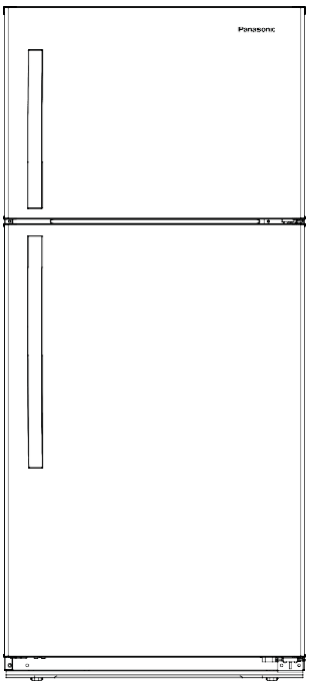
Service Manual

Refrigerator-Freezer

Model No. NR-BS733MS*



Destination * : Country Code
SA : Kingdom of Saudi Arabia (KSA)
AS : Kuwait,Oman, Bahrain (GCC)

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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.

Panasonic®

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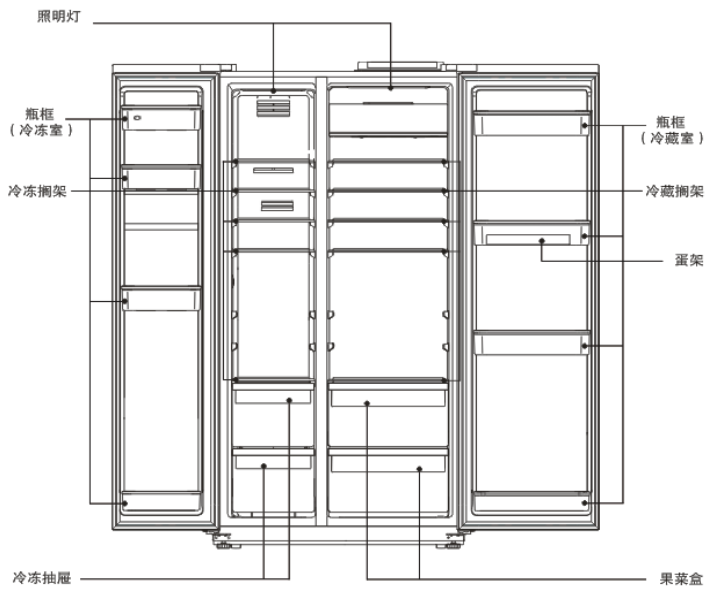
I. Product features

This is a frost-free inverter fridge-freezer adopting the side-by-side door design. Its right part is the fridge compartment for fresh food storage, such as fruits, vegetables, eggs, milk, cooked foods, etc.; and its left part is the freezer compartment where fish, meat, etc. can be frozen for the long-term storage.

- ✧ Real-time monitoring; The states of the fridge compartment, freezer compartment and variable temperature chamber are monitored in the real-time manner to ensure they are operating under the optimal conditions with the best humidity maintained, so that the food preservation time can be extended.
- ✧ Stylish appearance; Adopting the optimized man-machine engineering design, this recessed handle refrigerator has an elegant and novel appearance.
- ✧ Multi-airflow; The stereo multiple air outlets are adopted by the refrigerator, which guarantees uniformity of the storage temperature.
- ✧ Smart defrosting; Featuring the smart defrosting design, the refrigerator performs the defrost operation according to the actual use frequency and frost formation speed, thus more energy-saving. Before the defrost operation, the refrigerator internal temperatures are automatically judged and pre-refrigeration is made, so that the internal temperatures before and after defrosting do not change significantly, which is conducive to the food preservation.
- ✧ More user-friendly designs; Such functions as wide working voltage range, automatic temperature control, power-off memory, power-on delay, automatic alarm, fast freezing, and fridge power-off, etc. are available.
- ✧ The LED display and induction keys are adopted, with the parameters and control status of the fridge and freezer compartments displayed. The fridge temperature range is between 2℃ and 8℃, and the freezer temperature range is between -16℃ and -24℃. The action of fan motor of each compartment is synchronized with the cooling request of the corresponding compartment, and the lamp of each compartment is controlled by the corresponding door lamp switch.

II. Outer appearance and structure



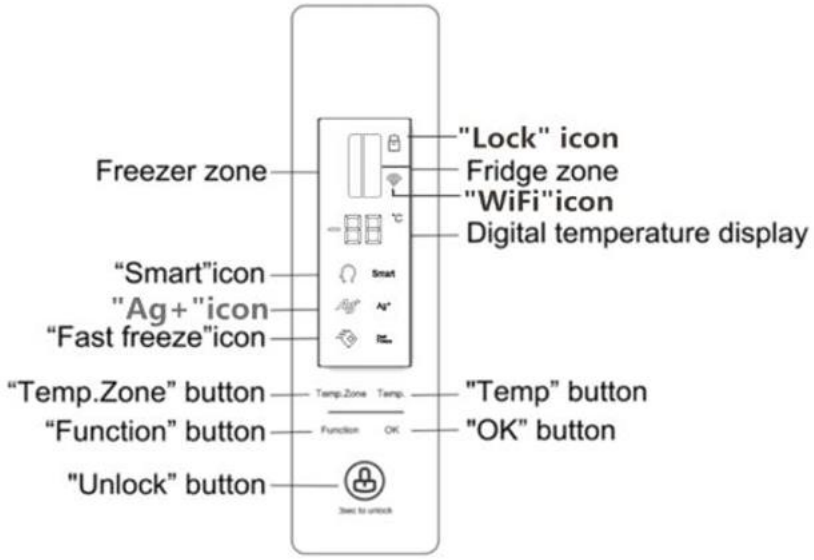
Note: Due to technological innovation, the product descriptions in this manual may not be completely consistent with your refrigerator. Details are in accordance with the real product.

III. Main technical parameters

Model	NR-BS733MSSA
Door color	Matt black stainless steel with vertical grain (ML-C1078)
Effective volume (fridge/freezer/two-star section) (L)	359/200/3
Climate type	SN/N/ST/T
Voltage range (V/Hz)	196-244
Rated voltage/frequency (V/Hz)	220-240/50/60Hz
Rated current (A)	1.65
Power consumption (kw.h /24h)	362
Total power input of defrost (W)	230/200
Temperature control range (℃) (fridge/freezer)	02℃～08℃/-16℃～-24℃
Cooling capacity (Kg/24h)	10
Refrigerant（R600a)	84g
Deodorizing method	Ag+
Energy consumption level	C

Noise level（dB)	42
Anti-shock category	I
Dimensions (depth * width * height) (mm)	914*713*1763
Weight（Kg)	91
Compressor type	VTH113YA

IV. Operating instructions



1. Keys

- **Temp. Zone**

1) This is the key to select the temperature zone, and the temperature zone changes each time the key is pressed. When the fridge zone is selected (with icons of both the left and the right fridge doors flickering at the same time), temperature digits starts flickering. After the temperature setting, press the OK key to validate it. When the freezer zone is selected (with icons of both the left and the right freezer doors flickering at the same time), set the temperature by reference to the fridge temperature setup.
2) The temperature zone selection changes through the following cycle:

   Fridge → Freezer →Fridge;

   Note: When the function program is enabled, temperature setting becomes invalid.
3) Every time when settings are finished (with no flickering any more), if the Temp. Zone key is pressed again, the Fridge icon starts flickering first.
4) Fridge OFF: When the fridge temperature is set, the temperature setting progresses through the following cycle.

   2℃→3℃→4℃→5℃→6℃→7℃→8℃→OF→2℃

   ('OF' represents the OFF state, and when the OF setting takes effect, the fridge will be shut off, with no refrigeration request.)

- **Temp. (temperature setting)**

1） Under the temperature setting state, the temperature changes by 1℃ with each key response.

2） Adjustable temperature range for each compartment:

Fridge compartment : 2℃ ～ 8℃:

Freezer compartment: -16℃ ～ -24℃;

- **OK**

1） Under the state of function selection or temperature setting, the selected function or the set temperature value takes effect when this key is pressed, with the corresponding flickering stopped immediately.

2） Under the function selection or the temperature setting state, if this key is not pressed, flickering will stop in 5 seconds, with the selected function or the set temperature value invalid.

- **Function**

1） This is the key to select functions, and the function selected changes with each key response.

2） Function selection changes through the following cycle:

Smart→ Fast Freeze→ Smart;

3） The selected function takes effect after the 'OK' key is pressed. When a function has not been set, press this key to select the function, and then press the OK key, the selected function can be enabled; and if a function has been set, press this key to select the function, and then press the OK key, the function will exit.

- **Unlock**

Under the state that keys are locked, holding this key down for 3 seconds will unlock the keys.

2. Function program rules

Refer to the operation of Keys, and press the keys to perform the corresponding function of Smart, Fast Freeze, Fridge OFF, Child Lock, or Ag^+.

- **'Fast freeze' function**

1) To enter 'Fast Freeze'.
   Refer to the key operation;
2) To exit 'Fast Freeze'.
   a) The 'Fast Freeze' function will exit automatically when the refrigerator total run time reaches 26 hours, counting from the moment the fast freeze function is enabled, with the character 'Fast Freeze' and its icon extinguished.
   b) When the 'Smart' function is enabled, the 'Fast Freeze' function exits, with its icon extinguished.
   c) Refer to the key operation.
3) When the 'Fast Freeze' function is enabled, the freezer temperature is subject to no

change.

4) When the 'Fast Freeze' function gets exited, the freezer temperature restores to its original temperature that is set before the 'Fast Freeze' function is enabled

- **'Smart' function**

1) To enter 'Smart'.
   Refer to the Key operation;
2) To exit 'Smart' (the following refers to the OR relationship):
   a) Refer to the key operation.
   b) When the 'Fast Freeze' is enabled, the 'Smart' function exits.
3) When the 'Smart' function is enabled, the fridge temperature is set at 5℃ and the freezer temperature at -18℃, which are subject to no change.
4) When the 'Smart' function gets exited, the temperature of each compartment restores to its original temperature that is set before the 'Smart' function is enabled.

- **'Child Lock' function**

1) To enter Child Lock.
   When the display is unlocked, the Child Lock function will be enabled automatically if no key operation within 3 minutes.
2) To exit Child Lock.
   Refer to the Key operation.
3) When the Child Lock function is enabled, the refrigerator temperature and function are subject to no change.

- **Silver ion (Ag^+)**

1) The silver ion (Ag+) attached to the antibacterial device can effectively inhibit the production of bacteria.
2) The antibacterial function of silver ion does not need to be set manually, which will run automatically after the refrigerator power-up.

V. Display rules

- Under normal operation, the temperature of the compartment whose icon lights up is displayed at the digit zone.
- The display fully lights up when the refrigerator is energized for the first time, which will restore to the normal display in 2 seconds.
- When the display lights up, it will be off if no key operation within 3 minutes.
- When the display screen is off, a key can be awakened when it is pressed for the first time, and the function of the key can be enabled if it is pressed again.
- The icon 'Ag^+' lights up automatically when the refrigerator is powered on.
- In the case of failure or any door open action, the display lights up.
- In the case of temperature setting, temperature of the current corresponding compartment is displayed, with the '2-digit' and '-' icons flickering.
- Over-temperature alarm

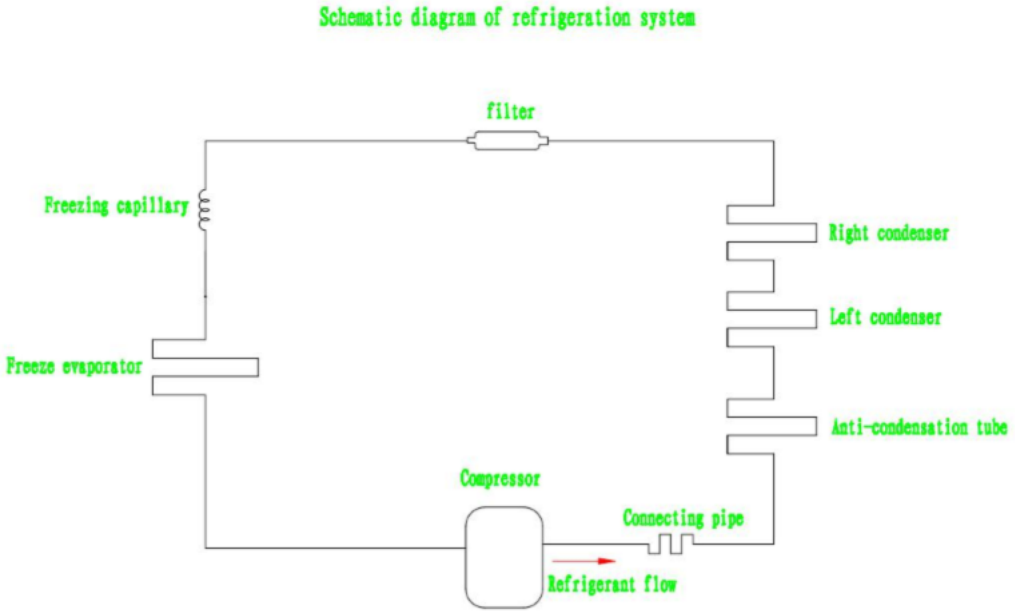
When energized, if the freezer sensor temperature is higher than -10℃, its corresponding icon and temperature gets flickering. The temperature of the freezer when it is energized can be displayed by pressing any key. And the normal display is restored 10s later or by pressing any key again.

- Special function program display contents

  When the 'Smart' function is enabled, the character 'Smart' and its icon light up, with the fridge temperature displayed to be 5℃ and the freezer temperature displayed to be -18℃; when the 'Fast Freeze' function is enabled , the character 'Fast Freeze' and its icon light up, with the freezer temperature displayed to be -32℃. When the child lock function is enabled, the icon of 'Child Lock' lights up, with the refrigerator temperature and functions subject to no change.

VI. Cooling system

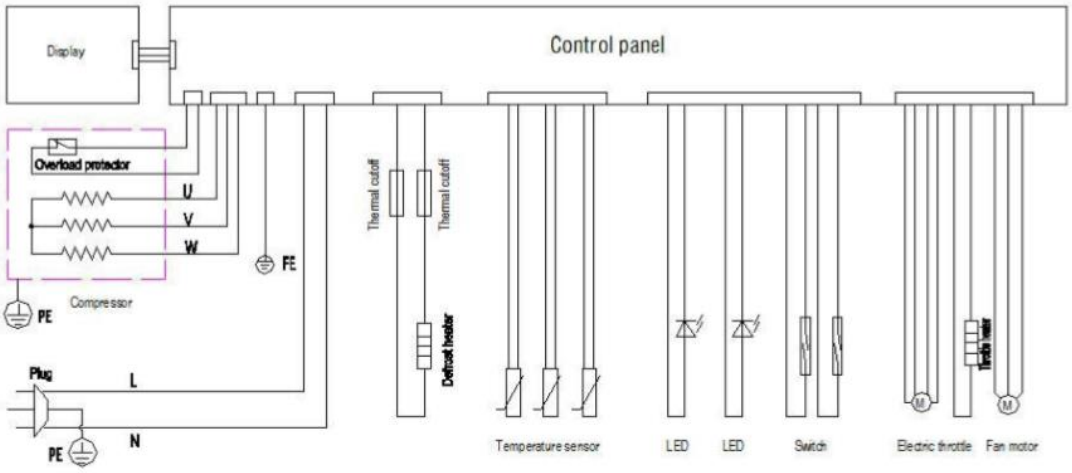
- **Schematic diagram of the cooling system**



VII. Control system

(Including the control system diagram, main control board circuit layout diagram, each component control）

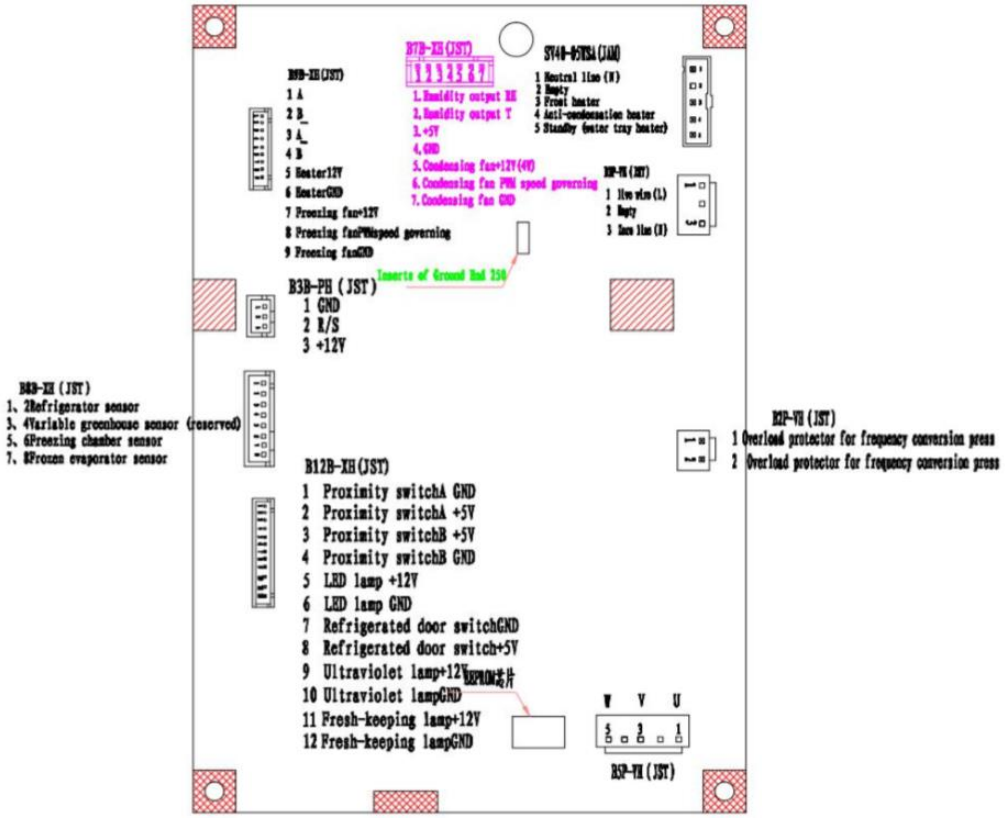
1. Schematic diagram of the control system



Components output:

- Compressor (～220V/50Hz/60Hz, 200W)
- Buzzer
- LED display
- Fridge lamp（12V, 2W）
- Fridge lamp (12V, 2W)
- Freezer fan（12VDC, 4W）
- Freezer defrosting heater（~220V /50Hz/ 60Hz、200W）

2. Diagram of the control board- the board integrating the inverter control with the main control



3. Components control rules

1) Compressor

Make sure to wait for at least 5 minutes before you start it again after it is shut down.

2) Lamp

a) If any refrigerator door switch is detected to be on, the corresponding compartment lamp gets switched on.
b) If any refrigerator door switch is detected to be off, the corresponding compartment lamp gets switched off.
c) The lamp gets switched off after keeping illuminated for more than 10 minutes

3) Fridge air damper

When the fridge is cooling, the fridge air damper is opened; and when the fridge is not cooling, the fridge air damper is closed.

4) Freezer fan motor

a) When the fridge and the freezer are cooling, the fan motor gets started.
b) When the fridge and the freezer are not cooling, the fan motor gets stopped.
c) When defrosting gets started, the fan motor runs according to the defrosting rules.
d) When the fridge door or the freezer door is opened, running of the fan motor gets suspended for 10 minutes.

5) 24C02 power cut memory

a) The temperature setting of each compartment can be memorized.
b) Such functional state as Smart, Fast Freeze, etc. can be memorized.
c) Parameter settings (the original value or the modified value) can be memorized.

VIII. Maintenance guide

1. Fault alarms

a) Over-temperature alarm: When the refrigerator system is first powered on, if the freezer sensor temperature is detected to be higher than -10℃, the freezer zone icon lights up and the freezer temperature get flickering. When any key is touched, the flickering gets stopped, with the said freezer temperature displayed. The normal display can be restored after 5s.

b) Door open alarm: When any door is open for more than 3 minutes, the buzzer will issue alarms continuously until the said door is closed. The alarm can be stopped when any key is pressed, but it will be restored after 3 minutes if the door keeps open.

2. Fault indicators

The general information and item information displayed under different failure categories are as follows:

S/N	Failure Type	Item Information
1	Fridge sensor fault	The graphic of the fridge zone lights up, with E0 displayed.
2	Freezer sensor fault	The graphic of the freezer zone lights up, with E0 displayed.
3	Freezer evaporator sensor fault	The graphic of the freezer zone lights up, with E1 displayed.
4	Communication fault	EC is displayed.
5	Ambient temperature sensor fault	EH is displayed.

1) If the fault messages E0 and E1 need to be displayed at the same time, E2 will be displayed instead.

2) In case of fridge fault and freezer fault at the same time, the freezer fault will be displayed with priority.

3. Fault troubleshooting

(How to detect the fault is presented here only, and for details about disassembly and assembly, see the next chapter.)

Note： Make sure to cut off power supply before servicing.

(1) Fridge sensor fault (The fridge zone icon is flickering, with E0 displayed)

a. Cut off power supply, remove the electrical box cover, check whether the temperature sensor terminal on the control board is well connected, insert it again, and then power on the system to observe whether there is alarm or not.

b. If the alarm continues, cut oft power supply, change the control board, and power on the system to observe there is alarm or not on the display panel.

(2) Freezer sensor fault (the freezer zone icon gets flickering, with EO displayed.)

a. Cut off power supply, remove the electrical box cover, check whether the temperature sensor terminal on the control board is connected in sound condition, insert it again, and then power on the system to observe whether there is alarm or not.

b. If the alarm continues, cut off power supply, change the control board, and then power on the system to observe whether there is alarm displayed on the panel.

(3) Freezer evaporator fault (the freezer zone icon gets flickering, with E1 displayed.)

a. Cut off power supply, remove the electrical box cover, check whether the temperature sensor terminal on the control board is connected in sound

condition, insert it again, and then power on the system to observe whether there is alarm or not.

b. If the alarm continues, cut off power supply, remove the freezer air duct assembly, check whether the temperature sensor terminal is connected well, insert it again, and then power on the system to observe whether there is alarm or not;

c. If the alarm continues, cut off power supply, insert a new temperature sensor into the cabinet terminal, power on the system to observe whether the display panel will continue to alarm; If there is no alarm, replace the temperature sensor, and restore the assembly after connecting the temperature sensor terminal well.

(4) Communication fault

a. Cut off power supply, remove the electrical box cover, check whether the temperature sensor terminal on the control board is connected in sound condition, insert it again, and then power on the system to observe whether there is alarm or not.

b. If the alarm continues, cut off power supply, dismantle the display panel to observe whether its terminal is connected in sound condition, insert the terminal again, and then power on the system to check whether there is alarm or not.

c. If the alarm continues, cut off power supply, replace the display panel, power on the system after inserting its terminal well, and observe whether there is alarm or not.

d. If the alarm continues, cut off power supply, change the main board, power on the system after insert the terminal well, and check whether there is alarm or not.

(5) Ambient temperature sensor failure

a. Cut off power supply, change the display panel, and power on the system after inserting the terminal well, checking whether there is alarm or not.

(6) Door open alarm

When the door is open for more than 3 minutes, the display panel lights up, and the buzzer issues the alarm sound at the frequency of 1Hz, indicating the door is not closed tightly.

a. Open all the doors and close them again, checking whether the refrigerator alarm is lifted or not.

b. If the alarm continues, cut off power supply, remove the electrical box cover, check whether all terminals (door lamp switch and LED lamp terminal) are connected well, insert the terminals again, close the doors, power on the

system, and then wait for 3 minutes, observing whether the display panel lights off and there is the buzzer alarm.

c. If the alarm continues, for the compartment equipped with the proximity switch, open the compartment door and then close it, leaving some gaps, and observe whether the corresponding compartment LED lamp (if any) turns off; If the LED lamp turns on/off as the door is opened/closed, the proximity switch and magnet under test are qualified; otherwise, the proximity or magnet is unqualified. Replace the unqualified proximity switch or magnet, close the door, and then observe whether the door open alarm is eliminated or not.

d. If the alarm continues, cut off power supply, change the display panel, and wait for 3 minutes after power-on, observing whether the alarm is eliminated or not.

4. Other fault phenomena and maintenance methods

(1) The refrigerator does not work. (The whole machine is not working, with the compressor not started, the display panel not illuminated and the LED lamp OFF when the door is opened.)

a. Check whether the refrigerator plug is properly plugged in; whether the socket is electrified; and whether the socket voltage is normal.

b. Cut off power supply, remove the electrical box cover, observing whether the terminals are properly connected, reinsert the terminals, and then power on the system to observe whether the refrigerator can work normally.

c. Cut off power supply, change the main board, insert the terminal well, and power on the system to observe whether the refrigerator can work normally.

(2) The compressor cannot start. (Other devices are working normally)

The compressor shutdown during the normal operation of the refrigerator does not belong to this type of failure. Be sure to wait for at least 5 minutes before starting the compressor again in the case of compressor shutdown. During the following maintenance operations, if a power failure occurs, please wait for 5 minutes, and then power on the system to observe the compressor working, or wait for 5 minutes after the system is powered on to observe whether the compressor can work normally or not.

a. Cut off power supply, remove the electrical box cover, check whether the terminals are properly connected, insert them again, and then power on the system to observe whether the compressor can start normally.

b. If it still cannot start, cut off power supply, remove the compressor cover, check whether the compressor protector is properly plugged in, reconnect it, and then power on the system, observing whether the compressor can start normally or

not.

c. If it still cannot start, cut off power supply, replace the control board, and power on the system after inserting well the terminal, observing whether the compressor can start normally or not.

d. If it still cannot start, it is judged as the compressor fault, then replace the compressor.

(3) LED lamp does not turn on when the door is opened.

a. If the door open alarm occurs, check whether the door is closed and the door lamp switch gets broken. (The LED lamp goes off when the door is open for 10 minutes.)

b. In the case of no door open alarm, cut off power supply, remove the electrical box cover, check whether the terminals are properly connected, insert them again, and then power on the system to observe whether the LED lamp lights up.

c. If the LED lamp is still off when the door is opened, cut off power supply, change the LED lamp, and then power on the system, observing whether the LED lamp goes on.

d. Cut off power supply, change the main board, and power on the system, observing whether the LED lamp goes on.

(4) The freezer is cooling while the fridge is not cooling.

a. Hold down the combination keys of 'Unlock' and 'OK' for 5 seconds to enter the maintenance program, so as to turn on the compressor, fan and air damper compulsorily, with the defrosting heater turned off, and then open the door, put your hand at the air duct outlet, checking whether there is cooling air blown out from it.

b. If there is no obvious cooling air blown out from it, cut off power supply, dismantle the fridge air duct assembly and the freezer air duct assembly, with the terminals not removed, and then check

- Whether there is frost jamming, whether there are heavy frosts formed on the evaporator and air duct outlet. If yes, refer to the following Item (7) 'The refrigerator does not defrost'.
- Power on the system, and check whether the fan is normal by reference to Item (6) 'The refrigerator air fan is not running'.
- Power on the system, enter the maintenance program, wait 2 minutes before opening the air damper, and check whether the air damper can be opened normally; if it cannot be opened normally, replace the air damper; (It takes some time for the air damper to reset every time when the system is powered on.)

c. Cut off power supply, replace the display panel, power on the system, and wait for 2 minutes before entering the maintenance program, so as to check whether there is cool air blown out of the fridge air outlet by turning on the compressor, fan and air damper compulsorily.

d. Cut off power supply, replace the main board, power on the system, and wait for 2 minutes before entering the maintenance program, so as to check whether there is cool air blown out of the fridge air outlet by turning on the compressor, fan and air damper compulsorily.

(5) The refrigerator is not cooling.

Cut off power supply, remove the electrical box cover, check whether the terminals on the main board are properly connected, insert them well again, and then power on the system when the door is opened, wait for 10 minutes to observe whether the refrigerator compressor can be started. If not, refer to Item (2); and if yes, touch the left and right-side plates by hand to check whether they are hot or not. If not hot, it is judged to be the refrigerant leakage fault, then conduct vacuum pumping and charge the refrigerant again.

(6) The refrigerator air fan is not running.

a. Cut off power supply, remove the electrical box cover, check whether the terminals on the main board are properly connected, insert them well again, power on the system, hold down the combination keys of ‘Unlock’ and ‘OK’ for 5s to enter the maintenance program; turn the fan on, open the freezer door, and place your hand on the air duct to check if there is cool air blown out.

b. Cut off power supply, remove the freezer air duct assembly, check whether the terminals are properly connected, and whether there is such interference as ice, wire harness or other foreign matter. If the terminals are loose or detached, reconnect them well; if there is ice, perform the maintenance program first to confirm whether the fan is in good condition or not. If yes, refer to the operation of Item (8); and if there is the wire harness or foreign object interference, reshape the wire harness or remove the foreign object. Then, power on the system, hold down the combination keys of ‘Unlock’ and ‘OK’ for 5s to enter the maintenance program, turn on the fan, checking whether the fan can be started normally. If the fan cannot start, replace the freezing air duct assembly, and enter the maintenance program again to check whether the fan can be started normally.

c. Replace the main board, power on the system to enter the maintenance program, and turn on the fan, checking whether the fan can be turned on normally.

(7) The refrigerator does not defrost.

a. Cut off power supply, remove the electrical box cover, and check whether the terminals on the main board are properly connected.

b. After the power is cut off, remove the freezer air duct assembly, checking whether the defrosting heater terminal is properly connected, whether the terminal is sealed properly, and whether the terminal is in good condition.

c. After the power is cut off, remove the temperature fuse, and test the temperature fuse with a multimeter to determine whether it is damaged or not.

d. After the power is cut off, remove the defrosting heater, and measure the resistance of the defrosting heater with a multimeter to determine whether the defrosting heater is damaged.

e. After the power is cut off, replace the main board.

f. After the power is cut off, replace the display panel.

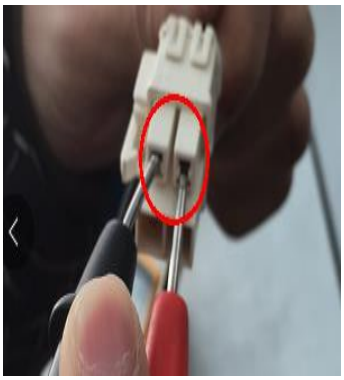
- **How to check the heater.**

1) Dismantle the freezer air duct assembly by referring to the disassembly method of "freezer air duct assembly", unplug the heater terminal, and set the multimeter as illustrated below to test the heater resistance:

Test results should be between 191~ 213Ω, beyond which the heater should be replaced.

- **How to check the fuse.**

1) Dismantle the freezer air duct assembly by referring to the disassembly method of "freezer air duct assembly", unplug the fuse terminal, set the multimeter as illustrated below, and apply the electroprobe to the position as the picture illustrates, so as to test whether the fuse is blown out.



If the multimeter buzzes and displays as below, it is judged as normal and needs not to be replaced; and if the multimeter maintains unchanged, the fuse is judged to be blown out and needs to be replaced.

5. Special programs

- Maintenance program (by holding down the combination keys of ‘Unlock’ and ‘OK’ for 5s)

(1) When you press the "Temp. Zone" key, the parameter items and adjustable operating parameter values as listed in the following table will be displayed from left to right and from top to bottom.

(2) The operating state can be adjusted by pressing the ‘Temp.’ key.

Parameter Items	Operating parameter values (0 indicates OFF, and 1 indicates ON) and temperatures	
	Original value	Parameter set value
C1	Fridge temperature	
d1	Freezer temperature	
d2	Freezer evaporator temperature	
CH	Ambient temperature sensor temperature	
C（compressor）	0 (OFF)	1 (ON)
Cp（fridge air damper）	0 (OFF)	1 (ON)
FD（freezer fan）	0 (OFF)	1 (ON)
HD（freezer defrosting heater）	0 (OFF)	1 (ON)
HF (air damper heater)	0 (OFF)	1 (ON)
FL (condenser fan)	Standby (in fact, there is no such feature.)	0 (OFF), 1 (ON)

(3) During the running of the maintenance program, the compressor keeps rotating at 3000rpm.

(4) After the operating state is set, the refrigerator will run according to the maintenance program.

(5) During the running of the maintenance program, you can press the 'Temp.' key to change the load running state at any time, or to view the real-time value of each sensor.

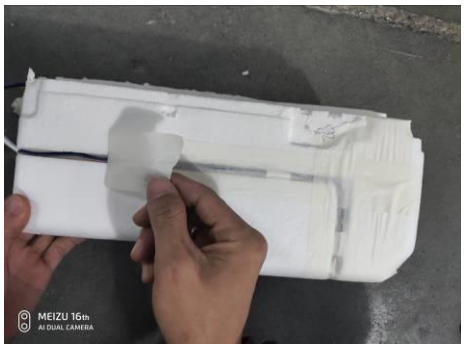
(6) Exit conditions

- The maintenance program keeps running for at most 3 hours, beyond which it will automatically exit, with the normal operation program restored.
- When the refrigerator is powered off and then on again, the maintenance program gets exited immediately.

6. Disassembly instructions for key components

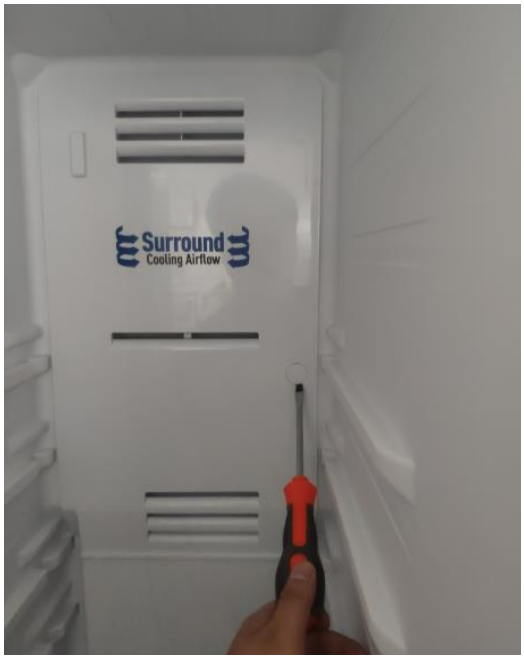
✓ How to disassemble the fridge air duct assembly.

<table>
<tr><td> </td><td> </td></tr>
<tr><td colspan="2">(a) Pry off the claws on the bottom sides of the fridge air hood as shown in the figure, using an electric pen or a flat-head screwdriver to, unscrew the two screws fixed to the fridge liner with a cross screwdriver, and remove the fridge air hood with both hands.</td></tr>
<tr><td> </td><td> </td></tr>
<tr><td colspan="2">(b) After taking down the fridge air hood, remove the EPS foam block illustrated as the picture, unplug the terminal of the fridge air damper, then the fridge air duct can be dismantled.</td></tr>
</table>



(c) After dismantling the fridge air duct, tear off the adhesive tape attached to the surface of the air duct, take out the air damper wire, disassemble the air duct assembly, and take out the fridge air damper, then the fridge air duct assembly is completely dismantled.

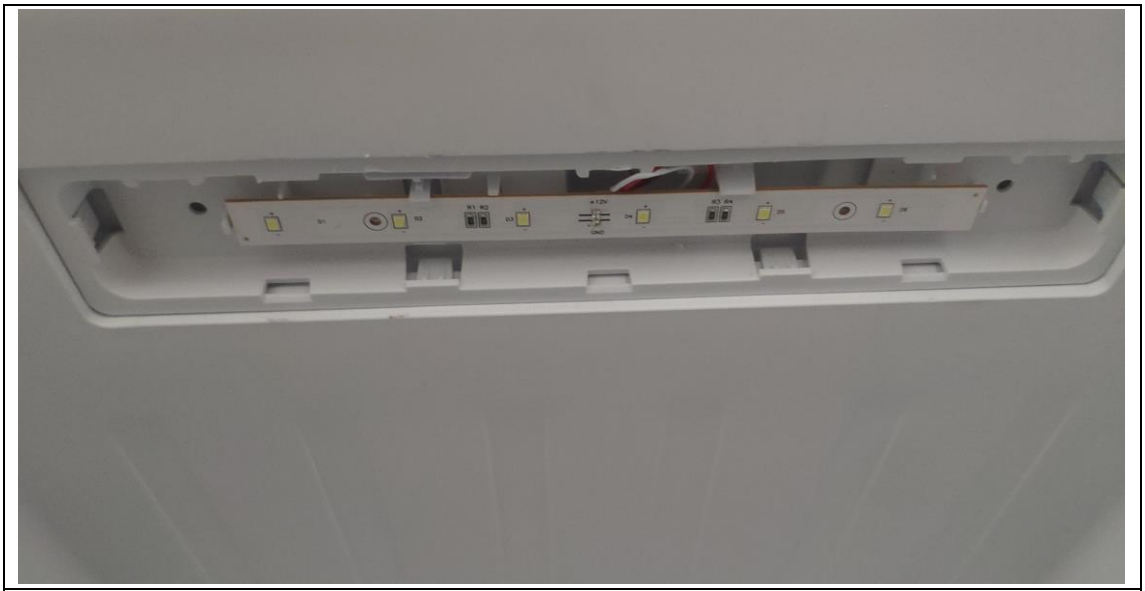
✓ How to dismantle the freezer air duct assembly.



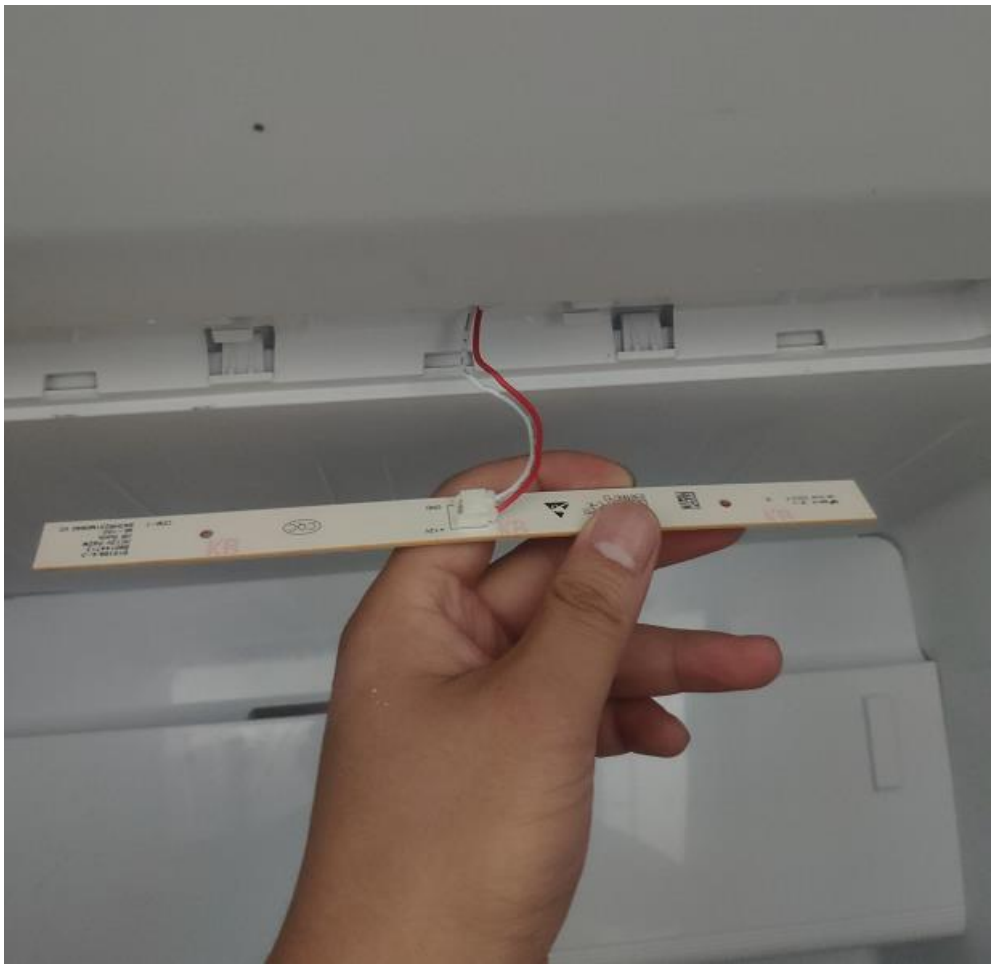
(a) Dismantle the freezer air duct assembly by referring to the instruction for dismantling the fridge air duct assembly, and take down the air hood.

(b) Tear off the sponge in the air hood, and remove the temperature sensor.

✓ How to dismantle the fridge top LED lamp.

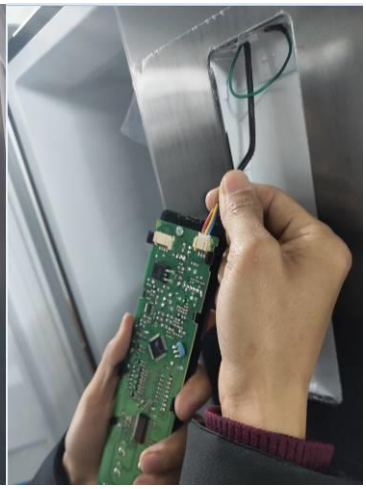
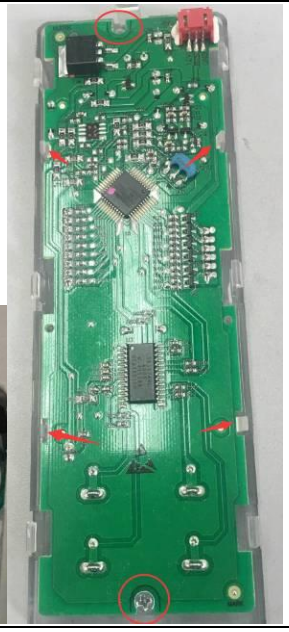


(a) Gently remove the LED light board and fix the position of the claw as shown.



(b) After removing the LED lamp board, unplug the connector on the back.

- ✓ How to dismantle the display panel.

	(a) Pry up the display panel using an electrical pen or a flat screwdriver, and pull the display panel out. (b) Unplug the connector terminal on the top of the display panel, then the display panel assembly can be taken down.
	(c) The display panel is fixed by two screws and four claws, and it can be removed after the screws are screwed off.

✓ How to dismantle the freezer air duct assembly. (The same as dismantling of the fridge air duct assembly, so only instructions are given here)

(a) Use a screwdriver to remove the two screws on the left and right sides of the freezer air duct assembly.	
(b) The freezer air duct assembly is fixed onto the liner by clamping jaws. Remove the screws, and then pull out the freezer air duct assembly from the bottom up. (c) After pulling out the air duct assembly, unplug the molded case connector on the back, and then remove the air duct assembly.	

✓ How to dismantle the freezer evaporator sensor.

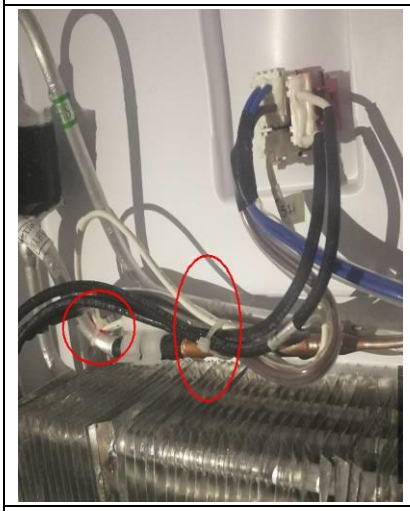
	(a) Remove the freezer air duct assembly, by referring to the instructions for dismantling the freezer air duct assembly.
	(b)Unplug the terminal, and cut off the cable ties as illustrated by the picture.

✓ How to dismantle the heater.

(a) Remove the freezer air duct assembly by reference to the instructions for dismantling the freezer air duct assembly;	(b) Unplug the heater connector terminal, screw off the screw as illustrated by the left picture, and cut off the cable ties as shown by the above picture.

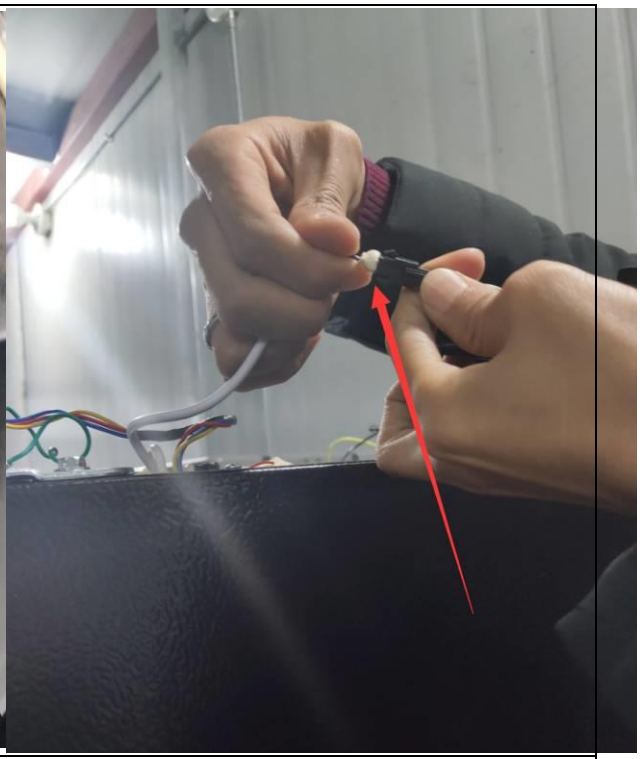
✓ How to remove the fuse.

(a)Refer to the instructions for dismantling the freezer air duct assembly and heater, and remove the freezer air duct assembly and the evaporator assembly.



(b)Unplug the fuse terminal, and cut off the cable ties as illustrated by the picture, then the fuse can be removed. (Note: When installing the fuse, make sure to install it in the original position and between the two red marks on the evaporator.)

✓ How to dismantle the hinge.

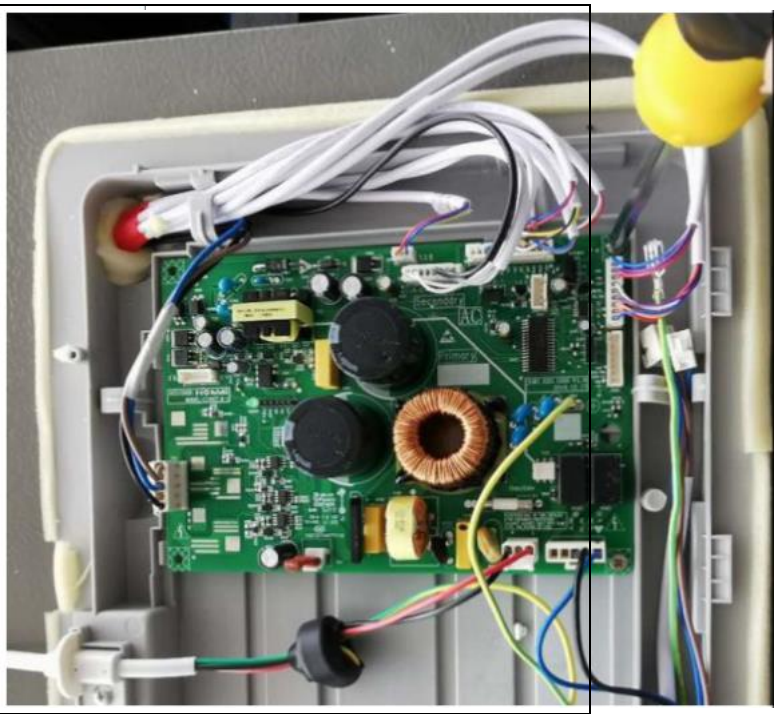


(a) Use a screwdriver to remove the hinge cover screw.
(b) Open the hinge cover, and unplug the two connector terminals.
(c) Remove the hinge cover, and screw off the three bolts that secure the hinge, then the hinge can be dismantled.
(d) Use a flathead screwdriver to pry out the door lamp switch as illustrated in the picture.

✓ How to remove the magnet.

	(a) Lift the freezer door gasket up, and pry the magnet out of the groove using a flathead screwdriver.

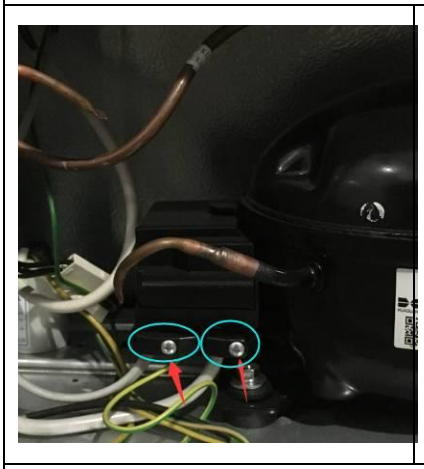
✓ How to disassemble the main board.

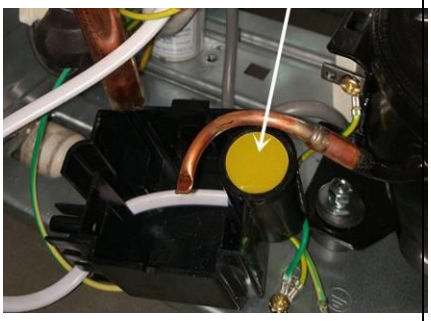


(a) Use a screwdriver to remove the two screws that secure the electrical box cover.
(b) Remove the electrical box cover, use a screwdriver to remove the two screws fixing the control board.
(c) Take out the main board, and unplug all the connector terminals on the main board, then the main board can be disassembled.

✓ How to dismantle the compressor compartment.

(a) Use a screwdriver to remove the nine screws on the compressor compartment rear cover.

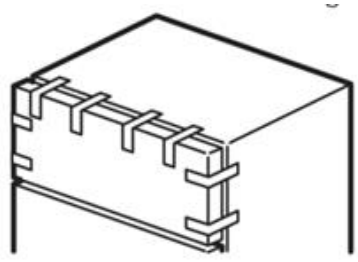


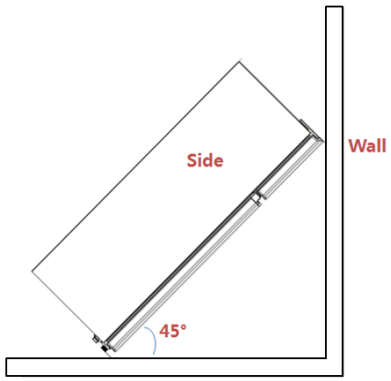
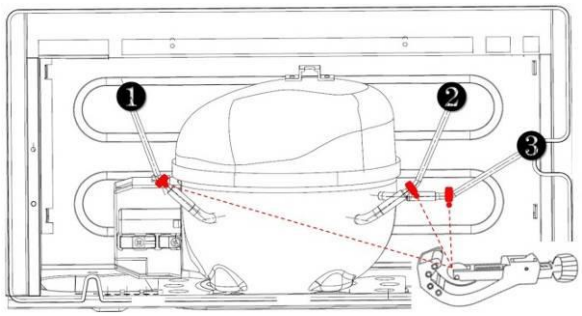
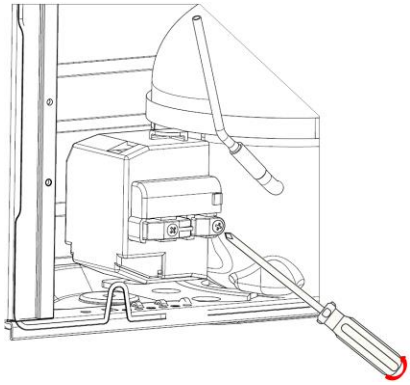
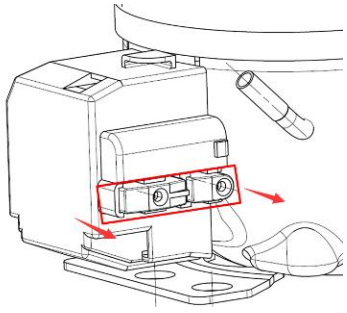
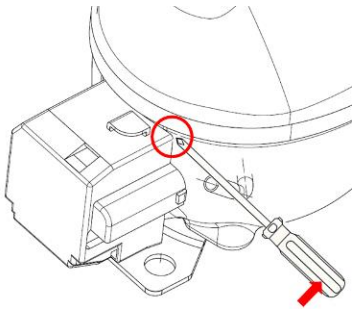


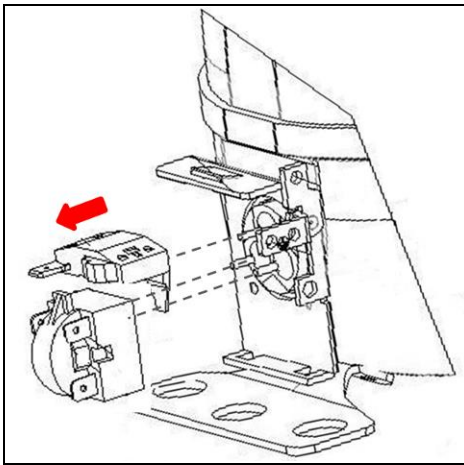
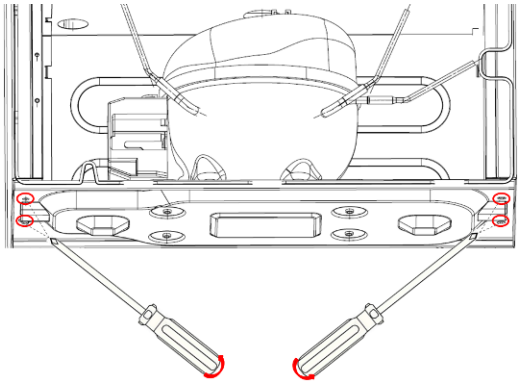
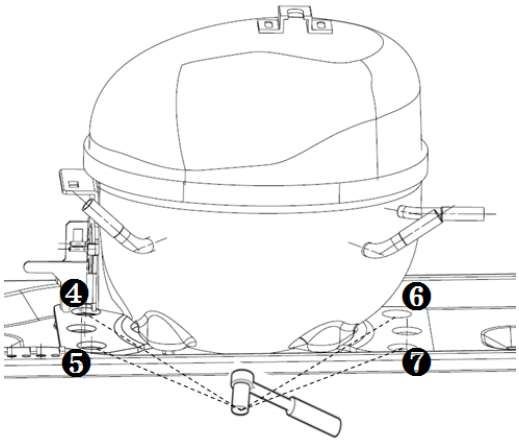
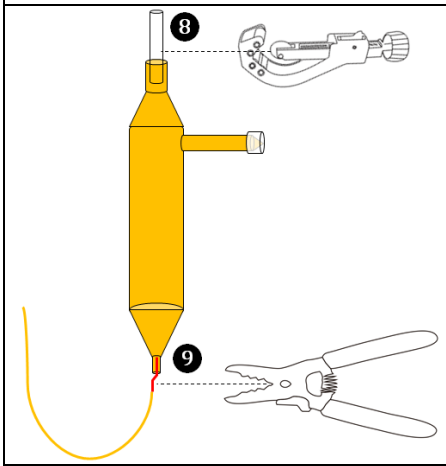
(b) Screw off the two screws as illustrated above to remove the two crimping blocks. Remove the compressor terminal box in the arrow direction, using the screwdriver as an assistant tool.

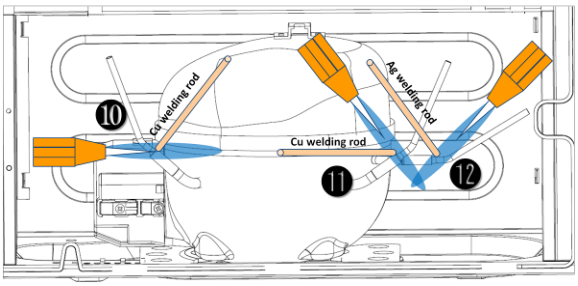
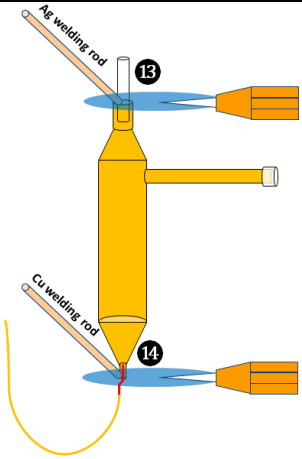
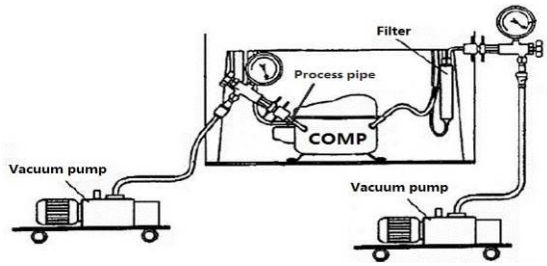
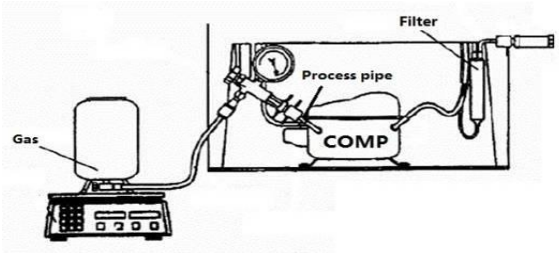
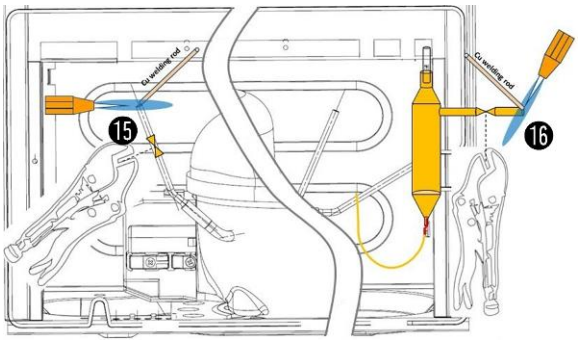
- ✓ How to change the compressor and how to disconnect and weld the refrigeration system pipeline.

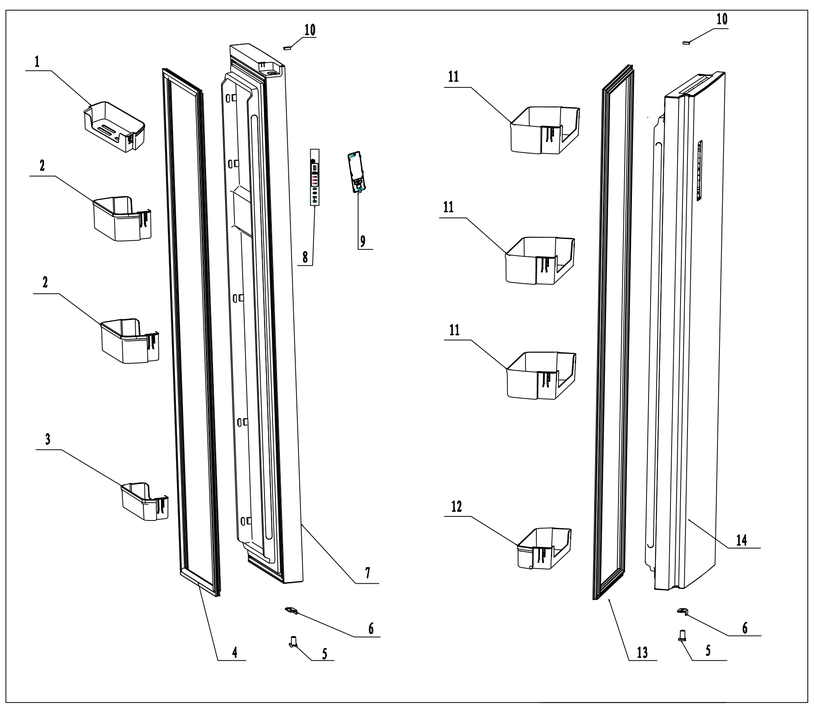
  (Note: If the refrigerant R600a is used, operations should be made in the environment where there is good ventilation and free from open fire.)

	1. Cut off power supply, take foods out of the refrigerator, and secure all doors with adhesive tapes to prevent the door from falling off when the refrigerator gets tilted.

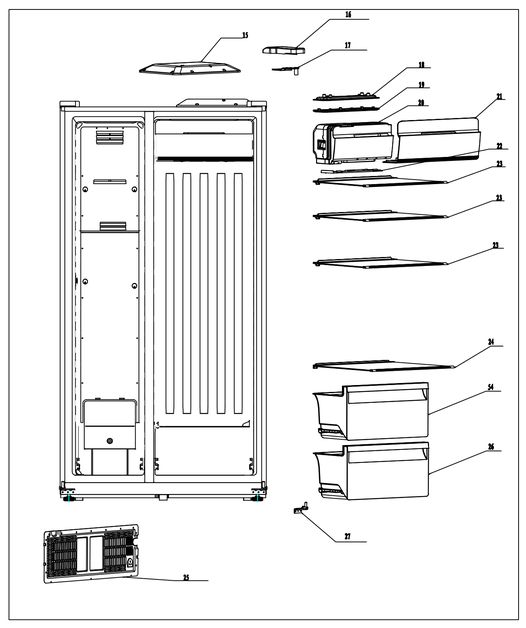
	2. Tilt the refrigerator slowly forward, leaning it against the wall or the object that is strong enough, and leave sufficient space for operation. For safety reasons, you need someone to help support the refrigerator to prevent it from toppling down.
	3. Cut off the compressor pipeline -❶Truncate the process tube -❷Truncate the low-pressure air return pipe -❸Truncate the high-pressure exhaust pipe.
	4. Remove screws: - 2 outside screws; - 1 inside screw;
	5. Remove the crimping block;
	6. Dismantle the protective cover;

	7.Disassemble the starter and protector Unplug the starter and protector in turn (you can use a screwdriver to slowly pry them off.)）
	8.Loosen the fixing screws of the compressor on the bottom plate, and dismantle the compressor from the cabinet together with the bottom plate.
	9.Use a wrench to screw off the bolts ❹❺❻❼ in turn, and install them in the reverse order after replacing the compressor.
	10.Cut off the condenser ❽ with a pipe cutter, and cut off the capillary tube using the capillary pliers ❾.

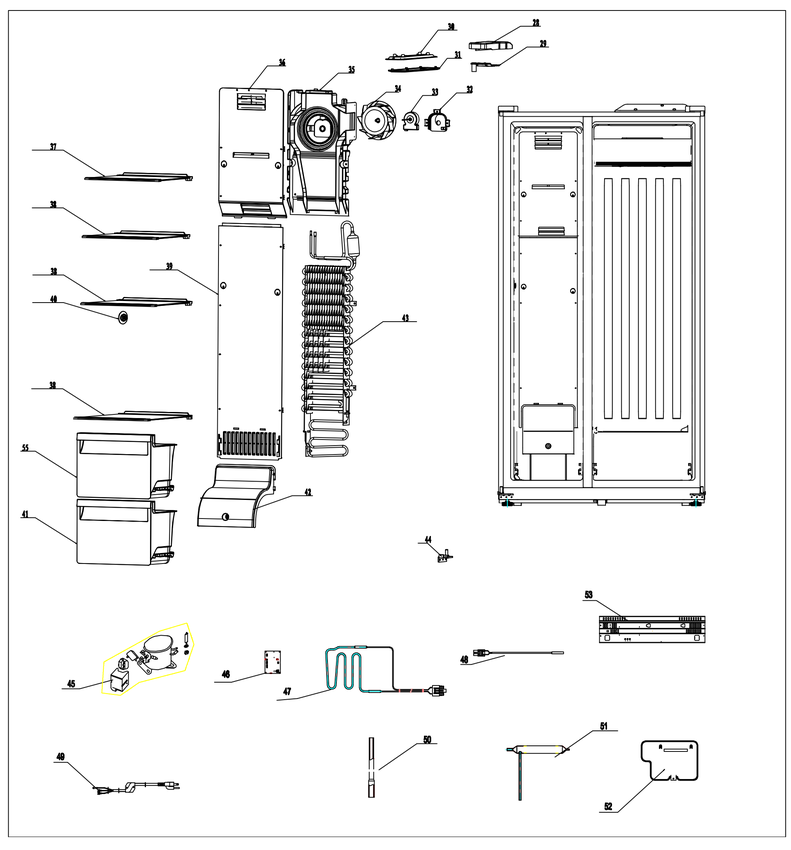
	11.Replace the compressor and weld the pipes: -⑩ Weld the process tube; -⑪ Weld the low pressure air return pipe; -⑫ Weld the high pressure exhaust pipe;
	12.Replace the filter, use the silver electrode for the copper-iron pipe⑬ connection, and use the copper electrode for the copper-copper pipe ⑭ connection.
	13. Conduct vacuum pumping, with the vacuum degree reaching below 10Pa.
	14. Charge the system with refrigerant.
	15.Use the locking pliers to clamp the middle of the process tube, and then weld the process tubes ⑮ and ⑯ for sealing.



DOOR



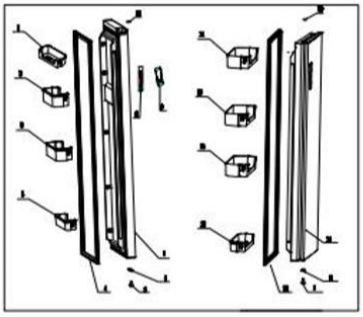
Refrigerator Room



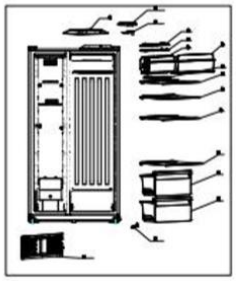
Freezer Room

IX. Explosive view and spare parts list

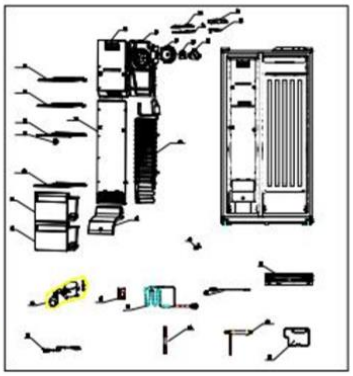
1. Product explosive view



DOOR



Refrigerator Room



Freezer Room

2. Details of repairable spare parts

NO:	R3	CODE	English Name
1	890112907	B1385-TA02	Lower bottle pattern
2	890104314	C1406.5-1	Lower bottle frame
3	890102815	B1385.5-10	Lower bottle frame
4	890050445	B1057.21.2	Freezer door seal
5	890048593	B1057.20-2	Door closer
6	890048288	B1057.20-1	Gate limit block
7	890234337	B15171.21.1	Freezer door foam
8	890279247	Q/MLKT-295/I.C2.(C2016)	Display board
9	890278276	C2016-TA14	Display panel pattern
10	890028104	B0901.4.13	Magnet
11	890104179	C1406.5-2	Lower bottle frame
12	890102811	B1385.5-8	Lower bottle frame

13	890204827	B1057.20.2(A1)	Refrigerator door seal
14	890234337	B15171.20.1	Refrigerator door foam
15	890209723	B1826.1-9	Electrical box cover
16	890286196	B19113.1.2	Hinge cover assembly
17	890252221	B1057.1-1(D1)	Top hinge
18	890202600	B17123.1-12	Light box
19	890240231	B11121.1-2(MA1)	lampshade
20	890236198	B1385.1.2(A2)	Refrigeration duct assembly
21	890234842	B1905-TA01	Refrigerated windshield pattern
22	890141316	B1385.1.2-4(A1)	Duct cover
23	890260917	B15171.5.5(B1)	Refrigerated glass shelf assembly
24	890260920	B15171.5.4(B1)	Refrigerated glass shelf assembly
25	890110494	B1057.1-18(A1)	Compressor rear cover
26	890202615	E1822-TA08.1	Fruit and vegetable box
27	890236252	B1905.1.2	Lower hinge component
28	890286196	B19113.1.3	Hinge cover assembly
29	890252220	B1057.1-3(D1)	Top hinge
30	890202599	B17123.1-11	Light box
31	890240234	B15189.1-2(MA1)	Lampshade
32	890103242	B1385.1.3-5	Protective cover
33	890104112	B1385.4-4	Fan motor

34	890106965	B1385.4-10	Fan blade
35	890150994	B1619.1.2-2	Freezing hood
36	890201501	B1619.1.2-1(A1)	Freezing hood
37	890247530	B15171.5.1(B1)	Frozen glass shelf assembly
38	890260369	B19113.5.3	Frozen glass shelf assembly
39	890201551	B1619.1.3(B1)	Frozen air duct assembly
40	890105476	B1385.1-10	Lid
41	890202609	E1822-TA07	Freezer drawer
42	890109998	B1385.1-29	Freezing hood
43	890236333	B1905.1.4	Frozen evaporator assembly
44	890236245	B1905.1.3	Lower hinge component
45	890263049	VTH1113Y A	Compressor
46	890279253	C1994.4-1(J1)	Frequency conversion integrated board
47	890234609	B1905.4-5	Defrost heater
48	890104114	B1385.4-6	Temperature Sensor
49	890278367	Q/MLKT-138A/F0.AE7G.Z1	power cable
50	890053904	Q/MLKT-240	Connecting pipe
51	890053805	Q/MLKT-239	Filter
52	890180780	B15129.1.10	Water tray assembly
53	890234035	B1905.1.6.1	Compressor floor assembly

54	890202612	E1822-TA08	Fruit and vegetable box
55	890202610	E1822-TA07.1	Freezer drawer