Goodman®

Air Conditioning & Heating

Service Manual

GMX160182CUE
GMX160242CUE

GMX160182HWE
GMX160242HWE

JF00302242
11/2017

Table of Contents

Part Ⅰ : Technical Information 1
1. Summary 1
2. Specifications 4
2.1 Specification Sheet 4
2.2 Operation Characteristic Curve 8
2.3 Capacity Variation Ratio According to Temperature 8
2.4 Noise Curve 9
2.5 Cooling and Heating Data Sheet in Rated Frequency 9
3.Outline Dimension Diagram 10
3.1 Indoor Unit 10
3.2 Outdoor Unit 11
4.Refrigerant System Diagram 12
5.Electrical Part 14
5.1 Wiring Diagram 14
5.2 PCB Printed Diagram 18
6.Function and Control 22
6.1 Remote Controller Introduction 22
6.2 Brief Description of Modes and Functions 27

Part Ⅱ : Installation and Maintenance 36
7.Notes for Installation and Maintenance 36
8. Installation 39
8.1 Installation Dimension Diagram 39
8.2 Installation Parts-checking 41
8.3 Selection of Installation Location 41
8.4 Electric Connection Requirement 41
8.5 Installation of Indoor Unit 41
8.6 Installation of Outdoor Unit 44
8.7 Vacuum Pumping and Leak Detection 45
8.8 Check after Installation and Test Operation 45

9. Maintenance 46

9.1 Precautions before Maintenance 46

9.2 Error Code List 50

9.3 Troubleshooting for Main Malfunction 53

9.4 Troubleshooting for Normal Malfunction 67

10.Exploded View and Parts List 69

10.1 Indoor Unit 69

10.2 Outdoor Unit 77

11.Removal Procedure 83

11.1 Removal Procedure of Indoor Unit 83

11.2 Removal Procedure of Outdoor Unit 88

Appendix: 99

Appendix 1: Reference Sheet of Celsius and Fahrenheit 99

Appendix 2: Configuration of Connection Pipe 99

Appendix 3: Pipe Expanding Method 100

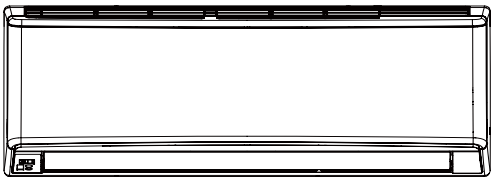
Appendix 4: List of Resistance for Temperature Sensor 101

Part Ⅰ : Technical Information

1. Summary

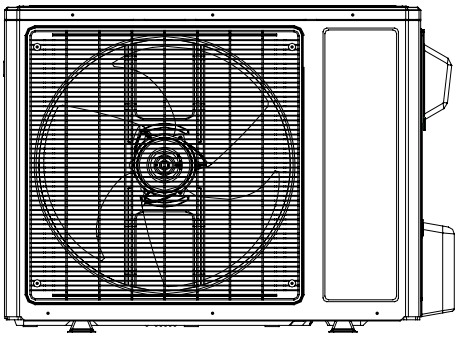
Indoor Unit:

GMX160242HWE(LC)



Outdoor Unit:

GMX160182CUE
GMX160242CUE



Remote Controller:

YAN1F1F



Model List:

No.	Model	Product code	Indoor model	Indoor product code	Outdoor model	Outdoor product code
	GMX160182HWE	CB424002300	GMX160182HWE	CB424N02300	GMX160182CUE	CB427W01700
	GMX160242HWE (LC)	CB424002700	GMX160242HWE	CB424N02700	GMX160242CUE	CB419W02300

2: Specifications

2.1 Specification Sheet

Model			GMX160182HWE
Product Code			CB424002300
Power Supply	Rated Voltage	V~	208/230
	Rated Frequency	Hz	60
	Phases		1
Power Supply Mode			Outdoor
Cooling Capacity(Min~Max)		Btu/h	18000(7165~20001)
Heating Capacity(Min~Max)		Btu/h	/
Cooling Power Input(Min~Max)		W	1500(570~2600)
Heating Power Input(Min~Max)		W	/
Cooling Power Current		A	8
Heating Power Current		A	/
Rated Input		W	2600
Rated Current		A	11.54
Air Flow Volume(SH/H/M/L)		CFM	471/403/341/282
Dehumidifying Volume		Pint/h	3.80
EER		(Btu/h)/W	10.00
COP		(Btu/h)/W	/
SEER			16.00
HSPF			/
Application Area		yd^2	27.50-40.66
Indoor Unit	Model of indoor unit		GMX160182HWE
	Fan Type		Cross-flow
	Diameter Length(DXL)	inch	Φ4 3/16X27 13/16
	Fan Motor Cooling Speed(SH/H/M/L)	r/min	1350/1200/1050/900
	Fan Motor Heating Speed(SH/H/M/L)	r/min	/
	Output of Fan Motor	W	35
	Fan Motor RLA	A	0.37
	Fan Motor Capacitor	μF	2.5
	Evaporator Form		Aluminum Fin-copper Tube
	Pipe Diameter	inch	Φ5/16
	Row-fin Gap	inch	2-1/16
	Coil Length (LXDXW)	inch	28 1/8X1X12
	Swing Motor Model		MP35CJ
	Output of Swing Motor	W	2.5
	Fuse	A	3.15
	Sound Pressure Level(SH/H/M/L)	dB (A)	46/42/39/35
	Sound Power Level(SH/H/M/L)	dB (A)	56/52/49/45
	Dimension (WXHXD)	inch	38 13/64X11 13/16X813/16
	Dimension of Carton Box (LXWXH)	inch	40 7/8X15X12
	Dimension of Package (LXWXH)	inch	41X15X12 5/8
	Net Weight	lb	29.8
	Gross Weight	lb	36.4

Outdoor Unit	Model of Outdoor Unit		GMX160182CUE
	Outdoor Unit Product Code		CB427W01700
	Compressor Manufacturer/Trademark		ZHUHAI LANDA COMPRESSOR CO.,LTD
	Compressor Model		QXA-B141zF030A
	Compressor Oil		RB68EP
	Compressor Type		Rotary
	Compressor Locked Rotor Amp (L.R.A)	A	25
	Compressor RLA	A	12.08
	Compressor Power Input	W	1440
	Overload Protector		1NT11L-6233 or KSD115^{O}C or HPC115/95U1
	Throttling Method		Capillary
	Operation temp	ºF	60.8~86
	Ambient temp (cooling)	ºF	0~115
	Ambient temp (heating)	ºF	/
	Condenser Form		Aluminum Fin-copper Tube
	Pipe Diameter	inch	Φ5/16
	Rows-fin Gap	inch	1-1/16
	Coil Length (LXDXW)	inch	34 11/16X26X7/8
	Fan Motor Speed	rpm	800
	Output of Fan Motor	W	60
	Fan Motor RLA	A	0.365
	Fan Motor Capacitor	μF	/
	Air Flow Volume of Outdoor Unit	CFM	1883
	Fan Type		Axial-flow
	Fan Diameter	inch	Φ20 1/2
	Defrosting Method		/
	Climate Type		T1
	Isolation		I
	Moisture Protection		IPX4
	Permissible Excessive Operating Pressure for the Discharge Side	ISPG	623
	Permissible Excessive Operating Pressure for the Suction Side	ISPG	362
	Sound Pressure Level (H/M/L)	dB (A)	56/-/-
	Sound Power Level (H/M/L)	dB (A)	66/-/-
	Dimension (WXHXD)	inch	38X27 9/16X15 19/32
	Dimension of Carton Box (LXWXH)	inch	40 25/64X17 29/32X28 15/16
	Dimension of Package (LXWXH)	inch	40 33/64X18 5/16X29 33/64
	Net Weight	lb	90.4
	Gross Weight	lb	100.3
	Refrigerant		R410A
	Refrigerant Charge	oz	35.3
Connection Pipe	Length	ft	24.6
	Gas Additional Charge	oz/ft	0.2
	Outer Diameter Liquid Pipe	inch	Φ1/4
	Outer Diameter Gas Pipe	inch	Φ1/2
	Max Distance Height	ft	32.8
	Max Distance Length	ft	82
	Note:The connection pipe applies metric diameter.		

The above data is subject to change without notice; please refer to the nameplate of the unit.

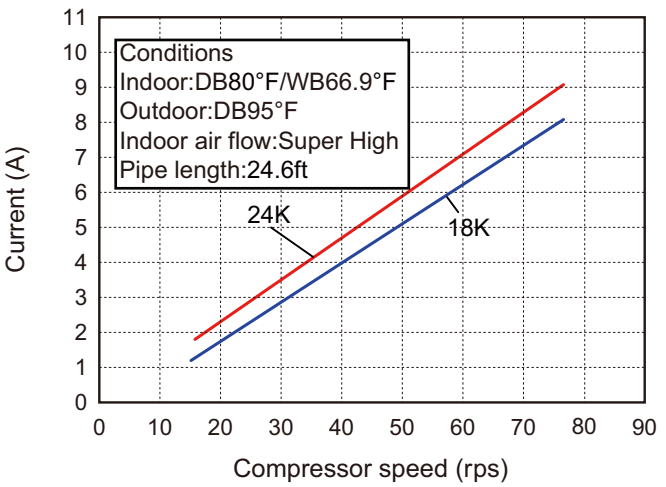
Model			GMX160242HWE
Product Code			CB424002700
Power Supply	Rated Voltage	V~	208/230
	Rated Frequency	Hz	60
	Phases		1
Power Supply Mode			Outdoor
Cooling Capacity(Min~Max)		Btu/h	22000(8630~23200)
Heating Capacity(Min~Max)		Btu/h	/
Cooling Power Input(Min~Max)		W	2260(600~27000)
Heating Power Input(Min~Max)		W	/
Cooling Power Current		A	10.03
Heating Power Current		A	/
Rated Input		W	2700
Rated Current		A	11.18
Air Flow Volume(SH/H/M/L)		CFM	706/647/589/530
Dehumidifying Volume		Pint/h	4.23
EER		(Btu/h)/W	9.73
COP		(Btu/h)/W	/
SEER			16.00
HSPF			/
Application Area		yd^2	32.29-50.23
Indoor Unit	Model of indoor unit		GMX160242HWE
	Fan Type		Cross-flow
	Diameter Length(DXL)	inch	Φ4 1/4X32 7/10
	Fan Motor Cooling Speed(SH/H/M/L)	r/min	1250/1100/900/800
	Fan Motor Heating Speed(SH/H/M/L)	r/min	/
	Output of Fan Motor	W	30
	Fan Motor RLA	A	0.32
	Fan Motor Capacitor	μF	3
	Evaporator Form		Aluminum Fin-copper Tube
	Pipe Diameter	inch	Φ5/16
	Row-fin Gap	inch	2-1/16
	Coil Length (LXDXW)	inch	33 1/4X1X13 1/2
	Swing Motor Model		MP35CJ
	Output of Swing Motor	W	2.5
	Fuse	A	3.15
	Sound Pressure Level(SH/H/M/L)	dB (A)	48/44/40/36
	Sound Power Level(SH/H/M/L)	dB (A)	58/54/50/46
	Dimension (WXHXD)	inch	42 7/16X12 51/64X9 11/16
	Dimension of Carton Box (LXWXH)	inch	45 5/64X16 9/64X13 3/16
	Dimension of Package (LXWXH)	inch	45 3/64X16 1/4X13 3/4
	Net Weight	lb	34.2
	Gross Weight	lb	41.9

Outdoor Unit	Model of Outdoor Unit		GMX160242CUE(LC)
	Outdoor Unit Product Code		CB427W02300
	Compressor Manufacturer/Trademark		ZHUHAI LANDA COMPRESSOR CO,LTD.
	Compressor Model		QXA-B141zF030A
	Compressor Oil		RB68EP
	Compressor Type		Rotary
	Compressor Locked Rotor Amp (L.R.A)	A	25.00
	Compressor RLA	A	11.29
	Compressor Power Input	W	1440
	Overload Protector		1NT11L-6233 or KSD115^{O}C or HPC115/95U1
	Throttling Method		Capillary
	Operation temp	ºF	60.8~86
	Ambient temp (cooling)	ºF	0~115
	Ambient temp (heating)	ºF	/
	Condenser Form		Aluminum Fin-copper Tube
	Pipe Diameter	inch	Φ3/8
	Rows-fin Gap	inch	2-1/16
	Coil Length (LXDXW)	inch	33 5/16X1 3/4X26
	Fan Motor Speed	rpm	800
	Output of Fan Motor	W	60
	Fan Motor RLA	A	0.4
	Fan Motor Capacitor	μF	/
	Air Flow Volume of Outdoor Unit	CFM	1883
	Fan Type		Axial-flow
	Fan Diameter	inch	Φ20 1/2
	Defrosting Method		/
	Climate Type		T1
	Isolation		I
	Moisture Protection		IPX4
	Permissible Excessive Operating Pressure for the Discharge Side	ISPG	623
	Permissible Excessive Operating Pressure for the Suction Side	ISPG	362
	Sound Pressure Level (H/M/L)	dB (A)	59/-/-
	Sound Power Level (H/M/L)	dB (A)	69/-/-
	Dimension (WXHXD)	inch	38X27 9/16X15 19/32
	Dimension of Carton Box (LXWXH)	inch	40 25/64X17 29/32X28 15/16
	Dimension of Package (LXWXH)	inch	40 33/64X18 5/16X29 33/64
	Net Weight	lb	103.6
	Gross Weight	lb	113.6
	Refrigerant		R410A
	Refrigerant Charge	oz	56.45
Connection Pipe	Length	ft	24.6
	Gas Additional Charge	oz/ft	0.5
	Outer Diameter Liquid Pipe	inch	Φ1/4
	Outer Diameter Gas Pipe	inch	Φ5/8
	Max Distance Height	ft	32.8
	Max Distance Length	ft	82
	Note:The connection pipe applies metric diameter.		

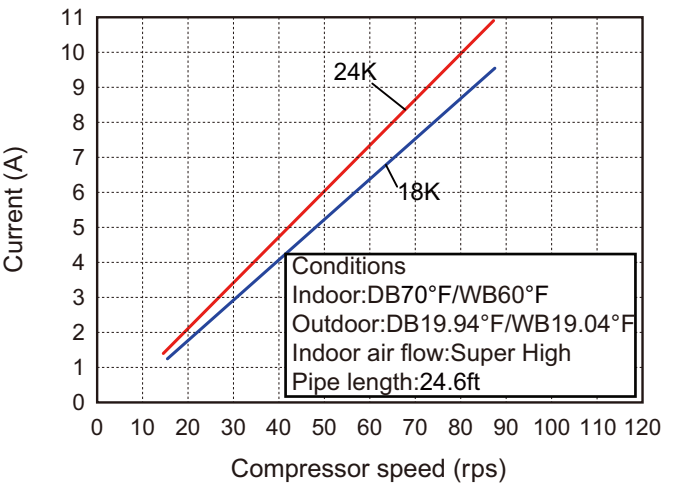
The above data is subject to change without notice; please refer to the nameplate of the unit.

2.2 Operation Characteristic Curve

Cooling

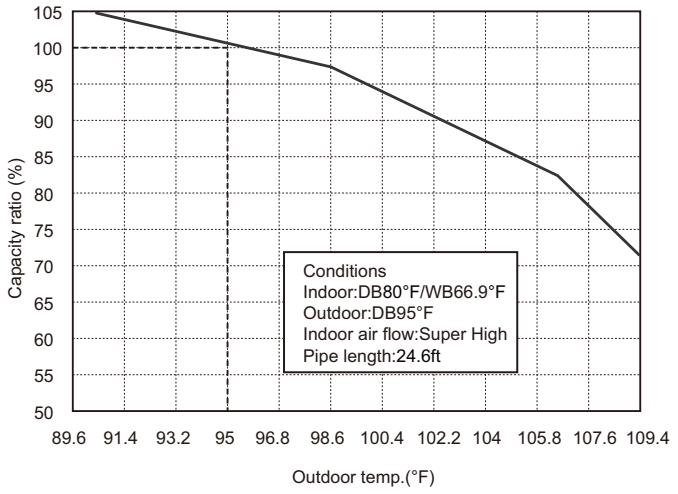


Heating

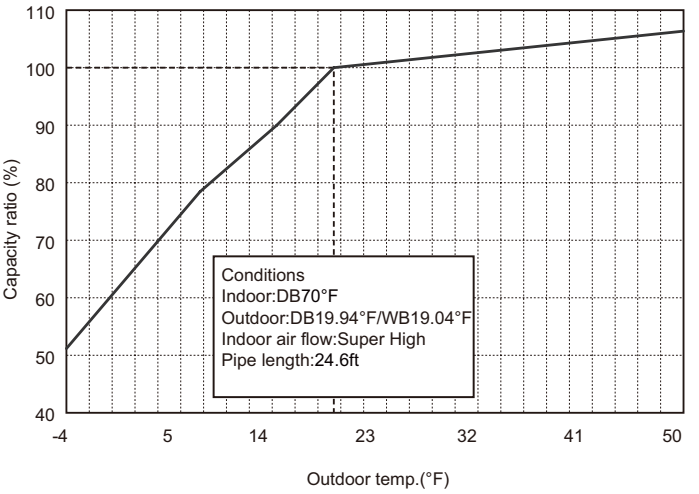


2.3 Capacity Variation Ratio According to Temperature

Cooling

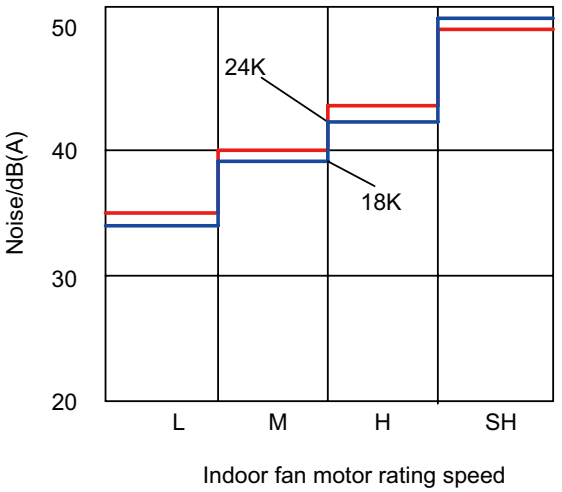


Heating

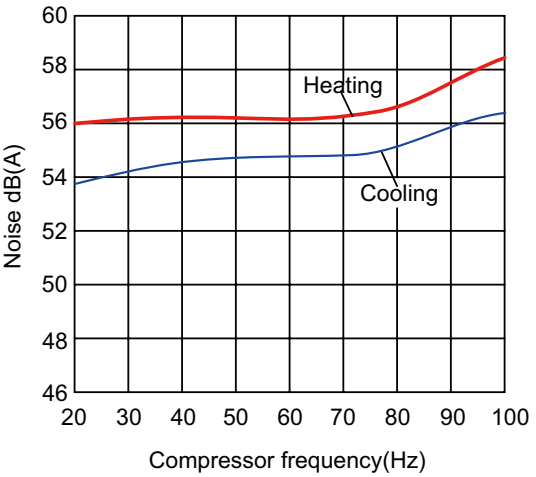


2.4 Noise Curve

Indoor side noise



Outdoor side noise



2.5 Cooling and Heating Data Sheet in Rated Frequency

Cooling:

Rated cooling condition(°F) (DB/WB)		Model	Pressure of gas pipe connecting indoor and outdoor unit	Inlet and outlet pipe temperature of heat exchanger		Fan speed of indoor unit	Fan speed of outdoor unit	Compressor revolution (rps)
Indoor	Outdoor		P (MPa)	T1 (°F)	T2 (°F)			
80/66.9	95/-	18K	0.9~1.0	in:46.4~51.8 out:51.8~57.2	in:167~181.4 out:98.6~118.4	Super High	High	73
80/66.9	95/-	24K	0.9~1.0	in:46.4~51.8 out:51.8~57.2	in:167~181.4 out:98.6~118.4	Super High	High	75

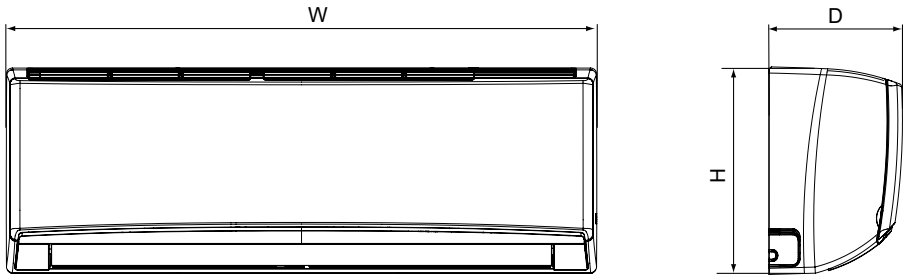
Heating:

Rated heating condition(°F) (DB/WB)		Model	Pressure of gas pipe connecting indoor and outdoor unit	Inlet and outlet pipe temperature of heat exchanger		Fan speed of indoor unit	Fan speed of outdoor unit	Compressor revolution (rps)
Indoor	Outdoor		P (MPa)	T1 (°F)	T2 (°F)			
70/60	19.94/19.04	18K	3.5~3.8	in:167~181.4 out:98.6~113	in:33.8~37.4 out:35.6~42.8	Super High	High	75
70/60	19.94/19.04	24K	3.5~3.8	in:167~181.4 out:98.6~113	in:33.8~37.4 out:35.6~42.8	Super High	High	80

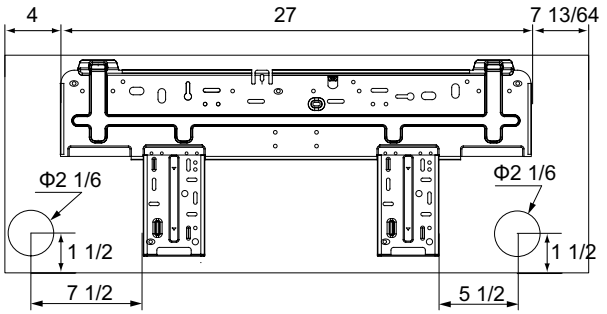
Instruction:
T1: Inlet and outlet pipe temperature of evaporator
T2: Inlet and outlet pipe temperature of condenser
P: Pressure at the side of big valve
Connection pipe length: 24.6ft.

3. Outline Dimension Diagram

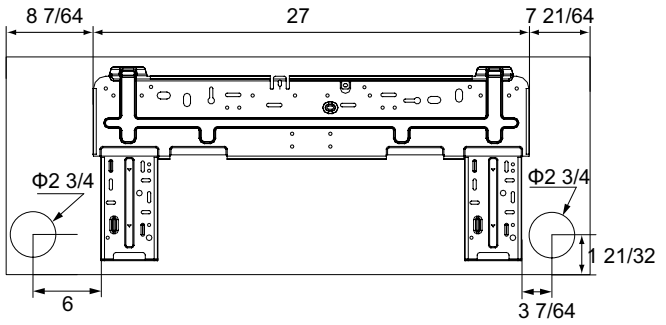
3.1 Indoor Unit



18K



24K

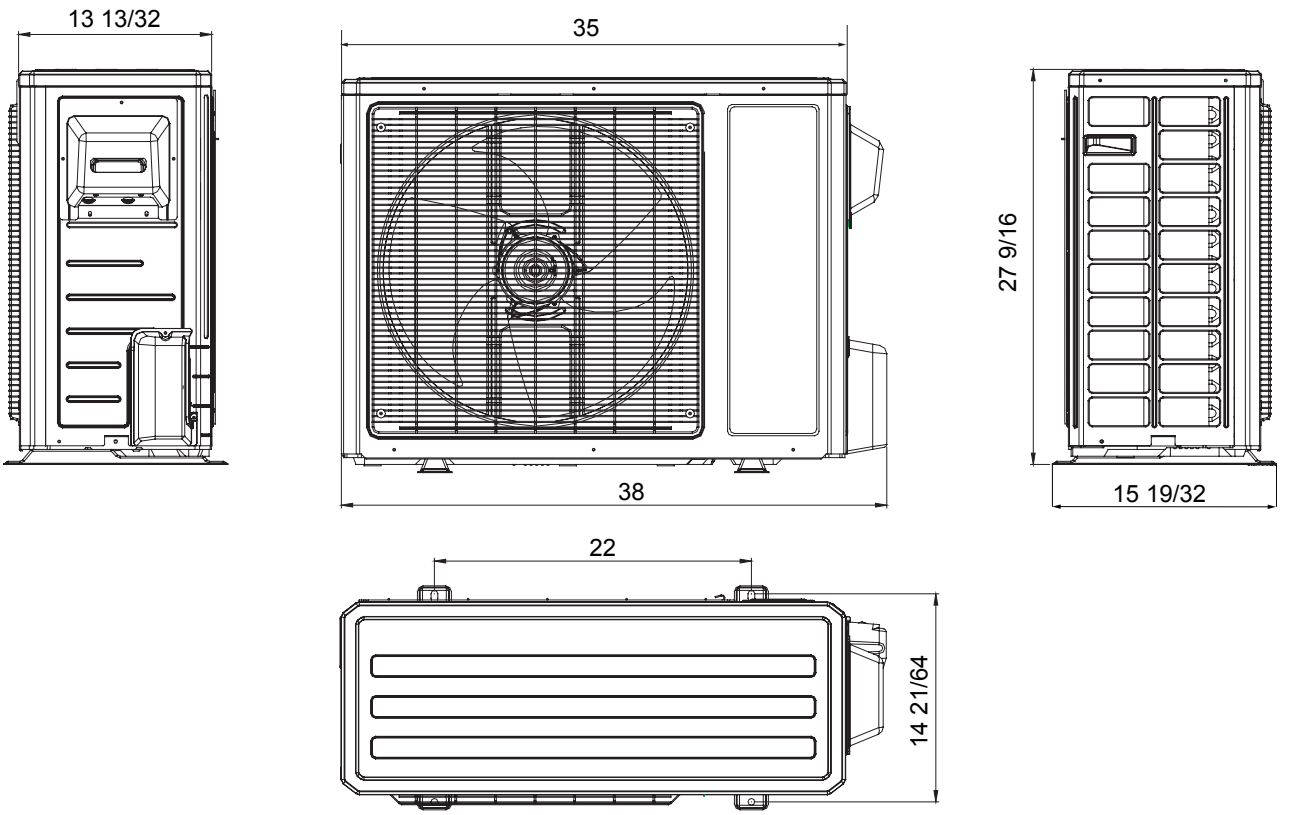


Unit:inch

Models	W	H	D
18K	38 13/64	11 13/16	8 5/6
24K	42 7/16	12 51/64	9 11/16

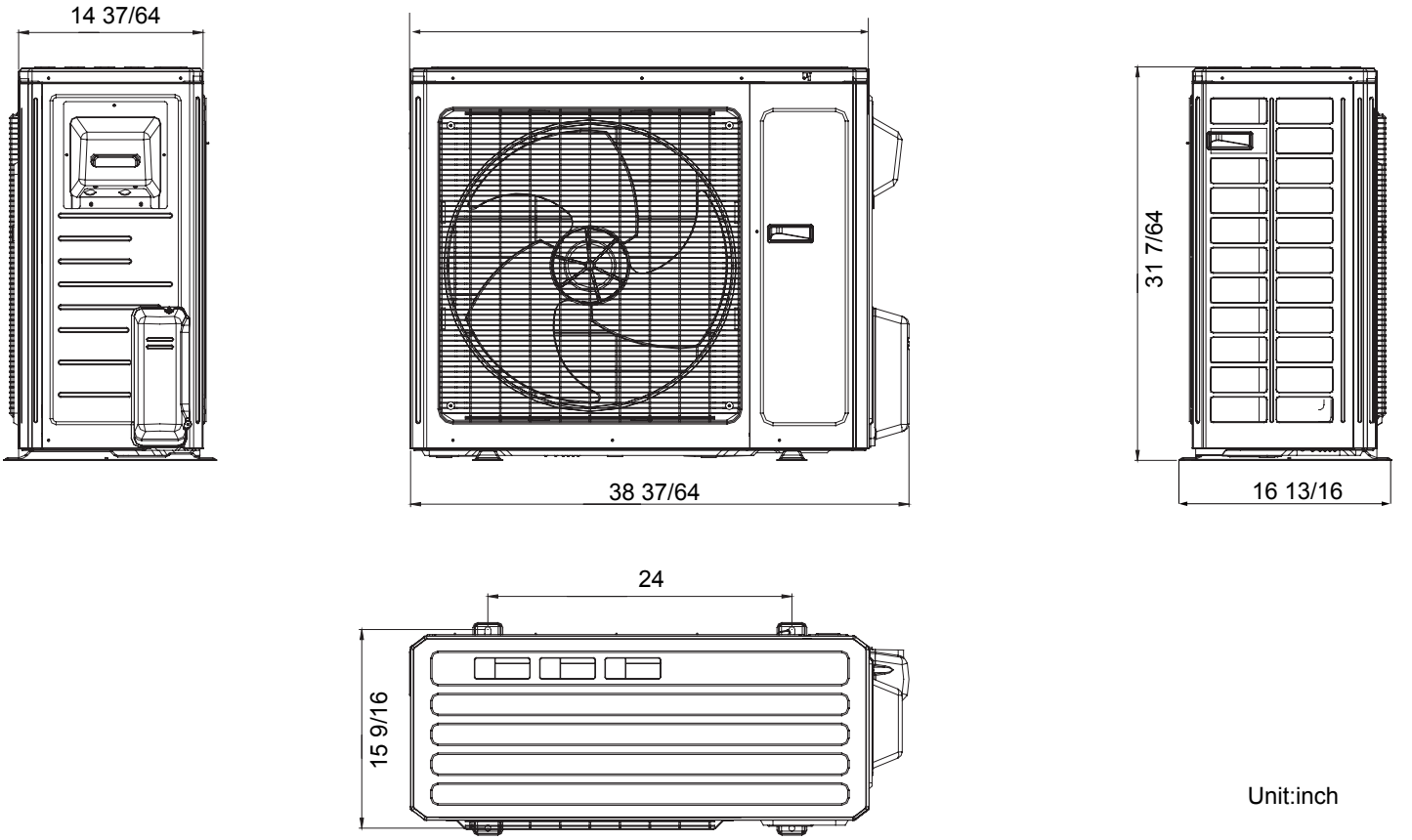
3.2 Outdoor Unit

18K GMX160242CUE(LC)



Unit: inch

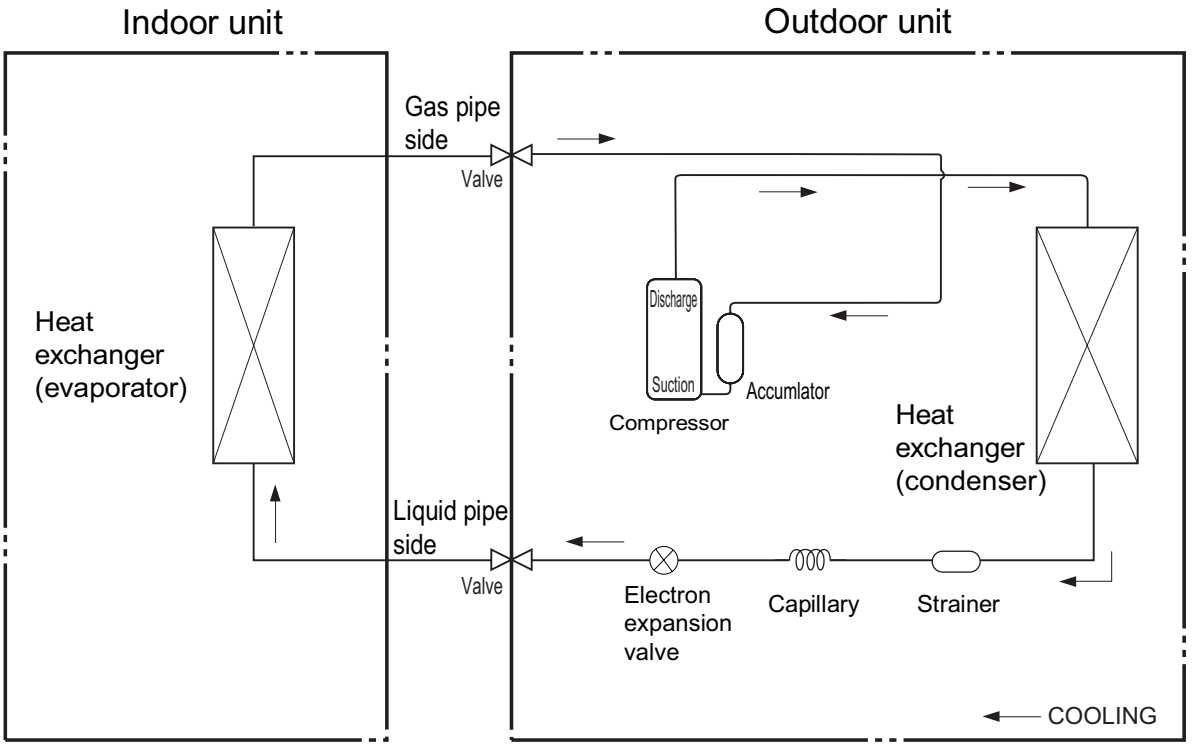
GWC24QE-D3DNA3E/O(LC)



Unit:inch

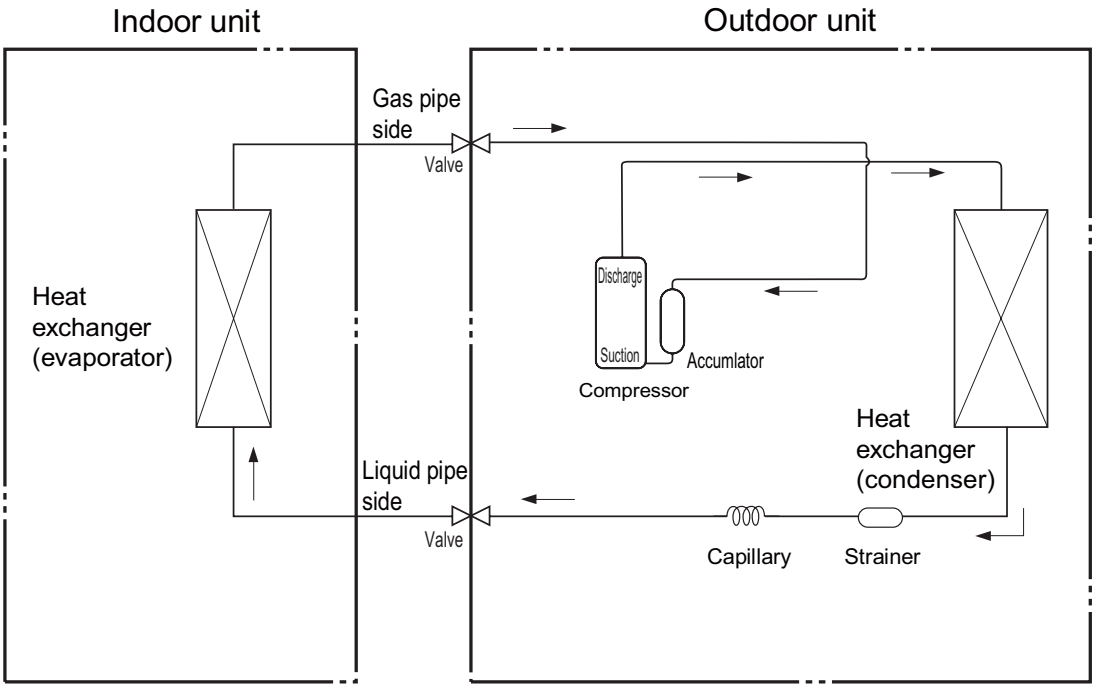
4. Refrigerant System Diagram

Cooling only model except GMX160182HWE GMX160242HWE(LC)



Connection pipe specification:
Liquid pipe:1/4"inch
Gas pipe:1/2"(for 18K)
Gas pipe:5/8"(for 24K)

GMX160182HWE GMX160242HWE(LC)



Connection pipe specification:
Liquid pipe:1/4"
Gas pipe:1/2" for 18K
Gas pipe:5/8" for 24K

5. Electrical Part

5.1 Wiring Diagram

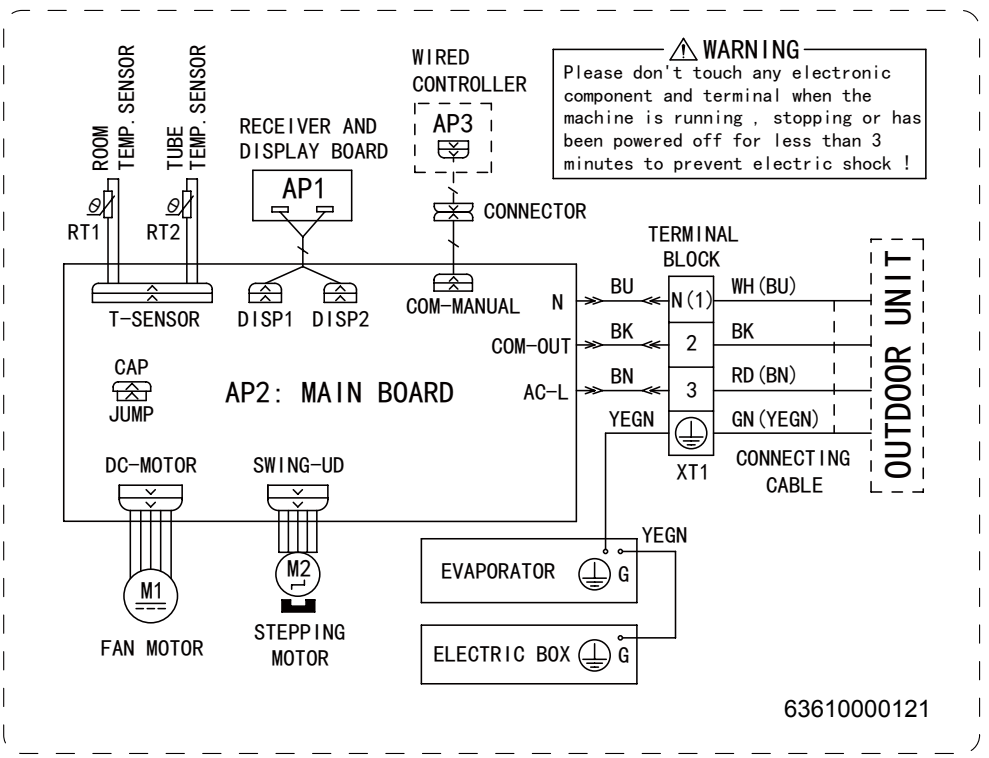
● Instruction

Symbol	Symbol Color	Symbol	Symbol Color	Symbol	Name
WH	White	GN	Green	CAP	Jumper cap
YE	Yellow	BN	Brown	COMP	Compressor
RD	Red	BU	Blue	⏚	Grounding wire
YEGN	Yellow/Green	BK	Black	/	/
VT	Violet	OG	Orange	/	/

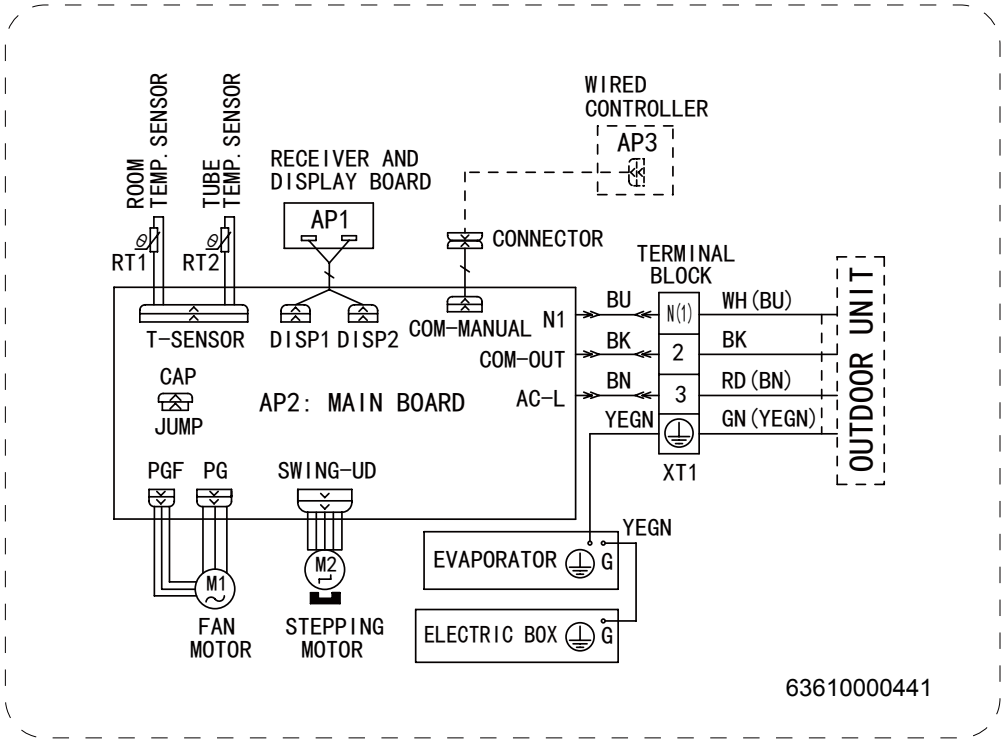
Note: Jumper cap is used to determine fan speed and the swing angle of horizontal lover for this model.

● Indoor Unit

GMX160182HWE, GMX160242HWE

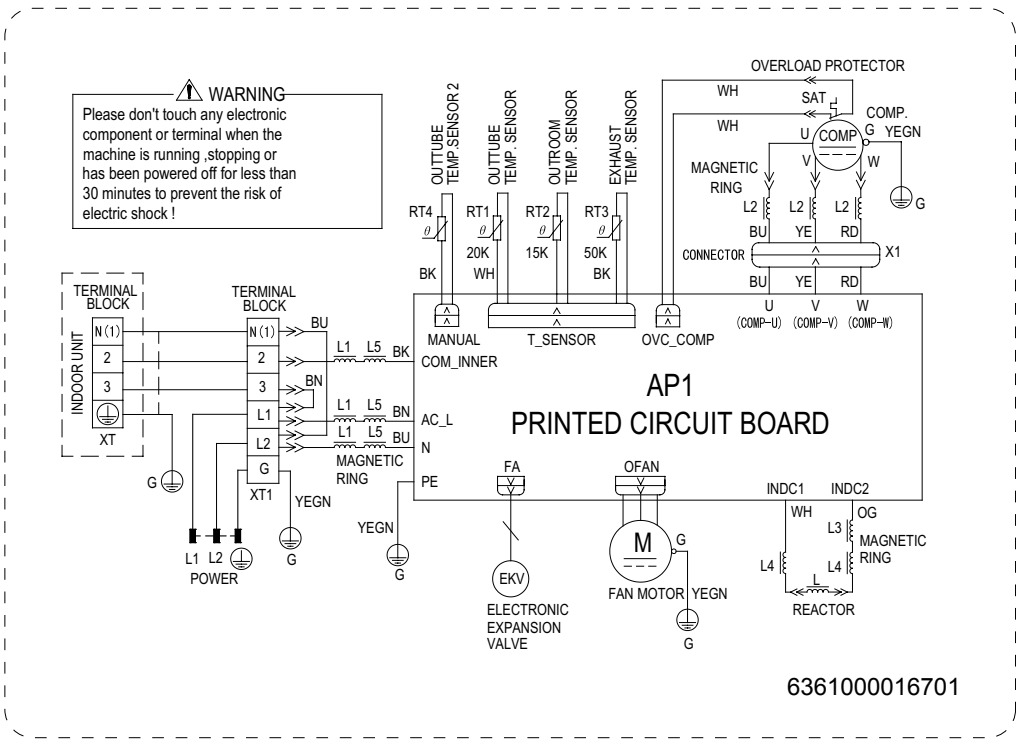


GMX160182HWE GMX160242HWE

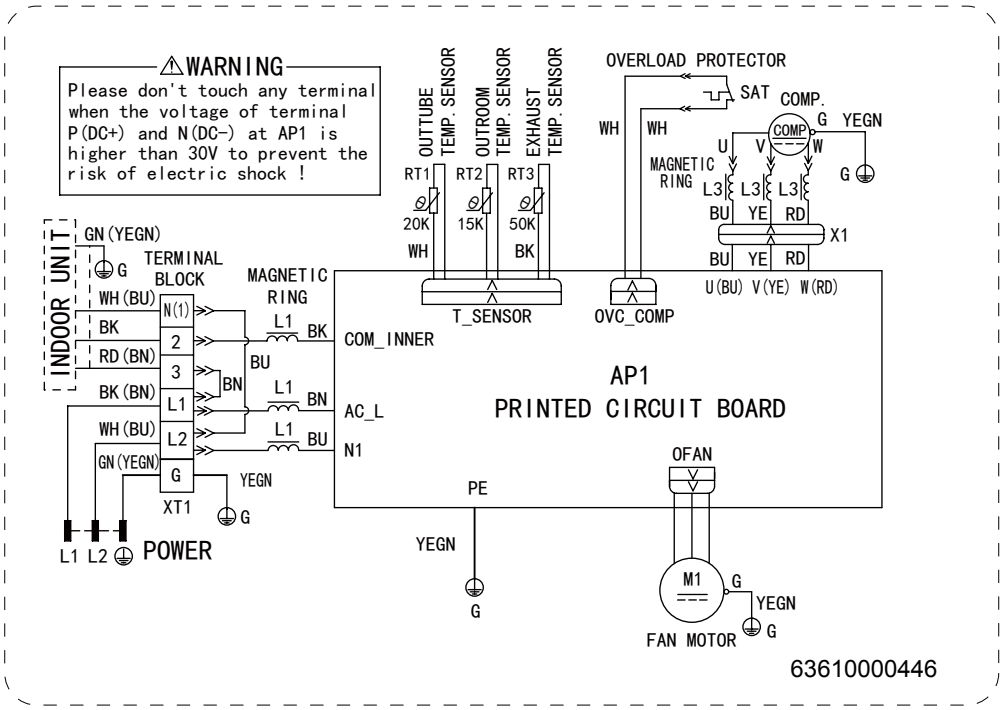


● Outdoor Unit

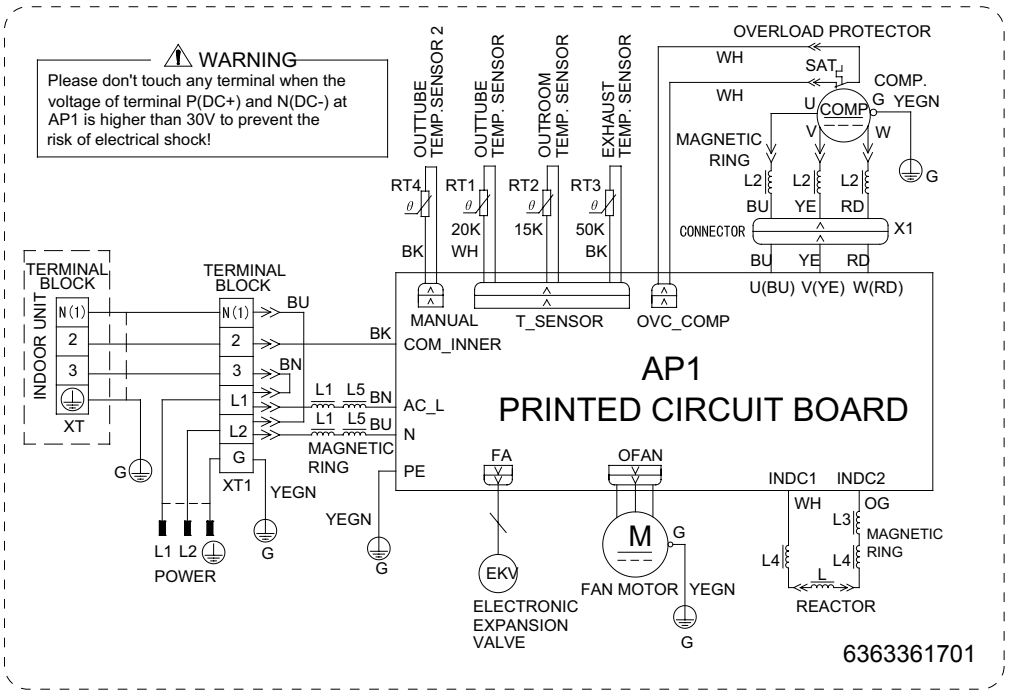
GMX160182CUE



GMX160182CUE GMX160242CUE



GMX160242HWE

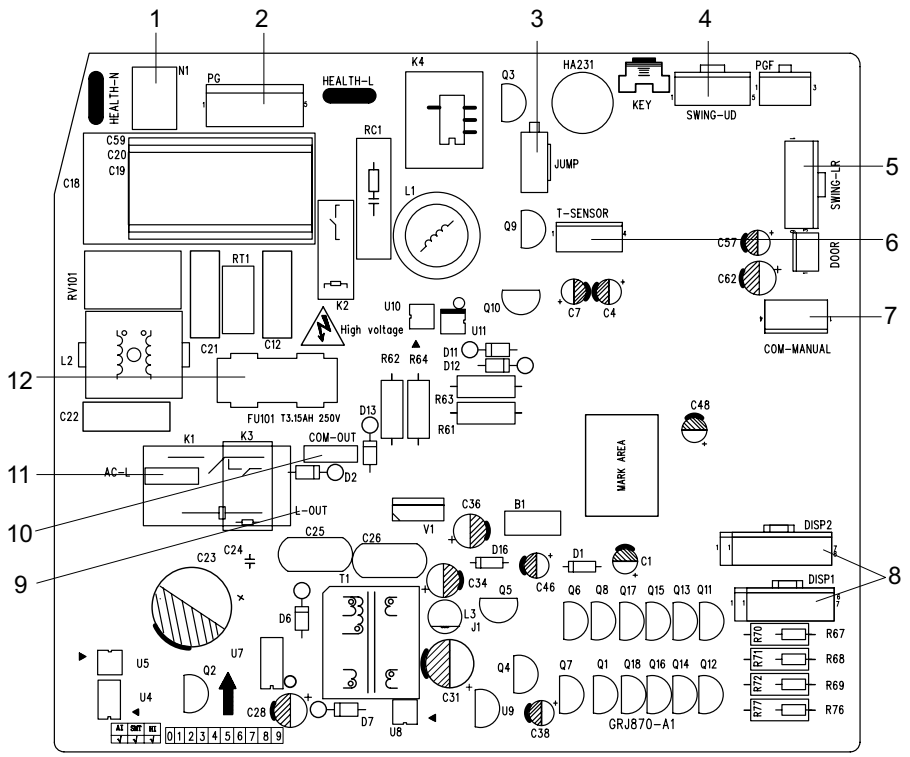


5.2 PCB Printed Diagram

GMX160182HWE GMX160242HWE

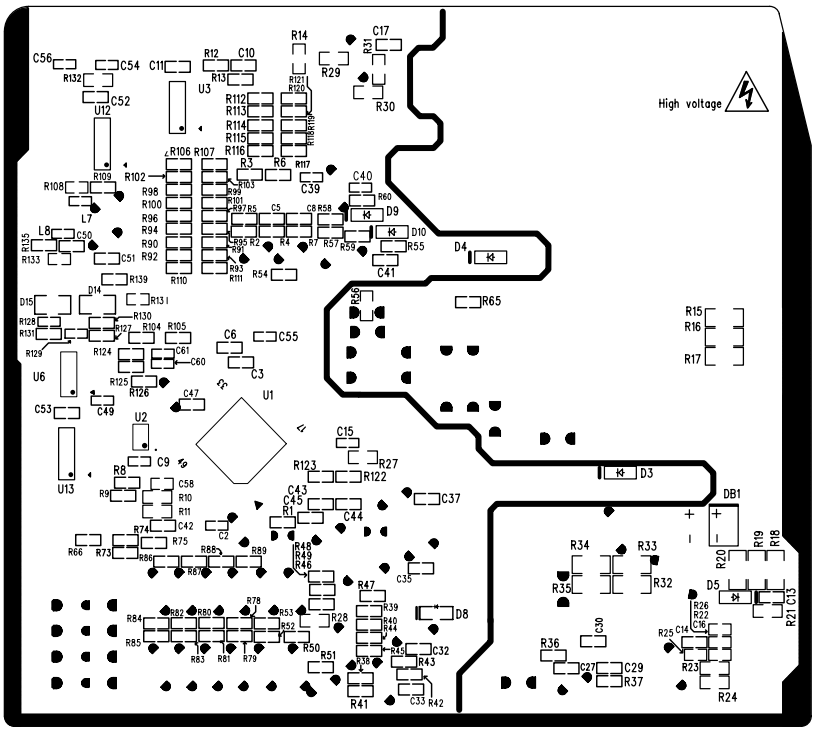
Indoor Unit

● Top view



1	Neutral wire
2	Motor of indoor fan
3	Jumper cap
4	Up&down swing motor
5	Feedback interface of indoor fan
6	Interface of temperature sensor
7	Interface of wired controller(only for the mode with this function)
8	Display interface
9	Control port of compressor
10	Interface of communication circuit
11	Live wire
12	Fuse

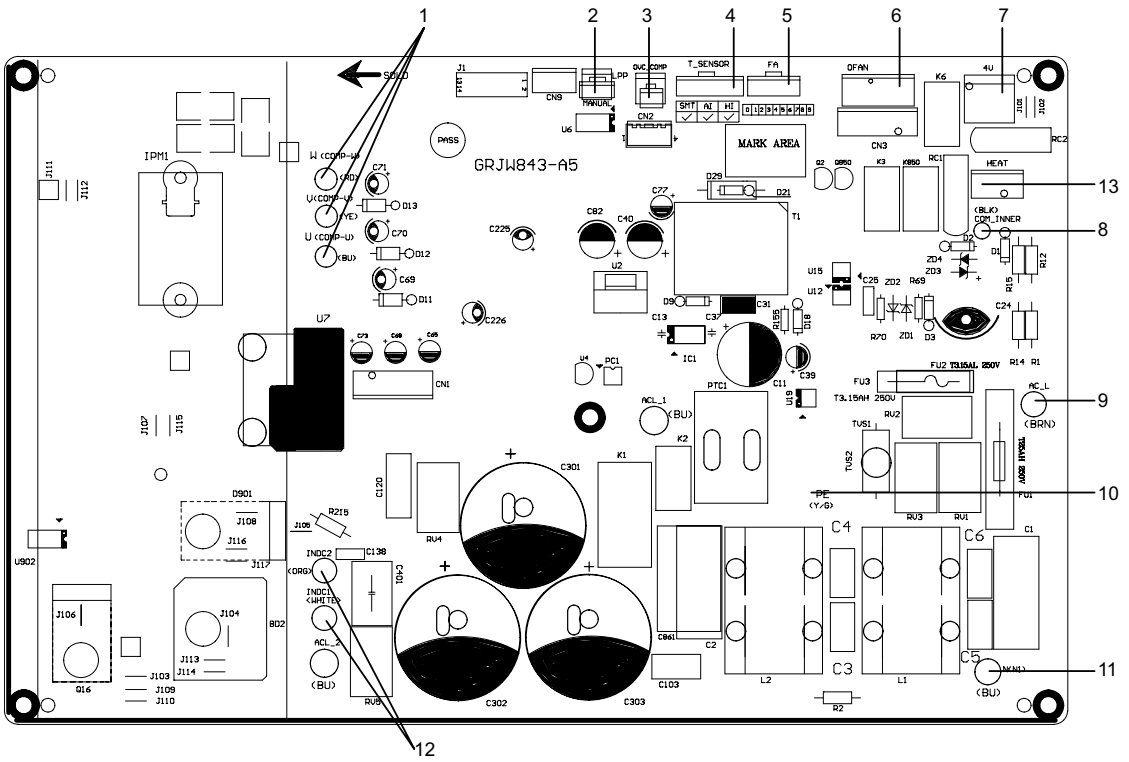
● Bottom view



Outdoor Unit

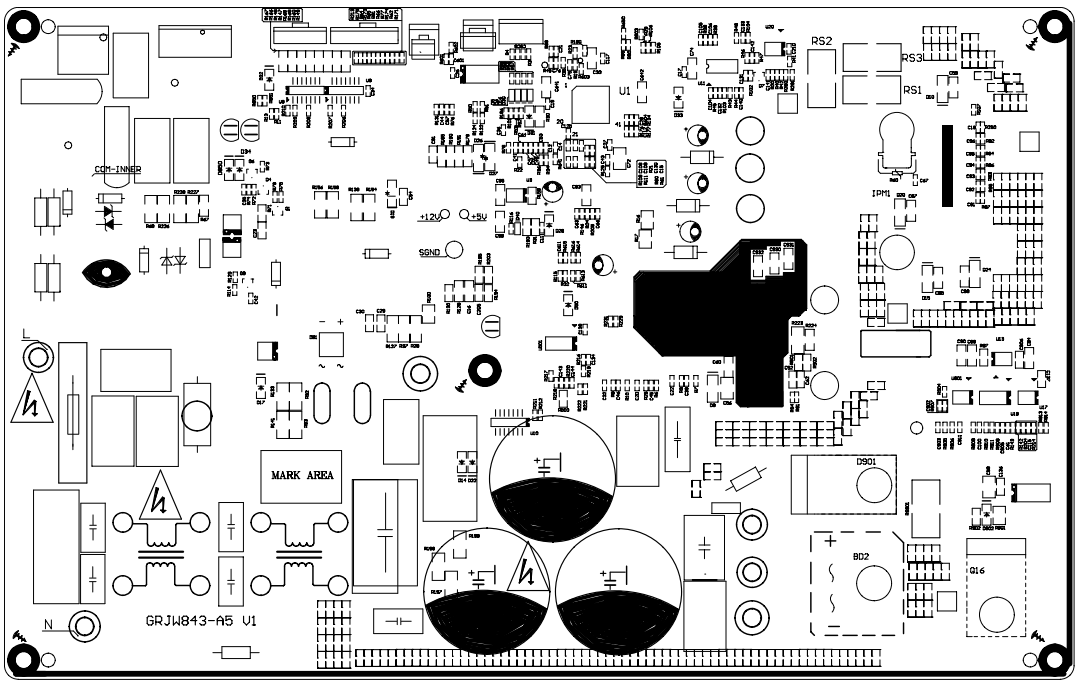
GMX160182CUE

● Top view



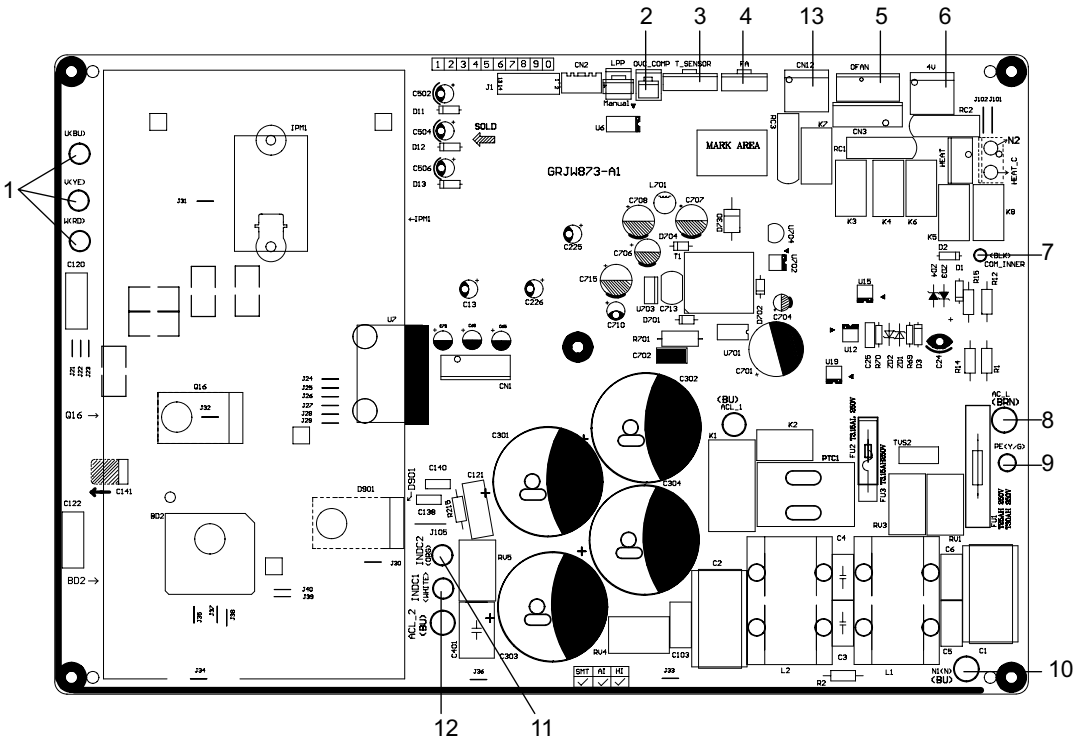
1	Terminal of compressor wire
2	Temperature sensor terminal of outdoor heat exchanger middle copper pipe
3	Terminal of compressor overload protection
4	Terminal of outdoor temperature sensor
5	Terminal of electronic expansion valve
6	Terminal of outdoor fan
7	Terminal of 4-way valve
8	Communication wire with indoor unit
9	Power supply live wire
10	Earthing wire
11	Power supply neutral wire
12	PFC induction wire
13	Terminal of chassis electric heater

● Bottom view



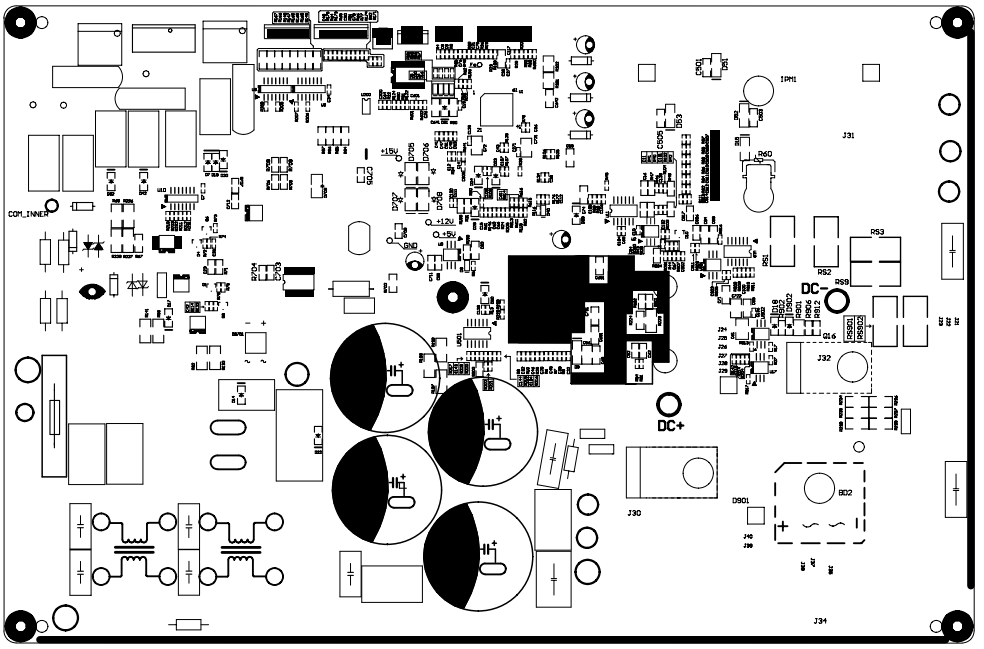
GMX160242CUE

• Top view

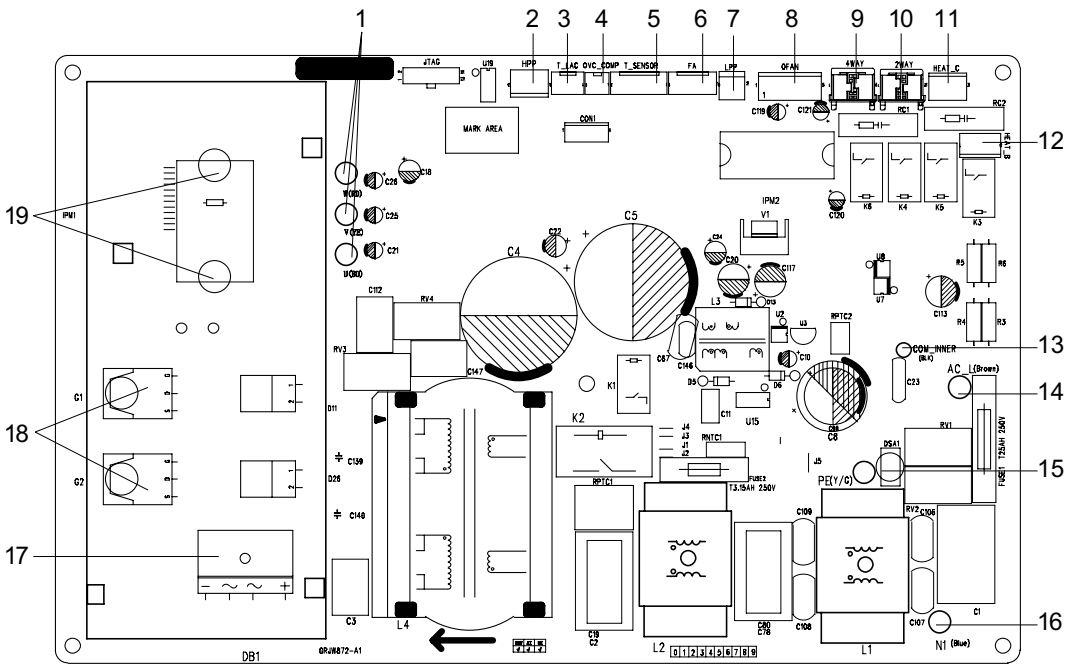


1	Compressorinter face
2	Compressor overload protector
3	Temperature sensor
4	Electric expansion valve
5	Outdoor fan
6	4-way valve
7	Communication interface with indoor unit
8	Live wire
9	Earthing wire
10	Neutral wire
11	Reactor interface 2
12	Reactor interface 1
13	2-way valve interface

• Bottom view

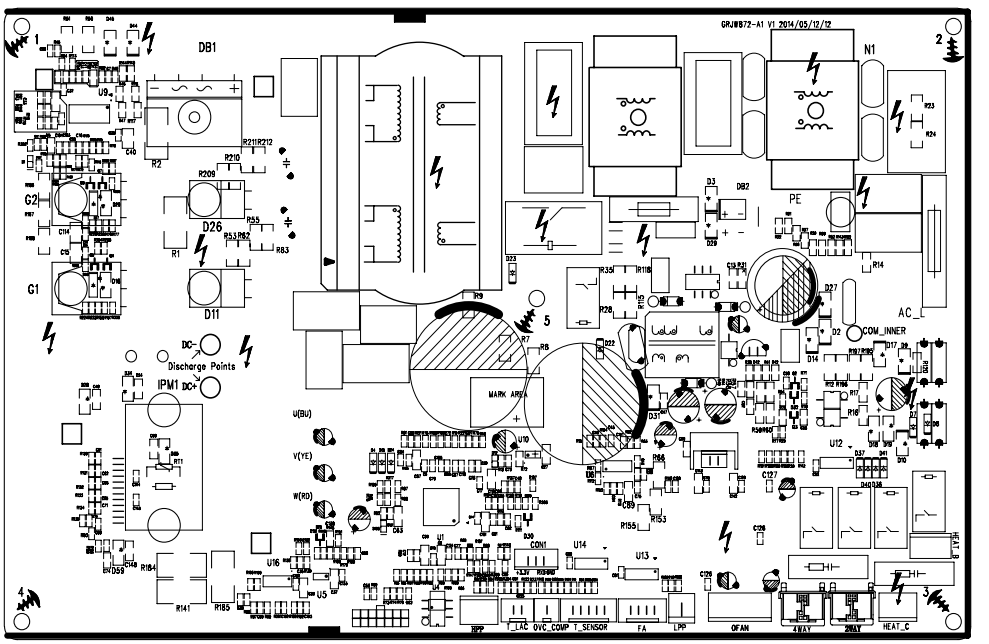


● Top view



1	Interface of compressor
2	High pressure protection of system
3	Low-temperature cooling temperature sensor
4	Overload protection of compressor
5	Interface of temperature sensor
6	Electronic expansion valve
7	Low pressure protection of system
8	Interface of fan
9	Interface of 4-way valve
10	Interface of 2-way valve
11	Electric heating belt of chassis
12	lectric heating belt of chassis
13	Communication interface for indoor unit and outdoor unit
14	Live wire
15	Earthing wire
16	Neutral wire
17	Rectifier
18	IGBT
19	IPM1

● Bottom view



6. Function and Control

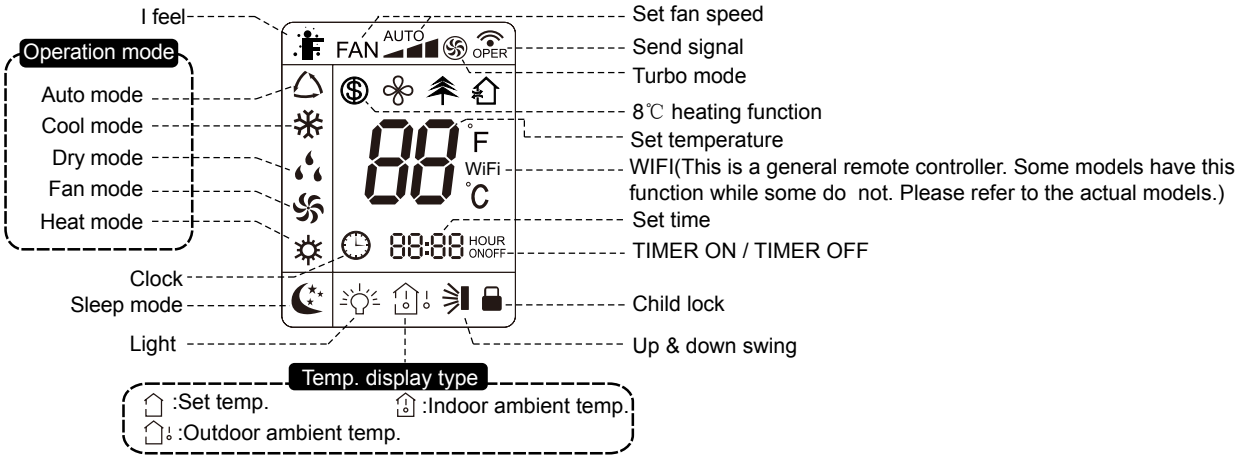
6.1 Remote Controller Introduction

Buttons on Remote Controller



1. ON/OFF button
2. MODE button
3. FAN button
4. SWING button
5. TURBO button
6. ▲/ ▼button
7. SLEEP button
8. TEMP button
9. I FEEL button
10. LIGHT button
11. CLOCK button
12. TIMER ON / TIMER OFF button

Introduction for icons on display screen



Introduction for buttons on remote controller

Note:

● This is a general use remote controller, it could be used for the air conditionerswith multifunction; For some function, which the model doesn't have, if pressthe corresponding button on the remote controller that the unit will keep theoriginal running status.

● After putting through the power, the air conditioner will give out a sound. Operation indictor " ⏻ " is ON (red indicator). After that, you can operate the air conditioner by using remote controller.

● Under on status, pressing the button on the remote controller, the signal icon " ((•)) "on the display of remote controller will blink once and the air conditioner will give out a “de” sound, which means the signal has been sent to the air conditioner.

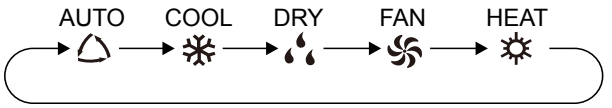
● Under off status, set temperature and clock icon will be displayed on the display of remote controller (If timer on, timer off and light functions are set, the corre- sponding icons will be displayed on the display of remote controller at the same time); Under on status, the display will show the corresponding set function icons.

1. ON/OFF button

Press this button can turn on or turn off the air conditioner. After turning on the air conditioner, operation indicator " ⏻ "on indoor unit's display is ON (green indicator. The colour is different for different models), and indoor unit will give out a sound.

2. MODE button

Press this button to select your required operation mode.



- When selecting auto mode, air conditioner will operate automatically according to ex-factory setting. Set temperature can't be adjusted and will not be displayed as well. Press "FAN" button can adjust fan speed. Press "SWING" button can adjust fan blowing angle.
- After selecting cool mode, air conditioner will operate under cool mode. Cool indicator " ❄ "on indoor unit is ON. Press "▲" or " ▼ " button to adjust set temperature. Press "FAN" button to adjust fan speed. Press "SWING" button to adjust fan blowing angle.
- When selecting dry mode, the air conditioner operates at low speed under dry mode. Dry indicator " 💧 " on indoor unit is ON. Under dry mode, fan speed can't be adjusted. Press "SWING" button to adjust fan blowing angle.
- When selecting fan mode, the air conditioner will only blow fan, no cooling and no heating. All indicators are OFF. Press "FAN" button to adjust fan speed. Press "SWING" button to adjust fan blowing angle.
- When selecting heating mode, the air conditioner operates under heat mode. Heat indicator " ☼ " on indoor unit is ON. Press "▲" or " ▼ " button to adjust set temperature. Press "FAN" button to adjust fan speed. Press "SWING" button to adjust fan blowing angle. (Cooling only unit won't receive heating mode signal. If setting heat mode with remote controller, press ON/OFF button can't start up the unit).

Note:

- For preventing cold air, after starting up heating mode, indoor unit will delay 1~5 minutes to blow air (actual delay time is depend on indoor ambient temperature).
- Set temperature range from remote controller: 16~30℃ ; Fan speed: auto, low speed, medium speed, high speed.

3. FAN button

Pressing this button can set fan speed circularly as: auto (AUTO), low(◢) ,medium(◢◢), high(◢◢▮).

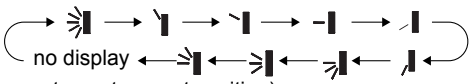


Caution:

- Under AUTO speed, air conditioner will select proper fan speed automatically according to ex-factory setting.
- Fan speed under dry mode is low speed.

4. SWING button

Press this button can select up&down swing angle. Fan blow angle can be selected circularly as below:



(horizontal louvers stops at current position)

- When selecting " ", air conditioner is blowing fan automatically. Horizontal louver will automatically swing up & down at maximum angle.
- When selecting "▮、▮、▮、▮、▮", air conditioner is blowing fan at fixed position. Horizontal louver will stop at the fixed position.
- When selecting " ▮、▮、▮ " , air conditioner is blowing fan at fixed angle. Horizontal louver will send air at the fixed angle.
- Hold " " button above 2s to set your required swing angle. When reaching your required angle, release the button.

Note:

- "▮、▮、▮ " may not be available. When air conditioner receives this signal, the air conditioner will blow fan automatically.

5. TURBO button

Under COOL or HEAT mode, press this button to turn to quick COOL or quick HEAT mode. " ֍ " icon is displayed on remote controller. Press this button again to exit turbo function and " ֍ " icon will disappear.

6. ▲/▼ button

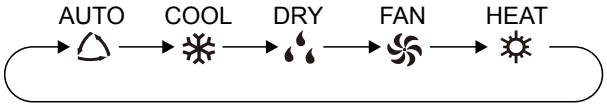
- Press "▲" or "▼" button once increase or decrease set temperature 1℃ . Holding "▲" or "▼" button, 2s later, set temperature on remote controller will change quickly. On releasing button after setting is finished, temperature indicator on indoor unit will change accordingly. (Temperature can't be adjusted under auto mode)
- When setting TIMER ON, TIMER OFF or CLOCK, press "▲" or "▲" button to adjust time. (Refer to CLOCK, TIMER ON, TIMER OFF buttons) When setting TIMER ON, TIMER OFF or CLOCK, press "▲" or "▲" button to adjust time. (Refer to CLOCK, TIMER ON, TIMER OFF buttons)

1. ON/OFF button

Press this button can turn on or turn off the air conditioner. After turning on the air conditioner, operation indicator " ⏻ "on indoor unit's display is ON (green indicator. The colour is different for different models), and indoor unit will give out a sound.

2. MODE button

Press this button to select your required operation mode.



- When selecting auto mode, air conditioner will operate automatically according to ex-factory setting. Set temperature can't be adjusted and will not be displayed as well. Press "FAN" button can adjust fan speed. Press "SWING" button can adjust fan blowing angle.
- After selecting cool mode, air conditioner will operate under cool mode. Cool indicator " ❄ "on indoor unit is ON. Press "▲" or " ▼ " button to adjust set temperature. Press "FAN" button to adjust fan speed. Press "SWING" button to adjust fan blowing angle.
- When selecting dry mode, the air conditioner operates at low speed under dry mode. Dry indicator " 💧 " on indoor unit is ON. Under dry mode, fan speed can't be adjusted. Press "SWING" button to adjust fan blowing angle.
- When selecting fan mode, the air conditioner will only blow fan, no cooling and no heating. All indicators are OFF. Press "FAN" button to adjust fan speed. Press "SWING" button to adjust fan blowing angle.
- When selecting heating mode, the air conditioner operates under heat mode. Heat indicator " ☼ " on indoor unit is ON. Press "▲" or " ▼ " button to adjust set temperature. Press "FAN" button to adjust fan speed. Press "SWING" button to adjust fan blowing angle. (Cooling only unit won't receive heating mode signal. If setting heat mode with remote controller, press ON/OFF button can't start up the unit).

Note:

- For preventing cold air, after starting up heating mode, indoor unit will delay 1~5 minutes to blow air (actual delay time is depend on indoor ambient temperature).
- Set temperature range from remote controller: 16~30℃ ; Fan speed: auto, low speed, medium speed, high speed.

3. FAN button

Pressing this button can set fan speed circularly as: auto (AUTO), low(◢) ,medium(◢◢), high(◢◢▮).

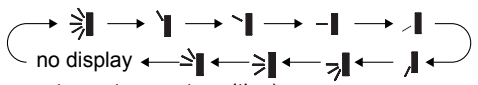


Caution:

- Under AUTO speed, air conditioner will select proper fan speed automatically according to ex-factory setting.
- Fan speed under dry mode is low speed.

4. SWING button

Press this button can select up&down swing angle. Fan blow angle can be selected circularly as below:



(horizontal louvers stops at current position)

- When selecting " ", air conditioner is blowing fan automatically. Horizontal louver will automatically swing up & down at maximum angle.
- When selecting " 、 、 、 、 ", air conditioner is blowing fan at fixed position. Horizontal louver will stop at the fixed position.
- When selecting " 、 、 " , air conditioner is blowing fan at fixed angle. Horizontal louver will send air at the fixed angle.
- Hold " "button above 2s to set your required swing angle. When reaching your required angle, release the button.

Note:

- " 、 、 " may not be available. When air conditioner receives this signal, the air conditioner will blow fan automatically.

5. TURBO button

Under COOL or HEAT mode, press this button to turn to quick COOL or quick HEAT mode. " ֍ " icon is displayed on remote controller. Press this button again to exit turbo function and " ֍ " icon will disappear.

6. ▲/▼ button

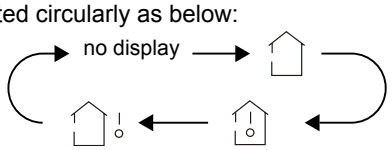
- Press "▲" or "▼" button once increase or decrease set temperature 1℃ . Holding "▲" or "▼" button, 2s later, set temperature on remote controller will change quickly. On releasing button after setting is finished, temperature indicator on indoor unit will change accordingly. (Temperature can't be adjusted under auto mode)
- When setting TIMER ON, TIMER OFF or CLOCK, press "▲" or "▲" button to adjust time. (Refer to CLOCK, TIMER ON, TIMER OFF buttons) When setting TIMER ON, TIMER OFF or CLOCK, press "▲" or "▲" button to adjust time. (Refer to CLOCK, TIMER ON, TIMER OFF buttons)

7. SLEEP button

Under COOL, HEAT or DRY mode, press this button to start up sleep function. " " icon is displayed on remote controller. Press this button again to cancel sleep function and " " icon will disappear.

8. TEMP button

By pressing this button, you can see indoor set temperature, indoor ambient temperature or outdoor ambient temperature on indoor unit's display. The setting on remote controlleris selected circularly as below:



- When selecting " " or no display with remote controller, temperature indicator on indoor unit displays set temperature.
- When selecting " " with remote controller, temperature indicator on indoor unit displays indoor ambient temperature.
- When selecting " " with remote controller, temperature indicator on indoor unit displays outdoor ambient temperature.

Note:

- Outdoor temperature display is not available for some models. At that time, indoor unit receives " "signal, while it displays indoor set temperature.
- It's defaulted to display set temperature when turning on the unit.There is no display in the remote controller.
- Only for the models whose indoor unit has dual-8 display.
- When selecting displaying of indoor or outdoor ambient temperature, indoor temperature indicator displays corresponding temperature and automatically turn to display set temperature after three or five seconds.

9. I FEEL button

Press this button to start I FEEL function and " " will be displayed on the remote controller. After this function is set, the remote controller will send the detected ambient temperature to the controller and the unit will automatically adjust the indoor temperature according to the detected temperature. Press this button again to close I FEEL function and " " will disappear.

- Please put the remote controller near user when this function is set. Do not put the remote controller near the object of high temperature or low temperature in order to avoid detecting inaccurate ambient temperature.
- When I FEEL function is turned on, the remote controller should be put within the area where indoor unit can receive the signal sent by the remote controller.

10. LIGHT button

Press this button to turn off display light on indoor unit. " " icon on remote controller disappears. Press this button again to turn on display light. " " icon is displayed.

11. CLOCK button

Press this button to set clock time. " " icon on remote controller will blink. Press "▲" or "▼" button within 5s to set clock time. Each pressing of "▲" or "▼" button, clock time will increase or decrease 1 minute. If hold "▲" or "▼" button, 2s later, time will change quickly. Release this button when reaching your required time. Press "CLOCK" button to confirm the time. " " icon stops blinking.

Note:

- Clock time adopts 24-hour mode.
- The interval between two operation can't exceeds 5s. Otherwise, remote controller will quit setting status. Operation for TIMER ON/TIMER OFF is the same.

12. TIMER ON / TIMER OFF button

- TIMER ON button

  "TIMER ON" button can set the time for timer on. After pressing this button, " " icon disappears and the word "ON" on remote controller blinks. Press "▲" or "▼"button to adjust TIMER ON setting. After each pressing "▲" or "▼" button, TIMER ON setting will increase or decrease 1min. Hold "▲" or "▼" button, 2s later, the time will change quickly until reaching your required time. Press "TIMER ON" to confirm it. The word "ON" will stop blinking. " " icon resumes displaying. Cancel TIMER ON: Under the condition that TIMER ON is started up, press "TIMER ON" button to cancel it.
- TIMER OFF button

  "TIMER OFF" button can set the time for timer off. After pressing this button," " icon disappears and the word "OFF" on remote controller blinks. Press "▲" or "▼" button to adjust TIMER OFF setting. After each pressing "▲" or "▼" button,
  TIMER OFF setting will increase or decrease 1min. Hold "▲" or "▼" button, 2s later, the time will change quickly until reaching your required time. Press "TIMER OFF" word "OFF" will stop blinking. " " icon resumes displaying. Cancel TIMER OFF. Under the condition that TIMER OFF is started up, press "TIMER OFF" button to cancel it.

Note:

- Under on and off status, you can set TIMER OFF or TIMER ON simultaneously.
- Before setting TIMER ON or TIMER OFF, please adjust the clock time.
- After starting up TIMER ON or TIMER OFF, set the constant circulating valid. After that, air conditioner will be turned on or turned off according to setting time. ON/OFF button has no effect on setting. If you don't need this function, please use remote controller to cancel it.

Function introduction for combination buttons

1. Energy-saving function

Under cooling mode, press "TEMP" and " CLOCK" buttons simultaneously to start up or turn off energy-saving function. When energy-saving function is started up, "SE" will be shown on remote controller, and air conditioner will adjust the set temperature automatically according to ex-factory setting to reach to the best energy-saving effect. Press "TEMP" and "CLOCK"buttons simultaneously again to exit energy-saving function.

Note:

- Under energy-saving function, fan speed is defaulted at auto speed and it can't be adjusted.
- Under energy-saving function, set temperature can't be adjusted. Press "TURBO" button and the remote controller won't send signal.
- Sleep function and energy-saving function can't operate at the same time. If energy-saving function has been set under cooling mode, press sleep button will cancel energy-saving function. If sleep function has been set under cooling mode, start up the energy-saving function will cancel sleep function.

2. 8 ℃ heating function

Under heating mode, press "TEMP" and "CLOCK" buttons simultaneously to start up or turn off 8℃ heating function. When this function is started up, " ⓢ " and "8℃ " will be shown on remote controller, and the air conditioner keep the heating status at 8℃ . Press "TEMP" and "CLOCK" buttons simultaneously again to exit 8℃ heating function.

Note:

- Under 8℃ heating function, fan speed is defaulted at auto speed and it can't be adjusted.
- Under 8℃ heating function, set temperature can't be adjusted. Press "TURBO" button and the remote controller won't send signal.
- Sleep function and 8℃ heating function can't operate at the same time. If 8℃ heating function has been set under cooling mode, press sleep button will cancel 8℃ heating function. If sleep function has been set under cooling mode, start up the 8℃ heating function will cancel sleep function.
- Under ℉ temperature display, the remote controller will display 46 ℉ heating.

3. Child lock function

Press "▲" and " ▼" simultaneously to turn on or turn off child lock function. When child lock function is on, " 🔒 " icon is displayed on remote controller. If you operate the remote controller, the " 🔒 " icon will blink three times without sending signal to the unit.

4. Temperature display switchover function

Under OFF status, press " ▼" and "MODE" buttons simultaneously to switch temperature display between ℃ and ℉ .

5. About WIFI function(This unit is without WiFi function)

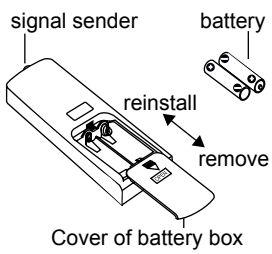
Press "MODE" and "TURBO" button simultaneously to turn on or turn off WIFI function. When WIFI function is turned on, the " **WIFI** " icon will be displayed on remote controller; Long press "MODE" and "TURBO" buttons simultaneously for 10s, remote controller will send WIFI reset code and then the WIFI function will be turned on. WIFI function is defaulted ON after energization of the remote controller.

Operation guide

1. After putting through the power, press "ON/OFF" button on remote controller to turn on the air conditioner.
2. Press "MODE" button to select your required mode: AUTO, COOL, DRY, FAN, HEAT.
3. Press "▲" or " ▼" button to set your required temperature. (Temperature can't be adjusted under auto mode).
4. Press "FAN" button to set your required fan speed: auto, low, medium and high speed.
5. Press "SWING" button to select fan blowing angle.

Replacement of batteries in remote controller

1. Press the back side of remote controller marked with " OPEN ", as shown in the fig, and then push out the cover of battery box along the arrow direction.
2. Replace two 7# (AAA 1.5V) dry batteries, and make sure the position of "+" polar and "-" polar are correct.
3. Reinstall the cover of battery box.



Note:

- During operation, point the remote control signal sender at the receiving window on indoor unit.
- The distance between signal sender and receiving window should be no more than 8m, and there should be no obstacles between them.
- Signal may be interfered easily in the room where there is fluorescent lamp or wireless telephone; remote controller should be close to indoor unit during operation.
- Replace new batteries of the same model when replacement is required.
- When you don't use remote controller for a long time, please take out the batteries.
- If the display on remote controller is fuzzy or there's no display, please replace batteries.

6.2 Brief Description of Modes and Functions

1.Basic function of system

(1)Cooling mode

(1) Under this mode, fan and swing operates at setting status. Temperature setting range is 60.8~86.0^{O}F.

(2) During malfunction of outdoor unit or the unit is stopped because of protection, indoor unit keeps original operation status.

(2)Drying mode

(1) Under this mode, fan operates at low speed and swing operates at setting status. Temperature setting range is 60.8~86.0^{O}F.

(2) During malfunction of outdoor unit or the unit is stopped because of protection, indoor unit keeps original operation status.

(3) Protection status is same as that under cooling mode.

(4) Sleep function is not available for drying mode.

(3)Heating mode

(1) Under this mode, Temperature setting range is 60.8~86.0^{O}F.

(2) Working condition and process for heating mode:

When turn on the unit under heating mode, indoor unit enters into cold air prevention status. When the unit is stopped or at OFF status, and indoor unit has been started up just now, the unit enters into residual heat-blowing status.

(4)Working method for AUTO mode:

1.Working condition and process for AUTO mode:

a.Under AUTO mode, standard heating Tpreset=68.0^{O}F and standard cooling Tpreset=77.0^{O}F. The unit will switch mode automatically according to ambient temperature.

2.Protection function

a. During cooling operation, protection function is same as that under cooling mode.

b. During heating operation, protection function is same as that under heating mode.

3. Display: Set temperature is the set value under each condition. Ambient temperature is (Tamb.-Tcompensation) for heat pump unit and Tamb. for cooling only unit.

4. If there's I feel function, Tcompensation is 0. Others are same as above.

(5)Fan mode

Under this mode, indoor fan operates at set fan speed. Compressor, outdoor fan, 4-way valve and electric heating tube stop operation. Indoor fan can select to operate at high, medium, low or auto fan speed. Temperature setting range is 60.8~86.0^{O}F.

2. Other control

(1) Buzzer

Upon energization or availably operating the unit or remote controller, the buzzer will give out a beep.

(2) Auto button

If press this auto button when turning off the unit, the complete unit will operate at auto mode. Indoor fan operates at auto fan speed and swing function is turned on. Press this auto button at ON status to turn off the unit.

(3) Auto fan

Heating mode: During auto heating mode or normal heating ode, auto fan speed will adjust the fan speed automatically according to ambient temperature and set temperature.

(4) Sleep

After setting sleep function for a period of time, system will adjust set temperature automatically.

(5) Timer function:

General timer and clock timer functions are compatible by equipping remote controller with different functions.

(6) Memory function

memorize compensation temperature, off-peak energization value.

Memory content: mode, up&down swing, light, set temperature, set fan speed, general timer (clock timer can't be memorized).

After power recovery, the unit will be turned on automatically according to memory content.

(7) Health function

During operation of indoor fan, set health function by remote controller. Turn off the unit will also turn off health function.

Turn on the unit by pressing auto button, and the health is defaulted ON.

(8)I feel control mode

After controller received I feel control signal and ambient temperature sent by remote controller, controller will work according to the ambient temperature sent by remote controller.

(9)Compulsory defrosting function

(1) Start up compulsory defrosting function

Under ON status, set heating mode with remote controller and adjust the temperature to 60.8^{O}F. Press "+, -, +, -, +,-" button successively within 5s and the complete unit will enter into compulsory defrosting status. Meanwhile, heating indicator on indoor unit will ON 10s and OFF 0.5s successively. (Note: If complete unit has malfunction or stops operation due to protection, compulsory defrosting function can be started up after malfunction or protection is resumed.

(2) Exit compulsory defrosting mode

After compulsory defrosting is started up, the complete unit will exit defrosting operation according to the actual defrosting result, and the complete unit will resume normal heating operation.

(10)Refrigerant recovery function:

(1) Enter refrigerant recycling function

Within 5min after energizing (unit ON or OFF status is ok), continuously press LIGHT button for 3 times within 3s to enter refrigerant recycling mode; Fo is displayed and refrigerant recycling function is started. At this moment, the maintenance people closes liquid valve. After 5min, stick the thimble of maintenance valve with a tool. If there is no refrigerant spraying out, close the gas valve immediately and then turn off the unit to remove the connection pipe.

(2) Exit refrigerant recycling function

After entering refrigerant recycling mode, when receive any remote control signal or enter refrigerant recycling mode for 25min, the unit will exit refrigerant recycling mode automatically If the unit is in standby mode before refrigerant recycling, it will be still in standby mode after finishing refrigerant recycling; if the unit is in ON status before refrigerant recycling, it will still run in original operation mode.

(11)Ambient temperature display control mode

1. When user set the remote controller to display set temperature (corresponding remote control code: 01), current set temperature will be displayed.

2. Only when remote control signal is switched to indoor ambient temperature display status (corresponding remote control code: 10) from other display status (corresponding remote control code: 00, 01,11),controller will display indoor ambient temperature for 3s and then turn back to display set temperature.

Under this mode, indoor fan operates at set fan speed. Compressor, outdoor fan, 4-way valve and electric heating tube stop operation. Indoor fan can select to operate at high, medium, low or auto fan speed. Temperature setting range is 60.8~86.0^{O}F.

(12)Off-peak energization function:

Adjust compressor's minimum stop time. The original minimum stop time is 180s and then we change to:

The time interval between two start-ups of compressor can't be less than 180+T s(0≤T≤15). T is the variable of controller. That's to say the minimum stop time of compressor is 180s~195s. Read-in T into memory chip when refurbish the memory chip each time. After power recovery, compressor can only be started up after 180+T s at least.

(13) SE control mode

The unit operates at SE status.

(14) X-fan mode

When X-fan function is turned on, after turn off the unit, indoor fan will still operate at low speed for 2min and then the complete unit will be turned off. When x-fan function is turned off, after turn off the unit, the complete unit will be turned off directly.

(15) 8º heating function

Under heating mode, you can set 8º heating function by remote controller. The system will operate at 8ºset temperature.

(16) Turbo fan control function

Set turbo function under cooling or heating mode to enter into turbo fan speed. Press fan speed button to cancel turbo wind.

No turbo function under auto, dry or fan mode.

Outdoor Units

1. Input Parameter Compensation and Calibration

(1) Check the ambient temperature compensation function Indoor ambient temperature compensation function.

a. In cooling mode, the indoor ambient temperature participating in computing control = ($T_{\text{indoor ambient temperature}} - \Delta T_{\text{cooling indoor ambient temperature compensation}}$)

b. In heating mode, the indoor ambient temperature participating in computing control= ($T_{\text{indoor ambient temperature}} - \Delta T_{\text{heating indoor ambient temperature compensation}}$)

(2) Check effective judgment controls of parameters

Effective judgment function of the outdoor exhaust temperature thermo-bulb When conditions a and b are satisfied, the outdoor exhaust temperature thermo-bulb is judged not to be connected into place, the mainboard of outer units will display failure of the outdoor exhaust temperature thermo-bulb (not connected into place), stop the machine for repairing, and resume the machine by remote controls of ON/OFF.

a. Judgment of exhaust detection temperature change:

After the compressor starts up and runs for 10 minutes, if the compressor frequency f ≥ 40Hz, and the rising value Texhaust ($T_{\text{exhaust (after start-up for 10 minutes)}} - T_{\text{exhaust (before start-up)}}$) <35.6ºF , the outdoor exhaust temperature thermo-bulb can be judged not to be connected into place (judging once when the power is on the first time).

b. Comparative judgment of exhaust detection temperature and condenser detection temperature ($T_{\text{pipe temperature}} = T_{\text{outdoor pipe temperature in cooling mode}}$, $T_{\text{pipe temperature}} = T_{\text{indoor pipe temperature in heating mode}}$): After the compressor starts up and runs for 10 minutes, if the compressor frequency f ≥ 40Hz, and $T_{\text{pipe temperature}} \geq (T_{\text{exhaust}+37.4})$, the outdoor exhaust temperature thermobulb can be judged not to be connected into place (judging once when power is on the first time).

2. Basic Functions

(1) Cooling Mode

1. Conditions and processes of cooling operation:

(1) If the compressor is shut down, and [Tsetup – ($T_{\text{indoor ambient temperature}} - \Delta T_{\text{cooling indoor ambient temperature compensation}}$)] ≤ 32.9ºF , start up the machine for cooling, the cooling operation will start;

(2) During operations of cooling, if 32ºF ≤ [Tsetup – ($T_{\text{indoor ambient temperature}} - \Delta T_{\text{cooling indoor ambient temperature compensation}}$)] < 35.6ºF , the cooling operation will be still running;

(3) During operations of cooling, if 35.6ºF ≤ [Tsetup – ($T_{\text{indoor ambient temperature}} - \Delta T_{\text{cooling indoor ambient temperature compensation}}$)], the cooling operation will stop after reaching the temperature point.

2. Temperature setting range

(1) If $T_{\text{outdoor ambient temperature}} \geq [T_{\text{low-temperature cooling temperature}}]$, the temperature can be set at: 60.8~86ºF (Cooling at room temperature);

(2) If $T_{\text{outdoor ambient temperature}} < [T_{\text{low-temperature cooling temperature}}]$, the temperature can be set at: 77~86ºF (Cooling at low temperature), that is, the minimum setting temperature for outer units judgment is 77ºF .

(2) Dehumidifying Mode

1. Conditions and processes of dehumidifying operations: Same as the cooling mode;

2. The temperature setting range is: 60.8~86ºF;

(3) Air-supplying Mode

1. The compressor, outdoor fans and four-way valves are switched off;

2. The temperature setting range is: 60.8~86ºF.

(4) Heating Mode

1. Conditions and processes of heating operations: (Tindoor ambient temperature is the actual detection temperature of indoor environment thermo-bulb, Theating indoor ambient temperature compensation is the indoor ambient temperature compensation during heating operations)

(1) If the compressor is shut down, and [($T_{\text{indoor ambient temperature}} - \Delta T_{\text{heating indoor ambient temperature compensation}}$) $-T_{\text{setup}}$] ≤ 32.9ºF , start the machine to enter into heating operations for heating;

(2) During operations of heating, if 32ºF ≤ [($T_{\text{indoor ambient temperature}} - \Delta T_{\text{heating indoor ambient temperature compensation}}$) $-T_{\text{setup}}$] < 35.6ºF , the heating operation will be still running;

(3) During operations of heating, if 35.6ºF ≤ [($T_{\text{indoor ambient temperature}} - \Delta T_{\text{heating indoor ambient temperature compensation}}$) $-T_{\text{setup}}$], the heating operation will stop after reaching the temperature point.

2. The temperature setting range in this mode is: 60.8~86ºF .

3. Special Functions

Defrosting Control

① Conditions for starting defrosting

After the time for defrosting is judged to be satisfied, if the temperature for defrosting is satisfied after detections for continuous 3minutes, the defrosting operation will start.

② Conditions of finishing defrosting

The defrosting operation can exit when any of the conditions below is satisfied:

③ $T_{outdoor\ pipe\ temperature} \geq (T_{outdoor\ ambient\ temperature} - [T_{temperature\ 1\ of\ finishing\ defrosting}]$;

④ The continuous running time of defrosting reaches [tmax. defrosting time].

4. Control Logic

(1) Compressor Control

Start the compressor after starting cooling, heating, dehumidifying operations, and the outer fans start for 5s; When the machine is shutdown, in safety stops and when switching to air-supplying mode, the compressor will stop immediately. In all modes: once the compressor starts up, it will not be allowed to stop until having run for the [tmin. compressor running time] (Note: including cases of shutdown when the temperature point is reached; except the cases requiring stopping the compressor such as fault protection, remote shutdown, mode switching etc.); In all modes: once the compressor stops, it will be allowed be restart after 3-minute delay (Note: The indoor units have a function of power memory, the machine can be restarted after remote shutdown and powering up again without delay).

1. Cooling mode

Start the machine to enter into cooling operation for cooling, the compressor is switched on.

2. Dehumidifying mode

Same as the cooling mode.

3. Air-supplying mode

The compressor is switched off.

4. Heating mode

(1) Start the machine to enter into heating operation for heating, the compressor is switched on.

(2) Defrosting:

a. Defrosting starts: the compressor is shut down, and restarts it after 55-second delay.

b. Defrosting ends: the compressor stops, then starts it after 55-second delay.

(2) Outer Fans Control

Notes:

Only the outer fans run for at least 80s in each air flow speed can the air flow be switched;

After the outer fans run compulsively in high speed for 80s when the machine starts up, control the air flow according to the logic.

After remote shutdown, safety stops, and when the machine stops after reaching the temperature point, as well as after the compressor stops, extend 1 minute, the outer fans will stop (During the period in the 1 minute, the air flow of outer fans can be changed according to the outdoor ambient temperature changes); When running with force, the outdoor fans shall run in the highest air flow.

(3) 4-way valve control

1. The 4-way valve control under the modes of Cooling, dehumidification and supplying air: closing;

2. The status of 4-way valve control under the heating mode: getting power;

(1) 4-way valve power control under heating mode

a. Starts the machine under heating mode, the 4-way valve will get power immediately.

(2) 4-way valve power turn-off control under heating mode

a. When you should turn off the power or switch to other mode under heating mode, the power of 4-way valve will be cut after 2 minutes of the compressor stopped.

b. When all kinds of protection stops, the power of 4-way valve will be cut after delaying 4 minutes.

(3) Defrosting control under heating mode:

a. Defrosting begins: The power of 4-way valve will be cut after 50s of entering into the defrosting compressor.

b. Defrosting stops: The 4-way valve will get power after 50s of exiting the defrosting compressor.

(4) Evaporator frozen-preventing protection function

At the mode of Cooling, dehumidifying:

Evaporator frozen-preventing protection function is allowed to begin after 6 min of starting the compressor.

1. Starting estimation:

After the compressor stopped working for 180s, if $T_{inner\ pipe}$> [$T_{frozen\text{-}preventing\ frequency\text{-}limited\ temperature}$ (the temperature of hysteresis is 35.6ºF)], the machine is only allowed to start for operating, otherwise it should not be started, and should be stopped to treat according to the frozen-preventing protection: Clear the trouble under the mode of power turn-off / heating, and the protection times are not counted.

2. Frequency limited

[$T_{frozen\text{-}preventing\ normal\ speed\ frequency\text{-}reducing\ temperature}$] ≤[$T_{inner\ pipe}$ T frozen-preventing frequency-limited temperature] , you should limit the frequency raising of compressor.

3. Reducing frequency at normal speed:

If [$T_{frozen\text{-}preventing\ high\ speed\ frequency\text{-}reducing\ temperature}$] ≤[$T_{inner\ pipe}$ T frozen-preventing normal speed frequency-reducing temperature], you should adjust the compressor frequency by reducing 8Hz/90s till the lower limit;

4. Reducing frequency at high speed:

If [$T_{frozen\text{-}preventing\ power\ turn\text{-}off\ temperature}$] ≤T inner pipe [$T_{frozen\text{-}preventing\ high\ speed\ frequency\text{-}reducing\ temperature}$] you should adjust the compressor frequency by reducing 30Hz/90s till the lower limit;

5. Power turn-off:

If the $T_{inner\ pipe}$ <[$T_{frozen\text{-}preventing\ power\ turn\text{-}off\ temperature}$], then frozen-preventing protect to stop the machine; If T[frozen-preventing frequency-limited temperature] <$T_{inner\ pipe}$, and the compressor has stopped working for 3 minutes, the whole machine should be allowed to operate.

6. If the frozen-preventing protection power turn-off continuously occurs for six times, it should not be resumed automatically, and you should press the ON/OFF button to resume if the fault keeps on. During the process of running, if the running time of compressor exceeds the t evaporator frozen-preventing protection times zero clearing time , the times of frozen-preventing power turn-off should be cleared to recount. The mode of stopping the machine or transferring to supply air will clear the trouble times immediately (if the trouble can not be resumed, mode transferring will not clear it).

(5) Overload protection function

Overload protection function at the mode of Cooling and dehumidifying

1. Starting estimation:

After the compressor stopped working for 180s, if $T_{outer\ pipe}$ <[$T_{Cooling\ overload\ frequency\text{-}limited\ temperature}$] (the temperature of hysteresis is 35.6ºF), the machine is allowed to start, otherwise it should not be started, and should be stopped to treat according to the overload protection: Clear the trouble at the mode of power turn-off / heating, and the protection times are not counted.

2. Frequency limited

If [$T_{Cooling\ overload\ frequency\text{-}limited\ temperature}$] ≤[$T_{outer\ pipe}$ T Cooling overload frequency reducing temperature at normal speed], you should limit the frequency raising of compressor.

3. Reducing frequency at normal speed and power turn-off:

If [$T_{Cooling\ overload\ frequency\ reducing\ temperature\ at\ high\ speed}$] ≤T outer pipe< [$T_{Cooling\ overload\ power\ turn\text{-}off\ temperature}$] , you should adjust the compressor frequency by reducing 8Hz/90s till the lower limit; After it was running 90s at the lower limit, if [$T_{Cooling\ overload\ frequency\ reducing\ temperature\ at\ normal\ speed}$]≤$T_{outer\ pipe}$, then Cooling overload protects machine stopping;

4. Reducing frequency at high speed and stop machine:

If [$T_{Cooling\ overload\ frequency\ reducing\ temperature\ at\ high\ speed}$]≤$T_{outer\ pipe}$ [$T_{Cooling\ overload\ power\ turn\text{-}off\ temperature}$], you should adjust the compressor frequency by reducing 30Hz/90s till the lower limit; After it was running 90s at the lower limit, if [$T_{Cooling\ overload\ frequency\ reducing\ temperature\ at\ normal\ speed}$] ≤[T outer pipe], then Cooling overload protects machine stopping;

5. Power turn-off:

If the [$T_{Cooling\ overload\ power\ turn\text{-}off\ temperature}$] ≤$T_{outer\ pipe}$, then Cooling overload protects machine stopping; If [$T_{outer\ pipe}$]<[$T_{Cooling\ overload\ frequency\text{-}limited\ temperature}$]and the compressor has been stopped working for 3 minutes, the machine should be allowed to operate.

6. If the Cooling overload protection power turn-off continuously occurs for six times, it should not be resumed automatically, and you should press the ON/OFF button to resume if the fault keeps on. During the process of running, if the running time of compressor exceeds the t overload protection times zero clearing time , the times of overload protection power turn-off should be cleared to recount. The mode of stopping the machine or transferring to supply air will clear the trouble times immediately (if the trouble can not be resumed, transferring mode will not clear it).

Overload protection function at the mode of heating

Starting estimation :

After the compressor stopped working for 180s, if T inner pipe T heating overload frequency-limited temperature (the temperature of hysteresis is 35.6ºF), the machine is allowed to start, otherwise it should not be started, and should be stopped to treat according to the overload protection:

Clear the trouble at the mode of power turn-off / heating, and the protection times are not counted.

1. Frequency limited

If [$T_{heating\ overload\ frequency\text{-}limited\ temperature}$]≤$T_{inner\ pipe}$ <[$T_{heating\ overload\ frequency\ reducing\ temperature\ at\ normal\ speed}$] , you should limit the frequency raising of compressor.

2. Reducing frequency at normal speed and stopping machine:

If T[heating overload frequency reducing temperature at normal speed]≤$T_{inner\ pipe}$<[$T_{heating\ overload\ frequency\ reducing\ temperature\ at\ high\ speed}$], you should adjust the compressor frequency by reducing 8Hz/90s till the lower limit; After it was running 90s at the lower limit, if T heating overload frequency reducing temperature at normal speed ≤T inner pipe, then overload protects machine stopping;

3. Reducing frequency at high speed and power turn-off:

If [$T_{heating\ overload\ frequency\ reducing\ temperature\ at\ high\ speed}$]≤$T_{inner\ pipe}$<[$T_{heating\ overload\ power\ turn\text{-}off\ temperature}$], you should adjust the compressor frequency by reducing 30Hz/90s till the lower limit; After it was running 90s at the lower limit, if T heating overload frequency reducing temperature at normal speed ≤T outer pipe, then Cooling overload protects machine stopping;

4. Power turn-off:

If the [$T_{heating\ overload\ power\ turn\text{-}off\ temperature}$] ≤$T_{inner\ pipe}$, then overload protects machine stopping; If T inner pipe T heating overload frequency-limited temperature and the compressor has been stopped working for 3 minutes, the machine should be allowed to operate.

5. If the overload protection power turn-off continuously occurs for six times, it should not be resumed automatically, and you should press the ON/OFF button to resume if the fault keeps on. During the process of running, if the running time of compressor exceeds the t overload protection times zero clearing time , the times of overload protection power turn-off should be cleared to recount. The mode of stopping the machine or transferring to supply air will clear the trouble times immediately (if the trouble can not be resumed, transferring mode will not clear it). Protective function for discharge temperature of compressor

1. Starting estimation:

After the compressor stopped working for 180s, if $T_{Discharge}$ <$T_{Discharge\ limited\ temperature}$ (the temperature of hysteresis is 35.6ºF), the machine is allowed to start, otherwise it should not be started, and should be stopped to treat according to the discharge temperature:

The machine should be stopped or transferred to supply air, the trouble should be cleared immediately, and the protection times are not counted.

2. Frequency limited

If [$T_{Limited\ frequency\ temperature\ during\ discharging}$] ≤$T_{Discharge}$<[$T_{frequency\ reducing\ temperature\ at\ normal\ speed\ during\ discharging}$] , you should limit the frequency raising of compressor.

3. Reducing frequency at normal speed and stopping machine:

If [$T_{frequency\ reducing\ temperature\ at\ normal\ speed\ during\ discharging}$] ≤$T_{Discharge}$<[$T_{frequency\ reducing\ temperature\ at\ high\ speed\ during\ discharging}$], you should adjust the compressor frequency by reducing 8Hz/90s till the lower limit; After it was running 90s at the lower limit, if [$T_{frequency\ reducing\ temperature\ at\ normal\ speed\ during\ discharging}$] ≤$T_{Discharge}$, you should discharge to protect machine stopping;

4. Reducing frequency at high speed and power turn-off:

If [$T_{frequency\ reducing\ temperature\ at\ high\ speed\ during\ discharging}$] ≤$T_{Discharge}$ <[$T_{Stop\ temperature\ during\ discharging}$], you should adjust

the compressor frequency by reducing 30Hz/90s till the lower limit; After it was running 90s at the lower limit, if [$T_{frequency\ reducing\ temperature\ at\ normal\ speed\ during\ discharging}$] ≤$T_{Discharge}$, you should discharge to protect machine stopping;

5. Power turn-off:

If the [$T_{Power\ turn\text{-}off\ temperature\ during\ discharging}$] ≤$T_{Discharge}$, you should discharge to protect machine stopping; If [$T_{Discharge}$]<[$T_{Limited\ frequency\ temperature\ during\ discharging}$] and the compressor has been stopped for 3 minutes, the machine should be allowed to operate.

6. If the discharging temperature protection of compressor continuously occurs for six times, it should not be resumed automatically, and you should press the ON/OFF button to resume. During the process of running, if the running time of compressor exceeds the t Protection times clearing of discharge , the discharge protection is cleared to recount. Stopped or transferred to supply air mode will clear the trouble times immediately (if the trouble can not be resumed, mode transferring also will not clear it).

7. Frequency limited

If [$I_{Limited\ frequency\ when\ overcurrent}$] ≤$I_{AC\ Electric\ current}$ <[$I_{frequency\ reducing\ when\ overcurrent}$], you should limit the frequency raising of compressor.

8. Reducing frequency:

If [$I_{Frequency\ reducing\ when\ overcurrent}$] ≤[$I_{AC\ Electric\ current}$ I Power turn-off when overcurrent] , you should reduce the compressor frequency till the lower limit or exit the frequency reducing condition;

9. Power turn-off:

If [$I_{Power\ turn\text{-}off\ machine\ when\ overcurrent}$] ≤[$I_{AC\ Electric\ current}$] , you should carry out the overcurrent stopping protection; If I AC Electric current<[$T_{Limited\ frequency\ when\ overcurrent}$] and the compressor has been stopped for 3 minutes, the machine should be allowed to operate.

10. If the overcurrent protection continuously occurs for six times, it should not be resumed automatically, and you should press the ON/OFF button to resume. During the process of running, if the running time of compressor exceeds the [$t_{Protection\ times\ clearing\ of\ over\ current}$] , the discharge protection is cleared to recount.

(6)Voltage sag protection

After start the compressor, if the time of DC link Voltage sag [$U_{Sagging\ protection\ voltage}$] is measured to be less than t Voltage sag protection time , the machine should be stop at once, hand on the voltage sag trouble, reboot automatically after 30 minutes.

(7)Communication fault

When you have not received any correct signal from the inner machine in three minutes, the machine will stop for communication fault. When you have not received any correct signal from driver IC (aim to the controller for the separating of main control IC and driver IC), and the machine will stop for communication fault. If the communication is resumed, the machine will be allowed to operate.

(8)Module protection

Testing the module protective signal immediately after started, once the module protective signal is measured, stop the machine with module protection immediately. If the module protection is resumed, the machine will be allowed to operate. If the module protection continuously occurs for three times, it should not be resumed automatically, and you should press the ON/OFF button to resume. If the running time of compressor exceeds the [$t_{\ Protection\ times\ clearing\ of\ module}$] , the module protection is cleared to recount.

(9)Module overheating protection

1. Starting estimation:

After the compressor stopped working for 180s, if T_{Module}<[$T_{Module\ frequency\ limited\ temperature}$](the temperature of hysteresis is 35.6ºF), the machine is allowed to start, otherwise it should not be started, and should be stopped to treat according to the module overheating protection: The machine should be stopped or transferred to supply air, the trouble should be cleared immediately, and the protection times are not counted.

2. Frequency limited

If [$T_{Limited\ frequency\ temperature\ of\ module}$] ≤$T_{Module}$ <[$T_{frequency\ reducing\ temperature\ at\ normal\ speed\ of\ module}$] , you should limit the frequency raising of compressor.

3. Reducing frequency at normal speed and power turn-off:

If [$T_{frequency\ reducing\ temperature\ at\ normal\ speed\ of\ module}$] ≤$T_{Module}$<[$T_{frequency\ reducing\ temperature\ at\ high\ speed\ of\ module}$], you should adjust the compressor frequency by reducing 8Hz/90s till the lower limit; After it was running 90s at the lower limit, if [$T_{\ frequency\ reducing\ temperature\ at\ normal\ speed\ of\ module}$] ≤T Module, you should stop the machine for module overheating protection;

4. Reducing frequency at high speed and power turn-off:

If [$T_{frequency\ reducing\ temperature\ at\ high\ speed\ of\ module}$]≤$T_{Module}$ <[$T_{Power\ turn\text{-}off\ temperature\ of\ module}$] you should adjust the compressor frequency by reducing 30Hz/90s till the lower limit; After it was running 90s at the lower limit, if [$T_{\ frequency\ reducing\ temperature\ at\ normal\ speed\ of\ module}$] ≤$T_{\ Module}$, you should stop the machine for module overheating protection;

5. Power turn-off:

If the [$T_{Power\ turn\text{-}off\ temperature\ of\ module}$] ≤$T_{Module}$, you should stop the machine for module overheating protection; If T_{Module} <[$T_{Limited\ frequency\ temperature\ of\ module}$] and the compressor has been stopped for 3 minutes, the machine should be allowed to operate.

6. If protection continuously occurs for six times, it should not be resumed automatically, and you should press the ON/OFF button to resume. During the process of running, if the running time of compressor exceeds the [$t_{\ Protection\ times\ clearing\ of\ module}$] , the discharge protection is cleared to recount. Stopped or transferred to supply air mode will clear the trouble times immediately (if the trouble can not be resumed, mode transferring also will not clear it).

(10)Compressor overloads protection

If you measure the compressor overload switch action in 3s, the compressor should be stopped for overloading. The machine should be allowed to operate after overload protection was measured to resume. If the overloading protection continuously occurs for three times, it should not be resumed automatically, and you should press the ON/OFF button to resume. The protection times of compressor is allowed to clear after the compressor run [$t_{\ Protection\ times\ clearing\ of\ compressor\ overloading}$] 30 minutes.

(11)Phase current overcurrent protection of compressor

During the running process of compressor, you could measure the phase current of the compressor, and control it according to the following steps:

1. Frequency limited

If [$I_{\ Limited\ frequency\ phase\ current}$] ≤[$I_{\ Phase\ current\ T\ frequency\ reducing\ phase\ current}$] , you should limit the frequency raising of compressor.

2. Reducing Frequency

If [$I_{\ Frequency\ Reducing\ Phase\ Current}$]≤I Phase Current<[$I_{\ Power\ Turn\text{-}Off\ Phase\ Current}$], the compressor shall continue to reduce frequency till the lowest frequency limit or out of the condition of reducing frequency;

3. Power turn-off

If [$I_{\ Phase\ Current}$]≥[$I_{\ Power\ Turn\text{-}Off\ Phase\ Current}$], the compressor phase current shall stop working for overcurrent protection; if [$I_{\ Phase\ Current}$]≤[$I_{\ Frequency\ Reducing\ Phase\ Current}$], and the compressor have stopped working for 3 min, the machine shall be allowed to operate;

4. If the overcurrent protection of compressor phase current continuously occurs for six times, it should not be resumed automatically, and you should press the ON/OFF button to resume. During the process of running, if the running time of compressor exceeds the [$t_{\ Clearing\ Time\ of\ Compressor\ Phase\ Current\ Times}$] , the overcurrent protection is cleared to recount.

(12) Starting-up Failure Protection for Compressor

Stop the compressor after its starting-up fails, restart it after 20s if the fault doesn't shows, and if they are all failing for the successive start 3 times, it shall be reported as Starting-up Failure, and then restart up it after 3 min. When it still not be able to operate through carry out the above process for 5 times, it is available if press ON/OFF. And the compressor should be cleared the times after it run 2 min.

(13) Out-of-Step Protection for Compressor

The out-of-step protection signal should be detected immediately after starting-up compressor, and once find the out-of-step protection signal, the out-of-step protection shall be stopped; if it can run for lasting power turn-off 3 min, the machine shall be allowed to operate. If it still can't run automatically when the out-of-step protection for compressor happens to stop working for 6 times in succession, it needs to press ON/OFF to operate. And if the running time is more than 10 min, the power turn-off times for out-of-step protection shall be cleared and recounted.

(14) Voltage Abnormity Protection for DC Bus

To detect voltage abnormity protection for dc bus after completing the pre-charge:

1.Over-High Voltage Protection for DC Bus:

If it found the DCbus voltage U_{DC} >[UDC $_{Jiekuangchun\ Protection}$], turn off PFC and stop the compressor at once, and it shall show the DC over-high voltage failure; it should clear out the failure when the voltage dropped to U_{DC} <[UDC $_{Jiekuangchun\ Recovery}$] and the compressor stopped for 3 min.

2.Over-Low Voltage Protection for DC Bus:

If it found the DC bus voltage U_{DC} <[$U_{DC\ Wantuochun\ Protection}$], turn off PFC and stop the compressor at once, and it shall show the DC over-low voltage; and it should clear out the failure when the voltage raised to U_{DC} >[$U_{DC\ Wantuochun\ Recovery}$] and the compressor stopped for 3 min.

3.To detect voltage abnormity protect for DC bus when getting electricity:

If it found the DC bus voltage U_{DC} >[$U_{DC——Over\text{-}High\ Voltage}$], turn off the relay at once, and shows voltage abnormity failure for DC Bus. And the failure can't recover except to break off and get the electricity.

(15)Abnormity Protection for Four-way Valve

Under the model of heating operation in good condition: the compressor is detected [$T_{Inner\ Tube}$ <($T_{Inner\ Ring}$-$T_{Abnormity\ Temperature\ Difference\ For\ Four\text{-}Way\ Valve\ Reversion}$)], during the running, it should be regarded as four-way valve reversion abnormity. And then it can run if stop the reversion abnormity protection for four-way valve 3 min; and if it still can't run when the reversion abnormity protection for four-way valve happens to stop working for 3 times in succession, it is available if presses ON/OFF.

Attention: the protection shall be shielded during the testing mode and defrosting process, and it shall be cleared out the failure and its times immediately when turning off or delivering wind / cooling / dehumidifying mode conversed (the inverted mode don't clear out the failure when it can't recover to operate).

(16) PFC Protection

1. After start up the PFC, it should detect the protection signal of PFC immediately; under the condition of PFC protection, it should turn off the PFC and compressor at one time;
2. It shows the failure is cleared out if PFC Protection stopped working 3 min and recovers to run automatically;
3. If it still can't run when it occurs PFC protection for 3 times in succession, it is available if presses ON/OFF; and clear the PFC Protection times when start up PFC for 10min.

(17) Failure Detection for Sensor

1. Outdoor Ambient Sensor: detect the failure of sensor at all times.
2. Outdoor Tube Sensor: You should not detect the failure of outdoor tube sensor within 10 minutes heating operation compressor except the defrosting, and you could detect it at other time.
3. Outdoor Exhaust Sensor:

(a) The compressor only detect the sensor failure after it start up 3 min in normal mode;

(b) It should detect the exhaust sensor failure immediately in the testing mode.

4. Module Temperature Sensor:

(a) Short-Circuit Detection: the compressor should be detected immediately when the module temperature sensor occurs short-circuits;

(b) Open-Circuit Detection: the compressor should be detected on open-circuit when it runs 3min (it needn't 30s avoiding the module over-heated).

(c) Detect the sensor failure at all times in the testing mode.

5. Disposal for Sensor Protection

(1) When the short-circuit of sensor is detected within 30s, It is regarded as the temperature of sensor over-high (or infinitely high), and now according to the over-high sensor, the machine should carry out the corresponding protection to stop working, and show the corresponding temperature shutdown protection and sensor failure at the same time (for example: the compressor stops immediately when the outdoor tube sensor short-circuit, and the machine shall show the overload protection and outdoor tube sensor failure).

(2) When the open-circuit of sensor is detected within 30s, The protection shall be stopped and it shall show the corresponding sensor failure.

6. Electric Heating Function of Chassis

(1) When Toutdoor amb.≤32ºF , the electric heating of chassis will operate;

(2) When Toutdoor amb.>35.6ºF , the electric heating of chassis will stop operation;

(3)When 32ºF <Toutdoor amb.≤35.6ºF, the electric heating of chassis will keep original status.

7. Electric Heating Function of Compressor

(1) When Toutdoor amb.≤≤23ºF , compressor stops operation, while the electric heating of compressor starts operation;

(2) When Toutdoor amb.>28.4ºF , the electric heating of compressor stops operation;

(3) When 23ºF <Toutdoor amb.≤28.4ºF , the electric heating of compressor will keep original status.

Part Ⅱ : Installation and Maintenance

7. Notes for Installation and Maintenance

Safety Precautions: Important!

Please read the safety precautions carefully before installation and maintenance.
The following contents are very important for installation and maintenance.

Please follow the instructions below.

●The installation or maintenance must accord with the instructions.
●Comply with all national electrical codes and local electrical codes.
●Pay attention to the warnings and cautions in this manual.
●All installation and maintenance shall be performed by distributor or qualified person.
●All electric work must be performed by a licensed technician according to local regulations and the instructions given in this manual.
●Be caution during installation and maintenance. Prohibit incorrect operation to prevent electric shock, casualty and other accidents.

Warnings

Electrical Safety Precautions:

1. Cut off the power supply of air conditioner before checking and maintenance.
2. The air condition must apply specialized circuit and prohibit share the same circuit with other appliances.
3. The air conditioner should be installed in suitable location and ensure the power plug is touchable.
4. Make sure each wiring terminal is connected firmly during installation and maintenance.
5. Have the unit adequately grounded. The grounding wire can't be used for other purposes.
6. Must apply protective accessories such as protective boards, cable-cross loop and wire clip.
7. The live wire, neutral wire and grounding wire of power supply must be corresponding to the live wire, neutral wire and grounding wire of the air conditioner.
8. The power cord and power connection wires can't be pressed by hard objects.
9. If power cord or connection wire is broken, it must be replaced by a qualified person.
10. If the power cord or connection wire is not long enough, please get the specialized power cord or connection wire from the manufacture or distributor. Prohibit prolong the wire by yourself.
11. For the air conditioner without plug, an air switch must be installed in the circuit. The air switch should be all-pole parting and the contact parting distance should be more than 1/8 inch.
12. Make sure all wires and pipes are connected properly and the valves are opened before energizing.
13. Check if there is electric leakage on the unit body. If yes, please eliminate the electric leakage.
14. Replace the fuse with a new one of the same specification if it is burnt down; don't replace it with a cooper wire or conducting wire.
15. If the unit is to be installed in a humid place, the circuit breaker must be installed.

Installation Safety Precautions:

1. Select the installation location according to the requirement of this manual.(See the requirements in installation part)
2. Handle unit transportation with care; the unit should not be carried by only one person if it is more than 44.09lb.
3. When installing the indoor unit and outdoor unit, a sufficient fixing bolt must be installed; make sure the installation support is firm.
4. Ware safety belt if the height of working is above 78 3/4 inch.
5. Use equipped components or appointed components during installation.
6. Make sure no foreign objects are left in the unit after finishing installation.

Refrigerant Safety Precautions:

1. Avoid contact between refrigerant and fire as it generates poisonous gas; Prohibit prolong the connection pipe by welding.
2. Apply specified refrigerant only. Never have it mixed with any other refrigerant. Never have air remain in the refrigerant line as it may lead to rupture or other hazards.
3. Make sure no refrigerant gas is leaking out when installation is completed.
4. If there is refrigerant leakage, please take sufficient measure to minimize the density of refrigerant.
5. Never touch the refrigerant piping or compressor without wearing glove to avoid scald or frostbite.

Improper installation may lead to fire hazard, explosion, electric shock or injury.

Safety Precautions for Installing and Relocating the Unit:

To ensure safety, please be mindful of the following precautions.



Warnings

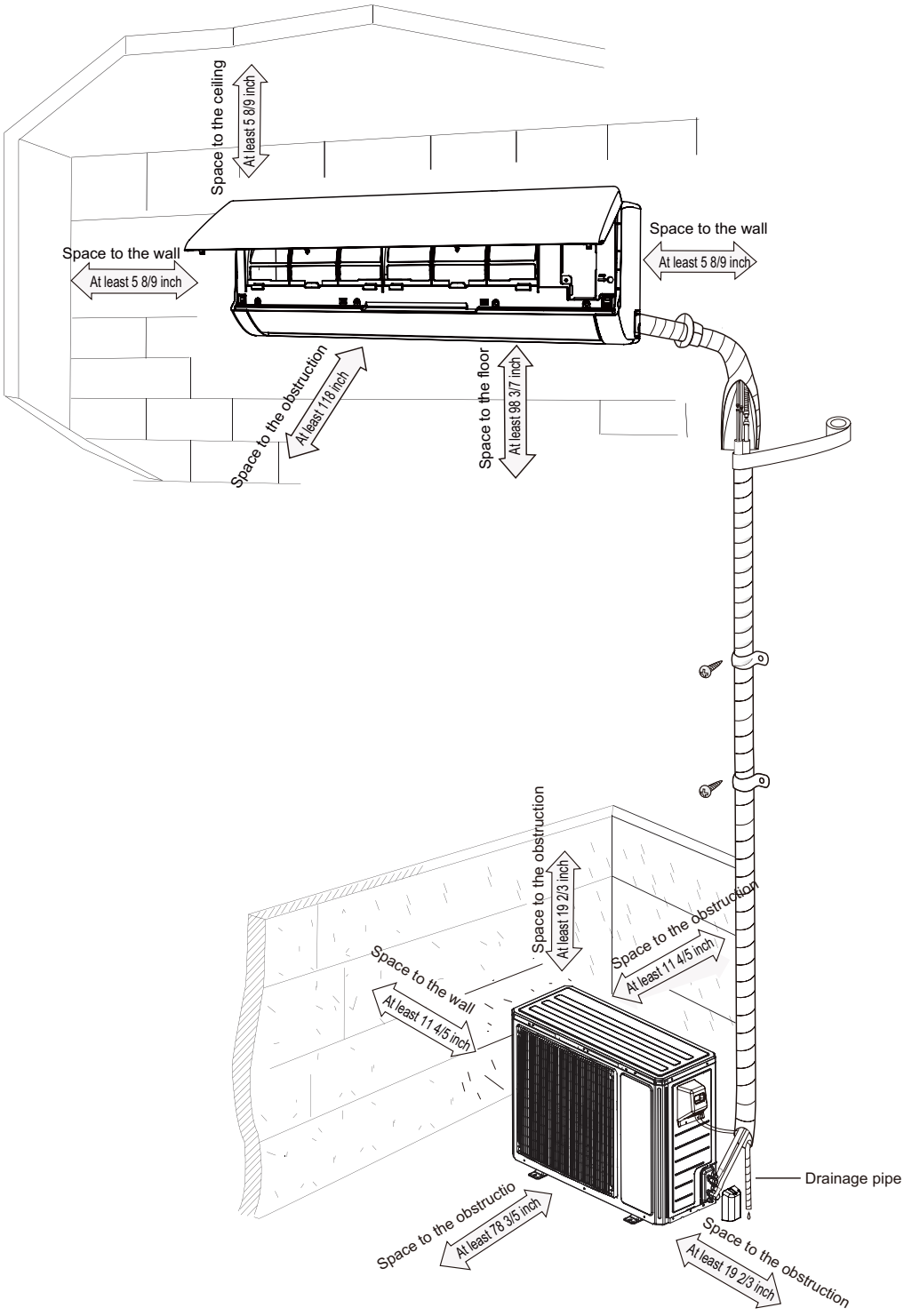
1. When installing or relocating the unit, be sure to keep the refrigerant circuit free from air or substances other than the specified refrigerant.
Any presence of air or other foreign substance in the refrigerant circuit will cause system pressure rise or compressor rupture, resulting in injury.
2.When installing or moving this unit, do not charge the refrigerant which is not comply with that on the nameplate or unqualified refrigerant.
Otherwise, it may cause abnormal operation, wrong action, mechanical malfunction or even series safety accident.
3.When refrigerant needs to be recovered during relocating or repairing the unit, be sure that the unit is running in cooling mode.Then, fully close the valve at high pressure side (liquid valve).About 30-40 seconds later, fully close the valve at low pressure side (gas valve), immediately stop the unit and disconnect power. Please note that the time for refrigerant recovery should not exceed 1 minute.
If refrigerant recovery takes too much time, air may be sucked in and cause pressure rise or compressor rupture, resulting in injury.
4.During refrigerant recovery, make sure that liquid valve and gas valve are fully closed and power is disconnected before detaching the connection pipe.
If compressor starts running when stop valve is open and connection pipe is not yet connected, air will be sucked in and cause pressure rise or compressor rupture, resulting in injury.
5.When installing the unit, make sure that connection pipe is securely connected before the compressor starts running.
If compressor starts running when stop valve is open and connection pipe is not yet connected, air will be sucked in and cause pressure rise or compressor rupture, resulting in injury.
6.Prohibit installing the unit at the place where there may be leaked corrosive gas or flammable gas.
If there leaked gas around the unit, it may cause explosion and other accidents.
7.Do not use extension cords for electrical connections. If the electric wire is not long enough, please contact a local service center authorized and ask for a proper electric wire.
Poor connections may lead to electric shock or fire.
8.Use the specified types of wires for electrical connections between the indoor and outdoor units. Firmly clamp the wires so that their terminals receive no external stresses.
Electric wires with insufficient capacity, wrong wire connections and insecure wire terminals may cause electric shock or fire.

Main Tools for Installation and Maintenance

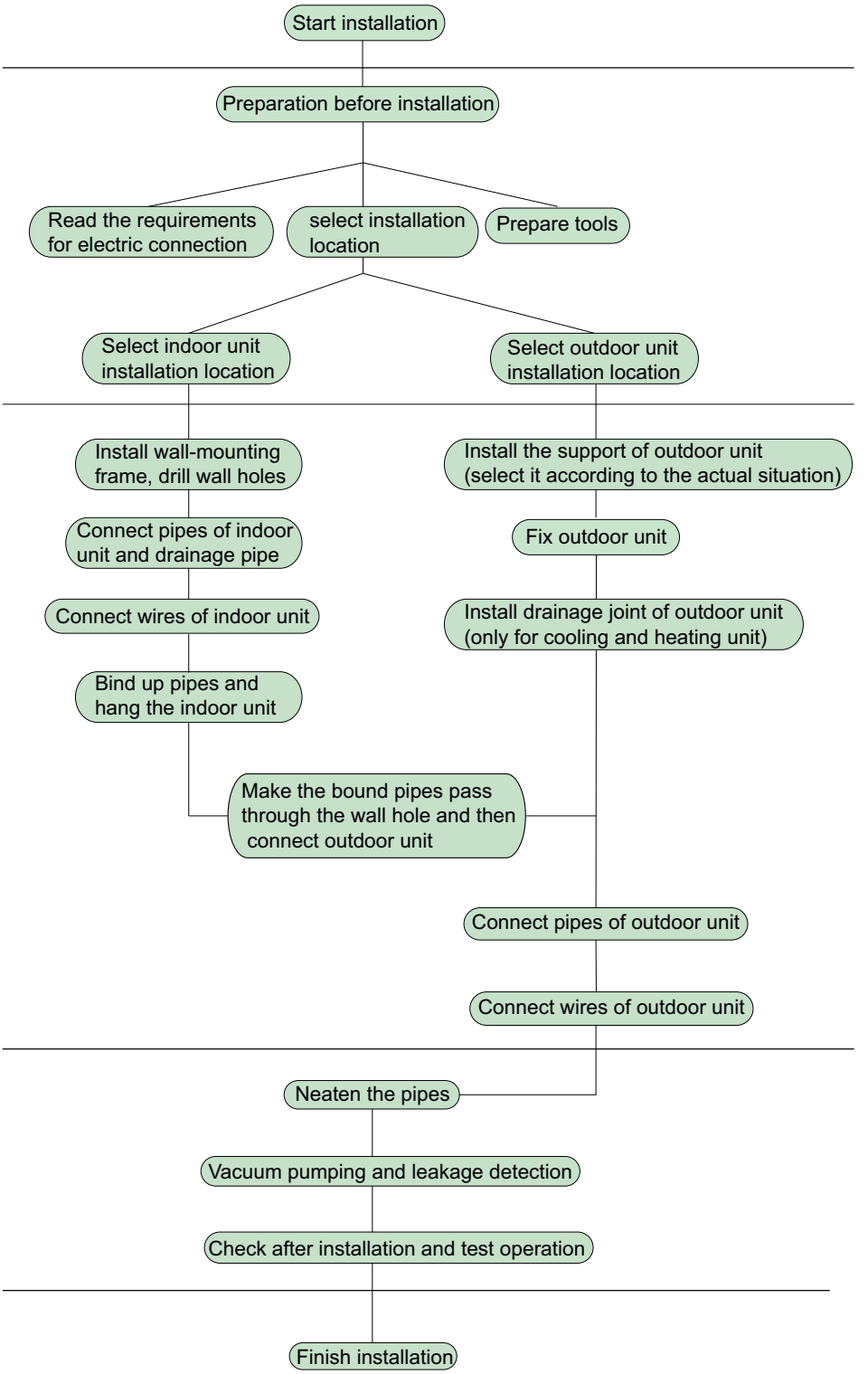
1. Level meter, measuring tape 	**2. Screw driver** 	**3. Impact drill, drill head, electric drill** 
4. Electroprobe 	**5. Universal meter** 	**6. Torque wrench, open-end wrench, inner hexagon spanner** 
7. Electronic leakage detector 	**8. Vacuum pump** 	**9. Pressure meter** 
10. Pipe pliers, pipe cutter   	**11. Pipe expander, pipe bender**  	**12. Soldering appliance, refrigerant container**  

8. Installation

8.1 Installation Dimension Diagram



Installation procedures



Note: this flow is only for reference; please find the more detailed installation steps in this section.

8.2 Installation Parts-checking

No.	Name	No.	Name
1	Indoor unit	8	Sealing gum
2	Outdoor unit	9	Wrapping tape
3	Connection pipe	10	Support of outdoor unit
4	Drainage pipe	11	Fixing screw
5	Wall-mounting frame	12	Drainage plug(cooling and heating unit)
6	Connecting cable(power cord)	13	Owner's manual, remote controller
7	Wall pipe		

⚠ **Note:**

1.Please contact the local agent for installation.

2.Don't use unqualified power cord.

8.3 Selection of Installation Location

1. Basic Requirement:

Installing the unit in the following places may cause malfunction. If it is unavoidable, please consult the local dealer:

(1) The place with strong heat sources, vapors, flammable or explosive gas, or volatile objects spread in the air.

(2) The place with high-frequency devices (such as welding machine, medical equipment).

(3) The place near coast area.

(4) The place with oil or fumes in the air.

(5) The place with sulfureted gas.

(6) Other places with special circumstances.

2. Indoor Unit:

(1) There should be no obstruction near air inlet and air outlet.

(2) Select a location where the condensation water can be dispersed easily and won't affect other people.

(3) Select a location which is convenient to connect the outdoor unit and near the power socket.

(4) Select a location which is out of reach for children.

(5) The location should be able to withstand the weight of indoor unit and won't increase noise and vibration.

(6) The appliance must be installed 98 27/64 inch above floor.

(7) Don't install the indoor unit right above the electric appliance.

(8) The appliance shall not be installed in the laundry.

3. Outdoor Unit:

(1) Select a location where the noise and outflow air emitted by the outdoor unit will not affect neighborhood.

(2) The location should be well ventilated and dry, in which the outdoor unit won't be exposed directly to sunlight or strong wind.

(3) The location should be able to withstand the weight of outdoor unit.

(4) Make sure that the installation follows the requirement of installation dimension diagram.

(5) Select a location which is out of reach for children and far away from animals or plants.If it is unavoidable, please add fence for safety purpose.

8.4 Electric Connection Requirement

1. Safety Precaution

(1) Must follow the electric safety regulations when installing the unit.

(2) According to the local safety regulations, use qualified power supply circuit and air switch.

(3) Make sure the power supply matches with the requirement of air conditioner. Unstable power supply or incorrect wiring may result in electric shock,fire hazard or malfunction. Please install proper power supply cables before using the air conditioner.

Air-conditioner	Air switch capacity
18K GMX160242HWE	25A
24K except: GMX160242HWE	30A

(4) Properly connect the live wire, neutral wire and grounding wire of power socket.

(5) Be sure to cut off the power supply before proceeding any work related to electricity and safety.

(6) Do not put through the power before finishing installation.

(7) For appliances with type Y attachment,the instructions shall contain the substance of thefollowing.If the supply cord is damaged,it must be replaced by the manufacturer,its service agent or similarly qualified persons in order to avoid a hazard.

(8) The temperature of refrigerant circuit will be high, please keep the interconnection cable away from the copper tube.

2. Grounding Requirement:

(1) The air conditioner is first class electric appliance. It must be properly grounding with specialized grounding device by a professional. Please make sure it is always grounded effectively, otherwise it may cause electric shock.

(2) The yellow-green wire in air conditioner is grounding wire, which can't be used for other purposes.

(3) The grounding resistance should comply with national electric safety regulations.

(4) The appliance must be positioned so that the plug is accessible.

(5) An all-pole disconnection switch having a contact separation of at least 1/8 inch in all poles should be connected in fixed wiring.

(6) Including an air switch with suitable capacity, please note the following table. Air switch should be included magnet buckle and heating buckle function, it can protect the circuit-short and overload. (Caution: please do not use the fuse only for protect the circuit)

8.5 Installation of Indoor Unit

1. Choosing Installation location

Recommend the installation location to the client and then confirm it with the client.

2. Install Wall-mounting Frame

(1) Hang the wall-mounting frame on the wall; adjust it in horizontal position with the level meter and then point out the screw fixing holes on the wall.

(2) Drill the screw fixing holes on the wall with impact drill (the specification of drill head should be the same as the plastic expansion particle) and then fill the plastic expansion particles

in the holes.
(3) Fix the wall-mounting frame on the wall with tapping screws (ST4.2X25TA) and then check if the frame is firmly installed by pulling the frame. If the plastic expansion particle is loose, please drill another fixing hole nearby.

3. Install Wall-mounting Frame

(1) Choose the position of piping hole according to the direction of outlet pipe. The position of piping hole should be a little lower than the wall-mounted frame.(As show in Fig.1)

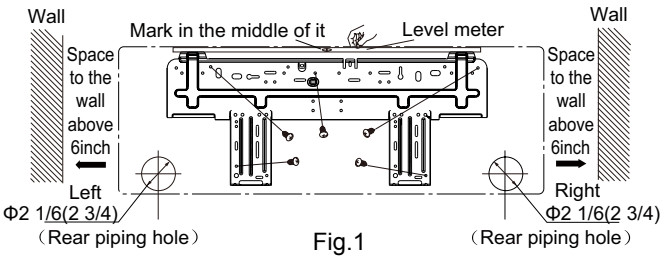


Fig.1

(2) Open a piping hole with the diameter of Φ2 1/6(2 3/4)inch on the selected outlet pipe position.In order to drain smoothly, slant the piping hole on the wall slightly downward to the outdoor side with the gradient of 5-10°.(As show in Fig.2)

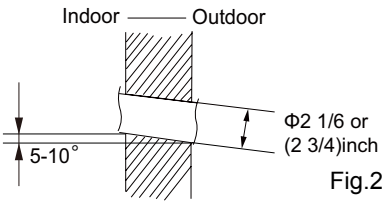


Fig.2

⚠ **Note:**

(1) Pay attention to dust prevention and take relevant safety measures when opening the hole.
(2) The plastic expansion particles are not provided and should be bought locally.

4. Outlet Pipe

(1) The pipe can be led out in the direction of right, rear right, left or rear left.(As show in Fig.3)
(2) When selecting leading out the pipe from left or right, please cut off the corresponding hole on the bottom case.(As show in Fig.4)

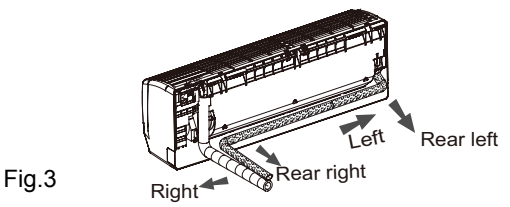


Fig.3

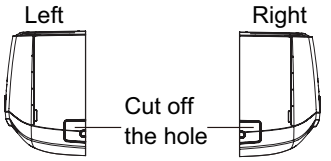


Fig.4

5. Connect the Pipe of Indoor Unit

(1) Aim the pipe joint at the corresponding bellmouth.(As show in Fig.5)
(2) Pretightening the union nut with hand.
(3) Adjust the torque force by referring to the following sheet. Place the open-end wrench on the pipe joint and place the torque wrench on the union nut. Tighten the union nut with torque wrench.(As show in Fig.6)
(4) Wrap the indoor pipe and joint of connection pipe with insulating pipe, and then wrap it with tape.(As show in Fig.7)

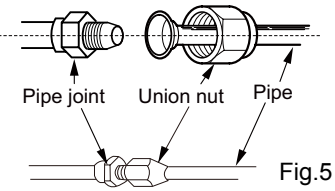


Fig.5

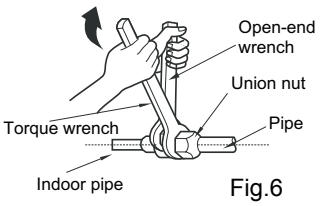


Fig.6

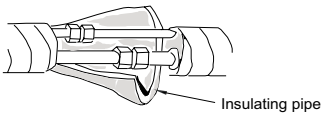


Fig.7

Refer to the following table for wrench moment of force:

Hex nut diameter	Tightening torque(ft·lbf)
Φ1/4	11.10~14.75
Φ3/8	22.12~29.50
Φ1/2	33.19~40.56
Φ5/8	44.24~47.94
Φ3/4	51.32~55.31

6. Install Drain Hose

(1) Connect the drain hose to the outlet pipe of indoor unit.(As show in Fig.8)
(2) Bind the joint with tape.(As show in Fig.9)

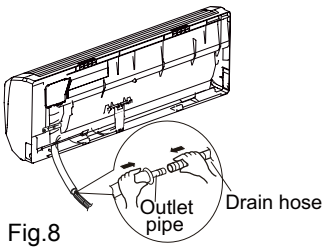


Fig.8

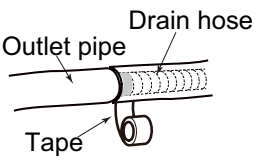


Fig.9

⚠ **Note:**

(1) Add insulating pipe in the indoor drain hose in order to prevent condensation.
(2) The plastic expansion particles are not provided.
(As show in Fig.10)

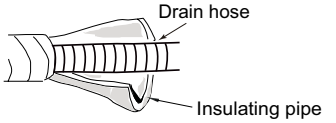


Fig.10

7. Connect Wire of Indoor Unit

(1) Open the panel, remove the screw on the wiring cover and then take down the cover.(As show in Fig.11)

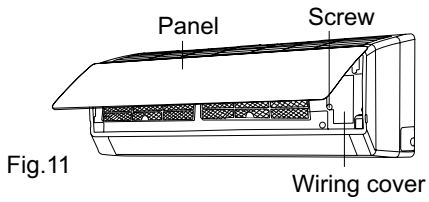


Fig.11

(2) Fix the wire crossing board on connection wire sleeve at the bottom case; let the connection wire sleeve go through the wire crossing hole at the back of indoor unit, and then pull it out from the front.(As show in Fig.12)

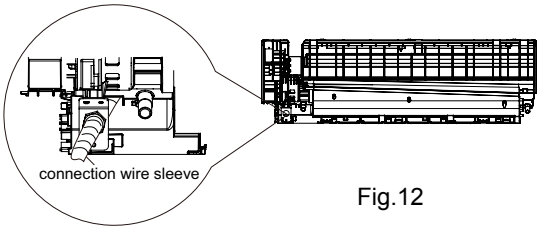
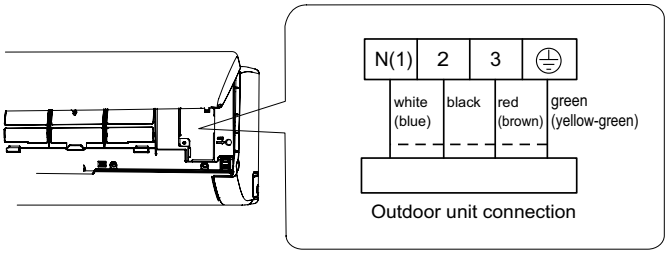


Fig.12

(3) Remove the wire clip; connect the power connection wire to the wiring terminal; tighten the screw and then fix the power connection wire with wire clip.(As show in Fig.13)



Note: the wiring connect is for reference only,please refer to the actual one.

Fig.13

(4) Put wiring cover back and then tighten the screw.
(5) Close the panel.

⚠ **Note:**

(1) All wires of indoor unit and outdoor unit should be connected by a professional.
(2) If the length of power connection wire is insufficient, please contact the supplier for a new one. Avoid extending the wire by yourself.
(3) For the air conditioner with plug, the plug should be reachable after finishing installation.
(4) For the air conditioner without plug, an air switch must be installed in the line. The air switch should be all-pole parting and the contact parting distance should be more than 3mm.

8. Bind up Pipe

(1) Bind up the connection pipe, power cord and drain hose with the band.(As show in Fig.14)
(2) Reserve a certain length of drain hose and power cord for installation when binding them. When binding to a certain degree, separate the indoor power and then separate the drain hose.(As show in Fig.15)
(3) Bind them evenly.
(4) The liquid pipe and gas pipe should be bound separately at the end.

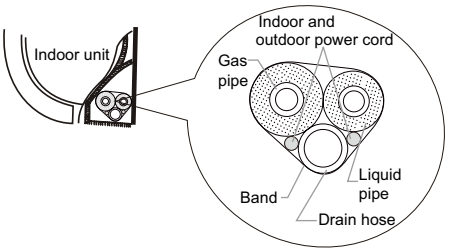


Fig.14

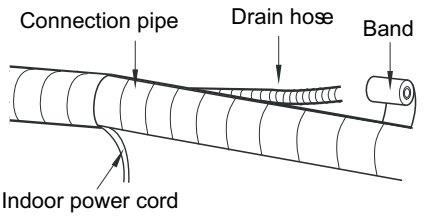


Fig.15

⚠ **Note:**

(1) The power cord and control wire can't be crossed or winding.
(2) The drain hose should be bound at the bottom.

9. Hang the Indoor Unit

(1) Put the bound pipes in the wall pipe and then make them pass through the wall hole.
(2) Hang the indoor unit on the wall-mounting frame.
(3) Stuff the gap between pipes and wall hole with sealing gum.
(4) Fix the wall pipe.(As show in Fig.16)
(5) Check if the indoor unit is installed firmly and closed to the wall.(As show in Fig.17)

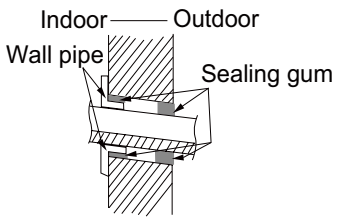
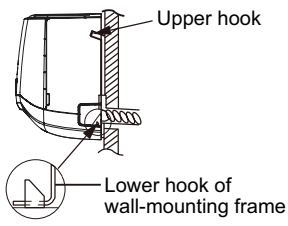


Fig.16

Fig.17



⚠ **Note:**

Do not bend the drain hose too excessively in order to prevent blocking.

8.6 Installation of Outdoor Unit

1. Fix the Support of Outdoor Unit(Select it according to the actual installation situation)

(1) Select installation location according to the house structure.
(2) Fix the support of outdoor unit on the selected location with expansion screws.

⚠ **Note:**

(1) Take sufficient protective measures when installing the outdoor unit.
(2) Make sure the support can withstand at least four times the unit weight.
(3) The outdoor unit should be installed at least 1 1/6 inch above the floor in order to install drain joint.(As show in Fig.18)
(4) For the unit with cooling capacity of 2300W~5000W, 6 expansion screws are needed; for the unit with cooling capacity of 6000W~8000W, 8 expansion screws are needed; for the unit with cooling capacity of 10000W~16000W, 10 expansion screws are needed.

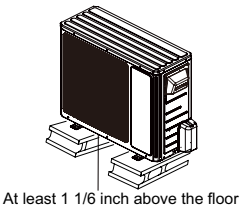


Fig.18

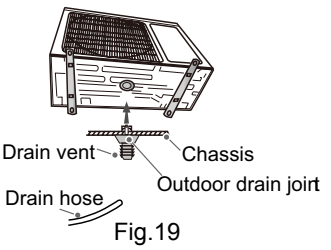


Fig.19

2. Install Drain Joint(only for cooling and heating unit)

(1) Connect the outdoor drain joint into the hole on the chassis.
(2) Connect the drain hose into the drain vent.
(As show in Fig.19)

3. Fix Outdoor Unit

(1) Place the outdoor unit on the support.
(2) Fix the foot holes of outdoor unit with bolts.
(As show in Fig.20)

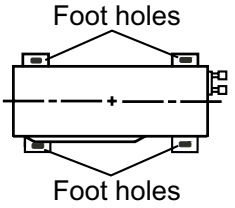


Fig.20

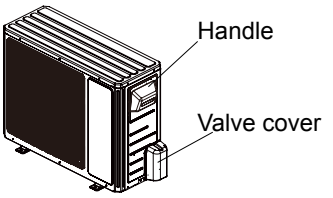


Fig.21

4. Connect Indoor and Outdoor Pipes

(1) Remove the screw on the right handle and valve cover of outdoor unit and then remove the handle and valve cover.(As show in Fig.21)
(2) Remove the screw cap of valve and aim the pipe joint at the bellmouth of pipe.(As show in Fig.22)

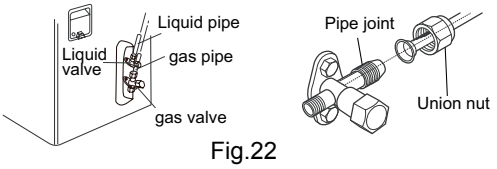


Fig.22

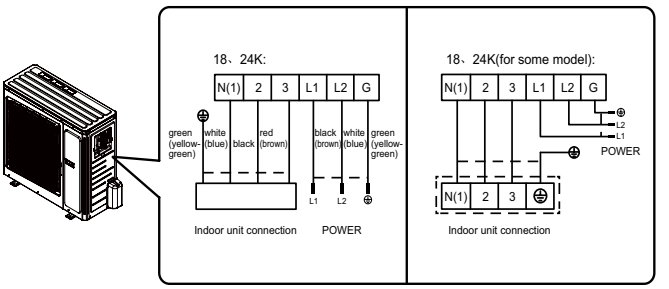
(3) Pretightening the union nut with hand.
(4) Tighten the union nut with torque wrench .

Refer to the following table for wrench moment of force:

Hex nut diameter	Tightening torque(ft·lbf)
Φ1/4	11.10~14.75
Φ3/8	22.12~29.50
Φ1/2	33.19~40.56
Φ5/8	44.24~47.94
Φ3/4	51.32~55.31

5. Connect Outdoor Electric Wire

(1) Let the connection wire sleeve go through the two holes of baffle; tighten the connection joint of sleeve and baffle; remove the wire clip; connect the power connection wire and power cord to the wiring terminal according to the color; fix them with screws.(As show in Fig.23)



Note: the wiring connect is for reference only,please refer to the actual one.

Fig.23

(2) Fix the power connection wire and power cord with wire clip.
(3) Fix the stopper on handle with screw.

⚠ **Note:**

(1) After tightening the screw, pull the power cord slightly to check if it is firm.
(2) Never cut the power connection wire to prolong or shorten the distance.

6. Neaten the Pipes

(1) The pipes should be placed along the wall, bent reasonably and hidden possibly. Min. semidiameter of bending the pipe is 10cm.
(2) If the outdoor unit is higher than the wall hole, you must set a U-shaped curve in the pipe before pipe goes into the room, in order to prevent rain from getting into the room.(As show in Fig.24)

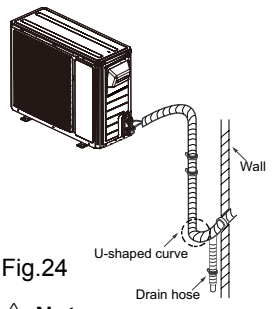


Fig.24

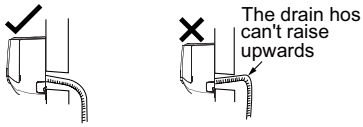


Fig.25

⚠ **Note:**

(1) The through-wall height of drain hose shouldn't be higher than the outlet pipe hole of indoor unit.(As show in Fig.25)
(2) Slant the drain hose slightly downwards. The drain hose can't be curved, raised and fluctuant, etc.(As show in Fig.26)

(3) The water outlet can't be placed in water in order to drain smoothly.(As show in Fig.27)

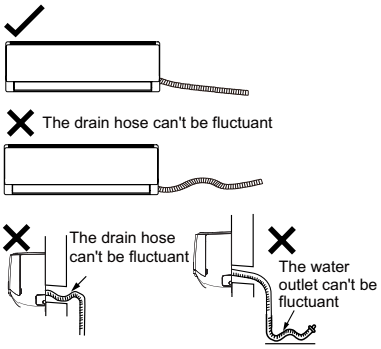


Fig.26

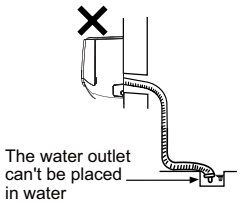


Fig.27

8.7 Vacuum Pumping and Leak Detection

1. Use Vacuum Pump

(1) Remove the valve caps on the liquid valve and gas valve and the nut of refrigerant charging vent.

(2) Connect the charging hose of piezometer to the refrigerant charging vent of gas valve and then connect the other charging hose to the vacuum pump.

(3) Open the piezometer completely and operate for 10-15min to check if the pressure of piezometer remains in -0.1MPa.

(4) Close the vacuum pump and maintain this status for 1-2min to check if the pressure of piezometer remains in -0.1MPa. If the pressure decreases, there may be leakage.

(5) Remove the piezometer, open the valve core of liquid valve and gas valve completely with inner hexagon spanner.

(6) Tighten the screw caps of valves and refrigerant charging vent.(As show in Fig.28)

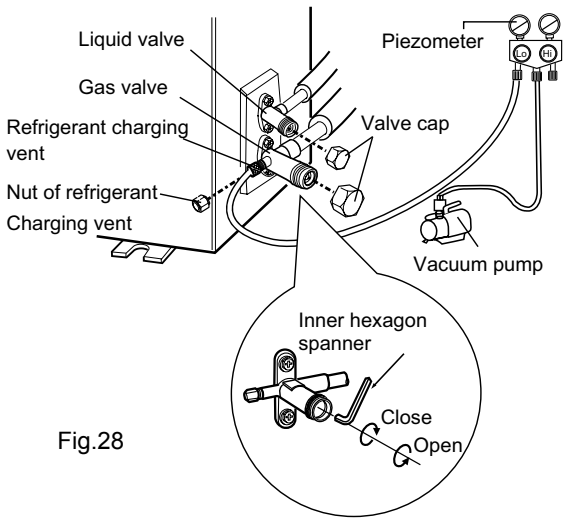


Fig.28

2. Leakage Detection

(1) With leakage detector:

Check if there is leakage with leakage detector.

(2) With soap water:

If leakage detector is not available, please use soap water for leakage detection. Apply soap water at the suspected position and keep the soap water for more than 3min. If there are air bubbles coming out of this position, there's a leakage.

8.8 Check after Installation and Test Operation

1. Check after Installation

Check according to the following requirement after finishing installation.

NO.	Items to be checked	Possible malfunction
1	Has the unit been installed firmly?	The unit may drop, shake or emit noise.
2	Have you done the refrigerant leakage test?	It may cause insufficient cooling (heating) capacity.
3	Is heat insulation of pipeline sufficient?	It may cause condensation and water dripping.
4	Is water drained well?	It may cause condensation and water dripping.
5	Is the voltage of power supply according to the voltage marked on the nameplate?	It may cause malfunction or damage the parts.
6	Is electric wiring and pipeline installed correctly?	It may cause malfunction or damage the parts.
7	Is the unit grounded securely?	It may cause electric leakage.
8	Does the power cord follow the specification?	It may cause malfunction or damage the parts.
9	Is there any obstruction in air inlet and air outlet?	It may cause insufficient cooling (heating) capacity.
10	The dust and sundries caused during installation are removed?	It may cause malfunction or damaging the parts.
11	The gas valve and liquid valve of connection pipe are open completely?	It may cause insufficient cooling (heating) capacity.
12	Is the inlet and outlet of piping hole been covered?	It may cause insufficient cooling (heating) capacity or waster eletricity.

2. Test Operation

(1) Preparation of test operation

● The client approves the air conditioner installation.

● Specify the important notes for air conditioner to the client.

(2) Method of test operation

● Put through the power, press ON/OFF button on the remote controller to start operation.

● Press MODE button to select AUTO, COOL, DRY, FAN and HEAT to check whether the operation is normal or not.

● If the ambient temperature is lower than 16℃ , the air conditioner can’t start cooling.

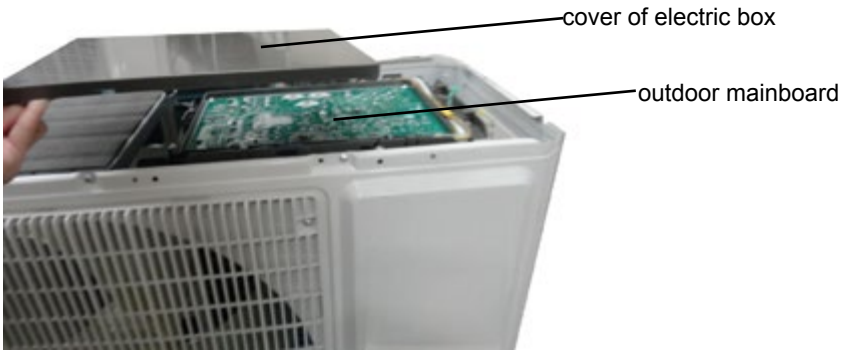
9. Maintenance

9.1 Precautions before Maintenance

There are high-capacity electrolytic capacitors on the outdoor mainboard. Thus, even the power is cut off, there is high voltage inside the capacitors and it needs more than 20min to reduce the voltage to safety value. Touching the electrolytic capacitor within 20min after cutting the power will cause electric shock. If maintenance is needed, follow the steps below to discharge electricity of electrolytic capacitor after power off.

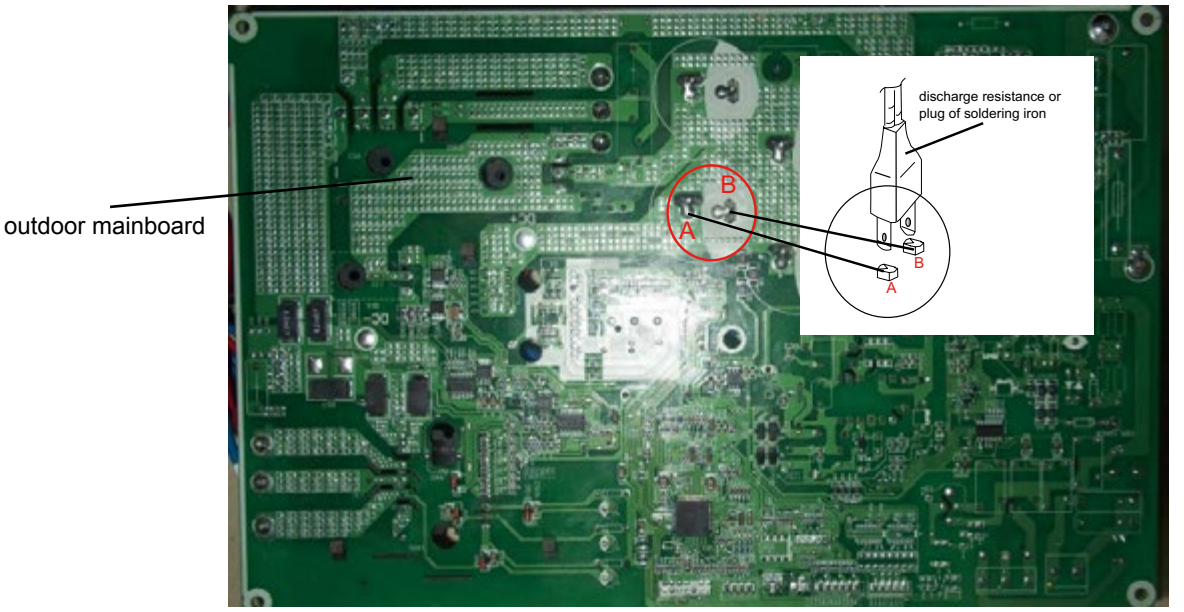
GMX160182CUE, GMX160242CUE

(1) Open the top cover of outdoor unit and then remove the cover of electric box.

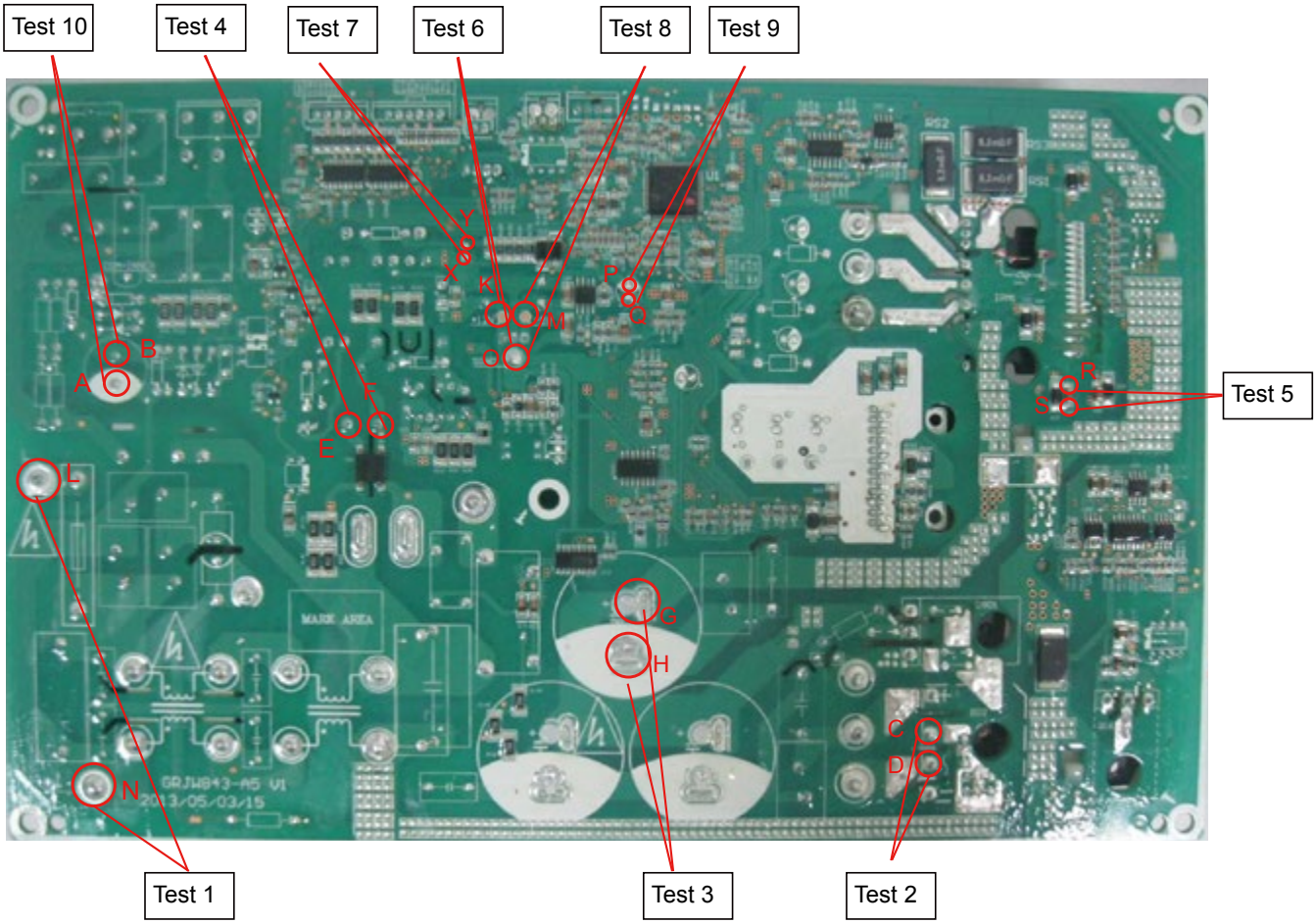


(2) As shown in the fig below, connect the plug of discharge resistance (about 100ohm, 20W) (if there is no discharge resistance, you can use the plug of soldering iron) to point A and B of electrolytic capacitor. There will be sparks when touching them. Press them forcibly for 30s to discharge electricity of electrolytic capacitor.

GMX160242CUE



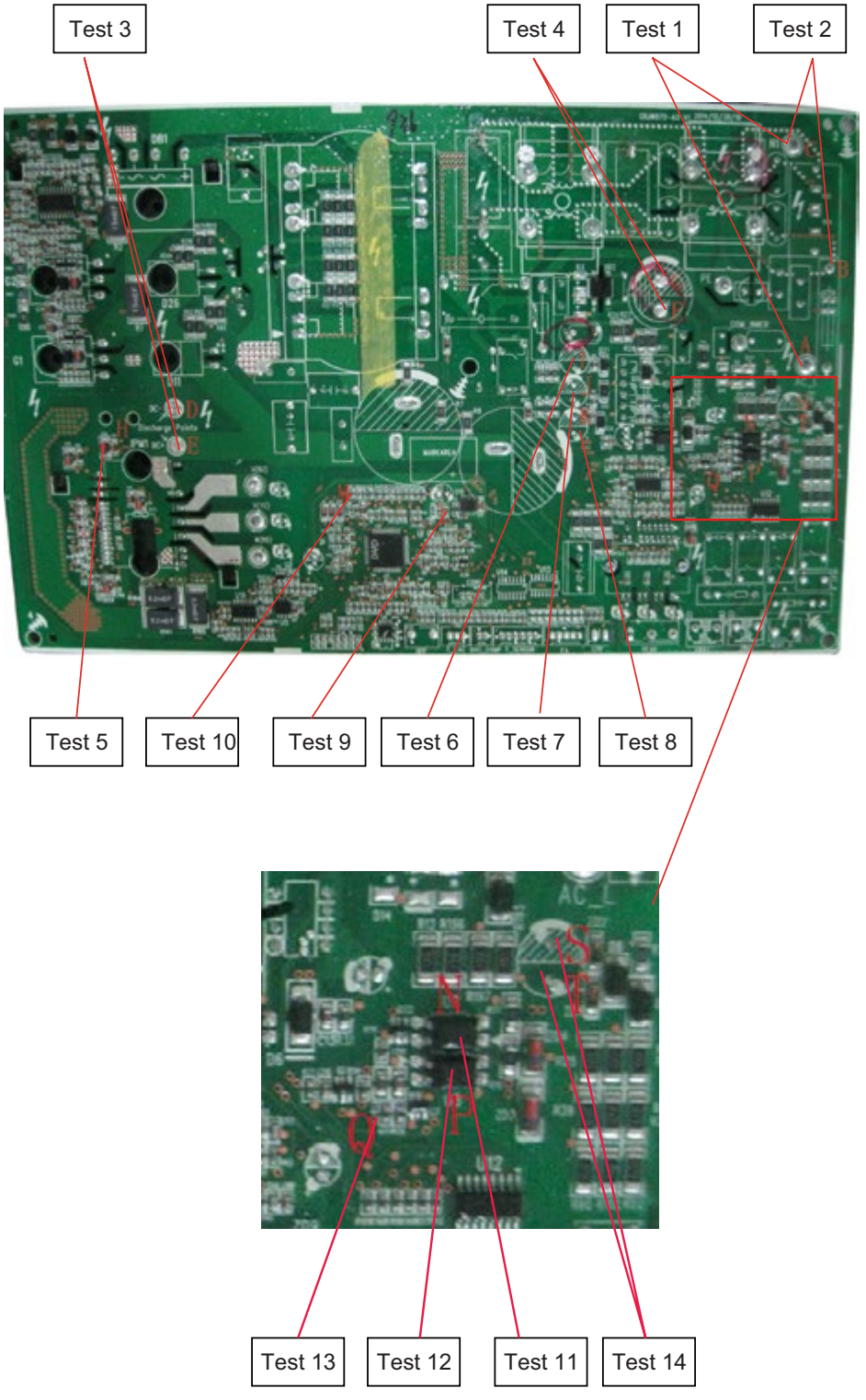
GMX160182CUE



Test No.	Test point	Corresponding component	Test value under normal condition
Test1	Between L and N	Neutral and live wires	160V~265V
Test2	Between C and D	Neutral and live wires	160V~265V
Test3	Between G and H	DC busbar electrolytic capacitor	DC 180V~380V
Test4	Between E and F	Electrolytic capacitor of power	DC 180V~380V
Test5	Between R and S	IPM bootstrap capacitor C85	DC 13.5V~16.5V
Test6	Between K and O	Capacitor C40, 12V power supply	DC 12V
Test7	Between Y and X	Capacitor C77, 17V power supply	DC 17V
Test8	Between M and O	Capacitor C82, 5V power supply	DC 5V
Test9	Between Q and P	Capacitor C912, 17V power supply	DC 3.3V
Test10	Between B and A	Communication circuit capacitor C24	DC 56V

GMX160182CUE GMX160242CUE(LC)

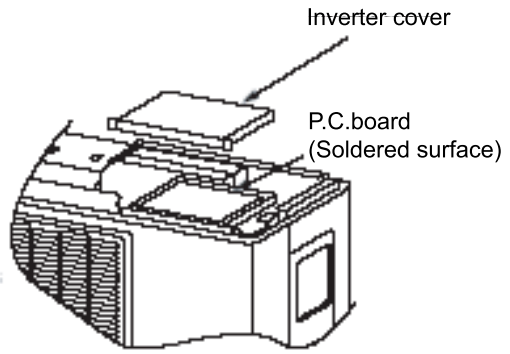
(1)Key detection point



Test No.	Test point	Corresponding component	Test value under normal condition
test 1	Between A and C	Neutral wire and live wire	AC 160V~265V
test 2	Between B and C	Neutral wire and live wire	AC 160V~265V
test 3	Between D and E	DC busbar electrolytic capacitor	DC 180V~380V
test 4	Between F and G	Electrolytic capacitor of power C8	DC 180V~380V
test 5	H position, both ends of diode D34	IPM bootstrap circuit diode D34	DC 13.5V~16.5V
test 6	I position, both ends of capacitor C20	Capacitor C20 of power 12V	DC 12V
test 7	J position, both ends of capacitor C67	Capacitor C67 of power 15V	DC 15V
test 8	K position, both ends of capacitor C24	Capacitor C24 of power 5V	DC5V
test 9	L position, both ends of capacitor C73	3.3V Capacitor C73	DC 3.3V
test 10	From M position to ground	From one end of R61 (M position) to ground (signal receiving end of outdoor unit)	0~3.3V
test 11	N, optical coupler U7	U7(3, 4 leading feet)	0~3.3V
test 12	P, optical coupler U8	U8(1, 2 leading feet)	0~3.3V
test 13	From Q point to ground	From one end of R77 (Q position) to ground (signal sending terminal of outdoor unit)	0~3.3V
test 14	Between S and T	Capacitor C113 of communication circuit	56V

(3) After finish discharging electricity, measure the voltage between point A and B with universal meter to make sure if electricity discharging is completed, in order to prevent electric shock. If the voltage between the two points is below 20V, you can perform maintenance safely.

●Discharging method
(1) remove the inverter cover(Outdoor Unit)



(2)As shown below,connect the discharge resistance(approx.100Ω20W)or plug of the sold ering iron to voltage between + - terminals of the electrolytic capacitor (test3 “D ” and “E” point) on PC Board for 30s, and then peformedischarging.

NOTE:
A large-capacity electrolytic capacitor is used in the outdoor unit controller(inverter).Therefore,if the power supply is turned off,charge(charging voltage DC280V to 380V)remains and disc harging takes a lot of time.. After turning off the power source,if touching the charging section before discharging, an electrical shock may be caused. Discharge the electrol ytic capacitor completely by using soldering iron,etc.

9.2 Error Code List

NO.	Name of malfunction	Indoor unit displaying method				Outdoor unit display(LEDs have 3 status)□OFF ■ON ☆ Blinks				AC status	Malfunctions
		Double 8 code display	Indicator display(LED blinks 0.5s-ON/0.5s-OFF)			D40/D5	D41/D6	D42/ D16	D43/ D30		
			Running LED	Cooling LED	Heating LED						
			(only for the mode with this function)								
1	System high pressure protection	E1	3s off blink once							cooling,dehumidifying,except the indoor fam motor is runnig,others will stop to run. heating;all stop running	High pressure of system,might be: 1.Refrigerant is too much; 2.Poor heating exchanging for units(including heat exchanger is dirty and unit heating radiating ambient is poor); 3.Ambient temp.is too high.
2	Anti-freezing protection	E2	3s off blink twice			■	□	■	□	cooling,dehumidifying,compressor,outdoor fan motor will stop running,indoor fan motor will keep running.	1.Poor indoor unit air returning; 2.Indoor fan motor rotating speed abnormal; 3.Evaporator is dirty;
3	Compressor air exhaust high temp. protection	E4	3s off blink four times			■	□	■	☆	cooling,dehumidifying,compressor,outdoor fan motor will stop running,indoor fan motor works. heating:all stop running.	Pls refer to rtouble shoot (air exhaust protection,overload)
4	AC overload protection	E5	Off 3s blink 5 times			□	■	☆	□	Cooling,dehumidifying,compressor,outdoor fan motor will stop,indoor fan will work. heating;all will stop	1.power supply is stable,fluctuation is too much 2.Power supply is too low,overload is too much.
5	Indoor and outdoor units communication malfunction	E6	Off 3s blink 6 times			□	□	□	☆	Cooling,compressor will stop,indoor fan motor works,Heating:all will stop	Please refer to troubleshooting
6	Anti-high temp. protection	E8	Off 3s blink 8 times			■	□	■	■	Cooling,compressor will stop,indoor fan motor works,Heating:all will stop	Please refer to troubleshooting
7	Indoor unit motor no feedback	H6	Off 3s blink 11 times							Whole unit will stop to run	1.Poor insert for GPF 2.Indoor control board AP1 malfunction 3.Indoor motor M1 malfunction
8	Jump wire cap malfunction protection	C5	Off 3s blink 15 times							Whole unit will stop to run	Indoor control board AP1 jump cap poor connected,please reinsert or replace the jump cap.
9	Indoor ambient sensor open circuit,short circuit	F1		Off 3s blink once						Cooling,dehumidifying:indoor fan motor is runing,other overloads will stop;Heating,whole unit will stop to run.	1.Room temp.sensor is not connected with the control panel AP1 2.Room temp.sensor is damaged
10	Indoor evaporator sensor ciruit open,short circuit	F2		Off 3s blink twice						Cooling,dehumidifying;indoor fan motor runing,other overload will stop;Heating,whole unit will stop.	1,Tube temp.sensor is not connected with the conrtol panel AP1 2.Tube tmep.sensor is damaged
11	Outdoor ambient sensor circuit open,circuit short	F3		Off 3s blinks three times		□	□	☆	■	Cooling,dehumidifying;compressor will stop,indoor fan motor will work.Heat:all will stop	Outdoorroom temp.sensor hasn't connected well,or damaged,please refer to the sensor resistance value for checking.
12	Outdoor condemsor sensor open circuit,short circuit	F4		Off 3s blinks 4 times		□	□	☆	□	Cooling,dehumidifying;compressor will stop,indoor fan motor will work.Heat:all will stop	Outdoorroom temp.sensor hasn't connected well,or damaged,please refer to the sensor resistance value for checking.
13	Malfunction of zero-cross derection	U8	Off 3s and blink 17 times							The complete unit stops	1.Power supply is abnormal 2.Detection circuit of indoor control mainboard is abnormal

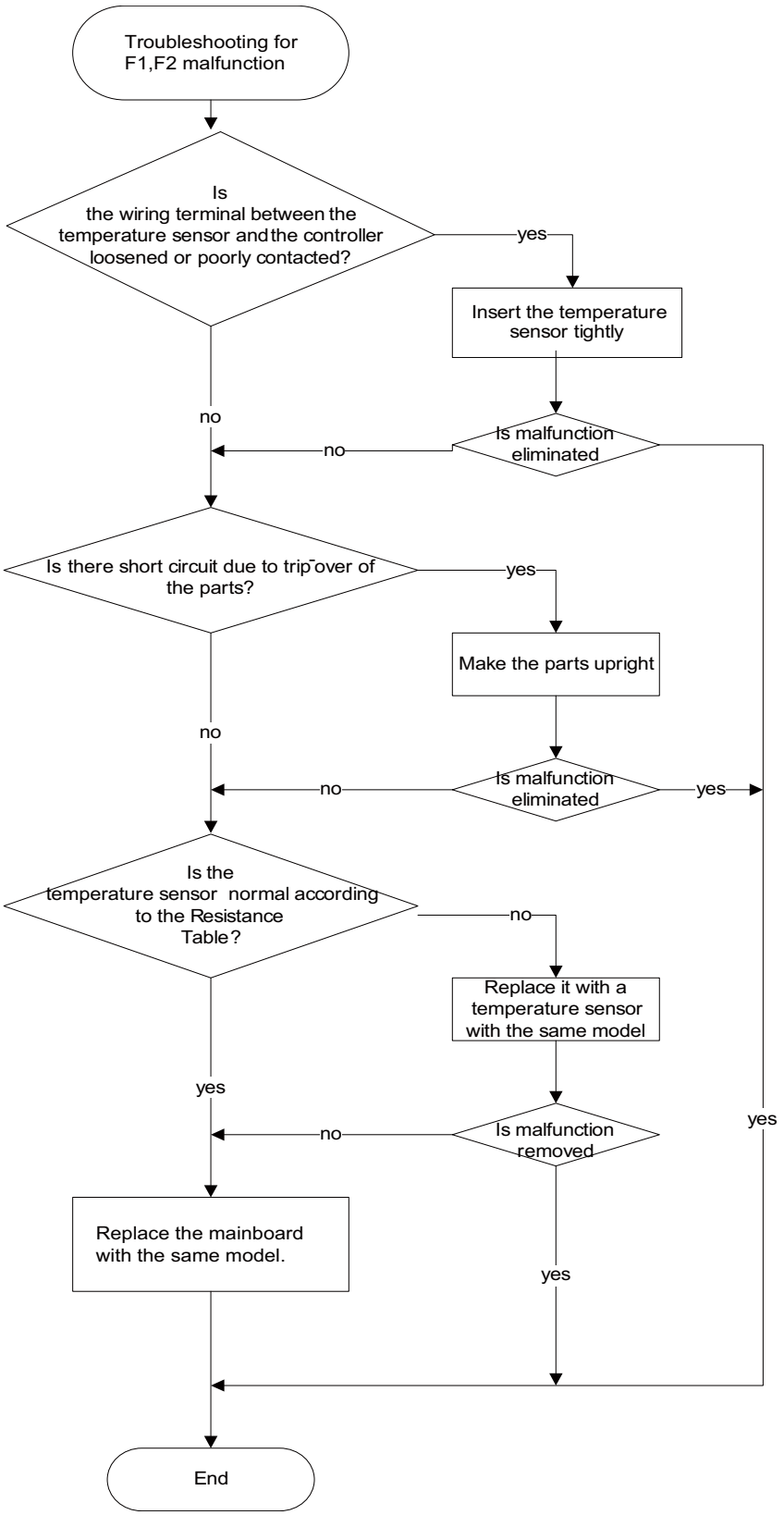
14	Outdoor air exhaust sensor open circuit,short circuit	F5		Off 3s blinks 5 times		□	□	☆	☆	Cooling,dehumidifying;after runing for 3mins later,the compressor will stop to run,indoor fan motor will start to run.heating:after run 3 mins later,all will stop to run.	1.Exhaust temp sensor hasn't connected well,or damaged,plwease refer to the sensor resistance value for checking. 2.Sensor head hasn't insert into the copper tube.
15	Overload limit/ descending frequency	F6		Off 3s blinks 6 times		■	□	☆	☆	Overload mormal operation,compressor is runing,frequency descending	Please refer to troubleshooting
16	Over current need frequency descending	F8		Off 3s blinks 8 times		■	■	□	■	Overload mormal operation,compressor is runing,frequency descending	1.Input power supply is too low 2.System voltage is too high,over is too much
17	Air exhaust over high need frequency descending	F9		Off 3s blinks 9 times		■	■	□	□	Overload mormal operation,compressor is runing,frequency descending	1.Overload is too much,ambient temp.is too high 2.Refrigerant is short 3.Electric expansion malfunction
18	DC generatrix voltage is too high	PH		Off 3s blink 11 times		□	■	□	☆	Cooling,dehumidifying,co mpressor stop running,Fan motor works. Heating: all will stop	1.Testing wire terminal L and N position.If higher than 265VAC,please cut off the power supply and restart until back to normal 2.If input voltage is normal, testing the voltage of electrolytic capacitor on AP1 after turn on the unit.There may be some problem and replace the AP1 if the electrolytic capacitor voltage range at 200-280V
19	Complete unit current detection malfunction	U5		Off 3s and blink 13 times		□	■	☆	■	Cooling, dehumidifying;compressor stops running,indoor fan motor works. Heating: all will stop running	The circuit on AP1 has malfunction, replace the outdoor unit AP1
20	Compressor current overcurrent protection	P5		Off 3s blink 15 times		□	☆	□	□	Cooling, dehumidifying;compressor stops running,indoor fan motor works. Heating: all will stop running	Please refer to troubleshooting(IPM protection, compressor lose steps, compressor current overcurrent protection)
21	Defrosting				Off 3s and blink once (during blinking, ON 10s and Off 05s)					Defrosting will occur in heating mode.Compressor will operate while indoor fan will stop.	It's the normal state
22	Compressor overload protection	H3			Off 3s blink 3 times	□	☆	☆	□	Cooling, dehumidifying;compressor stops running,indoor fan motor works. Heating: all will stop running	1. Wire terminal OVCCOMP loosen or circuit,has problem, the resistance of SAT should be lower than 1 ohm. 2.Please refer to troubleshooting(exhaust/ overload protection)
23	IPM protection	H5			Off 3s blink 5 times	■	□	■	■	Cooling, dehumidifying;compressor stops running,indoor fan motor works. Heating: all will stop running	Pls refer to troubleshooting

24	PFC protection	HC			Off 3s blink 6 times	□	■	☆	☆	Cooling, dehumidifying;compressor stops running,indoor fan motor works. Heating: all will stop running	Pls refer to troubleshooting
25	Compressor lose steps	H7			Off 3s blink 7 times	□	☆	■	☆	Cooling, dehumidifying;compressor stops running,indoor fan motor works. Heating: all will stop running	Pls refer to troubleshooting
26	Heating, anti-high temp. declines	H0			Off 3s blink 10 times	■	□	☆	☆	Overload normal works,compressor running,frequency declines	Pls refer to troubleshooting
27	Startsup fail	Lc			Off 3s blink 11 times	□	☆	□	☆	Cooling, dehumidifying;compressor stops running,indoor fan motor works. Heating: all will stop running	Pls refer to troubleshooting
28	Compressor current testing circuit malfunction	U1			Off 3s blink 13 times	□	☆	■	□		Replace the outdoor control board AP1
29	EEPROM malfunction	EE			Off 3s blink 15 times	□	□	□	■	Cooling, dehumidifying;compressor stops running,indoor fan motor works. Heating: all will stop running	Replace the outdoor control board AP1
30	Capacitor charge malfunction	PU			Off 3s blink 17 times	□	■	□	■	Cooling, dehumidifying;compressor stops running,indoor fan motor works. Heating: all will stop running	Pls refer to Part 3 capacitor charging fault of troubleshooting
31	Module sensor circuit diagram	P7			Off 3s blink 18 times	□	□	■	☆	Cooling, dehumidifying;compressor stops running,indoor fan motor works. Heating: all will stop running	Replace the outdoor control board AP1
32	Module temp. over high protection	P8			Off 3s blink 19 times	■	□	☆	■	Cooling, dehumidifying;compressor stops running,indoor fan motor works. Heating: all will stop running	To check whether the ambient Temp. of IPM is too high or the heat-sinhing of IPM is dirty else replace the outdoor baord AP1
33	DC Bus voltage dips	U3			Off 3s blink 20 times	□	■	■	■	Cooling, dehumidifying;compressor stops running,indoor fan motor works. Heating: all will stop running	Power voltage is not stable
34	Low DC Bus voltage protection	PL			Off 3s blink 21 times	□	■	■	□	Cooling, dehumidifying;compressor stops running,indoor fan motor works. Heating: all will stop running	1.Check the Input voltage if the Voltage is lower than 150VAC,restart the machine when the power supply is mormal. 2.Checking the reactor L connection.
35	IPM temp.is too high limit/ decrease frequency	EU				■	■	■	☆	Over load normal works,compressor runing frequency declines	Whole unit break for 20 mins and discharge,to check the outdoor control board AP1's IPM module coolant whether is short,the radiator is tightened. If above phenomenon is not OK,Please improve or replace the control board AP1
36	Four-way valve abnormal	U7				■	□	☆	□	This malfunction happened,only in heating mode,all will stop to run.	1.Power supply voltage is lower than AC175V 2.Wire terminal 4V loosen or wire break 3.4V damaged,replace 4V
37	Outdoor unit zero-cross detecting error					■	■	☆	□	Cooling:compressor will stop,indoor fan motor works. Heating:all will stop.	Replace the outdoor control board AP1

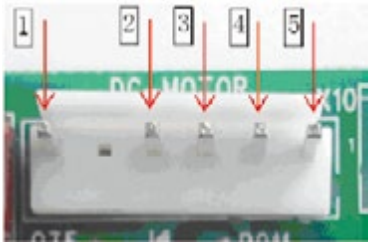
9.3 Troubleshooting for Main Malfunction

●Indoor unit:

1. Malfunction of Temperature Sensor F1, F2



2. Malfunction of Blocked Protection of IDU Fan Motor H6



Start

Turn the fan blades by hand under power-off condition

Whether the fan blades can run smoothly?

No → Adjust the motor and blade assembly so that rotor can run smoothly.

Turn unit on to check whether the malfunction is eliminated.

No → Yes

Yes

Under power-off condition, check whether the wiring terminal between indoor fan and main board is loose.

Yes → Reinsert the wiring terminal of indoor fan.

Turn unit on to check whether the malfunction is eliminated.

No → No → Yes

No

Connect power and restart the unit. Test whether the voltage between terminal 1 and terminal 2 of motor interface is within 280~310VDC.

No → It's the malfunction of main board. Replace a new main board that is of the same model.

Yes

Then check whether the voltage between terminal 2 and terminal 3 of the motor interface is 15VDC.

No → It's the malfunction of main board. Replace a new main board that is of the same model.

Yes

Then check whether there is voltage between terminal 2 and terminal 4 of the motor interface.

No → It's the malfunction of main board. Replace a new main board that is of the same model.

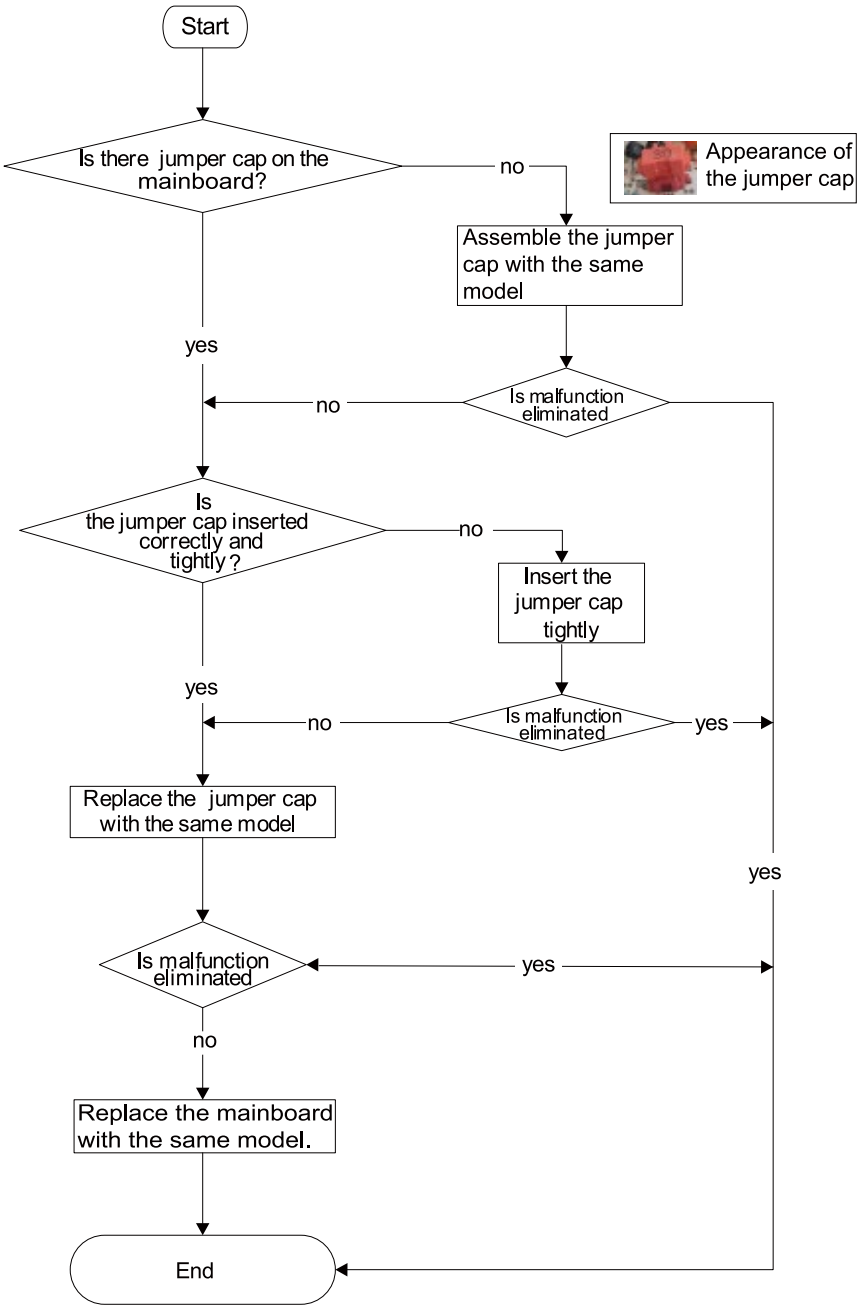
Yes

It's the malfunction of motor. Replace a new motor that is of the same model.

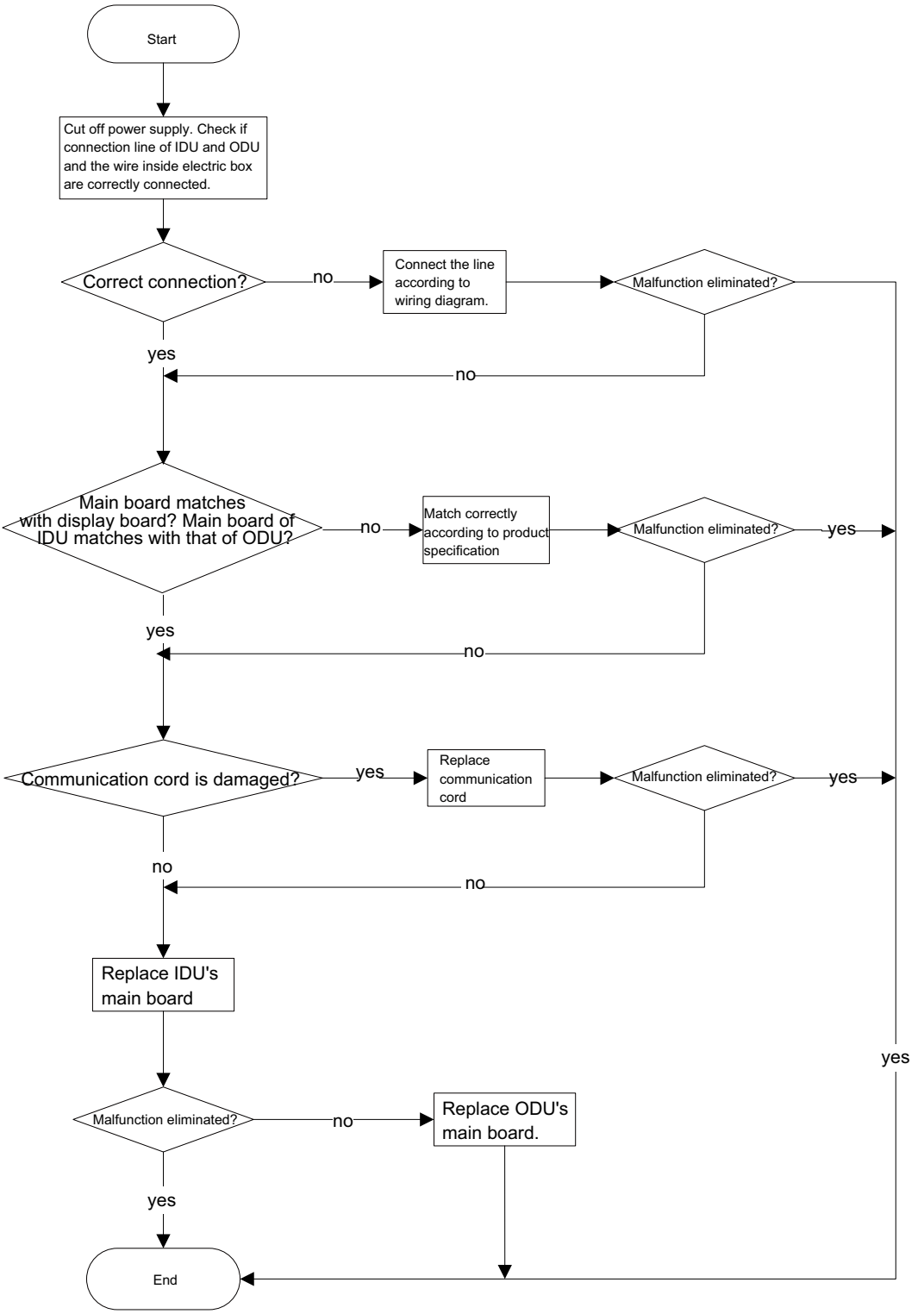
End

Yes

3. Malfunction of Protection of Jumper Cap C5

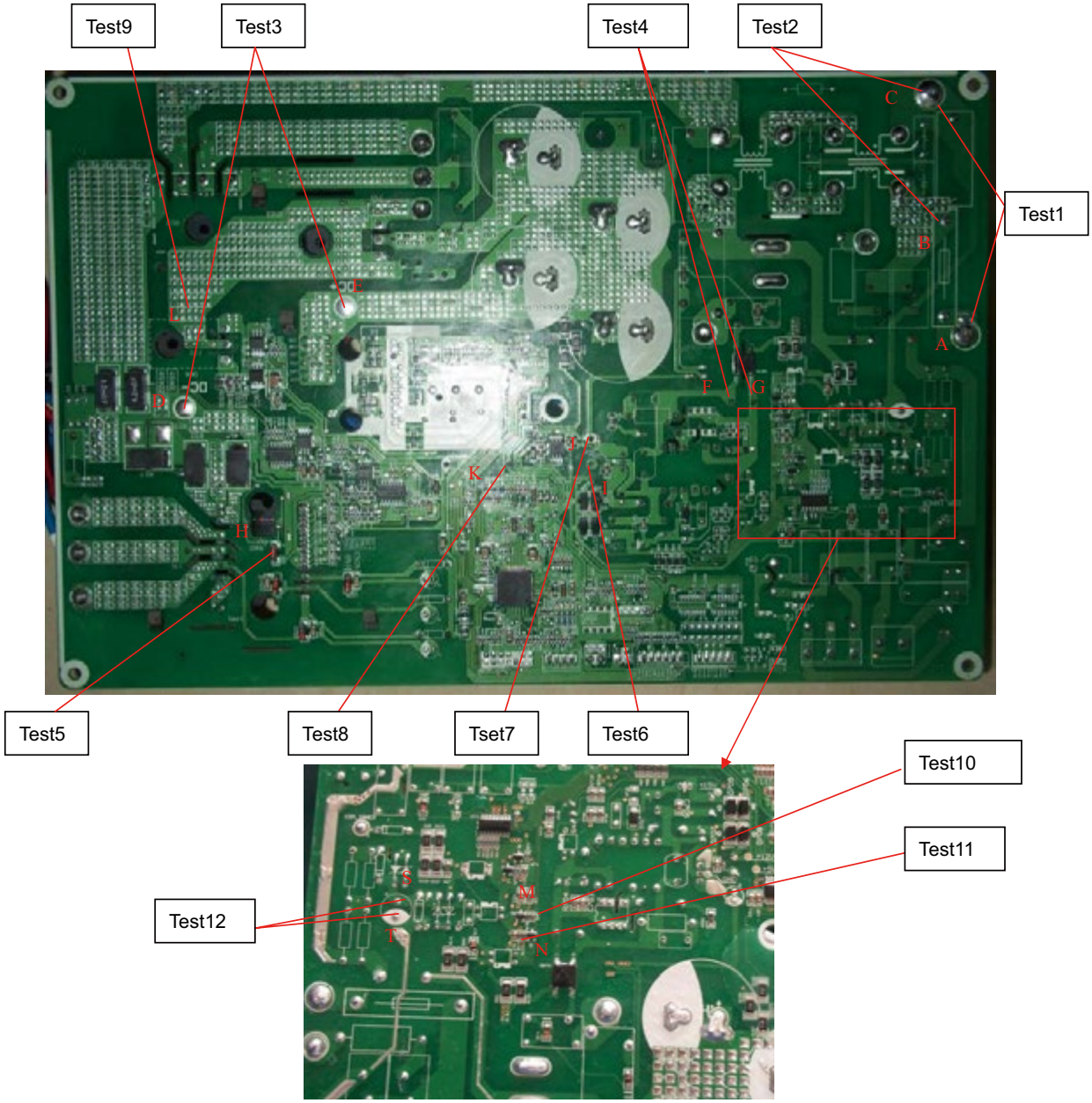


4. Communication malfunction E6



●Outdoor unit:

1.Key detection point



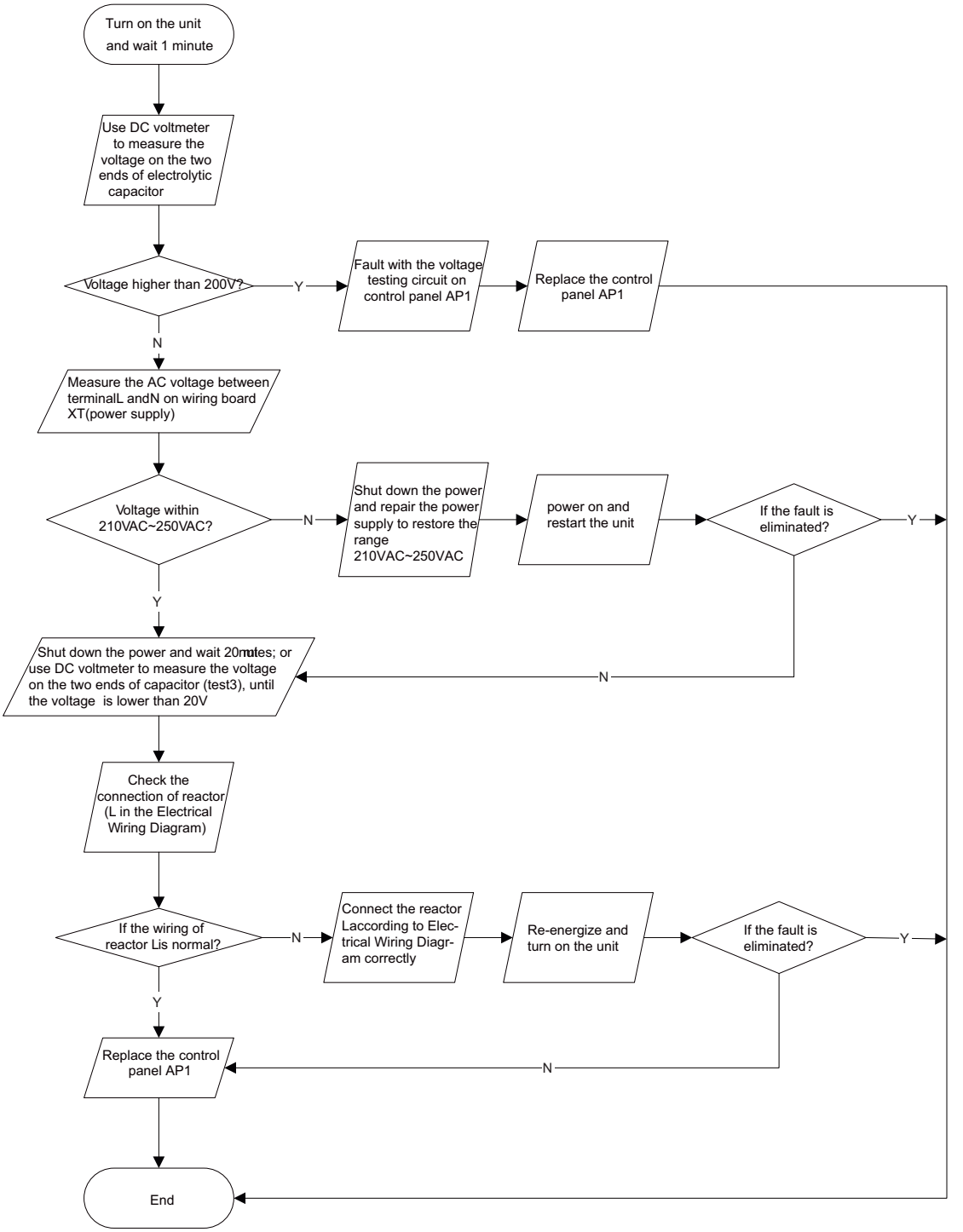
Test NO	Test point	Corresponding component	Test value under normal condition
Test 1	Between A and C	Neutral and live wires	160V~265V
Test 2	Between B and C	Neutral and live wires	160V~265V
Test 3	Between D and E	DC busbar electrolytic capacitor	DC 180V~380V
Test 4	Between F and G	Electrolytic capacitor of power	DC 180V~380V
Test 5	Two ends of diode D15	D15(IPM modular +15V power supply)	DC 14.5V~15.6V
Test 6	Two ends of electrolytic capacitor C715	C715(+12V power supply)	DC 12V~13V
Test 7	Two ends of electrolytic capacitor C710	C710(+5V power supply)	DC 5V
Test 8	Two ends of electrolytic capacitor C226	C226(+3.3V power supply)	DC 3.3V
Test 9	Two ends of chip capacitor C912	C912(+17V power supply)	DC 15V~18V
Test 10	Between M to GND	Point M of R75 to ground (signal sending port of ODU)	Fluctuate between 0~3.3V
Test 11	Between N to GND	Point N of R123 to ground (signal receiving port of ODU)	Fluctuate between 0~3.3V
Test 12	Between S and T	Power supply of communication ring	DC 56V

2.Capacity charging malfunction (outdoor unit malfunction) (AP1 below is control board of outdoor unit)

Main detection point:

- Detect if the voltage of L and N terminal of wiring board is between 210AC-240AC by alternating voltage meter;
- Is reactor (L) well connected? Is connection wire loosened or pull-out? Is reactor (L) damaged?

Malfunction diagnosis process:

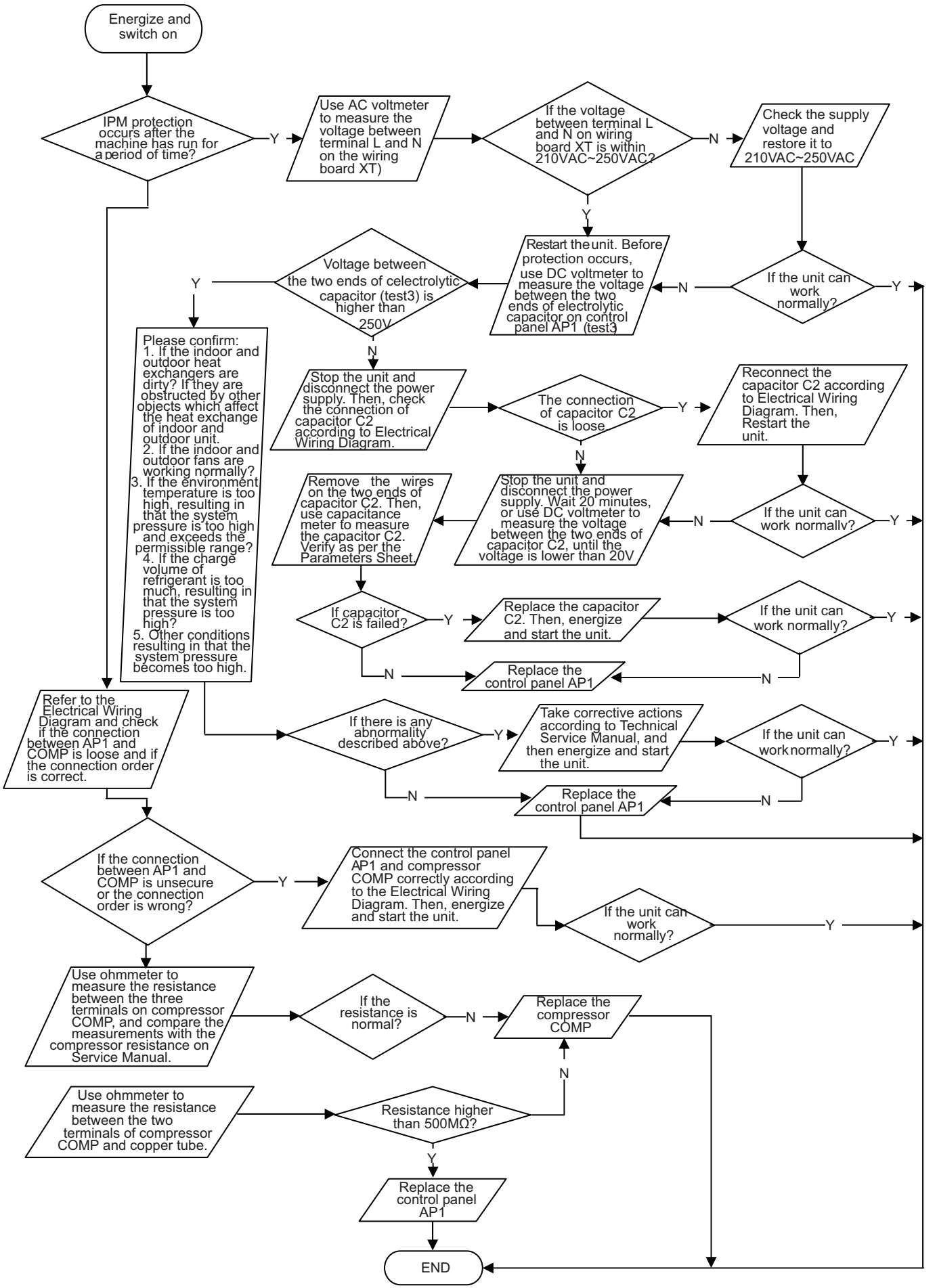


3.IPM protection, desynchronizing malfunction, phase current of compressor is overcurrent (AP1 below is control board of outdoor unit)

Main detection point:

- If control board AP1 and compressor COMP is well connected? If they are loosened? If the connection sequence is correct?
- Is voltage input in the normal range (Test the voltage between L, N of wiring board XT by DC voltage meter)?
- If coil resistance of compressor is normal? Is compressor coil insulating to copper pipe well?
- If the work load of unit is heavy? If radiating of unit is well?
- If the refrigerant charging is appropriate?

Malfunction diagnosis process:

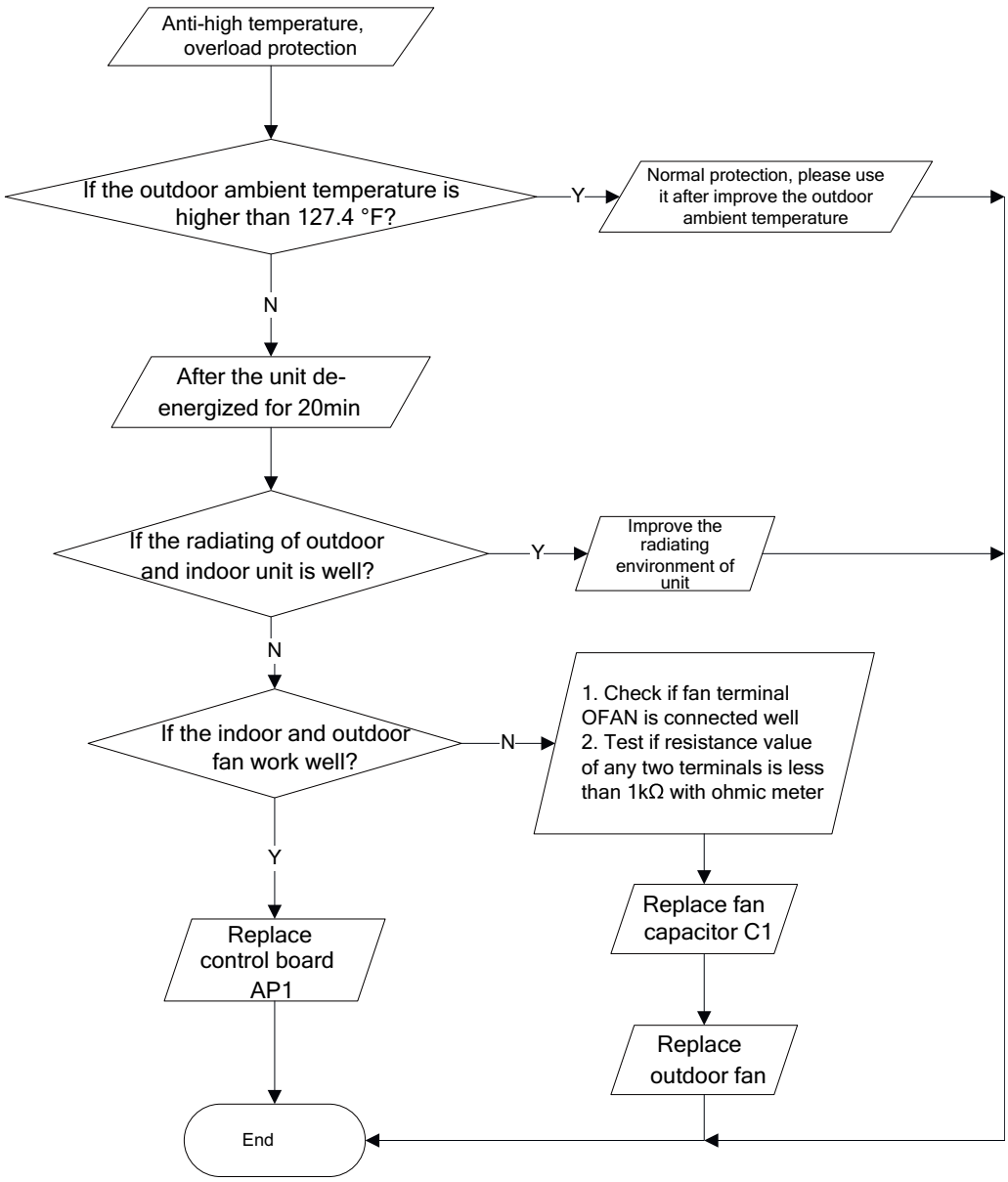

Energize and switch on
IPM protection occurs after the machine has run for a period of time?
Y
Use AC voltmeter to measure the voltage between terminal L and N on the wiring board XT)
If the voltage between terminal L and N on wiring board XT is within 210VAC~250VAC?
N
Check the supply voltage and restore it to 210VAC~250VAC
Y
Restart the unit. Before protection occurs, use DC voltmeter to measure the voltage between the two ends of electrolytic capacitor on control panel AP1 (test3)
N
If the unit can work normally?
Y
Voltage between the two ends of celectrolytic capacitor (test3) is higher than 250V
Y
N
Please confirm:
1. If the indoor and outdoor heat exchangers are dirty? If they are obstructed by other objects which affect the heat exchange of indoor and outdoor unit.
2. If the indoor and outdoor fans are working normally?
3. If the environment temperature is too high, resulting in that the system pressure is too high and exceeds the permissible range?
4. If the charge volume of refrigerant is too much, resulting in that the system pressure is too high?
5. Other conditions resulting in that the system pressure becomes too high.
Stop the unit and disconnect the power supply. Then, check the connection of capacitor C2 according to Electrical Wiring Diagram.
The connection of capacitor C2 is loose
Y
Reconnect the capacitor C2 according to Electrical Wiring Diagram. Then, Restart the unit.
N
Stop the unit and disconnect the power supply. Wait 20 minutes, or use DC voltmeter to measure the voltage between the two ends of capacitor C2, until the voltage is lower than 20V
N
If the unit can work normallv?
Y
Remove the wires on the two ends of capacitor C2. Then, use capacitance meter to measure the capacitor C2. Verify as per the Parameters Sheet.
If capacitor C2 is failed?
Y
Replace the capacitor C2. Then, energize and start the unit.
If the unit can work normally?
Y
N
Replace the control panel AP1
N
Refer to the Electrical Wiring Diagram and check if the connection between AP1 and COMP is loose and if the connection order is correct.
If there is any abnormality described above?
Y
Take corrective actions according to Technical Service Manual, and then energize and start the unit.
If the unit can work normally?
Y
N
Replace the control panel AP1
N
If the connection between AP1 and COMP is unsecure or the connection order is wrong?
Y
Connect the control panel AP1 and compressor COMP correctly according to the Electrical Wiring Diagram. Then, energize and start the unit.
If the unit can work normally?
Y
Use ohmmeter to measure the resistance between the three terminals on compressor COMP, and compare the measurements with the compressor resistance on Service Manual.
If the resistance is normal?
N
Replace the compressor COMP
N
Use ohmmeter to measure the resistance between the two terminals of compressor COMP and copper tube.
Resistance higher than 500MΩ?
Y
Replace the control panel AP1
END

4.Diagnosis for anti-high temperature, overload protection (AP1 below is control board of outdoor unit)

Main detection point:

- If the outdoor ambient temperature is in normal range;
- If the indoor and outdoor fan is running normal;
- If the radiating environment of indoor and outdoor unit is well.

Malfunction diagnosis process:

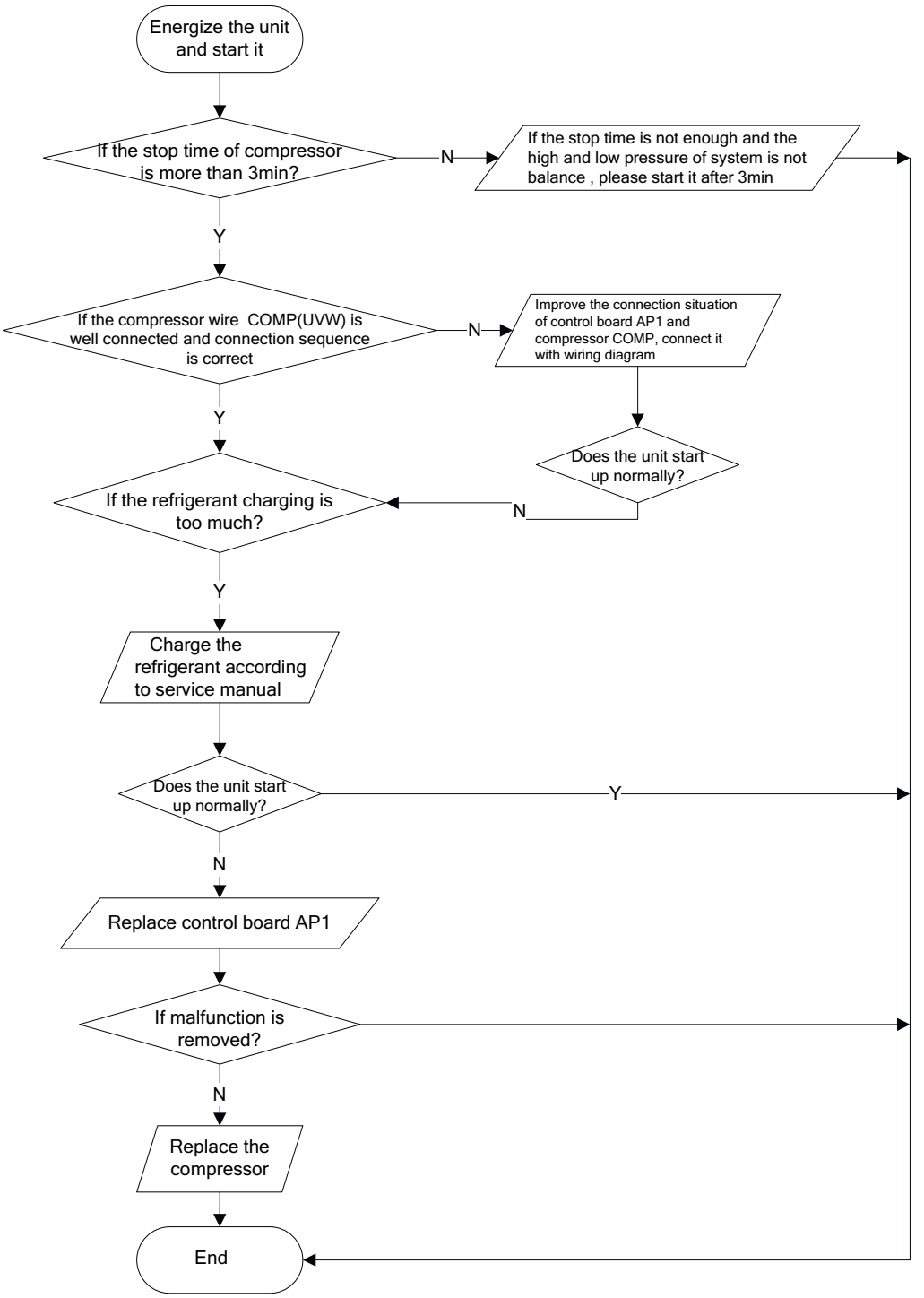


5.Diagnosis for failure start up malfunction (AP1 below is control board of outdoor unit)

Main detection point:

- If the compressor wiring is correct?
- If the stop time of compressor is enough?
- If the compressor is damaged?
- If the refrigerant charging is too much?

Malfunction diagnosis process:

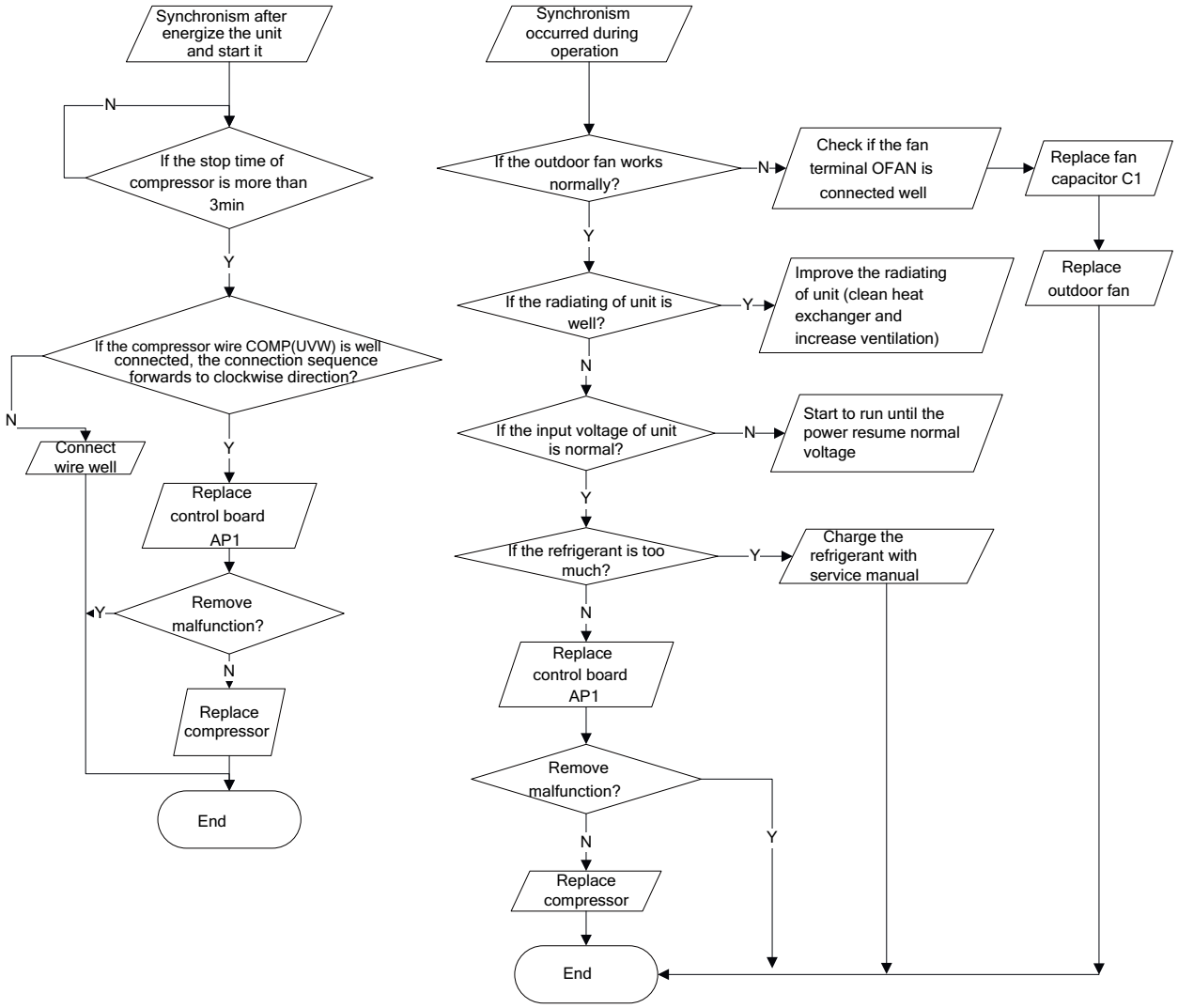


6. Diagnosis for compressor synchronism (AP1 below is control board of outdoor unit)

Main detection point:

- If the system pressure is over-high?
- If the work voltage is over-low?

Malfunction diagnosis process:

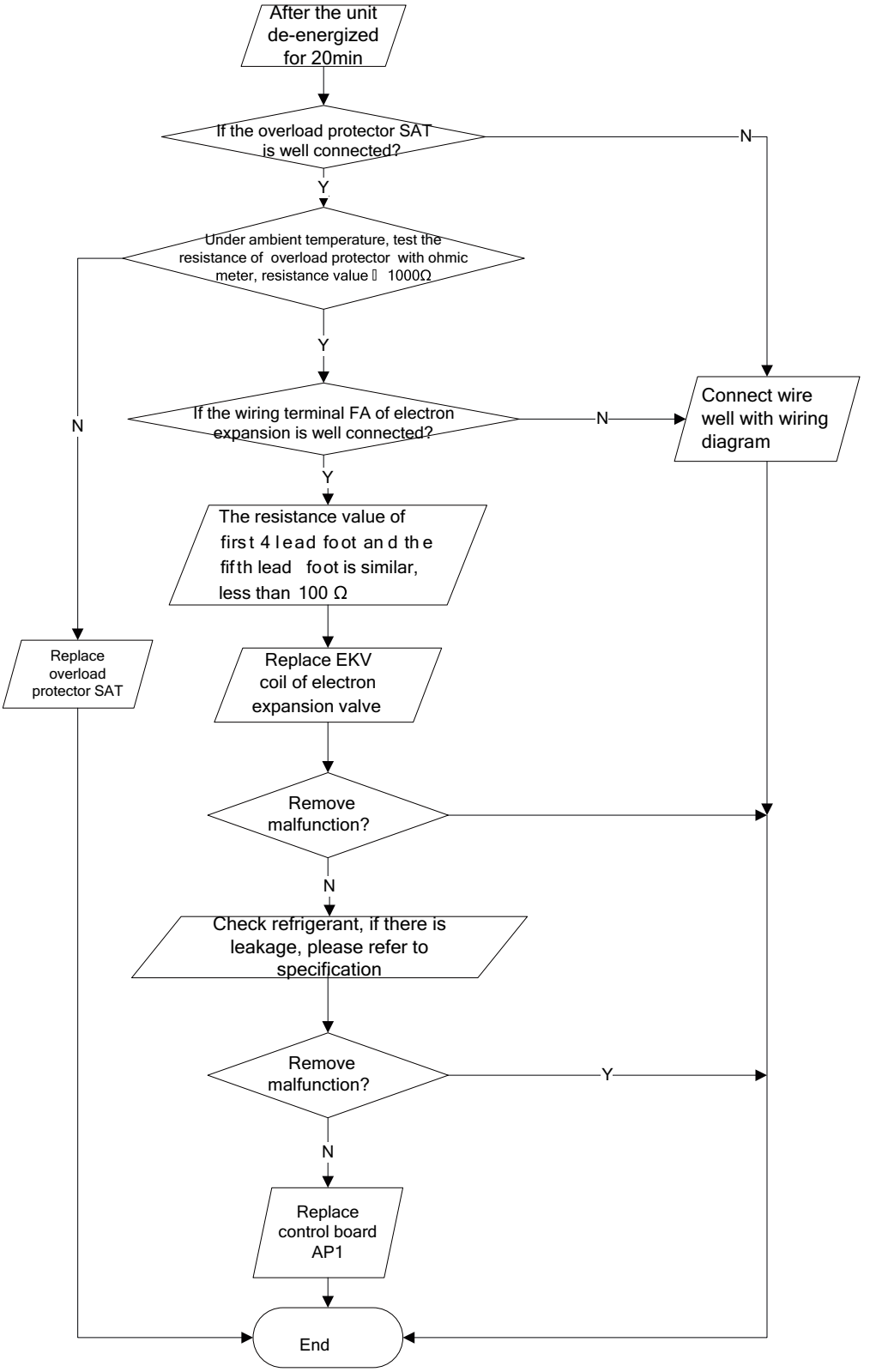


7.Diagnosis for overload and discharge malfunction (AP1 below is control board of outdoor unit)

Main detection point:

- If the electron expansion valve is connected well? Is the expansion valve damaged?
- If the refrigerant is leakage?
- If the overload protector is damaged?

Malfunction diagnosis process:

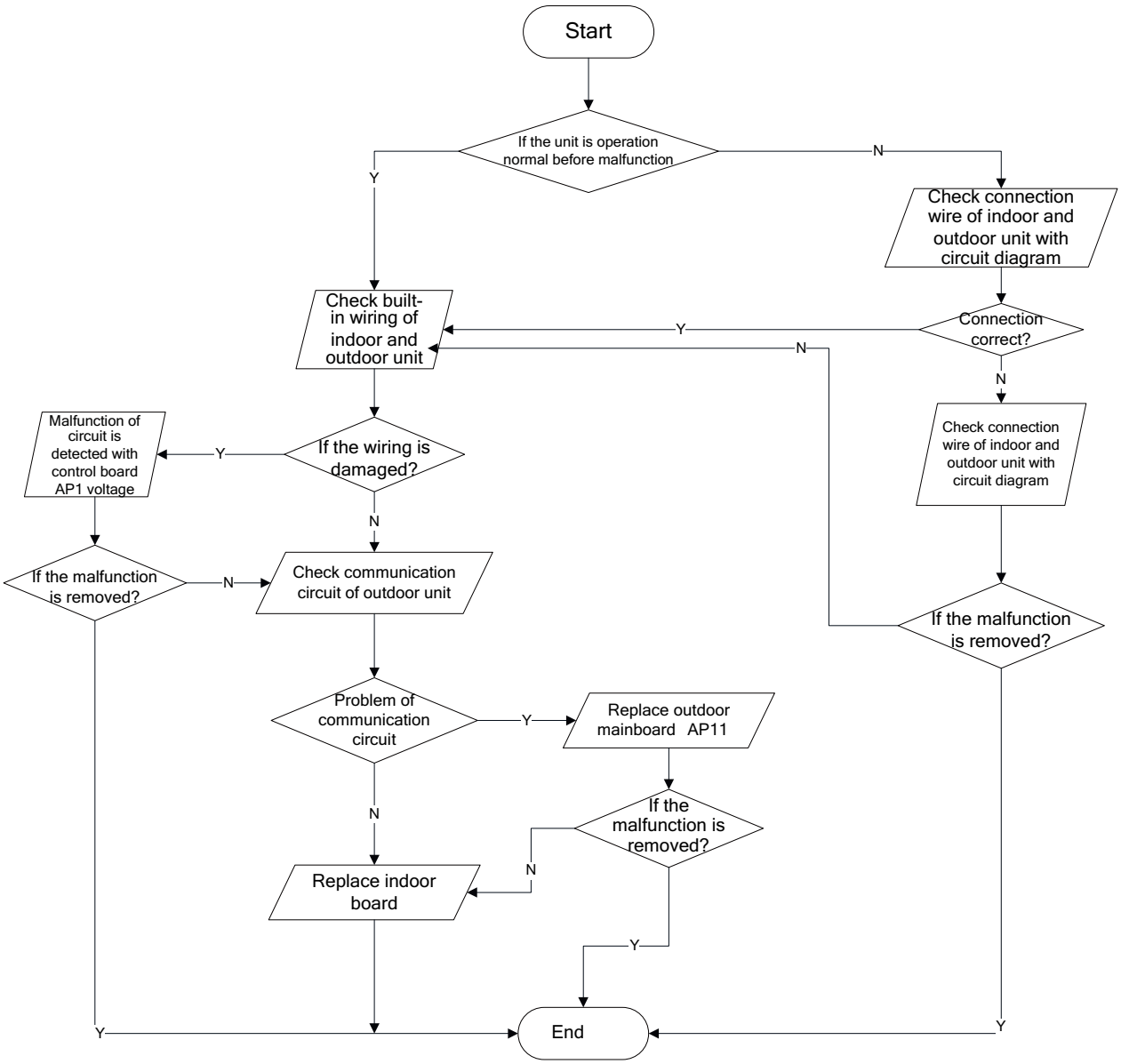


8.Communication malfunction (AP1 below is control board of outdoor unit)

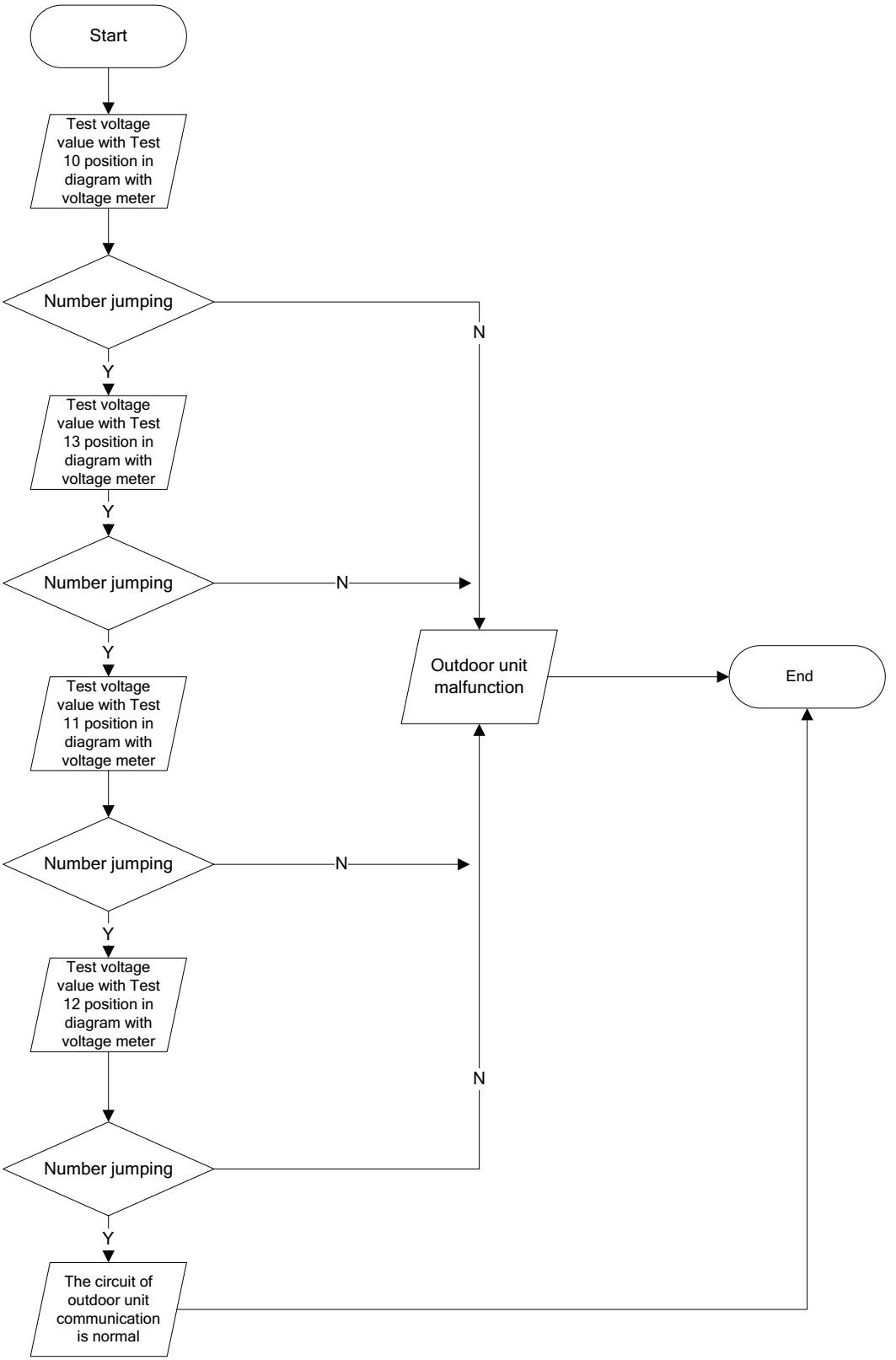
Main detection point:

● Check if the connection wire and the built-in wiring of indoor and outdoor unit is connected well and no damaged;
● If the communication circuit of indoor mainboard is damaged? If the communication circuit of outdoor mainboard (AP1) is damaged

Malfunction diagnosis process:



9.Diagnosis process for outdoor communication circuit



9.4 Troubleshooting for Normal Malfunction

1. Air conditioner can't be started up

Possible Causes	Discriminating Method (Air conditioner Status)	Troubleshooting
No power supply, or poor connection for power plug	After energization, operation indicator isn't bright and the buzzer can't give out sound	Confirm whether it's due to power failure. If yes, wait for power recovery. If not, check power supply circuit and make sure the power plug is connected well.
Wrong wire connection between indoor unit and outdoor unit, or poor connection for wiring terminals	Under normal power supply circumstances, operation indicator isn't bright after energization	Check the circuit according to circuit diagram and connect wires correctly. Make sure all wiring terminals are connected firmly
Electric leakage for air conditioner	After energization, room circuit breaker trips off at once	Make sure the air conditioner is grounded reliably Make sure wires of air conditioner is connected correctly Check the wiring inside air conditioner. Check whether the insulation layer of power cord is damaged; if yes, place the power cord.
Model selection for air switch is improper	After energization, air switch trips off	Select proper air switch
Malfunction of remote controller	After energization, operation indicator is bright, while no display on remote controller or buttons have no action.	Replace batteries for remote controller Repair or replace remote controller

2. Poor cooling (heating) for air conditioner

Possible Causes	Discriminating Method (Air conditioner Status)	Troubleshooting
Set temperature is improper	Observe the set temperature on remote controller	Adjust the set temperature
Rotation speed of the IDU fan motor is set too low	Small wind blow	Set the fan speed at high or medium
Filter of indoor unit is blocked	Check the filter to see it's blocked	Clean the filter
Installation position for indoor unit and outdoor unit is improper	Check whether the installation postion is proper according to installation requirement for air conditioner	Adjust the installation position, and install the rainproof and sunproof for outdoor unit
Refrigerant is leaking	Discharged air temperature during cooling is higher than normal discharged wind temperature; Discharged air temperature during heating is lower than normal discharged wind temperature; Unit's pressure is much lower than regulated range	Find out the leakage causes and deal with it. Add refrigerant.
Malfunction of 4-way valve	Blow cold wind during heating	Replace the 4-way valve
Malfunction of capillary	Discharged air temperature during cooling is higher than normal discharged wind temperature; Discharged air temperature during heating is lower than normal discharged wind temperature; Unit't pressure is much lower than regulated range. If refrigerant isn't leaking, part of capillary is blocked	Replace the capillary
Flow volume of valve is insufficient	The pressure of valves is much lower than that stated in the specification	Open the valve completely
Malfunction of horizontal louver	Horizontal louver can't swing	Refer to point 3 of maintenance method for details
Malfunction of the IDU fan motor	The IDU fan motor can't operate	Refer to troubleshooting for H6 for maintenance method in details
Malfunction of the ODU fan motor	The ODU fan motor can't operate	Refer to point 4 of maintenance method for details
Malfunction of compressor	Compressor can't operate	Refer to point 5 of maintenance method for details

3. Horizontal louver can't swing

Possible Causes	Discriminating Method (Air conditioner Status)	Troubleshooting
Wrong wire connection, or poor connection	Check the wiring status according to circuit diagram	Connect wires according to wiring diagram to make sure all wiring terminals are connected firmly
Stepping motor is damaged	Stepping motor can't operate	Repair or replace stepping motor
Main board is damaged	Others are all normal, while horizontal louver can't operate	Replace the main board with the same model

4. ODU Fan motor can't operate

Possible causes	Discriminating method (air conditioner status)	Troubleshooting
Wrong wire connection, or poor connection	Check the wiring status according to circuit diagram	Connect wires according to wiring diagram to make sure all wiring terminals are connected firmly
Capacity of the ODU fan motor is damaged	Measure the capacity of fan capacitor with an universal meter and find that the capacity is out of the deviation range indicated on the nameplate of fan capacitor.	Replace the capacity of fan
Power voltage is a little low or high	Use universal meter to measure the power supply voltage. The voltage is a little high or low	Suggest to equip with voltage regulator
Motor of outdoor unit is damaged	When unit is on, cooling/heating performance is bad and ODU compressor generates a lot of noise and heat.	Change compressor oil and refrigerant. If no better, replace the compressor with a new one

5. Compressor can't operate

Possible causes	Discriminating method (air conditioner status)	Troubleshooting
Wrong wire connection, or poor connection	Check the wiring status according to circuit diagram	Connect wires according to wiring diagram to make sure all wiring terminals are connected firmly
Capacity of compressor is damaged	Measure the capacity of fan capacitor with an universal meter and find that the capacity is out of the deviation range indicated on the nameplate of fan capacitor.	Replace the compressor capacitor
Power voltage is a little low or high	Use universal meter to measure the power supply voltage. The voltage is a little high or low	Suggest to equip with voltage regulator
Coil of compressor is burnt out	Use universal meter to measure the resistance between compressor terminals and it's 0	Repair or replace compressor
Cylinder of compressor is blocked	Compressor can't operate	Repair or replace compressor

6. Air conditioner is leaking

Possible causes	Discriminating method (air conditioner status)	Troubleshooting
Drain pipe is blocked	Water leaking from indoor unit	Eliminate the foreign objects inside the drain pipe
Drain pipe is broken	Water leaking from drain pipe	Replace drain pipe
Wrapping is not tight	Water leaking from the pipe connection place of indoor unit	Wrap it again and bundle it tightly

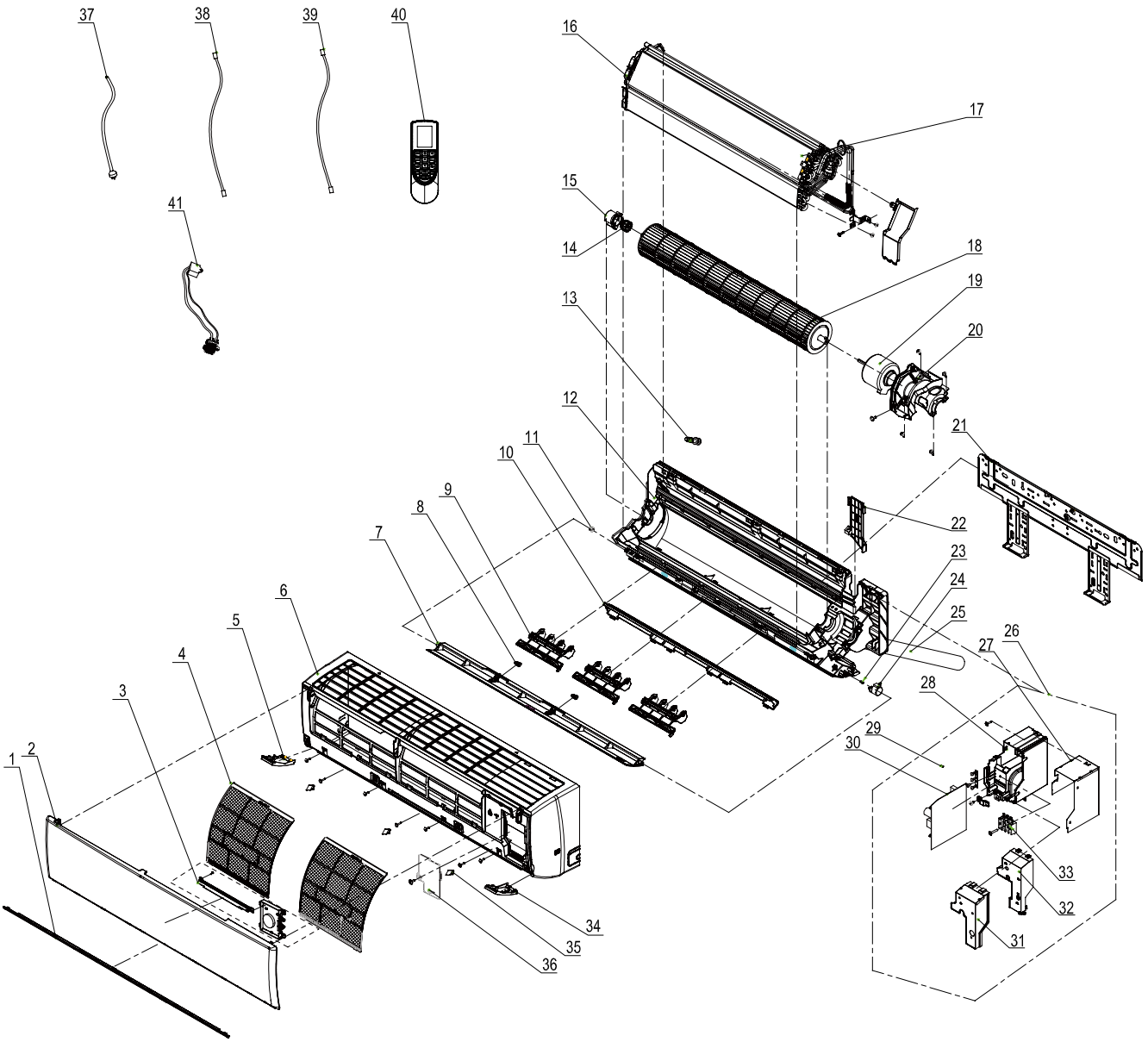
7. Abnormal sound and vibration

Possible causes	Discriminating method (air conditioner status)	Troubleshooting
When turn on or turn off the unit, the panel and other parts will expand and there's abnormal sound	There's the sound of "PAPA"	Normal phenomenon. Abnormal sound will disappear after a few minutes.
When turn on or turn off the unit, there's abnormal sound due to flow of refrigerant inside air conditioner	Water-running sound can be heard	Normal phenomenon. Abnormal sound will disappear after a few minutes.
Foreign objects inside the indoor unit or there're parts touching together inside the indoor unit	There's abnormal sound fro indoor unit	Remove foreign objects. Adjust all parts' position of indoor unit, tighten screws and stick damping plaster between connected parts
Foreign objects inside the outdoor unit or there're parts touching together inside the outdoor unit	There's abnormal sound fro outdoor unit	Remove foreign objects. Adjust all parts' position of outdoor unit, tighten screws and stick damping plaster between connected parts
Short circuit inside the magnetic coil	During heating, the way valve has abnormal electromagnetic sound	Replace magnetic coil
Abnormal shake of compressor	Outdoor unit gives out abnormal sound	Adjust the support foot mat of compressor, tighten the bolts
Abnormal sound inside the compressor	Abnormal sound inside the compressor	If add too much refrigerant during maintenance, please reduce refrigerant properly. Replace compressor for other circumstances.

10. Exploded View and Parts List

10.1 Indoor Unit

GWC18QD-D3DNA3E/I(LC)

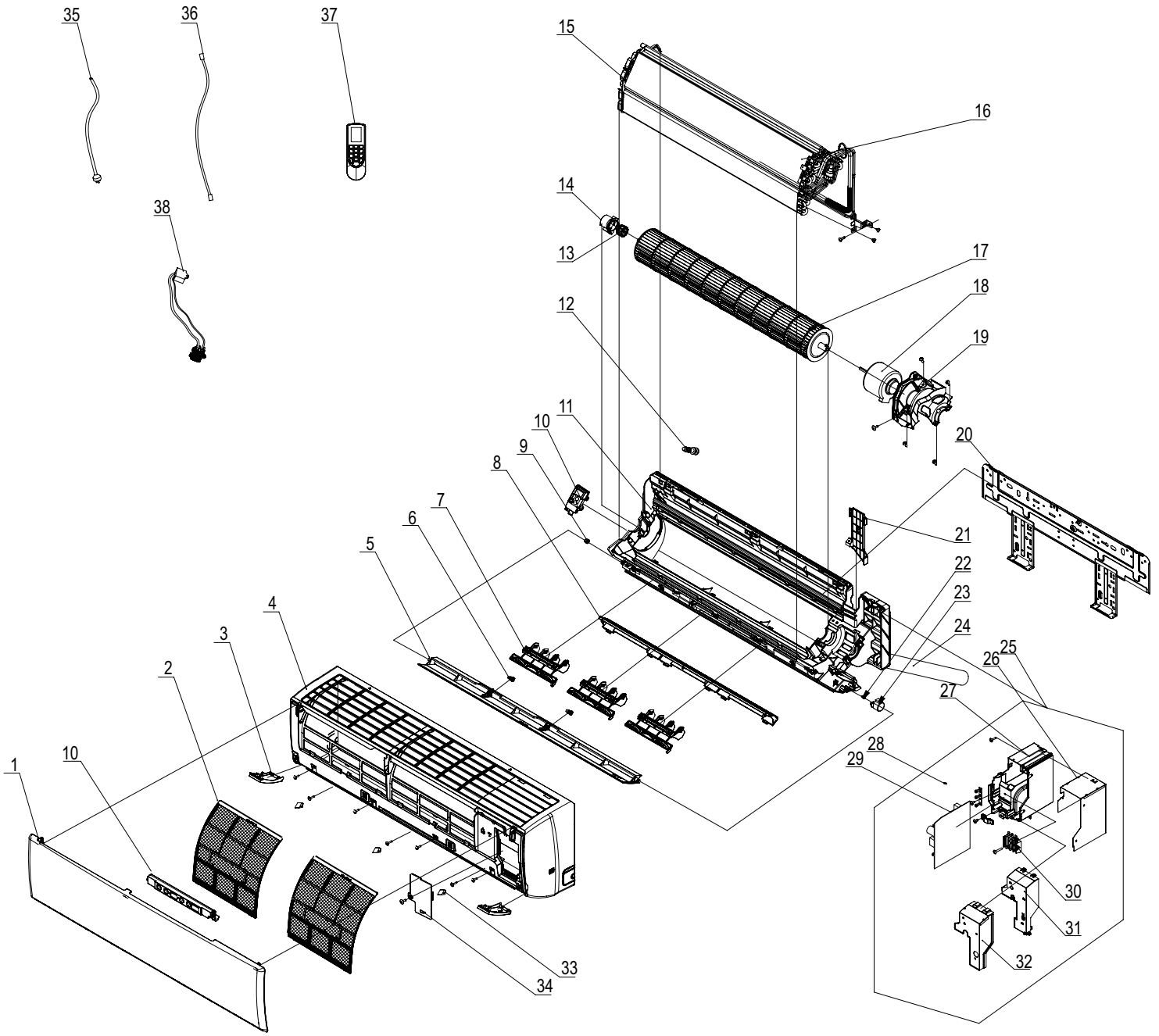


The component picture is only for reference; please refer to the actual product.

NO.	Description	Part Code	Qty
		GWC18QD-D3DNA3E/I (LC)	
	Product Code	CB419N04600	
1	Decorative Strip	20192613	1
2	Front Panel	20022481S	1
3	Display Board	30565233	1
4	Filter Sub-Assy	11122089	2
5	Decorative Board (Left)	20192612	1
6	Front Case	20022484	1
7	Guide Louver	10512734	1
8	Axile Bush	10542036	2
9	Air Louver	10512732	3
10	Helicoid tongue	26112512	1
11	Left Axile Bush	10512037	1
12	Rear Case assy	22202571	1
13	Rubber Plug (Water Tray)	76712012	1
14	O-Gasket sub-assy of Bearing	7651205102	1
15	Ring of Bearing	26152025	1
16	Evaporator Support	24212177	1
17	Evaporator Assy	0100200001401	1
18	Cross Flow Fan	10352060	1
19	Fan Motor	15012136	1
20	Motor Press Plate	26112511	1
21	Wall Mounting Frame	01252033	1
22	Connecting pipe clamp	2611218801	1
23	Crank	73012005	1
24	Stepping Motor	1521240212	1
25	Drainage hose	05230014	1
26	Electric Box Assy	10000201096	1
27	Lower Shield of Electric Box	01592139	1
28	Electric Box	2011221102	1
29	Jumper	4202021912	1
30	Main Board	30138000317	1
31	Shield Cover of Electric Box	01592140	1
32	Electric Box Cover	2011220901	1
33	Terminal Board	42011233	1
34	Decorative Board (Right)	20192611	1
35	Screw Cover	242520179	3
36	Electric Box Cover2	2011221001	1
37	Power Cord	/	/
38	Connecting Cable	/	/
39	Connecting Cable	/	/
40	Remote Controller	30510475	1
41	Cold Plasma Generator	/	/

Above data is subject to change without notice.

GMX160182HWE

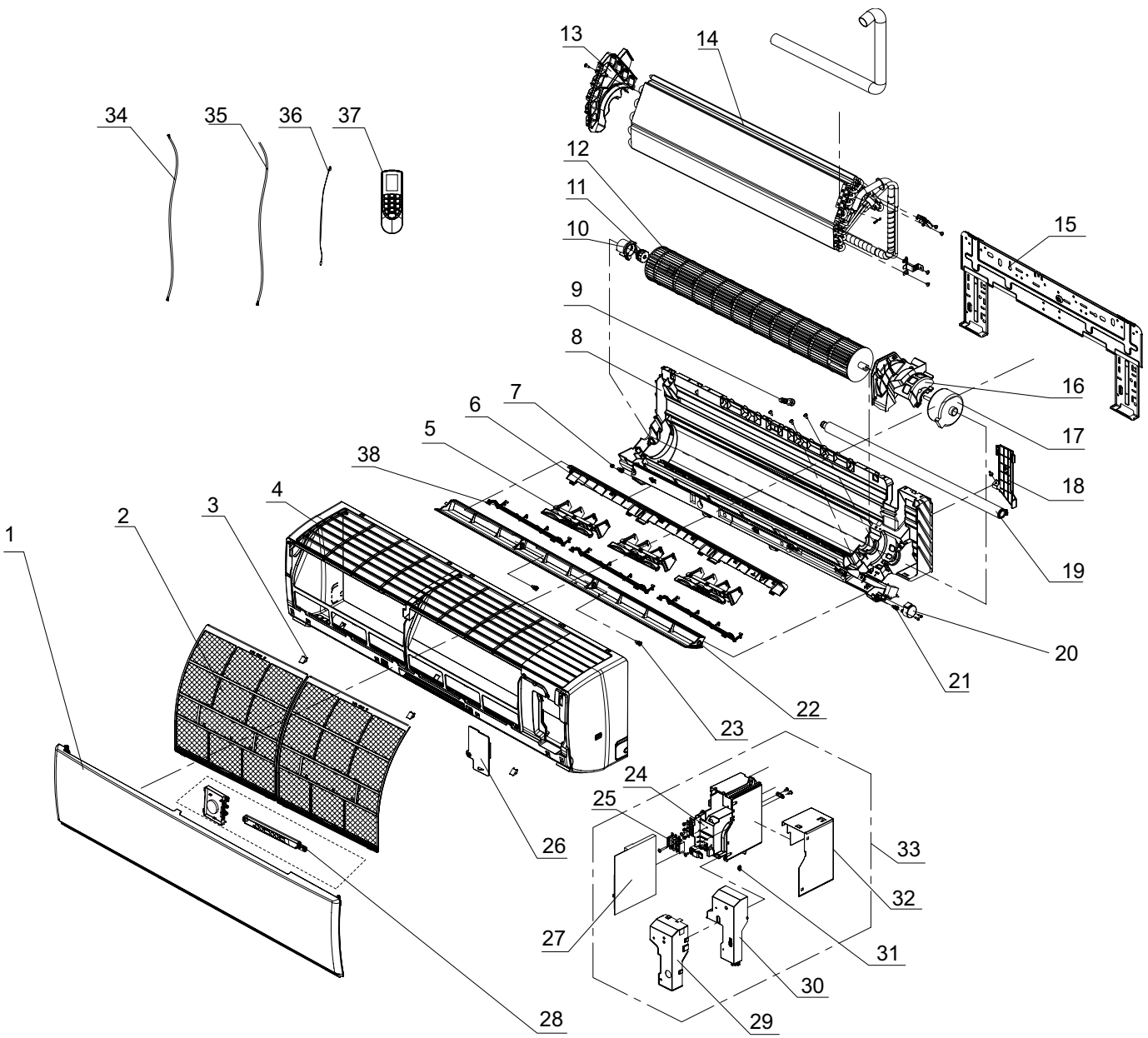


The component picture is only for reference; please refer to the actual product.

NO.	Description	Part Code	Qty
		GMX160182HWE	
	Product Code	CB424N02300	
1	Front Panel	2002270801	1
2	Filter Sub-Assy	11122089	2
3	Decoration board(left and right)	2019269302	1
4	Front Case	2002248401	1
5	Guide Louver	1051273402	1
6	Axile Bush	10542036	2
7	Air Louver(Manual)	10512732	3
8	Helicoid Tongue	26112512	1
9	Left Axile Bush	10512037	1
10	Display Board	30565262	1
11	Rear Case assy	22202571	1
12	Rubber Plug (Water Tray)	76712012	1
13	O-Gasket sub-assy of Bearing	7651205102	1
14	O-Gasket of Cross Fan Bearing	76512203	1
15	Evaporator Support	24212177	1
16	Evaporator Assy	0100200001401	1
17	Cross Flow Fan	10352060	1
18	Fan Motor	1501214503	1
19	Motor Press Plate	26112511	1
20	Wall Mounting Frame	01362026	1
21	Connecting pipe clamp	2611218801	1
22	Crank	73012005	1
23	Stepping Motor	1521240212	1
24	Drainage Hose	05230014	1
25	Electric Box Assy	10000204225	1
26	Lower Shield of Electric Box	01592139	1
27	Electric Box	2011221102	1
28	Jumper	4202021909	1
29	Main Board	30138000657	1
30	Terminal Board	42011233	1
31	Electric Box Cover	2011220901	1
32	Shield Cover of Electric Box	01592140	1
33	Screw Cover	2425201726	3
34	Electric Box Cover2	2011221001	1
35	Power Cord	/	/
36	Connecting Cable	/	/
37	Remote Controller	30510475	1
38	Cold Plasma Generator	/	/

Above data is subject to change without notice.

GMX160182HWE, GMX160242HWE

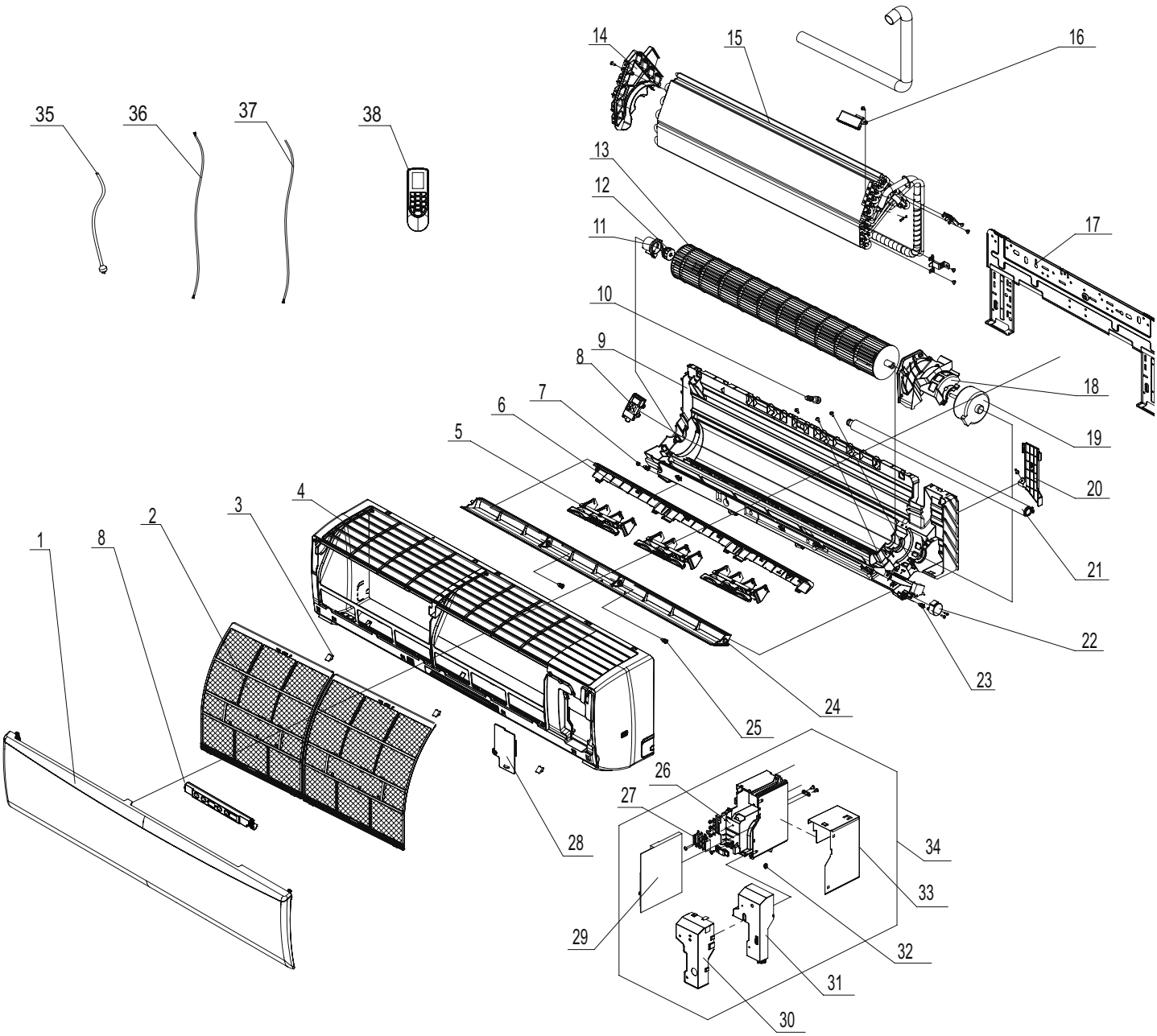


The component picture is only for reference; please refer to the actual product.

No.	Description	Part Code	Qty
		GMX160242HWE (LC)	
	Product Code	CB419N03500	
1	Front Panel Assy	20022491	1
2	Filter Sub-Assy	11012007	2
3	Screw Cover	24252453	3
4	Front Case Assy	20022487	1
5	Air Louver(Manual)	10512737	3
6	Helicoid Tongue	26112513	1
7	Left Axile Bush	10512037	1
8	Rear Case assy	22202570	1
9	Rubber Plug (Water Tray)	76712012	1
10	Ring of Bearing	26152025	1
11	O-Gasket of Cross Fan Bearing	76512203	1
12	Cross Flow Fan	10352057	1
13	Evaporator Support	24212178	1
14	Evaporator Assy	01100100029	1
15	Wall Mounting Frame	01252229	1
16	Motor Press Plate	26112515	1
17	Fan Motor	15012136	1
18	Connecting pipe clamp	26112514	1
19	Drainage Hose	0523001405	1
20	Stepping Motor	1521240212	1
21	Crank	73012005	1
22	Guide Louver	10512738	1
23	Axile Bush	10542036	2
24	Electric Box	20112211	1
25	Terminal Board	42011233	1
26	Electric Box Cover2	20112210	1
27	Main Board	30138000317	1
28	Display Board	30565233	1
29	Shield Cover of Electric Box	01592140	1
30	Electric Box Cover	20112209	1
31	Jumper cap	4202021914	1
32	Lower Shield of Electric Box	01592139	1
33	Electric Box Assy	10000201008	1
36	Temperature Sensor	3900031302	1
37	Remote Controller	30510475	1
38	Rear Grill Sub-assy	11002017	3
37	Shield Cover of Electric Box Cover	01592108	1
38	Electric Box Cover	2012216401	1

Above data is subject to change without notice.

GMX160242HWE



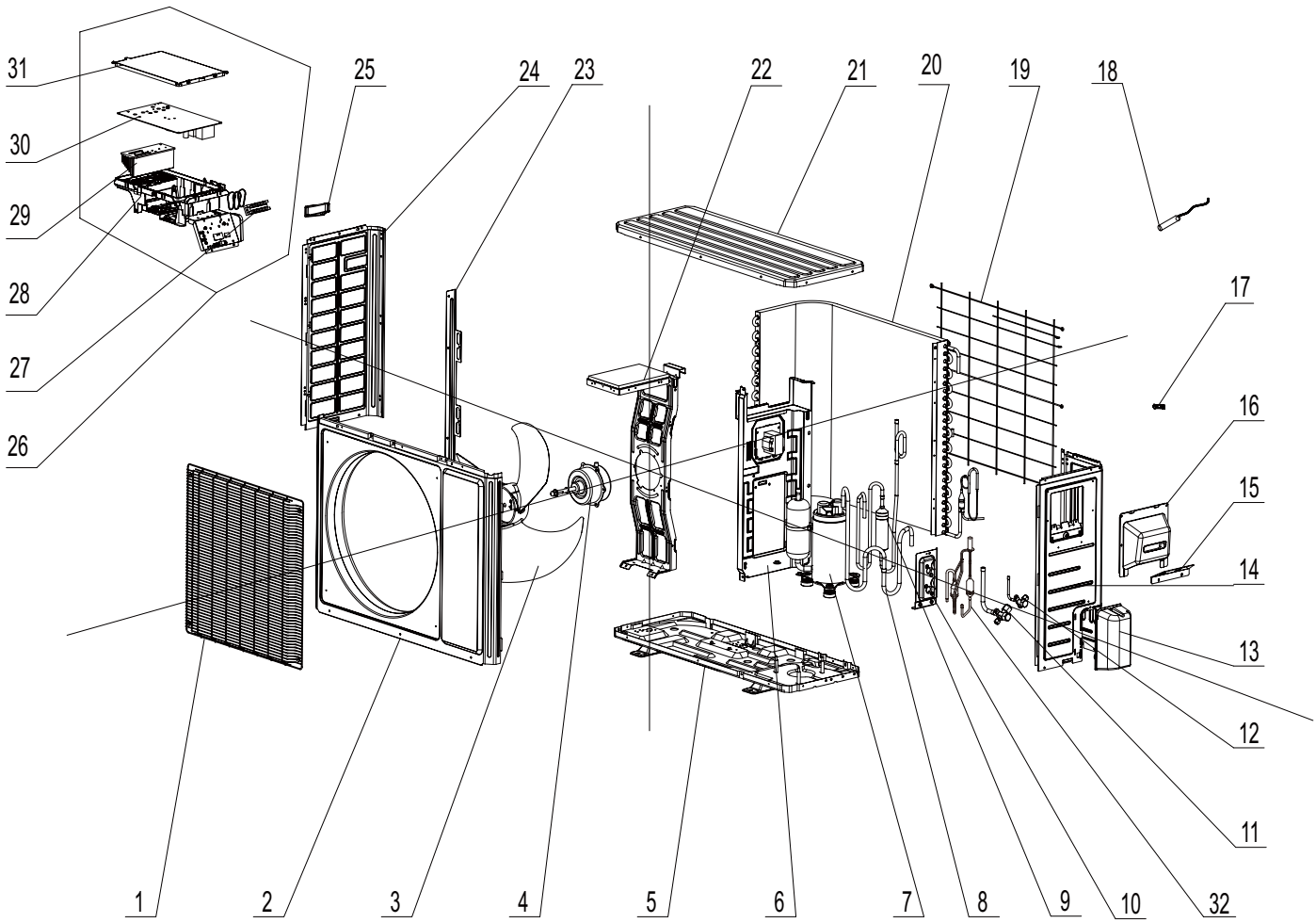
The component picture is only for reference; please refer to the actual product.

No.	Description	Part Code	Qty
		GMX160242HWE	
	Product Code	CB424N02700	
1	Front Panel	00000300174	1
2	Filter Sub-Assy	11012007	2
3	Screw Cover	2425245301	3
4	Front Case	2002248602	1
5	Air Louver(Manual)	10512737	3
6	Helicoid Tongue	26112513	1
7	Left Axile Bush	10512037	1
8	Display Board	30565262	1
9	Rear Case assy	22202570	1
10	Rubber Plug (Water Tray)	76712012	1
11	Ring of Bearing	26152025	1
12	O-Gasket sub-assy of Bearing	7651205102	1
13	Cross Flow Fan	10352057	1
14	Evaporator Support	24212178	1
15	Evaporator Assy	01100100029	1
16	Cold Plasma Generator	/	/
17	Wall Mounting Frame	01252229	1
18	Motor Press Plate	26112515	1
19	Fan Motor	1501214501	1
20	Connecting pipe clamp	26112514	1
21	Drainage Hose	0523001405	1
22	Stepping Motor	1521240212	1
23	Crank	73012005	1
24	Guide Louver	1051273802	1
25	Axile Bush	10542036	2
26	Electric Box	2011221102	1
27	Terminal Board	42011233	1
28	Electric Box Cover2	2011221001	1
29	Main Board	30138000661	1
30	Shield Cover of Electric Box	01592140	1
31	Electric Box Cover	2011220901	1
32	Jumper	4202021923	1
33	Lower Shield of Electric Box	01592139	1
34	Electric Box Assy	10000204223	1
35	Power Cord	/	/
36	Connecting Cable	/	/
37	Temperature Sensor	3900031302	1
38	Remote Controller	30510475	1

Above data is subject to change without notice.

10.2 Outdoor Unit

GMX160182CUE

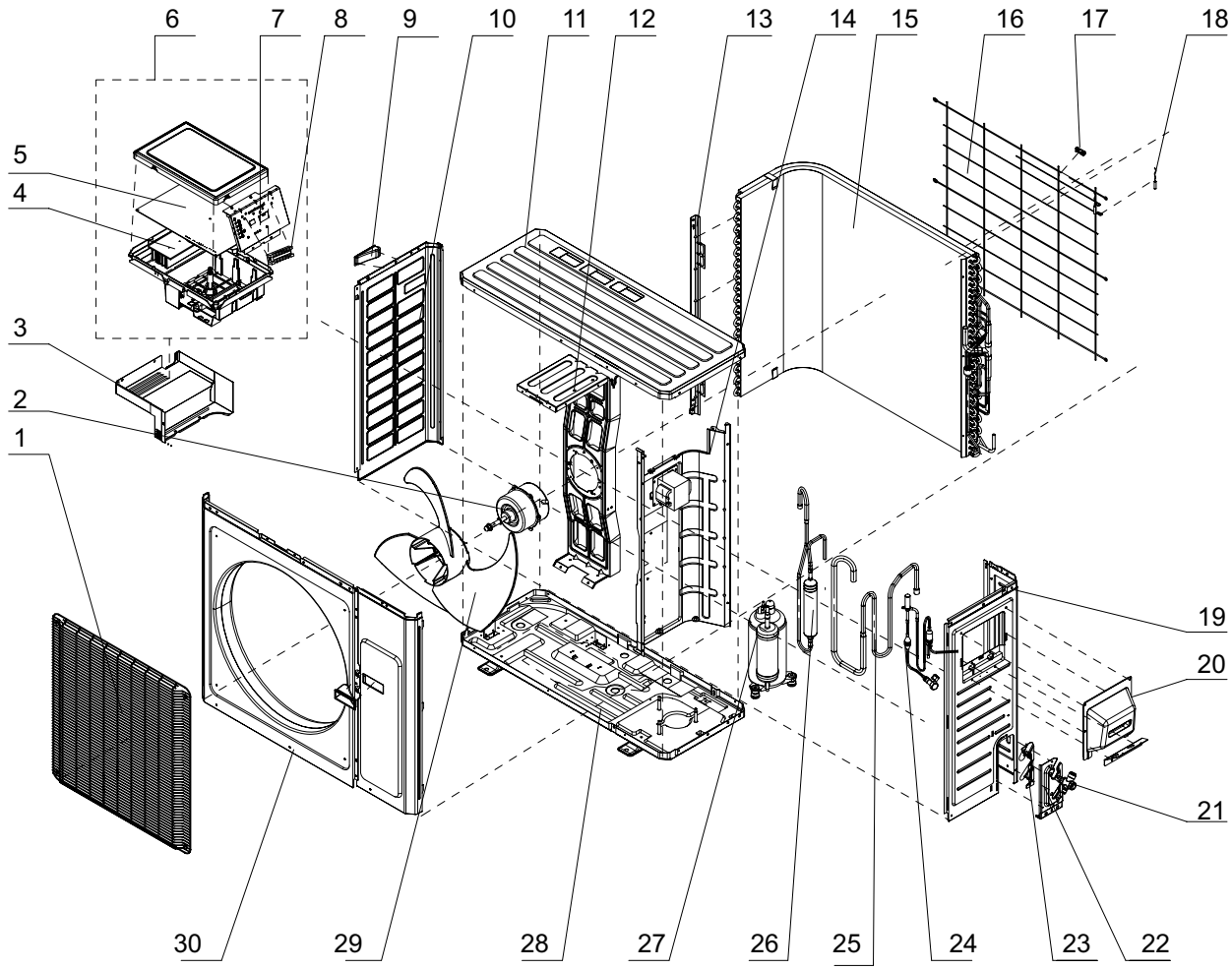


The component picture is only for reference; please refer to the actual product.

NO.	Description	Part Code	Qty
		GMX160182CUE	
	Product Code	CB419W04600	
1	Front Grill	01473049	1
2	Cabinet	01433047P	1
3	Axial Flow Fan	10335008	1
4	Fan Motor	1501506402	1
5	Chassis Sub-assy	02803367P	1
6	Clapboard Assy	0123315301	1
7	Compressor and Fittings	00105249G	1
8	Inhalation Tube Sub-assy	03500600277	1
9	Discharge Tube Sub-assy	03001300127	1
10	Valve Support Assy	01715010P	1
11	Cut off Valve Assy	07133774	1
12	Cut off Valve Sub-Assy	07133204	1
13	Valve Cover	22245002	1
14	Right Side Plate	0130509403P	1
15	Retaining Plate	02115006P	1
16	Handle Assy	02113109	1
17	Wire Clamp	71010003	1
18	Temperature Sensor	39000072	1
19	Rear Grill	01473043	1
20	Condenser Assy	0111360902	1
21	Coping	01255005P	1
22	Motor Support Sub-Assy	0170512001	1
23	Condenser Support Plate	01173415	1
24	Left Side Plate	01305093P	1
25	Handle	26233053	1
26	Electric Box Assy	10000100185	1
27	Terminal Board	42010255	1
28	Electric Box	20113027	1
29	Main Board	30138000518	1
30	Radiator	49010252	1
31	Insulated Board (Cover of Electric Box)	20113003	1
32	Electronic Expansion Valve assy	07133204	1

Above data is subject to change without notice.

GMX160242CUE

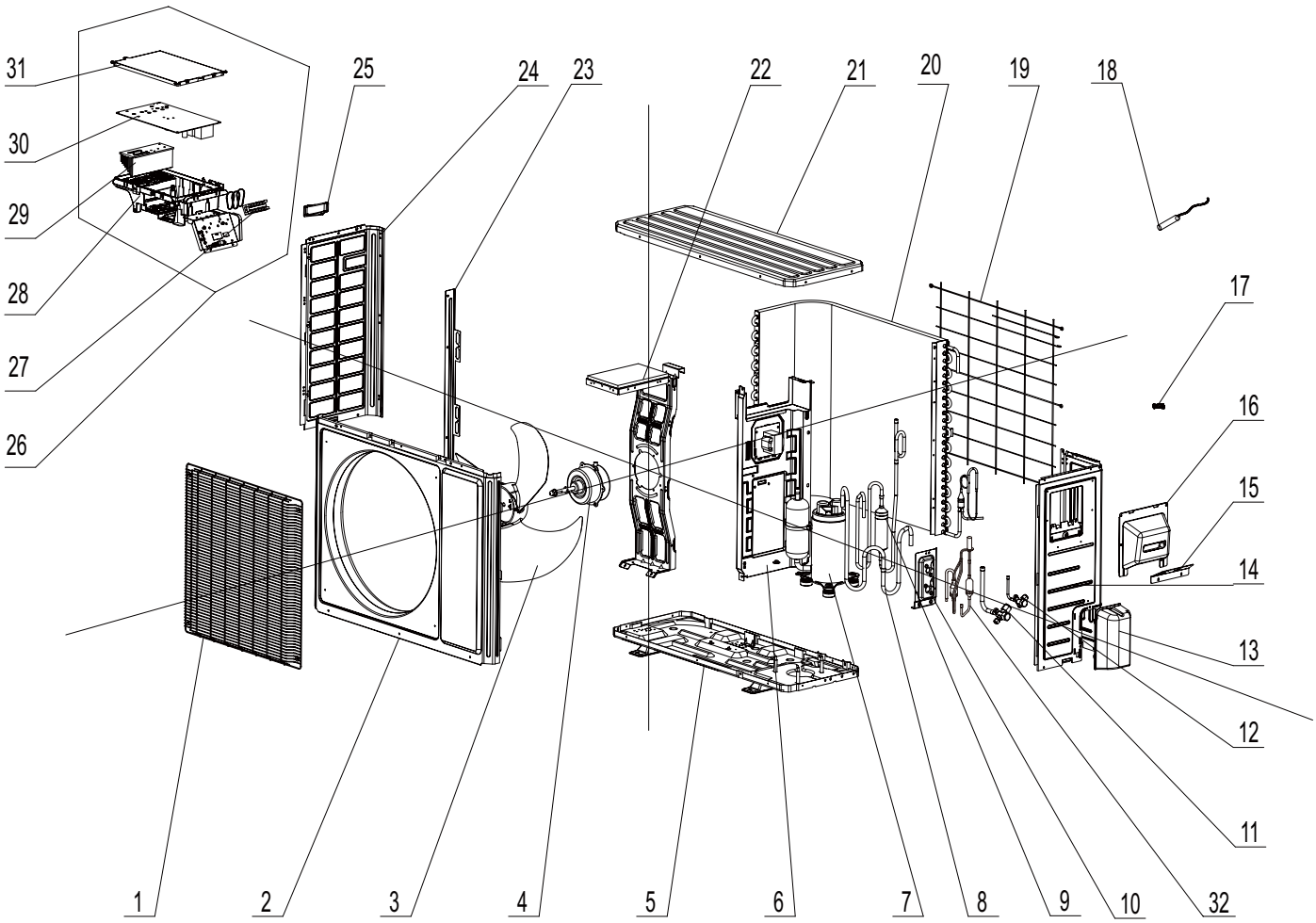


The component picture is only for reference; please refer to the actual product.

No.	Description	Part Code	Qty
		GMX160242CUE	
	Product Code	CB419W03500	
1	Front Grill	01473050	1
2	Fan Motor	1501403402	1
3	Electric Box (Fireproofing)	01413426	1
4	Radiator	49015215	1
5	Main Board	30138000506	1
6	Electric Box Assy	10000100165	1
7	Wire Clamp	71010003/71010102	1/1
8	Terminal Board	42010255	1
9	Left Handle	26235401	1
10	Left Side Plate	01305043P	1
11	Coping	01255006P	1
12	Motor Support Sub-Assy	01705025	1
13	Condenser Support Plate	01175092	1
14	Clapboard Sub-Assy	01235040	1
15	Condenser Assy	01100200162	1
16	Rear Grill	01475013	1
17	Wiring Clamp	26115004	1
18	Temperature Sensor	3900030901	1
19	Right Side Plate	0130504402P	1
20	Handle Assy	02113109	1
21	Cut off Valve	07133157	1
22	Valve Support Sub-Assy	0171501201P	1
23	Baffle(Valve Support)	01365435P	1
24	Electronic Expansion Valve assy	03017400002	1
25	Inhalation Tube Sub-assy	03833829	1
26	Discharge Tube Sub-assy	03833356	1
27	Compressor and Fittings	0010505701	1
28	Chassis Sub-assy	0280319604P	1
29	Axial Flow Fan	10335014	1
30	Cabinet	0143500401P	1

Above data is subject to change without notice.

GMX160182CUE GMX160242CUE



The component picture is only for reference; please refer to the actual product.

NO.	Description	Part Code		Qty
		GMX160182CUE	GMX160242CUE	
	Product Code	CB427W01700	CB427W02300	
1	Front Grill	01473049	01473049	1
2	Cabinet	01433047P	01433047P	1
3	Axial Flow Fan	10335008	10335008	1
4	Fan Motor	1501506402	1501506402	1
5	Chassis Sub-assy	01700000094P	02803214P	1
6	Clapboard Assy	01233153	01233153	1
7	Compressor and Fittings	00105249G	00105249G	1
8	Inhalation Tube Sub-assy	03833913	03833916	1
9	Discharge Tube Sub-assy	03001300244	03833914	1
10	Valve Support Assy	01715010P	01713098P	1
11	Cut off Valve Assy 1/2	07133774	07133157	1
12	Cut off Valve Sub-Assy	07133204	0713317001	1
13	Valve Cover	22245002	22245002	1
14	Right Side Plate	0130509403P	0130509403P	1
15	Retaining Plate	02115006P	02115006P	1
16	Handle Assy	02113109	02113109	1
17	Wire Clamp	26115004	71010003	1
18	Temperature Sensor	3900030901	3900030901	1
19	Rear Grill	01473043	01473043	1
20	Condenser Assy	01100200338	01100200348	1
21	Coping	01255005P	01255005P	1
22	Motor Support Sub-Assy	01705043	0170512001	1
23	Condenser Support Plate	01173132	01173415	1
24	Left Side Plate	01305093P	01305093P	1
25	Handle	26233053	26233053	1
26	Electric Box Assy	10000100287	10000100295	1
27	Terminal Board	42010255	4201025501	1
28	Electric Box	20113027	20113027	1
29	Main Board	30138000686	30138000674	1
30	Radiator	49010252	49010252	1
31	Insulated Board (Cover of Electric Box)	20113003	20113003	1
32	Capillary Sub-assy	03000600320	03000600330	1

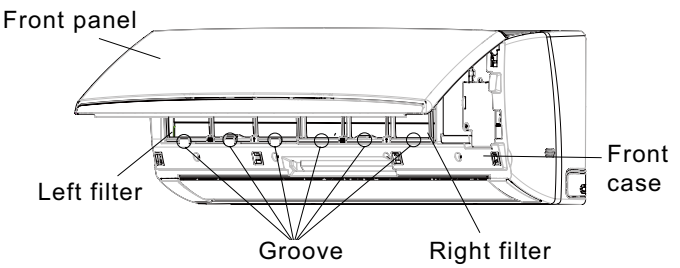
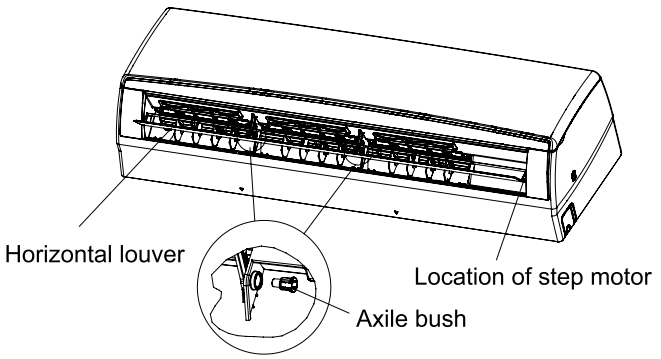
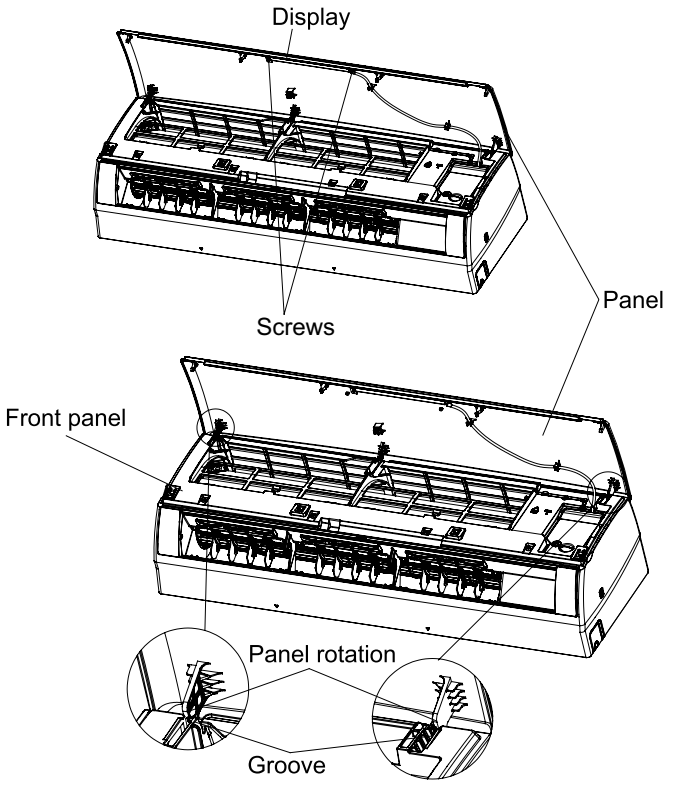
Above data is subject to change without notice.

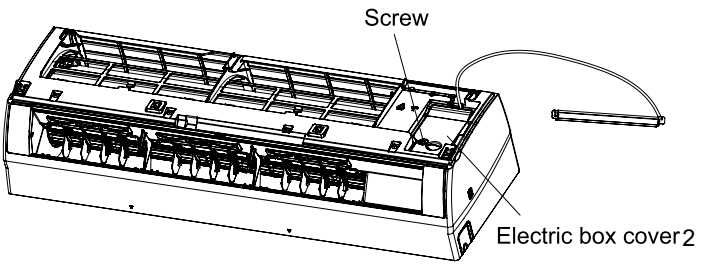
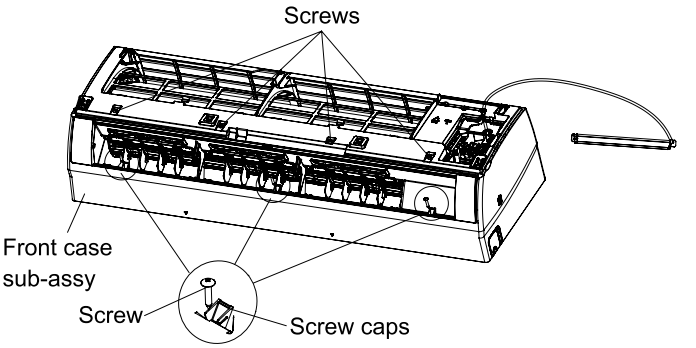
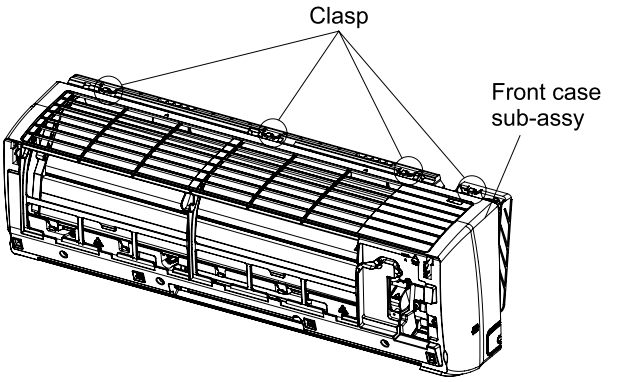
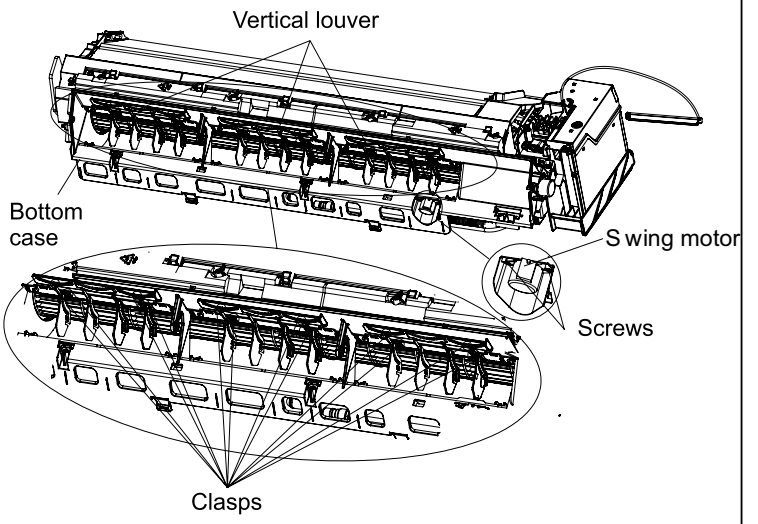
11. Removal Procedure

11.1 Removal Procedure of Indoor Unit

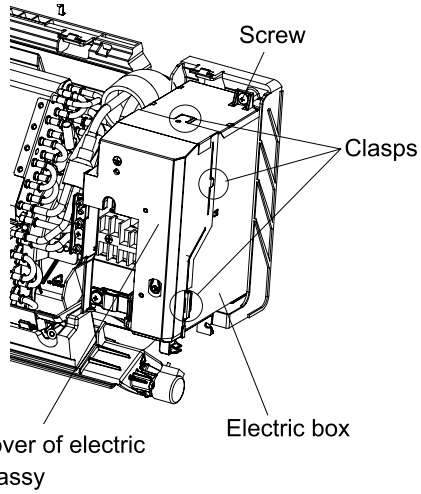
Warning: Be sure to wait for a minimum of 20 minutes after turning off all power supplies and discharge the refrigerant completely before removal.

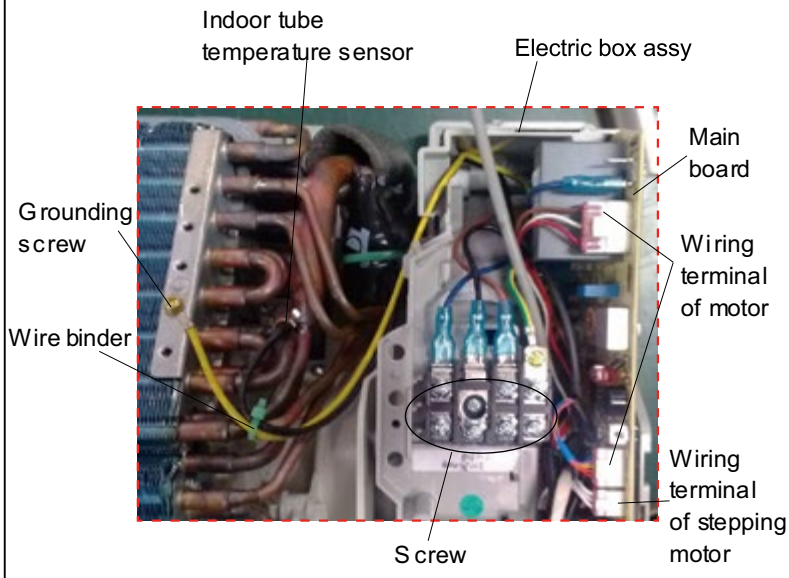
Take A1 panel for example

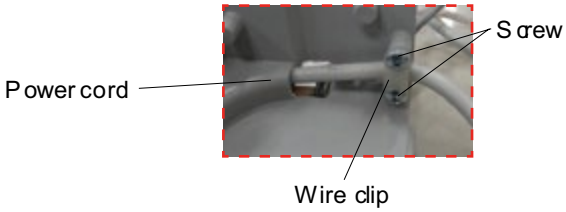
Step	Procedure	
1. Remove filter assy		
	Open the front panel. Push the left and right filters to make them break away from the groove on the front case. Then remove the left and right filters one by one.	
2. Remove horizontal louver		
	Push out the axile bush on horizontal louver. Bend the horizontal louver with hand and then separate the horizontal louver from the crankshaft of step motor to remove it.	
3. Remove panel		
a	Screw off the 2 screws that are locking the display board. Separate the display board from the front panel.	
b	Separate the panel rotation shaft from the groove fixing the front panel and then removes the front panel.	

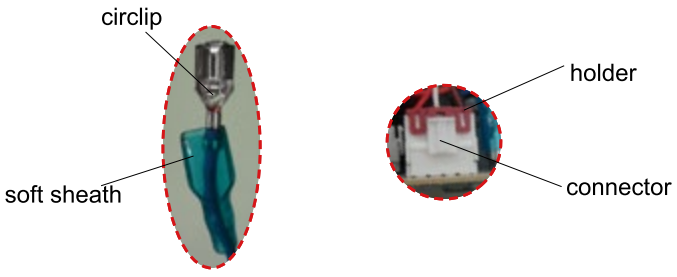
Step	Procedure	
4. Remove electric box cover 2		
	Remove the screws on the electric box cover 2 to remove the electric box cover.	
5. Remove front case sub-assy		
a	Remove the screws fixing front case. Note: 1.Open the screw caps before removing the screws around the air outlet. 2.The quantity of screws fixing the front case sub-assy is different for different models.	
b	Loosen the connection clasps between front case sub-assy and bottom case. Lift up the front case sub-assy and take it out.	
6. Remove vertical louver		
	Loosen the connection clasps between vertical louver and bottom case to remove vertical louver. Screw off the screws that are locking the swing motor and take the motor off.	

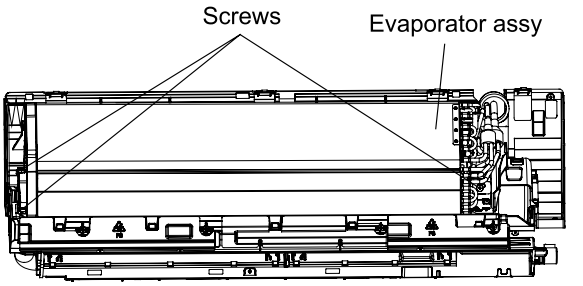
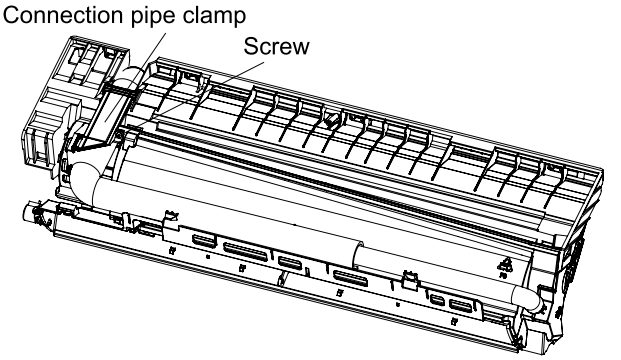
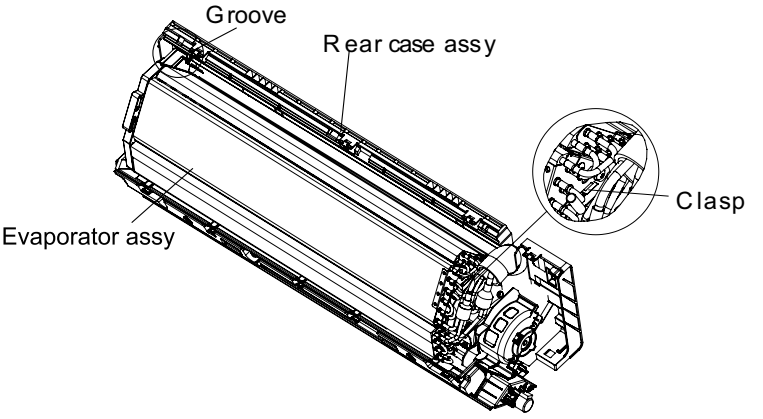
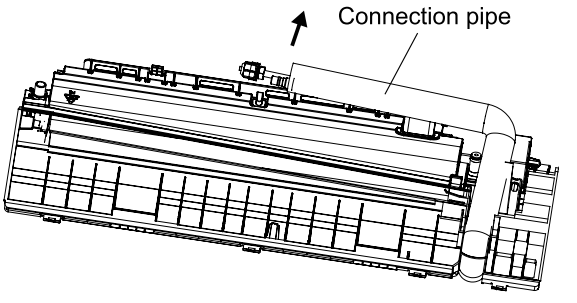
Step	Procedure
7. Remove electric box assy	
a	Loosen the connection clasps between shield cover of electric box sub-assy and electric box, and then remove the shield cover of electric box sub-assy. Remove the screw fixing electric box assy .
b	① Cut off the wire binder and pull out the indoor tube temperature sensor. ② Screw off one grounding screw. ③ Remove the wiring terminals of motor and stepping motor. ④ Remove the electric box assy. ⑤ Screw off the screws that are locking each lead wire.
c	Rotate the electric box assy. Twist off the screws that are locking the wire clip and loosen the power cord. Remove the wiring terminal of power cord. Lift up the main board and take it off.
	Instruction: Some wiring terminal of this product is with lock catch and other devices. The pulling method is as below: 1.Remove the soft sheath for some terminals at first, hold the circlip and then pull out the terminals. 2.Pull out the holder for some terminals at first (holder is not available for some wiring terminal), hold the connector and then pull the terminal.

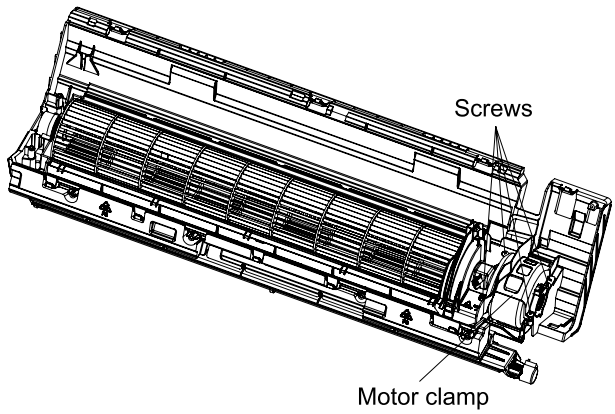
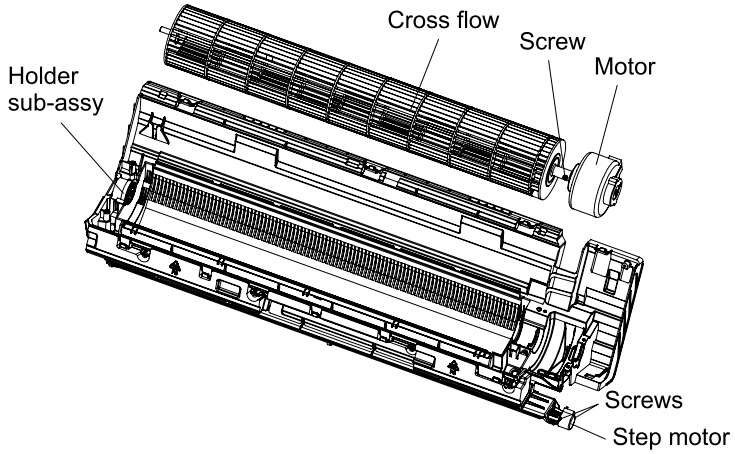








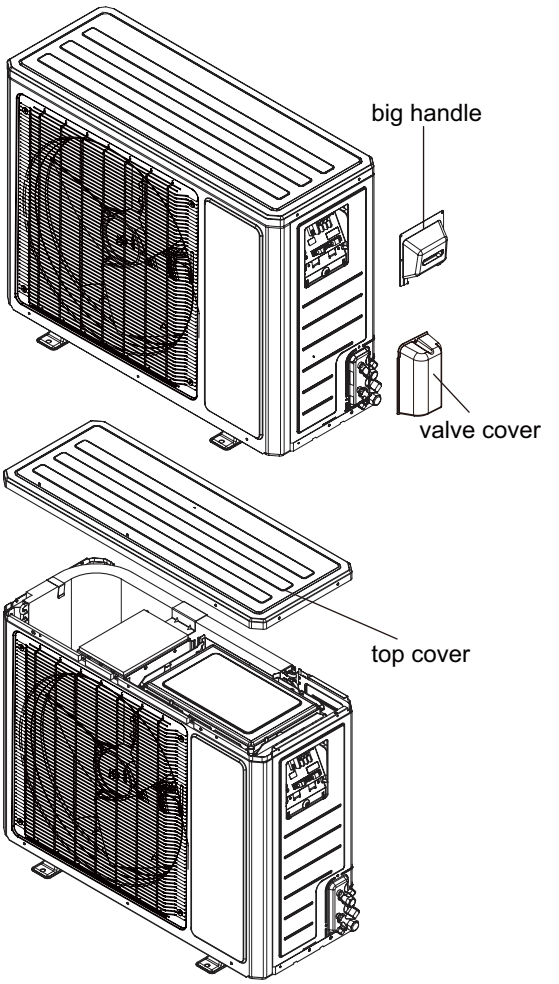
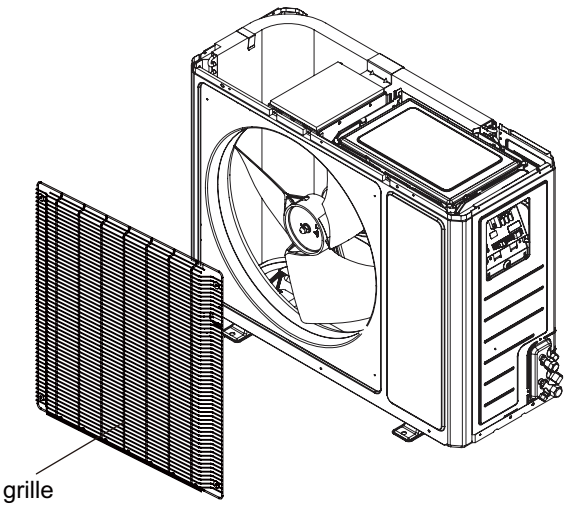
Step	Procedure	
8. Remove evaporator assy		
a	Remove 3 screws fixing evaporator assy.	
b	At the back of the unit, remove the screw fixing connection pipe clamp and then remove the connection pipe clamp.	
c	First remove the left side of evaporator from the groove on the rear case assy. Then remove the right side from the clasp on the rear case assy.	
d	Adjust the position of connection pipe on evaporator slightly and then lift the evaporator upwards to remove it.	

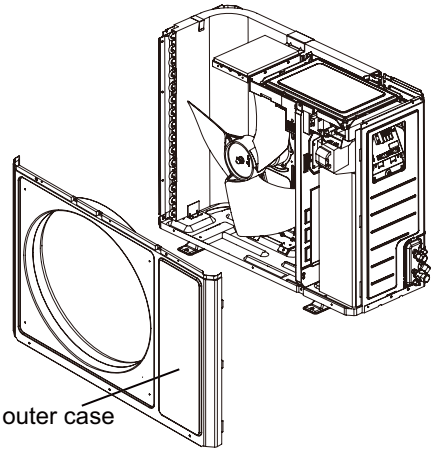
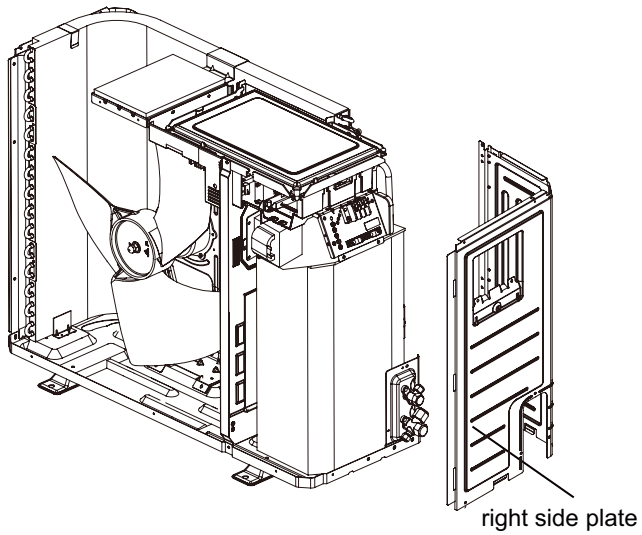
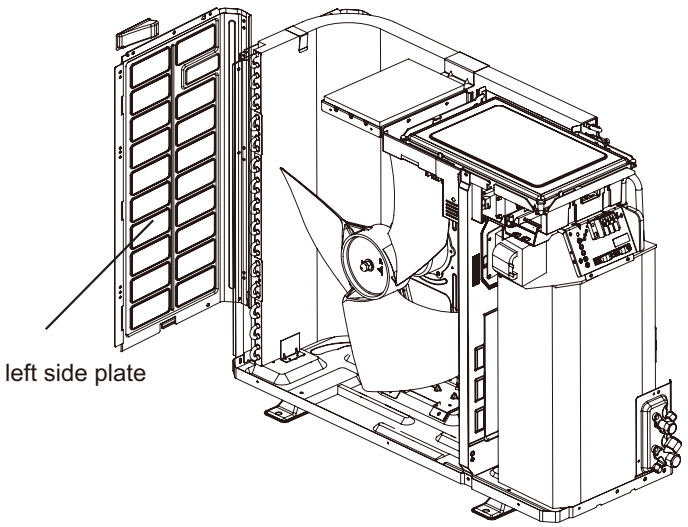
Step	Procedure	
9. Remove motor and cross flow blade		
a	Remove the screws fixing motor clamp and then remove the motor clamp.	
b	Remove the screws at the connection place of cross flow blade and motor; lift the motor and cross flow blade upwards to remove them. Remove the bearing holder sub-assy. Remove the screw fixing step motor and then remove the step motor.	

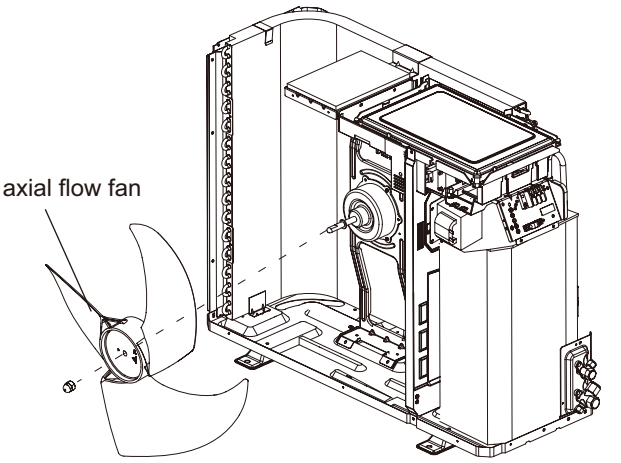
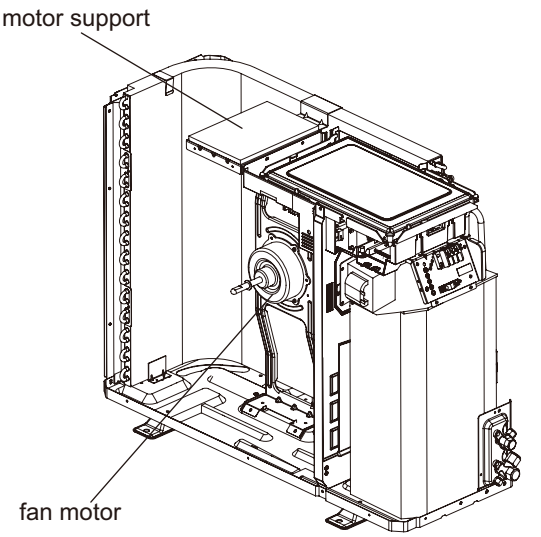
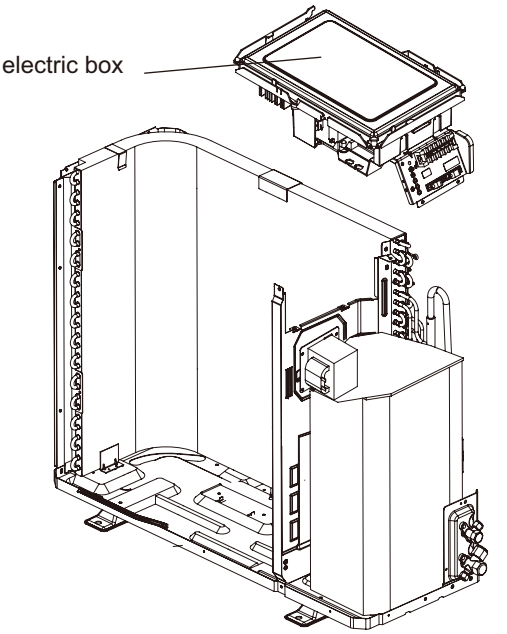
11.2 Removal Procedure of Outdoor Unit

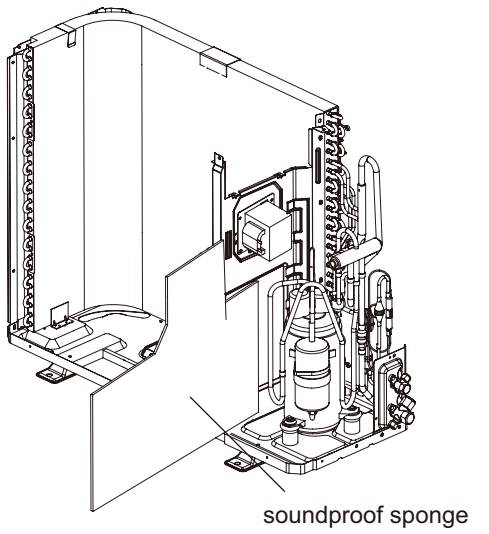
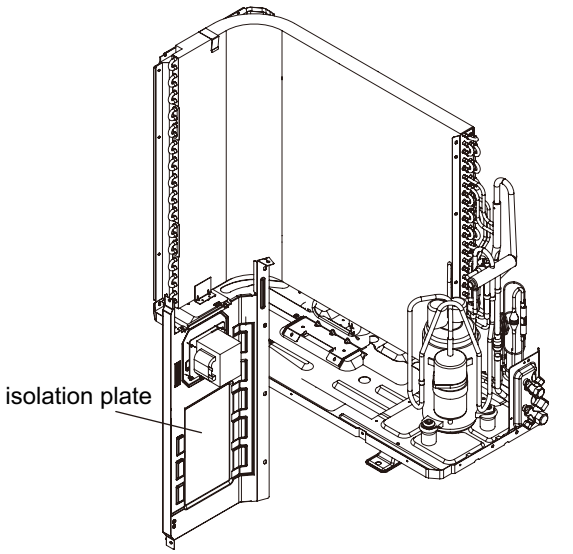
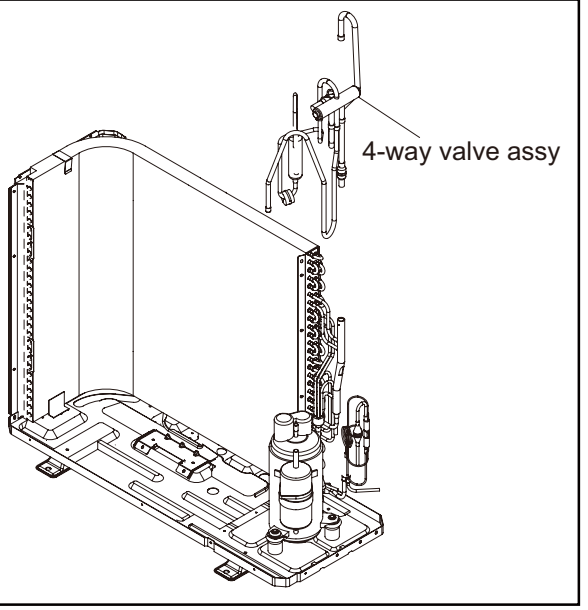
Warning: Be sure to wait for a minimum of 20 minutes after turning off all power supplies and discharge the refrigerant completely before removal.

18K GMX160242CUE(LC) NOTE: Take heat pump for example.

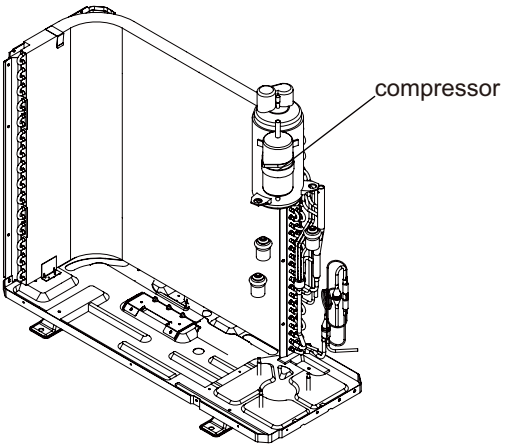
Steps	Procedure	
1. Remove big handle,valve cover and top cover		
a	Remove the screw connecting the big handle and right side plate, and then remove the big handle. Remove the screw connecting the valve cover and right side plate, and then remove the valve cover.	
b	Remove the screws connecting the top cover with outer case, right side plate and left side plate; lift the top cover upwards to remove it.	
2. Remove grille and outer case		
	Remove the 4 screws connecting the grille and outer case, and then remove the panel grille.	

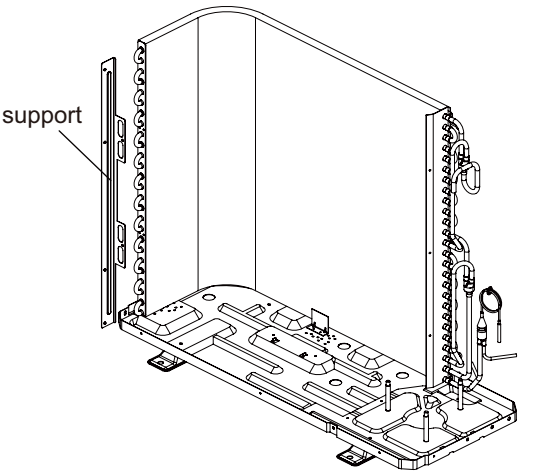
Steps	Procedure	
	Remove the screws connecting the outer case with motor support, isolation plate and chassis; lift the outer case upwards; loosen the clasps of outer case with right side plate and left side plate, and then remove the outer case.	
3. Remove right&left side plate		
a	Remove the screws connecting the right side plate with electric box assy, valve support, chassis and condenser side plate, and then remove the right side plate.	
b	Remove the screws connecting the left side plate with chassis, and then remove the left side plate.	

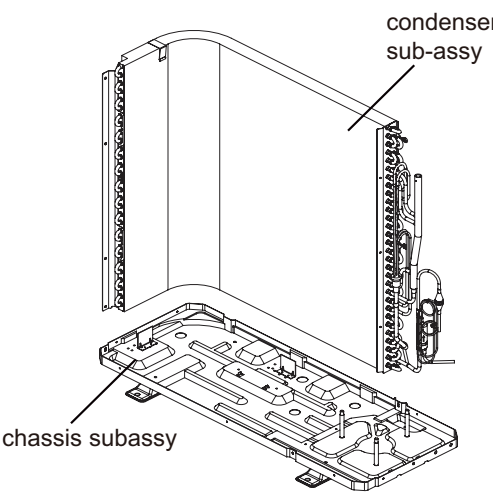
Steps	Procedure
4. Remove axial flow blade	
a	Remove the nut fixing axial flow blade and then remove the blade.
b	Remove the 6 screws fixing the motor and then remove the motor. Remove the 2 screws connecting the motor support and chassis, and then loosen the stopper to remove the motor support.	
5. Remove electric box	
	Remove the screws fixing the electric box sub-assy; loosen the wire bundle; pull out the wiring terminals and then pull the electric box upwards to remove it.

Steps	Procedure
6. Remove the soundproof sponge	
Tear off the sticking stripe and then remove the soundproof sponge.	
7. Remove isolation plate	
Remove the 2 screws connecting the isolation plate and condenser side plate; remove the 3 screws connecting the isolation plate and chassis, and then remove the isolation plate.	
8. Remove 4-way valve assy	
Unsolder the welding joints connecting the 4-way valve assy with capillary sub-assy, compressor and condenser; remove the 4-way valve. Note: Before unsoldering the welding joint, wrap the 4-way valve with a wet cloth completely to avoid damage to the valve caused by high temperature.	

Steps	Procedure
9. Remove compressor	
	Remove the 3 foot nuts fixing compressor and then lift the compressor upwards to remove the compressor and damping cushion. Note: Keep the ports of discharge pipe and suction pipe from foreign objects.
10. Remove condenser sub-assy	
a	Remove the screws connecting the support (condenser) and condenser assy,and then remove the support(condenser).
b	Remove the 2 screws fixing the condenser and chassis, and then lift the condenser upwards to remove it.

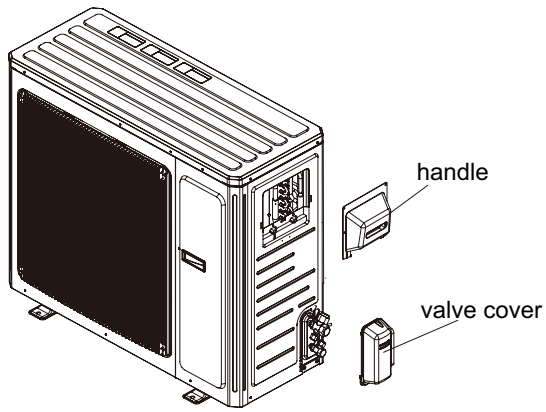
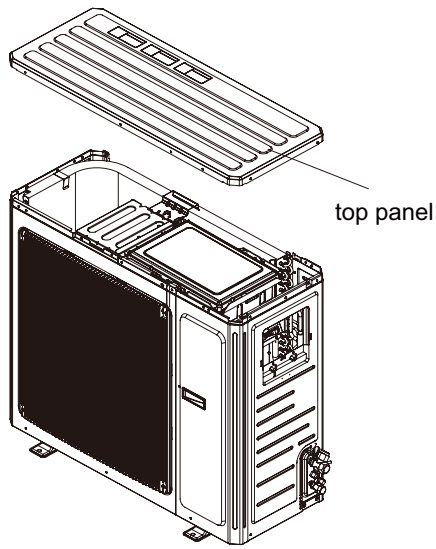
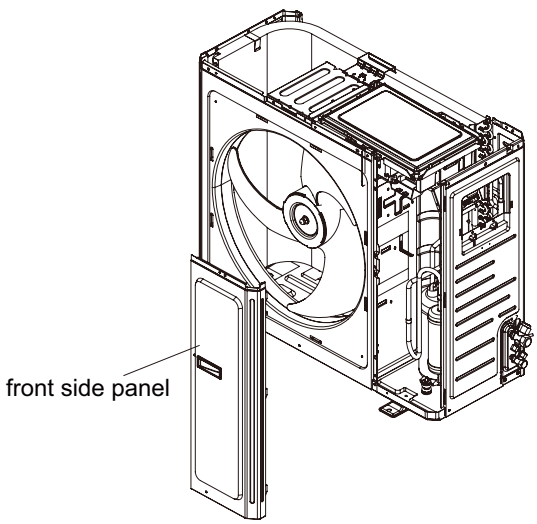


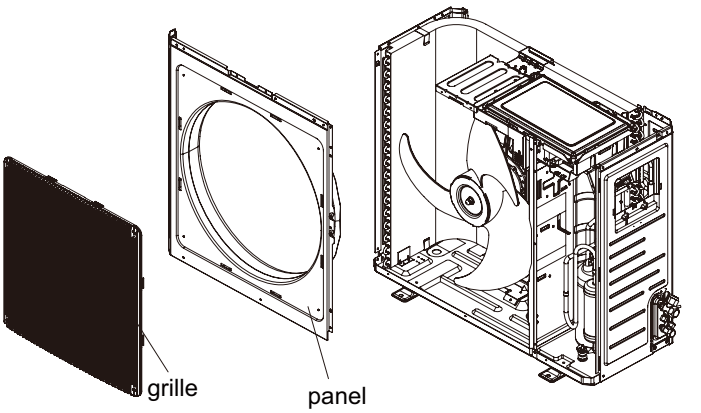
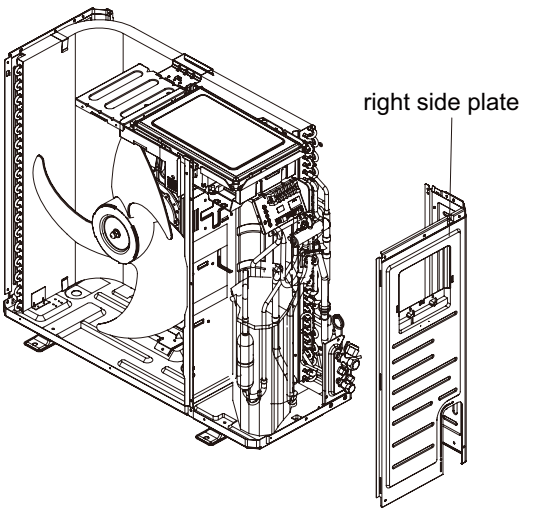
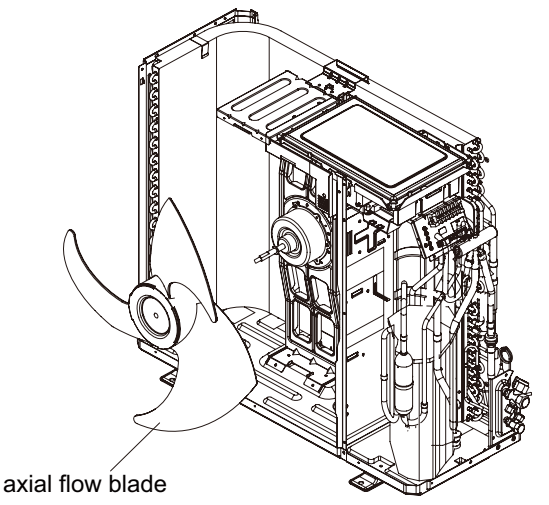


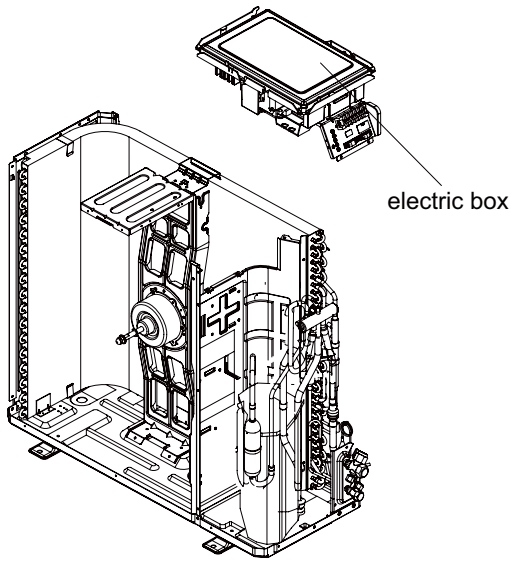
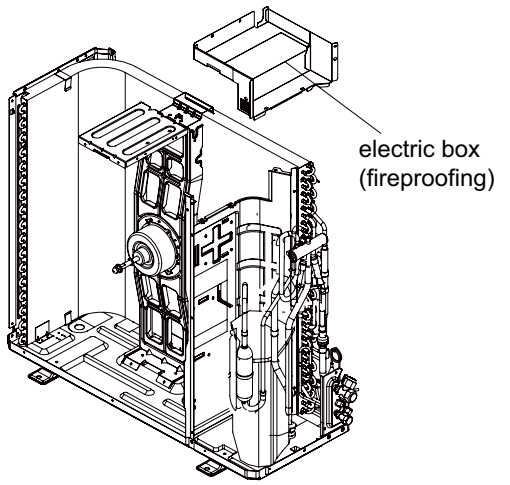
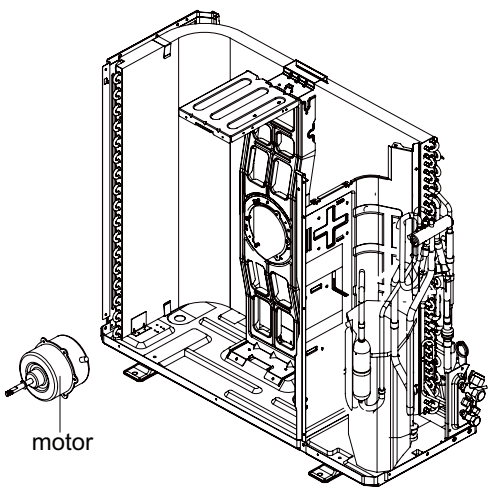


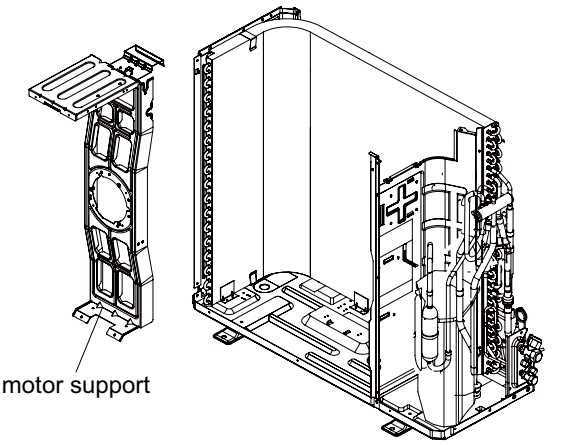
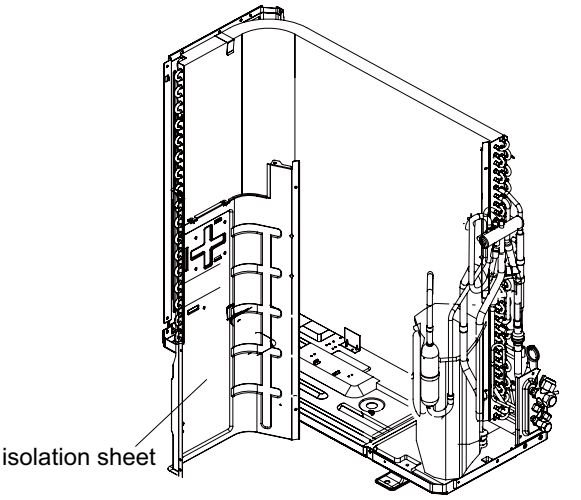
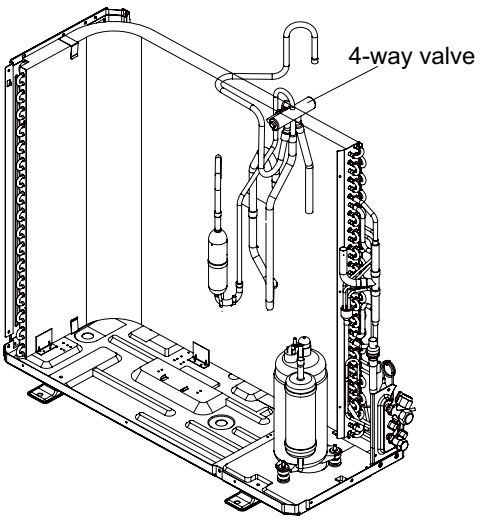
GWC24QE-D3DNA1D/O(LC) GWH24QE-D3DNA1D/O(LCLH)

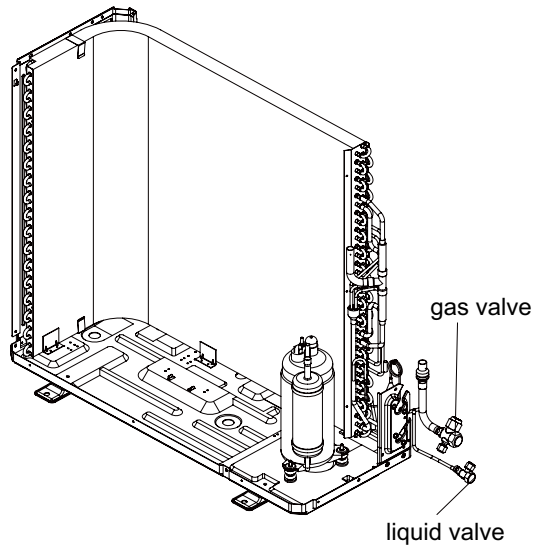
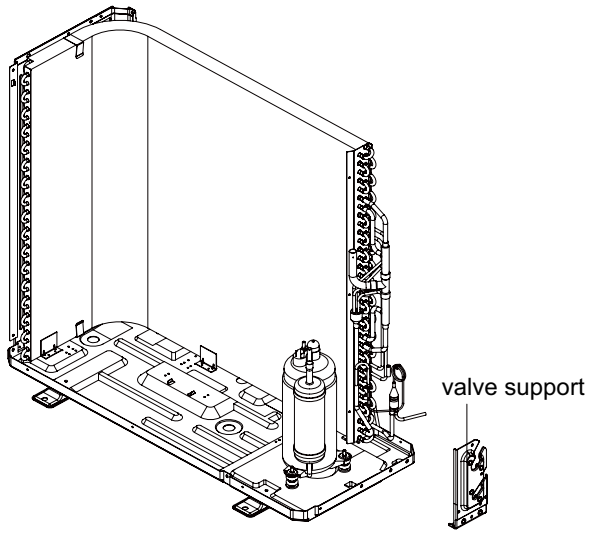
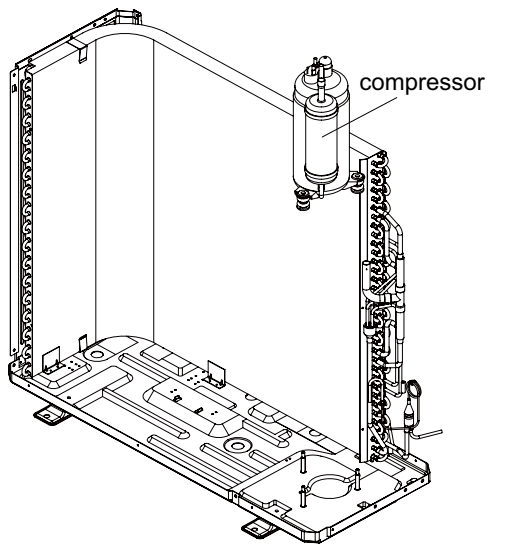
NOTE: Take heat pump for example.

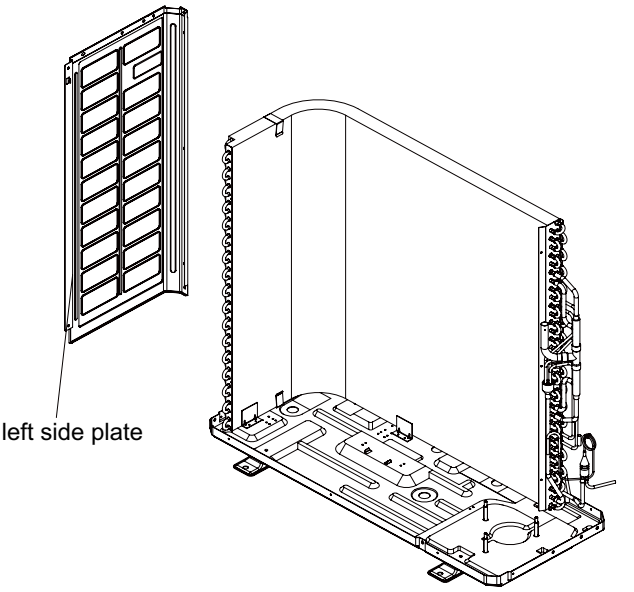
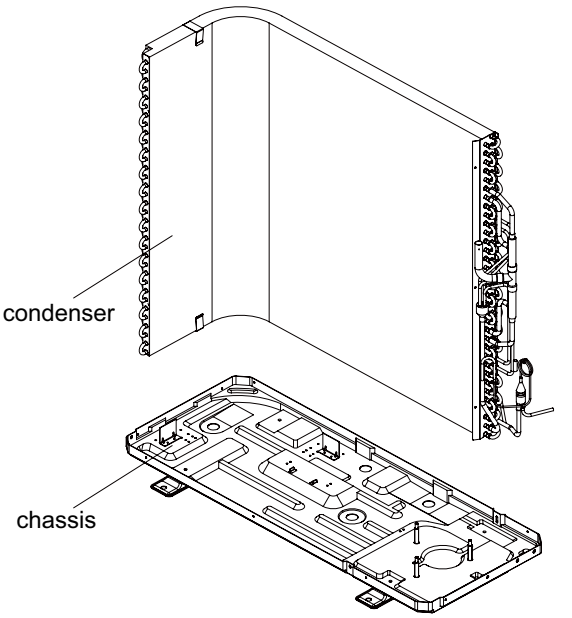
Steps	Procedure	
1. Remove big handle,valve cover and top cover		
	Remove the screw connecting the big handle and right side plate, and then remove the big handle. Remove the screw connecting the valve cover and right side plate, and then remove the valve cover.	
2.Remove top panel		
	Remove the screws connecting the top panel with the front panel and left&right side plate, and then remove the top panel.	
3.Remove front side panel		
	Loosen the screws connecting the front side panel and chassis. Remove the front side panel.	

Steps	Procedure
4.Remove grille and panel	
a	Twist off the screws connecting the grille and panel, and then remove the grille.
b	Twist off the screws connecting the panel, chassis and motor support with screwd-river, and then remove the panel.
5.Remove right side plate	
	Twist off the screws connecting the right side plate and chassis, valve support and condenser, and then remove the right side plate.
6.Remove axial flow blade	
	Twist off the nuts on blade with wrench and then remove the axial flow blade.

Steps	Procedure	
7.Remove electric box		
a	Twist off the screws on electric box, cut off the tieline with scissors or pliers, pull out the wiring terminal, pull it upwards to remove the electric box.	
b	Twist off the screws on electric box (fireproofing) with screwdriver, and then remove the electric box (fireproofing).	
8.Remove motor		
	Twist off the tapping screws fixing the motor, pull out the pin of leading wire for motor and then remove the motor.	

Steps	Procedure
9.Remove motor support	
	Twist off the tapping screws fixingthe motor support, pull it upwardsand then remove the motor support.
	
10.Remove isolation sheet	
	Twist off the screws connecting isolation sheet and end plate of condenser and chassis, and then remove the isolation sheet.
	
11.Remove 4-way valve	
	Unsolder the pipeline between compressor, condenser, gas and liquid valve, and then remove the 4-way valve. (note: release all refrigerant before unsoldering).
	

Steps	Procedure
12.Remove gas valve and liquid valve	
Twist off the 2 bolts fixing the valve sub-assy. Unsolder the soldering joint between gas valve and air-return pipe and then remove the gas valve.(note: when unsoldering the soldering joint, wrap the gas valve with wet cloth completely to avoid the damage to valve, and release all refrigerant completely at first). Unsolder the soldering joint between liquid valve and connection pipe of liquid valve, and then remove the liquid valve.	
13.Remove valve support	
Twist off the screws connecting valve support and chassis, and then remove the valve support.	
14.Remove compressor	
Twist off the 3 foot nuts on compressor and then remove the compressor.	

Steps	Procedure
15.Remove left side plate	
Twist off the screws connecting the left side plate and chassis with screwdriver, and then remove the left side plate.	
16.Remove chassis and condenser	
Pull it upwards to separate the chassis and condenser.	

Appendix:

Appendix 1: Reference Sheet of Celsius and Fahrenheit

Conversion formula for Fahrenheit degree and Celsius degree: Tf=Tcx1.8+32

Set temperature

Fahrenheit display temperature (℉)	Fahrenheit (℉)	Celsius (℃)		Fahrenheit display temperature (℉)	Fahrenheit (℉)	Celsius (℃)		Fahrenheit display temperature (℉)	Fahrenheit (℉)	Celsius (℃)
61	60.8	16		69/70	69.8	21		78/79	78.8	26
62/63	62.6	17		71/72	71.6	22		80/81	80.6	27
64/65	64.4	18		73/74	73.4	23		82/83	82.4	28
66/67	66.2	19		75/76	75.2	24		84/85	84.2	29
68	68	20		77	77	25		86	86	30

Ambient temperature

Fahrenheit display temperature (℉)	Fahrenheit (℉)	Celsius (℃)		Fahrenheit display temperature (℉)	Fahrenheit (℉)	Celsius (℃)		Fahrenheit display temperature (℉)	Fahrenheit (℉)	Celsius (℃)
32/33	32	0		55/56	55.4	13		79/80	78.8	26
34/35	33.8	1		57/58	57.2	14		81	80.6	27
36	35.6	2		59/60	59	15		82/83	82.4	28
37/38	37.4	3		61/62	60.8	16		84/85	84.2	29
39/40	39.2	4		63	62.6	17		86/87	86	30
41/42	41	5		64/65	64.4	18		88/89	87.8	31
43/44	42.8	6		66/67	66.2	19		90	89.6	32
45	44.6	7		68/69	68	20		91/92	91.4	33
46/47	46.4	8		70/71	69.8	21		93/94	93.2	34
48/49	48.2	9		72	71.6	22		95/96	95	35
50/51	50	10		73/74	73.4	23		97/98	96.8	36
52/53	51.8	11		75/76	75.2	24		99	98.6	37
54	53.6	12		77/78	77	25				

Appendix 2: Configuration of Connection Pipe

1.Standard length of connection pipe

● 16.40ft, 24.61ft, 26.25ft.

2.Min. length of connection pipe is 9.84ft.

3.Max. length of connection pipe and max. high difference.(More details please refer to the specifications)

4.The additional refrigerant oil and refrigerant charging required after prolonging connection pipe

● After the length of connection pipe is prolonged for 32.81ft at the basis of standard length, you should add 5ml of refrigerant oil for each additional 16.40ft of connection pipe.

● The calculation method of additional refrigerant charging amount (on the basis of liquid pipe):

● Basing on the length of standard pipe, add refrigerant according to the requirement as shown in the table. The additional refrigerant charging amount per meter is different according to the diameter of liquid pipe. See the following sheet.

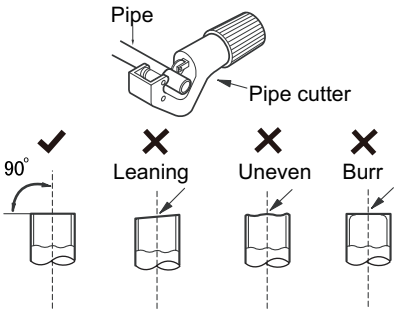
● Additional refrigerant charging amount = prolonged length of liquid pipe X additional refrigerant charging amount per meter

Additional refrigerant charging amount for R22, R407C, R410A and R134a			
Diameter of connection pipe		Outdoor unit throttle	
Liquid pipe(inch)	Gas pipe(inch)	Cooling only(oz/ft.)	Cooling and heating(oz/ft.)
Φ1/4	Φ3/8or Φ1/2	0.2	0.2
Φ1/4 or Φ3/8	Φ5/8 or Φ3/4	0.2	0.5
Φ1/2	Φ3/4 or Φ7/8	0.3	1.3
Φ5/8	Φ1 or Φ1 1/4	0.7	1.3
Φ3/4	/	2.7	2.7
Φ7/8	/	3.8	3.8

Appendix 3: Pipe Expanding Method

⚠ **Note:**

Improper pipe expanding is the main cause of refrigerant leakage.Please expand the pipe according to the following steps:

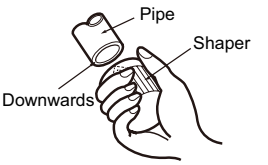


A:Cut the pip

- Confirm the pipe length according to the distance of indoor unit and outdoor unit.
- Cut the required pipe with pipe cutter.

B:Remove the burrs

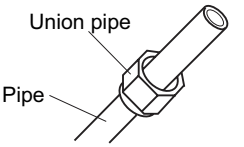
- Remove the burrs with shaper and prevent the burrs from getting into the pipe.



C:Put on suitable insulating pipe

D:Put on the union nut

- Remove the union nut on the indoor connection pipe and outdoor valve; install the union nut on the pipe.



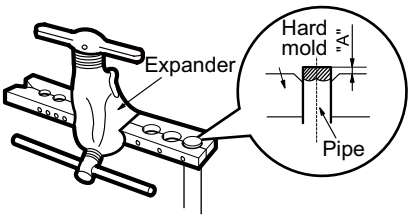
E:Expand the port

- Expand the port with expander.

⚠ **Note:**

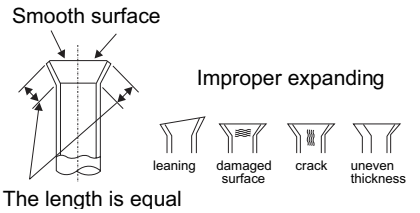
- "A" is different according to the diameter, please refer to the sheet below:

Outer diameter(inch)	A(inch)	
	Max	Min
Φ1/4	2/39	1/36
Φ3/8	1/16	1/51
Φ1/2	1/14	1/51
Φ5/8	5/53	2/23



F:Inspection

- Check the quality of expanding port. If there is any blemish, expand the port again according to the steps above.



Appendix 4: List of Resistance for Temperature Sensor

Resistance Table of Ambient Temperature Sensor for Indoor and Outdoor Units(15K)

Temp.(°F)	Resistance(kΩ)		Temp.(°F)	Resistance(kΩ)		Temp.(°F)	Resistance(kΩ)		Temp.(°F)	Resistance(kΩ)
-2.2	138.1		68	18.75		138.2	3.848		208.4	1.071
-0.4	128.6		69.8	17.93		140	3.711		210.2	1.039
1.4	121.6		71.6	17.14		141.8	3.579		212	1.009
3.2	115		73.4	16.39		143.6	3.454		213.8	0.98
5	108.7		75.2	15.68		145.4	3.333		215.6	0.952
6.8	102.9		77	15		147.2	3.217		217.4	0.925
8.6	97.4		78.8	14.36		149	3.105		219.2	0.898
10.4	92.22		80.6	13.74		150.8	2.998		221	0.873
12.2	87.35		82.4	13.16		152.6	2.896		222.8	0.848
14	82.75		84.2	12.6		154.4	2.797		224.6	0.825
15.8	78.43		86	12.07		156.2	2.702		226.4	0.802
17.6	74.35		87.8	11.57		158	2.611		228.2	0.779
19.4	70.5		89.6	11.09		159.8	2.523		230	0.758
21.2	66.88		91.4	10.63		161.6	2.439		231.8	0.737
23	63.46		93.2	10.2		163.4	2.358		233.6	0.717
24.8	60.23		95	9.779		165.2	2.28		235.4	0.697
26.6	57.18		96.8	9.382		167	2.206		237.2	0.678
28.4	54.31		98.6	9.003		168.8	2.133		239	0.66
30.2	51.59		100.4	8.642		170.6	2.064		240.8	0.642
32	49.02		102.2	8.297		172.4	1.997		242.6	0.625
33.8	46.6		104	7.967		174.2	1.933		244.4	0.608
35.6	44.31		105.8	7.653		176	1.871		246.2	0.592
37.4	42.14		107.6	7.352		177.8	1.811		248	0.577
39.2	40.09		109.4	7.065		179.6	1.754		249.8	0.561
41	38.15		111.2	6.791		181.4	1.699		251.6	0.547
42.8	36.32		113	6.529		183.2	1.645		253.4	0.532
44.6	34.58		114.8	6.278		185	1.594		255.2	0.519
46.4	32.94		116.6	6.038		186.8	1.544		257	0.505
48.2	31.38		118.4	5.809		188.6	1.497		258.8	0.492
50	29.9		120.2	5.589		190.4	1.451		260.6	0.48
51.8	28.51		122	5.379		192.2	1.408		262.4	0.467
53.6	27.18		123.8	5.197		194	1.363		264.2	0.456
55.4	25.92		125.6	4.986		195.8	1.322		266	0.444
57.2	24.73		127.4	4.802		197.6	1.282		267.8	0.433
59	23.6		129.2	4.625		199.4	1.244		269.6	0.422
60.8	22.53		131	4.456		201.2	1.207		271.4	0.412
62.6	21.51		132.8	4.294		203	1.171		273.2	0.401
64.4	20.54		134.6	4.139		204.8	1.136		275	0.391
66.2	19.63		136.4	3.99		206.6	1.103		276.8	0.382

Resistance Table of Tube Temperature Sensors for Indoor and Outdoor (20K)

Temp.(°F)	Resistance(kΩ)		Temp.(°F)	Resistance(kΩ)		Temp.(°F)	Resistance(kΩ)		Temp.(°F)	Resistance(kΩ)
-2.2	181.4		68	25.01		138.2	5.13		208.4	1.427
-0.4	171.4		69.8	23.9		140	4.948		210.2	1.386
1.4	162.1		71.6	22.85		141.8	4.773		212	1.346
3.2	153.3		73.4	21.85		143.6	4.605		213.8	1.307
5	145		75.2	20.9		145.4	4.443		215.6	1.269
6.8	137.2		77	20		147.2	4.289		217.4	1.233
8.6	129.9		78.8	19.14		149	4.14		219.2	1.198
10.4	123		80.6	18.13		150.8	3.998		221	1.164
12.2	116.5		82.4	17.55		152.6	3.861		222.8	1.131
14	110.3		84.2	16.8		154.4	3.729		224.6	1.099
15.8	104.6		86	16.1		156.2	3.603		226.4	1.069
17.6	99.13		87.8	15.43		158	3.481		228.2	1.039
19.4	94		89.6	14.79		159.8	3.364		230	1.01
21.2	89.17		91.4	14.18		161.6	3.252		231.8	0.983
23	84.61		93.2	13.59		163.4	3.144		233.6	0.956
24.8	80.31		95	13.04		165.2	3.04		235.4	0.93
26.6	76.24		96.8	12.51		167	2.94		237.2	0.904
28.4	72.41		98.6	12		168.8	2.844		239	0.88
30.2	68.79		100.4	11.52		170.6	2.752		240.8	0.856
32	65.37		102.2	11.06		172.4	2.663		242.6	0.833
33.8	62.13		104	10.62		174.2	2.577		244.4	0.811
35.6	59.08		105.8	10.2		176	2.495		246.2	0.77
37.4	56.19		107.6	9.803		177.8	2.415		248	0.769
39.2	53.46		109.4	9.42		179.6	2.339		249.8	0.746
41	50.87		111.2	9.054		181.4	2.265		251.6	0.729
42.8	48.42		113	8.705		183.2	2.194		253.4	0.71
44.6	46.11		114.8	8.37		185	2.125		255.2	0.692
46.4	43.92		116.6	8.051		186.8	2.059		257	0.674
48.2	41.84		118.4	7.745		188.6	1.996		258.8	0.658
50	39.87		120.2	7.453		190.4	1.934		260.6	0.64
51.8	38.01		122	7.173		192.2	1.875		262.4	0.623
53.6	36.24		123.8	6.905		194	1.818		264.2	0.607
55.4	34.57		125.6	6.648		195.8	1.736		266	0.592
57.2	32.98		127.4	6.403		197.6	1.71		267.8	0.577
59	31.47		129.2	6.167		199.4	1.658		269.6	0.563
60.8	30.04		131	5.942		201.2	1.609		271.4	0.549
62.6	28.68		132.8	5.726		203	1.561		273.2	0.535
64.4	27.39		134.6	5.519		204.8	1.515		275	0.521
66.2	26.17		136.4	5.32		206.6	1.47		276.8	0.509

Resistance Table of Discharge Temperature Sensor for Outdoor(50K)

Temp.(°F)	Resistance(kΩ)		Temp.(°F)	Resistance(kΩ)		Temp.(°F)	Resistance(kΩ)		Temp.(°F)	Resistance(kΩ)
-20.2	853.5		50	98		120.2	18.34		190.4	4.754
-18.4	799.8		51.8	93.42		122	17.65		192.2	4.609
-16.6	750		53.6	89.07		123.8	16.99		194	4.469
-14.8	703.8		55.4	84.95		125.6	16.36		195.8	4.334
-13	660.8		57.2	81.05		127.4	15.75		197.6	4.204
-11.2	620.8		59	77.35		129.2	15.17		199.4	4.079
-9.4	580.6		60.8	73.83		131	14.62		201.2	3.958
-7.6	548.9		62.6	70.5		132.8	14.09		203	3.841
-5.8	516.6		64.4	67.34		134.6	13.58		204.8	3.728
-4	486.5		66.2	64.33		136.4	13.09		206.6	3.619
-2.2	458.3		68	61.48		138.2	12.62		208.4	3.514
-0.4	432		69.8	58.77		140	12.17		210.2	3.413
1.4	407.4		71.6	56.19		141.8	11.74		212	3.315
3.2	384.5		73.4	53.74		143.6	11.32		213.8	3.22
5	362.9		75.2	51.41		145.4	10.93		215.6	3.129
6.8	342.8		77	49.19		147.2	10.54		217.4	3.04
8.6	323.9		78.8	47.08		149	10.18		219.2	2.955
10.4	306.2		80.6	45.07		150.8	9.827		221	2.872
12.2	289.6		82.4	43.16		152.6	9.489		222.8	2.792
14	274		84.2	41.34		154.4	9.165		224.6	2.715
15.8	259.3		86	39.61		156.2	8.854		226.4	2.64
17.6	245.6		87.8	37.96		158	8.555		228.2	2.568
19.4	232.6		89.6	36.38		159.8	8.268		230	2.498
21.2	220.5		91.4	34.88		161.6	7.991		231.8	2.431
23	209		93.2	33.45		163.4	7.726		233.6	2.365
24.8	198.3		95	32.09		165.2	7.47		235.4	2.302
26.6	199.1		96.8	30.79		167	7.224		237.2	2.241
28.4	178.5		98.6	29.54		168.8	6.998		239	2.182
30.2	169.5		100.4	28.36		170.6	6.761		240.8	2.124
32	161		102.2	27.23		172.4	6.542		242.6	2.069
33.8	153		104	26.15		174.2	6.331		244.4	2.015
35.6	145.4		105.8	25.11		176	6.129		246.2	1.963
37.4	138.3		107.6	24.13		177.8	5.933		248	1.912
39.2	131.5		109.4	23.19		179.6	5.746		249.8	1.863
41	125.1		111.2	22.29		181.4	5.565		251.6	1.816
42.8	119.1		113	21.43		183.2	5.39		253.4	1.77
44.6	113.4		114.8	20.6		185	5.222		255.2	1.725
46.4	108		116.6	19.81		186.8	5.06		257	1.682
48.2	102.8		118.4	19.06		188.6	4.904		258.8	1.64

JF00302242

Goodman Manufacturing Company, L.P.

For product improvement, specifications and appearance in this manual are subject to change without prior notice.