HEIKO SERVICE MANUAL

Model M2T050-D2

Version：V1   Date：2023-03-02

Contents

1 Introduction

1.1 Model name explanation

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┌───┬───┬───┬───┬───┬───┬───┬─────┐
│ M │ 2 │ T │ 0 │ 5 │ 0 │ - │ D2  │
└───┴───┴───┴───┴───┴───┴───┴─────┘
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series

18000 BTU

1 outdoor by 2 indoor

Multi

Domestic air conditioner

1.2 Safety Cautions

Be sure to read the following safety cautions before conducting repair work.

The caution items are classified into "Warning" and "Caution". The "Warning" items are especially important since they can lead to death or serious injury if they are not followed closely. The "Caution" items can also lead

to serious accidents under some conditions if they are not followed. Therefore, be sure to observe all the safety

caution items described below.

About the pictograms

△ This symbol indicates an item for which caution must be exercised.

The pictogram shows the item to which attention must be paid.

○ This symbol indicates a prohibited action.

The prohibited item or action is shown inside or near the symbol.

● This symbol indicates an action that must be taken, or an instruction.

The instruction is shown inside or near the symbol.

After the repair work is complete, be sure to conduct a test operation to ensure that the equipment operates Normally, and explain the cautions for operating the product to the customer.

1.2.1 Caution in Repair

Warning	
Be sure to disconnect the power cable plug from the plug socket before disassembling the equipment for a repair. Working on the equipment that is connected to a power supply can cause an electrical shook. If it is necessary to supply power to the equipment to conduct the repair or inspecting the circuits, do not touch any electrically charged sections of the equipment.	
If the refrigerant gas discharges during the repair work, do not touch the discharging refrigerant gas .The refrigerant gas can cause frostbite.	
When disconnecting the suction or discharge pipe of the compressor at the welded section, release the refrigerant gas completely at a well-ventilated place first. If there is a gas remaining inside the compressor , the refrigerant gas or cooling machine oil discharges when the pipe is disconnected, and it can cause injury.	
If the refrigerant gas leaks during the repair work, ventilate the area. The refrigerant gas can generate toxic gases when it contacts flames.	
The step-up capacitor supplies high-voltage electricity to the electrical components of the outdoor unit. Be sure to discharge the capacitor completely before conducting repair work . A charged capacitor can cause an electrical shock.	
Do not start or stop the air conditioner operation by plugging or unplugging the power cable plug. Plugging or unplugging the power cable plug to operate the equipment can cause an electrical shock or fire.	

Warning	
Do not repair the electrical components with wet hands . Working on the equipment with wet hands can cause an electrical shock	⊘
Do not clean the air conditioner by splashing water. Washing the unit with water can cause an electrical shock.	⊘
Be sure to provide the grounding when repairing the equipment in a humid or wet place, to avoid electrical shock.	⏚
Be sure to turn off the power switch and unplug the power cable when cleaning the equipment. The internal fan rotates at a high speed, and cause injury.	
Do not tilt the unit when removing it. The water inside the unit can spill and wet the furniture and floor.	⊘
Be sure to check that the cooling cycle section has cooled down sufficiently before conducting repair work. Working on the unit when the cooling cycle section is hot can cause burns.	
Use the welder in a well-ventilated place. Using the welder in an enclosed room can cause oxygen deficiency.	❗

1.2.2 Cautions Regarding Products after Repair

Warning	
Be sure to use parts listed in the service parts list of the applicable model and appropriate tools to conduct repair work. Never attempt to modify the equipment. The use of inappropriate parts or tools can cause an electrical shock, excessive heat generation or fire.	
When relocating the equipment, make sure that the new installation site has sufficient strength to withstand the weight of the equipment. If the installation site does not have sufficient strength and if the installation work is not conducted securely, the equipment can fall and cause injury.	
Be sure to install the product correctly by using the provided standard installation frame. Incorrect use of the installation frame and improper installation can cause the equipment to fall, resulting in injury.	For integral units only
Be sure to install the product securely in the installation frame mounted on a window frame. If the unit is not securely mounted, it can fall and cause injury.	For integral units only

Warning	
Be sure to use an exclusive power circuit for the equipment, and follow the technical standards related to the electrical equipment, the internal wiring regulations and the instruction manual for installation when conducting electrical work. Insufficient power circuit capacity and improper electrical work can cause an electrical shock or fire.	
Be sure to use the specified cable to connect between the indoor and outdoor units. Make the connections securely and route the cable properly so that there is no force pulling the cable at the connection terminals. Improper connections can cause excessive heat generation or fire.	
When connecting the cable between the indoor and outdoor units, make sure that the terminal cover does not lift off or dismount because of the cable. If the cover is not mounted properly, the terminal connection section can cause an electrical shock, excessive heat generation or fire.	
Do not damage or modify the power cable. Damaged or modified power cable can cause an electrical shock or fire. Placing heavy items on the power cable, and heating or pulling the power cable can damage the cable.	🚫
Do not mix air or gas other than the specified refrigerant (R-410A / R22) in the refrigerant system. If air enters the cooling system, an excessively high pressure results, causing equipment damage and injury.	
If the refrigerant gas leaks, be sure to locate the leak and repair it before charging the refrigerant. After charging refrigerant, make sure that there is no refrigerant leak. If the leak cannot be located and the repair work must be stopped, be sure to perform pump-down and close the service valve, to prevent the refrigerant gas from leaking into the room. The refrigerant gas itself is harmless, but it can generate toxic gases when it contacts flames, such as fan and other heaters, stoves and ranges.	. ❗
When replacing the coin battery in the remote controller, be sure to disposed of the old battery to prevent children from swallowing it. If a child swallows the coin battery, see a doctor immediately.	

Caution	
Installation of a leakage breaker is necessary in some cases depending on the conditions of the installation site, to prevent electrical shocks.	

| Do not install the equipment in a place where there is a possibility of combustible gas leaks. If a combustible gas leaks and remains around the unit, it can cause a fire. | ⃠ |
| Be sure to install the packing and seal on the installation frame properly. If the packing and seal are not installed properly, water can enter the room and wet the furniture and floor. | |

1.2.3 Inspection after Repair

Warning	
Check to make sure that the power cable plug is not dirty or loose, then insert the plug into a power outlet all the way. If the plug has dust or loose connection, it can cause an electrical shock or fire.	❗
If the power cable and lead wires have scratches or deteriorated, be sure to replace them. Damaged cable and wires can cause an electrical shock, excessive heat generation or fire.	❗

| Warning | |
| Do not use a joined power cable or extension cable, or share the same power outlet with other electrical appliances since it can cause an electrical shock, excessive heat generation or fire. | ⃠ |

Caution	
Check to see if the parts and wires are mounted and connected properly, and if the connections at the soldered or crimped terminals are secure. Improper installation and connections can cause excessive heat generation, fire or an electrical shock.	
If the installation platform or frame has corroded, replace it. Corroded installation platform or frame can cause the unit to fall, resulting in injury.	

Check the grounding, and repair it if the equipment is not properly grounded. Improper grounding can cause an electrical shock.	
Be sure to measure the insulation resistance after the repair, and make sure that the resistance is 1 M ohm or higher. Faulty insulation can cause an electrical shock.	
Be sure to check the drainage of the indoor unit after the repair. Faulty drainage can cause the water to enter the room and wet the furniture and floor.	

1.2.4 Using Icons

Icons are used to attract the attention of the reader to specific information. The meaning of each icon is described in the table below:

1.2.5 Using Icons List

Icon	Type of Information	Description
Note	Note	A "note" provides information that is not indispensable, but may nevertheless be valuable to the reader, such as tips and tricks.
Caution	Caution	A "caution" is used when there is danger that the reader, through incorrect manipulation, may damage equipment, loose data, get an unexpected result or has to restart (part of) a procedure.
Warning	Warning	A "warning" is used when there is danger of personal injury.
	Reference	A "reference" guides the reader to other places in this binder or in this manual, where he/she will find additional information on a specific topic.

1.2.6 Embedded wire checking before installation

Check the embedded wire diameter suitable to request:

(Power supply from indoor: 2.5kw ≥1.0mm^2 3.5kw,5kw ≥1.5mm^2 ,7kw ≥2.5mm^2 ; Power supply from outdoor ≥1.0mm^2)

Check the embedded wire are four roots, L/N/COM/GND; GND is needed, if not, thunder or high voltage wave from power grid will impact to the performance

Using a multi-meter to test short circuit of the four roots wires, make sure no short circuit happen.

2 Specifications

NOMINAL DISTRIBUTION SYSTEM VOLTAGE		
Phase	/	1
Frequency	Hz	50
Voltage	V	220-240

NOMINAL CAPACITY and NOMINAL INPUT				
			09+09	
			cooling	heating
Capacity rated		KW	4.8	4.0
		Btu/h	16380(4430-18430)	17060(5460-20135)
Power Consumption(Rated)		KW	1.4	1.34
SEER/SCOP		W/W	6.1	4.0
Annual energy consumption		KWh	275	1400
Moisture Removal		m³/h	12 single:$2×10^{-3}$	

TECHNICAL SPECIFICATIONS-UNIT				
Dimensions	H*W*D	mm	553×800×275	
Packaged Dimensions	H*W*D	mm	625×908×405	
Weight	/	KG	36	
Gross weight	/	KG	39	
Sound level	Sound peessure	dB	53	
	Sound power	dB	63	

ELECTRICAL SPECIFICATIONS				
			cooling	heating
Nominal running current		A	6.09	5.9
Maximum running current		A	9.2	9.1
Starting current		A	1.6	2.5

TECHNICAL SPECIFICATIONS-PARTS				
			cooling	heating
Compressor	Type		Rotary Compressor	
	Model		GTD130UKQA8JT6	
	Motor output	W	1350	
	Oil type		RM - LP56EG or equivalent 480 ±20 ml	
	Oil charge volume	L	1.65	
Fan	Type		Axial fan	
	Motor output	W	40	
	Air flow rate(high)	m³/h	2400	
	Speed(high/low)	rpm	1000/400	
Heat exchanger	Type		ML fin-ϕ7HI-HX tube	
	Row*stage*fitch		2*24*1.32	

TECHNICAL SPECIFICATIONS-OTHERS			
Refrigerant circuit	Refrigerant type		R32
	Refrigerant charge	KG	1.1
	Maximum allowable distance between indoor and outdoor	m	30(double) 20(single)
	Maximum allowable level difference	m	15
	Refrigerant control		EEV
Piping connections (external diameter)	liquid	mm	Φ6.35
	gas	mm	Φ9.52
	drain	mm	Φ16
Heat insulation type		Both liquid and Gas pipes	
Max. piping Length		m	30(double) 20(single)
Max. Level Difference		m	15
Chargeless		m	20
Amount of Additional Charge of Refrigerant		g/m	20

Note: the data are based on the conditions shown in the table below

cooling	heating	Piping length
Indoor: 27℃DB/19℃WB Outdoor: 35℃DB/24℃WB	Indoor:20℃DB Outdoor: 7℃DB/6℃WB	5m

Conversation formulae
Kcal/h= KW×860
Btu/h= KW×3414
cfm=m³/min×35.3

3. Sensors list

type	Description	Qty
Ambient sensor	Its used for detecting temperature of outdoor side	1
Defrosting sensor	Its used for controlling outdoor defrosting at heating mode	
Descharging sensor	Its used for compressor in case of over-heat	
Suction sensor	Its used for detecting suction pipe temperature of compressor to adjust gas flowing	1
Liquid-gas pipe sensor	Its used for adjusting the valve opening of the electric expansion valve.	2

4. Pinping diagrams

Cooling mode
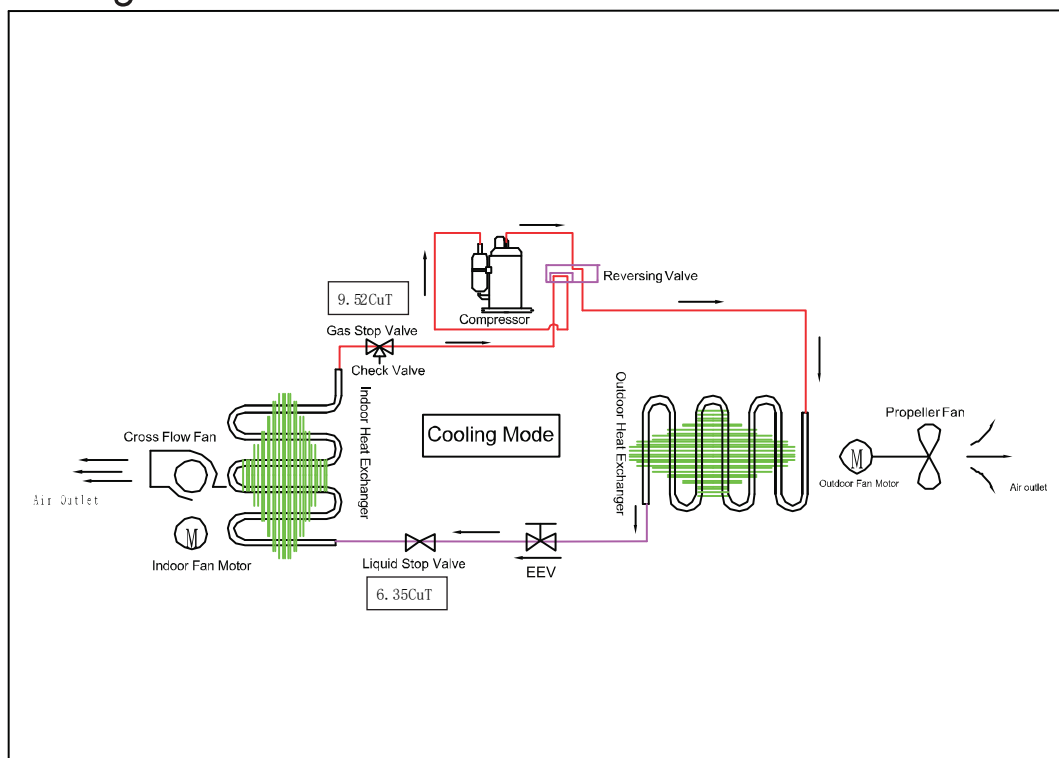
Heating mode
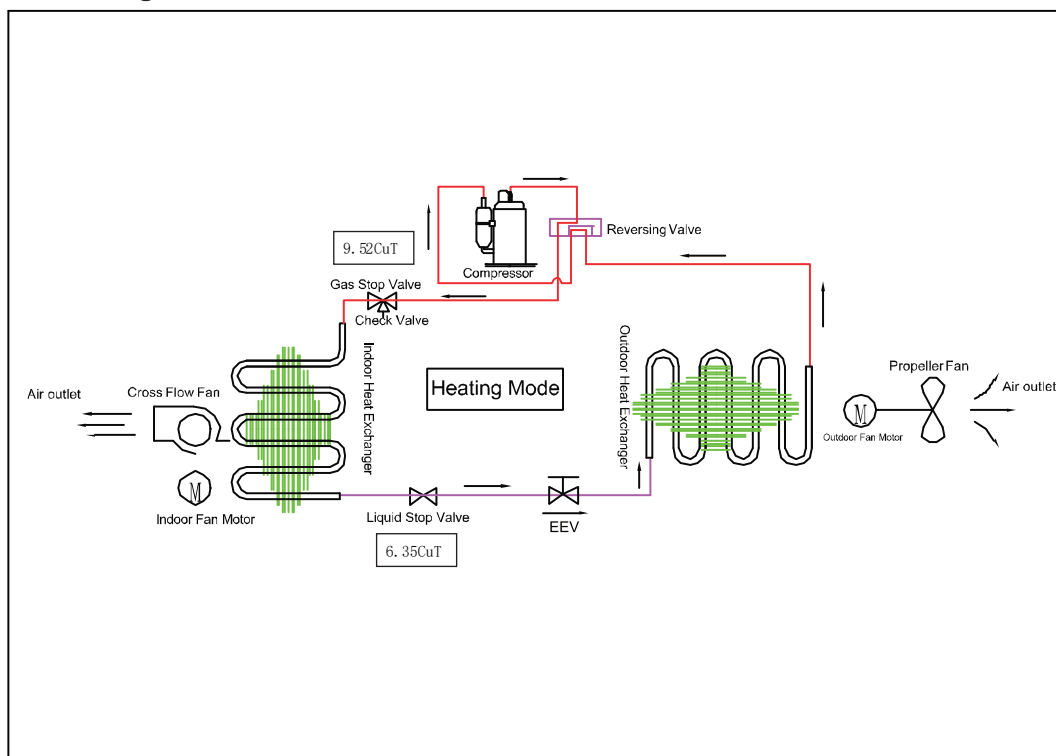
5. Operation range

The name of parts   Cooling

indoor temp（℃WB）

indoor temp（℃DB）
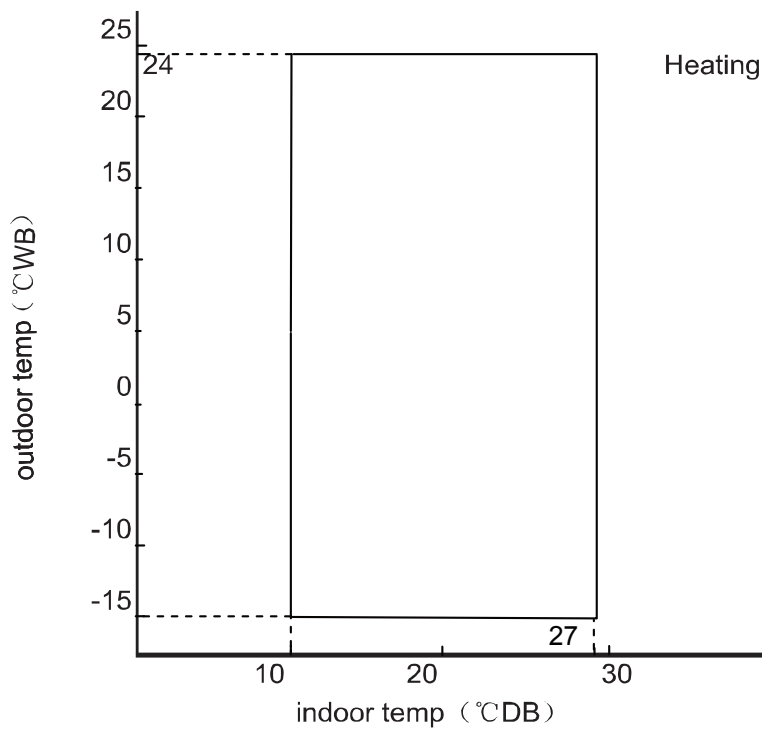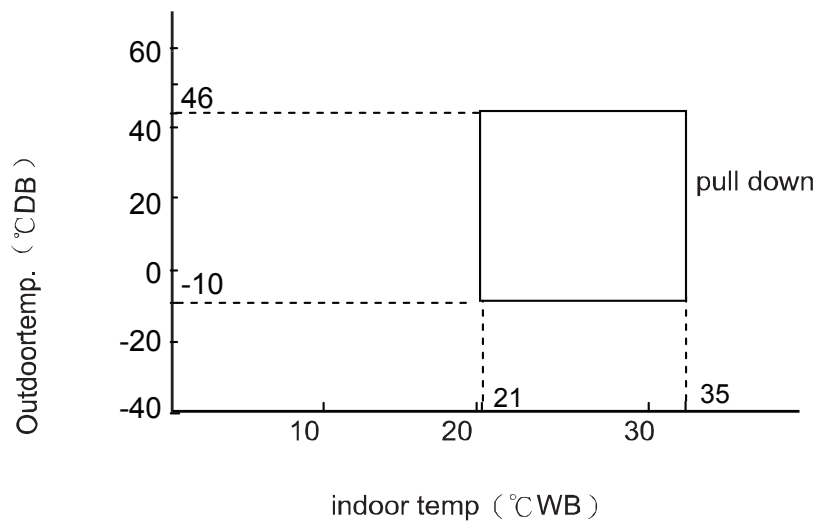
Notes：

    The graphs are based on the following condition：
    Equivalent piping length   5m
    Level difference   0m
    Air flow rate   high

6. Printed Circuit Board Connector Wiring Diagram

Connectors

PCB (1) Control PCB

series	PCB connector	Connect with load
1	CN1	Connector for power N and L
2	CN2	
3	CN3	Connector for ground
4	CN9	Connector for CN2,CN1 on the module board
5	CN 8	
6	CN10	Connector for four way valve coil
7	CN17	Connector for electric expansion valves
8	CN16	
9	CN18	Connector for thermistors
10	CN20	
11	CN31	
12	CN25	
13	CN21	Connector for fan motor
14	CN22	Connector for DC POWER 15Vand 5V to the module board
15	CN23	Connector for communicate between the control board and the module board
16	CN24	Connector to N and P of the module board
17	CN26	
18	CN5	Connector for communicate between indoor and outdoor unit

PCB (2) Module PCB

series	PCB connector	Connect with load
1	P (CN8)	Connector for CN26,CN24 on the control board
2	N (CN9)	
3	LO (CN4)	Connector for reactor
4	LI (CN3)	
5	AC_L(CN1)	Connector for CN8,CN9 on the control board
6	AC_N(CN2)	
7	CN5(U)	Connector for the compressor
8	CN6(V)	
9	CN7(W)	
10	CN10	Connector for the DC power 5V and 15V form the control PCB
11	CN11	Connector for communicate between the control board and the module board

Note: Other Designations

PCB(1) (Control PCB)

1) FUSE 1, Fuse (25A,250VAC)

2)LED 1 keep light representative normal ,if keep flash interval   representative trouble Alarm

3)RV1,RV2,RV3   Varistor

PCB (1)
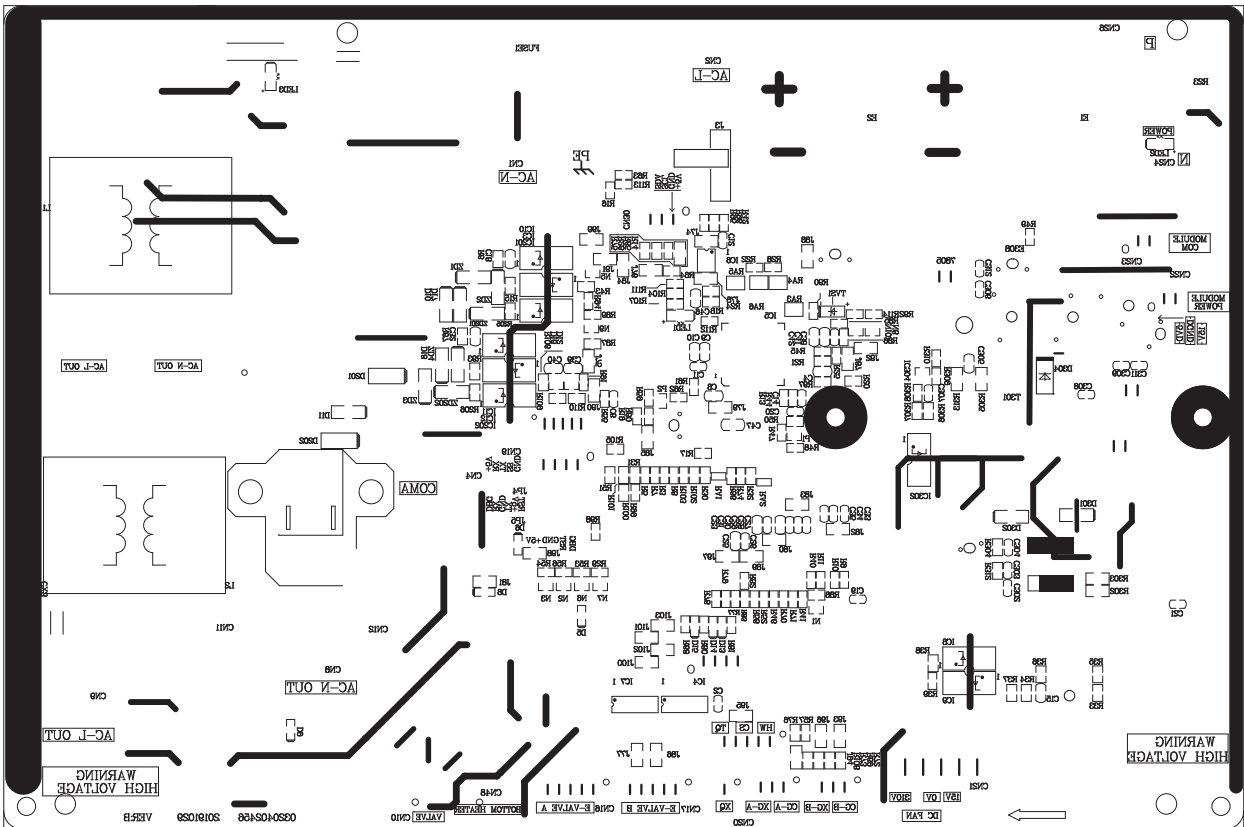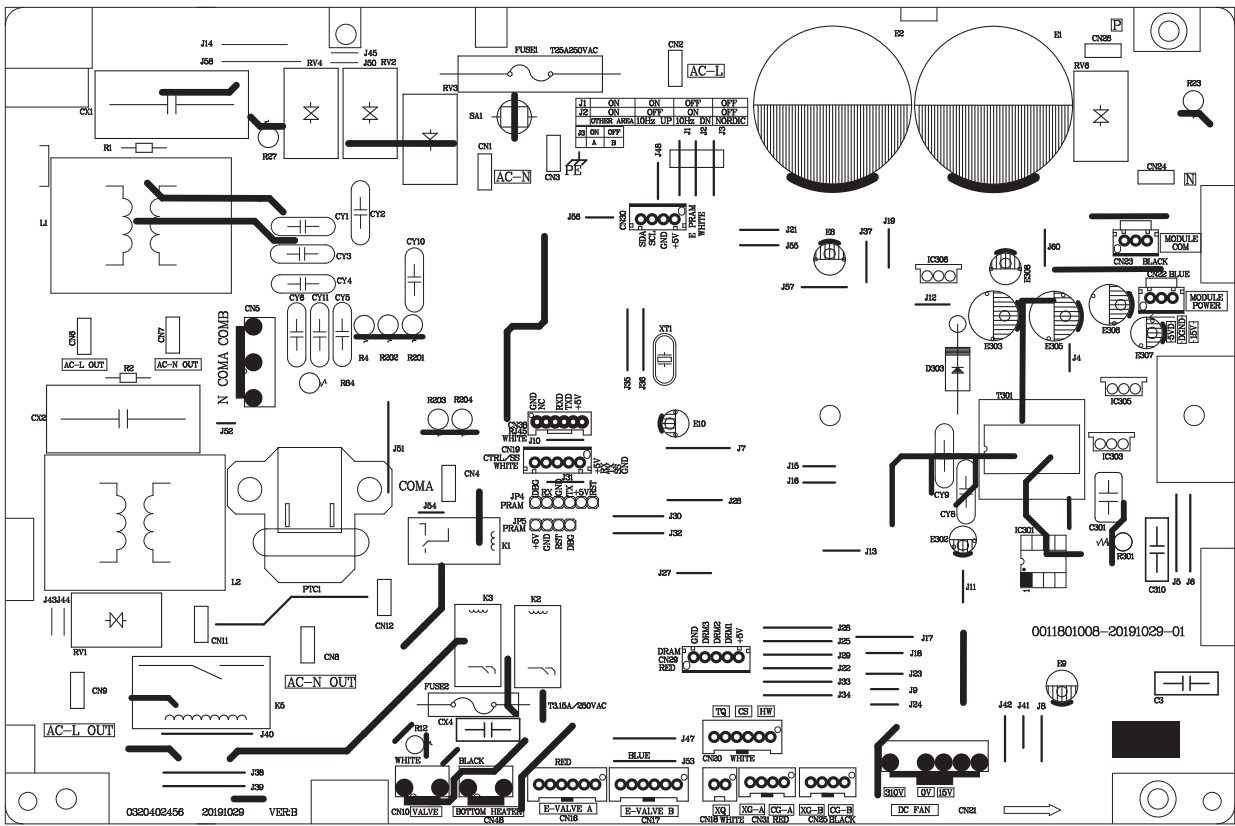
PCB(2)
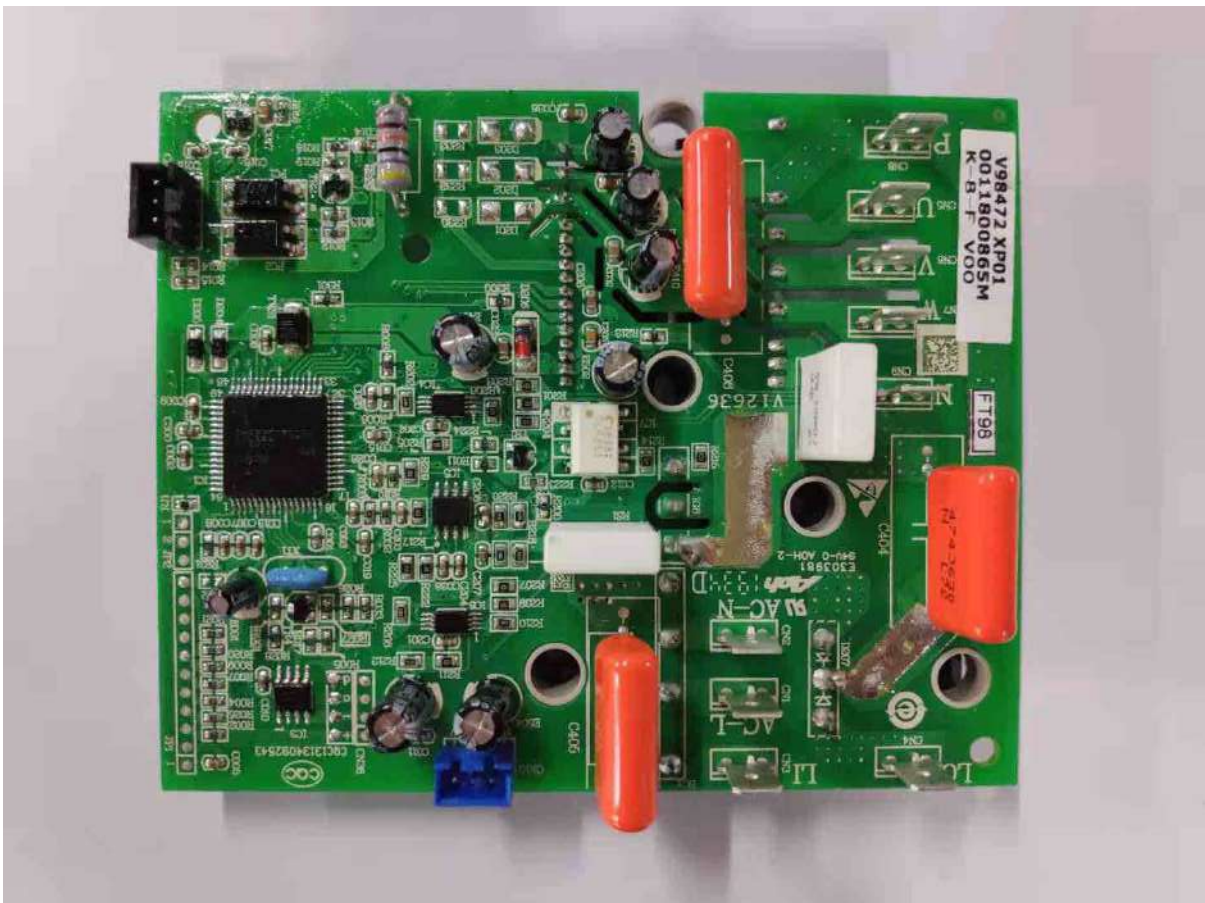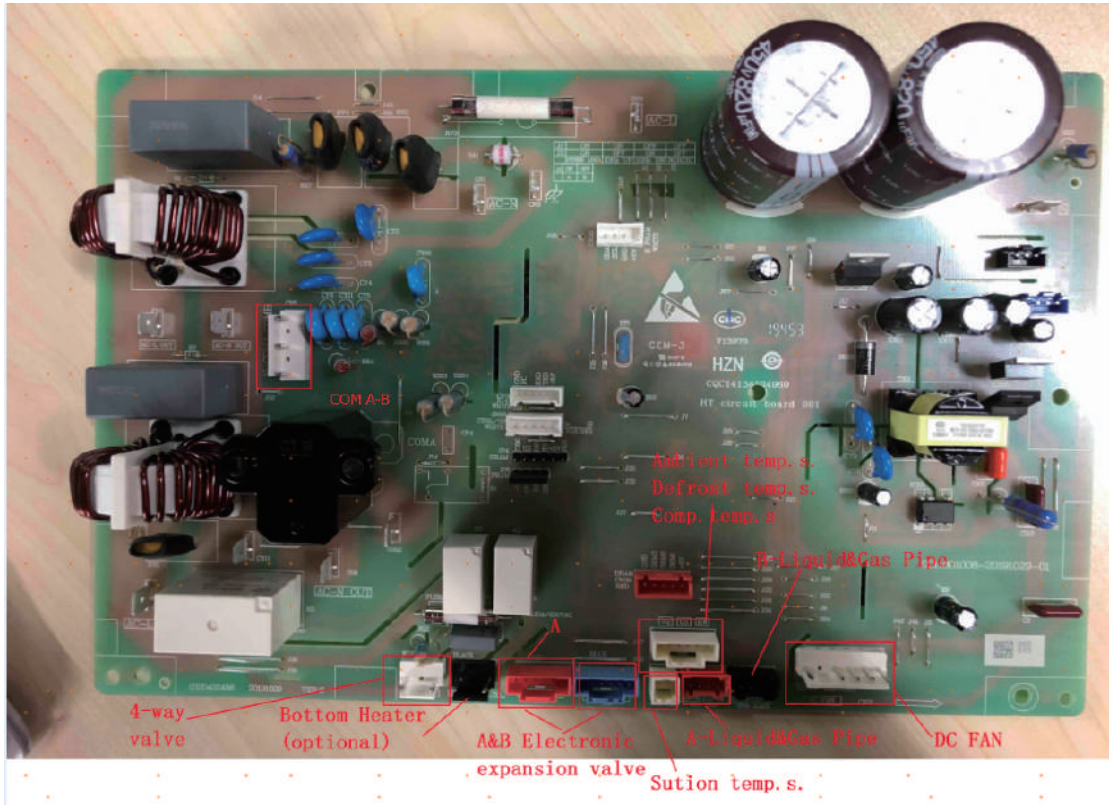
OUTDOOR WIRING DIAGRAM   0011506856

Compressor

M

R(U)   S(V)   C(W)

G

Condensor

Y/G

G   G   Y/G   G   G

Y/G

B   W   R   OR   BL

CN26 P
CN24 N

CAP   CAP

CN38 RJ45   CN29 DRAM

PE   CN3
AC-L   CN2
AC-N   CN1

Power

1---N
2---L

2U18: CN5 CN6 CN7 CN8 CN9
2U14: CN2 CN3 CN4 CN1 CN5
U V W P N

CN11
CN10

B   CN23   MOUDLE COM
BL   CN22   MOUDLE POWER

MOUDLE PCB

OUTDOOR PCB

AC-L OUT   CN6
AC-N OUT   CN7

COM B
COM A   CN5
N

CN11
CN12   CN9   AC-L OUT
CN8   AC-N OUT

B
W

BR
R
W

B   W

To Indoor A   To Indoor B

G

G

2U14: CN7 CN8 CN9 CN6
2U18: CN3 CN1 CN2 CN4
L1   AC-L   AC-N   L0

Reactor

DC FAN CN21
DC Fan motor

CG-B XG-B CN25
CG-A XG-A CN31
CG-B XG-B CG-A XG-A
<A&B Pipe temp. sensor>

XQ CN18
Sution temp. sensor

HW CS 1Q CN20
Ambient temp. s.
Defrost temp. s.
Comp. temp. s.

E-VALVE B CN17
E-VALVE A CN16
M   M
A&B Electronic expansion valve

BOTTOM HEATER CN48
Bottom heater

VALVE CN10
4-way valve

The dotted parst are optional.

R: RED   B: BLACK
BL: BLUE   GR: GRAY
W: WHITE   BR: BROWN
Y/G: YELLOW/GREEN

Warning:
1. Don't touch capacitor,even after plug-off(danger of electric shock).
2. The capacitor retains high voltage even after the plug-off.
3. For your safety,be sure to wait at least 5 minutes.

7.Functions and Control

7.1 The control system of outdoor unit

7.1.1：The operation frequency of outdoor unit and its control

7.1.1.1：The operation frequency control of compressor

The operation frequency scope of compressor：

Mode	Minimun operation frequency	Maximun operation frequency
Heating	30Hz	118Hz
Refrigeration	25 Hz	80Hz

7.1.1.2：The starting of compressor

When the compressor is started for the first time, it must be kept under the conditions of 30Hz,40Hz,58Hz for one minute (the overheating protection of the outdoor unit air-blowing temperature, immediately decrease the frequency when the compressor is overflowing and releasing the pressure)，then it can be operated towards the target frequency. When the machine runs normally, there's no such process. After starting the compressor for operation, the compressor should run according to the calculated frequency, and every determined frequency for protection should be prior to the calculated frequency.

7.1.1.3：The speeds of increasing or decreasing the frequency of the compressor

The speed of increasing or decreasing the frequency rapidly 1 ----------1HZ/second
The speed of increasing or decreasing the frequency slowly 2 ----------1HZ/10seconds

7.1.1.4：The calculation of the compressor's frequency

1）、The minimum/maximum frequency limitation

A．While refrigerating: $F-MAX-r$ is the maximum operation frequency of the compressor; $F-MIN-r$ is the minimum operation frequency of the compressor.

B．While heating: $F-MAX-d$ is the maximum operation frequency of the compressor; $F-MIN-d$ is the minimum operation frequency of the compressor.

1）、The frequency limitation which is affected by the environment temperature.

Heating mode:

Serial No.	Temperature scope	Frequency limitation	
1	Wh_c<-12	Max_hz1	118HZ
2	Wh_c<-8	Max_hz2	118HZ
3	Wh_c<-2	Max_hz3	118HZ
4	Wh_c<5	Max_hz4	118HZ
5	Wh_c<10	Max_hz5	118HZ
6	Wh_c<16	Max_hz6	118HZ
7	Wh_c< 20	Max_hz7	112HZ
8	Wh_c>20	Max_hz8	102HZ

Refrigeration/dehumidification mode::

Serial No.	Temperature scope	Frequency limitation	
1	Wh_c<16	Max_hz1	37 HZ
2	Wh_c<23	Max_hz2	45 HZ
3	Wh_c<29	Max_hz3	56 HZ
4	Wh_c<32	Max_hz4	63 HZ
5	Wh_c<40	Max_hz5	90 HZ
6	Wh_c<48	Max_hz4	90 HZ
7	Wh_c>48	Max_hz5	90 HZ

Remarks: the above are not only the maximum frequency limitations of the complete appliance which are affected by the environment, but also the maximum ability limitation of the system. When the starting ability is not the maximum, its maximum frequency limitation is calculated by the following equations:

F（reference frequency）=∑Fi（reference frequency）
Note - valid internal machine (starting and running in accordance with the state) to participate in the calculation

*Fi（reference frequency）＝Fei（Computed base frequency）*Kw*
*（Outer ring temperature coefficient（External ring temperature on frequency limitation section））*Pi（Temperature difference between the weight）*Ki（Wind speed weight）*

（Note: the reference frequency Fi is rounded after calculation and no rounding is performed；）

i= machine A, machine B...

Refrigeration/dehumidification:

Pi	< 0	<1	< 2	< 3	< 4	≥ 4
The percentage of the rated frequency P	80%	85%	90%	95 %	100%	110%

Heating mode：

Pi	< 0	<1	< 2	< 3	< 4	≥ 4
The percentage of the rated frequency P	80%	85%	90%	98％	105%	115%

The indoor set airflow speed	Breeze	Low	Medium	High	Strong	Quiet	Healthy airflow
Ki	60％	70%	85%	100%	108%	60%	60%

When the outdoor unit is shut down, the valve is opened completely for 2 minutes, and then begin initialization.

The scope of refrigeriationg valve   90-----480 steps

The scope of heating valve   70-----480 steps

The valves are adjusted according to the degree of superheat —SHa，△SHa.

7.1.2：Four way control

For the details of defrosting four-way valve control, see the defrosting process.

Four way working in other ways:

Under the mode of heating, open the four-way valve, when the compressor is not started or changed to non-heating mode, make sure the compressor is stoped for 2 minutes, and then close the four-way valve.

7.1.3 Protection function

7.1.3.1：TTC high temperature-preventing protection

Once the machine is started, it can run TTC overheating protection of air-blowing, but air-blowing sensor malfunction must alarm after 10minutes during which the compressor is started (during the course of self-detection, there's no such limitation)

TTC（℃）
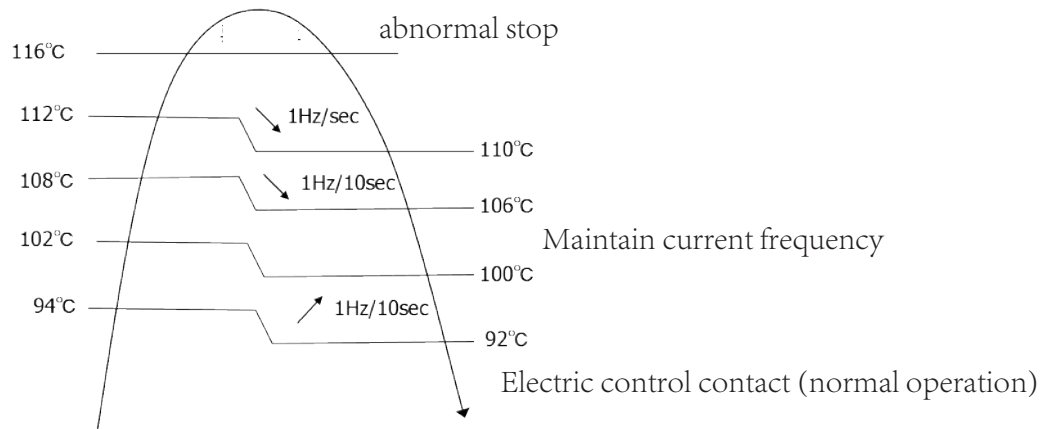
TTC>=116℃ lasts for 20 seconds. Overheating protection of air-blowing, compressor stops for more than 3 minutes

TTC< 92℃   Compressor start to restore normal control

If there are three failures in three minutes, alarm malfunction to the indoor, others don't last.

7.1.3.2：TC high temperature-preventing control of the indoor heating unit：

Tpg_indoor is the highest value of the effective indoor unit (start it and it is in accord with the running state).

The indoor heat exchanger sensor tests the temperature of the indoor heat exchanger. If the temperature is higher than 54℃, decrease the rotate speed of the compressor and do the high temperature-preventing protection of the indoor heat exchanger; if the temperature of the indoor heat exchanger is lower than 44℃, recover to the normal control.

TC   The compressor stops

Fgh_t1－2   Fgh_t1   62℃

N   Decreasing the frequency rapidly

      Fgh_t2   58℃

Fgh_t2－2   P   Decreasing the frequency slowly

      Fgh_t3   54℃

Fgh_t3－2   Q   Prohibiting increasing the frequency

      Fgh_t4   50℃

Fgh_t4－2   R   Increasing slowly   Fgh_t5   44℃

Fgh_t5－2

Normal
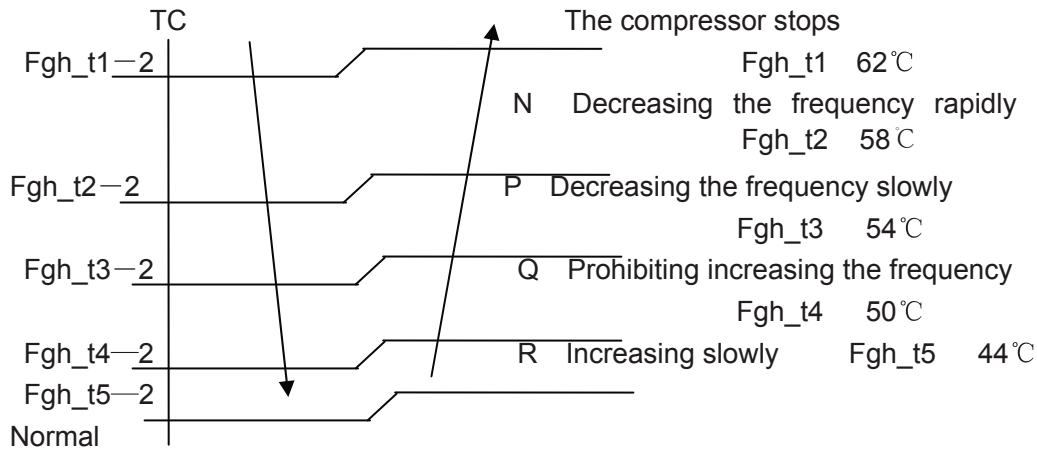
N：Decreasing at the speed of 1HZ/1   second
P：Decreasing at the speed of 1Hz/10   seconds
Q：Continue to keep the last-time instruction cycle
R：Increasing at the speed of 1Hz/10seconds

Remarks: the outdoor unit

7.1.3.3 The control of preventing the overcurrent of the compressor :

●During the starting process of the compressor, if the curren of the compressor is greater than 14A for 3 seconds, stop the compressor and alarm, after 3 minutes, start it again.

●During the starting process of the compressor, if the AC current is greater than 13A, the frequency of the compressor decreases at the speed of 1HZ/second.

●During the starting process of the compressor, if the AC current is greater than 12A, the frequency of the compressor decreases at the speed of 0.1HZ/second.

●During the starting process of the compressor, if the AC current is greater than 11A,the frequency of the compressor increases at the prohibited speed.

●During the starting process of the compressor, if the AC current is greater than 10A,the frequency of the compressor increases at the speed of no faster than 0.1HZ/second.

7.1.3.4 The protection function of AC current:

During the starting process of the compressor, if the AC current is greater than 14A, the frequency of the compressor decreases at the speed of 1HZ/second.

During the starting process of the compressor, if the AC current is greater than 13A, the frequency of the compressor decreases at the speed of 0.1HZ/second.

During the starting process of the compressor, if the AC current is greater than 12A, the frequency of the compressor increases at the prohibited speed.

During the starting process of the compressor, if the AC current is greater than 11A, the frequency of the compressor increases at the speed of no faster than 0.1HZ/second.

Remarks: when the outdoor temperature is high, there's compensation for AC current protection.

⑴When the outdoor environment temperature is higher than 40℃, AC current protection value decreases by 5A

⑵When the outdoor environment temperature is higher than 50℃,AC current protection value decreases by 6A

7.1.3.5 Antifreezing protection of the indoor heat exchanger

When refrigerating/heating, prevent freezing.

Tpg_indoor is the minimum value of the effective indoor unit (start it and it is in accord with the running state).
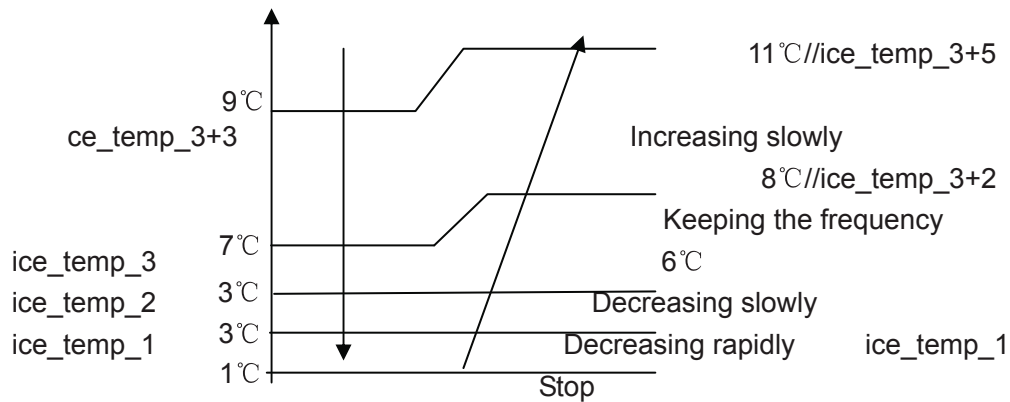
When Tpg_indoor 〈 ice_temp_1℃, the frequency of the compressor decreases at the speed of 1HZ/1second.

When Tpg_indoor 〈 ice_temp_2℃, the frequency of the compressor decreases at the speed of 1HZ/10seconds.

When Tpg_indoor begins to rise again, and ice_temp_2 〈=Tpg_indoor 〈= ice_temp_3℃, the frequency of thecompressor doesn't change.

When ice_temp_3 〈Tpg_indoor 〈ice_temp_3+3℃, the frequency of the compressor increases at the speed of 1HZ/10seconds.

For example, Tpg_indoor<= 0℃, last for 2 minutes, and then the outdoor unit will stop, and report underload malfunction, but don't send malfunction report to the indoor.

The compressor stops for more than 3 minutes, Tpg_indoor> ice_temp_3+2℃, the compressor recovers.

7.1.3.6 Temperature protection of the outdoor refrigerating coil

When the defrosting temperature and the sensor's temperature are higher than 64℃, the frequency of the compressor decreases 1hz/10seconds.

When the temperatures are lower than 64℃ and higher than 60℃, keep the frequency of the compressor. When the temperatures are higher than 70℃, relieve the defrosting temperature protection.

7.1.4 The outdoor fan control (exchange fan)

When the fan is changed among every airflow speed (including stop blowing), in order to avoid the airflow speed from skipping frequently, it must be kept under each mode for over 30 seconds.

7.1.4.1 The outdoor fan control when refrigerating or dehumidifying

After the compressor is started for 5 seconds, In 3 minutes, the outdoor fan is started according to the temperature conditions of the outdoor environment.

Twh（℃）	Twh <23℃	23℃<Twh<29℃	Twh≥29℃
Cooling\Dry	500	650	800

After 3 minutes, The wind speed control is related to the frequency of the compressor and the temperature conditions of the outdoor environment.

when cooling compressor frequency (Hz) / Twh (℃)	<40	40~60	≥60
≤23	500	600	700
23-29	600	700	850
29~40	850	900	900
≥40	900		

7.1.4.2   The outdoor fan control when heating

After the compressor is started for 5 seconds, In 3 minutes, the outdoor fan is started according to the temperature conditions of the outdoor environment.

Twh（℃）	Twh <10℃	10℃< Twh <16℃	Twh≥16℃
Heating	850	650	400

After 3 minutes, The wind speed control is related to the frequency of the compressor and the temperature conditions of the outdoor environment.

when heaating compressor frequency (Hz) / Twh (℃)	<60	60~90	≥90
≤10	800	900	900
10-16	700	800	850
≥16	700		

7.1.5 The control of the outdoor electronic expansion valve

When starting the compressor: the opening size of the valve must be guaranteed to have entered into the standard opening size, and then the compressor can be started.

When refrigeration is in vain (the machine is shut down or is in the state of retrograde operation), the opening size of the expansion valve of the indoor unit is 5 steps;

When heating is in vain, the opening size of the expansion valve of the indoor unit is 80 steps;

7.2 Value of thermistor

outdoor Unit

Ambient Sensor, Defrosting Sensor, Pipe sensor

R25℃=10KΩ±3%　B25℃/50℃=3700K±3%

Temp.(℃)	Max.(KΩ)	Normal(KΩ)	Min.(KΩ)	Tolerance(℃)	
-30	165.2170	147.9497	132.3678	-1.94	1.75
-29	155.5754	139.5600	125.0806	-1.93	1.74
-28	146.5609	131.7022	118.2434	-1.91	1.73
-27	138.1285	124.3392	111.8256	-1.89	1.71
-26	130.2371	117.4366	105.7989	-1.87	1.70
-25	122.8484	110.9627	100.1367	-1.85	1.69
-24	115.9272	104.8882	94.8149	-1.83	1.67
-23	109.4410	99.1858	89.8106	-1.81	1.66
-22	103.3598	93.8305	85.1031	-1.80	1.64
-21	97.6556	88.7989	80.6728	-1.78	1.63
-20	92.3028	84.0695	76.5017	-1.76	1.62
-19	87.2775	79.6222	72.5729	-1.74	1.60
-18	82.5577	75.4384	68.8710	-1.72	1.59
-17	78.1230	71.5010	65.3815	-1.70	1.57
-16	73.9543	67.7939	62.0907	-1.68	1.55
-15	70.0342	64.3023	58.9863	-1.66	1.54
-14	66.3463	61.0123	56.0565	-1.64	1.52
-13	62.8755	57.9110	53.2905	-1.62	1.51
-12	59.6076	54.9866	50.6781	-1.60	1.49
-11	56.5296	52.2278	48.2099	-1.58	1.47
-10	53.6294	49.6244	45.8771	-1.56	1.46
-9	50.8956	47.1666	43.6714	-1.54	1.44
-8	48.3178	44.8454	41.5851	-1.51	1.42
-7	45.8860	42.6525	39.6112	-1.49	1.40
-6	43.5912	40.5800	37.7429	-1.47	1.39
-5	41.4249	38.6207	35.9739	-1.45	1.37
-4	39.3792	36.7676	34.2983	-1.43	1.35

-3	37.4465	35.0144	32.7108	-1.41	1.33
-2	35.6202	33.3552	31.2062	-1.38	1.31
-1	33.8936	31.7844	29.7796	-1.36	1.29
0	32.2608	30.2968	28.4267	-1.34	1.28
1	30.7162	28.8875	27.1431	-1.32	1.26
2	29.2545	27.5519	25.9250	-1.29	1.24
3	27.8708	26.2858	24.7686	-1.27	1.22
4	26.5605	25.0851	23.6704	-1.25	1.20
5	25.3193	23.9462	22.6273	-1.23	1.18
6	24.1432	22.8656	21.6361	-1.20	1.16
7	23.0284	21.8398	20.6939	-1.18	1.14
8	21.9714	20.8659	19.7982	-1.15	1.12
9	20.9688	19.9409	18.9463	-1.13	1.09
10	20.0176	19.0621	18.1358	-1.11	1.07
11	19.1149	18.2270	17.3646	-1.08	1.05
12	18.2580	17.4331	16.6305	-1.06	1.03
13	17.4442	16.6782	15.9315	-1.03	1.01
14	16.6711	15.9601	15.2657	-1.01	0.99
15	15.9366	15.2770	14.6315	-0.98	0.96
16	15.2385	14.6268	14.0271	-0.96	0.94
17	14.5748	14.0079	13.4510	-0.93	0.92
18	13.9436	13.4185	12.9017	-0.91	0.90
19	13.3431	12.8572	12.3778	-0.88	0.87
20	12.7718	12.3223	11.8780	-0.86	0.85
21	12.2280	11.8126	11.4011	-0.83	0.83
22	11.7102	11.3267	10.9459	-0.81	0.80
23	11.2172	10.8634	10.5114	-0.78	0.78
24	10.7475	10.4216	10.0964	-0.75	0.75
25	10.3000	10.0000	9.7000	-0.75	0.75
26	9.8975	9.5974	9.2980	-0.76	0.76
27	9.5129	9.2132	8.9148	-0.80	0.80
28	9.1454	8.8465	8.5496	-0.84	0.83
29	8.7942	8.4964	8.2013	-0.87	0.86
30	8.4583	8.1621	7.8691	-0.91	0.90
31	8.1371	7.8428	7.5522	-0.95	0.93
32	7.8299	7.5377	7.2498	-0.98	0.97
33	7.5359	7.2461	6.9611	-1.02	1.00
34	7.2546	6.9673	6.6854	-1.06	1.04
35	6.9852	6.7008	6.4222	-1.10	1.07
36	6.7273	6.4459	6.1707	-1.13	1.11
37	6.4803	6.2021	5.9304	-1.17	1.14
38	6.2437	5.9687	5.7007	-1.21	1.18
39	6.0170	5.7454	5.4812	-1.25	1.22
40	5.7997	5.5316	5.2712	-1.29	1.25
41	5.5914	5.3269	5.0704	-1.33	1.29

42	5.3916	5.1308	4.8783	-1.37	1.33
43	5.2001	4.9430	4.6944	-1.41	1.36
44	5.0163	4.7630	4.5185	-1.45	1.40
45	4.8400	4.5905	4.3500	-1.49	1.44
46	4.6708	4.4252	4.1887	-1.53	1.47
47	4.5083	4.2666	4.0342	-1.57	1.51
48	4.3524	4.1145	3.8862	-1.61	1.55
49	4.2026	3.9686	3.7443	-1.65	1.59
50	4.0588	3.8287	3.6084	-1.70	1.62
51	3.9206	3.6943	3.4780	-1.74	1.66
52	3.7878	3.5654	3.3531	-1.78	1.70
53	3.6601	3.4416	3.2332	-1.82	1.74
54	3.5374	3.3227	3.1183	-1.87	1.78
55	3.4195	3.2085	3.0079	-1.91	1.82
56	3.3060	3.0989	2.9021	-1.95	1.85
57	3.1969	2.9935	2.8005	-2.00	1.89
58	3.0919	2.8922	2.7029	-2.04	1.93
59	2.9909	2.7948	2.6092	-2.08	1.97
60	2.8936	2.7012	2.5193	-2.13	2.01
61	2.8000	2.6112	2.4328	-2.17	2.05
62	2.7099	2.5246	2.3498	-2.22	2.09
63	2.6232	2.4413	2.2700	-2.26	2.13
64	2.5396	2.3611	2.1932	-2.31	2.17
65	2.4591	2.2840	2.1195	-2.36	2.21
66	2.3815	2.2098	2.0486	-2.40	2.25
67	2.3068	2.1383	1.9803	-2.45	2.29
68	2.2347	2.0695	1.9147	-2.49	2.34
69	2.1652	2.0032	1.8516	-2.54	2.38
70	2.0983	1.9393	1.7908	-2.59	2.42
71	2.0337	1.8778	1.7324	-2.63	2.46
72	1.9714	1.8186	1.6761	-2.68	2.50
73	1.9113	1.7614	1.6219	-2.73	2.54
74	1.8533	1.7064	1.5697	-2.78	2.58
75	1.7974	1.6533	1.5194	-2.83	2.63
76	1.7434	1.6021	1.4710	-2.88	2.67
77	1.6913	1.5528	1.4243	-2.92	2.71
78	1.6409	1.5051	1.3794	-2.97	2.75
79	1.5923	1.4592	1.3360	-3.02	2.80
80	1.5454	1.4149	1.2942	-3.07	2.84
81	1.5000	1.3721	1.2540	-3.12	2.88
82	1.4562	1.3308	1.2151	-3.17	2.93
83	1.4139	1.2910	1.1776	-3.22	2.97
84	1.3730	1.2525	1.1415	-3.27	3.01
85	1.3335	1.2153	1.1066	-3.32	3.06
86	1.2953	1.1794	1.0730	-3.38	3.10

87	1.2583	1.1448	1.0405	-3.43	3.15
88	1.2226	1.1113	1.0092	-3.48	3.19
89	1.1880	1.0789	0.9789	-3.53	3.24
90	1.1546	1.0476	0.9497	-3.58	3.28
91	1.1223	1.0174	0.9215	-3.64	3.33
92	1.0910	0.9882	0.8942	-3.69	3.37
93	1.0607	0.9599	0.8679	-3.74	3.42
94	1.0314	0.9326	0.8424	-3.80	3.46
95	1.0030	0.9061	0.8179	-3.85	3.51
96	0.9756	0.8806	0.7941	-3.90	3.55
97	0.9490	0.8558	0.7711	-3.96	3.60
98	0.9232	0.8319	0.7489	-4.01	3.64
99	0.8983	0.8088	0.7275	-4.07	3.69
100	0.8741	0.7863	0.7067	-4.12	3.74
101	0.8507	0.7646	0.6867	-4.18	3.78
102	0.8281	0.7436	0.6672	-4.23	3.83
103	0.8061	0.7233	0.6484	-4.29	3.88
104	0.7848	0.7036	0.6303	-4.34	3.92
105	0.7641	0.6845	0.6127	-4.40	3.97
106	0.7441	0.6661	0.5957	-4.46	4.02
107	0.7247	0.6482	0.5792	-4.51	4.07
108	0.7059	0.6308	0.5632	-4.57	4.12
109	0.6877	0.6140	0.5478	-4.63	4.16
110	0.6700	0.5977	0.5328	-4.69	4.21
111	0.6528	0.5820	0.5183	-4.74	4.26
112	0.6361	0.5667	0.5043	-4.80	4.31
113	0.6200	0.5518	0.4907	-4.86	4.36
114	0.6043	0.5374	0.4775	-4.92	4.41
115	0.5891	0.5235	0.4648	-4.98	4.45
116	0.5743	0.5100	0.4524	-5.04	4.50
117	0.5600	0.4968	0.4404	-5.10	4.55
118	0.5460	0.4841	0.4288	-5.16	4.60
119	0.5325	0.4717	0.4175	-5.22	4.65
120	0.5194	0.4597	0.4066	-5.28	4.70

Discharging Sensor

R80℃=50KΩ±3%

B25/80℃=4450K±3%

Temp.((℃))	Max.(KΩ)	Normal(KΩ)	Min.(KΩ)	Tolerance(℃)	
-30	14646.0505	12061.7438	9924.4999	-2.96	2.45
-29	13654.1707	11267.8730	9290.2526	-2.95	2.44
-28	12735.8378	10531.3695	8700.6388	-2.93	2.44
-27	11885.1336	9847.7240	8152.2338	-2.92	2.43
-26	11096.6531	9212.8101	7641.8972	-2.91	2.42
-25	10365.4565	8622.8491	7166.7474	-2.90	2.42

-24	9687.0270	8074.3787	6724.1389	-2.88	2.41
-23	9057.2314	7564.2244	6311.6413	-2.87	2.41
-22	8472.2852	7089.4741	5927.0206	-2.86	2.40
-21	7928.7217	6647.4547	5568.2222	-2.84	2.39
-20	7423.3626	6235.7109	5233.3554	-2.83	2.39
-19	6953.2930	5851.9864	4920.6791	-2.82	2.38
-18	6515.8375	5494.2064	4628.5894	-2.80	2.37
-17	6108.5393	5160.4621	4355.6078	-2.79	2.37
-16	5729.1413	4848.9963	4100.3708	-2.77	2.36
-15	5375.5683	4558.1906	3861.6201	-2.76	2.35
-14	5045.9114	4286.5535	3638.1938	-2.75	2.34
-13	4738.4141	4032.7098	3429.0191	-2.73	2.34
-12	4451.4586	3795.3910	3233.1039	-2.72	2.33
-11	4183.5548	3573.4260	3049.5312	-2.70	2.32
-10	3933.3289	3365.7336	2877.4527	-2.69	2.31
-9	3699.5139	3171.3148	2716.0828	-2.67	2.30
-8	3480.9407	2989.2460	2564.6945	-2.66	2.29
-7	3276.5302	2818.6731	2422.6139	-2.64	2.28
-6	3085.2854	2658.8058	2289.2164	-2.63	2.28
-5	2906.2851	2508.9126	2163.9230	-2.61	2.27
-4	2738.6777	2368.3158	2046.1961	-2.60	2.26
-3	2581.6752	2236.3876	1935.5371	-2.58	2.25
-2	2434.5487	2112.5459	1831.4826	-2.56	2.24
-1	2296.6230	1996.2509	1733.6024	-2.55	2.23
0	2167.2730	1887.0018	1641.4966	-2.53	2.22
1	2045.9191	1784.3336	1554.7931	-2.52	2.21
2	1932.0242	1687.8144	1473.1460	-2.50	2.20
3	1825.0899	1597.0431	1396.2333	-2.48	2.19
4	1724.6540	1511.6468	1323.7551	-2.47	2.17
5	1630.2870	1431.2787	1255.4324	-2.45	2.16
6	1541.5904	1355.6163	1191.0048	-2.43	2.15
7	1458.1938	1284.3593	1130.2298	-2.41	2.14
8	1379.7528	1217.2282	1072.8813	-2.40	2.13
9	1305.9472	1153.9626	1018.7481	-2.38	2.12
10	1236.4792	1094.3200	967.6334	-2.36	2.11
11	1171.0715	1038.0743	919.3533	-2.35	2.09
12	1109.4661	985.0146	873.7359	-2.33	2.08
13	1051.4226	934.9440	830.6210	-2.31	2.07
14	996.7169	887.6792	789.8583	-2.29	2.06
15	945.1404	843.0486	751.3077	-2.27	2.04
16	896.4981	800.8922	714.8380	-2.26	2.03
17	850.6086	761.0603	680.3265	-2.24	2.02
18	807.3024	723.4134	647.6580	-2.22	2.00
19	766.4212	687.8205	616.7252	-2.20	1.99
20	727.8172	654.1596	587.4271	-2.18	1.98

Domestic air conditioner

21	691.3524	622.3161	559.6694	-2.16	1.96
22	656.8979	592.1831	533.3634	-2.14	1.95
23	624.3328	563.6604	508.4261	-2.12	1.93
24	593.5446	536.6540	484.7796	-2.10	1.92
25	564.4275	511.0760	462.3510	-2.09	1.90
26	536.9865	486.9352	441.1516	-2.07	1.89
27	511.0105	464.0500	421.0258	-2.05	1.87
28	486.4151	442.3499	401.9146	-2.03	1.86
29	463.1208	421.7683	383.7626	-2.01	1.84
30	441.0535	402.2430	366.5175	-1.99	1.83
31	420.1431	383.7151	350.1301	-1.97	1.81
32	400.3242	366.1295	334.5542	-1.95	1.80
33	381.5350	349.4341	319.7460	-1.93	1.78
34	363.7176	333.5801	305.6645	-1.90	1.76
35	346.8176	318.5216	292.2709	-1.88	1.75
36	330.7839	304.2151	279.5286	-1.86	1.73
37	315.5682	290.6199	267.4031	-1.84	1.71
38	301.1254	277.6976	255.8620	-1.82	1.70
39	287.4128	265.4119	244.8745	-1.80	1.68
40	274.3905	253.7288	234.4118	-1.78	1.66
41	262.0206	242.6161	224.4465	-1.76	1.64
42	250.2676	232.0436	214.9529	-1.74	1.63
43	239.0983	221.9825	205.9065	-1.71	1.61
44	228.4809	212.4060	197.2844	-1.69	1.59
45	218.3860	203.2887	189.0648	-1.67	1.57
46	208.7855	194.6066	181.2273	-1.65	1.55
47	199.6531	186.3369	173.7524	-1.63	1.54
48	190.9639	178.4584	166.6217	-1.60	1.52
49	182.6945	170.9508	159.8181	-1.58	1.50
50	174.8228	163.7951	153.3249	-1.56	1.48
51	167.3280	156.9733	147.1268	-1.53	1.46
52	160.1904	150.4683	141.2090	-1.51	1.44
53	153.3914	144.2641	135.5577	-1.49	1.42
54	146.9136	138.3454	130.1598	-1.47	1.40
55	140.7403	132.6980	125.0027	-1.44	1.38
56	134.8559	127.3081	120.0746	-1.42	1.36
57	129.2457	122.1630	115.3645	-1.40	1.34
58	123.8956	117.2504	110.8618	-1.37	1.32
59	118.7926	112.5589	106.5564	-1.35	1.30
60	113.9241	108.0776	102.4388	-1.32	1.28
61	109.2784	103.7961	98.5000	-1.30	1.26
62	104.8443	99.7046	94.7315	-1.28	1.23
63	100.6112	95.7939	91.1253	-1.25	1.21
64	96.5692	92.0553	87.6735	-1.23	1.19
65	92.7088	88.4805	84.3690	-1.20	1.17

66	89.0211	85.0614	81.2048	-1.18	1.15
67	85.4976	81.7908	78.1744	-1.15	1.12
68	82.1303	78.6615	75.2715	-1.13	1.10
69	78.9116	75.6668	72.4902	-1.10	1.08
70	75.8343	72.8004	69.8249	-1.08	1.06
71	72.8916	70.0561	67.2703	-1.05	1.03
72	70.0770	67.4283	64.8213	-1.03	1.01
73	67.3844	64.9115	62.4731	-1.00	0.99
74	64.8080	62.5006	60.2211	-0.98	0.96
75	62.3423	60.1906	58.0609	-0.95	0.94
76	59.9821	57.9770	55.9885	-0.92	0.92
77	57.7223	55.8552	53.9998	-0.90	0.89
78	55.5583	53.8210	52.0912	-0.87	0.87
79	53.4856	51.8706	50.2591	-0.85	0.84
80	51.5000	50.0000	48.5000	-0.85	0.84
81	49.7063	48.2057	46.7083	-0.85	0.85
82	47.9835	46.4842	44.9911	-0.89	0.89
83	46.3286	44.8323	43.3452	-0.93	0.92
84	44.7385	43.2468	41.7672	-0.96	0.95
85	43.2105	41.7248	40.2540	-1.00	0.99
86	41.7386	40.2604	38.7996	-1.03	1.02
87	40.3241	38.8545	37.4048	-1.07	1.06
88	38.9643	37.5045	36.0668	-1.11	1.09
89	37.6569	36.2078	34.7831	-1.14	1.13
90	36.3996	34.9622	33.5513	-1.18	1.16
91	35.1903	33.7653	32.3689	-1.22	1.19
92	34.0269	32.6151	31.2338	-1.26	1.23
93	32.9075	31.5096	30.1438	-1.30	1.27
94	31.8302	30.4467	29.0970	-1.33	1.30
95	30.7933	29.4246	28.0915	-1.37	1.34
96	29.7950	28.4417	27.1254	-1.41	1.37
97	28.8337	27.4961	26.1970	-1.45	1.41
98	27.9078	26.5864	25.3048	-1.49	1.44
99	27.0160	25.7110	24.4470	-1.53	1.48
100	26.1569	24.8685	23.6222	-1.57	1.52
101	25.3290	24.0574	22.8291	-1.61	1.55
102	24.5311	23.2765	22.0662	-1.65	1.59
103	23.7620	22.5245	21.3323	-1.69	1.63
104	23.0205	21.8002	20.6261	-1.73	1.66
105	22.3055	21.1025	19.9465	-1.77	1.70
106	21.6159	20.4303	19.2924	-1.81	1.74
107	20.9508	19.7825	18.6626	-1.85	1.77
108	20.3091	19.1582	18.0563	-1.89	1.81
109	19.6899	18.5564	17.4723	-1.93	1.85
110	19.0924	17.9761	16.9098	-1.98	1.89

111	18.5157	17.4166	16.3680	-2.02	1.93
112	17.9590	16.8769	15.8458	-2.06	1.96
113	17.4214	16.3564	15.3427	-2.10	2.00
114	16.9023	15.8542	14.8577	-2.15	2.04
115	16.4010	15.3696	14.3902	-2.19	2.08
116	15.9167	14.9020	13.9394	-2.23	2.12
117	15.4489	14.4506	13.5047	-2.27	2.16
118	14.9968	14.0149	13.0855	-2.32	2.19
119	14.5599	13.5942	12.6811	-2.36	2.23
120	14.1376	13.1879	12.2909	-2.41	2.27
121	13.7294	12.7955	11.9144	-2.45	2.31
122	13.3347	12.4165	11.5510	-2.50	2.35
123	12.9531	12.0503	11.2003	-2.54	2.39
124	12.5840	11.6965	10.8617	-2.58	2.43
125	12.2270	11.3545	10.5348	-2.63	2.47
126	11.8817	11.0240	10.2191	-2.68	2.51
127	11.5475	10.7046	9.9142	-2.72	2.55
128	11.2242	10.3957	9.6197	-2.77	2.59
129	10.9112	10.0970	9.3352	-2.81	2.63
130	10.6084	9.8082	9.0602	-2.86	2.67
131	10.3151	9.5288	8.7945	-2.91	2.71
132	10.0312	9.2586	8.5378	-2.95	2.75
133	9.7563	8.9971	8.2895	-3.00	2.80
134	9.4901	8.7441	8.0495	-3.05	2.84
135	9.2322	8.4993	7.8175	-3.09	2.88
136	8.9824	8.2623	7.5931	-3.14	2.92
137	8.7404	8.0329	7.3760	-3.19	2.96
138	8.5059	7.8108	7.1660	-3.24	3.00
139	8.2787	7.5958	6.9629	-3.29	3.04
140	8.0584	7.3875	6.7664	-3.33	3.09

8.Dimensional drawings

860
800
553
275
52
91
149
130
510
313
347

9.Center of gravity

Outdoor unit

800
257
326
553
275
186
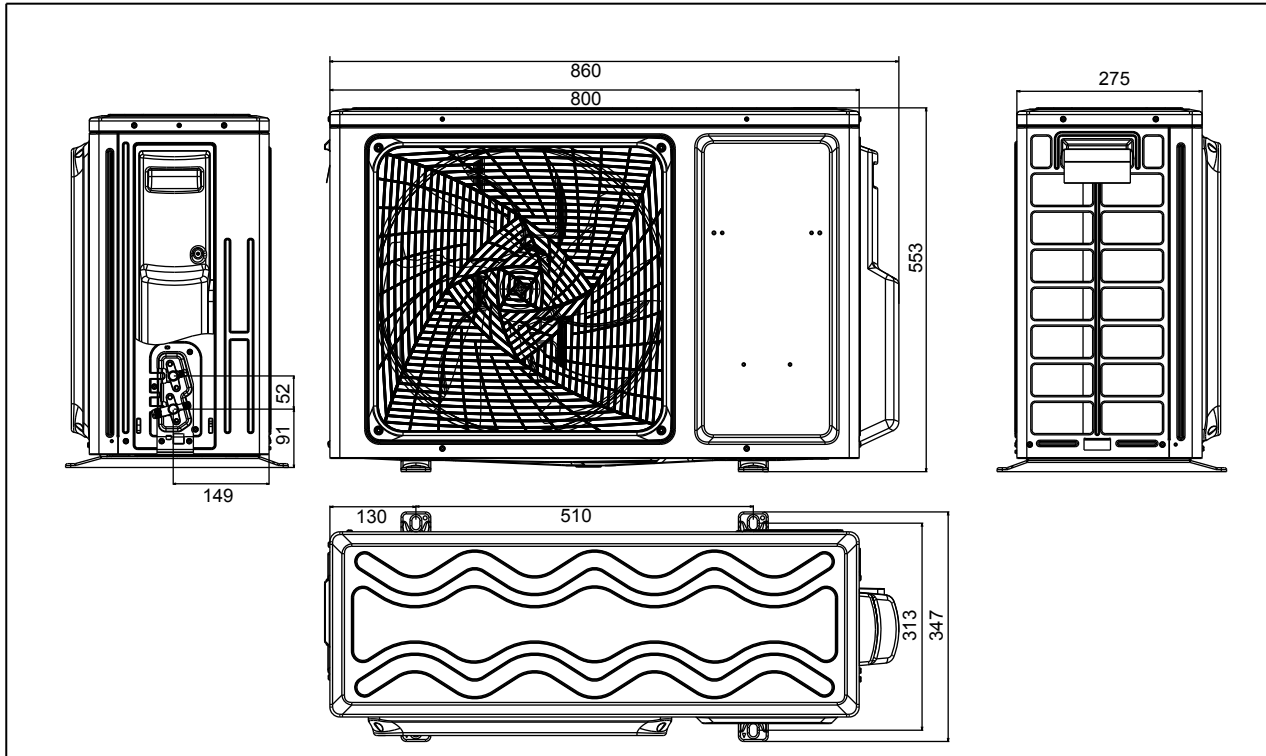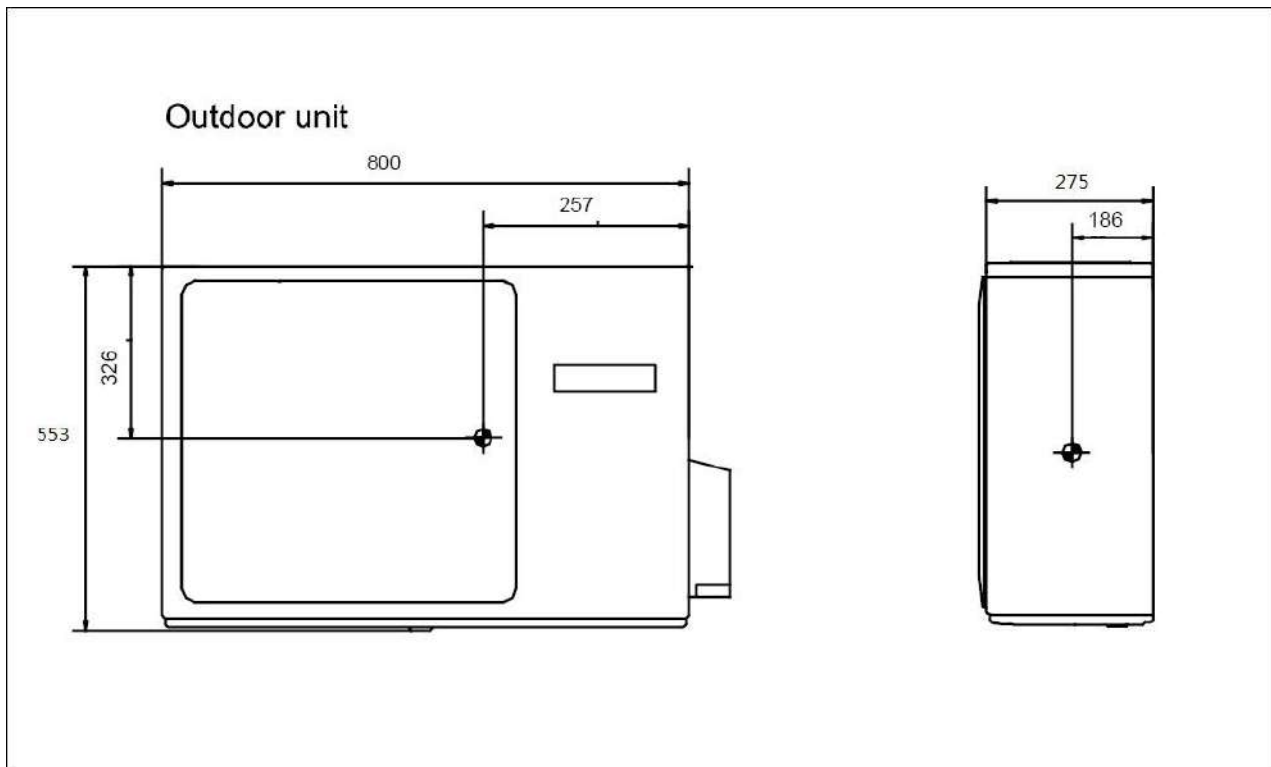
10 Service Diagnosis

10.1 Caution for Diagnosis

The operation lamp flashes when any of the following errors is detected.

1.When a protection device of the indoor or outdoor unit is activated or when the thermistor malfunctions, disabling equipment operation.

2.When a signal transmission error occurs between the indoor and outdoor units.In either case, conduct the diagnostic procedure described in the following pages.

10.2 Problem Symptoms and Measures

Symptom	Check Item	Details of Measure
None of the units operates	Check the power supply.	Check to make sure that the rated voltage is supplied.
	Check the indoor PCB	Check to make sure that the indoor PCB is broken
Operation sometimes stops.	Check the power supply.	A power failure of 2 to 10 cycles can stop air conditioner operation.
Equipment operates but does not cool, or does not heat (only for heat pump)	Check for faulty operation of the electronic expansion valve.	Set the units to cooling operation, and compare the temperatures of the liquid side connection pipes of the connection section among rooms to check the opening and closing operation of the electronic expansion valves of the individual units.
	Diagnosis by service port pressure and operating current.	Check for insufficient gas.
Large operating noise and vibrations	Check the installation condition.	Check to make sure that the required spaces for installation (specified in the Technical Guide, etc.) are provided.

10.3 Parameter of primary electronic appliance

NO	Name	Parameter	Picture
1	ELECTRIC EXPANSION VALVE	Rated voltage:12V Valve orifice : Φ1.3mm Coil resistance 46±3.7 Ω	

10.4 Error Codes and Description indoor display

Split board: LED1 light of outdoor PCB flash; All-in-one board: LED2 light of outdoor PCB flash

ERROR CODE		OUTDOOR (LED FLASH TIMES)	FAULT DESCRIPTION	SPARE PART
Indoor and Outdoor	E7	15	Communication fault between indoor and outdoor units	Indoor PCB
				Outdoor PCB
				Power module
				Communication wiring
Indoor Malfunction	E1	/	Indoor temperature sensor failure	Room temperature sensor
				Indoor PCB
	E2	/	pipe temperature sensor failure	pipe temperature sensor
				Indoor PCB
	E4	/	Indoor EEPROM failure	Indoor PCB
	E5	22	Indoor anti-frosting protection	pipe temperature sensor
				Indoor PCB
				Indoor motor
	E9	21	Indoor unit overload in heating mode	pipe temperature sensor
				Indoor PCB
				Indoor motor
	E14	/	Indoor fan motor malfunction	Indoor motor
				Indoor PCB
Outdoor Malfunction	F1	2	IPM protection	Power module
				Refrigerant
	F2	24	Instantaneous over-current protection of the compressor	Power module
				Refrigerant
				compressor
	F3	4	Communication error between Power module and main PCB board.	Power module
				Outdoor PCB
	F4	8	Compressor discharging temperature protection	Outdoor PCB
				discharge sensor
	F6	12	outdoor ambient sensor failure	outdoor ambient sensor
	F7	11	Suction temperature sensor failure	Suction temperature sensor
				outdoor PCB
	F8	9	DC fan motor malfunction	outdoor PCB
				outdoor motor
	F9	26	Module reset	Power module
				Outdoor PCB
				compressor
	F11	18	Loss of synchronism detection	The wiring of compressor
				compressor
				Power module
	F12	1	EEPROM failure	Outdoor PCB

ERROR CODE		OUTDOOR (LED FLASH TIMES)	FAULT DESCRIPTION	SPARE PART
Outdoor Malfunction	F13	16	Lack of refrigerant	Refrigerant
	F14	17	4-way valve reverse failure	4-way valve
	F19	6	Power over/under voltage protection	Power module
	F20	5	High pressure protection	Outdoor pipe temperature sensor
				Outdoor PCB
	F21	10	Outdoor coil temperature sensor	Defrost temperature sensor
	F22	3	Outdoor Alternating current over current protection	Power module
				Refrigerant
				compressor
	F23	25	Compressor U-phase overcurrent Compressor V-phase overcurrent Compressor W-phase overcurrent	Power module
				Refrigerant
				compressor
	F24	27	CT detection current abnormal protection	Power module
				Compressor
	F25	13	Abnormal of compressor discharge sensor	discharge sensor
				Outdoor PCB
	F27	7	Compressor current sampling circuit fault	Power module
				Outdoor PCB
				compressor
	F28	19	Compressor position detection circuit fault	Power module
				Outdoor PCB
				compressor
	F35	38	Compressor driver board failure	Power module
				Outdoor PCB
				Compressor
	F43	46	Model matching abnormality	/
Fixed frequency AC	FE	/	Refrigerant leaking detection malfunction	Refrigerant

10.4.1   Thermistor or Related Abnormality

Indoor Display	E1: Room temperature sensor failure
	E2: Heat-exchange sensor failure
Outdoor display	LED1　flash 10 times：Defrost temperature sensor failure
	LED1　flash 11 times：Suction temperature sensor failure
	LED1　flash 12 times：Ambient temperature sensor failure
	LED1　flash 13 times：Discharge temperature sensor failure

Method of Malfunction Detection

The temperatures detected by the thermistors are used to determine thermistor errors

Malfunction Decision Conditions

When the thermistor input is more than 4.92V or less than 0.08V during compressor operation.

●   Note: The values vary slightly in some models

Supposed Causes

■   Faulty connector connection
■   Faulty thermistor
■   Faulty PCB

Trouble shooting

* Caution: Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.

```
        Check the connector connection.
                    │
                    ▼
              ╱ Is it normal? ╲ ──NO──▶ Correct the connection
              ╲              ╱
                    │ Yes
                    ▼
          Thermistor resistance check
                    │
                    ▼
              ╱ Is it normal? ╲ ──NO──▶ Replace the thermistor
              ╲              ╱
                    │ Yes
                    ▼───────────────▶ Replace the indoor PCB
```
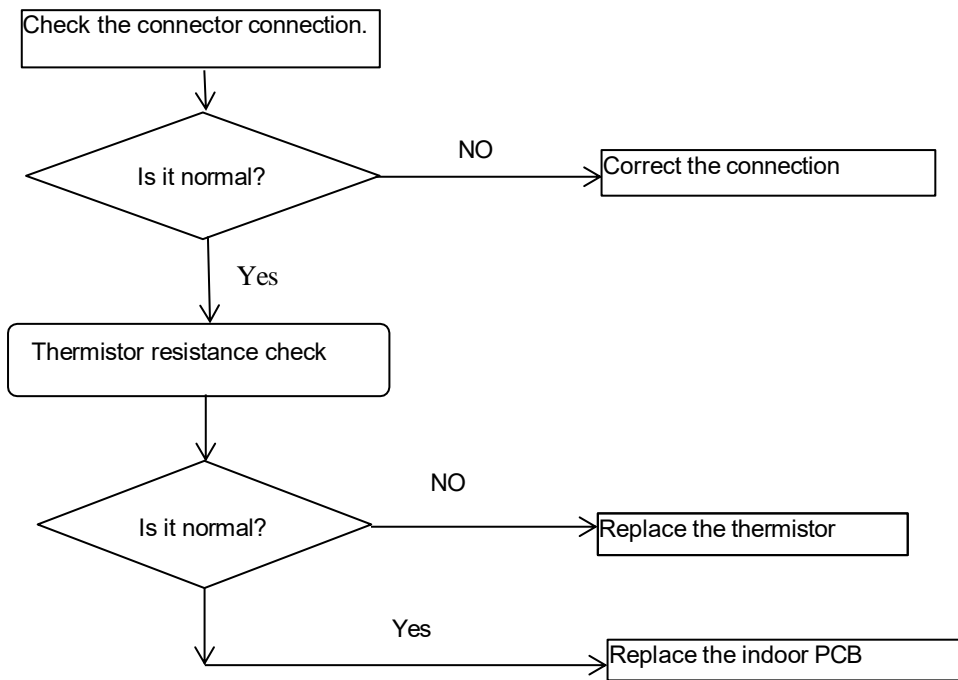
Thermistor resistance inspection method:
Remove the connector of the thermistor on the PCB, and measure the resistance of thermistor using tester. The relationship between normal temperature and resistance is shown in the value of indoor thermistor.
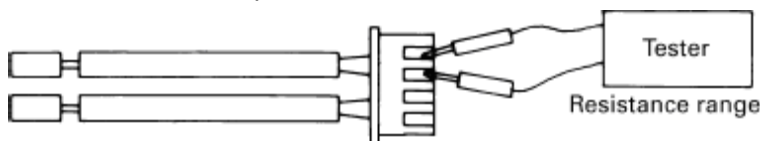
10.4.2   EEPROM abnormal

Indoor Display Indoor display	E4: Indoor EEPROM error F12: Outdoor EEPROM error; Outdoor LED1 flash 1 times
Method of Malfunction Detection	The Data detected by the EEPROM are used to determine MCU
Malfunction Decision Conditions	When the data of EEPROM is error or the EEPROM is damaged
Supposed Causes	■ Faulty EEPROM data ■ Faulty EEPROM ■ Faulty PCB
Trouble shooting	* Caution： Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

> Replace the indoor or outdoor mainboard.

10.4.3   Indoor DC fan motor malfunction

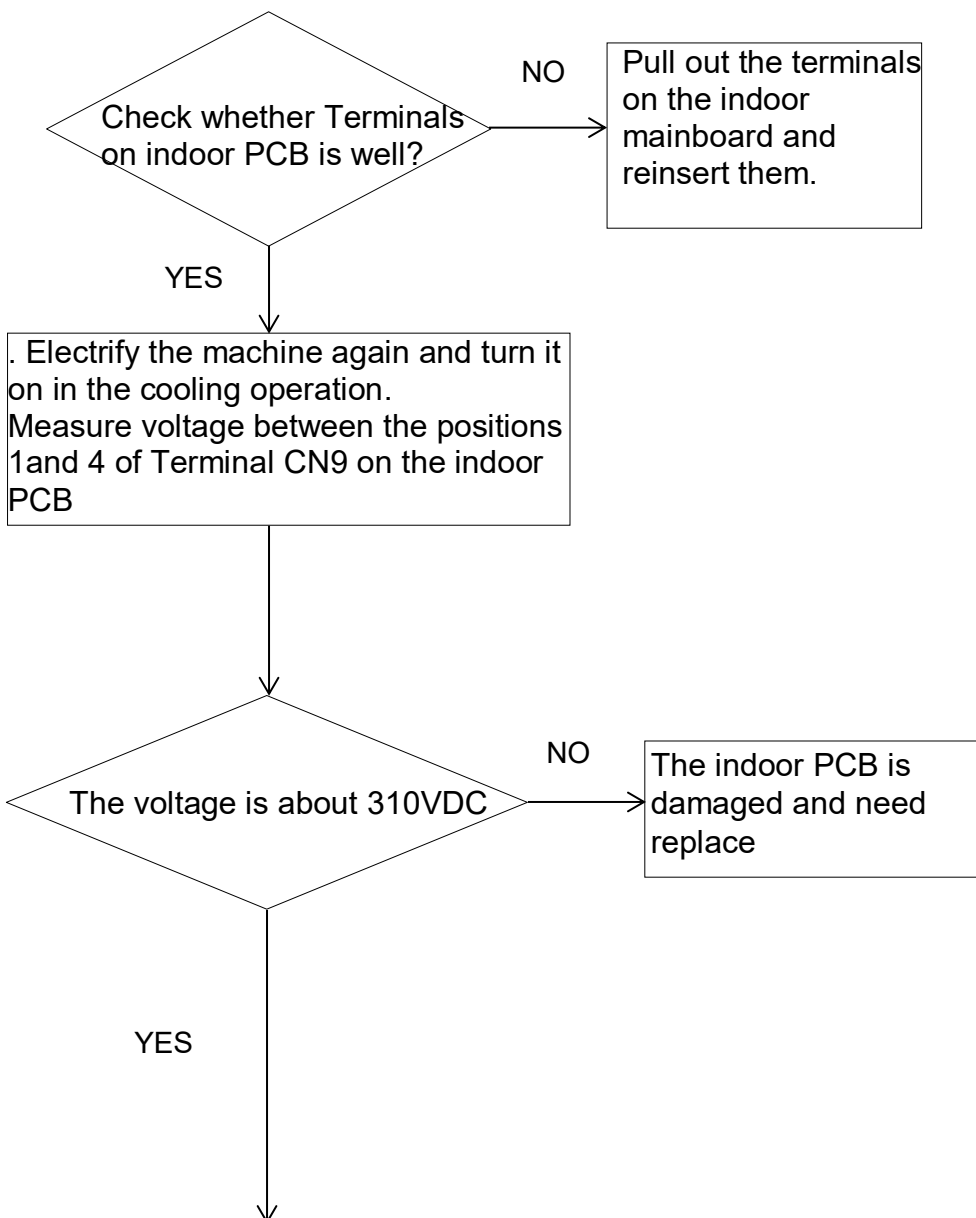| Indoor Display	E14 Indoor DC fan motor malfunction
Method of Malfunction Detection	When the fan motor is running, the speed detected by the Hall IC is used to judge the abnormal operation of the fan motor
Malfunction Decision Conditions	When the detected rotation feedback signal don't received in 2 minutes
Supposed Causes	■ Operation halt due to breaking of wire inside the fan motor. ■ Operation halt due to breaking of the fan motor lead wires ■ Detection error due to faulty indoor unit PCB
Trouble shooting	* Caution: Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.

Check whether Terminals on indoor PCB is well?

NO → Pull out the terminals on the indoor mainboard and reinsert them.

YES

. Electrify the machine again and turn it on in the cooling operation.
Measure voltage between the positions 1and 4 of Terminal CN9 on the indoor PCB

The voltage is about 310VDC

NO → The indoor PCB is damaged and need replace

YES

Turn on the unit and check if the motor can run

— YES → Measure whether there is a voltage pulse (0-15VDC) between 4 and 5 of the CN9 terminal on the indoor PCB

NO ↓

The indoor motor is damaged and need replace ← YES — Is it ok?

NO ↓

The indoor PCB is damaged and need replace

	Color	Signal	Voltage
1	Red	VDC	310V
2	---	---	---
3	---	---	---
4	Black	GND	0V
5	White	VCC	15v
6	Blue	FG	15V
7	Yellow	Vsp	0-6.5V

10.4.4   Outdoor DC fan motor fault

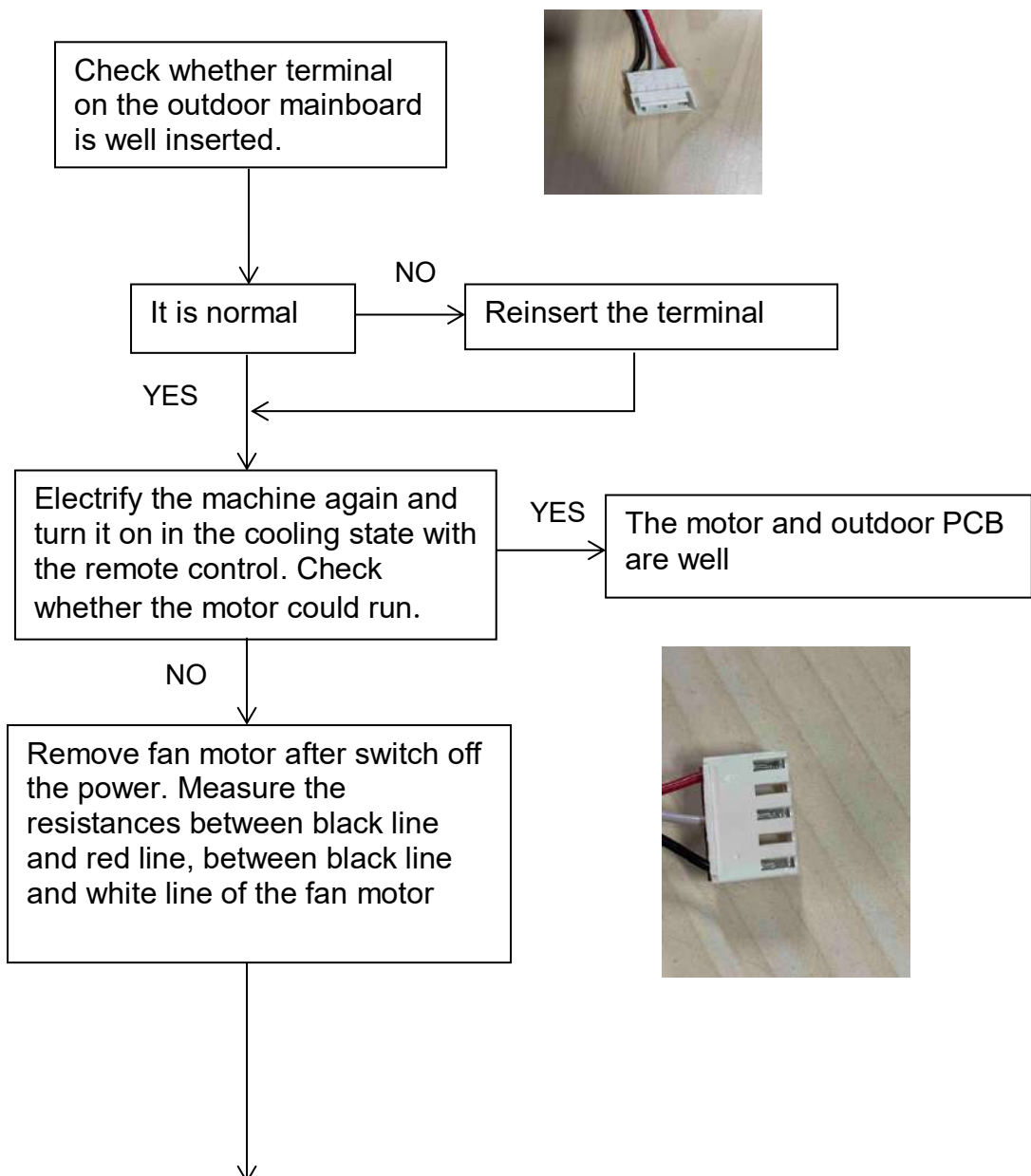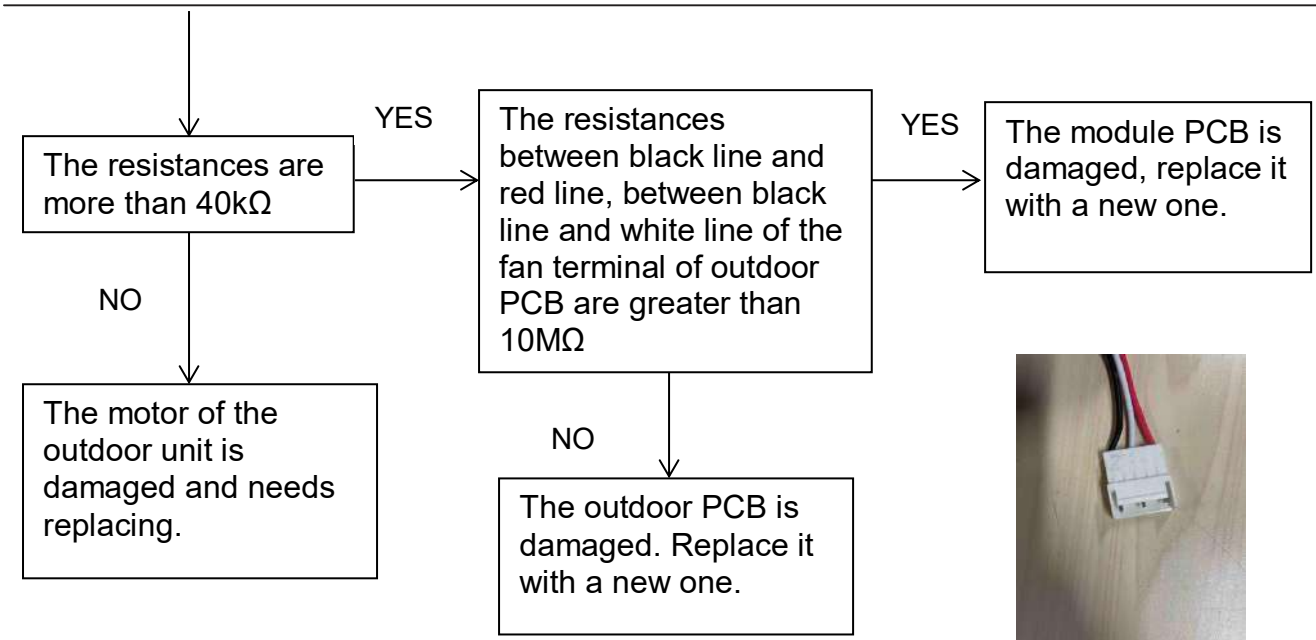|	
Outdoor display	F8 LED1 flash 9 times
Method of Malfunction Detection	DC fan motor is detected by checking the fan running condition and so on
Malfunction Decision Conditions	When the detected rotation feedback signal don't received in 2 minutes
Supposed Causes	■ DC fan motor protection dues to the DC fan motor faulty ■ DC fan motor protection dues to faulty PCB
Trouble shooting	* Caution: Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.

Check whether terminal on the outdoor mainboard is well inserted.

It is normal —NO→ Reinsert the terminal

YES

Electrify the machine again and turn it on in the cooling state with the remote control. Check whether the motor could run. —YES→ The motor and outdoor PCB are well

NO

Remove fan motor after switch off the power. Measure the resistances between black line and red line, between black line and white line of the fan motor

The resistances are more than 40kΩ

YES →

The resistances between black line and red line, between black line and white line of the fan terminal of outdoor PCB are greater than 10MΩ

YES →

The module PCB is damaged, replace it with a new one.

NO ↓

The motor of the outdoor unit is damaged and needs replacing.

NO ↓

The outdoor PCB is damaged. Replace it with a new one.
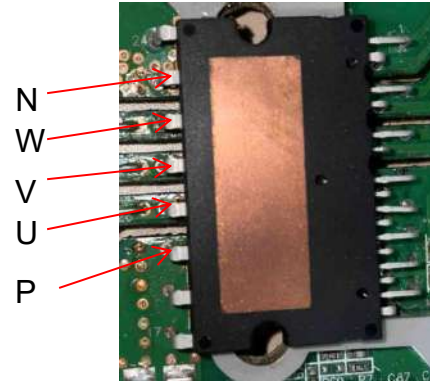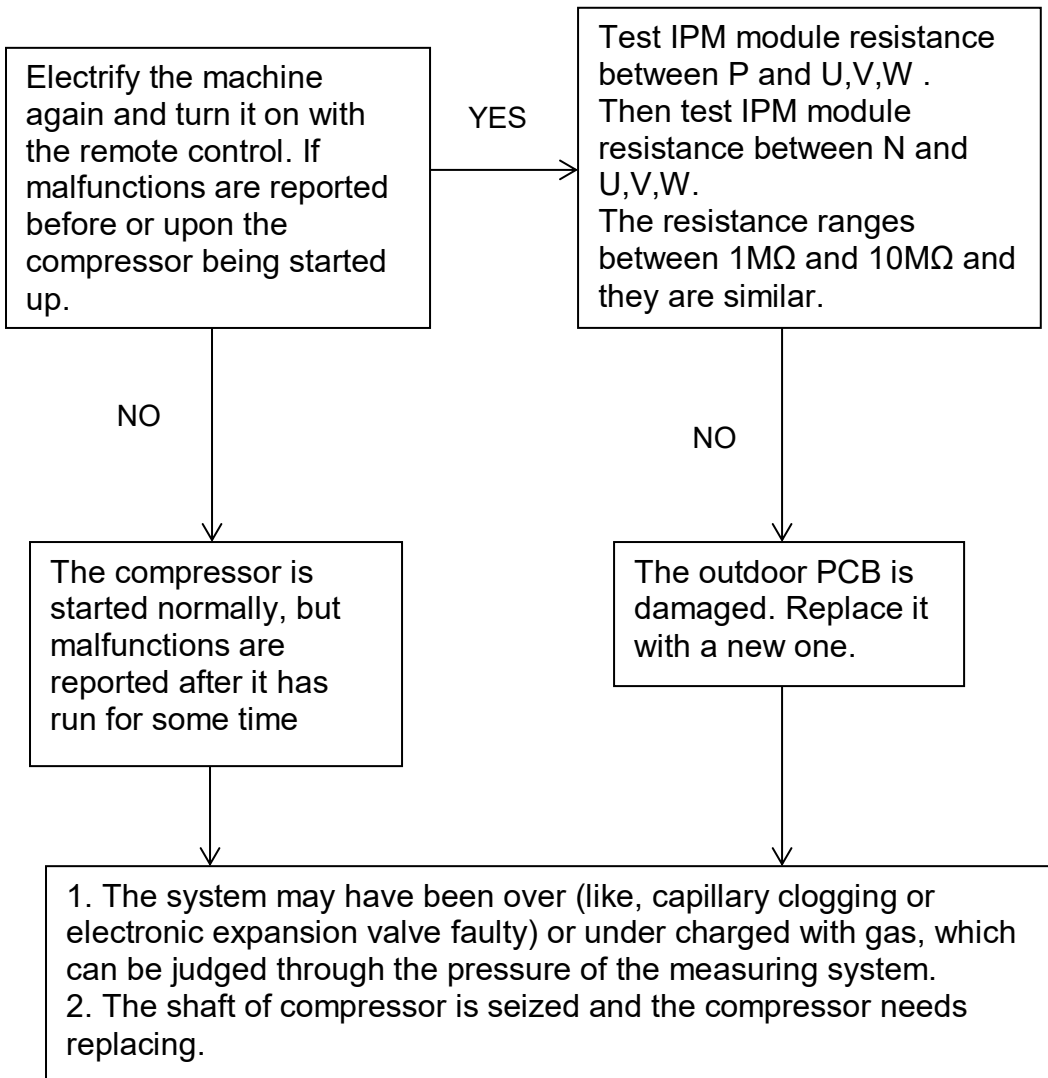
10.4.5   IPM protection

Outdoor display: F1 LED1 flash 2 times
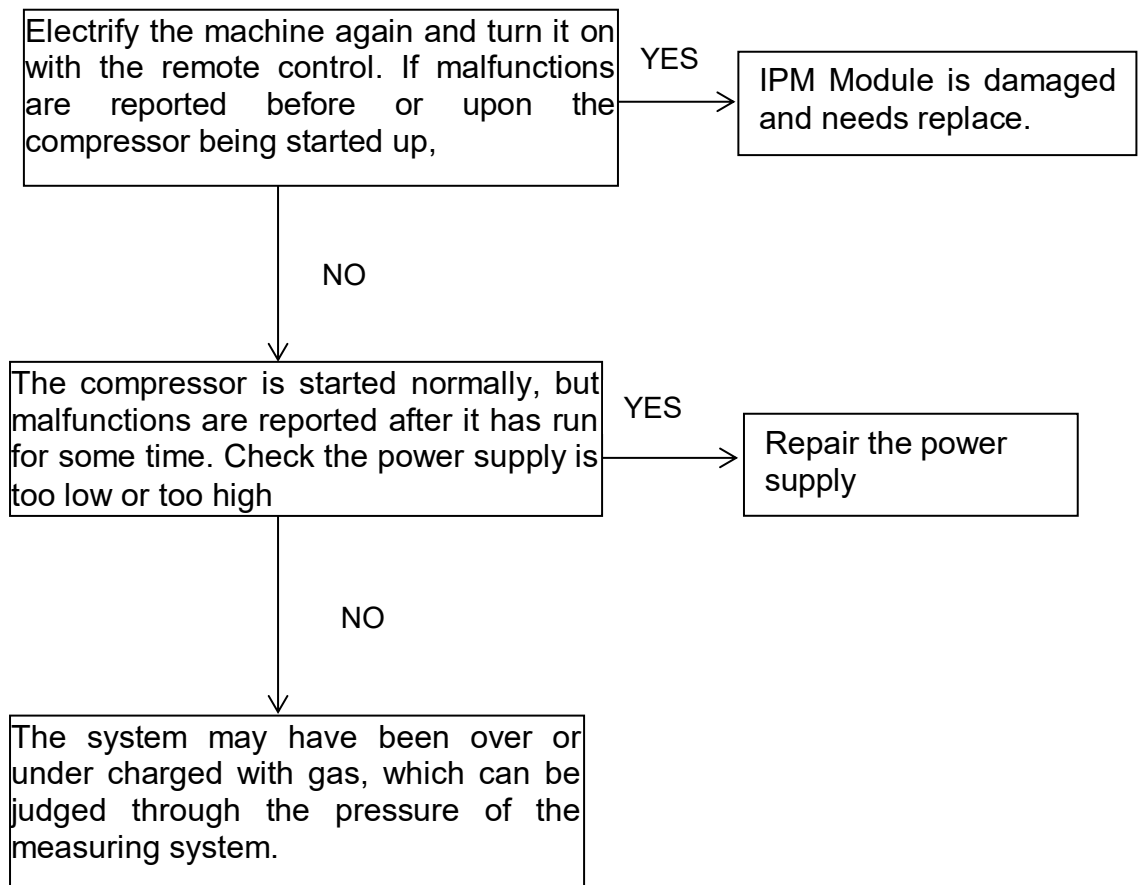
Method of Malfunction Detection	IPM protection is detected by checking the compressor running condition and so on
Malfunction Decision Conditions	The system leads to IPM protection due to over current The compressor faulty leads to IPM protection Circuit component of IPM is broken and led to IPM protection
Supposed Causes	■ IPM protection dues to the compressor faulty ■ IPM protection dues to faulty PCB of IPM module ■ Compressor wiring disconnected
Trouble shooting	* Caution: Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred

Electrify the machine again and turn it on with the remote control. If malfunctions are reported before or upon the compressor being started up.

→ YES →

Test IPM module resistance between P and U,V,W . Then test IPM module resistance between N and U,V,W. The resistance ranges between 1MΩ and 10MΩ and they are similar.

N
W
V
U
P

NO ↓

The compressor is started normally, but malfunctions are reported after it has run for some time

NO ↓

The outdoor PCB is damaged. Replace it with a new one.

1. The system may have been over (like, capillary clogging or electronic expansion valve faulty) or under charged with gas, which can be judged through the pressure of the measuring system.
2. The shaft of compressor is seized and the compressor needs replacing.

10.4.6   Over-current of the compressor

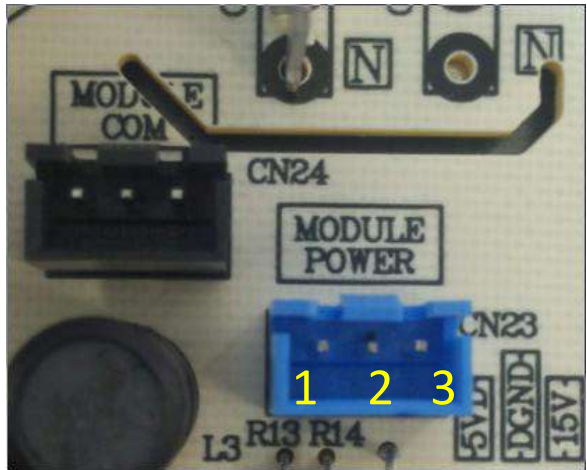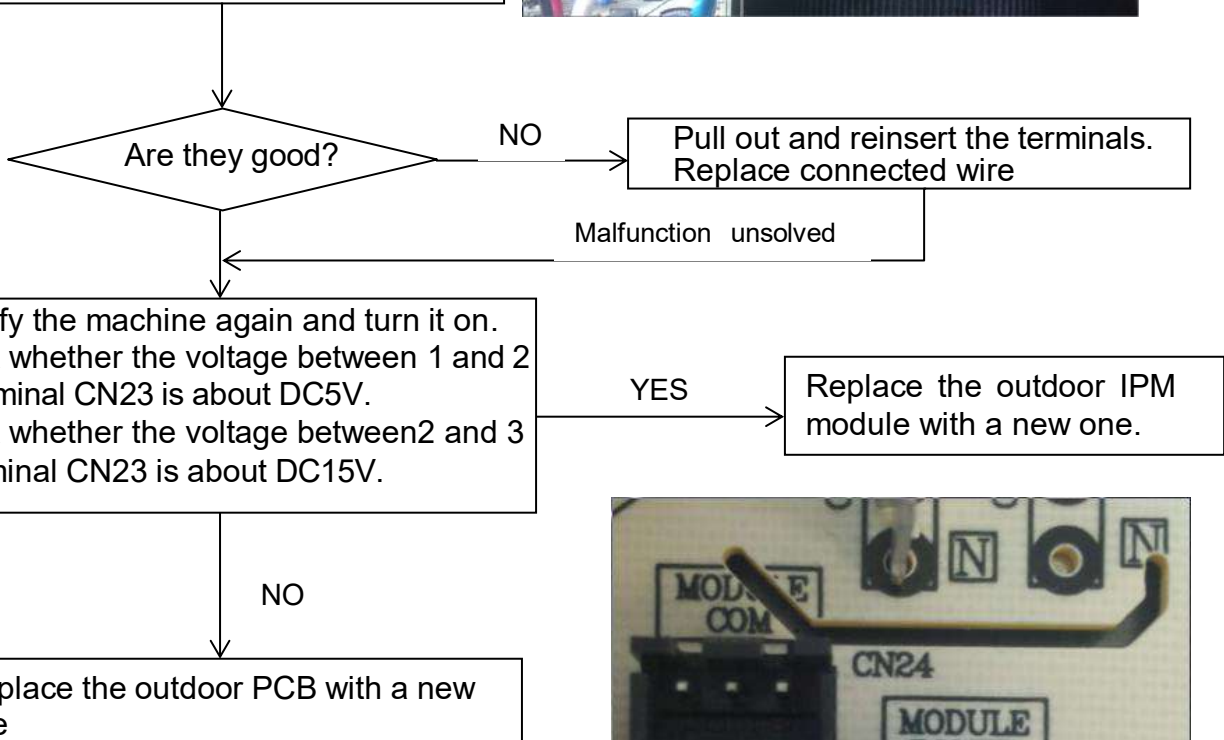| Outdoor Display	F22, F2, F23 LED1 flash 3 or 24 or 25 times
Method of Malfunction Detection	The current of the compressor is too high
Malfunction Decision Conditions	When the IPM Module is damaged or the compressor is damaged. Power supply voltage is too low or too high
Supposed Causes	■ Faulty IPM Module ■ Faulty compressor ■ Faulty power supply
Trouble shooting	* Caution: Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

Electrify the machine again and turn it on with the remote control. If malfunctions are reported before or upon the compressor being started up,

YES → IPM Module is damaged and needs replace.

NO ↓

The compressor is started normally, but malfunctions are reported after it has run for some time. Check the power supply is too low or too high

YES → Repair the power supply

NO ↓

The system may have been over or under charged with gas, which can be judged through the pressure of the measuring system.

10.4.7   The communication fault between IPM and outdoor PCB

Outdoor display:	F3 LED1 flash 4 times
Method of Malfunction Detection	Communication is detected by checking the IPM module and the outdoor PCB
Malfunction Decision Conditions	■ The outdoor PCB broken leads to communication fault ■ The IPM module broken leads to communication fault
Supposed Causes	■ The outdoor PCB is broken ■ The IPM module is broken ■ Communication wiring disconnected
Trouble shooting	* Caution: Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.

Check whether the CN23 and CN24 terminals of the outdoor PCB and the CN10 and CN11 terminals of the IPM module are tightly connected.

Check whether the connection between the power module and the outdoor P&N line is tight

Are they good? —— NO ——▶ Pull out and reinsert the terminals. Replace connected wire

Malfunction   unsolved

Electrify the machine again and turn it on.
Check whether the voltage between 1 and 2 of Terminal CN23 is about DC5V.
Check whether the voltage between2 and 3 of terminal CN23 is about DC15V.

—— YES ——▶ Replace the outdoor IPM module with a new one.

NO

Replace the outdoor PCB with a new one

43

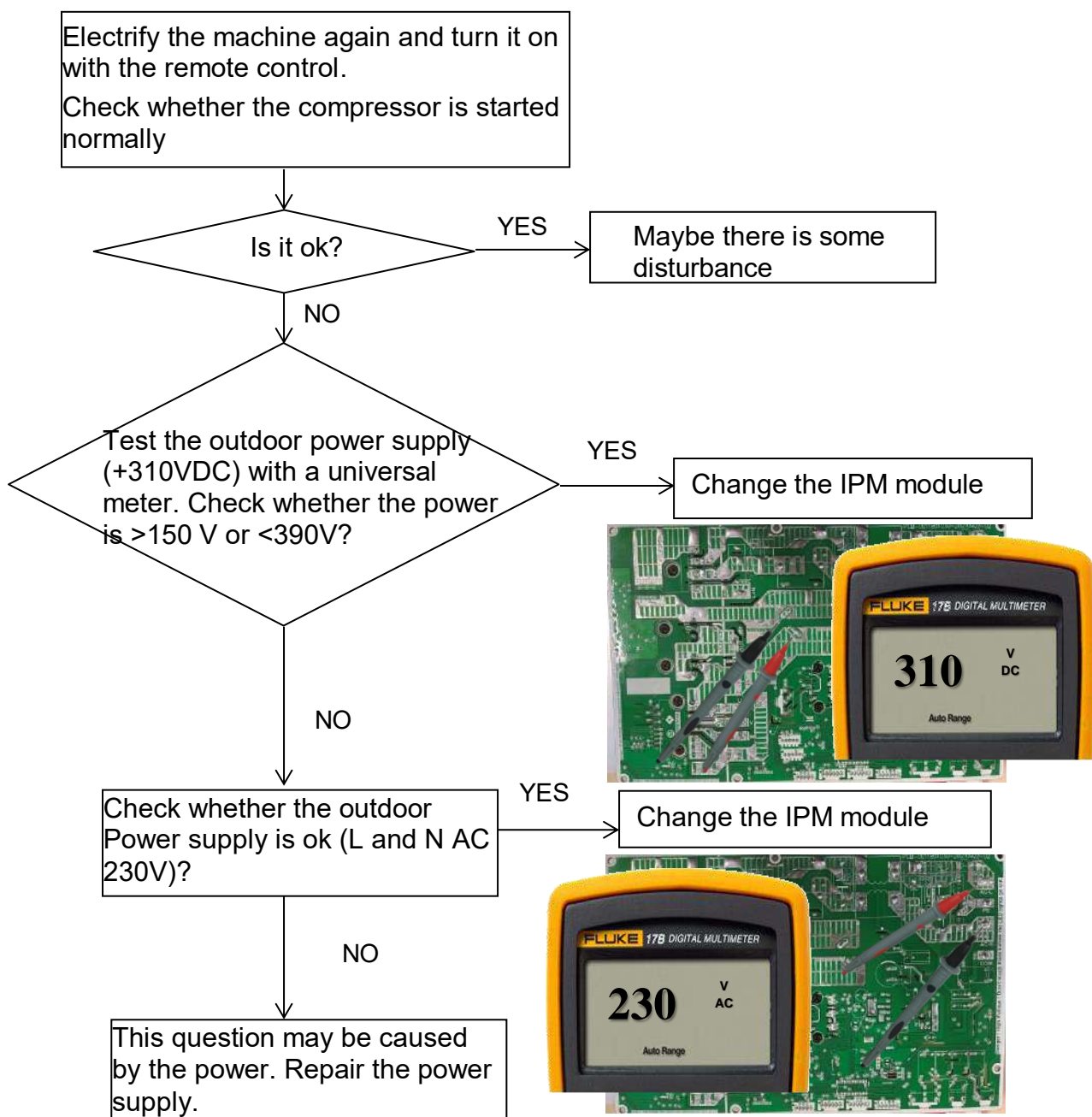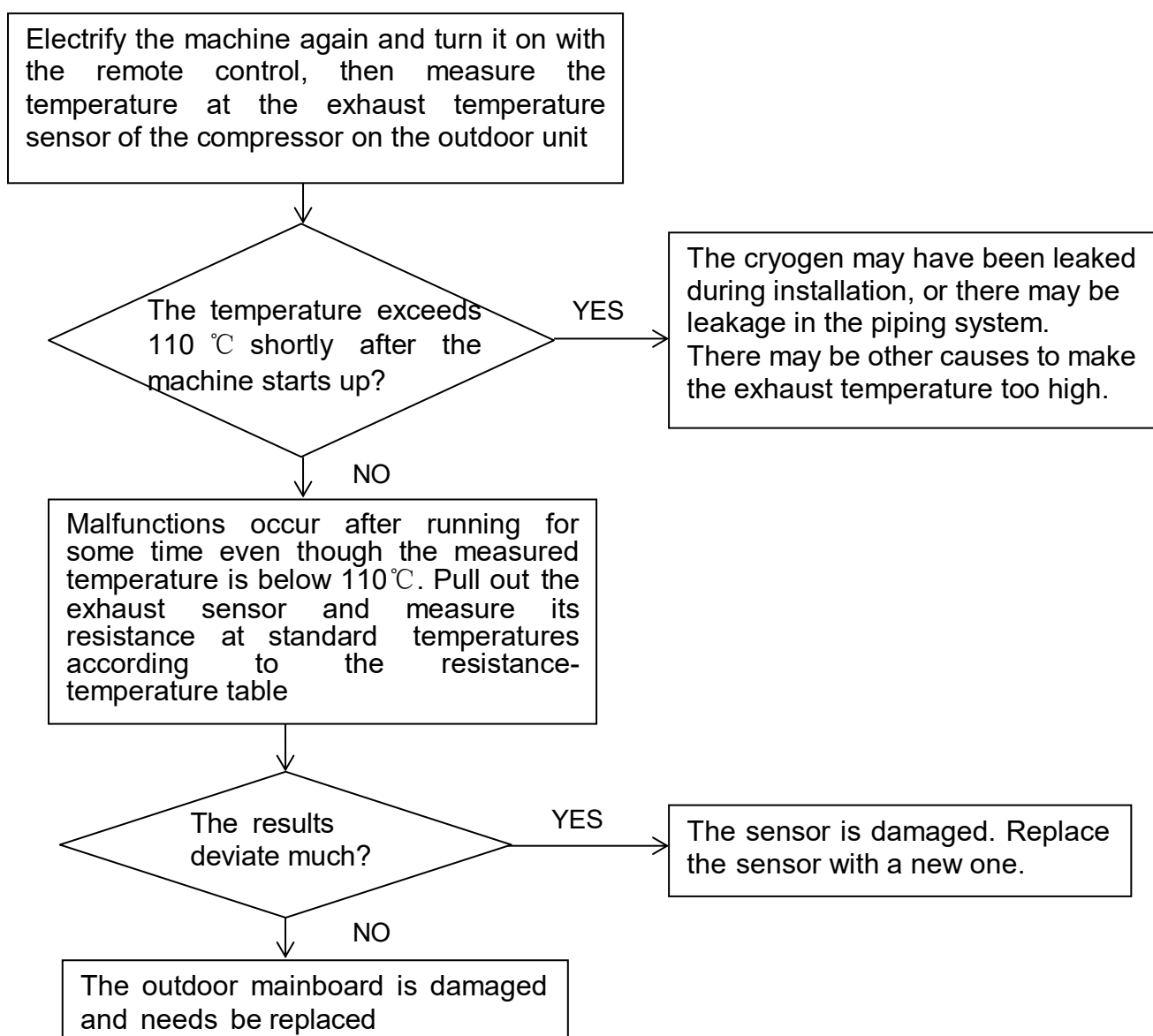## 10.4.8   Power Supply Over or under voltage fault

Outdoor display: F19 LED1 flash 6 times

Method of Malfunction Detection	An abnormal voltage rise or fall is detected by checking the specified voltage detection circuit. The power supply is over voltage
Malfunction Decision Conditions	The voltage signal is fed from the voltage detection circuit to the microcomputer
Supposed Causes	■ Supply voltage not as specified ■ the IPM module is broken ■ the outdoor PCB is broken
Trouble shooting	* Caution: Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.

Electrify the machine again and turn it on with the remote control.
Check whether the compressor is started normally

Is it ok? → YES → Maybe there is some disturbance

NO

Test the outdoor power supply (+310VDC) with a universal meter. Check whether the power is >150 V or <390V? → YES → Change the IPM module

NO

Check whether the outdoor Power supply is ok (L and N AC 230V)? → YES → Change the IPM module

NO

This question may be caused by the power. Repair the power supply.

10.4.9   Overheat Protection for Discharge Temperature
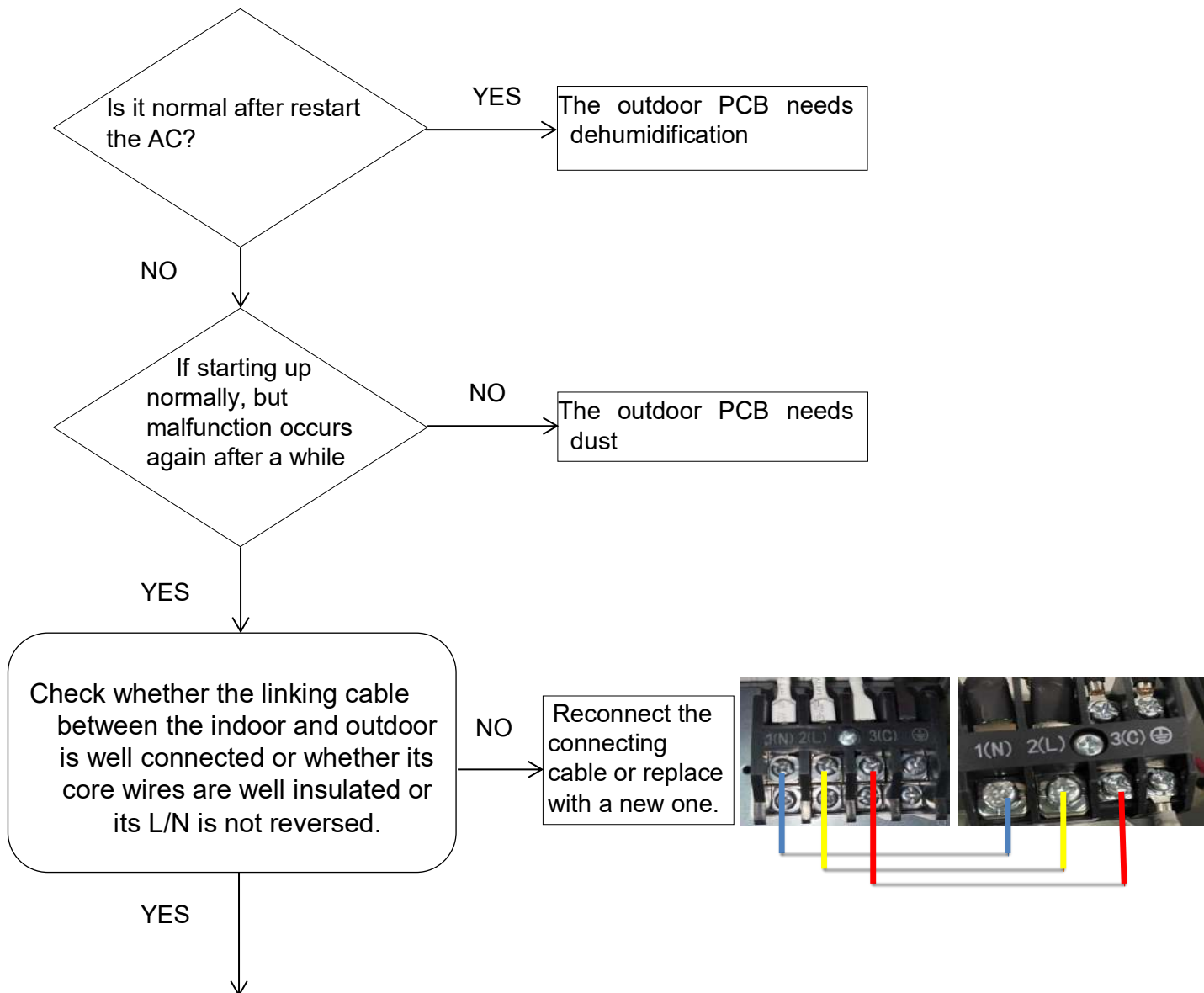
Outdoor display: F4 LED1   flash 8 times

Method of Malfunction Detection	Check the control of the discharge temperature by the temperature detected by the discharge pipe thermistor
Malfunction Decision Conditions	When the compressor discharge temperature is above 110℃
Supposed Causes	■ Electronic expansion valve defective ■ Faulty thermistor ■ Faulty PCB
Trouble shooting	* Caution： Be sure to turn off power switch before connect or disconnect connector or else parts damage may be occurred.

Electrify the machine again and turn it on with the remote control, then measure the temperature at the exhaust temperature sensor of the compressor on the outdoor unit

↓

The temperature exceeds 110 ℃ shortly after the machine starts up?

YES → The cryogen may have been leaked during installation, or there may be leakage in the piping system. There may be other causes to make the exhaust temperature too high.

NO ↓

Malfunctions occur after running for some time even though the measured temperature is below 110℃. Pull out the exhaust sensor and measure its resistance at standard temperatures according to the resistance-temperature table

↓

The results deviate much?

YES → The sensor is damaged. Replace the sensor with a new one.

NO ↓

The outdoor mainboard is damaged and needs be replaced

10.4.10   The communication fault between indoor and outdoor

Split board Indoor display   E7 outdoor display LED1 flash 15 times

Method of Malfunction Detection	Communication is detected by checking the indoor PCB and the outdoor PCB.
Malfunction Decision Conditions	The outdoor PCB broken leads to communication fault. The indoor PCB broken leads to communication fault.
Supposed Causes	■ Communication wiring disconnected. ■ The indoor PCB is broken. ■ The outdoor PCB is broken. ■ The Power Module is broken.
Trouble shooting	* Caution: Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.

```
          ◇ Is it normal after restart ◇ ──YES──▶ ┌────────────────────────┐
            the AC?                                │ The  outdoor  PCB  needs │
                                                   │ dehumidification        │
              │                                    └────────────────────────┘
              NO
              │
              ▼
          ◇ If starting up      ◇ ──NO──▶ ┌────────────────────────┐
            normally, but                 │ The  outdoor  PCB  needs │
            malfunction occurs            │ dust                    │
            again after a while           └────────────────────────┘
              │
              YES
              │
              ▼
    ╭─────────────────────────────╮
    │ Check whether the linking cable │        ┌──────────────────┐
    │ between the indoor and outdoor  │──NO──▶ │ Reconnect the     │
    │ is well connected or whether its│        │ connecting        │
    │ core wires are well insulated or│        │ cable or replace  │
    │ its L/N is not reversed.        │        │ with a new one.   │
    ╰─────────────────────────────╯        └──────────────────┘
              │
              YES
              │
              ▼
```

Check the indoor PCB: only indoor charged measure the voltage between 3 and 4 of IC6 on the indoor PCB with a universal meter. And measure the voltage between CN23(S) and CN17 (L) with a universal meter.
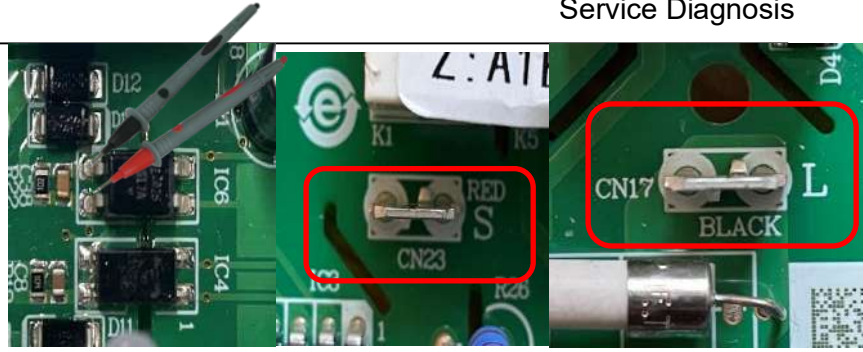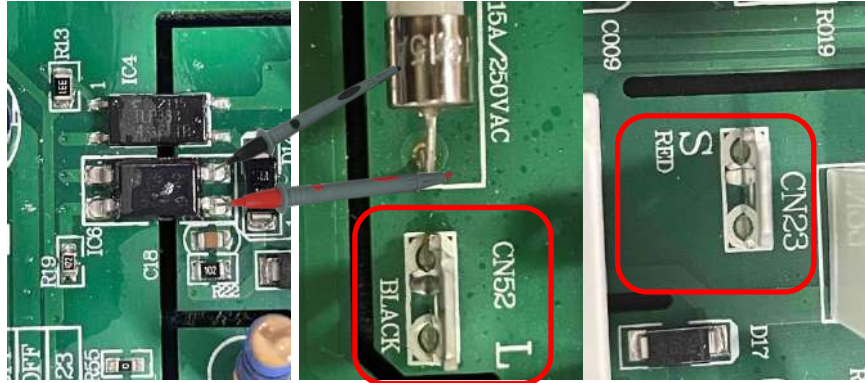
If the voltage is a constant value from DC 0V to DC 5V.Or the voltage between communication line (red) and N (white line) is not close to18V DC when only indoor charged.

YES → The indoor PCB is damaged; replace it with a new one.

NO ↓

Test the outdoor power is supply 230VAC with a universal meter when indoor and outdoor are charged.

NO → Check the cable between outdoor and power

YES ↓

LED2 light of the outdoor

NO → The module PCB is damaged. Replace it with a new one.

YES ↓

LED 1 light

YES → Measure the voltage between 3 and 4 of IC9 on the Outdoor mainboard with a universal meter .The voltage is a constant value of 0V DC to 5V DC
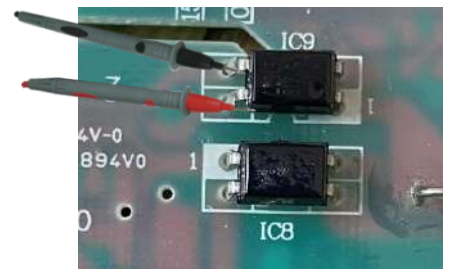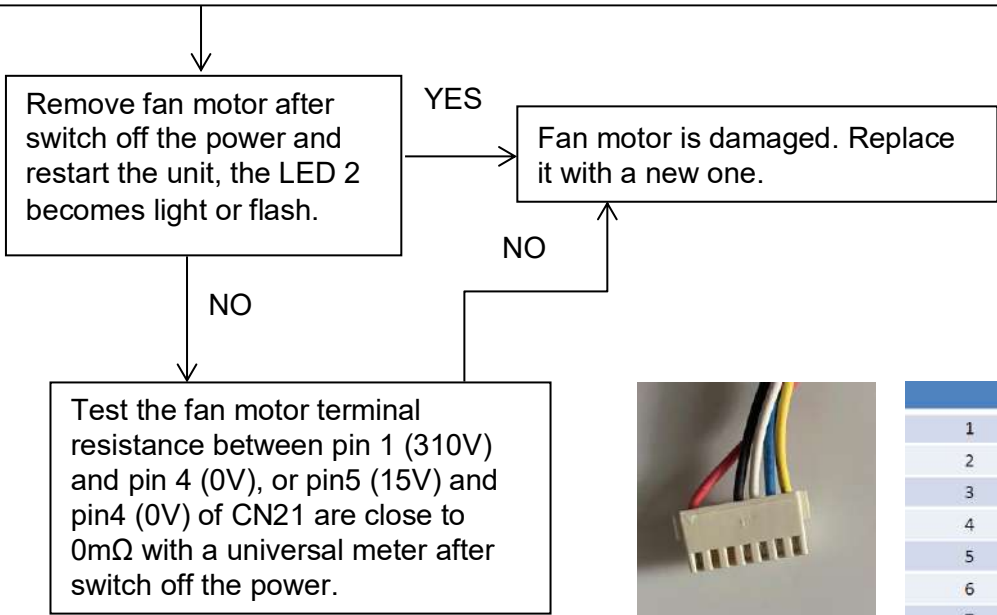

YES → The outdoor PCB is damaged. Replace it with a new one.

NO ↓

Outdoor PCB is ok then check cable.

NO

Remove fan motor after switch off the power and restart the unit, the LED 1 becomes light or flash. —YES→ Fan motor is damaged. And replace it with a new one.

NO   NO

Test the fan motor terminal resistance between pin 1(310V) and pin 4(0V), or pin 5(15V) and pin 4(0V) of CN21 are close to 0mΩ with a universal meter after switch off the power.

	Color	Signal	Voltage
1	Red	VDC	310V
2	---	---	---
3	---	---	---
4	Black	GND	0V
5	White	VCC	15v
6	Blue	FG	15V
7	Yellow	Vsp	0-6.5V

YES

Remove the connection cable between CN23 of outdoor PCB and CN10 of module PCB. The LED1 becomes light or flash. —YES→

NO

The outdoor PCB is damaged. Replace it with a new one.

The module PCB is damaged, replace it with a new one.

All-in-one board Indoor display   E7 outdoor display LED2 flash 15 times

Method of Malfunction Detection	Communication is detected by checking the indoor PCB and the outdoor PCB.
Malfunction Decision Conditions	■ The outdoor PCB broken leads to communication fault. ■ The indoor PCB broken leads to communication fault.
Supposed Causes	■ Communication wiring disconnected. ■ The indoor PCB is broken. ■ The outdoor PCB is broken.
Trouble shooting	* Caution: Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.

Is it normal after restart the AC?
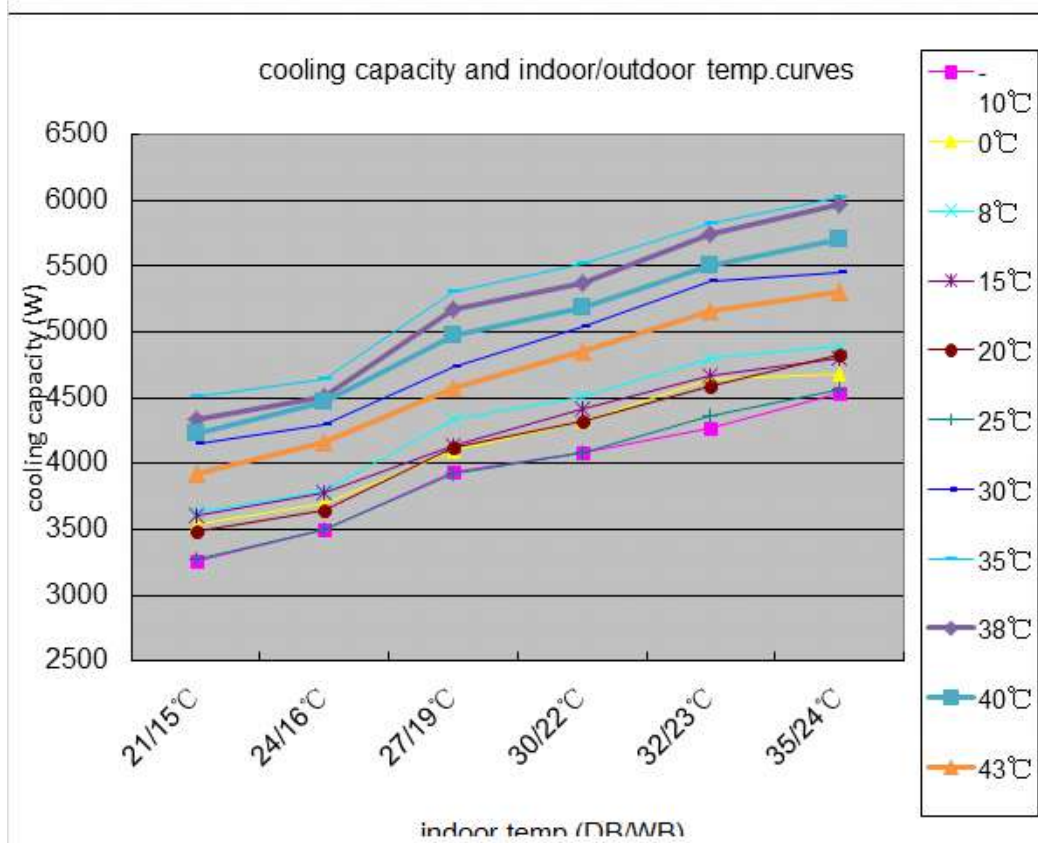
YES → The outdoor PCB needs dehumidification

NO ↓

If starting up normally, but malfunction occurs again after a while

NO → The outdoor PCB needs dust

YES ↓

Check whether the linking cable between the indoor and outdoor is well connected or whether its core wires are well insulated or its L/N is not reversed.

NO → Reconnect the connecting cable or replace with a new one.

YES

49

Check the indoor PCB: Only indoor charged measure the voltage between 3 and 4 of IC6 on the indoor mainboard with a universal meter. And measure the voltage between CN23(S) and CN52 (L) with a universal meter.

If the voltage is a constant value of 0V DC to 5V DC .Or the voltage between communication line (red) and N (white line) is not close to18V DC when only indoor charged.

YES → The indoor PCB is damaged; replace it with a new one.

NO

Test the outdoor power is supply 230VAC with a universal meter when indoor and outdoor are charged.

NO → Check the cable between outdoor and power

YES

LED2 light

YES → Measure the voltage Between 3 and 4 of IC5 on the Outdoor mainboard with a universal meter. The voltage is a constant value of 0V DC to 5V DC
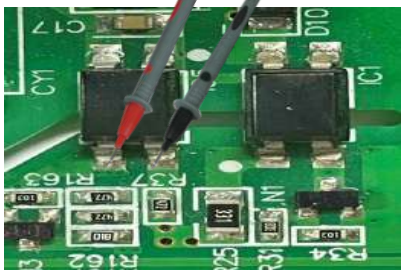
YES → The outdoor PCB is well, and then check the cable

NO → The outdoor PCB is damaged. Replace it with a new one.

NO

50

Remove fan motor after switch off the power and restart the unit, the LED 2 becomes light or flash.

YES →

Fan motor is damaged. Replace it with a new one.

NO

NO

Test the fan motor terminal resistance between pin 1 (310V) and pin 4 (0V), or pin5 (15V) and pin4 (0V) of CN21 are close to 0mΩ with a universal meter after switch off the power.

	Color	Signal	Voltage
1	Red	VDC	310V
2	---	---	---
3	---	---	---
4	Black	GND	0V
5	White	VCC	15v
6	Blue	FG	15V
7	Yellow	Vsp	0-6.5V

10.4.11 Loss of synchronism detection (Compressor position detection circuit fault)

Outdoor Display	F11 LED1 flash 18 times
	F28 LED1 flash 19 times
Method of Malfunction Detection	The position of the compressor rotor can't detected normally
Malfunction Decision Conditions	When the wiring of compressor is wrong or the connection is poor; Or the compressor is damaged
Supposed Causes	■ Faulty The wiring of compressor ■ Faulty compressor ■ Faulty PCB
Trouble shooting	* Caution: Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

Within 3 minutes after the machine is supplied with power and turned on with the remote control, check whether the compressor can start up

NO → The wiring of compressor is incorrect or the connection is poor; The compressor is damaged

YES

At first, the compressor start up, soon the compressor stopped with the LED1 on the outdoor PCB blinks (1Hz) 19/18 times

YES → IPM module is damaged and needs replace.

Malfunction unsolved

Maybe there is some disturbance

Malfunctions exist also, the compressor is damaged replace a new one

10.4.12　　　High work-intense protection

Outdoor display	E 9　LED1　flash 21 times
Method of Malfunction Detection	High work-intense control is activated in the heating mode if the temperature being sensed by the heat exchanger thermistor exceeds the limit.
Malfunction Decision Conditions	Activated when the temperature being sensed by the heat exchanger rises above 65℃ twice in 30 minutes
Supposed Causes	■　Faulty electronic expansion valve ■　Dirty heat exchanger ■　Faulty heat-exchange sensor ■　Insufficient gas
Trouble shooting	* Caution:　　Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

```
┌──────────────────────────────┐
│ Electrify the machine again   │
│ and turn it on with the remote│
│ control, check whether the    │
│ wind temperature is below 65℃ │
└──────────────────────────────┘
            │
            ▼
     ╱──────────────╲          ┌────────────────────────────┐
    ╱ The malfunction ╲   YES  │ Check room temperature and │
   ╱ is reported after ╲──────>│ pipe temperature sensor.   │
   ╲ the machine has run╱      │ Monitor the temperature of │
    ╲ for some time?   ╱       │ indoor PCB circuits.       │
     ╲────────────────╱        └────────────────────────────┘
            │ NO
            ▼
     ╱──────────────╲          ┌────────────────────────────┐
    ╱ The indoor unit ╲   YES  │ Clean the filters          │
   ╱ blows poorly due   ╲─────>│ Reinstall the fan.         │
   ╲ to blocked filters ╱      └────────────────────────────┘
    ╲ or poor condition ╱
     ╲ of the fan?     ╱
      ╲──────────────╱
            │ NO
            ▼
┌──────────────────────────────────────────┐
│ Use some tools to measure the pressure of │
│ system                                    │
└──────────────────────────────────────────┘
```
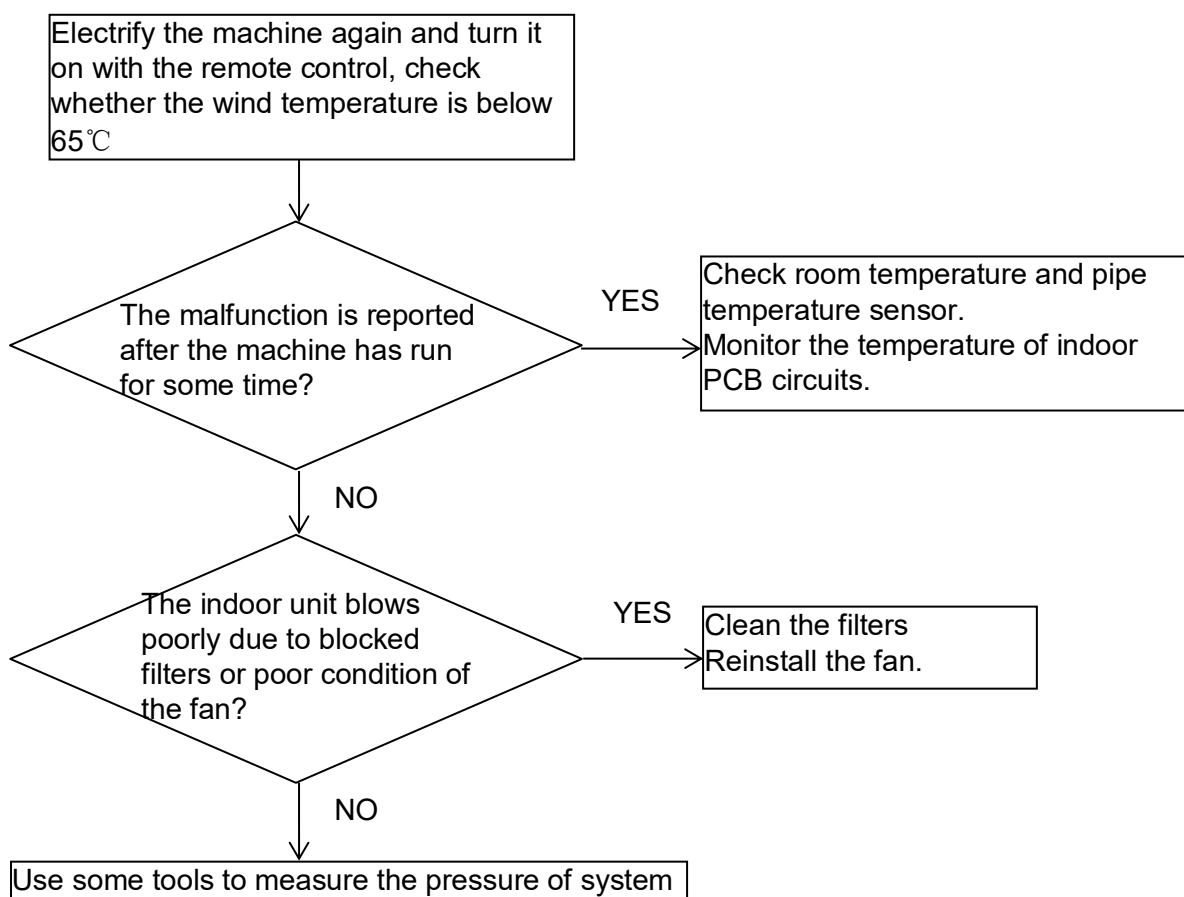
11 Performance Curves Diagram

11.1 cooling capacity-temp. curves

performance curves										
cooling value-temerature table										
indoor temp.										
DB/WB	-10℃	0℃	8℃	15℃	20℃	25℃	30℃	35℃	38℃	40℃	43℃
21/15℃	3260	3535	3629	3601	3483	3277	4148	4505	4334	4232	3921
24/16℃	3504	3693	3792	3772	3642	3496	4293	4644	4507	4468	4164
27/19℃	3931	4098	4336	4136	4121	3927	4733	5308	5175	4968	4579
30/22℃	4080	4320	4512	4416	4320	4080	5040	5520	5376	5184	4848
32/23℃	4269	4638	4803	4664	4587	4360	5392	5825	5747	5506	5154
35/24℃	4532	4683	4892	4796	4824	4557	5452	6022	5969	5711	5303

11.2 heating capacity-temp.curves

performance curves			
heating capacity and indoor/outdoor temp.table			
outdoor temp.	indoor temp.(humidity 46%)		
DB/WB	10℃	20℃	27℃
-15℃	3844	3581	3160
-10℃	4371	3996	3686
-7/-8℃	5372	4870	4526
2/1℃	5742	5068	4596
7/6℃	5589	5161	4592
12/11℃	5458	4916	4018
18/16℃	5003	4768	3760
24/20℃	4691	4314	3384

heating capacity and indoor/outdoor temp.curves
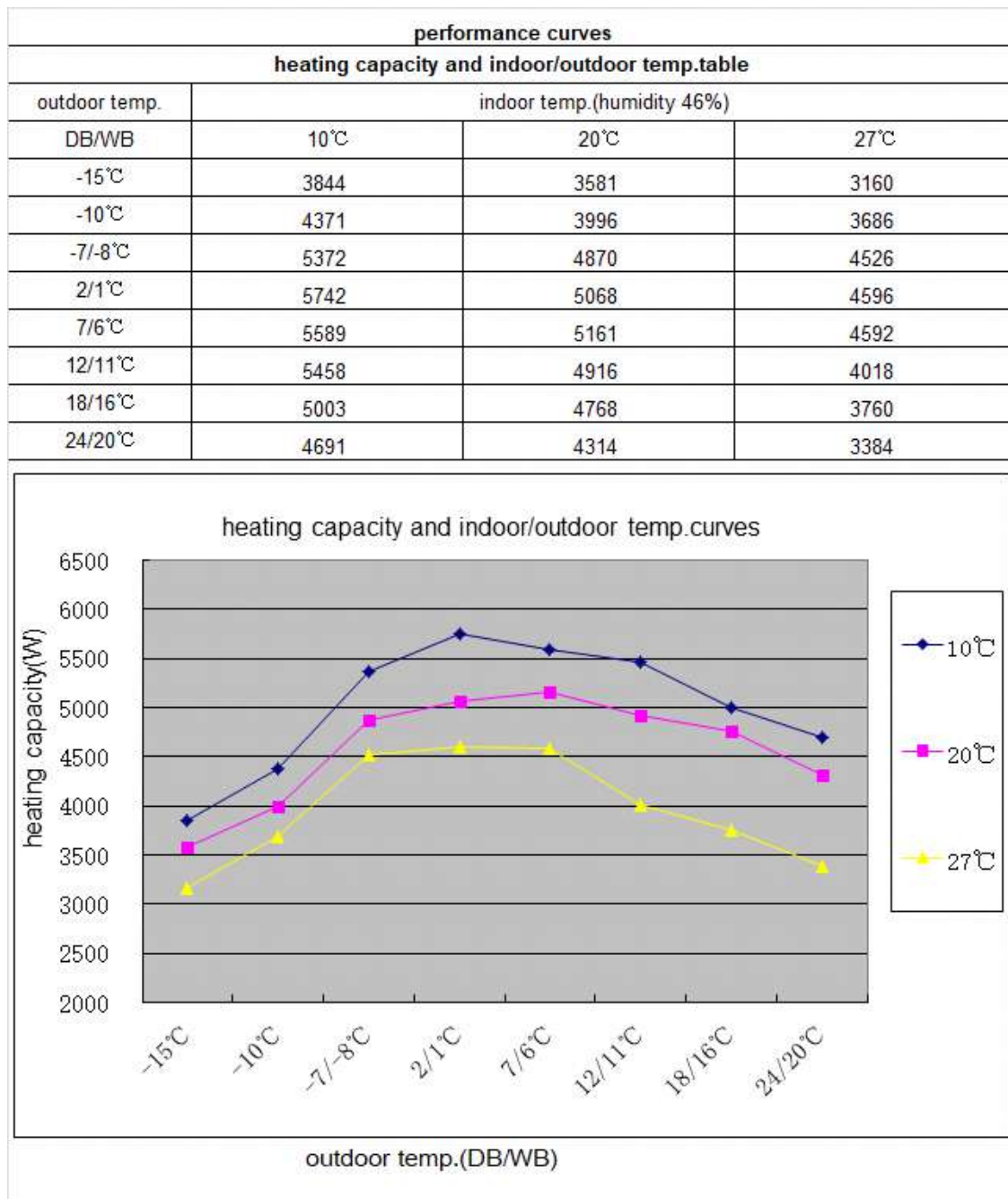
11.3 Coolingpower consumption-temp.curves

performance curves										
power consumption value-temp.table										
indoor temp.										
DB/WB	-10℃	0℃	8℃	15℃	20℃	25℃	30℃	35℃	38℃	40℃	43℃
21/15℃	836	1010	1171	1162	1124	618	882	1125	1367	1572	1687
24/16℃	898	1055	1185	1179	1138	639	910	1138	1391	1655	1734
27/19℃	1008	1171	1314	1253	1249	711	974	1282	1515	1782	1887
30/22℃	1046	1234	1327	1299	1271	714	1008	1289	1537	1815	1940
32/23℃	1095	1325	1372	1333	1311	763	1079	1360	1695	1928	2063
35/24℃	1162	1338	1359	1332	1340	798	1091	1406	1760	2000	2122

Domestic air conditioner
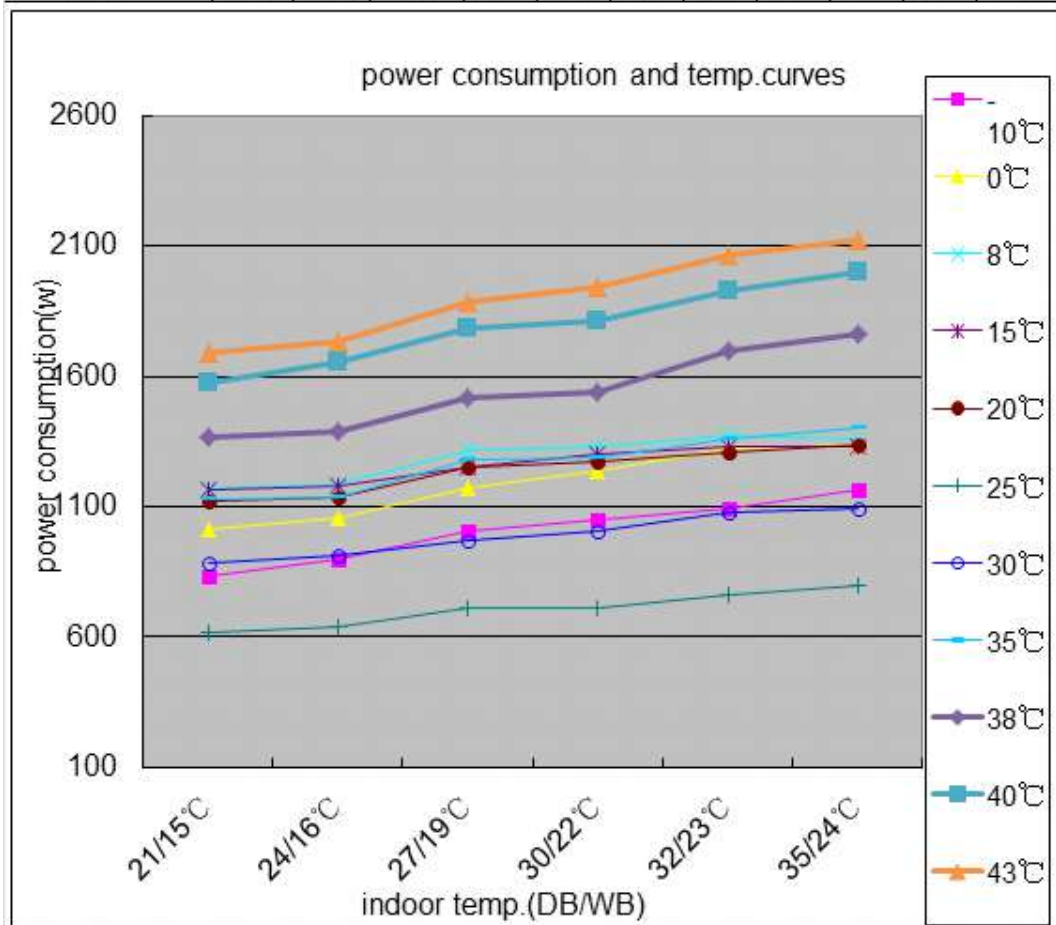
11.4 heating power consumption-temp.curves

performance curves			
power consumption value-temp.table			
outdoor temp.	indoor temp.(humidity 46%)		
DB/WB	10℃	20℃	27℃
-15℃	1212	1346	1427
-10℃	1402	1461	1534
-7/-8℃	1570	1602	1682
2/1℃	1613	1646	1729
7/6℃	1590	1656	1739
12/11℃	1415	1522	1674
18/16℃	1189	1321	1453
24/20℃	929	1032	1135

power consumption and temp

Domestic air conditioner

11.5 Cooling discharge pressure

performance curves			
cooling discharge pressure.table			
outdoor temp. (humidity 46%)	indoor temp.		
DB/WB	21/15℃	27/19℃	35/24℃
-10℃	1350	1420	1502
0℃	1516	1578	1650
8℃	1622	1710	1804
15℃	1783	1841	1929
20℃	1975	2025	2108
25℃	2072	2157	2234
30℃	2215	2341	2456
35℃	2361	2499	2615
38℃	2561	2683	2798
40℃	2910	3025	3147
43℃	3329	3419	3602

cooling discharge pressure and temp. curves

11.6 cooling suction pressure curves

performance curves			
cooling suction pressure.table			
outdoor temp. (humidity 46%)	indoor temp.		
DB/WB	21/15℃	27/19℃	35/24℃
-10℃	650	801	922
0℃	677	835	960
8℃	698	860	990
15℃	713	878	1010
20℃	720	887	1020
25℃	758	896	1041
30℃	798	943	1051
35℃	840	953	1107
38℃	884	982	1129
40℃	972	1080	1242
43℃	1069	1167	1354

cooling suction pressure and temp. curves

Domestic air conditioner

11.7 heating discharge pressure curves

performance curves			
heating discharge pressure.table			
outdoor temp	indoor temp.		
DB/WB	10℃	20℃	27℃
-15℃	2487	2582	2657
-10℃	2833	2975	3134
-7/-8℃	3133	3249	3334
2/1℃	3243	3523	3674
7/6℃	3209	3420	3571
12/11℃	3045	3249	3417
18/16℃	2860	3054	3126
24/20℃	2463	2596	2666

heating discharge pressure and temp. curves
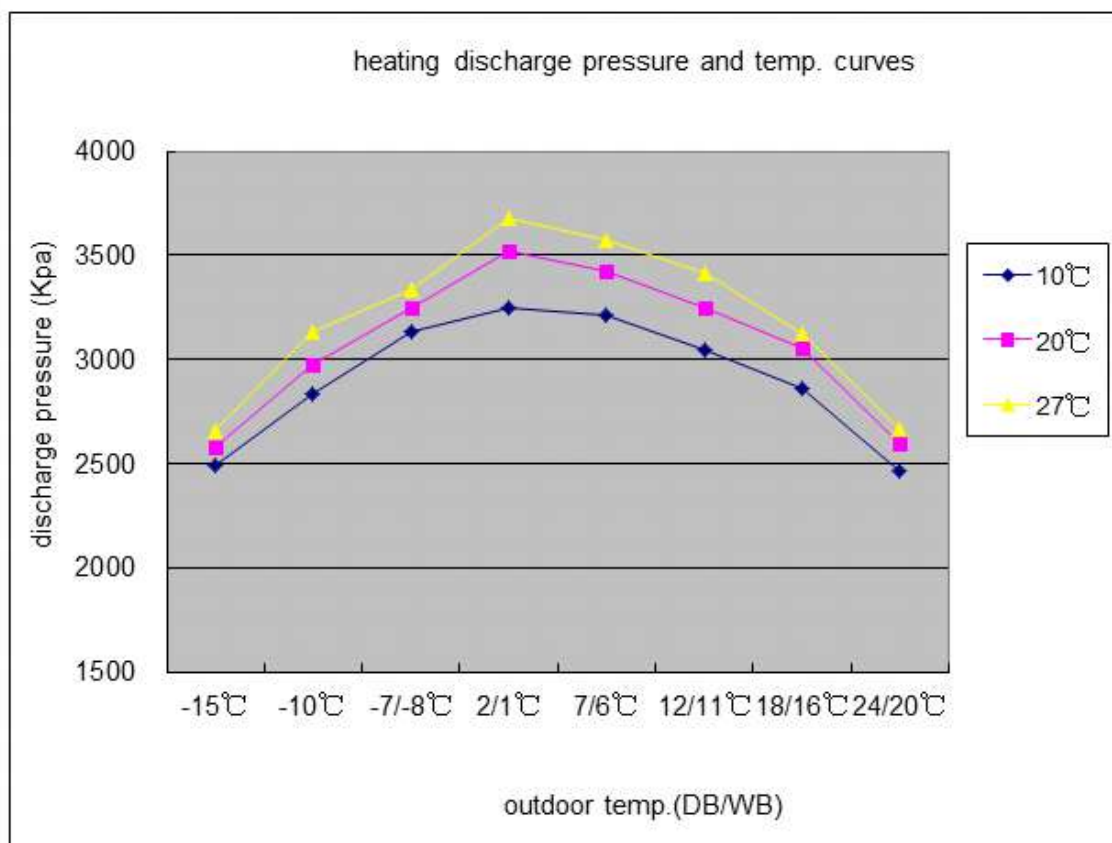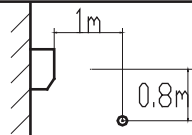
11.8 heating suction pressure curves

performance curves			
heating suction pressure.table			
outdoor temp	indoor temp.		
DB/WB	10℃	20℃	27℃
-15℃	347	386	406
-10℃	400	429	449
-7/-8℃	494	533	553
2/1℃	613	652	672
7/6℃	746	785	805
12/11℃	847	886	906
18/16℃	1014	1053	1073
24/20℃	1200	1239	1259

heating suction pressure and temp. curves

Domestic air conditioner
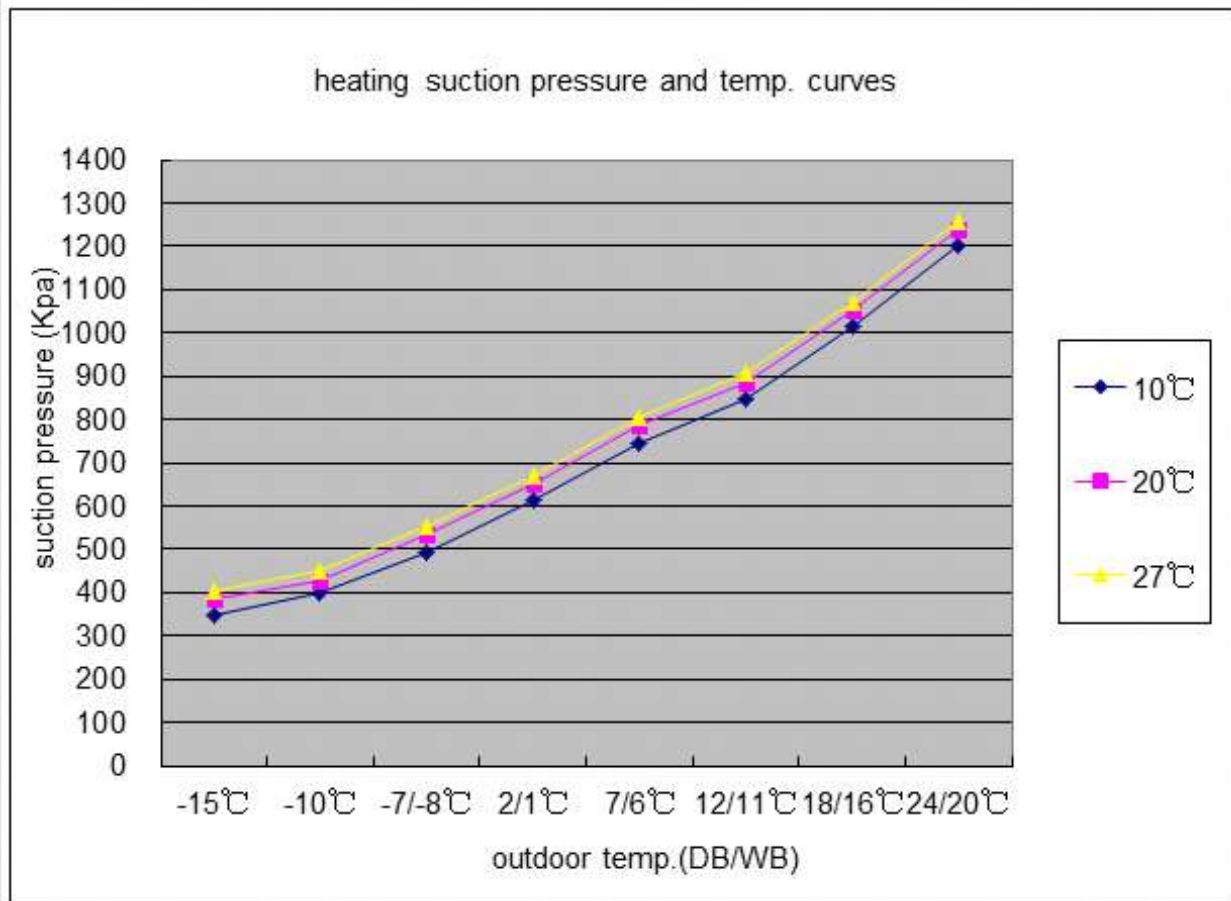
12 Sound level

Model	Sound presure level					sound power level (cooling/heating)
	230V,50Hz			Measuring location		
	Cooling/heating			Location of microphone		
	H	L	SL			
M2T050-D2	53	/	/	1m 0.8m		63

cooling

OUTDOOR
INDOOR

Octave band center frequency(Hz)

heating

INDOOR
OUTDOOR

Octave band center frequency(Hz)

Domestic air conditioner

13 Circuit diagrams
13.1 Outdoor unit control board Circuit Diagrams

13 Circuit diagrams

13.1 Outdoor unit control board Circuit Diagrams
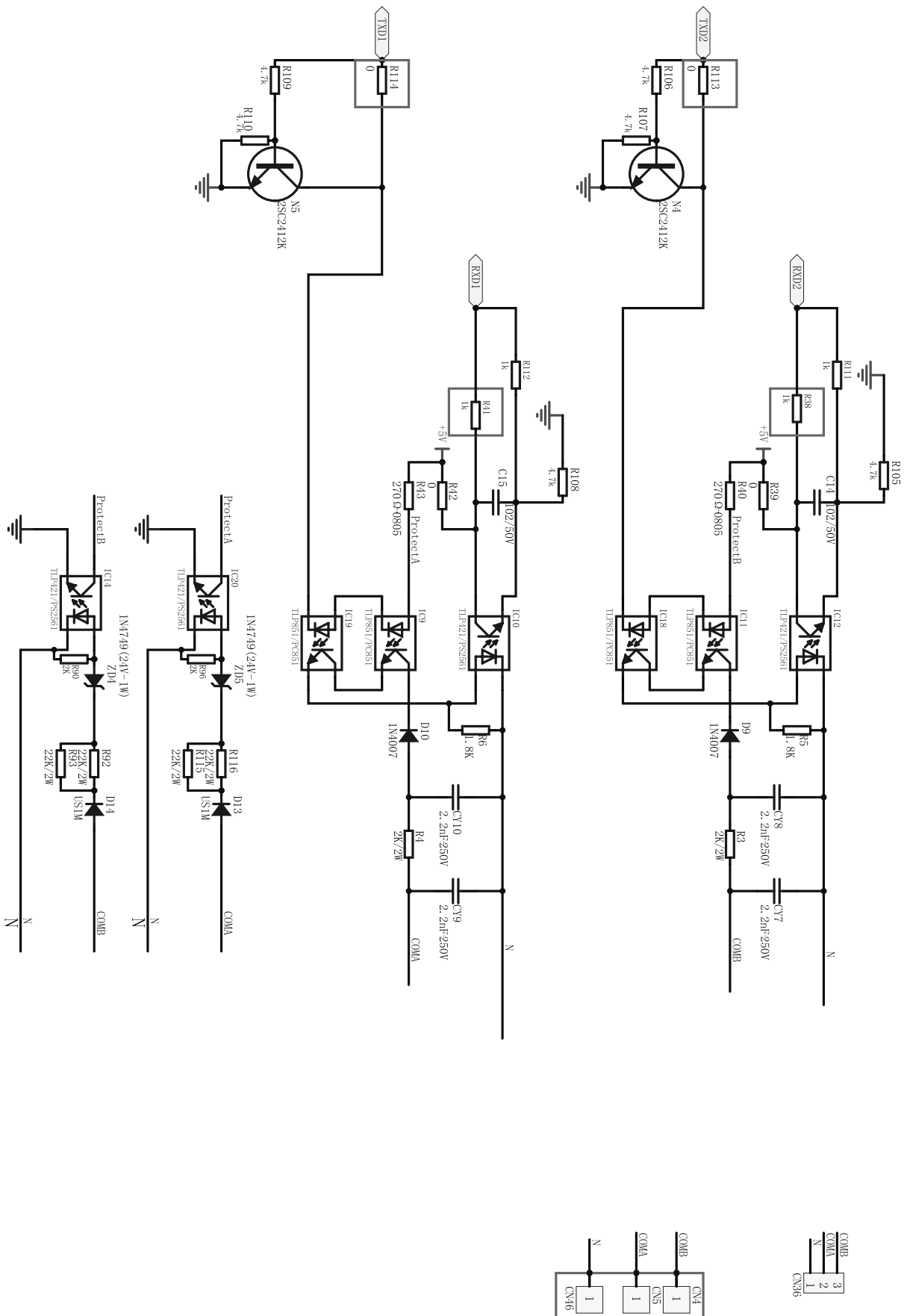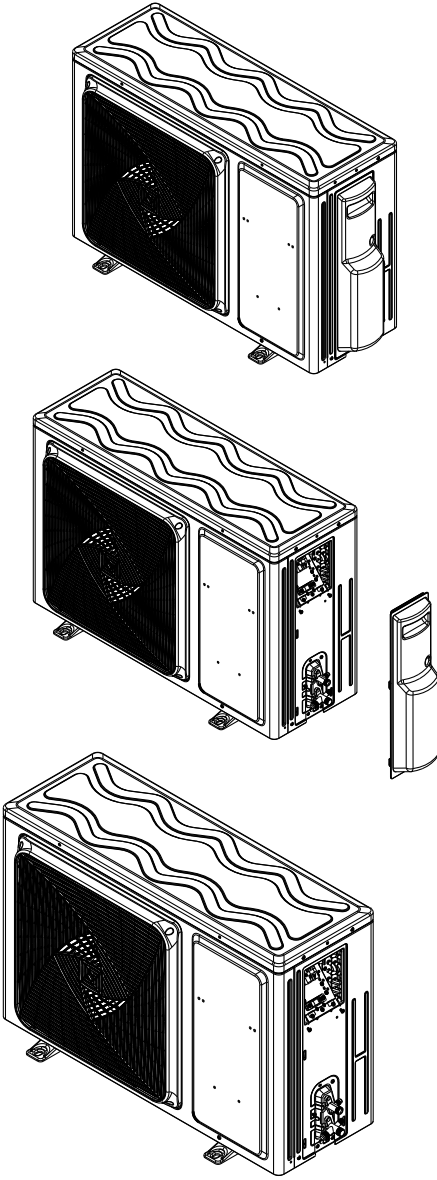
13.2 Module board Circuit Diagram
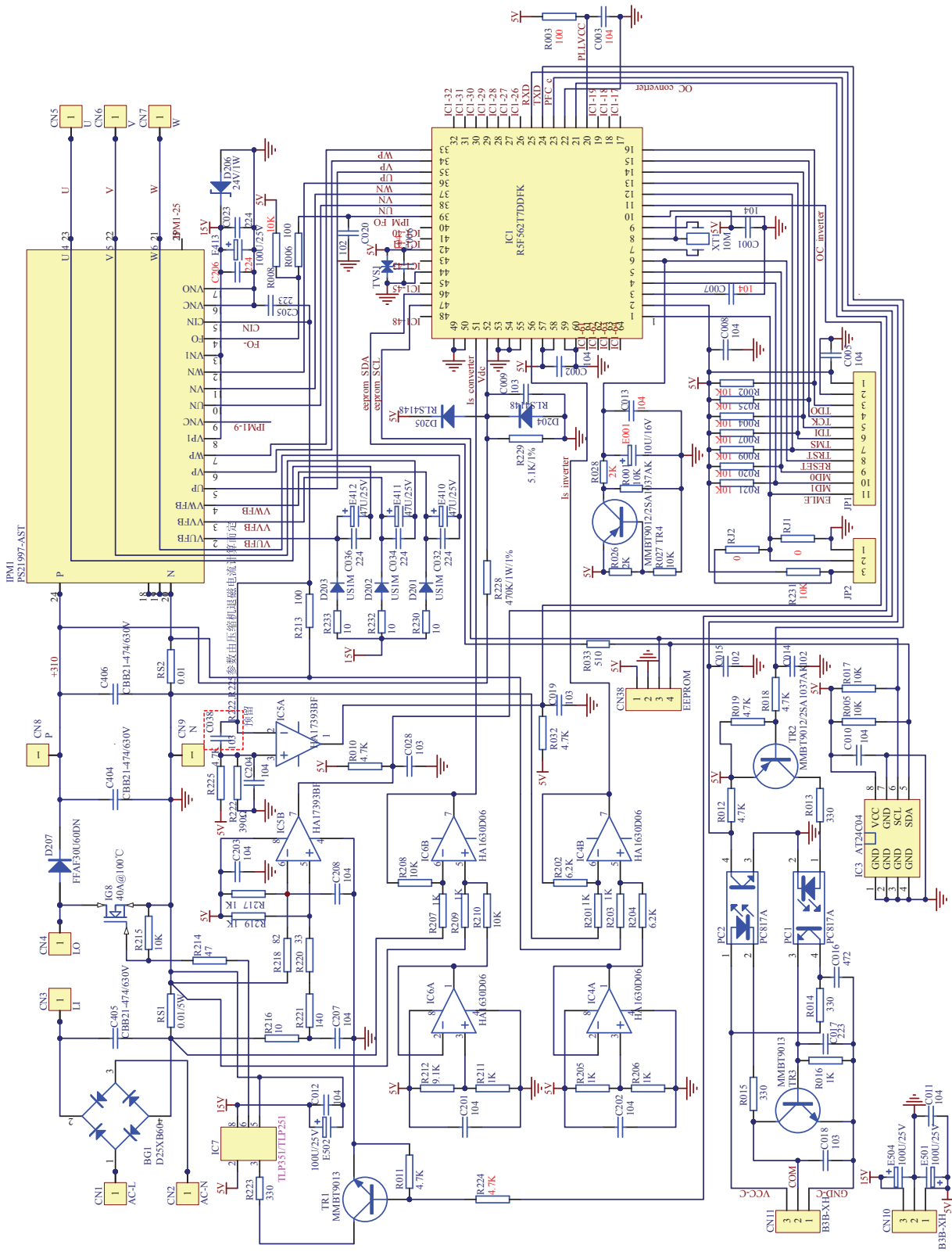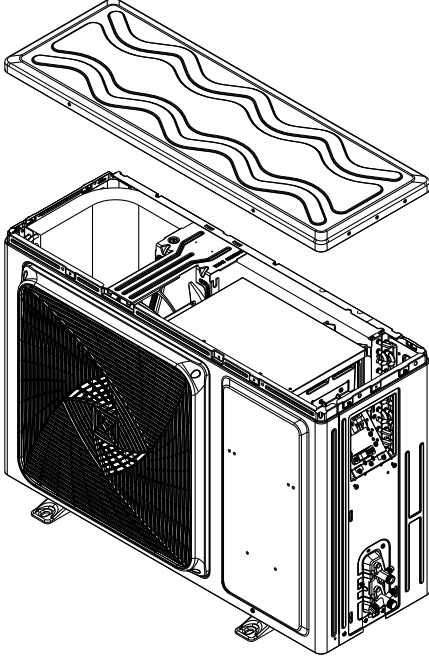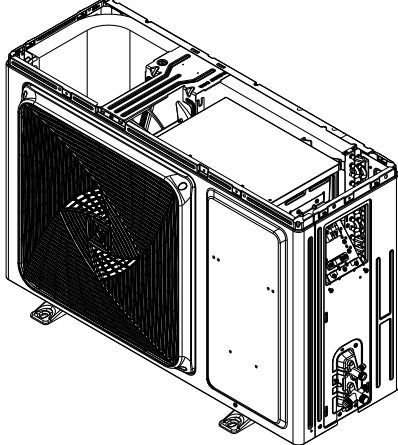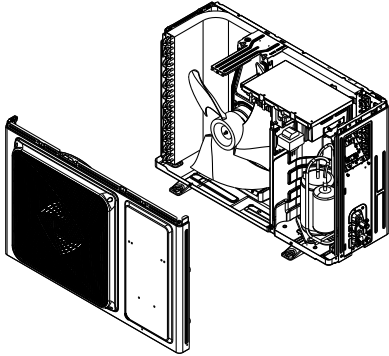
14. Removal Procedure
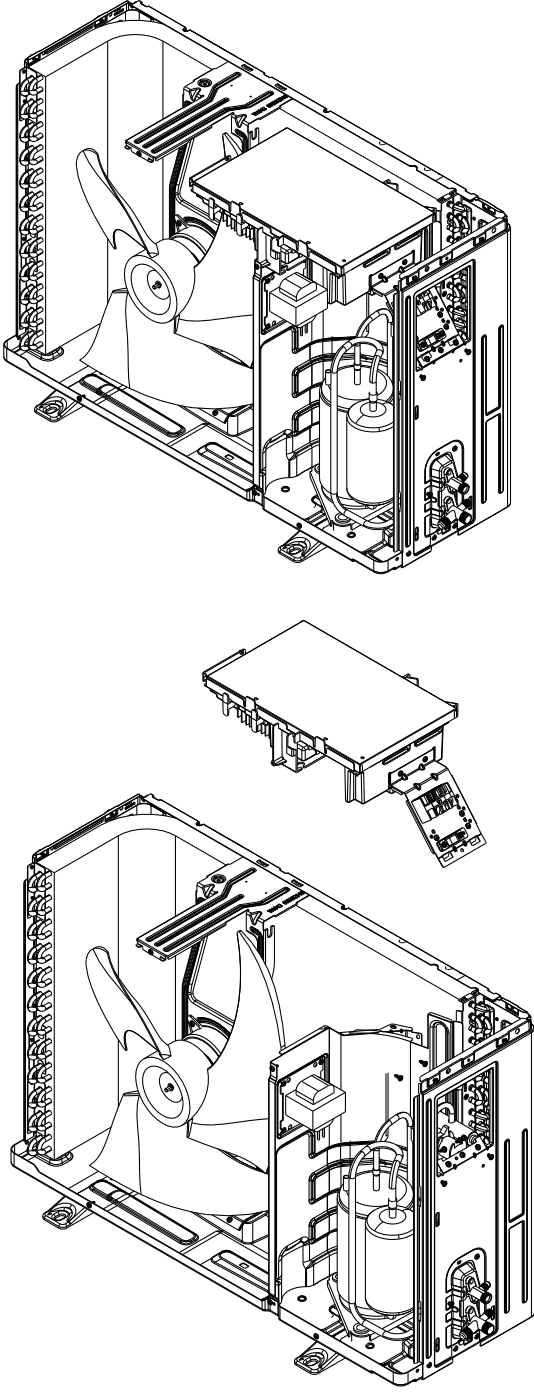
1.Removal of Outdoor panel

Outdoor unit
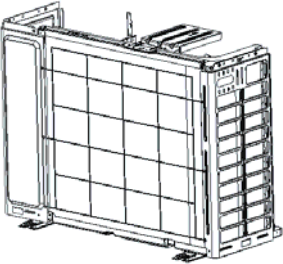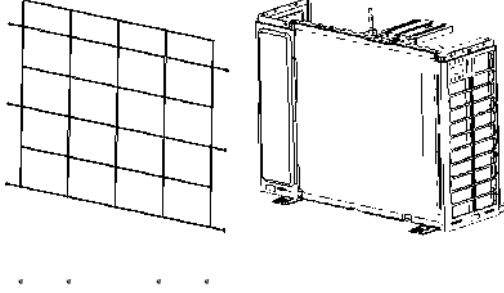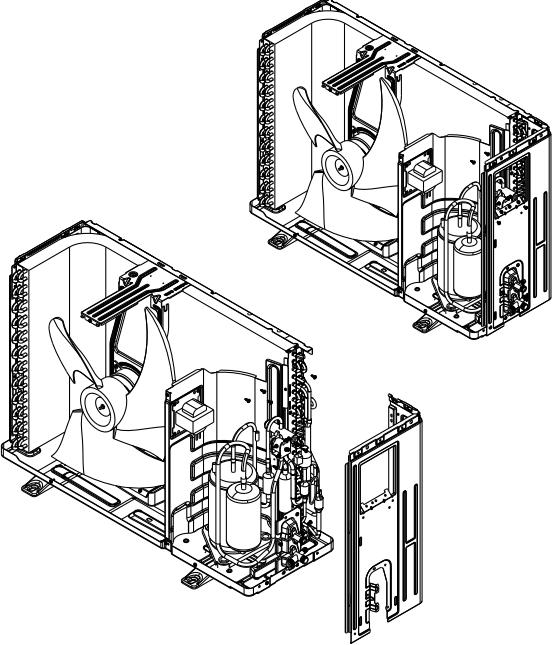
Step		Procedure	Points
1.Features			
1	Loosen the service cover screw and remove the service cover.		Be careful not to cut your finger by the fins of the heat exchanger
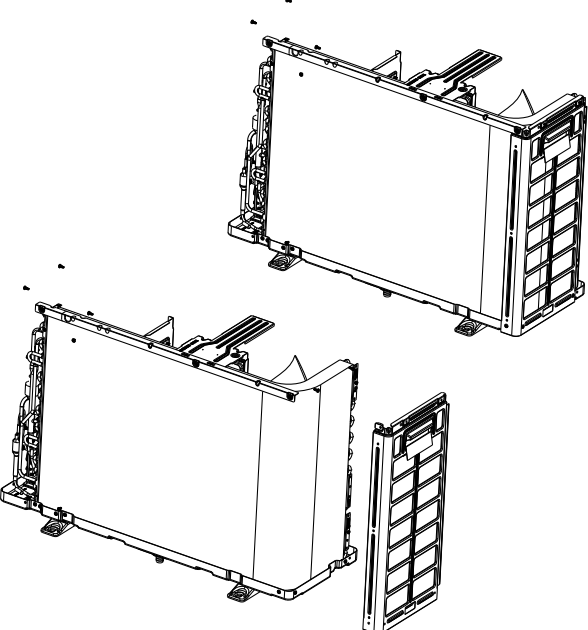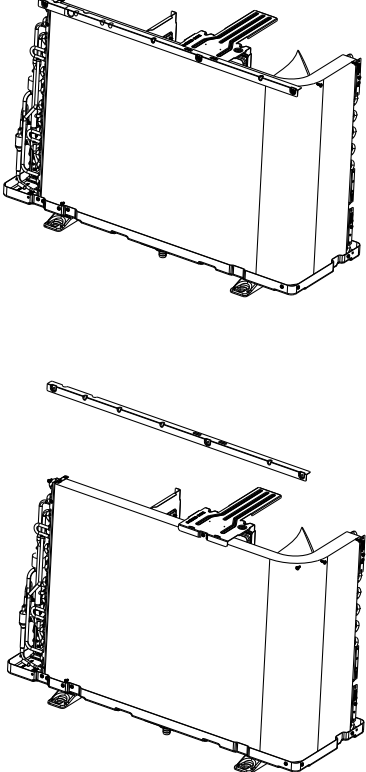
Step Procedure Points		Step Procedure Points	Step Procedure Points
2. Remove the panels.			
1	Loosen the 7 screws and lift the top panel		
2.	Loosen the screws of the panel.		
3	Pull and remove the front panel.		

Domestic air conditioner

Step		Procedure	Points
	Remove the fixting screws, then lift the electrical box		

Remove the air filters and horizontal flap

Step		Procedure	Points
1 2	Loosen the fixting screws and remove The back protect net .		
1	Loosen the fixting screws and remove the side panel.		■

Domestic air conditioner
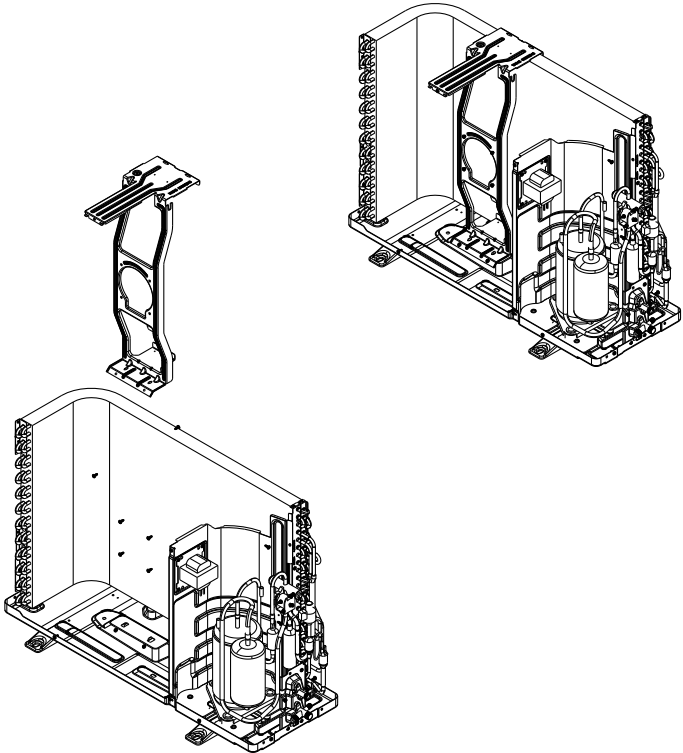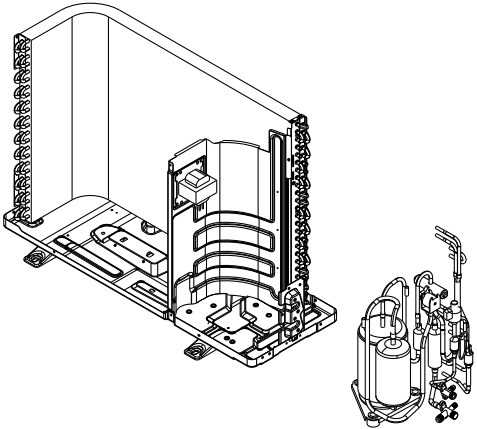
Remove the casing
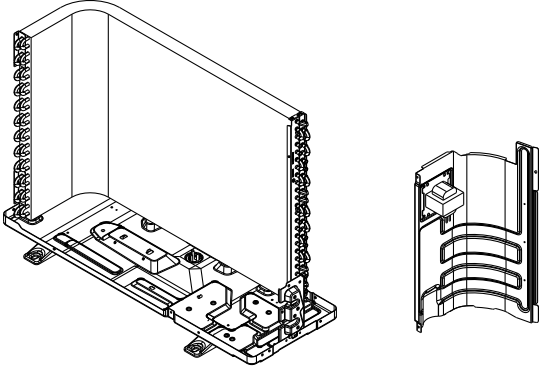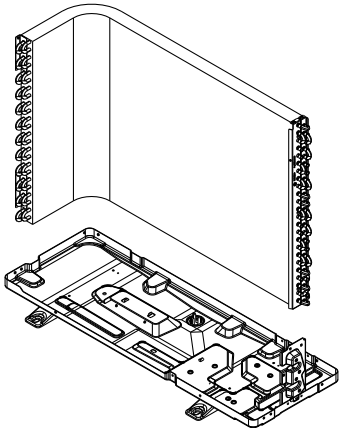
Step		Procedure	Points
1	Loosen the fixting screws and remove the side panel.		∎
2	Loosen the fixting screws and remove the cross beam.		
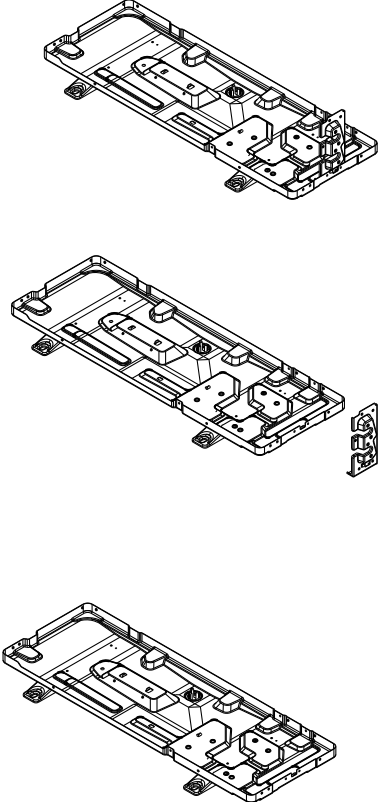
Step		Procedure	Points
3	Loosen the fixting screws remove the fan		
	Loosen the fixting screws and lift the fan motor.		

Domestic air conditioner

Release stepping motor (2type)

Step		Procedure	Points
1	Remove the fixing screws,then lift the fan motor bracket		
2	Cut down the and pull out the compressor and remove the		

Removal of Heat Exchanger

Step		Procedure	Points
	Loosen the marked fixing screws		
	Loosen the fixting hook		

Step		Procedure	Points
	Remove the fixing screw,then lift the valve set		

Domestic air conditioner