Service Manual

Applicable models	Model No.
UL-BD386WE-SQ	22031010000841
UL-BD481WE-ST	22031010001001
UL-BD594WE-ST	22031010000981
UL-BD594WE-ST	92031010Z00041
UL-BD594WE-ST	92031010Z00042
UL-BD481WE-ST	92031010Z00043
UL-BD481WE-ST	92031010Z00045

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

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Approved by	R&D:Geng Xiuhua SVC:Guang Taoshuai

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

Contents

1.Safety Warning Code

1.1Warning for operation safety

Important Safety Instructions

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.

15 Do not handle the plug with wet hands. This could result in an electric shock.

16 Unplug the power cord by holding the plug, never by pulling the cord.

17 Do not turn the appliance on or off by plugging or unplugging the power cord.

18 Refer all servicing to qualified service personnel. Servicing is required when the appliance has been damaged in any way, such as the power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the appliance, the appliance has been exposed to rain or moisture, does not operate normally, or has been dropped.

19 To reduce the risk of fire or electric shock, do not expose this appliance to rain, moisture, dripping, or splashing, and no objects filled with liquids should be placed on top of it.

20 Do not use extension cords or ungrounded (two prong) adapters.

21 This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

22 Children should be supervised to ensure that they do not play with the appliance.

23 If the supply cord is damaged, it must be replaced by the manufacturer, its service agent, or similarly qualified person, in order to avoid a hazard.

24 Take off the doors and leave the shelves in place so that children may not easily climb inside.

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:

1) Take off the doors

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

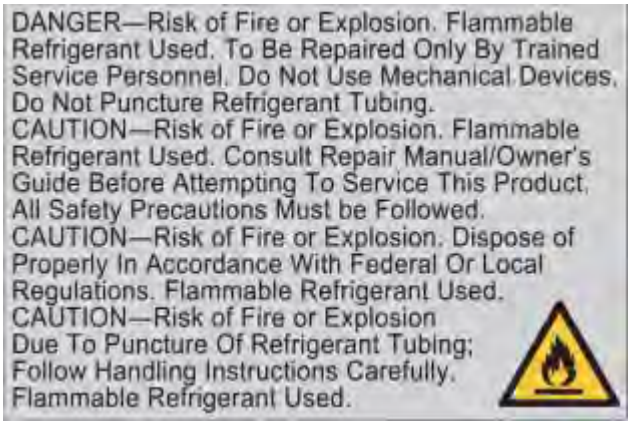
This freezer must be grounded. This freezer is equipped with a cord having a grounding wire with a grounding plug. The plug must be inserted into an outlet that is properly installed and grounded.

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.

1.2Safety instruction for refrigerant

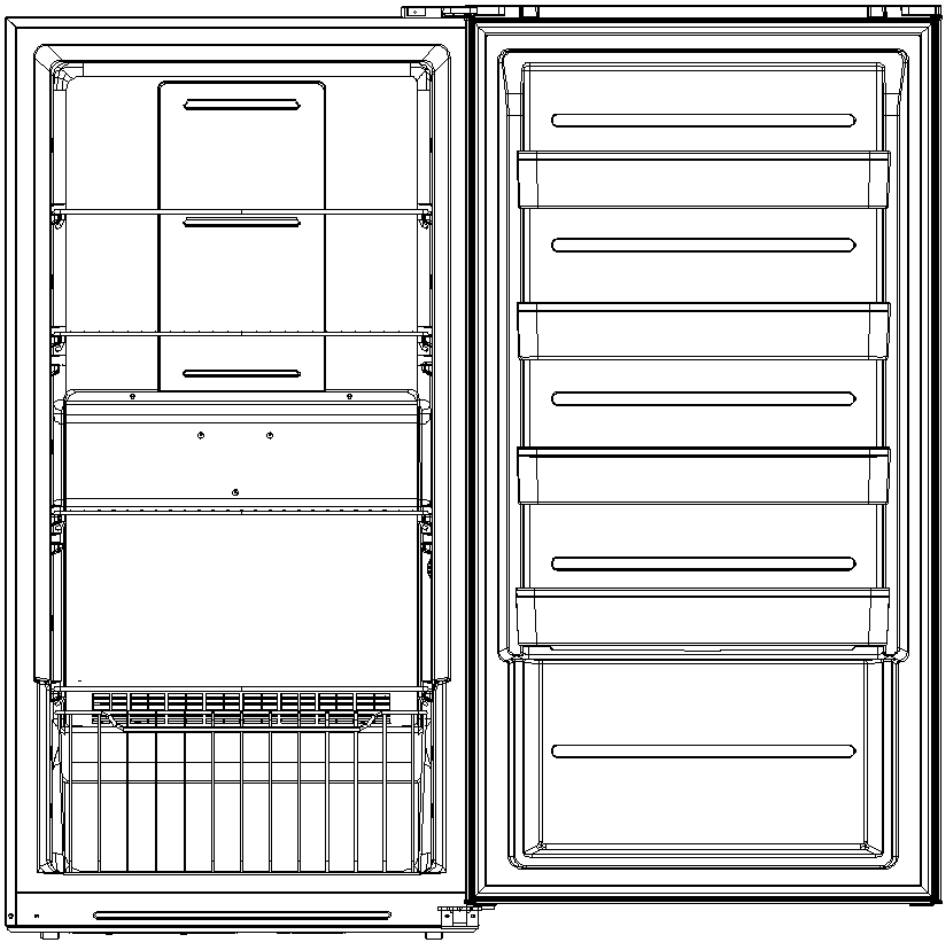
WARNING **Explosion Hazard.**

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



2.Description for product features

This product is provided with following features:



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

1）Support WIFI
2）Electrical temperature control and LED display screen
3）Mode conversion of refrigerator and freezer
4）LED light inner
5）The adjustable wire shelf
6）High temperature alarm
7）E-star energy consumption

3.Installation and commissioning

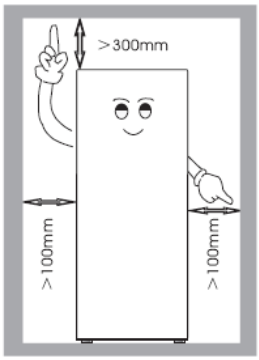
3.1Handling

1) Protecttherefrigeratorinmovingit Sameasshownasleftphoto,pleasemoveitbyhandcartwithcushion 2) Removeallpackingmaterialsandbottomcushion,then moveintohouseforplacement 3) Aftermovingittoappropriatelocation,waitfor2hoursbeforepoweron.	

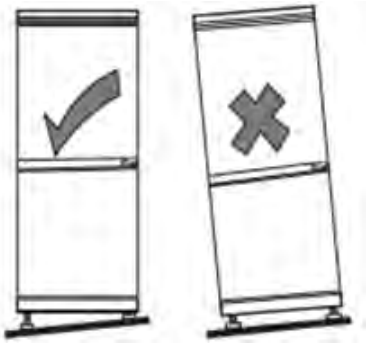
3.2Disassembly (None)

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

3.3 Installation location

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

3.4 Leveling of the refrigerator

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

3.5Change the door opening direction(None)

3.6 Installation of handle

1.Take out ①,use a cross screwdriver to drive① into the screw hole② on the door body and tighten it.

2.Align the screw hole on the handle with the tightened ① to fix the handle;

3.Tighten ③ on the handle side;

4.Put ④ onto the handle side hole ③ to complete handle installation.

3.7 Installation of door lock（None）

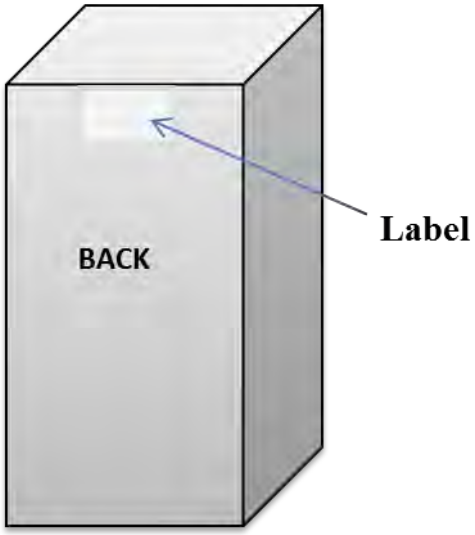
3.8 Adjustment to level the door（None）

3.9 Adjustment to shelves（None）

4.Terms

4.1 Definition of model(None)

4.2Location of nameplate

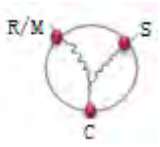


(The picture is only for reference, and specific appearance and configuration are subject to the real product)

5.Product specification

5.1 typespecification(None)

5.2 Electrical parameters

Product Name			UL-BD481WE-ST	UL-BD594WE-ST	UL-BD386WE-ST
Product Code					22031010000841
Name	**Item**	**Type**	**Specification**	**Specification**	**Specification**
Compressor	**Compressor**	/	EE50H1B	EE55H1A-U	EE50H1C
	Starter	**PTC**	MPT36A04 8EA14C3 8EA14C3-02	MTP42A04 8EA14C3 8EA14C3-02	QPE2-A4R7MD3
	Overload protector	**OLP**	4TM302TFBYY	4TM319TFBYY	QRB31T61A1
	Winding resistance of compressor wiring terminal		Rmc:10-20Ω Rsc:30-50Ω Rms=Rmc+Rsc	Rmc:10-20Ω Rsc:30-50Ω Rms=Rmc+Rsc	Rmc:10-20Ω Rsc:30-50Ω Rms=Rmc+Rsc
	Variable frequency driver board	/	/	/	/
Motor	**Fan motor of the freezing chamber**	DC	DC12V	DC12V	DC12V
	Ventilation door of the refrigerating chamber	/	/	/	/
	Condensation fan	/	/	/	/
Lights inside the refrigerator	**Lights inside the freezing chamber**	LED	DC12V	DC12V	DC12V
	Lights inside the refrigerating chamber	/	/	/	/
	Switch of the refrigerator door	mechanicalswitch	Cylindrical switch	Cylindrical switch	Secto switch

5.3Inside temperature

Temperature tolerance ≤ 2 ℃

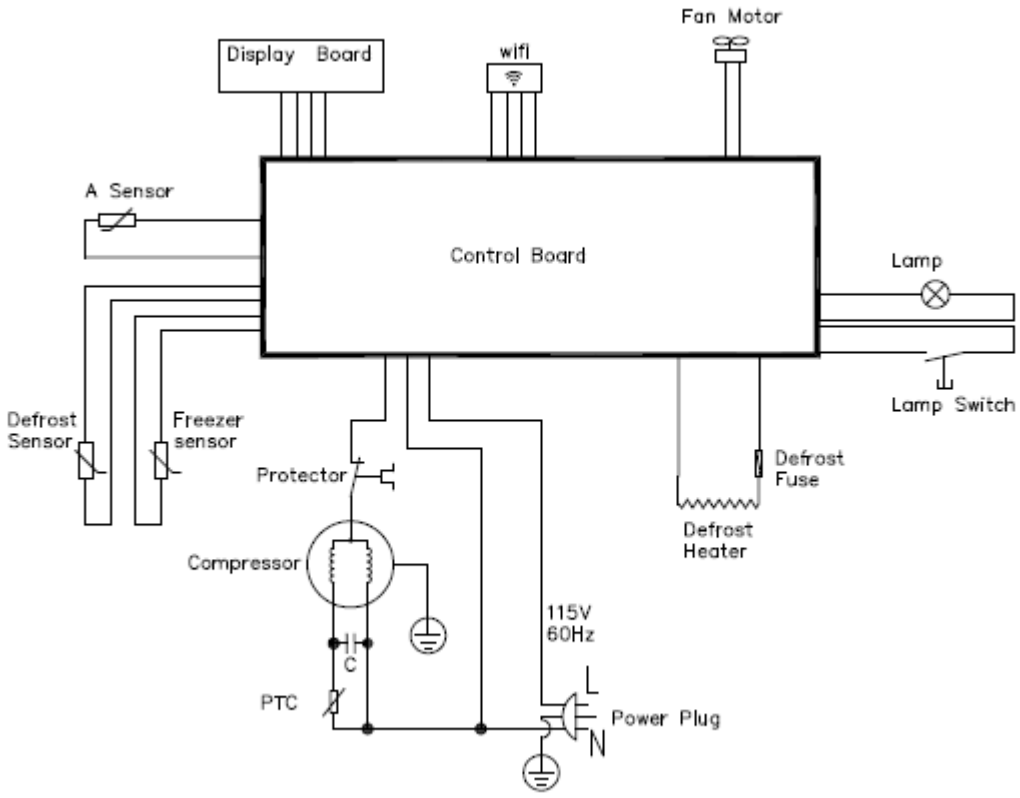
Compartment	The highest (°C)	Lowest (°C)
Freezing	-12	-20
Refrigerating	/	/
Variable temperature	/	/

5.4Defrosting parts

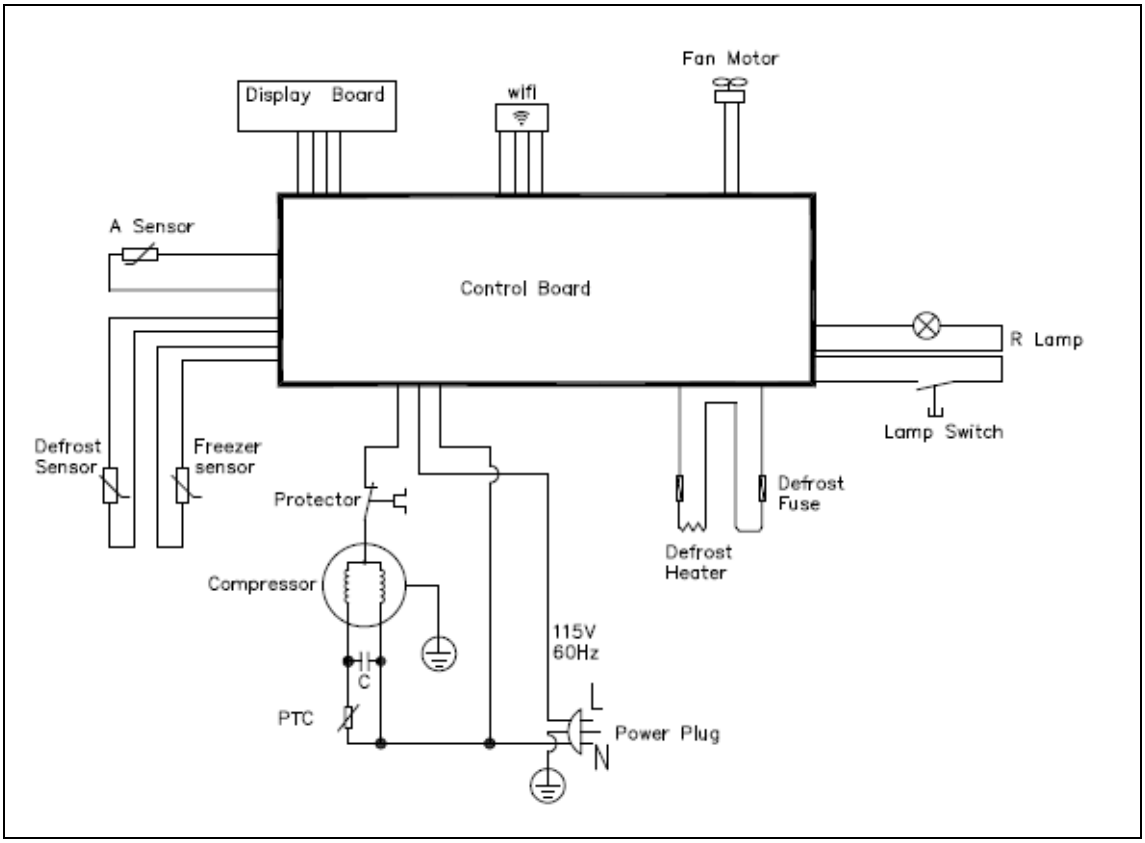
Defrosting period	Initial defrosting period	Normal defrosting period
	/	/
Defrosting sensor	NTC	B3839
Thermal fuse	Can't be restored	77 ℃
Defrosting heater in freezing chamber	Steel pipe	115V/200W 115V/180W

5.5Circuit diagram

UL-BD481WE-ST\UL-BD594WE-ST

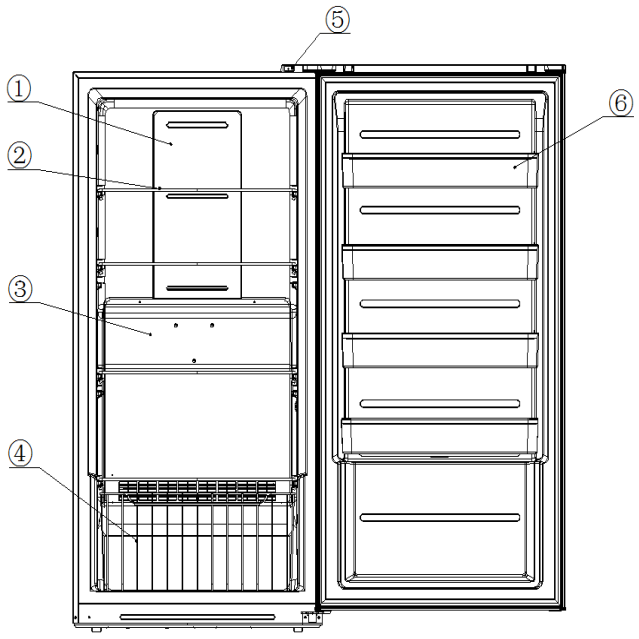
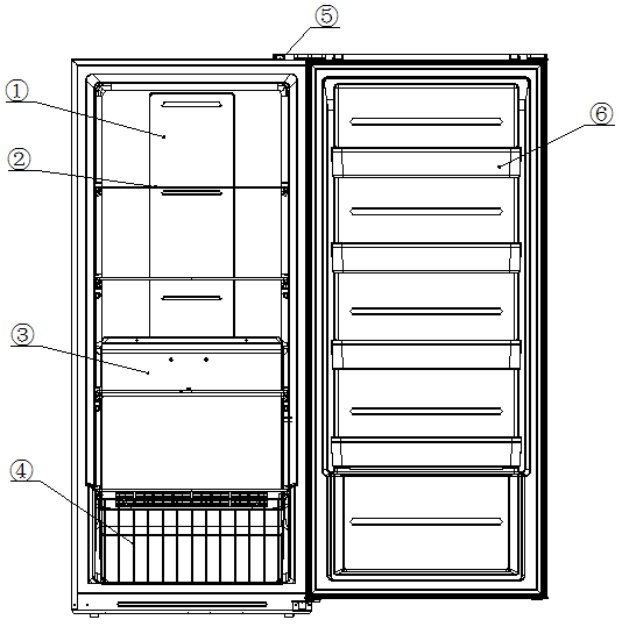


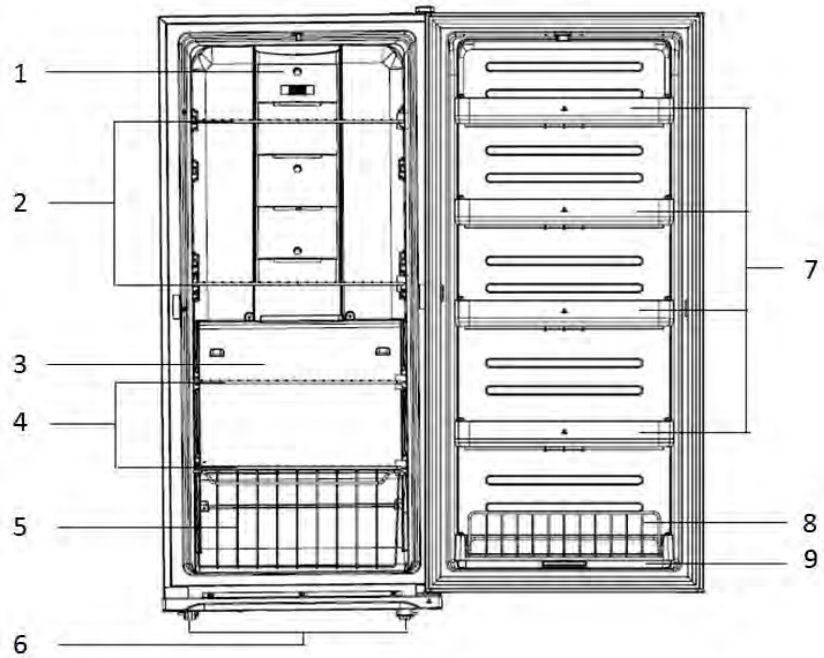
UL-BD386WE-SQ_22031010000841



6.Internal view and dimension

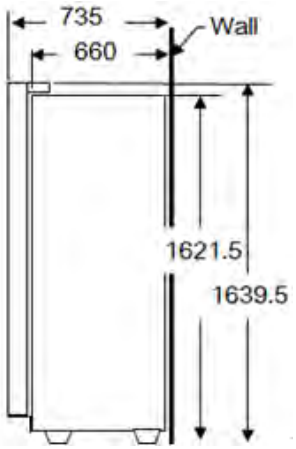
6.1Main parts and their names

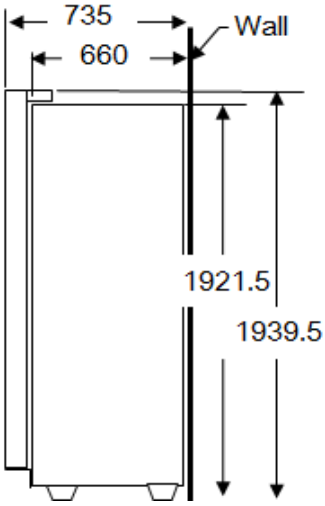
UL-BD481WE-ST	UL-BD594WE-ST
	

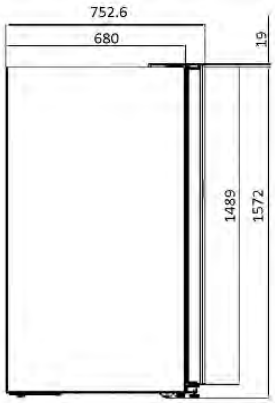
① Upper air duct cover ② Steel wire shelf ③ Bottom air duct cover	④ Steel wire drawer ⑤ Door switch ⑥ Door tray
UL-BD386WE-SQ_22031010000841	
	
1. Front air duct cover2. Steel wire shelf(big)3. FRZ. air duct component 4. Steel wire shelf(small)5. Steel wire drawer	6. adjustable feet 7. Door tray8. Door tray9. Door tray
(The picture is only for reference, and specific appearance and configuration are subject to the real product)	

6.2External dimension

Front view		
UL-BD481WE-ST	**UL-BD594WE-ST**	**UL-BD386WE-SQ_22031010000841**
		
Side view		
UL-BD481WE-ST	**UL-BD594WE-ST**	**UL-BD386WE-SQ_22031010000841**

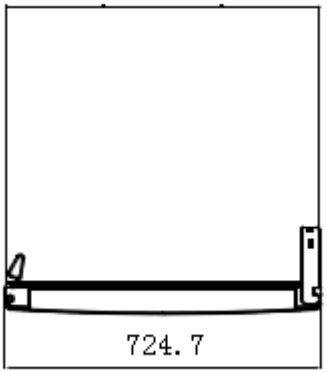


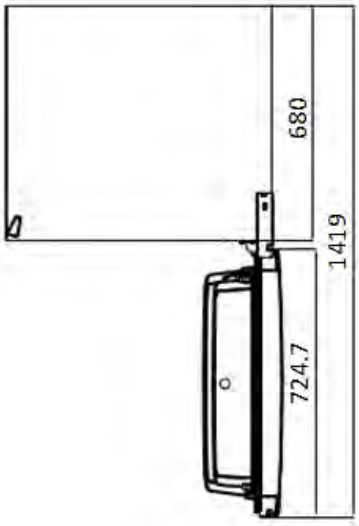




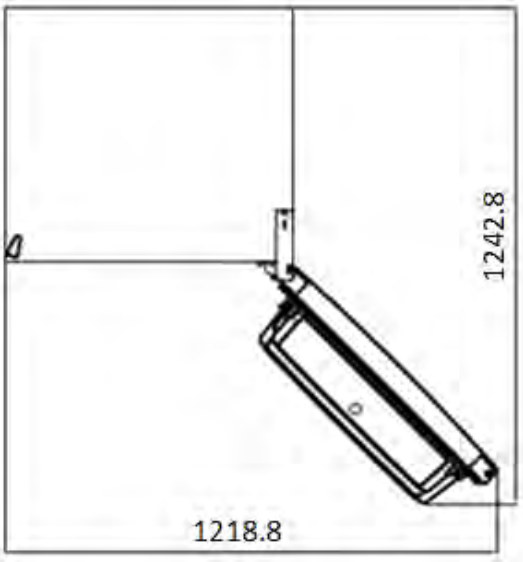
Down view

Open Door





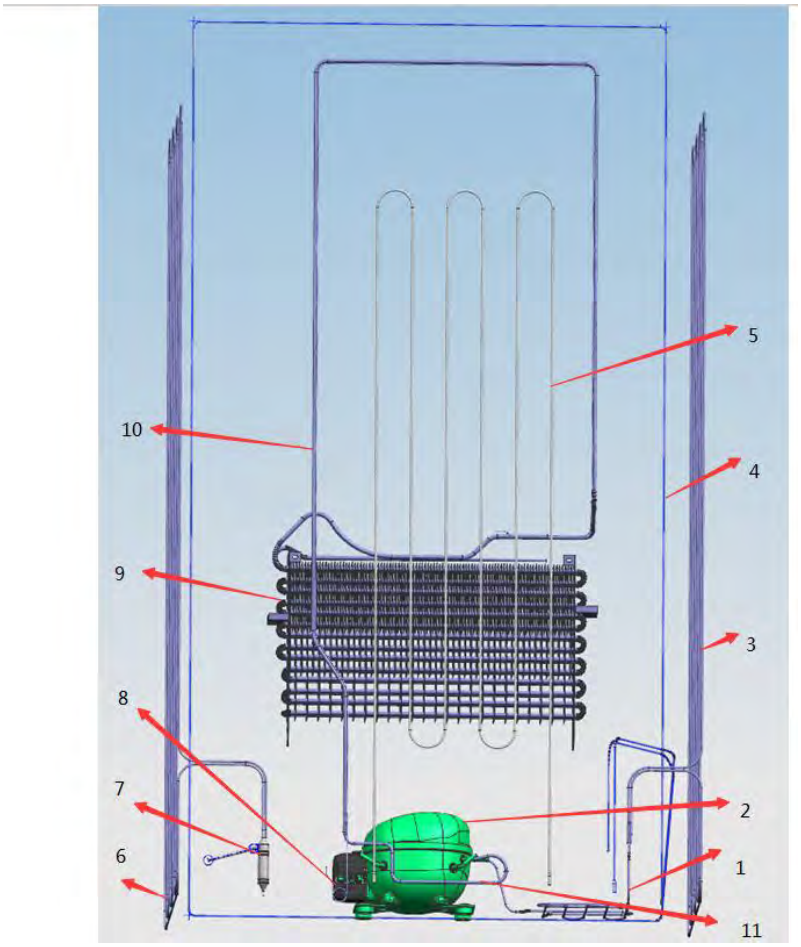
Maximum open angle of door 135°



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

7.Refrigerating piping system and circulating route of cooling air

7.1 **Refrigerating piping system**

1Compressor→2Exhaust transition pipe→3Left condenser→4Anti-condensationg tube→5Back condenser→6Right condenser→7Dry filter→8Capillary tube→9Evaporator→10Suction pipe→11Return transition pipe→2Compressor


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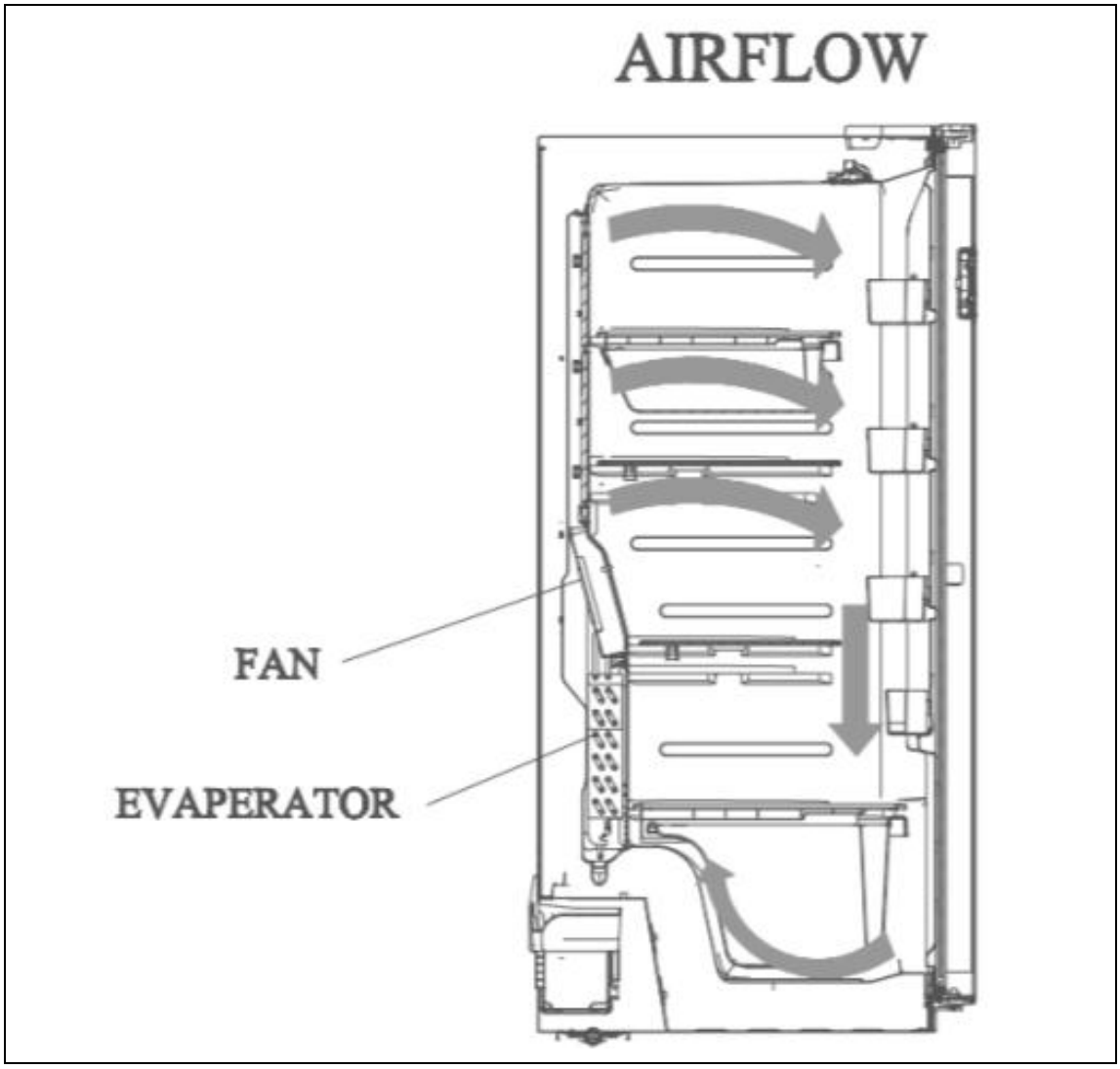
7.2Circulating route of cooling air



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

8. Dismantling of parts

8.1 Parts on the door

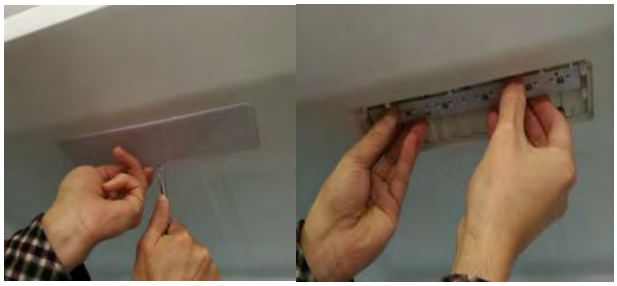
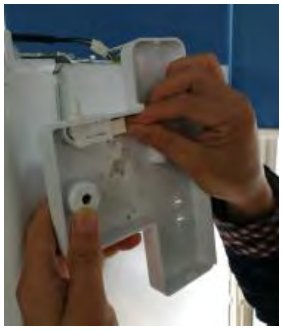
Door seal	
Door seal is installed into door liner groove. 1） Open the refrigerator door; 2） Take the door seal ①out of door liner;	
Door tray	
Lift up the bottle frame and take it out from the door liner of the refrigerator.	
rollover beam	None

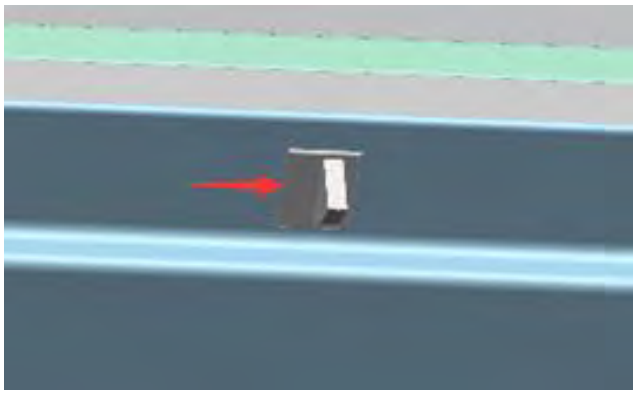
8.2Parts inside the refrigerator

Refrigerator Fruit box cover	None
Shelves	
1） Pull out the partition plate completely. 2） Lift it up and take it out from the refrigerator.	
Ice tray	None
Refrigerator tray	None
Drawer	

The bottom of the drawer is located in the freezer 1）take it out from the refrigerator.	

8.3 Light system

Light	
UL-BD481WE-ST_22031010001001(UL-BD594WE-ST_22031010000981)	
Light of the freezer chamber is located upper chamber 1) use slotted screwdriver to insert into the gap,dismantle the lamp 2) loosen the plasic clip, dismantle the lamp PCB	
UL-BD386WE-SQ_22031010000841	
Light of the freezer chamber is located upper chamber 1) Losen the screw 2) Pull down the light cover	
Light switch	
UL-BD481WE-ST_22031010001001(UL-BD594WE-ST_22031010000981)	
1) Remove the screws of hinge 2) Unplug the wiring connector, and loosen the plastic clip of lamp switch to dismantle lamp switch	
UL-BD386WE-SQ_22031010000841	

There is a light switch on the top of the re frigerating chamber.Loosen the hook with small normal screwdriver and pull out the switch until the wire connector reveals.	

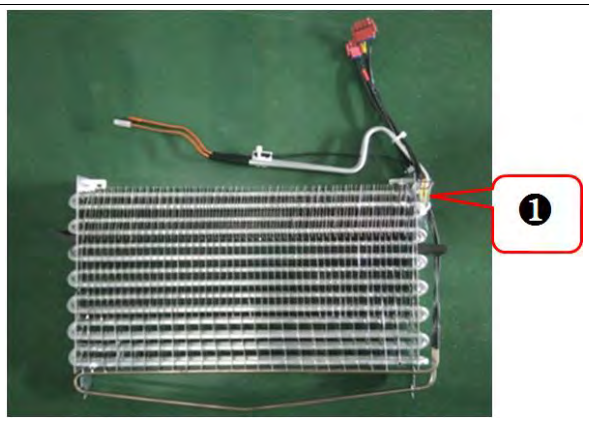
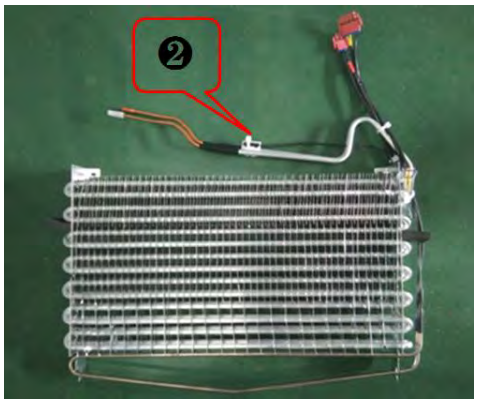
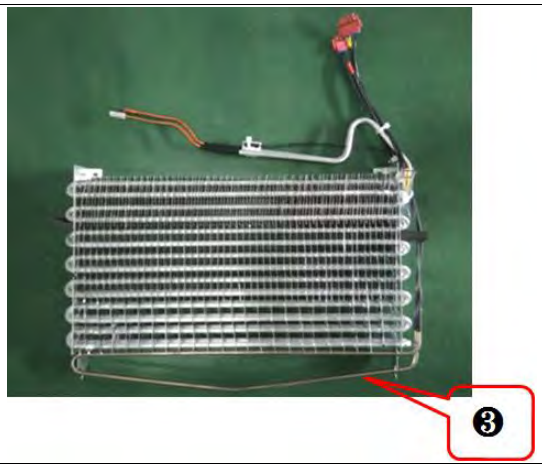
8.4Air duct and fan motor

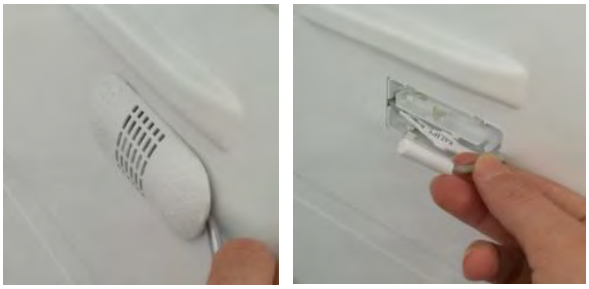
Front evaporator cover of freezer(bottom)	
All accessories in the freezing chamber should be dismantled before removing the air duct components. 1) use cross screwdriver to remove the 2 pcs screws of air duct cover 2) hold the upper position of air duct cover, and pull it our slightly, it should be very careful for avoiding the wiring harness/connector be damaged if overexert 3) unplug all wiring connectors ,and dismantle the air duct cover from the rear side of refrigerator inner 4) hold the upper cover from the bottom, pull out the upper cover	   
Front evaporator cover of freezer (upper)	
After dismantle the bottom evaporator cover, please hold the bottom side of upper evaporator cover ,and use both hands to pull outwards from bottom to top to dismantle it. The reverse operation is for installation	
Rear cover of Freezer	

Before dismantle it, please make sure the front evaportor cover(bottom) be removed already 1) Loosen the plastic clips,move the rear cover outwards 2) Hold the edge of cover, and dismantle it from the refrigerator	
Fan motor	
Before dismantle it ,please make the front evaporator cover(bottom) be removed already 1) Loosen the plastic clips,move the rear cover outwards 2) Hold the edge of cover, and dismantle it from the refrigerator 3) Dismantle the screw, move the fan motor from the refrigerator 4) Replace the fan motor, the inverse operation to complete installation	
Damper assembly	(None)

8.5Evaporator and temperature sensing system

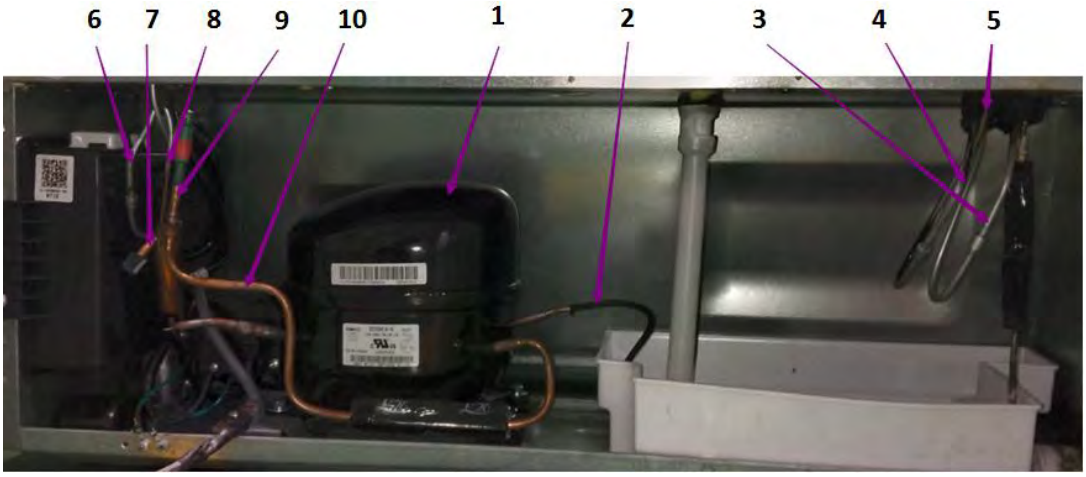
Evaporator in freezing chamber	
1） Remove the air duct components in freezing chamber. 2） Disconnect all connectors. 3） Remove the welding on inlet and outlet tubes. 4） Remove two screws which are used to fix the evaporator and remove the evaporator.	
Components on the evaporator	

❶Fuse The fuse is located on top of the evaporator 1） connect the fuse connector. 2） Cut off the band which fixes the fuse. 3） Separate the fuse and the evaporator. *Don't break the welding of the evaporator in case that only the sensor needs to be replaced.	
❷Defrost sensor The defrost sensor is located on top of the evaporator. 1） Disconnect the connector of defrost sensor 2） Cut off the band which fixes the sensor. 3） Separate the sensor and the evaporator. *Don't break the welding of the evaporator in case that only the sensor needs to be replaced.	
❸Defrost heater The defrost heater is located at bottom of the evaporator. 1） Disconnect the connector of defrost heater. 2） Cut off the band which fixes the defrost heater. 3） Take off the defrost heater from the evaporator. *,Dont break the welding of the evaporator in case that only the defrost heater needs to be replaced.	
Ambient temperature sensor	None
Ambient temperature sensor	
Ambient temperature sensor is located in upper hinge cover,	

Freezer sensor	
The sensor is located at right of freezer chamber 1）Pull out the cover 2）Pull out the sensors	

8.6Compressor case

Rear cover and compressor case	None
Condenser fan moto	None
Terminal box of the compressor	None
Standby condenser	None
Piping system in the compressor case	

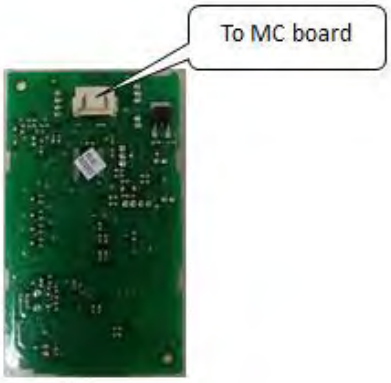


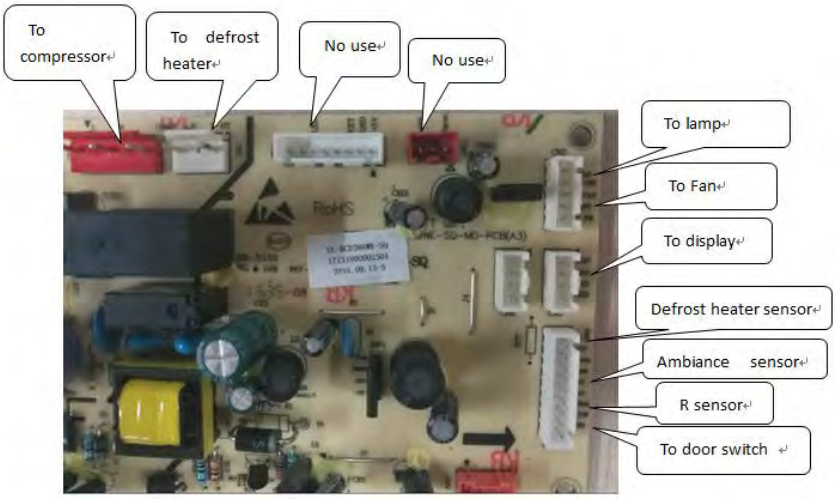
1.Compressor 2.Exhaust transition pipe 3.Left condenser 4.Anti-condensationg tube 5.Back condenser	6.Right condenser 7.Dry filter 8.Capillary 9.Suction pipe 10.Return transition pipe
Starter and protector of the compressor	
1. Remove the screws 1） Two screws outside 2） One screw inside	

2. Remove the clipping strip Slowly pull it out	
3. Remove the protective cover 1）Pry the protective cover slowly from the upper part, 2）Pull it out and remove it.	 
4. Remove the starter and protector Unplug the starter and protector (you can use a screwdriver to pry it slowly)	
5. The reverse process can complete installation.	/

8.7Display and main control panel

Display control board	
1） Use vacuum cap to pull the control panel outwards 2） Disconnect the connector of display control board, remove it	

<table>
<tr><td></td><td> 

</td></tr>
<tr><td colspan="2">Main control board</td></tr>
<tr><td>remove the fixed screw from main control board box
Open the main control board box coverremove the fixed screw,pull out the main control boardDisconnect the connector of main control board</td><td> 



</td></tr>
</table>

8.8 Bar counter(None)

Disassembly and installation of bar counter	None
Disassembly and installation bar doorseal	None

8.9 Water dispenser(None)

Disassembly and installation of water valve	None
Disassembly and installation of water tank	None

8.10 Ice maker(None)

Disassembly and installation of ice maker	None
Disassembly and installation of water system	None
Disassembly and installation ice machine sensor	None

9. Function and operation9.1 Operation panel

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

Icons:	Button:
1).High temperature alarm 2).Door open alarm 3). Wifi indicator light 4).Display screen 5). Fahrenheit 6). Celsius 7). Quick freezer 8). Lock/unlock 9). REF./FRZ. icon	A、Quick-frozen setting buttonB、Lock buttonC、Quick-frozen setting buttonD、Cooling setting buttonE、Warming setting button

9.2 Temperature setting

9.2.1 Temperature adjustment button D (Colder)Press temperature adjustment button(D) to set the temperature to colder, Press the key "-" once, and the temperature will drop by 1°C, display screen will continue scintillation 30s,and then exit set condition

9. 2. 2 Temperature adjustment button E (warmer)

Press temperature adjustment button(E) to set the temperature to warmer, Press the key "-" once, and the temperature will rise by 1°C,display screen will continue scintillation 30s, and then exit set condition

9.2.3 Quick freezer mode button AFreezer function condition: Under non-quick freeze mode, press the key "Quick Freeze", enter quick freezer mode, and the display screen shows "－24℃" or "－11℉", default values quick freezer time is 24 hour, press button A again, exit Quick Freeze

Refrigerator function condition: Press button A to indicate an invalid sound

9.2. 4 Lock/Unlock button B

In unlocked status, press the button B for 3S,to enter into the locked status

In locked status, press the button B for 3S,to enter into the unlocked status**9.2. 5 S**witch between

refrigerator and freezer button C

When in the refrigeration mode, long press this button for 3 seconds, then switch to the freezing mode and restore the default temperature -18 ℃ / 0 ℉;

When in the freezing mode, long press this button for 3 seconds, then switch to the refrigeration mode and restore the default temperature 5℃/41℉;**9.2. 6**Celsius \ Fahrenheit units switch

Long press the temperature down button (D key) + the temperature up button (E key) for 3 seconds to switch the Celsius and Fahrenheit display mode.

9.2. 7 Main board reset

Long press the lock/unlock button (B key) + temperature up button (E key) for 3 seconds to switch to the main board reset mode.

9.2. 8 Maintenance mode

Long press the lock/unlock button (B key) + temperature down button (D key) for 3 seconds to switch to the maintenance mode.

9.2. 9 Self-test mode

Press the lock/unlock button (B key) + temperature down button (D key) to switch to the self-test mode in the first 3 seconds when power on.

9.3Alarm

9. 3. 1 High-temperature alarm

（1）Refrigeration function：

When the sensor temperature higher than 15℃ and duration for more than 36 hours, switch to over-temperature mode, the light of high temperature alarm on; The buzzer calls 10 seconds by the frequency of 1 HZ, then call 10 seconds in every 30 minutes.

When the sensor temperature lower than 12℃, alarm release. operate any button to cancel the buzzer alarm.

（2）Freezing function：

When the sensor temperature higher than -8℃ and duration for more than 36 hours, switch to over-temperature mode, the light of high temperature alarm on; The buzzer calls 10 seconds by the frequency of 1 HZ, then call 10 seconds in every 30 minutes.

When the sensor temperature lower than -12℃, alarm release. Operate any button to cancel the buzzer alarm.9. 3. 2 Door-opening alarm

When the door open, the open indicator on, when the door close, the open indicator off.

Anytime, when the freezing door open more than 5 minutes, switch to the door-opening alarm, the door-opening alarm indicator on and off once every 1000 ms. the buzzer call once a second until the door close, operate any button to cancel the buzzer alarm.**9.3.3**Cross-border alarm

When power on more than 40 hours, the temperature of sensor is detected ±7℃ over than the setting temperature, continue the test more than 2 hours until push the cross-border alarm to the APP, if the temperature recover to the range of ±7℃, then clear the time to zero.

Note: change the setting temperature, the refrigeration and freezing function, open the door clear record the time 40 hours and continue 2 hours

When the sensors is fault, clear record the time 40 hours and continue 2 hours, not cross-border alarm

9.4 Fault code and solutions

Fault code	Fault content	Display	Steps for maintenance methods
E2	Freezer temperature sensor fail	E2	Step 1: to check whether the CN4 wiring connector connect well, unplug and plug in again; Step2: to check whether there is foreign object on the wiring connector of sensor, unplug the connector by refering to chapter 8.5, and check the Ohmic value by comparing with the resistance sheet Step3: change the main PCB Step4: Change the wiring harness
E5	Defrosting sensor fail	E5	Step 1: to check whether the CN4 wiring connector connect well, unplug and plug in again; Step2: to check whether there is foreign object on the wiring connector of sensor, unplug the connector by refering to chapter 8.5, and check the Ohmic value by comparing with the resistance sheet Step3: change the main PCB Step4: Change the wiring harness
E6	Ambient temperature sensor fail	E6	Step1: to check whether the whether the wiring harness connected well Step2:change the main PCB Step3:change the display PCB
E7	F room high temp alarm	E7	Step 1: to check whether the CN8 wiring connector connect well, unplug and plug in again;

9.5Test mode

Press 

at the same time for 3s with a beep, enters into factory mode, the default display is “0”.

Item#	Mode Name	Usage Scenarios	Purpose	Canceling
0	Mode selecting Exit	When the user enters the mode selecting state, the default number is ″0″. If the user selects non of the blow mode, or select back to “0” mode. Lock it, then the freezer will exit factory mode, the display shows back the temperature.	Using for exiting the mode selecting if the user enter the mode selecting state. (especially for entering the mode selecting by accident)	Can not be canceled
AP	WiFi connecting rest	If the user changed their routers, or the freezer was moved to another wifi environment. They need to use it to reconnect the freezer with the new internet. At single wifi environment, at this mode, the freezer will be connected to it automatically. At	Using for wifi reconnection.	Can not be canceled

		multiple wifi environment, the user can select which wifi to connect through the App.		
1	Compressor compulsory running Mode	During manufacturing and ex-factory testing, this mode will be used to test the refrigerating capacity. For after sales service, this mode is used for compressor activate problem check.	Using for ex-factory and after sales service test.	Can be canceled
2	Deforest heater compulsory running Mode	During manufacturing and ex-factory testing, this mode will be used to test the deforest heater capacity. For after sales service, this mode is used for deforest heater activate problem check.	Using for ex-factory and after sales service test.	Can not be canceled

9.1Self-diagnosis

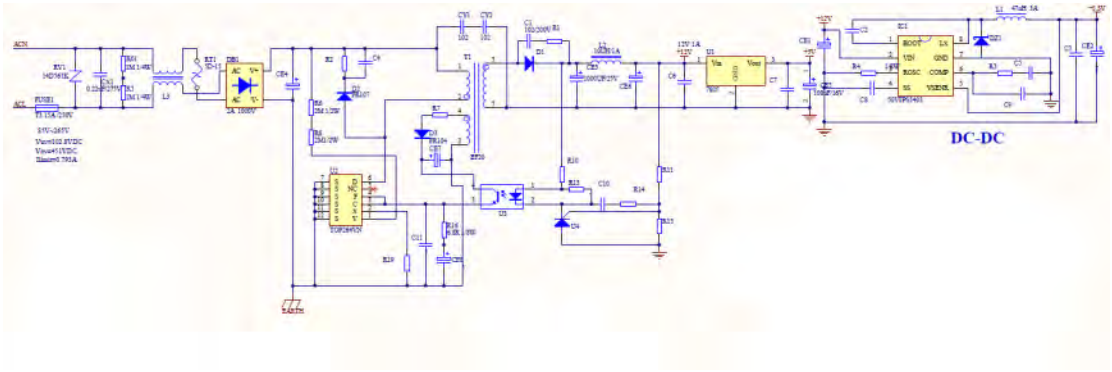
1)Enter: With 5 seconds after power on, if there is no sensor failure and the freezer sensor temperature≥ 0℃, it will enter into self-diagnosis

2)Exit: after 20min it will exit the Self-diagnosis immediately to enter normal mode

3)Process of Self-diagnosis

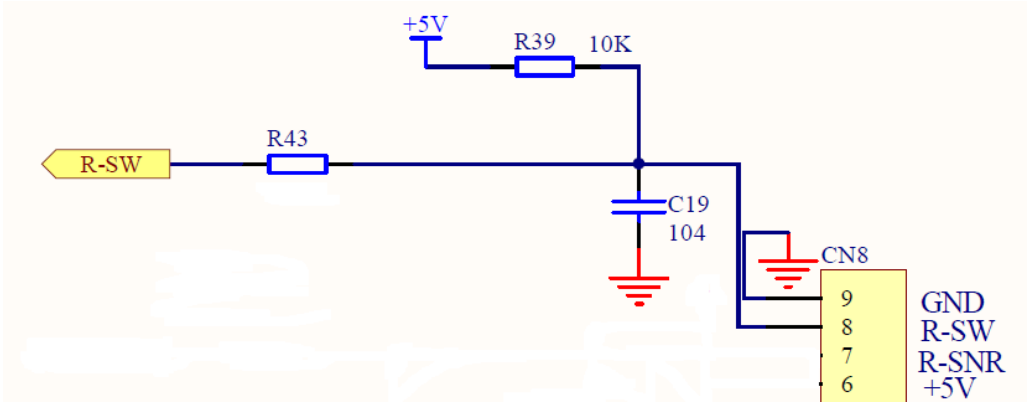
1. Switch on the defrosting heater for 5 seconds, then switch off for 5 seconds
2. Switch on the fan motor for 5 seconds, then switch off for 5 seconds
3. turn on the fan motor and compressor at same time
4. it will exit the self-diagnosis after 20 minutes.

10.Circuit description10.1 Power Supply



The AC input power is reduced in voltage by SMPS control chip and filtered off wave by the inductance-capacitance filter, then output the DC 12V power which will mainly power the relay that controls strong current. Relay is used to control the strong current loaded switches of compressor, ice maker and defrost heater. The DC 12V power will output stable 5V electricity after passing through the adjustor 7805, to power for the main control chip and thus monitor the temperature changes in refrigerator. DC12V through the DCDC regulator chip TPS5403, output stable 3.3V voltage to the wifi module supply power

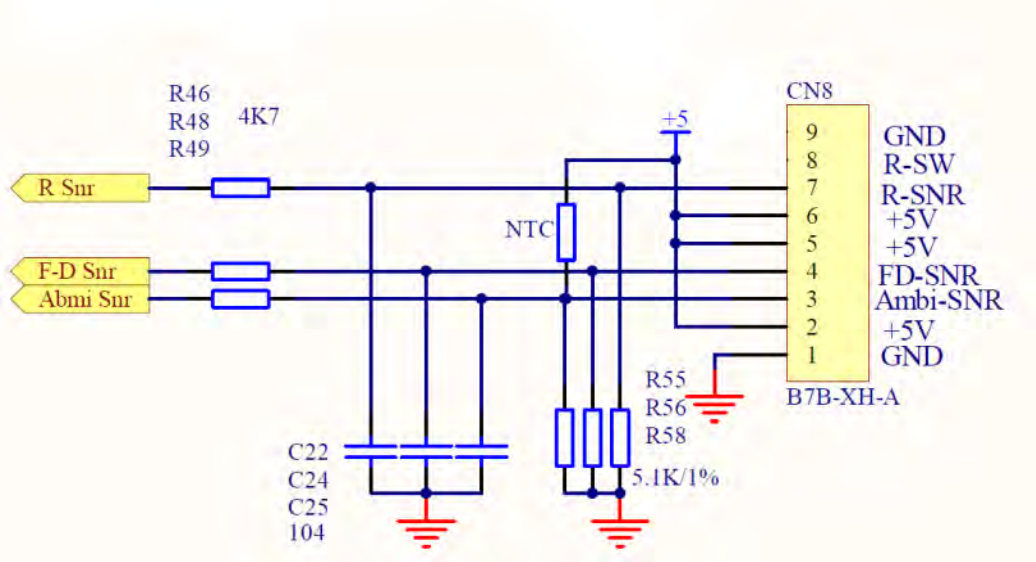
10.2Door trip test circuit



5V voltage cross the R39 and come to the main control chip with high level, at this time, the door close. When the door open, the door switch off, 5V voltage is connected with GND through R39, the chip detects the low level. The main chip acquire the state of door open and off by detecting the low and high electrical level. When the state acquired, the main chip controls as follows,

when the door open, the LED lamp on, the fan close. When the door close, the LED lamp off, the fan starts. When the door open, the LED lamp doesn't on, the fan still works check the door switch first.

10.3 Temperature test circuit



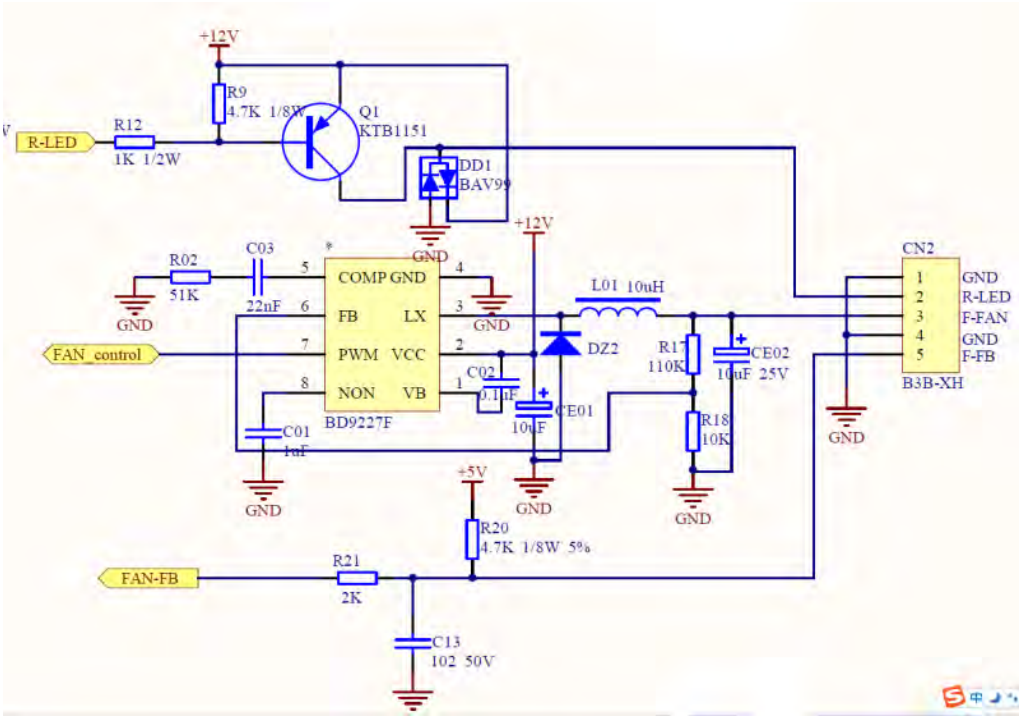
The characteristic that resistance value reduces as the temperature increases is deemed to have negative slope or negative temperature coefficient (NTC), and such thermistor is called as NTC thermistor. The resistance value changes sensitively with temperature and typically changes 7% ~ 3% per degree centigrade. Sensor used in the refrigerator is NTC thermistor.

There is following computing formula for the sensor:Sampling voltage / reference voltage = R1 / (RNTC + R1)

AD value / reference AD value = R1 / (RNTC + R1)

The reference voltage is 5V, RNTC is the resistance value of the sensor, R1 is R31\R32\R33 in schematic diagram that is 5.1K

10.4Fan motor circuit of the freezing chamber



12 V voltage is reduced to 7~12V through the control chip BD9227F ,output it to F-FAN pin and connect it to positive pole of fan, to control the operating of fan in different revolution. Check the voltage between F-FAN pin and GDN pin, to estimate the fan trouble.

10.5Refrigerator fan motor circuit (None)

10.6Condensing fan motor circuit (None)

10.7Damper motor circuit (None)

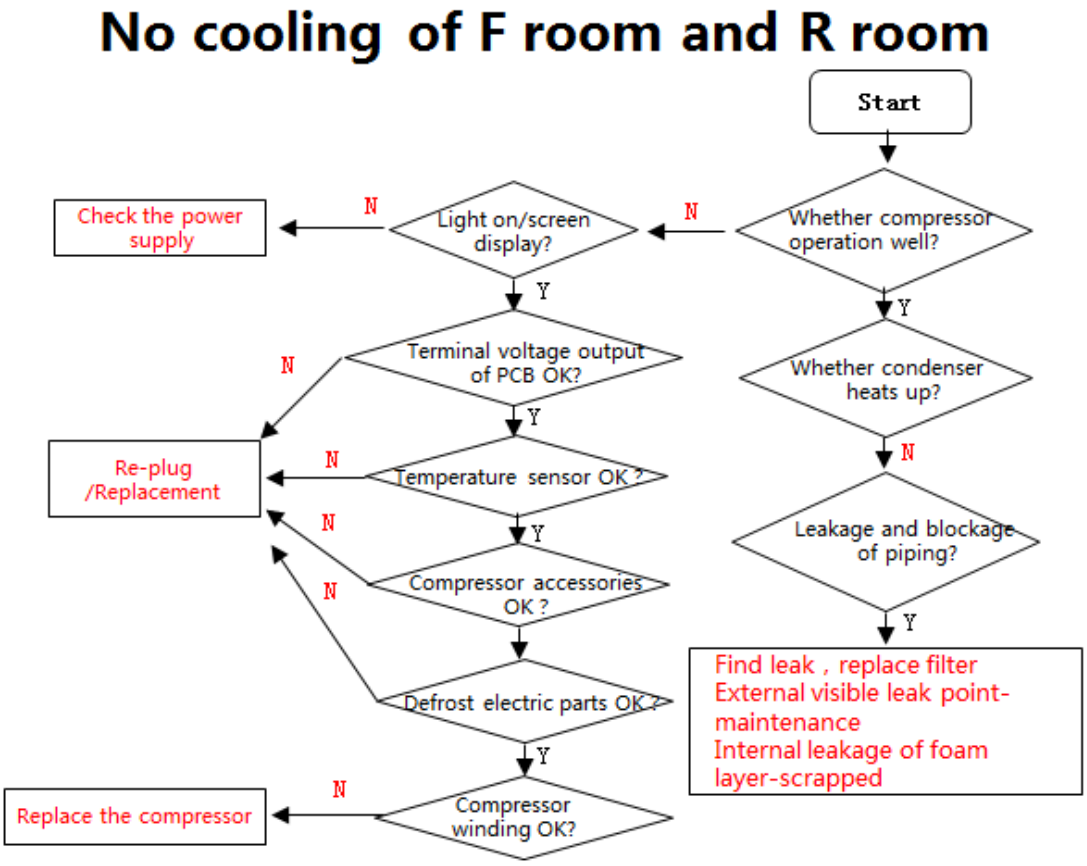
10.8Resistance value of the sensor (R/T)

Tx(℃)	R (KΩ)	Tx(℃)	R (KΩ)	Tx(℃)	R (KΩ)	Tx(℃)	R (KΩ)	Tx(℃)	R (KΩ)
-30	33.81	-15	14.31	0	6.495	15	3.141	30	1.617
-29	31.85	-14	13.55	1	6.175	16	2.999	31	1.55
-28	30.01	-13	12.83	2	5.873	17	2.865	32	1.486
-27	28.29	-12	12.16	3	5.587	18	2.737	33	1.426
-26	26.68	-11	11.52	4	5.315	19	2.616	34	1.368
-25	25.17	-10	10.92	5	5.06	20	2.501	35	1.312
-24	23.76	-9	10.35	6	4.818	21	2.391	36	1.259
-23	22.43	-8	9.82	7	4.589	22	2.287	37	1.209
-22	21.18	-7	9.316	8	4.372	23	2.188	38	1.161
-21	20.01	-6	8.841	9	4.167	24	2.094	39	1.115

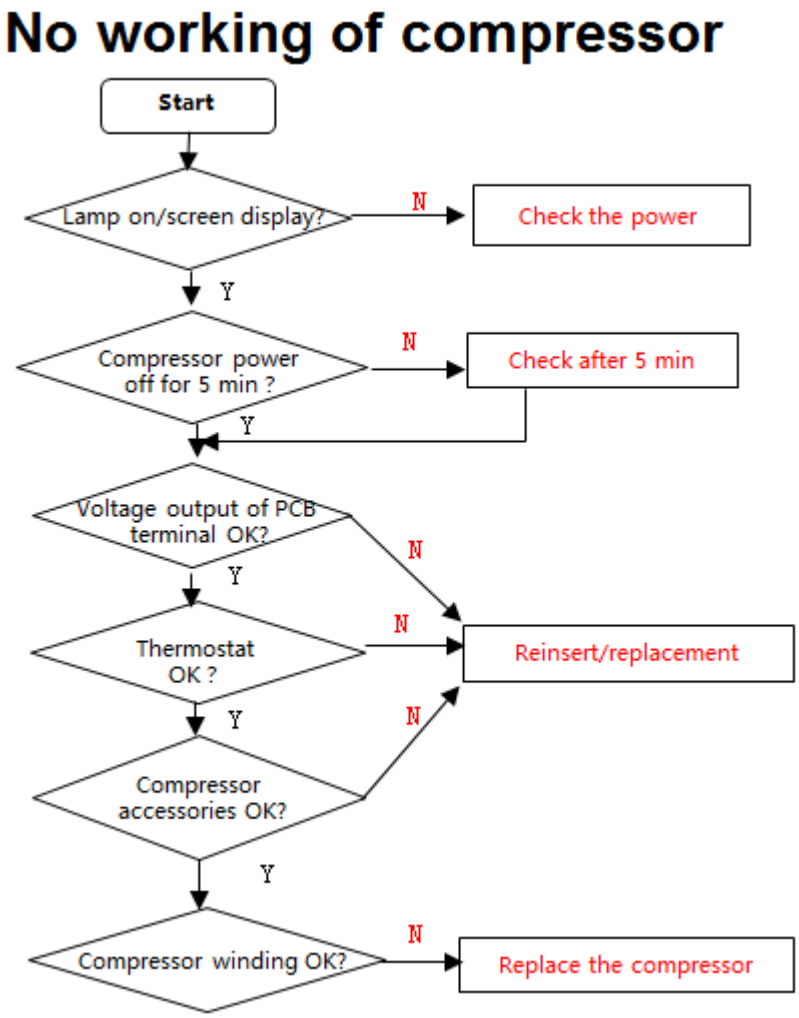
-20	18.9	-5	8.392	10	3.972	25	2.005	40	1.071
-19	17.87	-4	7.968	11	3.788	26	1.919	41	1.029
-18	16.9	-3	7.568	12	3.613	27	1.838	42	0.9885
-17	15.98	-2	7.19	13	3.447	28	1.761	43	0.9506
-16	15.12	-1	6.833	14	3.29	29	1.687	44	0.914

11.Troubleshooting Method

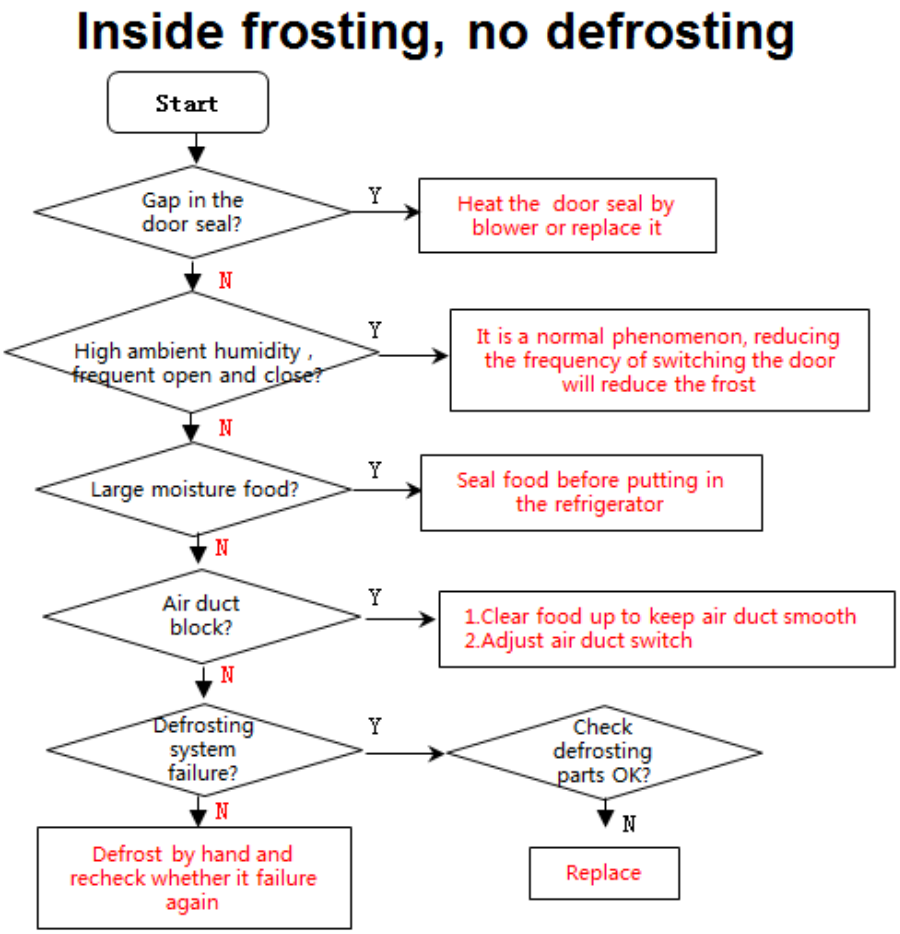
11.1 No refrigeration

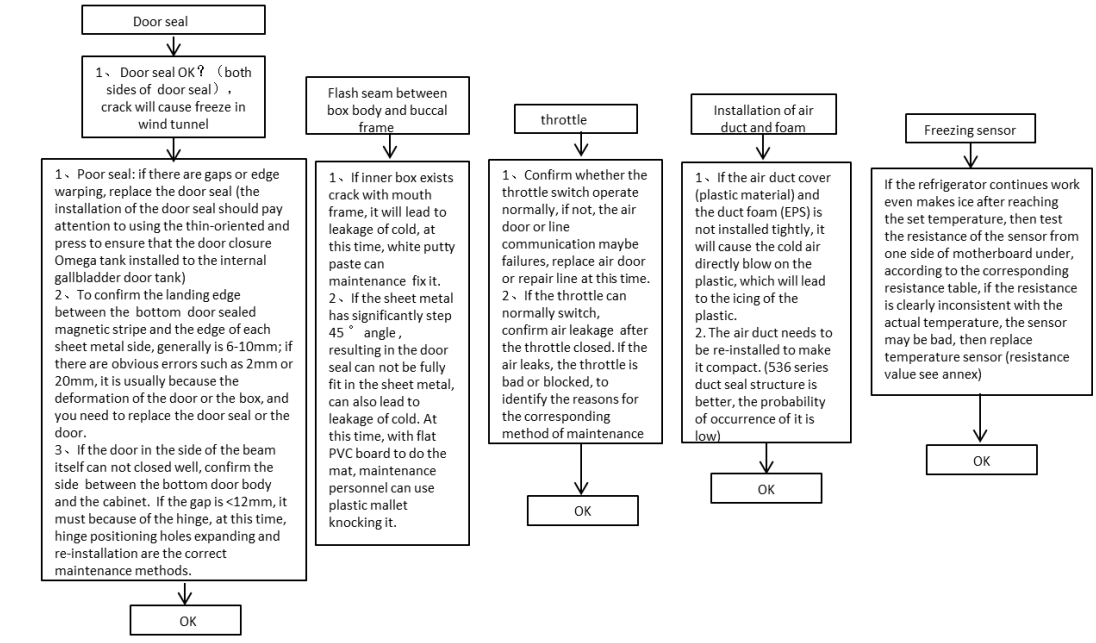


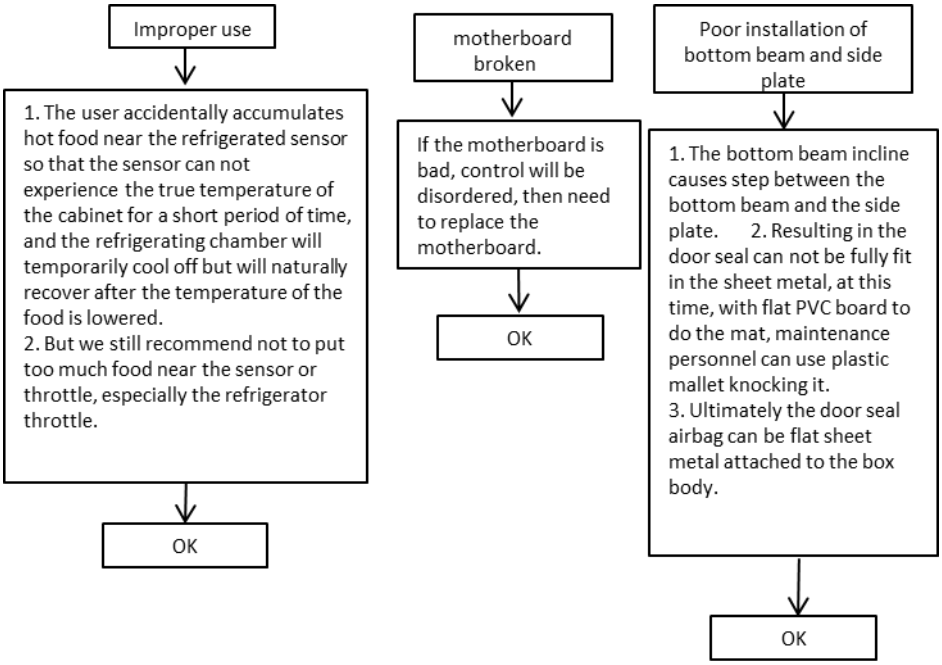
11.2 Compressor failure



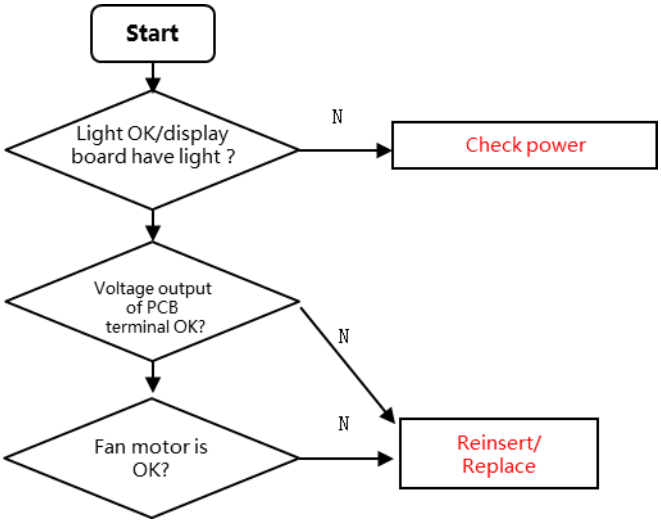
11.3 Defrosting is not working





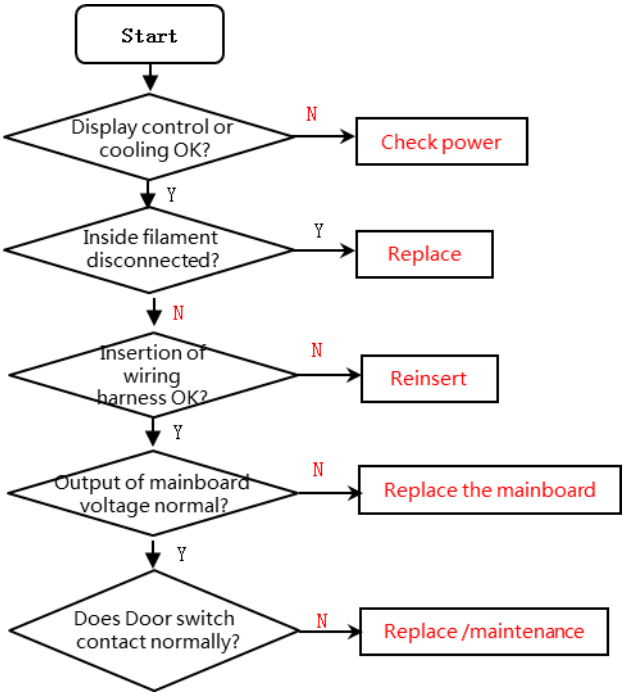


11.4 **Fan in the freezing chamber is abnormal**



Refer to this method for other fans.

11.5 Damper is abnormal(None)11.6 Lights inside the refrigerator don’t light up



12. Figures and details of repair parts(Documents are provided separately)

12.1 Figure

12.2 List of parts and components

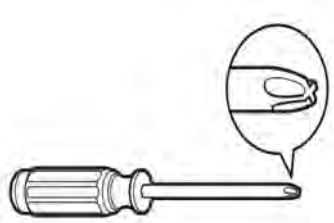
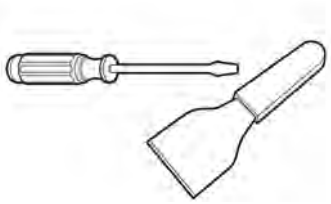
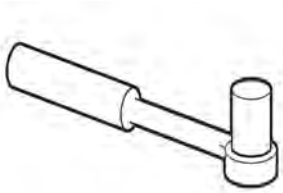
13Appendix:

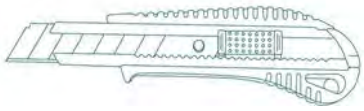
13.1Electrical Schematic Diagram

(Model:)

13.2refrigerator maintenance tooling and equipment and material

Tooling

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

6	Vise grip pliers		sealing process tube
7	Pipe cutter		pipe cutting
8	Knife		assistive tool
9	Nipper pliers		assistive tool
10	Capillary tube scissors		Shear capillary

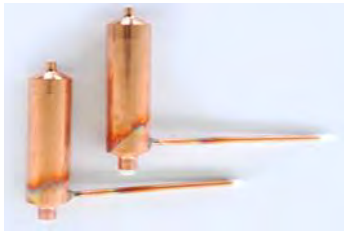
Equipment

No.	Name	Photo	Main Usage
1	Vacuum pump		vacuum pumping

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

material

No.	Name	Photo	Main Usage
1	Process pipeline		Chargetherefrigerant

2	Dry filter		Involving a system failure to be replaced
3	Copper welding rod		tube welding
4	Refrigerant/gas		Add refrigerant to the system
5	Sealing tape		door fixing for reversible door option

Midea Refrigerators

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

xxx@midea.com

Refrigeration Division

Overseas Sales Company

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