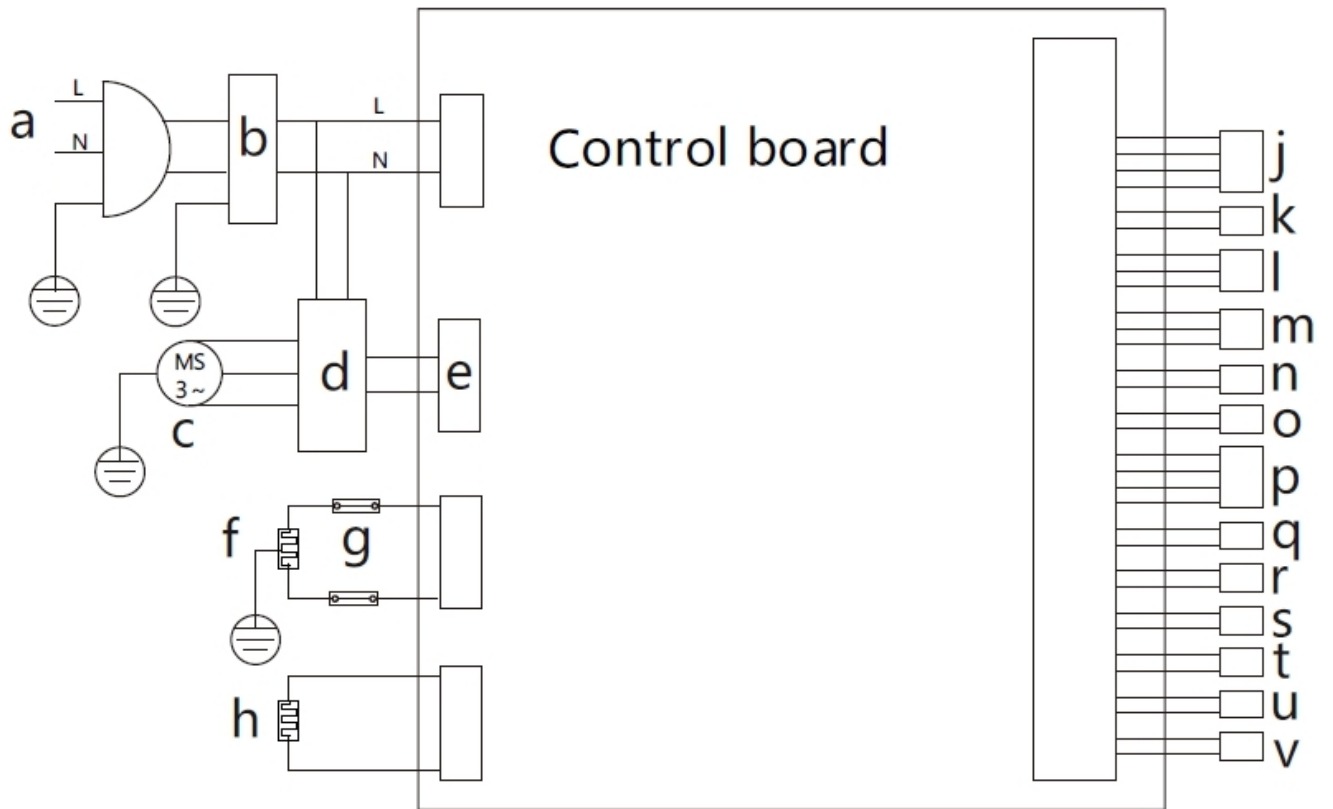
When the following fault in the display shows that the refrigerator has a fault, some of the faulty state refrigerator can still be cooled, but should contact the repair as soon as possible to achieve optimal operation of the refrigerator.

Electrical schematic diagram and wiring diagram

Electrical schematic



- | | | |
|--------------|------------------|-----------------|
| a Power | j Stepping motor | q RT SNR |
| b Filter | k DAM-HEATER | r R.SNR |
| c COMP | l C.FAN | s F.SNR |
| d Inverter | m F.FAN | t DEF.SNR |
| e SIGNAL | n R.LAMP | u R.door switch |
| f DEF-HEATER | o F.LAMP | v F.door switch |
| g Protector | p Display board | |

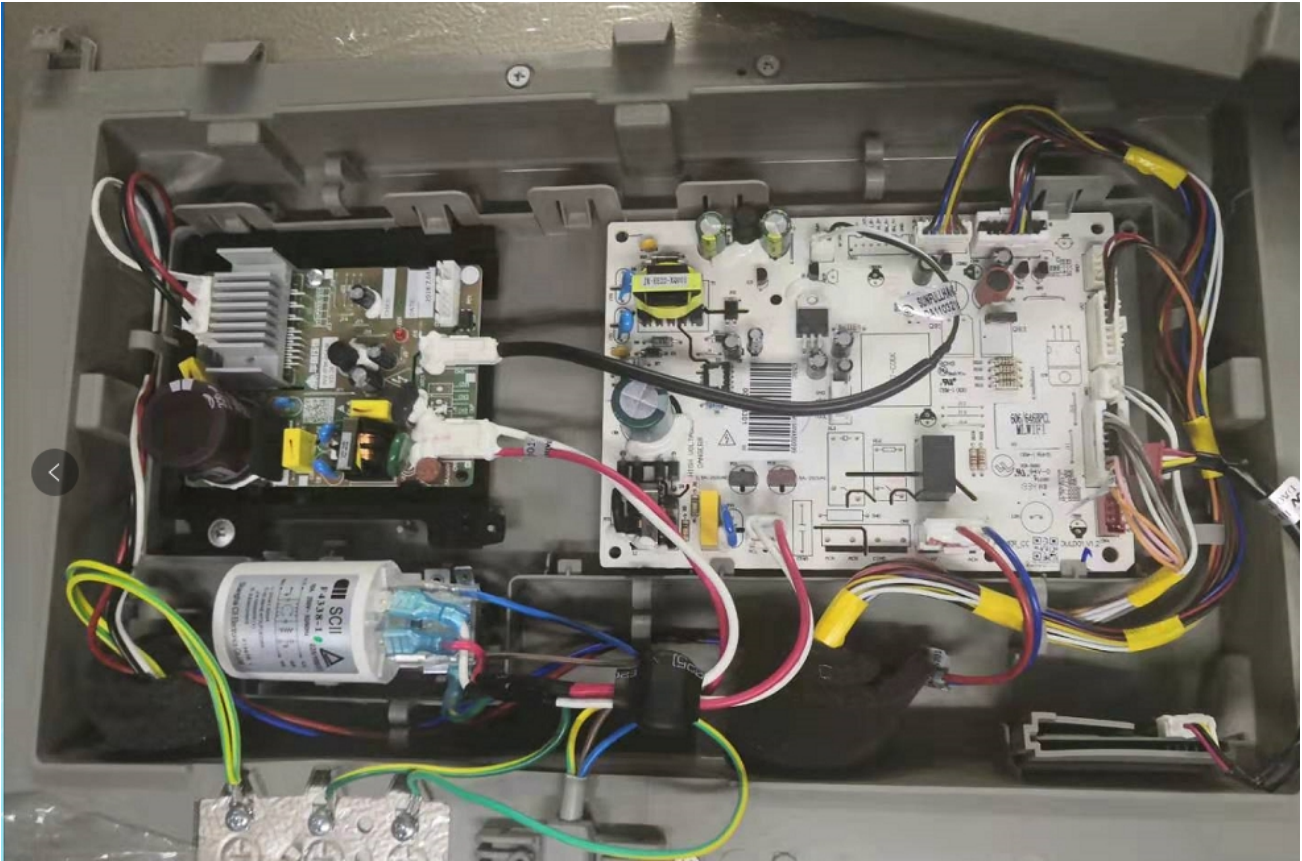


a Power
 b Filter
 c COMP
 d Inverter
 e SIGNAL
 f DEF-HEATER
 g Protector

h BAR-HEATER
 j Stepping motor
 k DAM-HEATER
 l C.FAN
 m F.FAN
 n R.LAMP
 o F.LAMP

p Display board
 q RT SNR
 r R.SNR
 s F.SNR
 t DEF.SNR
 u R.door switch
 v F.door switch

Install



Control principle, parameters and test method

Introduction to refrigerator control

- 1) Refrigeration room control: refrigeration on state, press and hold the refrigeration temperature key for 5 seconds, until you hear a beep, into the refrigeration closed state. At this point the temperature display area shows "-"; When refrigeration is off, press and hold the refrigeration key for 5 seconds until you hear a beep and exit the refrigeration shutdown.
- 2) Freezer room control: press the freezer temperature key can adjust the temperature of the freezer; For the first time, press the frozen temperature key, each time you press the frozen temperature key (key B), the temperature drops by 1 degree C, the temperature reaches -23 degrees C and then presses the frozen temperature key once, the freezer is set to -15 degrees C, the set range is -23 degrees C to -15 degrees C, and the 10S setting is effective after the temperature is stopped.
- 3) Speed cooling control: in the speed cooling mode, refrigerate in accordance with the set maximum gear for 2.5 hours before exiting;
- 4) Speed freeze control: in the speed freeze mode, the compressor will not stop to reach the maximum running time or exit the mode after the temperature of the frozen sensor reaches the exit requirement;
- 5) Holiday control: press the mode button, cycle selection smart, frozen, frozen / fast cold, fast cold, no mode, no key operation after 10S effective. (Intelligent mode, refrigeration set temperature of 8 degrees C, frozen set temperature of -15 degrees C);
- 6) Door alarm: When the refrigerator door opens 60S, every 30S display board buzzer sounds three times.

7) Lighting control: if the refrigerated or frozen door is opened, the corresponding room lighting lamp is on; if the refrigerated or frozen door is closed, the corresponding room lighting lamp is off; if the door is opened for more than 5 minutes, the lighting lamp is off;

8) Fan control:

8.1 If one of the following conditions is met, the freezer fan motor is on:

A. (When the defrosted compressor is turned on) AND (refrigeration room, freezer door);

B. (When the non-frost state compressor is turned off and refrigeration requests cooling) AND (refrigerator, freezer door).

Note: If the fan meets the opening conditions after the refrigerator door is closed, it will be delayed by 10s.

8.2 If one of the following conditions is met, the freezer fan motor is stopped:

Compressor shutdown and refrigeration of non-refrigeration state;

The status of the freezer frost;

The freezer door or the freezer door is open for less than 4 hours (if the door is open for more than 4 hours, it is restored to its original state)

9) Door control:

9.1 The shutter door is closed if one of the following conditions is met:

Refrigeration sensor temperature $T_{ra} \leq$ refrigeration stop point temperature T_{rt}

Defrosting process

C. The cold room is closed.

9.2 The cooler door opens if the following conditions are met:

A. (Non-defrosting process) AND (non-refrigeration off mode) AND (refrigeration room sensor temperature $T_{ra} \geq$ cold room power-on point T_{rk});

b. After defrosting exits 17min, the press meets the power-on conditions or refrigeration request after cooling;

9.3 The door state is abnormally controlled

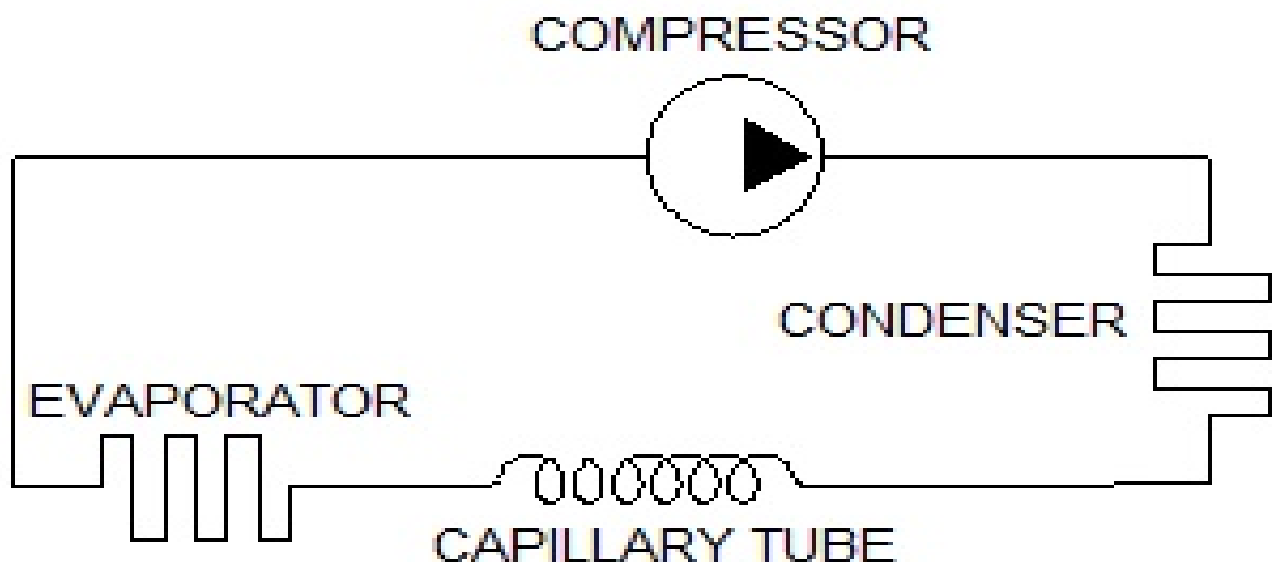
A. The door continues to open the 60min door reset once.

B. The door continues to close 60min once.

10) Display control:

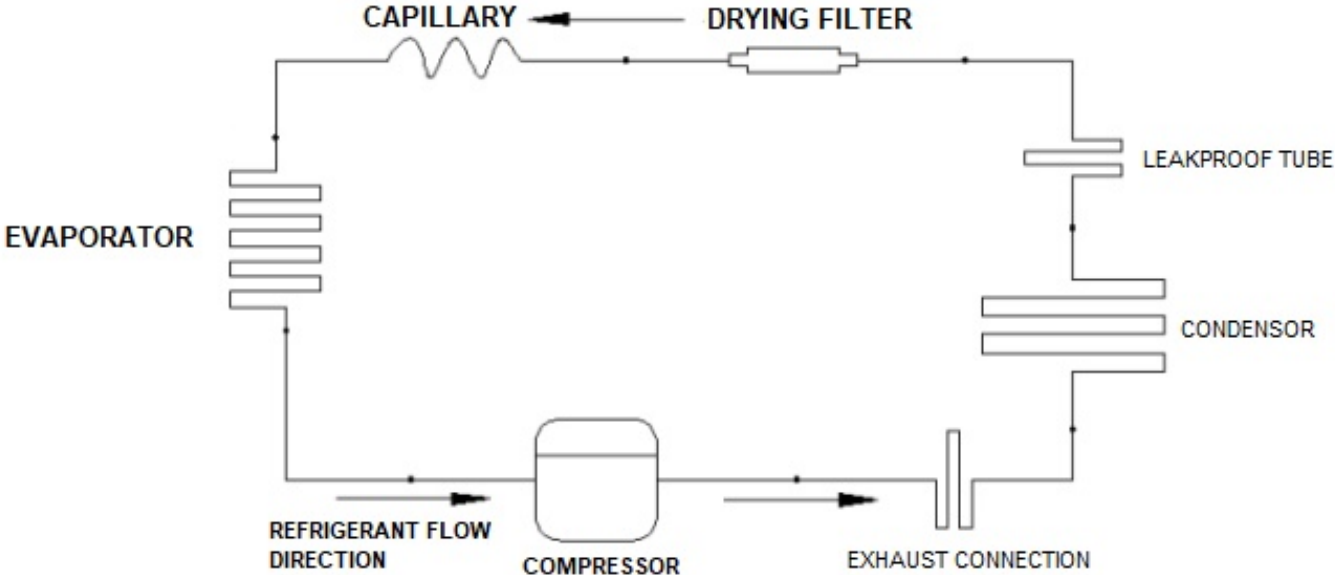
No key operation (the last operation prevails) 20 seconds the display goes out, the refrigerator or freezer door opens when the display is lit (only one door signal is detected at a time).

11) Press protection: the press every stop 7min can be turned on again, 7min delay after the end of the normal control of the press.

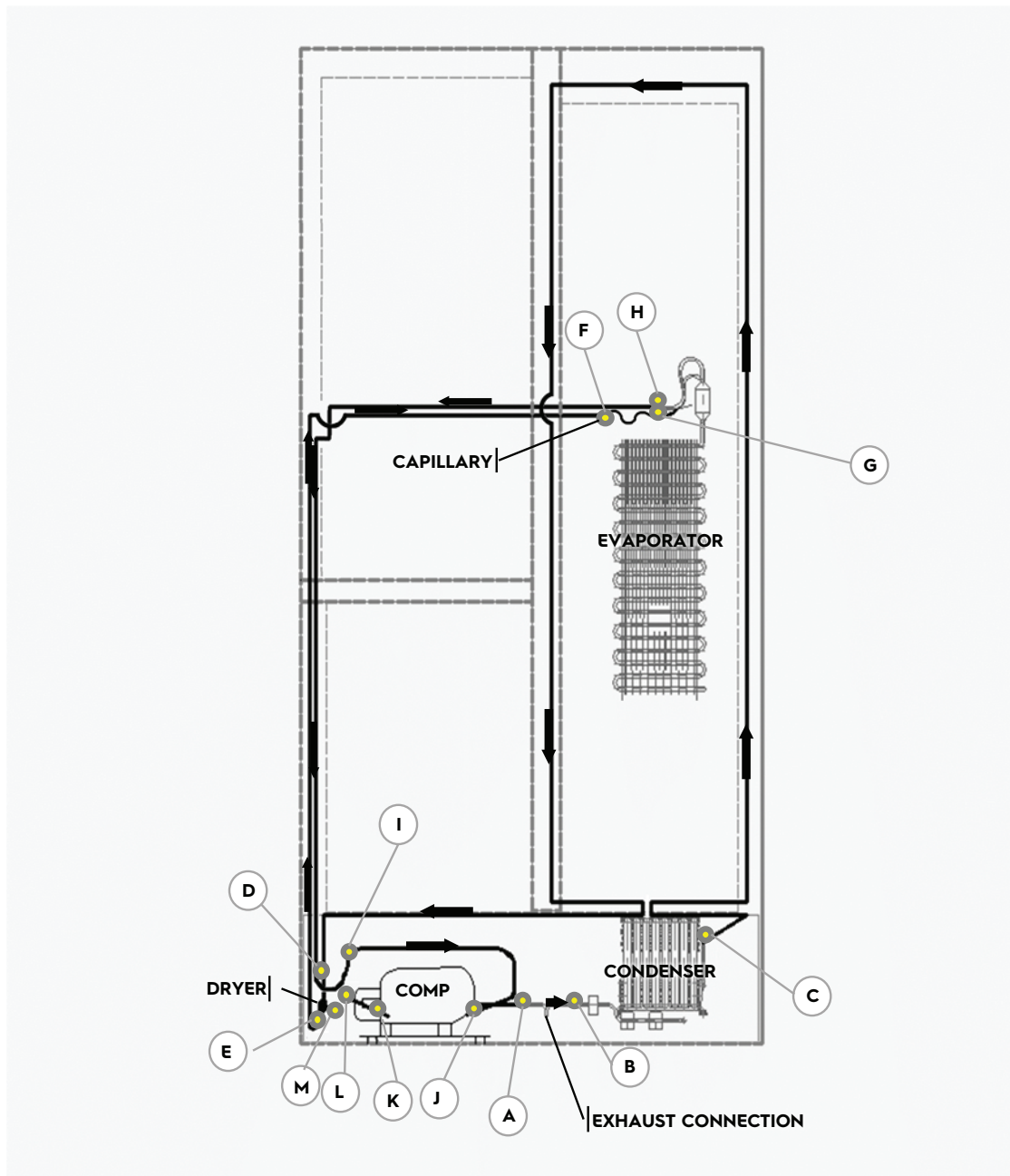


Refrigerant system diagram and Welding line

Schematic diagram of system refrigeration:



Refrigerant diagram and welding point



Position	Equipment connection	Welding type
A	Compressor - condenser connector pipe	Silver
B	Condenser connector pipe - condenser	Lokring:5N AL 12B
C	Condenser - dew proof pipe	Lokring:LG000990101
D	Dew proof pipe - drying filter	Silver
E	Drying filter - capillary	Copper
F	Capillary - transition pipes	Copper
G	Transition pipes - evaporator	Lokring:LG000693601
H	Evaporator- tracheal	Lokring:LG100040200
I	Tracheal - inhaling pipe	Lokring:LG100300501
J	Inhaling pipe - compressor	Copper
K	Compressor - process pipe	High-frequency welding
L	Process pipe	Seal Ultrasonic welding
M	Drying filter	Seal Ultrasonic welding

Disassembly instructions for main components

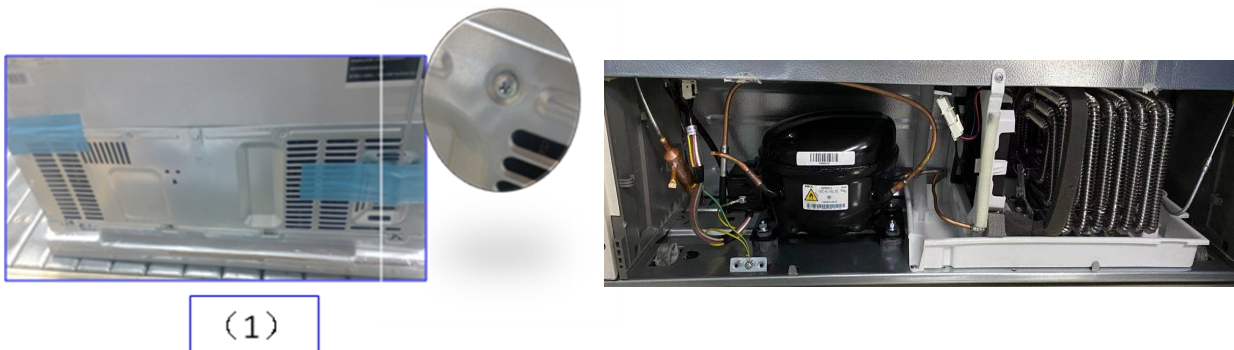
I、 Door removal

1、 Remove the top hinger cover



- 1、 Use a torx screwdriver to remove the upper hinge cover screw;
- 2、 Unplug the door light switch terminal (Pinch the terminal head by hand as pic 2) ;
- 3、 If it is removed as the top right hinger cover, the ring temperature sensor should be removed from the buckle.

Compressor complete removal



1. Remove the compressor cover: use a plum screwdriver to remove the screws
2. Remove the compressor:

Warning: Refrigerants R600 is flammable explosive gas, professional refrigerator maintenance personnel are required to perform maintenance procedures. In the condition that it is determined that the refrigerator can be effectively ventilated and the maintenance space meets 10 m² or more: The first step is to cut the pipe (Do use pipe cutter.the use of flame welding is strictly prohibited) , In the second step, after the free-flowing refrigerant is cut off for 30 minutes, the vacuuming parameter is satisfied and the charging is satisfied after 10 Pa or less.The third step is to use a sealing pliers to clamp the pipe and then use a simple welding torch for welding. (The clamp must be clamped without refrigerant leakage.) 。

Remove the compressor/capacitance



- 1、 Place the compressor flat on the workbench, use a wrench to remove the fixing screws, and then remove the remaining 4 pieces.
- 2、 Press the capacitor snap on the bottom of the compressor unit to the inside and push it out to remove it.

Remove the starter / protector



- 1、 Place the compressor flat on the work surface and use a screwdriver to pry the shield off;
- 2、 Unplug the starter/protector outwards by hand;
- 3、 Use a flat-blade screwdriver to separate the terminal from the blade to replace the starter/protector.

Air duct cover cooler removal



(1)



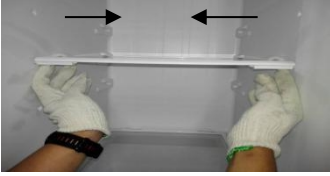
(2)



1. Positioning jaws are shown in the figure position (1)
2. Straighten the positioning claws downwards and pull the air duct cover outward to complete the removal of the cover as figure position (2)

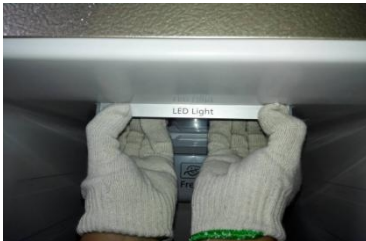
Glass shelf removal

As shown by the figure arrow, pull the partition buckle out of the partition by hand like an arrow direction.



LED light board removal

Use the rocker to remove from the back side of the lamp cover, and pry the limit lamp plate jaws outward to complete the disassembly of the lamp board.



Bottle box removal



The bottle box is directly stuck into the limit of the door biliary. Hold the two ends of the bottle frame with one hand, hold the bottle box with one hand, and squeeze the bottle box with one hand.

Freezer air duct removal



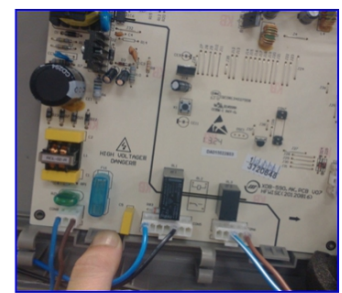
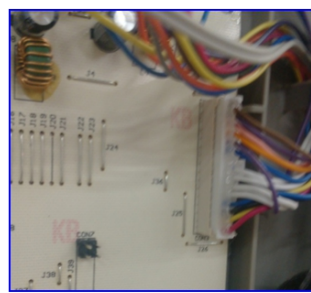
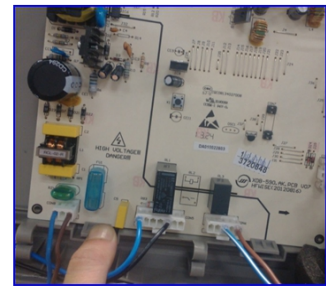
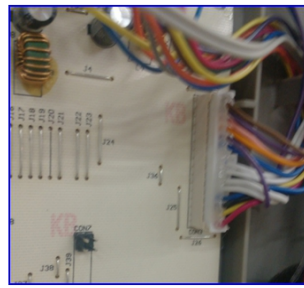
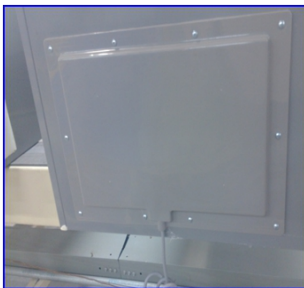
- 1, Use a larger diameter suction cup adsorption in the frozen upper air cover plate in the middle plane.
- 2, Pull the frozen airway cover terminal to complete the removal;
- 3, Use the blade to remove the buckle after the use of plum screwdriver to freeze the lower airway cover on the screw removal;
- 4, Lift up and pull outwards

Drawer guide removal

Use a screwdriver to remove the rail fixing screws, pull the end of the rail with the roller out of the box, and pull out the guide rail to complete the disassembly.



PCB removal



1. Use the torx screwdriver to remove the main control board power cover screw and wear anti-static measures to remove the main control board;
2. After wearing the anti-static measures, pull up the wiring harness terminal inside the box and separate the terminal from the main control board;
3. The power switch limit claw is turned outward, and the main control board is removed along the split side.

Typical fault diagnosis and elimination

Common faults and elimination of refrigeration systems:

Phenomenon	Failure analysis
Refrigerator is not cooling	Reason one: The compressor does not start: Check if the PTC starter is damaged, and the power supply voltage of the main control board is normal.
	Reason two: The compressor frequently trips: Check whether the overload protector is damaged;
	Reason three: The compressor frequently trips: Check whether the overload protector is damaged;
	Reason four: Is the refrigeration system blocked?
A room in the refrigerator is not cooling	Reason one: Check whether the connectors on the main control board are loose or have poor contact;
	Reason two: If the refrigerating compartment is not refrigerated, check whether the refrigerating fan is running. When checking the refrigerating fan, press the door light switch and check it after 5 seconds.
Insufficient refrigerator cooling	Reason one: Check the refrigerant for leaks;
	Reason two: Check whether each fan is running: After opening the door, observe whether the air outlet is out of the air. When checking the refrigerating fan, press the door light switch and check after 5 seconds.
	Reason three: Check if the freezer evaporator is frosted and block the air duct, and the defrosting is normal.
Abnormal noise	Reason one: Check if the pipelines collide and whether the compressor has resonance;
	Reason 2: Check if the exhaust temperature is too high. If the exhaust pipe temperature is too high (the temperature should not exceed 60 ° C under the condition of 25 ° C), there may be air in the system, causing noise abnormality;
	Reason three: Free sound of the freezer compartment or the refrigerating fan. Check if the fan blade interferes with other components.

Electronic control system

Fault phenomenon	Possible reason	Maintenance method
The display is not displayed and the illumination is not lit	Whether the power supply connected, the plug is securely inserted, and the power plug is in good contact	Plug in the power
	The fuse on the main control board is blown	Replace the fuse
	Poor contact of power supply connector of main control board	Plug in the connector

The display is not displayed and the illumination is on	Poor contact between the display panel and the connector on the signal harness of the main control board	Plug in the connector
	Signal connection harness has broken wire	Repair or replace the harness
	Display board is damaged	Repair or replace
The display shows normally but compressor is not working	Poor contact of the compressor plug	Plug in the connector
	Main control board is damaged	Repair or replace
	The two compressors are damaged	Repair or replace
	Compressor damage	Repair or replace
Refrigeration room is not cooled	Electrical control board damage	Repair or replace
Freezer compartment is not cooling	Freezer fan motor fan blades fall off	Reinstall and tighten the fan blades
	Freezer fan motor does not turn	Check connector or replace
Cold room frosting	Refrigerator fan motor does not turn	Check connector or replace
	Return air duct blockage	Clean up the air duct
	Defrost heater or sensor is bad	Replace
Frosty frost in the freezer	Defrost circuit connector off	Plug in the connector
	Defrost heater or sensor is broken	Replace
The compressor works for a while and then loses power.	Refrigeration system failure	Follow the previous system instructions
The compressor is not working	Check if the compressor harness is properly connected	Reconnect
	Electrical control board damage	Replace the main control board
Button failure	Improper assembly of buttons (springs)	Reinstall and adjust position
	Touch capacitor is broken	Repair or replace
	Display board damage	Repair or replace

Main electrical device failure

Electrical device	Fault phenomenon	Detection method	Maintenance method
Defrost heater/fuse	There is defrosting action but no defrosting	The multimeter tests the defrosting heater resistance, the resistance is about 252 ohms; test whether the defrosting fuse is on (the multimeter diode is connected)	If heater is damaged then replace; If fuse is damaged then replace
Electric damper	Refrigeration room is not cooled	In the non-commercial inspection mode, set the greenhouse temperature to -18 ° C, and check whether there is any wind in the greenhouse wind tunnel by hand.	Check whether the damper harness interface is normal. Replace the main control board. Otherwise, replace the damper.
Flashlight	Light is not on	1. Check if the connector is well connected 2. Check if the excuse of the lamp on the main board is powered normally. 3. All are not lit, check the door light switch and communication line 4. Some of the lamp beads are not lit, change the light board	
Fan motor	The freezing room is slow to cool down, and the greenhouse temperature cannot be lowered.	Check if the mainboard freezer fan terminal is powered, check if the fan is blocked.	If main rboard is broken then replace it, if the fan is blocked then reinstalled.

Fault code prompt and maintenance guide

NO	Items	Fault indication		Fault content	Remarks
		freezing temperature	refrigeration temperature		
1	Normal	Set temperature indication		-	Display normal
2	Freezer sensor abnormal	Er	FS	Freezer sensor broken or shorted	Sensor wiring check

3	Ambient temperature sensor abnormal	Er	rH	Ambient temperature sensor disconnected or shorted	
4	Refrigerated sensor 1 abnormal	Er	rS	Refrigerated sensor 1 disconnected or shorted	
6	Defrost sensor abnormal	Er	dS	Defrost sensor disconnected or shorted	
7	Defrost abnormal	Er	dH	After two defrosts for 90 minutes, the defrost sensor is less than 5° C.	Between the control board processor and the display board processor
9	Communication abnormal	Er	CO	Between the control board processor and the display board processor	Communication transmission abnormal
10	Freezer motor abnormal	Er	FF	When the motor is running for more than	Motor wiring and Drive IC, TR, etc.
11	Condensing motor abnormal	Er	CF	30 seconds, there is no feedback signal	