



Service Manual

GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI

Table of Contents

Part I : Technical Information	1
1. Summary.....	1
2. Specifications.....	2
2.1 Specification Sheet.....	2
2.2 Capacity Variation Ratio According to Temperature	8
2.3 Cooling and Heating Data Sheet in Rated Frequency	8
3. Outline Dimension Diagram.....	9
3.1 Indoor Unit.....	9
3.2 Outdoor Unit.....	10
4. Refrigerant System Diagram	11
5. Electrical Part	12
5.1 Wiring Diagram.....	12
5.2 PCB Printed Diagram.....	16
6. Function and Control	19
6.1 Function Buttons of Air Conditioner.....	19
6.2 Remote Controller Introduction of YAP1F11(WiFi)	21
6.3 GREE+ App Operation Manual.....	25
6.4 Ewpe Smart App Operation Manual	26
6.5 Description of Each Control Operation.....	27
Part II : Installation and Maintenance	32
7. Notes for Installation and Maintenance	32
8. Installation	37
8.1 Installation Dimension Diagram	37
8.2 Installation Parts-checking	39
8.3 Selection of Installation Location.....	39
8.4 Electric Connection Requirement	39

8.5 Installation of Indoor Unit.....	40
8.6 Installation of Outdoor Unit.....	41
8.7 Vacuum Pumping and Leak Detection	42
8.8 Check after Installation and Test Operation	43
9. Maintenance	44
9.1 Error Code List.....	44
9.2 How to Check Simply the Main Part of Indoor	47
9.3 How to Check Simply the Main Part of Outdoor	57
9.4 Troubleshooting for Normal Malfunction.....	59
10. Exploded View and Parts List.....	61
10.1 Indoor Unit.....	61
10.2 Outdoor Unit.....	65
11. Removal Procedure	67
11.1 Removal Procedure of Indoor Unit.....	67
11.2 Removal Procedure of Outdoor Unit.....	71
Appendix:	75
Appendix 1: Reference Sheet of Celsius and Fahrenheit	75
Appendix 2: Configuration of Connection Pipe	75
Appendix 3: Pipe Expanding Method.....	76
Appendix 4: List of Resistance for Temperature Sensor	77

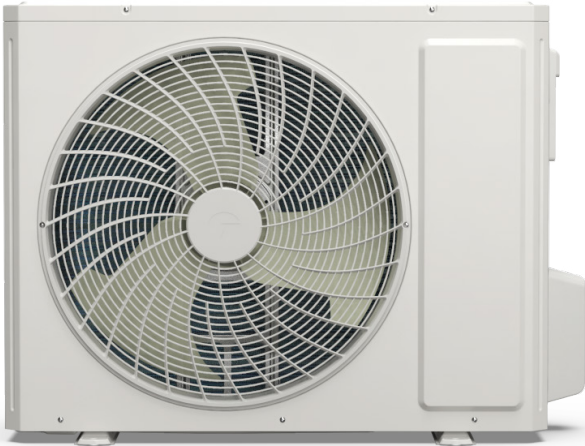
1. Summary

Indoor Unit:



Outdoor Unit:

GVC30AMXH-K6NNC7B/O
GVC36ALXH-K6NNC7B/O
GVC48ALXH-M6NNC7B/O



Remote Controller:

YAP1F11(WiFi)



Model list:

No.	Model	Product code	Indoor model	Indoor product code	Outdoor model	Outdoor product code	Remote Controller
1	GVC30AMXH-K6NNC7B	CG156006900	GVC30AMXH-K6NNC7B/I	CG156N06900	GVC30AMXH-K6NNC7B/O	CG156W06900	YAP1F11 (WiFi)
2	GVC36ALXH-K6NNC7B	CG156006800	GVC36ALXH-K6NNC7B/I	CG156N06800	GVC36ALXH-K6NNC7B/O	CG156W06800	
3	GVC48ALXH-M6NNC7B	CG156007200	GVC48ALXH-M6NNC7B/I	CG156N07200	GVC48ALXH-M6NNC7B/O	CG156W07200	

2. Specifications

2.1 Specification Sheet

Model			GVC30AMXH-K6NNC7B
Product Code			CG156006900
Power Supply	Rated Voltage	V~	220-240
	Rated Frequency	Hz	50
	Phases		1
Power Supply Mode			Outdoor
Cooling Capacity		W	8800
Heating Capacity		W	/
Cooling Power Input		W	2250
Heating Power Input		W	/
Cooling Power Current		A	9.78
Heating Power Current		A	/
Rated Input		W	3700
Rated Cooling Current		A	16
Rated Heating Current		A	/
Air Flow Volume		m ³ /h	1200/1100/1000/850
Dehumidifying Volume		L/h	3
EER		W/W	3.91
COP		W/W	/
SEER			/
HSPF			/
Application Area		m ²	46-70
Indoor Unit	Model of indoor unit		GVC30AMXH-K6NNC7B/I
	Indoor Unit Product Code		CG156N06900
	Fan Type		Centrifugal
	Fan Diameter Length(DXL)	mm	Φ352×130
	Cooling Speed	r/min	490/420/380/340
	Heating Speed	r/min	/
	Fan Motor Power Output	W	64
	Fan Motor RLA	A	0.7
	Fan Motor Capacitor	μF	4.5
	Evaporator Form		Aluminum Fin-copper Tube
	Evaporator Pipe Diameter	mm	Φ7
	Evaporator Row-fin Gap	mm	3-1.4
	Evaporator Coil Length (LXDXW)	mm	724x38.1x392
	Swing Motor Model		MP24TA/MP35AA
	Swing Motor Power Output	W	1.5/2.5
	Fuse Current	A	5
	Sound Pressure Level	dB (A)	46/43/41/39
	Sound Power Level	dB (A)	56/53/51/49
	Dimension (WXHXD)	mm	507X1770X320
	Dimension of Carton Box (LXWXH)	mm	1985X620X425
	Dimension of Package (LXWXH)	mm	1988X623X440
	Net Weight	kg	39
	Gross Weight	kg	51

2. Specifications

Outdoor Unit	Outdoor Unit Model		GVC30AMXH-K6NNC7B/O
	Outdoor Unit Product Code		CG156W06900
	Compressor Manufacturer		ZHUHAI LANDA COMPRESSOR CO., LTD.
	Compressor Model		QXFS-F275N470
	Compressor Oil		FW68DA
	Compressor Type		Rotary
	Compressor LRA.	A	56
	Compressor RLA	A	8.95
	Compressor Power Input	W	1945
	Compressor Overload Protector		HPD-456
	Throttling Method		Capillary
	Set Temperature Range	°C	16~30
	Cooling Operation Ambient Temperature Range	°C	18~43
	Heating Operation Ambient Temperature Range	°C	/
	Condenser Form		Aluminum Fin-copper Tube
	Condenser Pipe Diameter	mm	Φ7.94
	Condenser Rows-fin Gap	mm	1-1.4
	Condenser Coil Length (LXDXW)	mm	854x38.1x704
	Fan Motor Speed	rpm	850
	Fan Motor Power Output	W	90
	Fan Motor RLA	A	0.87
	Fan Motor Capacitor	μF	/
	Outdoor Unit Air Flow Volume	m³/h	/
	Fan Type		Axial-flow
	Fan Diameter	mm	Φ570
	Defrosting Method		/
	Climate Type		T1
	Isolation		I
	Moisture Protection		IPX4
	Permissible Excessive Operating Pressure for the Discharge Side	MPa	4.3
	Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5
	Sound Pressure Level	dB (A)	60
	Sound Power Level	dB (A)	70
	Dimension(WXHXD)	mm	1000X746X427
	Dimension of Carton Box (LXWXH)	mm	1077X480X785
	Dimension of Package(LXWXH)	mm	1080X483X810
	Net Weight	kg	63
	Gross Weight	kg	68
	Refrigerant		R32
	Refrigerant Charge	kg	1.6
Connection Pipe	Connection Pipe Length	m	5
	Connection Pipe Gas Additional Charge	g/m	15
	Outer Diameter Liquid Pipe	inch	1/4
	Outer Diameter Gas Pipe	inch	5/8
	Max Distance Height	m	20
	Max Distance Length	m	30
	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			GVC36ALXH-K6NNC7B
Product Code			CG156006800
Power Supply	Rated Voltage	V~	220-240
	Rated Frequency	Hz	50
	Phases		1
Power Supply Mode			Outdoor
Cooling Capacity		W	9500
Heating Capacity		W	/
Cooling Power Input		W	2450
Heating Power Input		W	/
Cooling Power Current		A	10.65
Heating Power Current		A	/
Rated Input		W	3700
Rated Cooling Current		A	16
Rated Heating Current		A	/
Air Flow Volume		m ³ /h	1900/1700/1550/1400
Dehumidifying Volume		L/h	3.5
EER		W/W	3.88
COP		W/W	/
SEER			/
HSPF			/
Application Area		m ²	46-70
Indoor Unit	Model of indoor unit		GVC36ALXH-K6NNC7B/I
	Indoor Unit Product Code		CG156N06800
	Fan Type		Centrifugal
	Fan Diameter Length(DXL)	mm	Φ379×180.5
	Cooling Speed	r/min	510/440/400/360
	Heating Speed	r/min	/
	Fan Motor Power Output	W	150
	Fan Motor RLA	A	1.5
	Fan Motor Capacitor	μF	6
	Evaporator Form		Aluminum Fin-copper Tube
	Evaporator Pipe Diameter	mm	Φ7
	Evaporator Row-fin Gap	mm	2-1.4
	Evaporator Coil Length (LXDXW)	mm	876×25.4×472
	Swing Motor Model		MP24TA/MP35AB
	Swing Motor Power Output	W	1.5/2.5
	Fuse Current	A	5
	Sound Pressure Level	dB (A)	53/50/48/45
	Sound Power Level	dB (A)	63/60/59/55
	Dimension (WXHxD)	mm	587X1882X394
	Dimension of Carton Box (LXWXH)	mm	2150X735X530
	Dimension of Package (LXWXH)	mm	2153X738X545
	Net Weight	kg	55
	Gross Weight	kg	77.5

Outdoor Unit	Outdoor Unit Model		GVC36ALXH-K6NNC7B/O
	Outdoor Unit Product Code		CG156W06800
	Compressor Manufacturer		ZHUHAI LANDA COMPRESSOR CO., LTD.
	Compressor Model		QXFS-F275N470
	Compressor Oil		FW68DA
	Compressor Type		Rotary
	Compressor LRA	A	56
	Compressor RLA	A	8.95
	Compressor Power Input	W	1945
	Compressor Overload Protector		HPD-456
	Throttling Method		Capillary
	Set Temperature Range	°C	16~30
	Cooling Operation Ambient Temperature Range	°C	18~43
	Heating Operation Ambient Temperature Range	°C	/
	Condenser Form		Aluminum Fin-copper Tube
	Condenser Pipe Diameter	mm	Φ7.94
	Condenser Rows-fin Gap	mm	1-1.4
	Condenser Coil Length (LXDXW)	mm	822x38.1x528
	Fan Motor Speed	rpm	850
	Fan Motor Power Output	W	90
	Fan Motor RLA	A	0.87
	Fan Motor Capacitor	μF	/
	Outdoor Unit Air Flow Volume	m³/h	/
	Fan Type		Axial-flow
	Fan Diameter	mm	Φ570
	Defrosting Method		/
	Climate Type		T1
	Isolation		I
	Moisture Protection		IPX4
	Permissible Excessive Operating Pressure for the Discharge Side	MPa	4.3
	Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5
	Sound Pressure Level	dB (A)	60
	Sound Power Level	dB (A)	70
	Dimension(WXHXD)	mm	1000X746X427
	Dimension of Carton Box (LXWXH)	mm	1077X480X785
	Dimension of Package(LXWXH)	mm	1080X483X810
	Net Weight	kg	63
	Gross Weight	kg	68
	Refrigerant		R32
	Refrigerant Charge	kg	1.6
Connection Pipe	Connection Pipe Length	m	5
	Connection Pipe Gas Additional Charge	g/m	20
	Outer Diameter Liquid Pipe	inch	1/4
	Outer Diameter Gas Pipe	inch	5/8
	Max Distance Height	m	20
	Max Distance Length	m	30
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			GVC48ALXH-M6NNC7B
Product Code			CG156007200
Power Supply	Rated Voltage	V~	380
	Rated Frequency	Hz	50
	Phases		3
Power Supply Mode			Outdoor
Cooling Capacity		W	12310
Heating Capacity		W	/
Cooling Power Input		W	3600
Heating Power Input		W	/
Cooling Power Current		A	6.63
Heating Power Current		A	/
Rated Input		W	4500
Rated Cooling Current		A	11
Rated Heating Current		A	/
Air Flow Volume		m ³ /h	1900/1700/1550/1400
Dehumidifying Volume		L/h	/
EER		W/W	3.42
COP		W/W	/
SEER			/
HSPF			/
Application Area		m ²	55-85
Indoor Unit	Model of indoor unit		GVC48ALXH-M6NNC7B/I
	Indoor Unit Product Code		CG156N07200
	Fan Type		Centrifugal
	Fan Diameter Length(DXL)	mm	Φ379×180.5
	Cooling Speed	r/min	510/440/400/360
	Heating Speed	r/min	/
	Fan Motor Power Output	W	150
	Fan Motor RLA	A	/
	Fan Motor Capacitor	μF	6
	Evaporator Form		Aluminum Fin-copper Tube
	Evaporator Pipe Diameter	mm	Φ7
	Evaporator Row-fin Gap	mm	2-1.4
	Evaporator Coil Length (LXDXW)	mm	876×25.4×472
	Swing Motor Model		MP35AB/MP24TA
	Swing Motor Power Output	W	2.5/1.5
	Fuse Current	A	5
	Sound Pressure Level	dB (A)	53/50/48/45
	Sound Power Level	dB (A)	63/60/58/55
	Dimension (WXHXD)	mm	587X1882X394
	Dimension of Carton Box (LXWXH)	mm	2150X735X530
	Dimension of Package (LXWXH)	mm	2153X738X545
	Net Weight	kg	52
	Gross Weight	kg	74.5

Outdoor Unit	Outdoor Unit Model		GVC48ALXH-M6NNC7B/O
	Outdoor Unit Product Code		CG156W07200
	Compressor Manufacturer		ZHUHAI LANDA COMPRESSOR CO., LTD
	Compressor Model		QXFS-F41sN470
	Compressor Oil		FW68DA or 68SL orequivalent
	Compressor Type		Rotary
	Compressor LRA.	A	50
	Compressor RLA	A	5.65
	Compressor Power Input	W	2933
	Compressor Overload Protector		/
	Throttling Method		Capillary
	Set Temperature Range	°C	16~30
	Cooling Operation Ambient Temperature Range	°C	18~43
	Heating Operation Ambient Temperature Range	°C	/
	Condenser Form		Aluminum Fin-copper Tube
	Condenser Pipe Diameter	mm	Φ7.94
	Condenser Rows-fin Gap	mm	3-1.4
	Condenser Coil Length (LXDXW)	mm	757X57.15X306
	Fan Motor Speed	rpm	850
	Fan Motor Power Output	W	90
	Fan Motor RLA	A	0.7
	Fan Motor Capacitor	μF	/
	Outdoor Unit Air Flow Volume	m³/h	4500
	Fan Type		Axial-flow
	Fan Diameter	mm	Φ570
	Defrosting Method		/
	Climate Type		T1
	Isolation		I
	Moisture Protection		IPX4
	Permissible Excessive Operating Pressure for the Discharge Side	MPa	4.3
	Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5
	Sound Pressure Level	dB (A)	61
	Sound Power Level	dB (A)	71
	Dimension(WXHXD)	mm	1000X746X427
	Dimension of Carton Box (LXWXH)	mm	1077X480X785
	Dimension of Package(LXWXH)	mm	1080X483X810
	Net Weight	kg	68
	Gross Weight	kg	73
	Refrigerant		R32
	Refrigerant Charge	kg	2.6
Connection Pipe	Connection Pipe Length	m	5
	Connection Pipe Gas Additional Charge	g/m	50
	Outer Diameter Liquid Pipe	inch	1/4
	Outer Diameter Gas Pipe	inch	5/8
	Max Distance Height	m	20
	Max Distance Length	m	30
Note: The connection pipe applies metric diameter.			

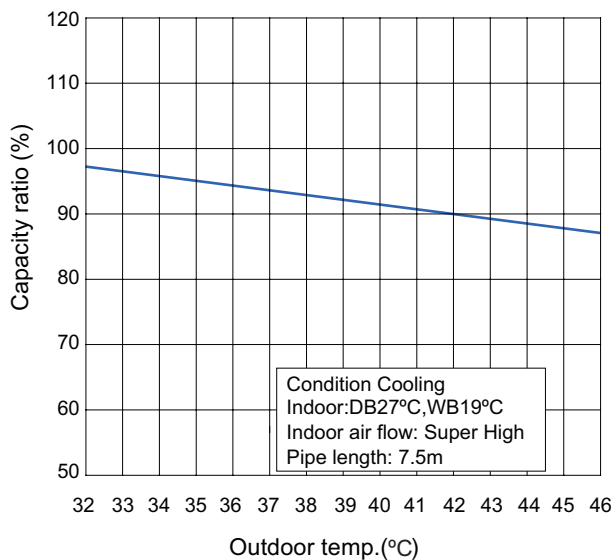
The above data is subject to change without notice; please refer to the nameplate of the unit.

2. Specifications

2.2 Capacity Variation Ratio According to Temperature

Cooling:

Cooling operation ambient temperature range is 18°C~43°C.



2.3 Cooling and Heating Data Sheet in Rated Frequency

Cooling:

Rated cooling condition(°C) (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
Indoor	Outdoor		P (MPa)	T1 (°C)	T2 (°C)		
27/19	35/24	30K	0.5~0.6	in:8~11 out:11~14	in:75~85 out:37~43	Super High	High
27/19	35/24	36K	0.8~0.9	in:8~11 out:11~14	in:75~85 out:37~43	Super High	High
27/19	35/24	48K	0.8~0.9	in:8~11 out:11~14	in:75~85 out:37~43	Super High	High

Instruction:

T1: Inlet and outlet pipe temperature of evaporator

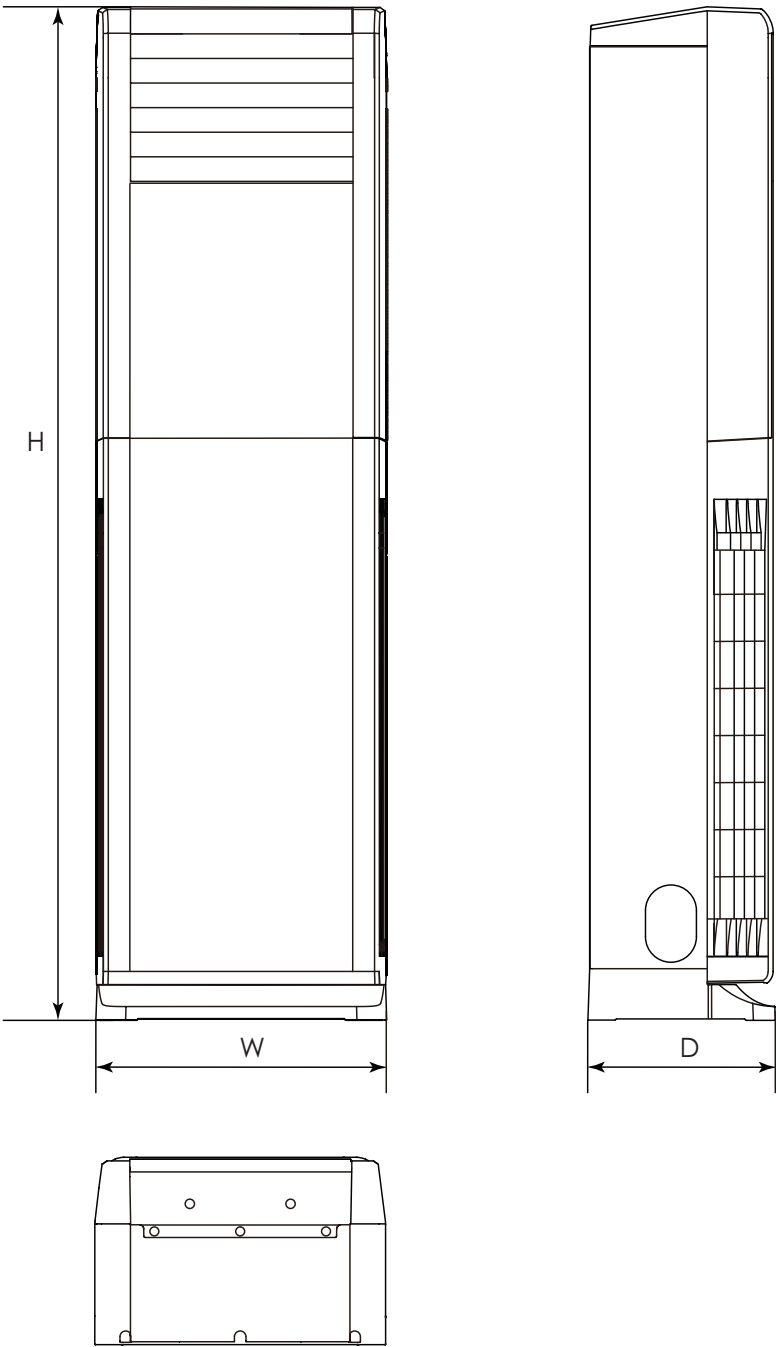
T2: Inlet and outlet pipe temperature of condenser

P: Pressure at the side of big valve

Connection pipe length: 5m.

3. Outline Dimension Diagram

3.1 Indoor Unit



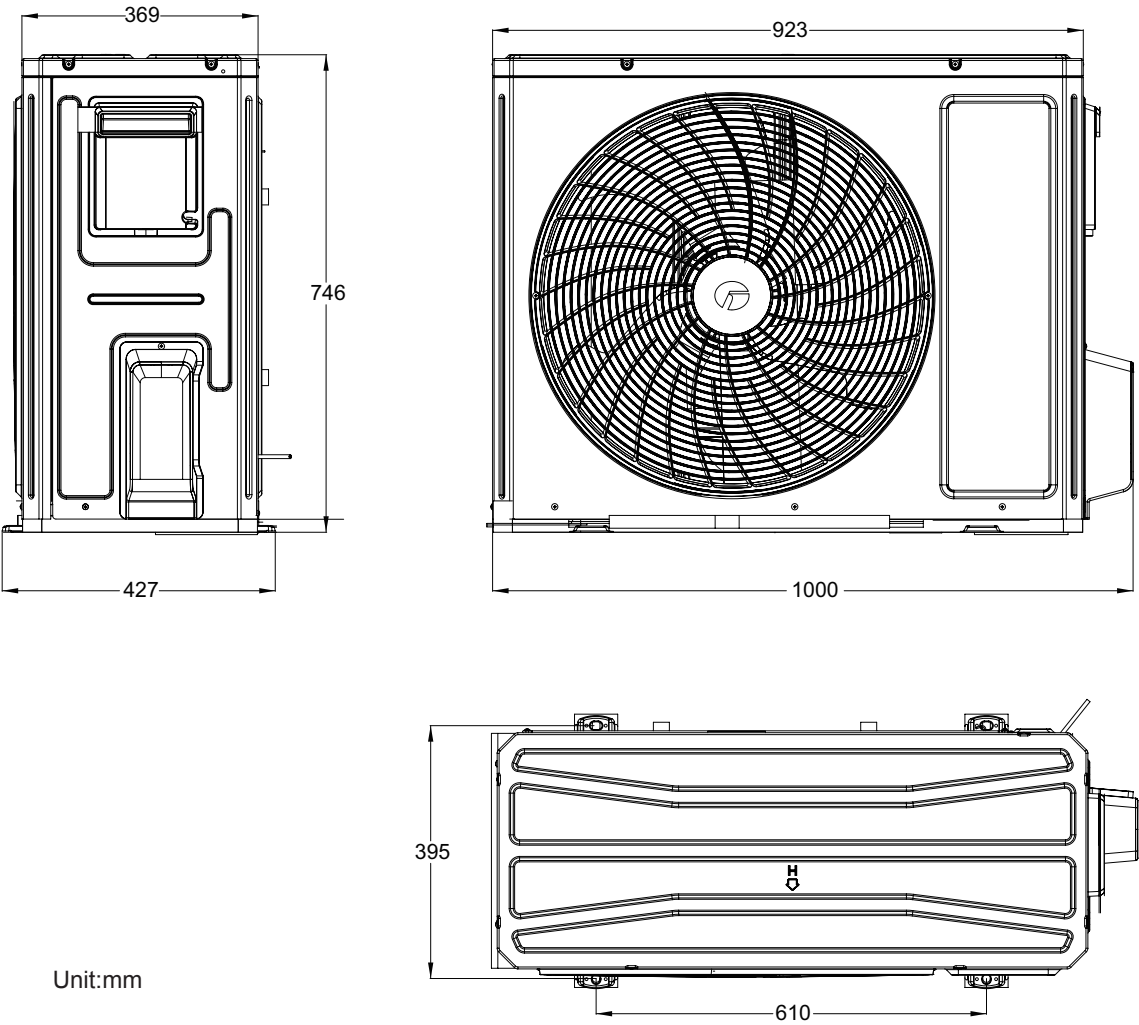
Model	W	H	D
AM	507	1770	320
AL	587	1882	394

Unit:mm

3. Outline Dimension Diagram

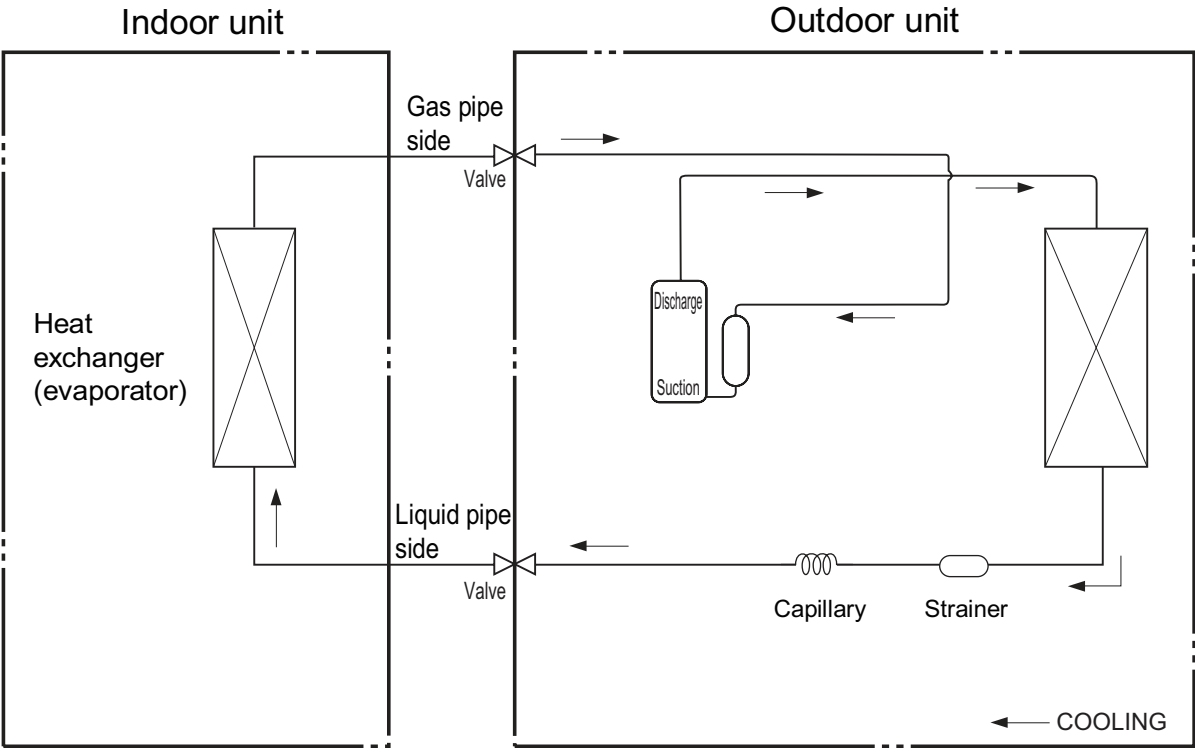
3.2 Outdoor Unit

GVC30AMXH-K6NNC7B/O GVC36ALXH-K6NNC7B/O GVC48ALXH-M6NNC7B/O



4. Refrigerant System Diagram

Cooling model



Connection pipe specification:
Liquid pipe: 1/4"
Gas pipe: 5/8"

5. Electrical Part

5.1 Wiring Diagram

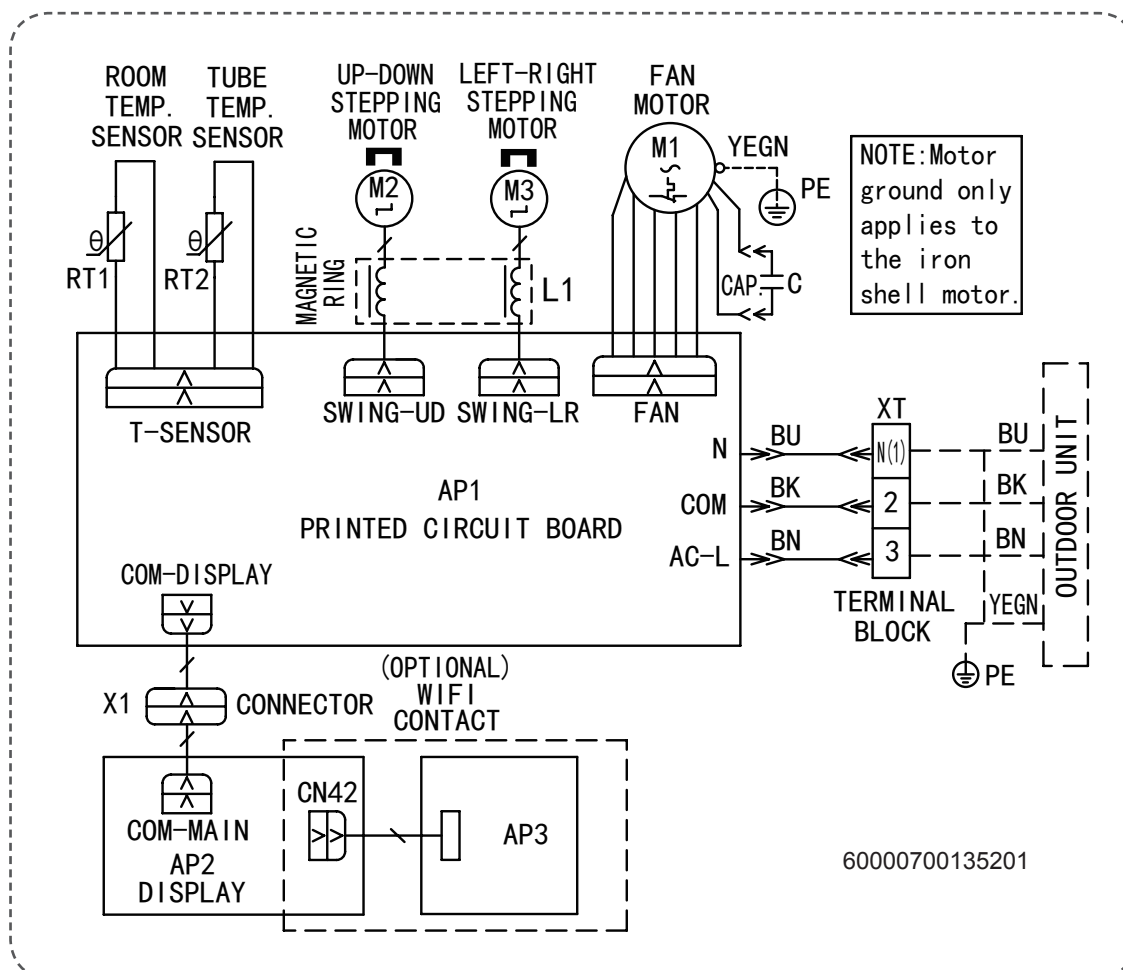
• Instruction

Symbol	Symbol Color	Symbol	Symbol Color	Symbol	Name
YE	Yellow	BN	Brown	COMP	Compressor
RD	Red	BU	Blue		Grounding wire
YEGN	Yellow/Green	BK	Black	/	/

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

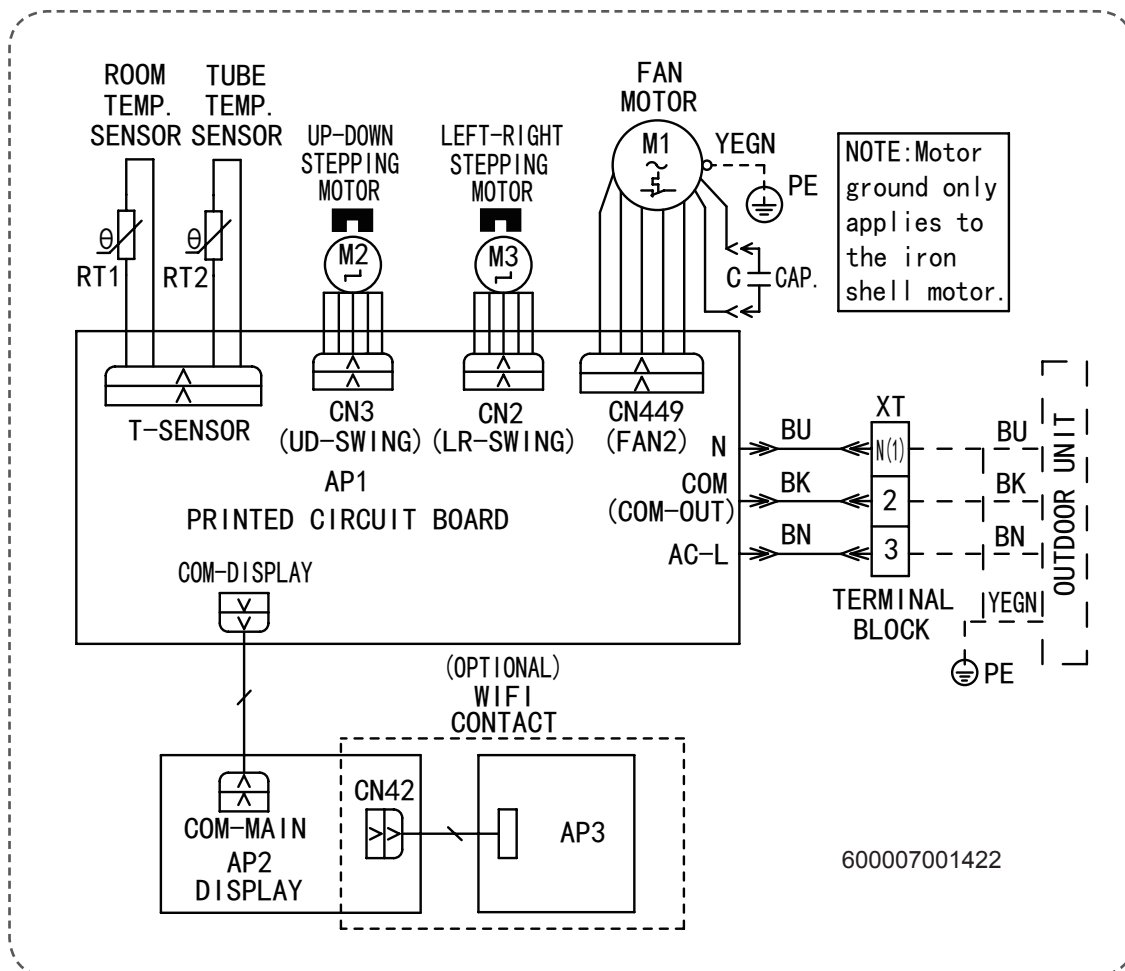
• Indoor Unit

GVC30AMXH-K6NNC7B/I



5. Electrical Part

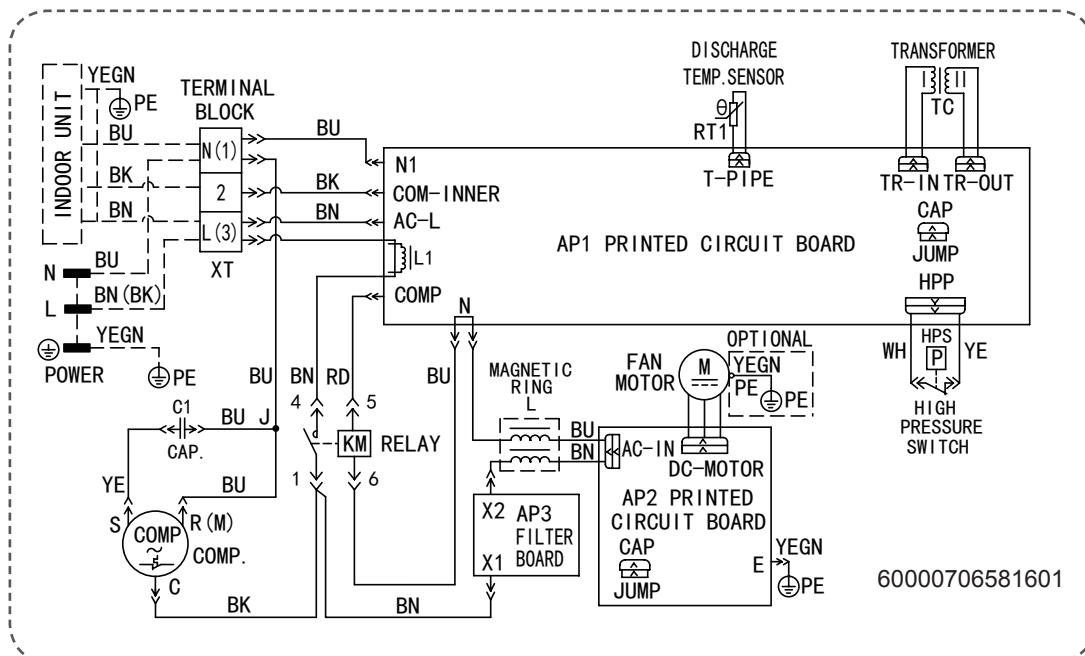
GVC36ALXH-K6NNC7B/I GVC48ALXH-M6NNC7B/I



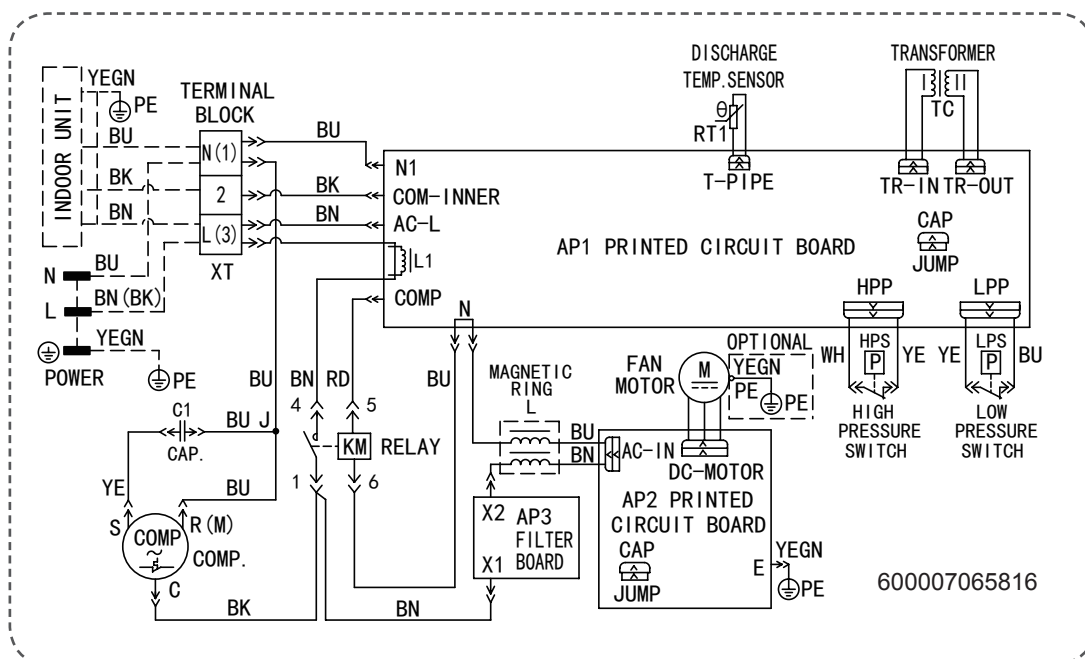
5. Electrical Part

• Outdoor Unit

GVC30AMXH-K6NNC7B/O



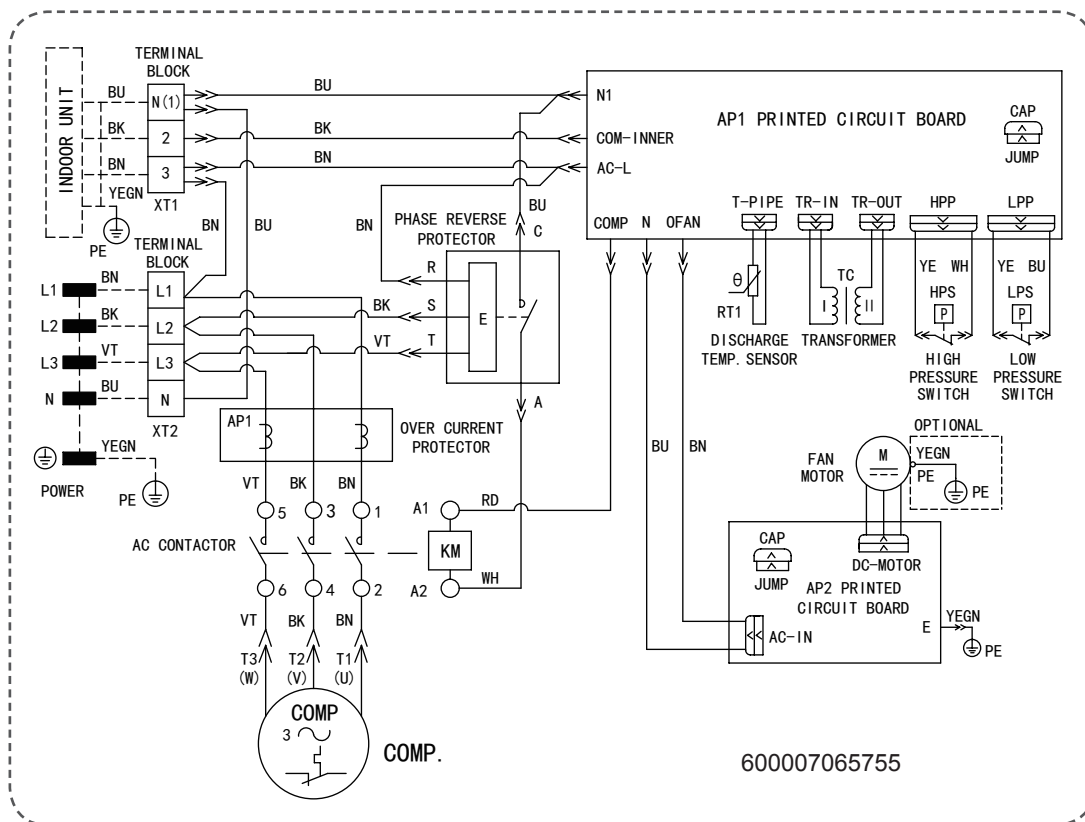
GVC36ALXH-K6NNC7B/O



These wiring diagrams are subject to change without notice; please refer to the one supplied with the unit.

5. Electrical Part

GVC48ALXH-M6NNC7B/O



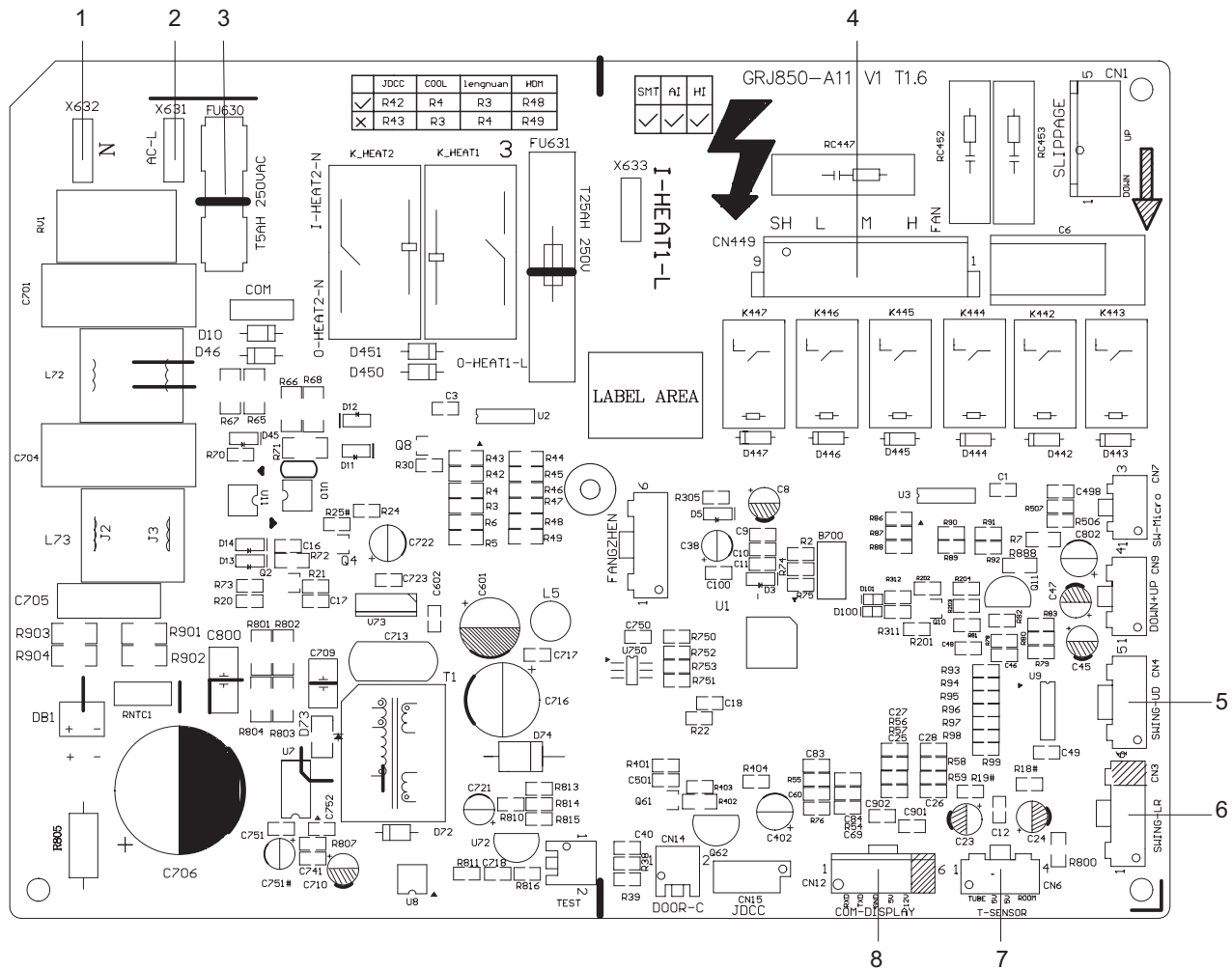
These wiring diagrams are subject to change without notice; please refer to the one supplied with the unit.

5. Electrical Part

5.2 PCB Printed Diagram

• Indoor Unit

GVC30AMXH-K6NNC7B/I

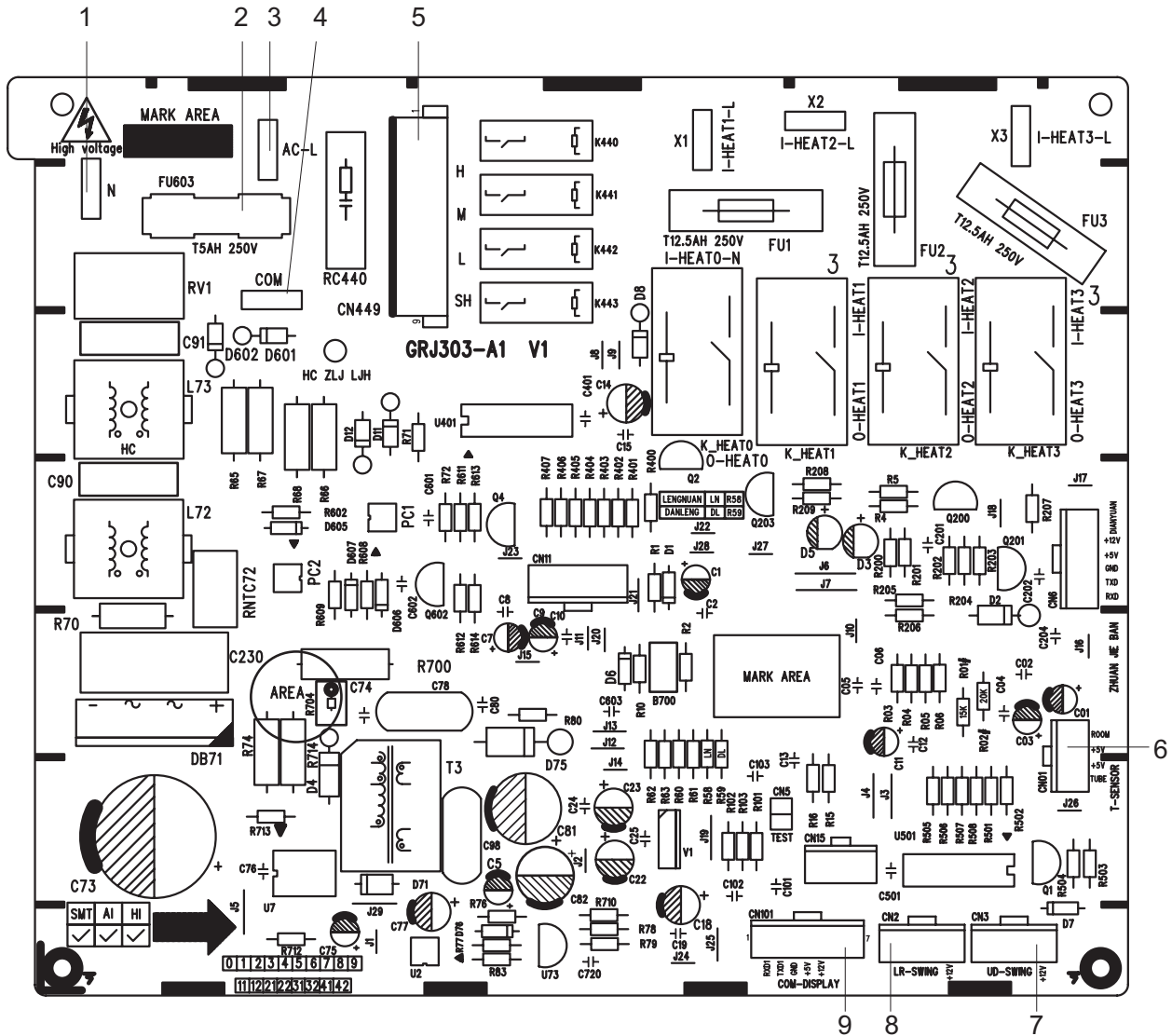


No.	Name
1	Neutral wire
2	Live wire
3	Fuse
4	Needle stand for indoor fan

No.	Name
5	Up&down swing interface sensor
6	Left&right swing interface sensor
7	Interface of temperature sensor
8	Communication interface of display board

5. Electrical Part

GVC36ALXH-K6NNC7B/I GVC48ALXH-M6NNC7B/I



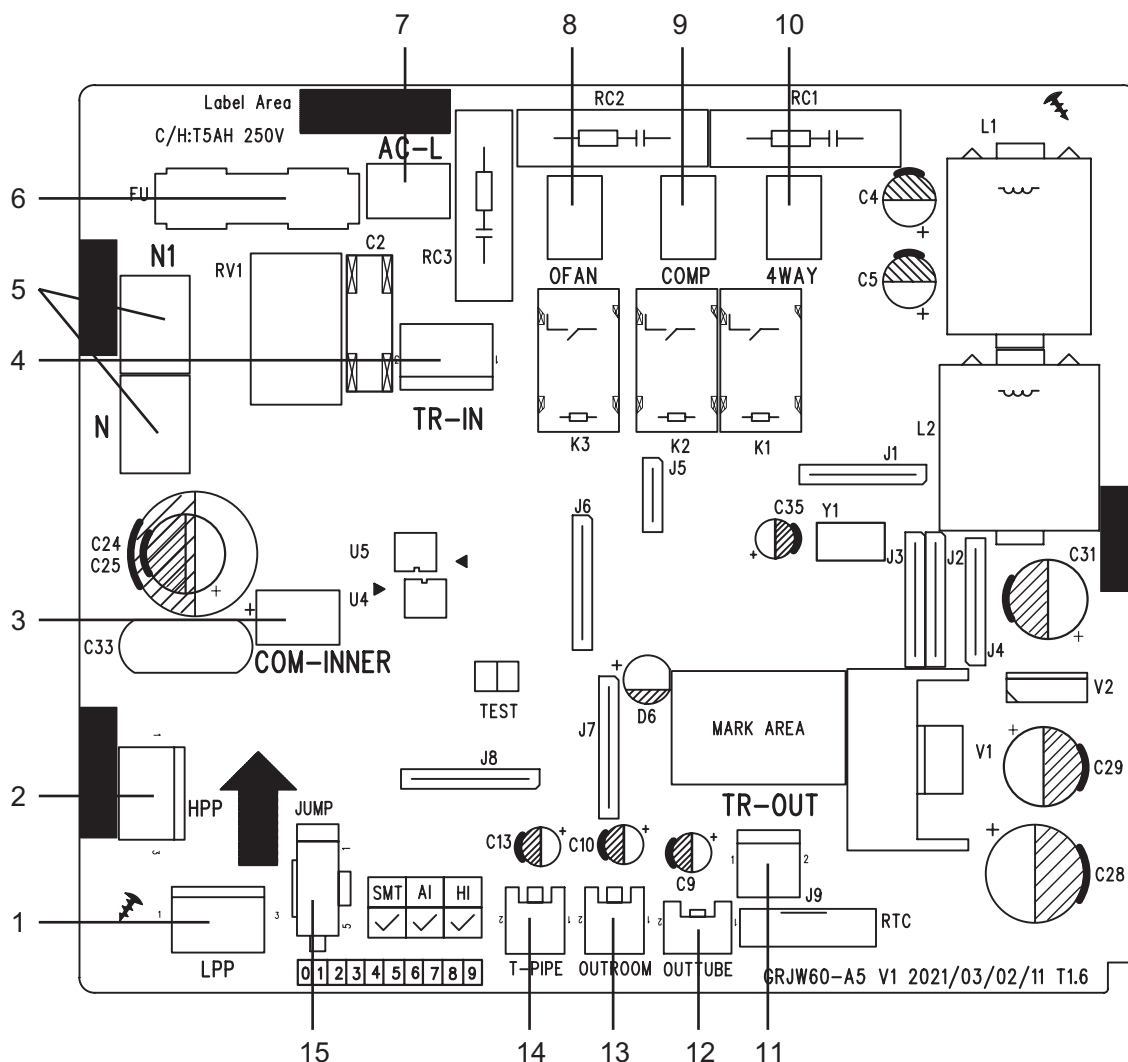
No.	Name
1	Neutral wire
2	Fuse
3	Live wire
4	Communication terminal (with outdoor unit)
5	Needle stand for indoor fan

No.	Name
6	Interface of temperature sensor
7	Up&down swing interface sensor
8	Left&right swing interface sensor
9	Connection with display board sensor

5. Electrical Part

• Outdoor Unit

GVC30AMXH-K6NNC7B/O GVC36ALXH-K6NNC7B/O GVC48ALXH-M6NNC7B/O

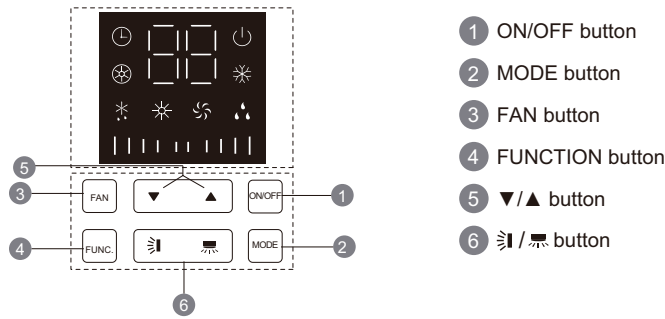


No.	Name	No.	Name
1	Terminal of low pressure protection	9	Terminal for compressor
2	Terminal of high pressure protection	10	Terminal for 4-way valve
3	Terminal for communication wire	11	Output of transformer
4	Input of transformer	12	Terminal for outdoor pipe temp sensor
5	Terminal for neutral wire	13	Terminal for outdoor ambient temp sensor
6	Fuse	14	Wiring terminal of outdoor discharge temperature sensor
7	Live wire terminal	15	Jumper
8	Fan control terminal		

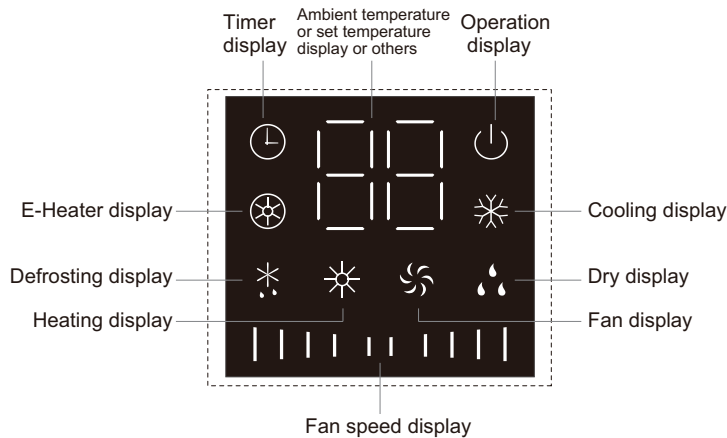
6. Function and Control

6.1 Function Buttons of Air Conditioner

Button's Name and Function



Introduction for icons on display screen of air conditioner



Note:

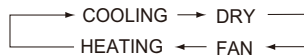
This series unit adopts touch buttons. You only need to touch the buttons slightly.

1 ON/OFF button

- Press this button to turn on or turn off the unit. (Note: Under X-FAN mode, press this button to turn on the unit directly.)

2 MODE button

- Every time press this button, the mode will switchover in cycle among.



(Note: Cooling only unit won't accept heating operation signal. For cooling only unit, pressing MODE button under FAN mode will skip heating mode and enter cooling mode.)

3 FAN button

- Press this button and then fan speed can be selected and displayed in the sequence as below:

| | | | (low) → | | | | | (medium) → | | | | | | (high) →
| | | | | | | (turbo)

(Note: Only low fan speed is available for dry mode. Fan speed can't be adjusted under dry mode. Turbo cannot be set in FAN mode.)

4 FUNCTION button

- Under on status, press Function button to switch between timer and auxiliary heating function setting (auxiliary heating can be set only in heating mode). When timer or auxiliary heating icon is blinking, it means this function can be set. Press "▲" or "▼" button to set function. If there's no operation change within 5s after setting is finished, the function setting will be confirmed. Or press Function button again to exit or confirm the function. When the function is selected through Function button, if the unit is not turned off and no remote control signal is received within 2min, pressing Function button again to circulate from the previous set function. After 2min or the unit is turned off or remote control signal is received, pressing Function button again to circulate from timer icon. (Note: Only when the unit is under heating mode and with auxiliary heating function, auxiliary heating function can be turned on or off through Function button.)
- Under off status, if the unit is in X-FAN status, press Function button to turn off the unit directly; if the unit is not in X-FAN status, press Function button to set timer ON.

6. Function and Control

Button's introduction

5 ▼/▲ button

- After each pressing of "▲" or "▼" button, set temperature will increase or decrease 1℃. Temperature adjustment range is 16℃~30℃. This button is invalid under auto mode. Timer setting can be set in 1h increment among 0~24h. When it is adjusted to auxiliary heating function setting through Function button, press this button to turn on or turn off auxiliary heating. (Note: auxiliary heating is valid only for the model with this function.)
- Hold "▲" and "▼" buttons for 3s and the air conditioner will display "LC", which indicates buttons are locked. Any button under on status or ON/OFF button and function buttons under off status are all invalid. Hold these two button for 3s again to release the lock.

6 ⅈ/ⅈ button

- Left and right swing: this button controls the left and right swing motor, single pressit to switchover between ON and OFF.
- Up and down swing: this button controls the up and down swing motor, single pressit to switchover between ON and OFF.

Icon function introduction

Operation display

- It indicates the air conditioner is put through the power. Under on status, this indicator is on; under off status, this indicator is off.

Timer display

- When this indicator is on, it indicates the timer function is turned on.

Heating display

- When this indicator is on, it indicates the heating mode is turned on.

Defrosting display

- When this indicator is on, it indicates the defrosting function is turned on.

Dry display

- When this indicator is on, it indicates the dry mode is turned on.

E-Heater display

- When this indicator is on, it indicates the E-heater function is turned on.

Cooling display

- When this indicator is on, it indicates the cooling mode is turned on.

Fan display

- When this indicator is on, it indicates the fan mode is turned on.

Fan speed display

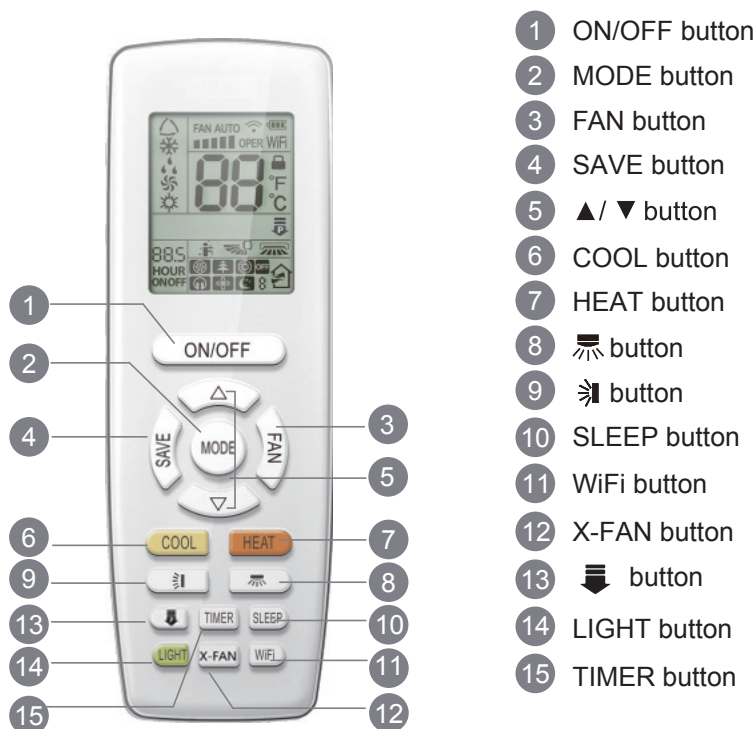
- Displays the fan speed. The fan speed is displayed as below:

| | | | (low) → | | | | | (medium) → | | | | | |
(high) → | | | | | | | | (turbo)

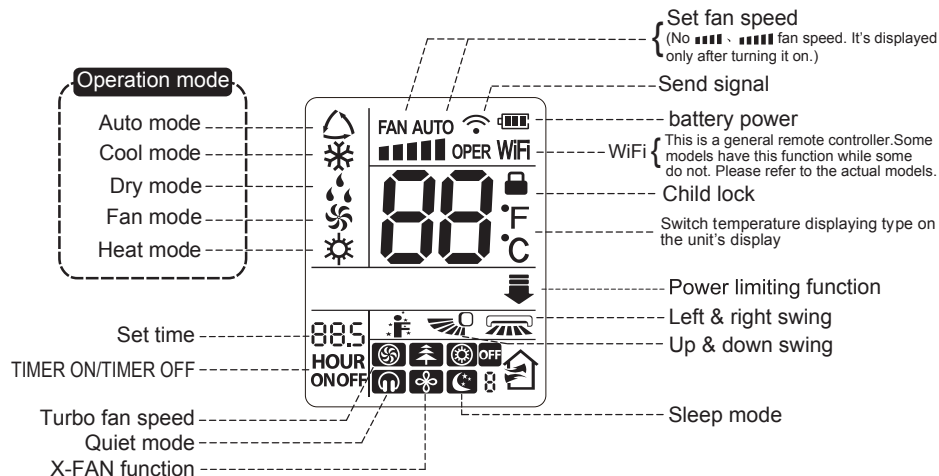
6. Function and Control

6.2 Remote Controller Introduction of YAP1F11(WiFi)

Buttons on remote controller



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 conditioners with multifunction; For some function, which the model doesn't have, if press the corresponding button on the remote controller that the unit will keep the original running status.
- After putting through the power, the air conditioner will give out a sound. Operation indicator " " is ON . 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 "di" sound, which means the signal has been sent to the air conditioner.

1. ON/OFF button

Press this button can turn on or turn off the air conditioner. After turning on the air conditioner, indoor unit will give out a sound.

2. MODE button

Press this button to select your required operation mode.

6. Function and Control



When selecting auto mode, air conditioner will operate automatically according to the sensed temperature. Set temperature can't be adjusted and will not be displayed as well. Press "FAN" button can adjust fan speed. Press " " / " " button can adjust fan blowing angle.

- After selecting cool mode, air conditioner will operate under cool mode. Cool indicator " " on indoor unit is ON (This indicator is not available for some models). Press "▲" or "▼" button to adjust set temperature. Press "FAN" button to adjust fan speed. Press " " / " " 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 (This indicator is not available for some models). Under dry mode, fan speed can't be adjusted. Press " " / " " button to adjust fan blowing angle.

- When selecting fan mode, the air conditioner will only blow fan, no cooling and no heating. Fan indicator " " on indoor unit is ON. Press "FAN" button to adjust fan speed. Press " " / " " button to adjust fan blowing angle.

- When selecting heating mode, the air conditioner operates under heat mode. Heat indicator " " on indoor unit is ON (This indicator is not available for some models). Press "▲" or "▼" button to adjust set temperature. Press "FAN" button to adjust fan speed. Press " " / " " 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°C (61~86°F); Fan speed: auto, quiet speed, low speed, medium speed, high speed, turbo speed.

3. FAN button

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



- Under AUTO speed, air conditioner will select proper fan speed automatically according to ex-factory setting.

- It's Low fan speed under Dry mode.

- Turbo cannot be set in FAN mode.

4. SAVE button

Under cooling mode, press this button 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 this button again to exit energy-saving function.

5. ▲ / ▼ button

- Press "▲" or "▼" button once increase or decrease set temperature 1°C (°F). 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, press "▲" or "▼" button to adjust time. (Refer to TIMER button for details)

6. COOL button

- Press this button, unit will operate in cool mode.

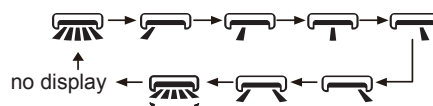
7. HEAT button

- Press this button, unit will operate in heat mode.

8. button

- Under simple swing mode, press this button can turn on (" " icon is displayed) or turn off (" " icon is not displayed) the left & right swing function.

- When the unit is turned off by remote controller, press "▲" button and " " button can switch between single swing mode and fixed-angle swing mode. " " on the remote controller will flash twice. Under fixed-angle swing mode, press this button and then left&right swing status will circulate as shown in the right figure:

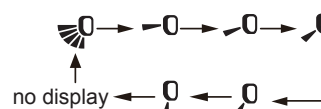


- This remote controller is the general type remote controller. When remote controller receives the signal of " ", swing status is same as " "; when remote controller receives " ", swing status is same as left & right swing OFF.

9. button

- Under simple swing mode, press this button can turn on (" " icon is displayed) or turn off (" " icon is not displayed) the up & down swing function.

- When the unit is turned off by remote controller, press "▲" button and " " button can switch between single swing mode and fixed-angle swing mode. " " on the remote controller will flash twice. Under fixed-angle swing mode, press this button and the up & down swing status will circulate as shown in the right figure:



6. Function and Control

10. SLEEP button

Under COOL or HEAT 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. After powered on, Sleep Off is defaulted. After the unit is turned off, the Sleep function is canceled. In this mode, set temperature will be adjusted with the change of time. Under Fan, DRY and Auto modes, this function is not available.

11. WiFi button

Press "WiFi" button to turn on WiFi function, "WiFi" icon will be displayed on the remote controller; Hold "WiFi" button for 5s to turn off WiFi function and "WiFi" icon will disappear. Under off status, press "MODE" and "WiFi" buttons simultaneously for 1s, WiFi module will restore factory settings.

- This function is only available for some models.

12. X-FAN button

Pressing this button in COOL or DRY mode, the icon "☼" is displayed and the indoor fan will continue operation for a few minutes in order to dry the indoor unit even though you have turned off the unit. After energization, X-FAN OFF is defaulted. X-FAN is not available in AUTO, FAN or HEAT mode. This function indicates that moisture on evaporator of indoor unit will be blown after the unit is stopped to avoid mould.

- Having set X-FAN function on: After turning off the unit by pressing ON/OFF button indoor fan will continue running for about a few minutes. at low speed. In this period, press X-FAN button to stop indoor fan directly.
- Having set X-FAN function off: After turning off the unit by pressing ON/OFF button, the complete unit will be off directly.
- Only under cooling mode and dry mode, press this button can turn on (characters of "X-FAN" are displayed) or turn off (characters of "X-FAN" are not displayed) X-FAN function.

13. button

 function is for limiting power of the whole unit. Press this button, the controller will circularly display as the following:



- Maximum power limited under the  mode is lower than that of  mode.
- If you want to cancel the power limiting function, press the button  till the icon in remote controller is not displayed.
- When the remote controller is turned off, power limiting function is cancelled. If you want to activate the function, please repress this button.
- If the current power is lower than the maximum power of  mode, then the power will not be limited after entering into such mode.

- For the model with one outdoor unit and two indoor units, if any one of indoor units enters into power limiting function, the outdoor unit will enter into the set limiting power mode of indoor unit; when two indoor units enter into power limiting mode, then the power of outdoor unit will be limited according to the lower power of the two indoor units.

NOTE:

- This function is only available for some models.

14. LIGHT button

Press this button to turn off display light on indoor unit. Press this button again to turn on display light.

15. TIMER button

• At ON status, press this button once can set TIMER OFF. The character of HOUR and OFF will flash. Press "▲" or "▼" button within 5s can adjust the time of TIMER ON. After each pressing of "▲" or "▼" button time will increase or decrease half an hour. When holding "▲" or "▼" button, 2s later, the time will change quickly until to reach to your required time. After that, press "TIMER" button to confirm it. The character of HOUR and OFF won't flash again. Cancel TIMER OFF: Press "TIMER" button again under TIMER OFF status.

- At OFF status, press this button once can set TIMER ON. Please refer to TIMER off for detailed operation.

Cancel TIMER ON: Press "TIMER" button again under TIMER ON status.

NOTE:

- Time setting range: 0.5-24 hours.
- Time interval between two operations can't exceed 5s. Otherwise, remote controller will exit the setting status automatically.

Function introduction for combination buttons

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.

Temperature display switchover function

Under OFF status, press "▼" and "MODE" buttons simultaneously to switch temperature display between °C and °F.

Replacement of batteries in remote controller

1. Lift the cover along the direction of arrow (as shown in Fig 1 ①).
2. Take out the original batteries (as shown in Fig 1 ②).
3. Place two 7# (AAA 1.5V) dry batteries, and make sure the position of "+" polar and "-" polar is correct (as shown in Fig 2 ③).
4. Reinstall the cover (as shown in Fig 2 ④).

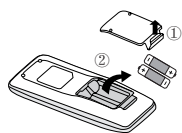


Fig.1

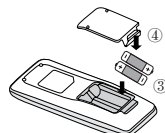


Fig.2

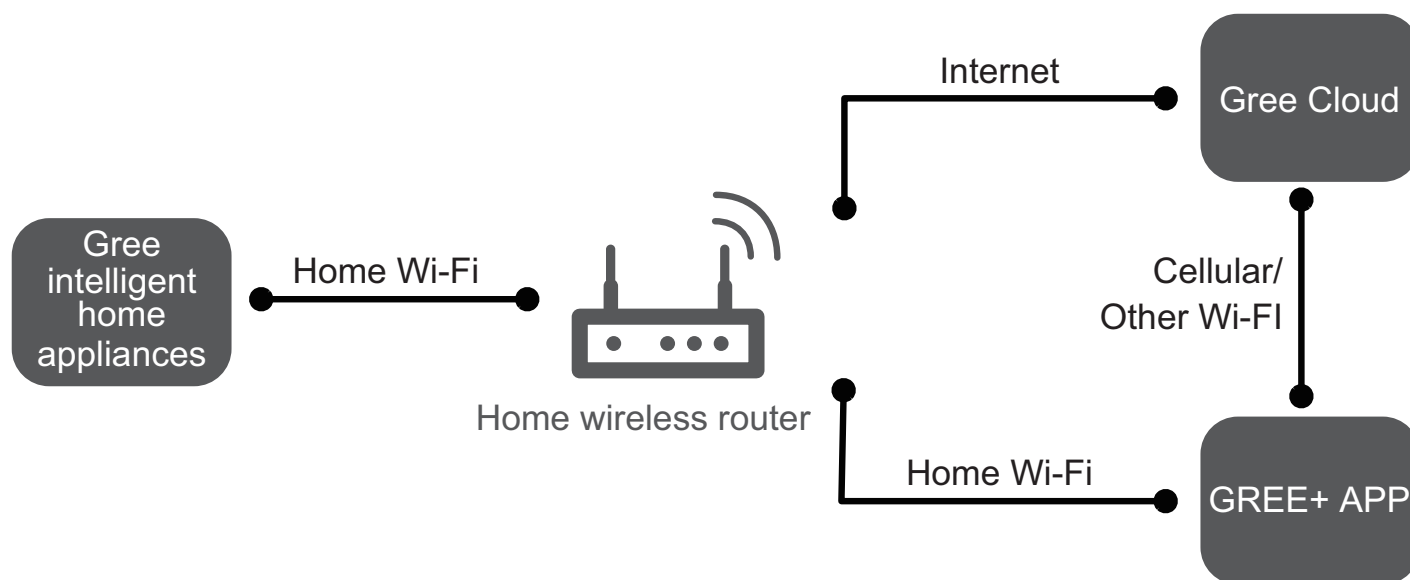
NOTICE:

- 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. Function and Control

6.3 GREE+ App Operation Manual

Control Flow Chart



Operating Systems

Requirement for User's smart phone:



iOS system
Support iOS7.0 and
above version



Android system
Support Android 4.4 and
above version

Download and installation



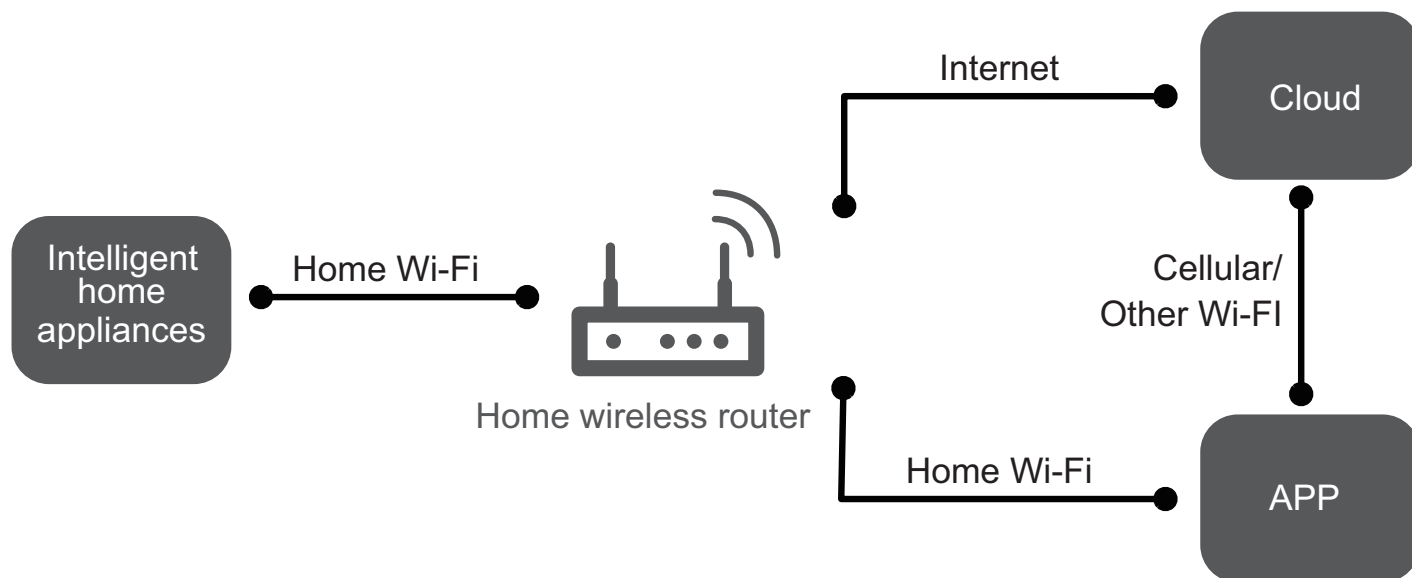
GREE+ App Download Linkage

Scan the QR code or search "GREE+" in the application market to download and install it. When "GREE+" App is installed, register the account and add the device to achieve long-distance control and LAN control of Gree smart home appliances. For more information, please refer to "Help" in App.

6. Function and Control

6.4 Ewpe Smart App Operation Manual

Control Flow Chart



Operating Systems

Requirement for User's smart phone:



iOS system
Support iOS7.0 and
above version



Android system
Support Android 4.4 and
above version

Download and installation



App Download Linkage

Scan the QR code or search "Ewpe Smart" in the application market to download and install it. When "Ewpe Smart" App is installed, register the account and add the device to achieve long-distance control and LAN control of smart home appliances. For more information, please refer to "Help" in App.

6. Function and Control

6.5 Description of Each Control Operation

1. Summary

Temperature parameter

- ◆ Indoor set temperature (T_{preset})
- ◆ Indoor ambient temperature ($T_{\text{amb.}}$)
- ◆ Inner tube temperature of indoor evaporator (T_{tube})

2. Introduction of basic mode function

Once the compressor is energized, there should be a minimum interval of 3 mins between two start-ups.

If the unit is with memory function and is off before power failure, the compressor can be restarted without an interval of 3 mins; if the unit is on before power failure, the compressor will be restarted with an interval of 3 mins.

Once compressor is started, it won't stop within 6 mins according to the change of room temp.

(1) Auto mode

① Operation condition and process

Under auto mode, the system will automatically select operation mode (cooling, dry, heating and fan) according to indoor ambient temperature.

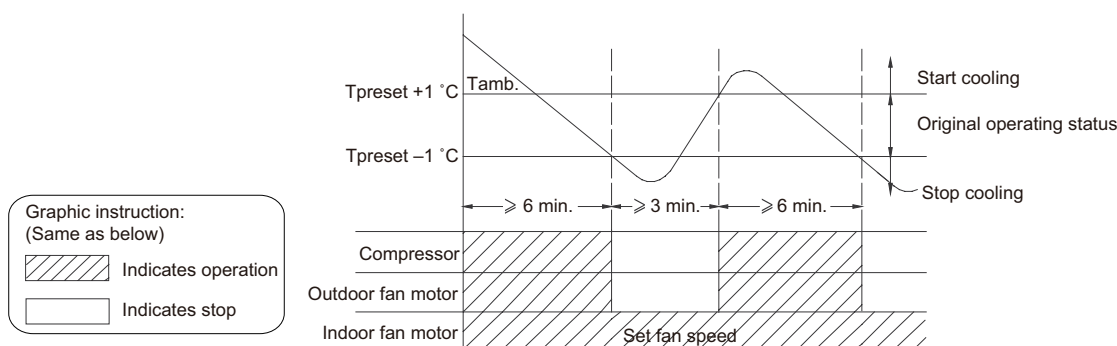
- ◆ When $T_{\text{amb.}} > 26^{\circ}\text{C}$, the system operates under cooling mode; Ex-factory set temperature is 26°C .
 - ◆ When $20^{\circ}\text{C} \leq T_{\text{amb.}} \leq 26^{\circ}\text{C}$, the system operates under drying mode; Ex-factory set temperature is 24°C .
 - ◆ Heat pump unit: when $T_{\text{amb.}} < 20^{\circ}\text{C}$, the system operates under heating mode; Ex-factory set temperature is 20°C .
 - ◆ Cooling only unit: when $T_{\text{amb.}} < 20^{\circ}\text{C}$, the system operates under fan mode; Ex-factory set temperature is 20°C .
- ② Protection function is same as that under cooling, drying and heating mode. (See function protection of this section)

(2) Cooling mode

① Operation condition and process

- ◆ When $T_{\text{amb.}} \geq T_{\text{set}} + 1^{\circ}\text{C}$, the system operates under cooling mode. In this case, the compressor and the ODU fan motor operate, and the IDU fan motor operates at set speed.
- ◆ When $T_{\text{set}} - 1^{\circ}\text{C} < T_{\text{amb.}} < T_{\text{set}} + 1^{\circ}\text{C}$, the system will maintain its previous operation status.
- ◆ When $T_{\text{amb.}} \leq T_{\text{set}} - 1^{\circ}\text{C}$, the compressor and the ODU fan motor stop, while the IDU fan motor operates at set speed.

In cooling mode, the 4-way valve is de-energized (4-way valve is not available for cooling only unit). Temperature setting range is $16 \sim 30^{\circ}\text{C}$.



② Protection function (See function protection of this section)

(3) Drying mode

① Operation condition and process

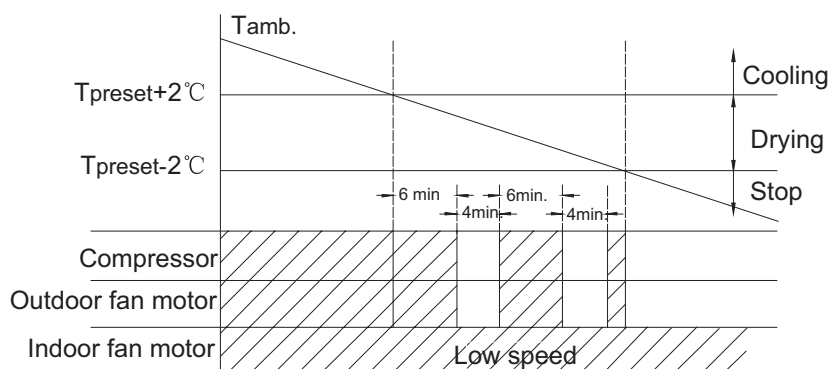
- ◆ When $T_{\text{amb.}} > T_{\text{set}} + 2^{\circ}\text{C}$, the system starts drying and cooling. In this case, the compressor and the ODU fan motor operate, and the IDU fan motor operates at low speed.
- ◆ When $T_{\text{set}} - 2^{\circ}\text{C} \leq T_{\text{amb.}} \leq T_{\text{set}} + 2^{\circ}\text{C}$, the compressor and the ODU fan motor operate for 6 mins and stop for 4 mins in cycle; the IDU

6. Function and Control

fan motor operates at low speed.

◆ When $T_{amb.} < T_{set}-2^{\circ}\text{C}$, the compressor and the ODU fan motor stop, while the IDU fan motor runs at low speed.

In drying mode, the 4-way valve is de-energized (4-way valve is not available for cooling only unit); Temperature setting range is $16 \sim 30^{\circ}\text{C}$. Fan speed can't be adjusted.



② Protection functions (See function protection of this section)

(4) Heating mode (heating mode is not available for cooling only unit)

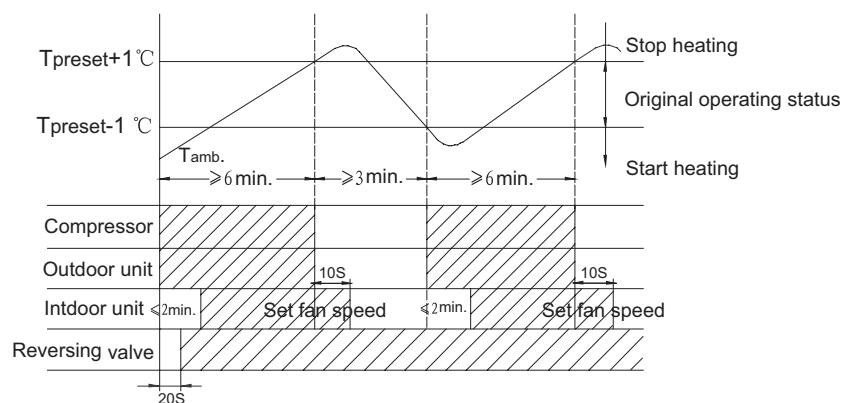
① Operation condition and process

◆ When $T_{amb.} \leq T_{set}-1^{\circ}\text{C}$, the system starts heating operation. In this case, the 4-way valve is energized. The compressor and the ODU fan motor operates simultaneously; The IDU fan motor will be started up after delayed for a period of time to make sure the air conditioner won't blow out cold wind.

◆ When $T_{preset}-1^{\circ}\text{C} < T_{amb.} < T_{preset}+1^{\circ}\text{C}$, the system keeps previous operation status.

◆ When $T_{amb.} \geq T_{preset}+1^{\circ}\text{C}$, the compressor and the ODU fan motor stop. The 4-way valve is energized all the time. The IDU fan motor will blow residual heat after operating at set speed for a period of time consecutively to make sure the inner temperature of air conditioner won't be too high.

In heating mode, 4-way valve is energized. Temperature setting range is $16 \sim 30^{\circ}\text{C}$.



② Defrosting condition and process

In order to ensure heating effect, the unit will proceed defrosting automatically according to the frost situation of outdoor unit. Dual-8 nixie tube displays H1 during defrosting. (For some models, heating icon is bright for a period of time and then OFF).

③ Protection functions (See function protection of this section)

(5) Fan mode

① Operation condition and process

The IDU fan motor operates at set speed, while the compressor, the ODU fan motor and 4-way valve stop.

② Protection functions (See function protection of this section)

6. Function and Control

3 Other control function introductions

(1) Swing function (the unit is with up&down swing and left&right swing)

a. Up&down swing control

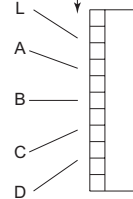
① After energization, swing motor will firstly have the horizontal louver rotate anticlockwise to position O to close air outlet. If swing function has not been set after start-up of the unit, horizontal louver will turn clockwise to position D in heating mode, or turn clockwise to position L in other modes.

② If swing function is set when turning on the unit, the horizontal louver will swing between L and D.

Horizontal louver has 7 swing statuses:

- ◆ Stay at position L: control by remote controller:
- ◆ Stay at position A: control by remote controller:
- ◆ Stay at position B: control by remote controller:
- ◆ Stay at position C: control by remote controller:
- ◆ Stay at position D: control by remote controller:
- ◆ Swing between L and D: control by remote controller:
- ◆ Stop at any position between L and D (angles between L and D are equiangular), control by remote controller: OFF

Set this position as starting point 0 (0°)



③ When turning off the unit, horizontal louver will close at position O.

④ Swing action is valid only when swing command has been set and the IDU fan motor is operating.

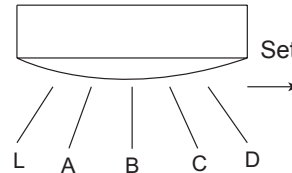
b. Left&right swing control

① After energization, swing motor will firstly have the vertical louver rotate anticlockwise to position O to close air outlet. If swing function has not been set after start-up of the unit, vertical louver will turn clockwise to position D in heating mode, or turn clockwise to position L in other modes.

② If swing function is set when turning on the unit, the vertical louver will swing between L and D.

Vertical louver has 7 swing statuses:

- ◆ Stay at position L: control by remote controller:
- ◆ Stay at position A: control by remote controller:
- ◆ Stay at position B: control by remote controller:
- ◆ Stay at position C: control by remote controller:
- ◆ Stay at position D: control by remote controller:
- ◆ Swing between L and D: control by remote controller:
- ◆ Stop at any position between L and D (angles between L and D are equiangular), control by remote controller: OFF



Set this position as starting point 0 (0°)

③ When turning off the unit, vertical louver will close at position O.

④ Swing action is valid only when swing command has been set and the IDU fan motor is operating.

(2) Sleep function

◆ If start up sleep function under cooling or drying mode, the system will increase set temperature automatically within 3°C and then operate at increased temperature.

◆ If start up sleep function under heating mode, the system will decrease set temperature automatically within 3°C and then operate at decreased temperature.

(3) Turbo function

Turbo function can be set under cooling and heating modes (Turbo function is not available in auto, drying and fan mode). During operation of turbo function, the IDU fan motor operates at the highest fan speed.

(4) X-FAN function

X-FAN function can be set under cooling and drying modes (Turbo function is not available in auto, heating and fan mode). During operation of X-FAN function, the IDU fan motor will stop operation after operating for 10 mins at lowest fan speed when turning off the unit and then the system stops operation.

(5) Auxiliary heating function

When auxiliary heating function is set in heating mode: IDU fan motor operates and auxiliary electric heater operates; when ambient temperature has reached a certain degree, the auxiliary electric heater stops operation.

(6) Timer function

The controller has timer function. The precision of timer is 0.5 hour. 24 hours circulated timer can't be set.

Timer ON: Timer ON can be set at unit OFF. If selected ON time is reached, the unit will start to operate according to previous setting

6. Function and Control

status. Timer setting range is 0.5 ~ 24hr in 30-minute increments.

Timer OFF: Timer OFF can be set at unit ON. If selected OFF time is reached, the unit will stop. Timer setting range is 0.5 ~ 24hr in 30-minute increments.

(7) Memory function

① Power failure when the unit is ON

◆ Memory content: ON status, mode, up&down swing, light, set temperature, set fan speed, timer.

◆ Timer can be memorized. Time of timer is calculated again from energization.

② Power failure when the unit is OFF

◆ Memory content: OFF status, mode, up&down swing, light, set temperature, set fan speed, timer.

◆ Timer can be memorized. Time of timer is calculated again from energization.

4. Special function

Health function (for the model with health function)

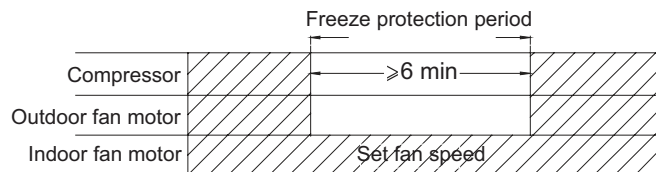
① If there is health button on the remote controller, the unit defaults health function ON when turning on the unit; press health button on the remote controller or turning off the unit to stop health function.

① If there is not health button on the remote controller, the unit defaults health function ON when turning on the unit and turning off the unit to stop health function.

5. Protection function (more details please refer to maintenance section)

(1) Freeze protection (applicable for cooling, drying and auto mode)

During operation, when controller detected that $T_{\text{tube}} \leq -2^{\circ}\text{C}$, the system enters into freeze protection. In that case, the compressor and the ODU fan motor stop operation, while the IDU fan motor and swing motor operates at previous status. If $T_{\text{tube}} \geq 10^{\circ}\text{C}$ and the compressor has been out of operation for 6 mins, the unit will resume its previous operation status.



(2) Overcurrent protection (applicable for cooling, heating, drying and auto mode)

During operation process, if controller detected that system current exceeds the limit value for 3s consecutively (overcurrent), the system stops operation. About 3 mins later, if overcurrent is released, the system will resume original operation. If overcurrent protection occurs for 6 times consecutively, and resume operation time won't exceed 6 mins every time, E5 will be displayed on indoor unit. After turning off the unit and then turn it on, overcurrent malfunction will be eliminated.

(3) High temperature protection of discharge pipe (for the unit below 24000Btu/h, the software of this function is reserved while hardware is shielded) (applicable for cooling, heating, drying and auto mode)

When the system just starts and $T_{\text{discharge}} > 130^{\circ}\text{C}$, the system will stop operation after internal temperature of system decreases. When the system has stopped for 3 mins and $T_{\text{discharge}} < 90^{\circ}\text{C}$, the system will resume operation. If this protection occurs twice consecutively, the system can not resume operation and E4 will be displayed. After turning off the unit and then turn it on, overcurrent malfunction will be eliminated.

(4) Noise silencing protection (applicable for heating and auto mode)

When turning off the unit or during mode switchover, the 4-way valve is closed. In order to decrease noise, the 4-way valve will delay 2 mins to be closed.

(5) System high pressure protection (applicable for cooling, heating, drying and auto mode)

When system high pressure protection is detected by the controller, all loads stop except IDU fan motor in cooling and drying mode; all loads stop in heating mode; button and remote control signals are shielded and E1 is displayed. When system high pressure protection is eliminated, button and remote control signals are available.

(6) Compressor low pressure protection (applicable for cooling, heating, drying and auto mode)

When compressor low pressure protection is detected by the controller, the system stops; button and remote control signals are shielded and E3 is displayed. When compressor low pressure protection is eliminated, button and remote control signals are available.

6. Function and Control

(7) Indoor high temperature protection (applicable for heating and auto mode)

When IDU fan motor is in turbo or high fan speed and $T_{\text{tube}} \geq 56^{\circ}\text{C}$, ODU fan motor stops operation; when $T_{\text{tube}} \leq 49^{\circ}\text{C}$, ODU fan motor starts operation again.

When IDU fan motor is in medium or low fan speed and $T_{\text{tube}} \geq 52^{\circ}\text{C}$, ODU fan motor stops operation; when $T_{\text{tube}} \leq 46^{\circ}\text{C}$, ODU fan motor starts operation again.

(8) Temperature sensor malfunction protection (applicable in cooling, heating, drying fan or auto mode)

- ① Malfunction of indoor ambient temperature sensor: indoor unit displays F1, which means indoor ambient temperature sensor is open-circuit or short-circuit, or its detection circuit element is broken.
- ② Malfunction of indoor evaporator temperature sensor: indoor unit displays F2, which means indoor evaporator temperature sensor is open-circuit or short-circuit, or its detection circuit element is broken.
- ③ Malfunction of outdoor ambient temperature sensor: indoor unit displays F3, which means outdoor ambient temperature sensor is open-circuit or short-circuit, or its detection circuit element is broken;
- ④ Malfunction of outdoor condenser temperature sensor: indoor unit displays F4, which means outdoor condenser temperature sensor is open-circuit or short-circuit, or its detection circuit element is broken;
- ⑤ Malfunction of outdoor discharge temperature sensor: indoor unit displays F5, which means outdoor discharge temperature sensor is open-circuit or short-circuit, or its detection circuit element is broken.

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 3mm.

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 20kg.
3. When installing the indoor unit and outdoor unit, a sufficient fixing bolt must be installed; make sure the installation support is firm.
4. Wear safety belt if the height of working is above 2m.
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. When refrigerant leaks or requires discharge during installation, maintenance, or disassembly, it should be handled by certified professionals or otherwise in compliance with local laws and regulations.
2. Avoid contact between refrigerant and fire as it generates poisonous gas; Prohibit prolong the connection pipe by welding.
3. 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.
4. Make sure no refrigerant gas is leaking out when installation is completed.
5. If there is refrigerant leakage, please take sufficient measure to minimize the density of refrigerant.
6. 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.

7. Notes for Installation and Maintenance

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.

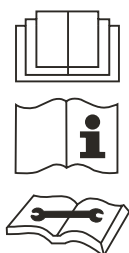
7. Notes for Installation and Maintenance

Safety Precautions for Refrigerant

- To realize the function of the air conditioner unit, a special refrigerant circulates in the system. The used refrigerant is the fluoride R32, which is specially cleaned. The refrigerant is flammable and inodorous. Furthermore, it can lead to explosion under certain conditions. But the flammability of the refrigerant is very low. It can be ignited only by fire.
- Compared to common refrigerants, R32 is a nonpolluting refrigerant with no harm to the ozoneosphere. The influence upon the greenhouse effect is also lower. R32 has got very good thermodynamic features which lead to a really high energy efficiency. The units therefore need a less filling.

WARNING:

- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacture. Should repair be necessary, contact your nearest authorized Service Centre. Any repairs carried out by unqualified personnel may be dangerous. The appliance shall be stored in a room without continuously operating ignition sources. (for example: open flames, an operating gas appliance or an operating electric heater.)
- Do not pierce or burn.
- Appliance shall be installed, operated and stored in a room with a floor area larger than Xm^2 .
- Appliance filled with flammable gas R32. For repairs, strictly follow manufacturers instructions only. Be aware that refrigerants not contain odour.
- Read specialists manual.



Safety Operation of Flammable Refrigerant

Qualification requirement for installation and maintenance man

- All the work men who are engaging in the refrigeration system should bear the valid certification awarded by the authoritative organization and the qualification for dealing with the refrigeration system recognized by this industry. If it needs other technician to maintain and repair the appliance, they should be supervised by the person who bears the qualification for using the flammable refrigerant.
- It can only be repaired by the method suggested by the equipments manufacturer.

Installation notes

- The air conditioner is not allowed to use in a room that has running fire (such as fire source, working coal gas ware, operating heater).
 - It is not allowed to drill hole or burn the connection pipe.
 - The air conditioner must be installed in a room that is larger than the minimum room area.
- The minimum room area is shown on the nameplate or following table a.
- Leak test is a must after installation.

table a - Minimum room area (m^2)

Charge amount (kg)	floor location	window mounted	wall mounted	ceiling mounted
≤ 1.2	/	/	/	/
1.3	14.5	5.2	1.6	1.1
1.4	16.8	6.1	1.9	1.3
1.5	19.3	7	2.1	1.4
1.6	22	7.9	2.4	1.6
1.7	24.8	8.9	2.8	1.8
1.8	27.8	10	3.1	2.1
1.9	31	11.2	3.4	2.3
2	34.3	12.4	3.8	2.6
2.1	37.8	13.6	4.2	2.8
2.2	41.5	15	4.6	3.1
2.3	45.4	16.3	5	3.4
2.4	49.4	17.8	5.5	3.7
2.5	53.6	19.3	6	4

Maintenance notes

- Check whether the maintenance area or the room area meet the requirement of the nameplate.
 - Its only allowed to be operated in the rooms that meet the requirement of the nameplate.
- Check whether the maintenance area is well-ventilated.
 - The continuous ventilation status should be kept during the operation process.
- Check whether there is fire source or potential fire source in the maintenance area.
 - The naked flame is prohibited in the maintenance area; and the “no smoking” warning board should be hanged.
- Check whether the appliance mark is in good condition.
 - Replace the vague or damaged warning mark.

Welding

- If you should cut or weld the refrigerant system pipes in the process of maintaining, please follow the steps as below:

7. Notes for Installation and Maintenance

- a. Shut down the unit and cut power supply
- b. Eliminate the refrigerant
- c. Vacuuming
- d. Clean it with N₂ gas
- e. Cutting or welding
- f. Carry back to the service spot for welding
 - Make sure that there isnt any naked flame near the outlet of the vacuum pump and its well-ventilated.
 - The refrigerant should be recycled into the specialized storage tank.

Filling the refrigerant

- Use the refrigerant filling appliances specialized for R32. Make sure that different kinds of refrigerant wont contaminate with each other.
- The refrigerant tank should be kept upright at the time of filling refrigerant.
- Stick the label on the system after filling is finished (or havent finished).
- Dont overfilling.
- After filling is finished, please do the leakage detection before test running; another time of leak detection should be done when its removed.

Safety instructions for transportation and storage

- Please use the flammable gas detector to check before unload and open the container.
- No fire source and smoking.
- According to the local rules and laws.

7. Notes for Installation and Maintenance

Main Tools for Installation and Maintenance



Level meter



Measuring tape



Screw driver



Impact drill



Drill head



Electric drill



Electroprobe



Universal meter



Torque wrench



Open-end wrench



Inner hexagon spanner



Electronic leakage detector



Vacuum pump



Pressure meter



Pipe pliers



Pipe pliers



Pipe cutter



Pipe expander



Pipe bender



Soldering appliance



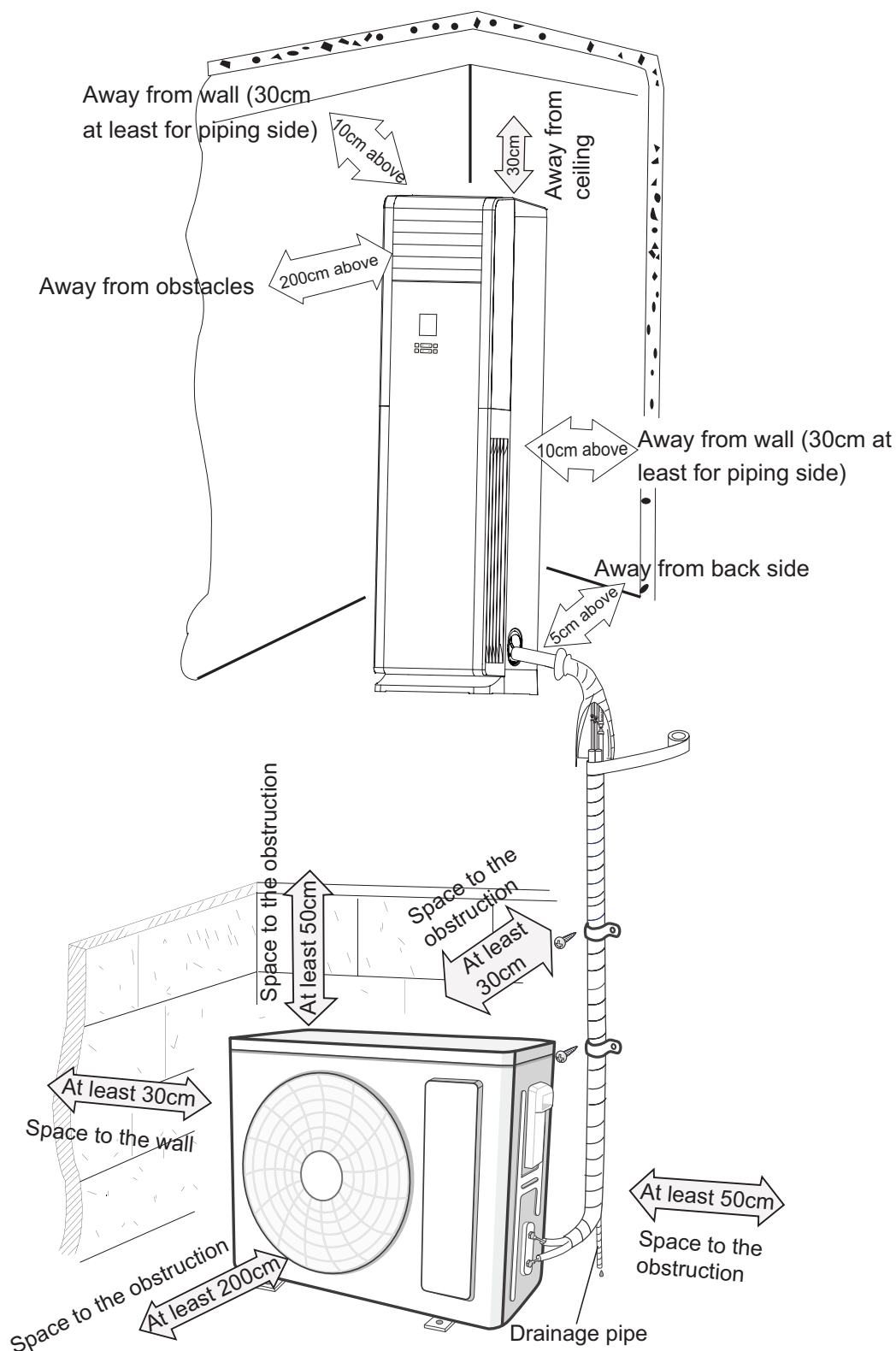
Refrigerant container



Electronic scale

8. Installation

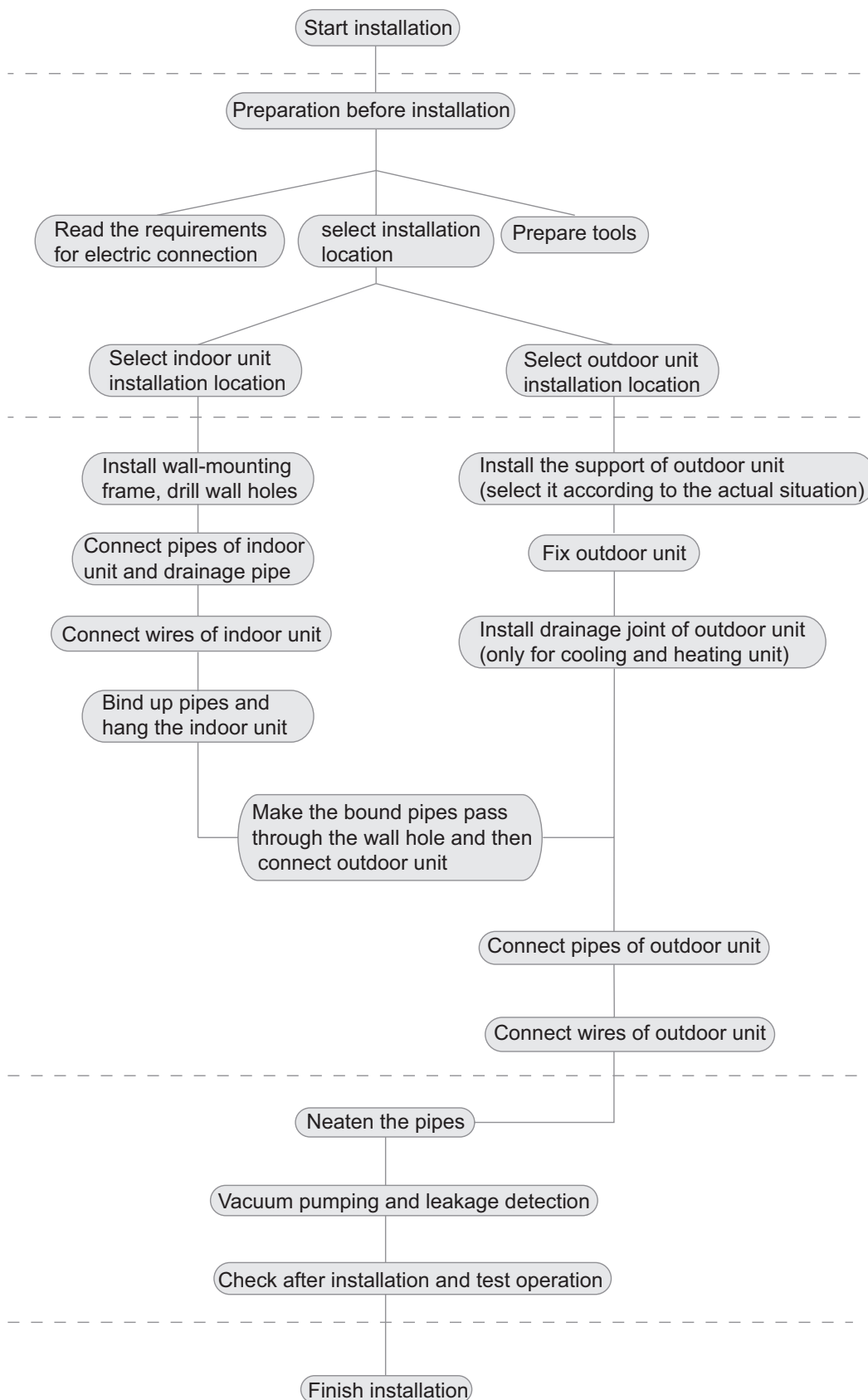
8.1 Installation Dimension Diagram



Notice: Actual product may be different from above graphics, please refer to actual products.

8. Installation

Installation Procedures



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

8. Installation

8.2 Installation Parts-checking

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

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.
7. The appliance shall not be installed in the laundry.
8. It's not allowed to be installed on the unstable or motive base structure(such as truck) or in the corrosive environment (such as chemical factory).

2. Indoor Unit:

1. Avoid installing the indoor unit in a place where generated or leaked inflammable gas will stay.
2. Avoid installing the indoor unit in a moist place or in a place where oil may be splashed on the unit.
3. Select a location where outlet air may reach each corner of the room.
4. Select a location where connection pipe can be led to outdoor conveniently.
5. Select a location where air inlet and outlet won't be blocked.
6. Select a location with least affection of outdoor air.
7. Select a location with firm and flat floor.
8. Retain sufficient space for maintenance and installation.
9. Ensure the installation meets the requirement of installation dimension diagram.
10. Do not use the unit in the immediate surroundings of a laundry, a bath, a shower or a swimming pool.

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.
6. The height difference between indoor unit and outdoor unit should be within 5m. The length of connection pipe should be within 10m.

8.4 Electric Connection Requirement

1. Safety Precaution

1. Must follow the electric safety regulations when installing the unit.
2. If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person in order to avoid a hazard.
3. According to the local safety regulations, use qualified power supply circuit and air switch
4. A air switch having a contact separation of at least 3mm in all poles should be fixed in fixed wiring.
5. The appliance shall be installed in accordance with national wiring regulation.
6. The air switch must have the functions of magnetic tripping and heat tripping in order to prevent short circuit or overload. Please install the air switch with suitable capacity according to the sheet below.
7. 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.
8. Properly connect the live wire, neutral wire and grounding wire of power socket.
9. Be sure to cut off the power supply before proceeding any work related to electric safety.
10. Do not put through the power before finishing installation.

2. Grounding Requirement:

1. The air conditioner is first class electric appliance. It must be properly grounded 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. 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)

Air-conditioner	Air switch capacity
30K/36K	25A
48K	16A

8. Installation

8.5 Installation of Indoor Unit

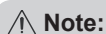
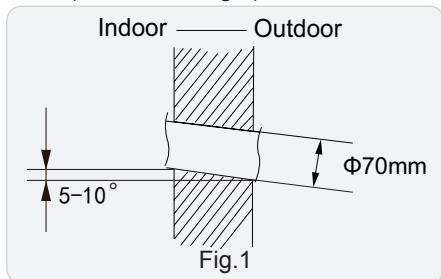
1. Choosing Installation location

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

2. Open piping hole

(1) Choose the position of piping hole according to the direction of outlet pipe.

(2) Open a piping hole with the diameter of $\Phi 70$ 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 $5-10^\circ$. (As show in Fig.1)



Note:

Pay attention to dust prevention and take relevant safety measures when opening the hole.

3. Outlet Pipe

(1) The pipe can be led out in the direction of left, right or rear. (As show in Fig.2)

(2) After confirming the direction of outlet pipe, loosen the screws at the upper and lower adjusting baffle to let the connection pipe/drain pipe connects the indoor unit. (As show in Fig.3)

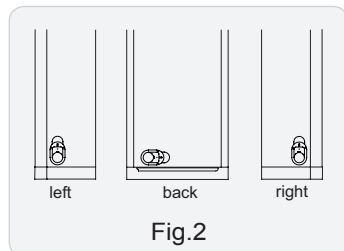


Fig.2

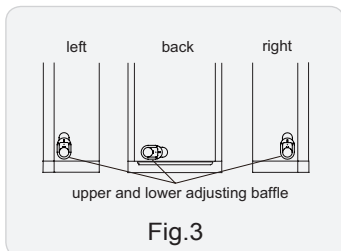


Fig.3

4. Connect the Pipe of Indoor Unit

(1) Take out the left and right screw cover and then remove the screws on air-inlet panel to remove the panel. (As show in Fig.4)

(2) Aim the pipe joint at the corresponding bellmouth. (As show in Fig.5)

(3) Pretightening the union nut with hand.

(4) 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)

(5) Wrap the indoor pipe and joint of connection pipe with insulating pipe, and then wrap it with tape. (As show in Fig.7)

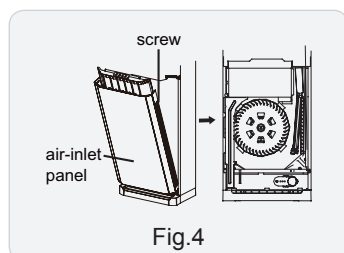


Fig.4

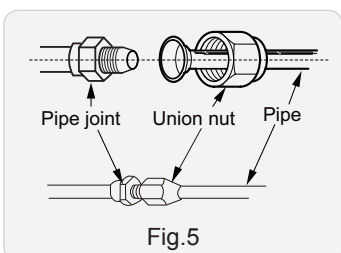


Fig.5

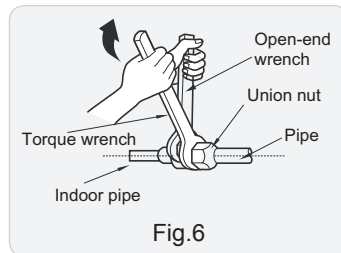


Fig.6

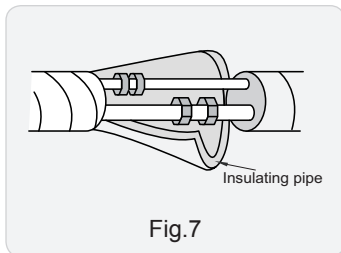


Fig.7

Refer to the following table for wrench moment of force:

Piping size (inch)	Tightening torque (N·m)
1/4	15~20
3/8	30~40
1/2	45~55
5/8	60~65
3/4	70~75

5. 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.8)

(3) Add insulating pipe in the indoor drain hose in order to prevent condensation. (As show in Fig.10)

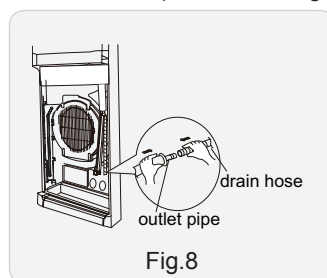


Fig.8

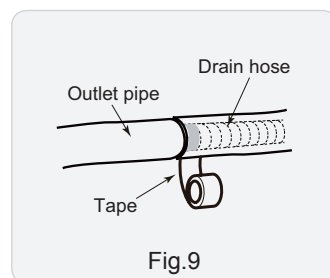


Fig.9

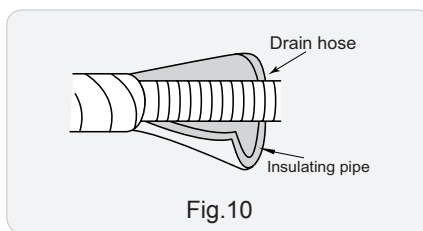


Fig.10

6. Connect Wire of Indoor Unit

(1) Make the power connection wire go through the cable-cross hole of indoor unit. (As show in Fig.11)

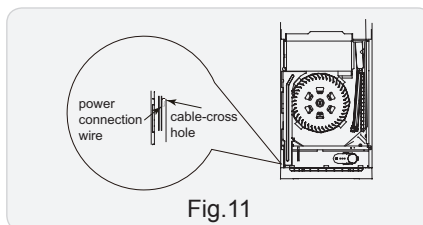
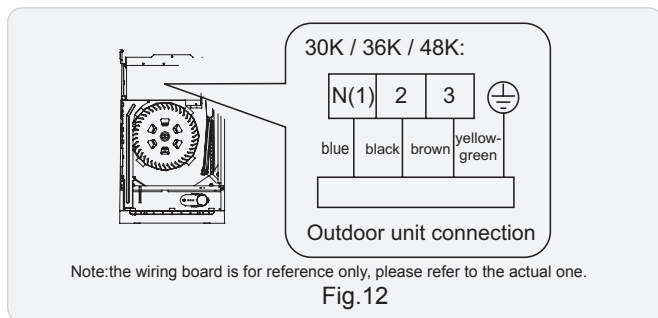


Fig.11

(2) Remove the wire clip; connect the power connection wire to the wiring terminal according to the color; tighten the screw and then fix the power supply wire, power connection wire with wire clip. (As show in Fig.12)

8. Installation



- (3) Adjust the position of upper and lower adjusting baffle; clamp the connection pipe and drain pipe as firm as possible.
- (4) Tighten the screws.

⚠ 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.

7. Bind up Pipe

- (1) Bind up the connection pipe, power cord and drain hose with the band. (As show in Fig.13)
- (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.14)
- (3) Bind them evenly.
- (4) The liquid pipe and gas pipe should be bound separately at the end.

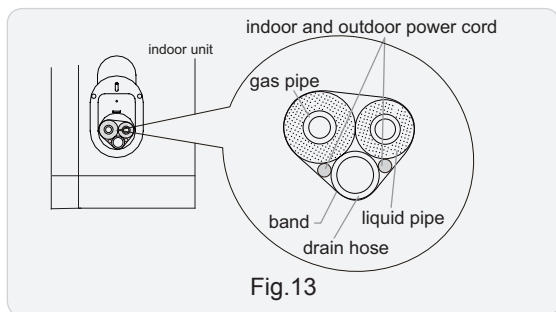


Fig.13

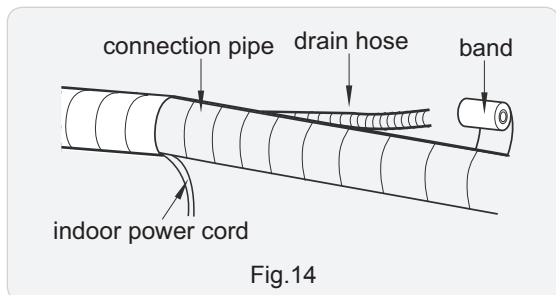


Fig.14

⚠ Note:

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

8. Hang the Indoor Unit

- (1) Put the bound pipes in the wall pipe and then make them pass through the wall hole.
- (2) Stuff the gap between pipes and wall hole with sealing gum.
- (3) Fix the wall pipe.
- (4) Check if the indoor unit is installed firmly.

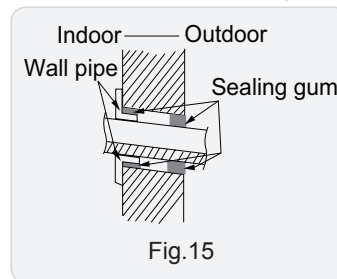


Fig.15

⚠ 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 3cm above the floor in order to install drain joint. (As show in Fig.16)
- (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.

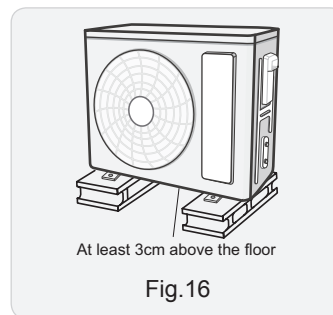


Fig.16

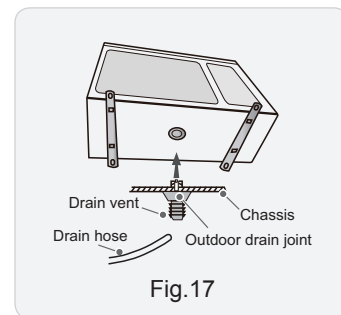


Fig.17

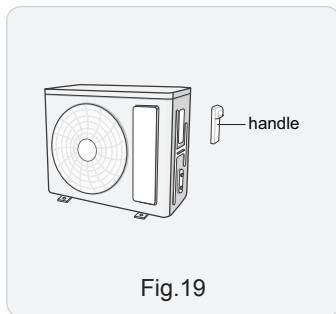
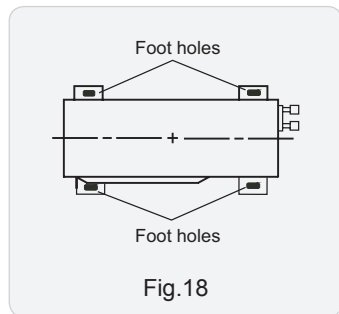
2. Install Drain Joint (Only for cooling and heating unit)

- (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.17)

3. Fix Outdoor Unit

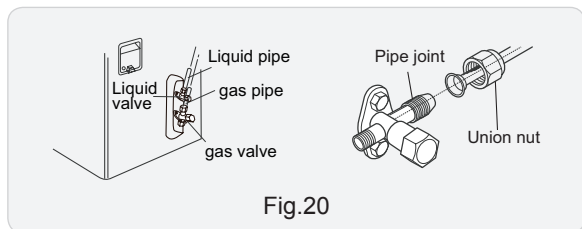
- (1) Place the outdoor unit on the support.
 - (2) Fix the foot holes of outdoor unit with bolts.
- (As show in Fig.18)

8. Installation



4. Connect Indoor and Outdoor Pipes

- (1) Remove the screw on the right handle of outdoor unit and then remove the handle.(As show in Fig.19)
- (2) Remove the screw cap of valve and aim the pipe joint at the bellmouth of pipe.(As show in Fig.20)



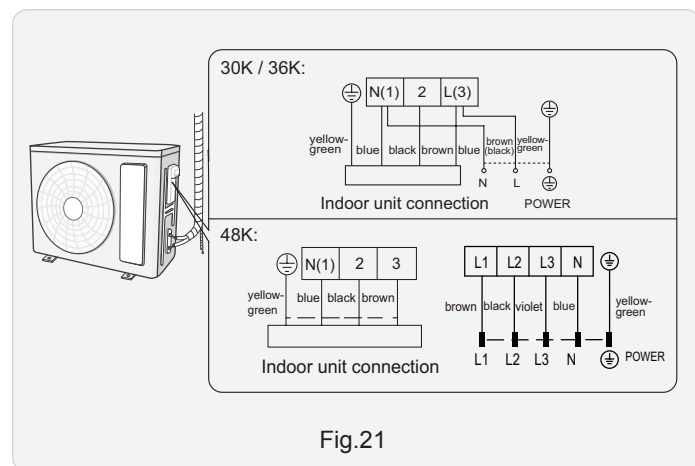
- (3) Pretightening the union nut with hand.
- (4) Tighten the union nut with torque wrench by referring to the sheet below.

Refer to the following table for wrench moment of force :

Piping size (inch)	Tightening torque (N.m)
1/4	15~20
3/8	30~40
1/2	45~55
5/8	60~65
3/4	70~75

5. Connect Outdoor Electric Wire

- (1) Remove the wire clip; connect the power connection wire to the wiring terminal according to the color; fix them with screws. (As show in Fig.21)



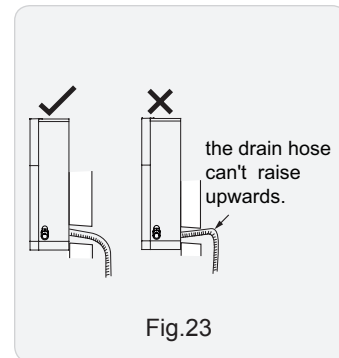
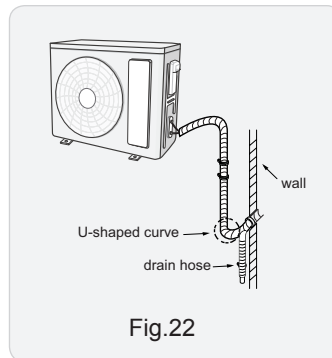
Note: the wiring connect is for reference only,please refer to the actual one.

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.

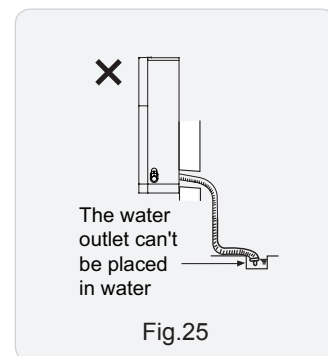
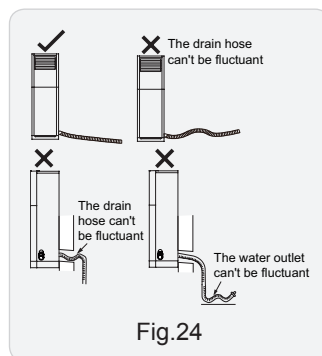
6. Neaten the Pipes

- (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.23)



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.23)
- (2) Slant the drain hose slightly downwards. The drain hose can't be curved, raised and fluctuant, etc. (As show in Fig.24)
- (3) The water outlet can't be placed in water in order to drain smoothly.(As show in Fig.25)



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

8. Installation

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.26)

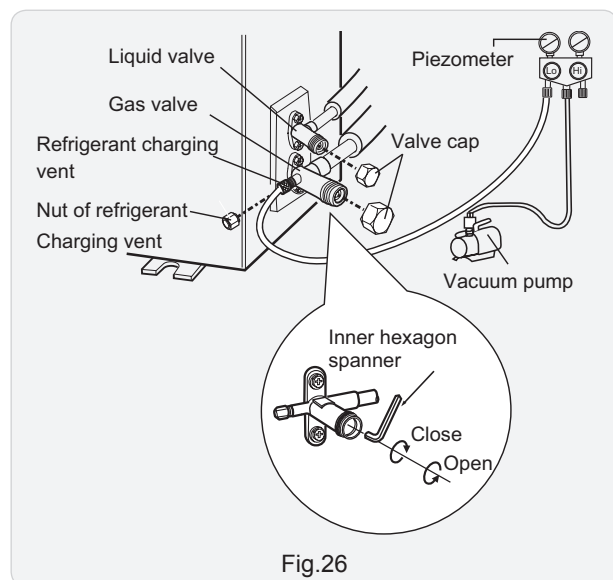


Fig.26

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 Error Code List

No.	Malfunction Name	Error Code	A/C Status	Possible Causes
1	High pressure protection	E1	During cooling and drying operation, except indoor fan operates, all loads stop operation. During heating operation, if it is inverter unit, the complete unit stops; if it is floor standing unit, the complete unit stops and operation of remote controller or controller is unavailable.	1. The main board and the display panel are not connected well. 2. The OVC terminal on main board is not connected well with the high pressure switch on the complete unit. 3. The wiring of high pressure switch is loosened. 4. Refrigerant is superabundant. 5. Poor heat exchange (including blocked heat exchanger and bad radiating environment). 6. Ambient temperature is too high.(if it is 3-phase unit, the high pressure protection may be caused by overcurrent protection due to this reason) 7. The supply voltage is abnormal.(if it is 3-phase unit, the high pressure protection may be caused by overcurrent protection due to this reason) 8. The air intake and air discharge at indoor / outdoor heat exchanger are not smooth. The air cycle is short circuited. 9. Filter and heat exchange fins of indoor/outdoor units are blocked. 10. The system pipeline is blocked. 11. The gas valve and liquid valve for outdoor unit are not completely opened. 12. The OVC input is at high level.
2	Freeze protection	E2	During cooling and drying operation,compressor and outdoor fan stop while indoor fan operates.	1. Poor air-return in indoor unit. 2. Abnormal fan speed. 3. Dirty evaporator. 4. System is normal, but the indoor tube temperature sensor is abnormal, or the tube temperature sensor is not connected well.
3	Low pressure protection of compressor	E3	The complete unit stops	1. The main board and display panel are not connected well. 2. The LPP terminal on the main board is not connected well with the high pressure switch on the complete unit. 3. The wiring of the high pressure switch is loosened. High pressure switch is damaged or poorly contacted. 4. Insufficient or leaking out refrigerant. 5. The LPP input is at high level.
4	High discharge temperature protection of compressor	E4	During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation,all loads stop.	1. Abnormal system (e.g.: blockage, etc) 2. Abnormal rotation speed of outdoor motor (cooling) 3. Abnormal air intake (cooling) 4. System is normal, but the compressor discharge temperature sensor is abnormal or poorly contacted.
5	Overcurrent protection	E5	During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	1. Unstable supply voltage. Normal fluctuation shall be within 10% of the rated voltage on the nameplate. 2. Supply voltage is too low and load is too high. 3. Measure the current of live wire on main board. If the current isn't higher than the overcurrent protection value, please check the controller. 4. The indoor and outdoor heat exchangers are too dirty, or the air inlet and air outlet are blocked. 5. The fan motor is not running. Abnormal fan speed: fan speed is too low or the fan doesn't run. 6. The compressor is not running normally. There is abnormal sound, oil leakage or the temperature of the shell is too high, etc. 7. There's blockage in the system. (filth blockage, ice plug, greasy blockage, Y-valve hasn't beenopened completely)
6	Defrosting	Heating indicator off for 0.5s and then blinks for 10s	Not the error code. It's the status code for the operation	

9. Maintenance

No.	Malfunction Name	Error Code	A/C Status	Possible Causes
7	WIFI communication malfunction	JF	Loads operate normally, while the unit can't be normally controlled by APP.	1. Main board of indoor unit is damaged; 2. Detection board is damaged; 3. The connection between indoor unit and detection board is not good;
8	Communication malfunction	E6	During cooling operation, compressor stops while indoor fan motor operates. During heating operation, the complete unit stops.	Refer to the corresponding malfunction analysis.
9	Overload malfunction	E8	The entire unit stops.	1. Indoor and outdoor heat exchanger is too dirty? Or air inlet/outlet is blocked? 2. Fan motor doesn't work at a normal fan speed; fan speed is too low or the fan doesn't run. 3. Compressor operates normally or not? Is there any abnormal noise or oil leak? Casing is too hot? 4. System is blocked inside? (Dirt blockage? Ice blockage? Oil blockage? Y-valve is not fully open?) 5. Main board temperature sensor detects wrongly.
10	Overload protection for compressor	H3	During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	1. Wiring terminal OVC-COMP is loosened. In normal state, the resistance for this terminal should be less than 1ohm. 2. Refer to the malfunction analysis (discharge protection, overload)
11	In defect of refrigerant	F0	The Dual-8 Code Display will show F0 and the complete unit stops.	1. In defect of refrigerant; 2. Indoor evaporator temperature sensor works abnormally; 3. The unit has been plugged up somewhere.
12	Indoor ambient temperature sensor is open/ short-circuited	F1	The unit will stop operation as it reaches the temperature point. During cooling and drying operation, except IDU fan motor operates, other loads stop operation; During heating operation, the heating fan motor operates according to the conditions of blowing residual heat.	1. The wiring terminal between indoor ambient temperature sensor and maiboard is loosened or poorly contacted; 2. There's short circuit due to trip-over of the parts on maiboard; 3. Indoor ambient temperature sensor is damaged (Please check it by referring to the resistance table for temperature sensor); 4. Mainboard is broken.
13	Indoor evaporator temperature sensor is open/ short-circuited	F2	The unit will stop operation as it reaches the temperature point. During cooling and drying operation, except IDU fan motor operates, other loads stop operation; During heating operation, the heating fan motor operates according to the conditions of blowing residual heat.	1. The wiring terminal between indoor evaporator temperature sensor and maiboard is loosened or poorly contacted; 2. There's short circuit due to trip-over of the parts on maiboard; 3. Indoor evaporator temperature sensor is damaged (Please check it by referring to the resistance table for temperature sensor); 4. Mainboard is broken.
14	Outdoor ambient temperature sensor is open/ short-circuited	F3	The unit will stop operation as it reaches the temperature point. During cooling and drying operation, the compressor stops operation while IDU fan motor operates; During heating operation, the heating fan motor operates according to the conditions of blowing residual heat.	1. The wiring terminal between outdoor ambient temperature sensor and maiboard is loosened or poorly contacted; 2. There's short circuit due to trip-over of the parts on maiboard; 3. Outdoor ambient temperature sensor is damaged (Please check it by referring to the resistance table for temperature sensor); 4. Mainboard is broken.
15	Outdoor condenser temperature sensor is open/ short-circuited	F4	The unit will stop operation as it reaches the temperature point. During cooling and drying operation, the compressor stops operation while IDU fan motor operates; During heating operation, the heating fan motor operates according to the conditions of blowing residual heat.	1. The wiring terminal between outdoor condenser temperature sensor and maiboard is loosened or poorly contacted; 2. There's short circuit due to trip-over of the parts on maiboard; 3. Outdoor condenser temperature sensor is damaged (Please check it by referring to the resistance table for temperature sensor); 4. Mainboard is broken.

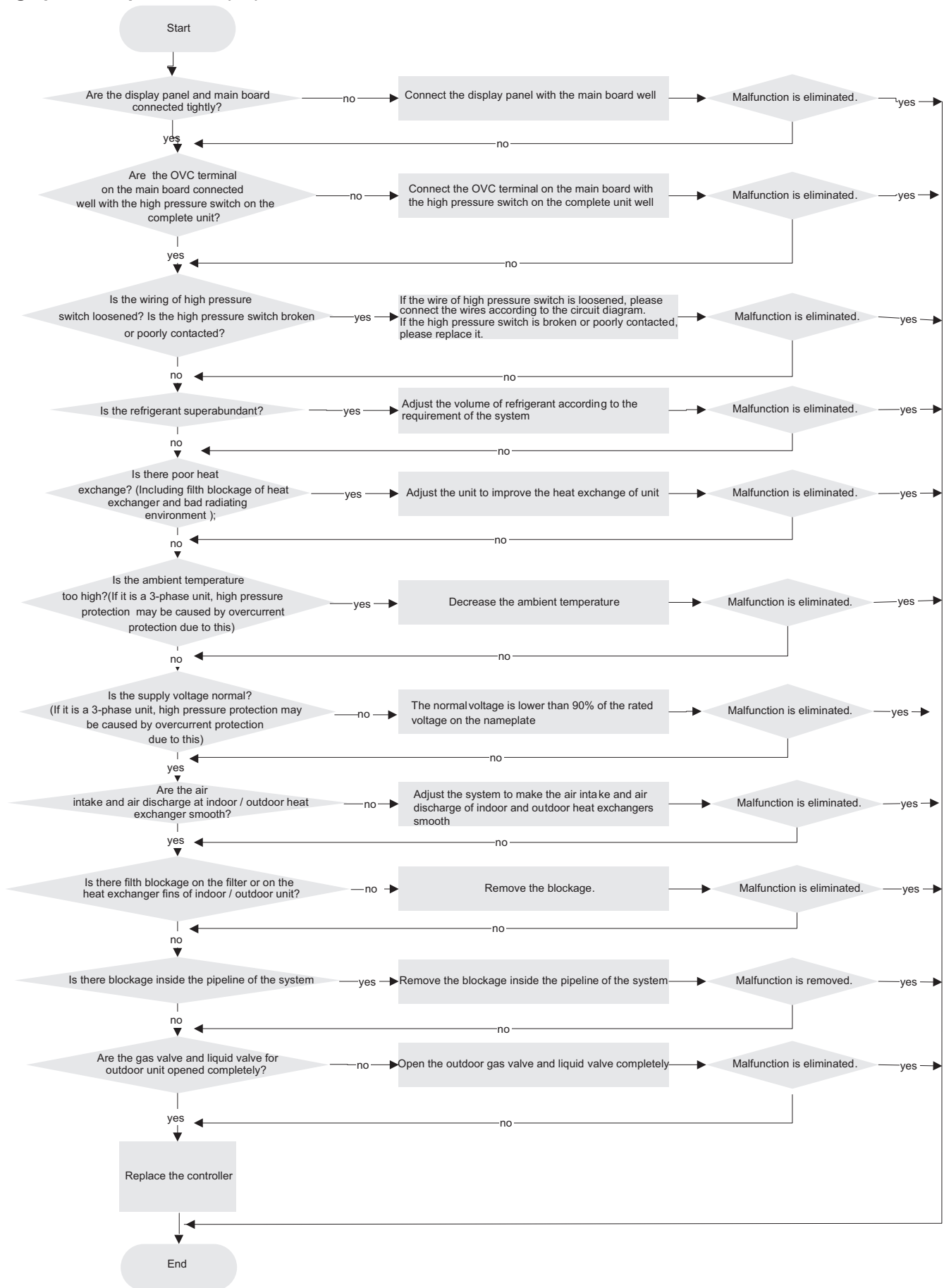
9. Maintenance

No.	Malfunction Name	Error Code	A/C Status	Possible Causes
16	Outdoor discharge temperature sensor is open/short-circuited	F5	The unit will stop operation as it reaches the temperature point. During cooling and drying operation, the compressor stops operation while IDU fan motor operates; During heating operation, the heating fan motor operates according to the conditions of blowing residual heat.	1. The wiring terminal between outdoor discharge temperature sensor and mainboard is loosened or poorly contacted; 2. There's short circuit due to trip-over of the parts on mainboard; 3. Outdoor discharge temperature sensor is damaged (Please check it by referring to the resistance table for temperature sensor); 4. Mainboard is broken.

9. Maintenance

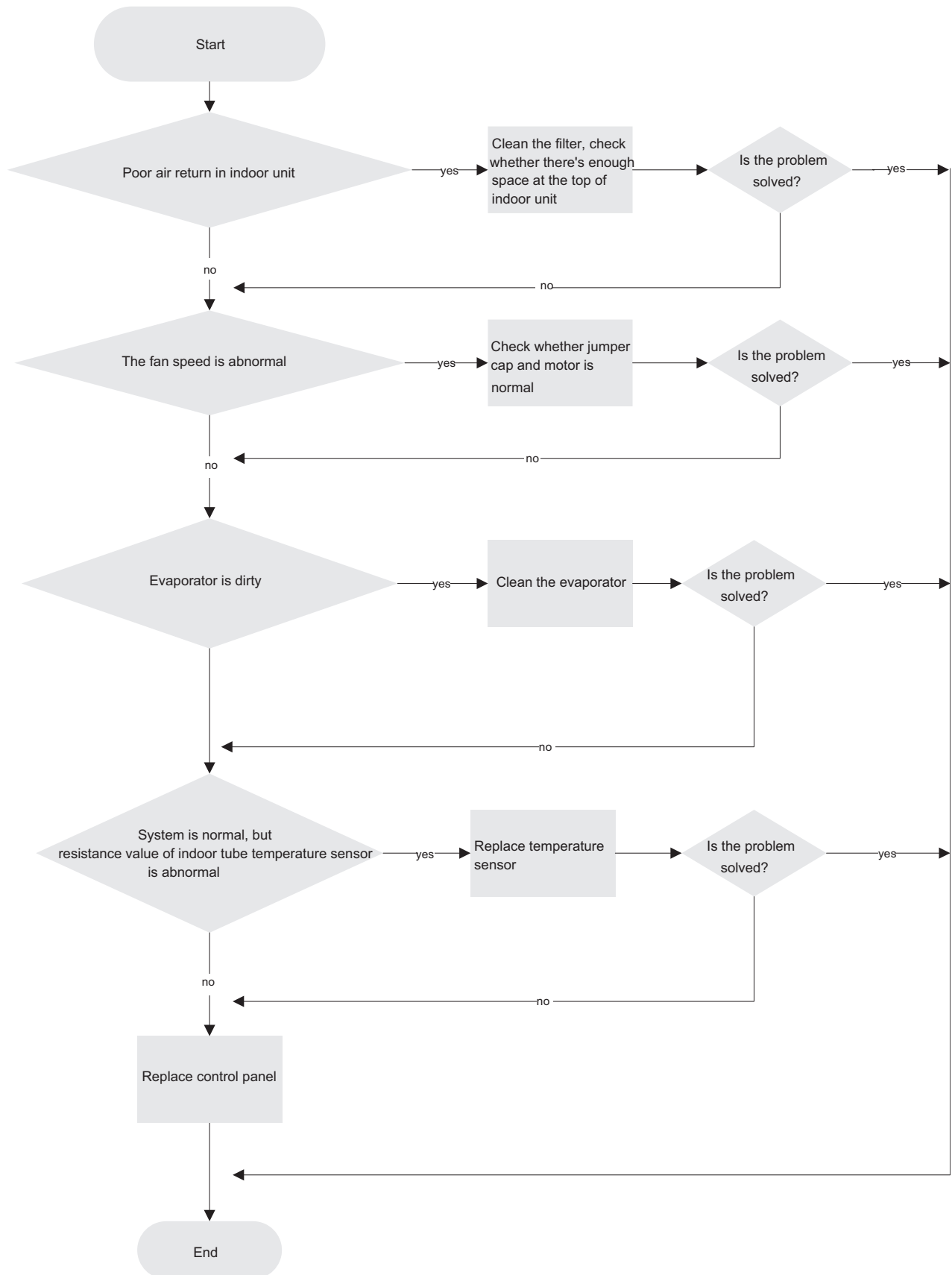
9.2 How to Check Simply the Main Part of Indoor

1. High pressure protection (E1)



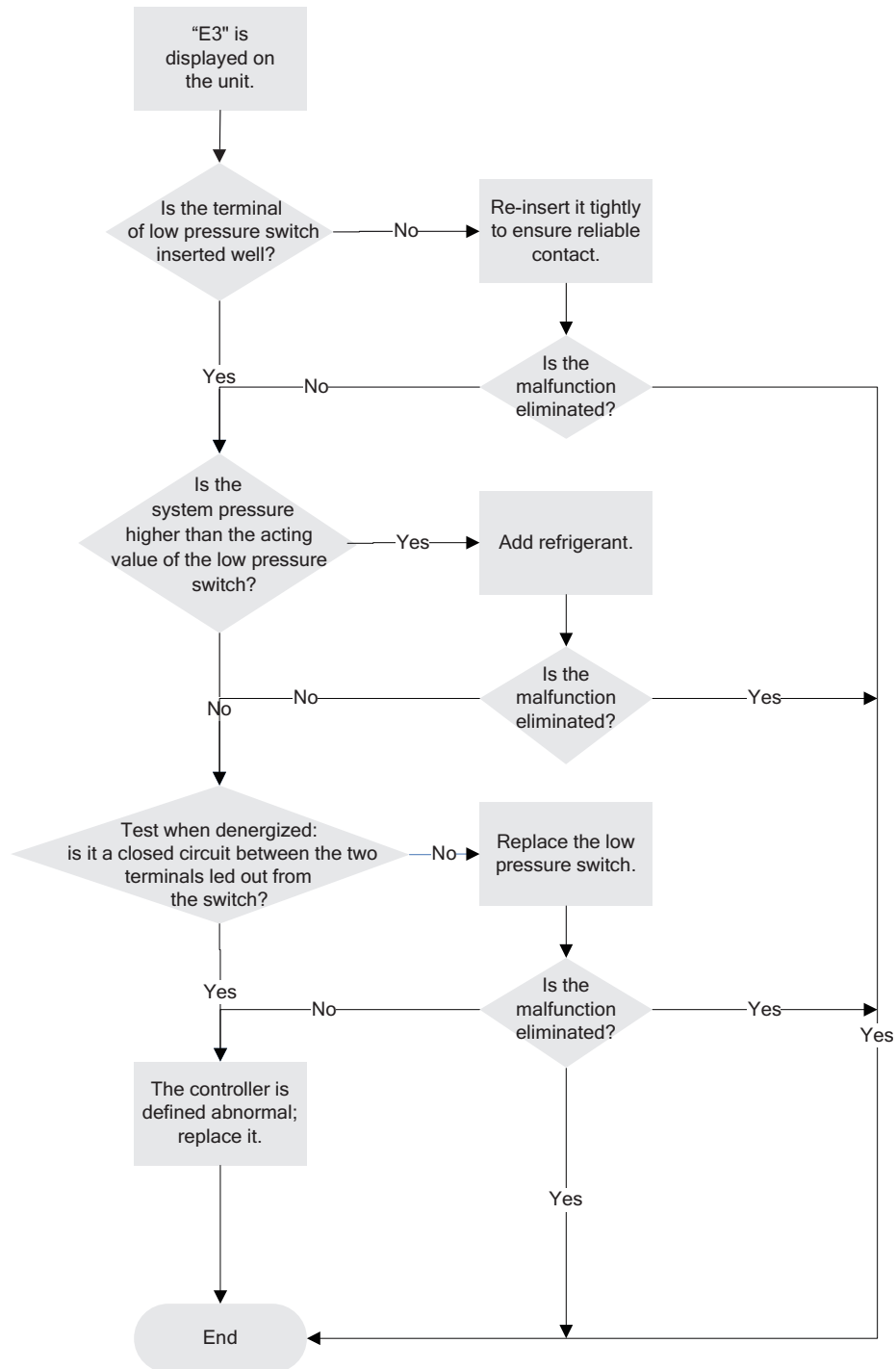
9. Maintenance

2. Freeze protection (E2)



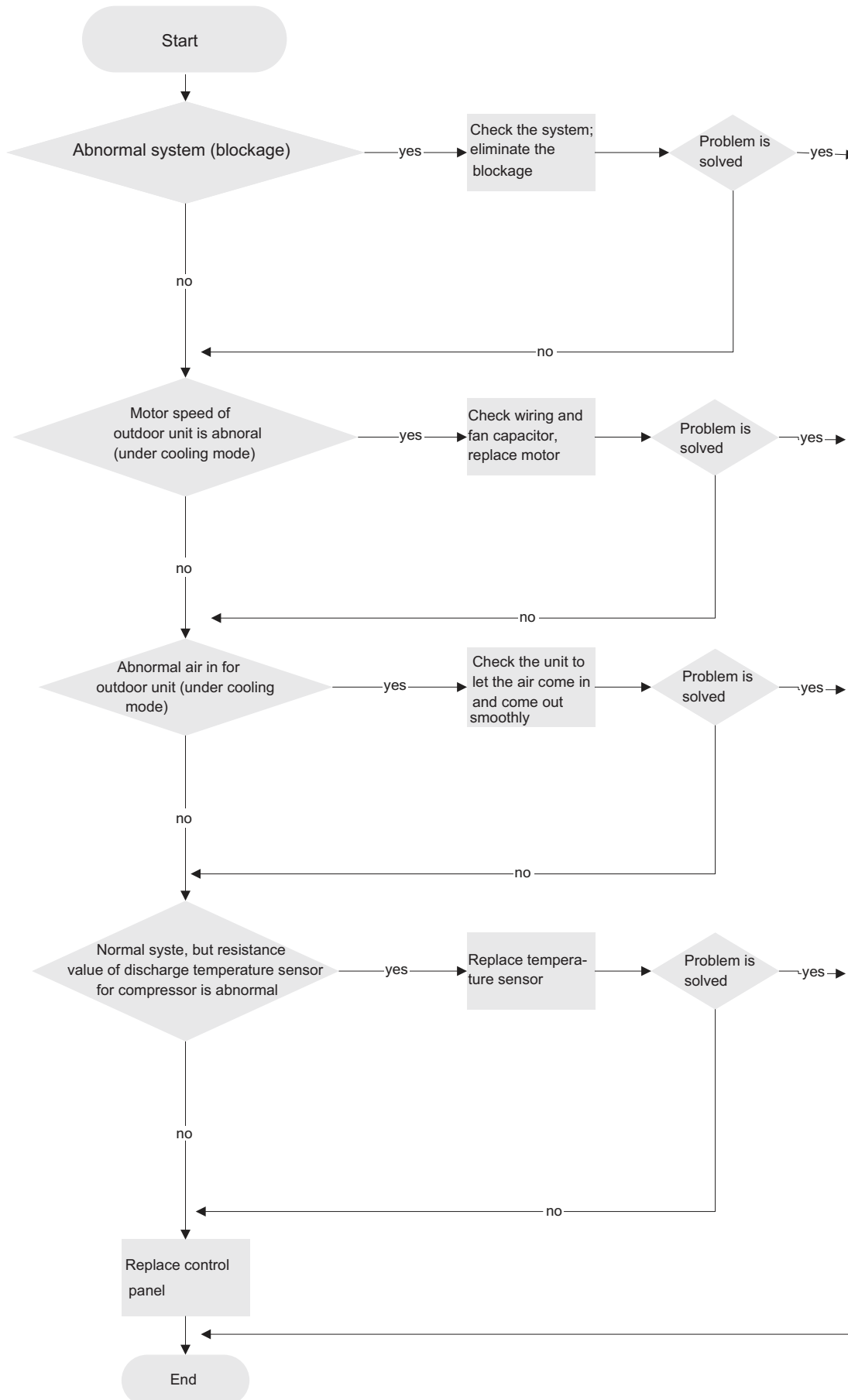
9. Maintenance

3. Low pressure protection of compressor (E3)



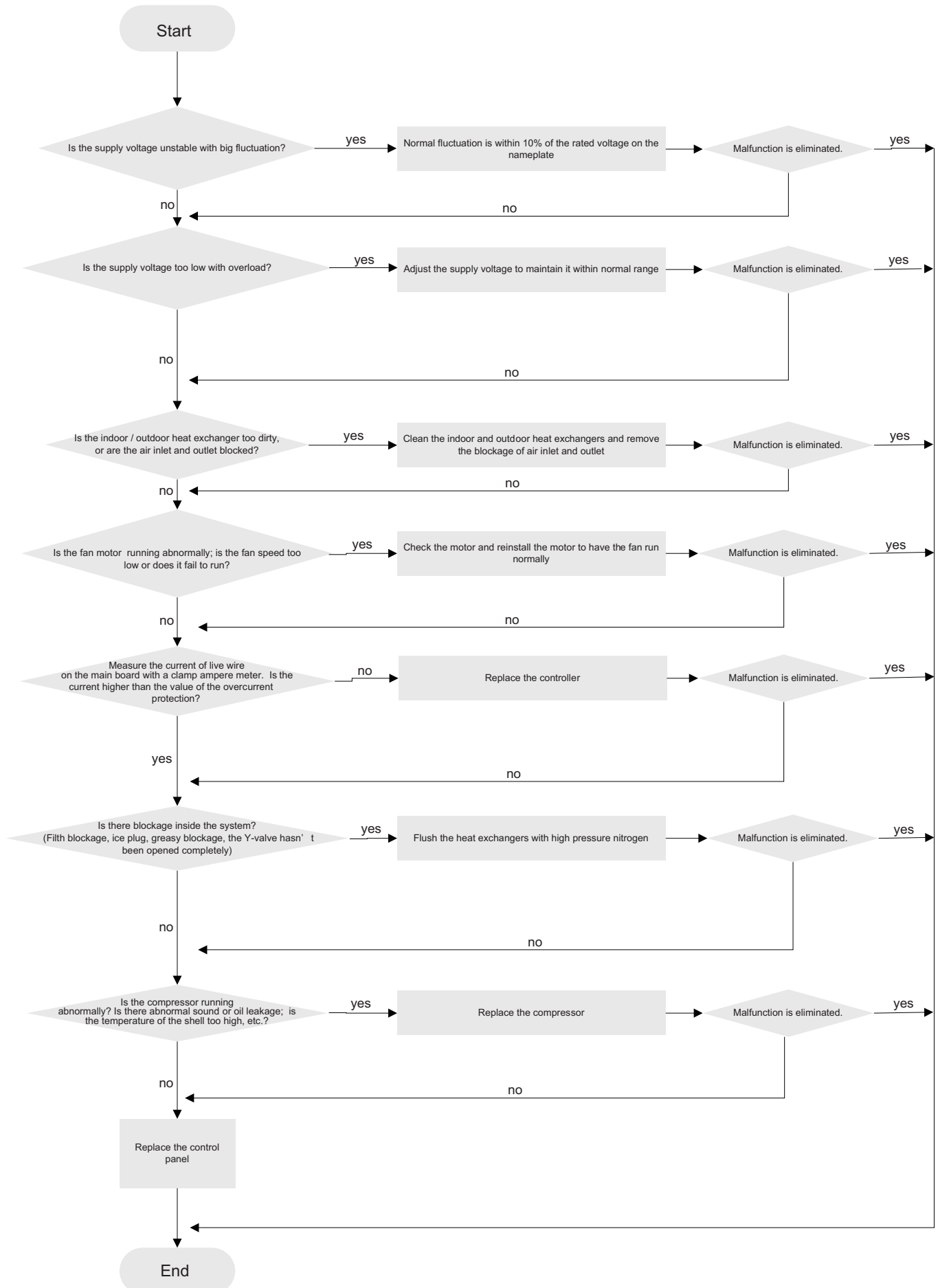
9. Maintenance

4. High discharge temperature protection of compressor (E4)



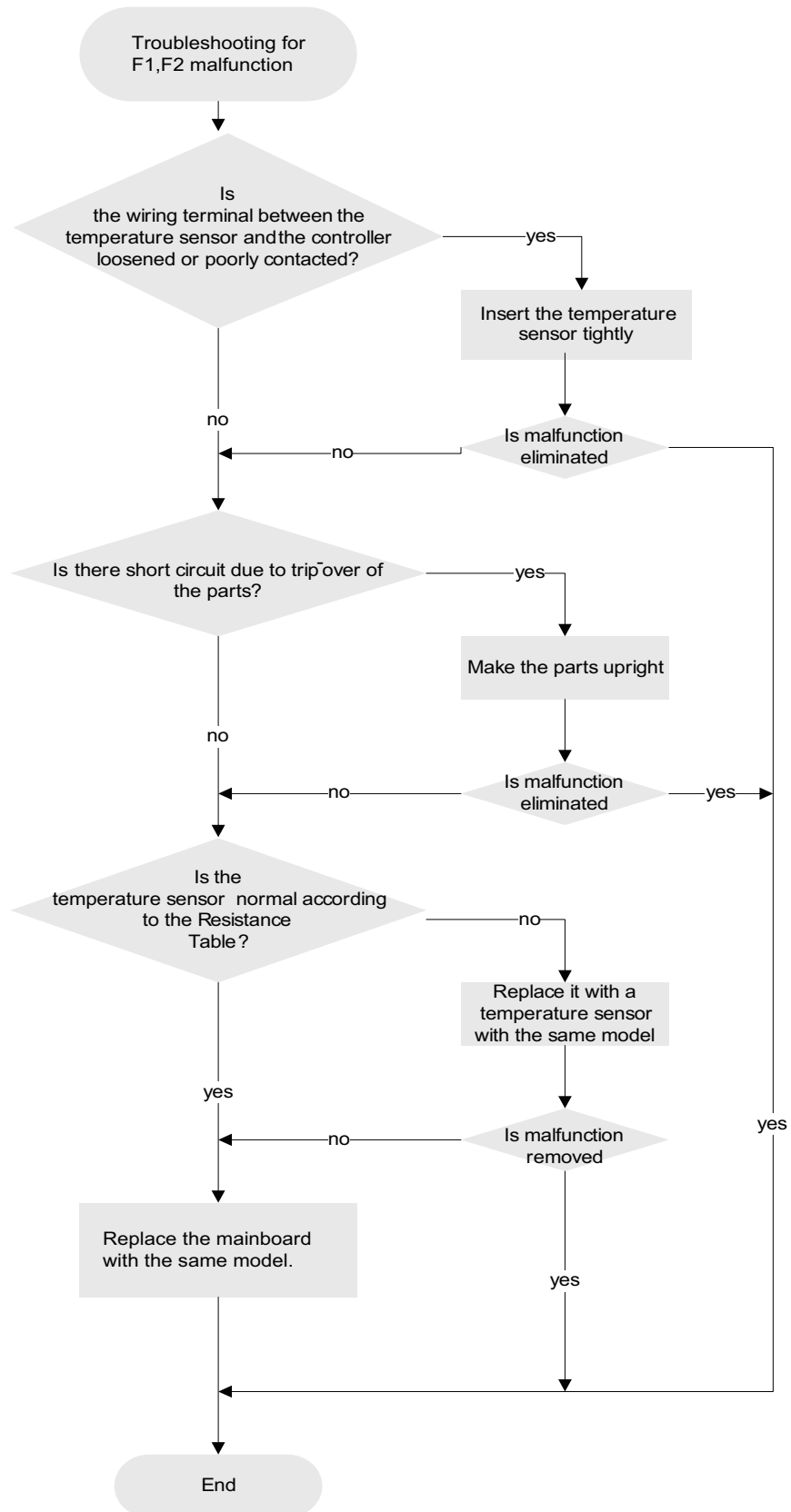
9. Maintenance

5. Overcurrent protection (E5)



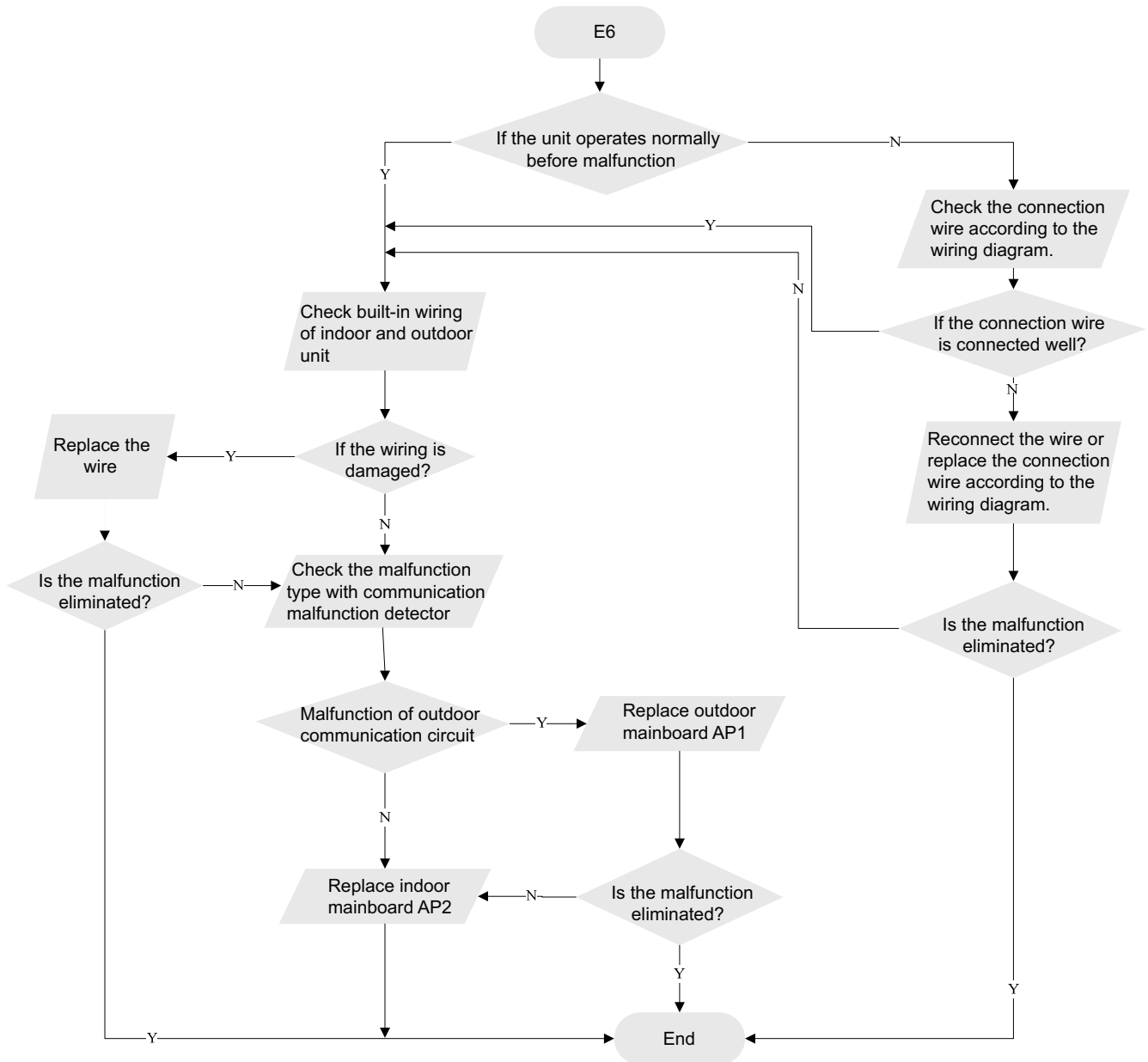
9. Maintenance

6. Malfunction of Temperature Sensor (F1, F2, F3, F4, F5)



9. Maintenance

7. Communication malfunction (E6)



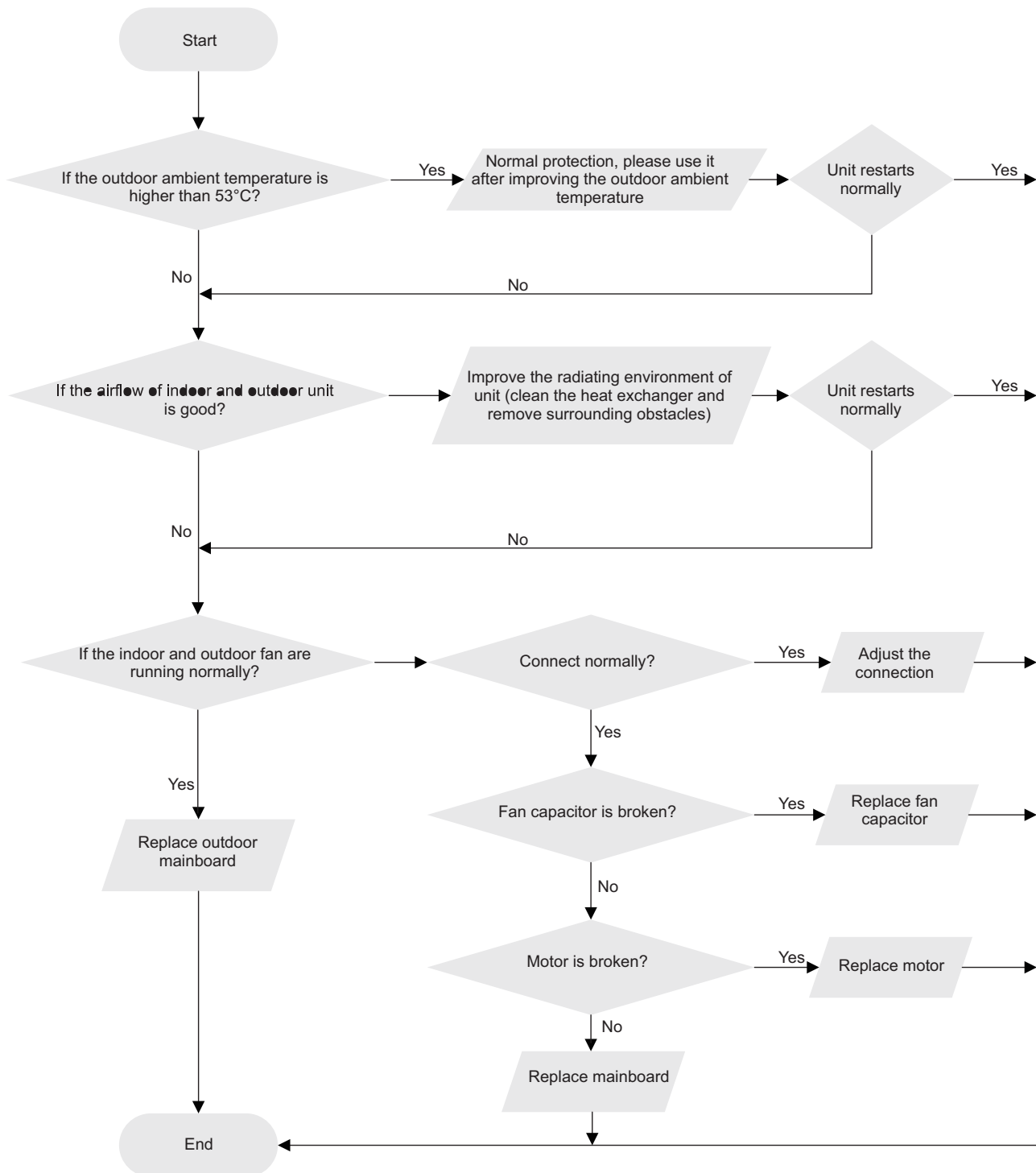
9. Maintenance

8. High temperature and overload protection (AP1 below means control board of outdoor unit) E8

Main detection points:

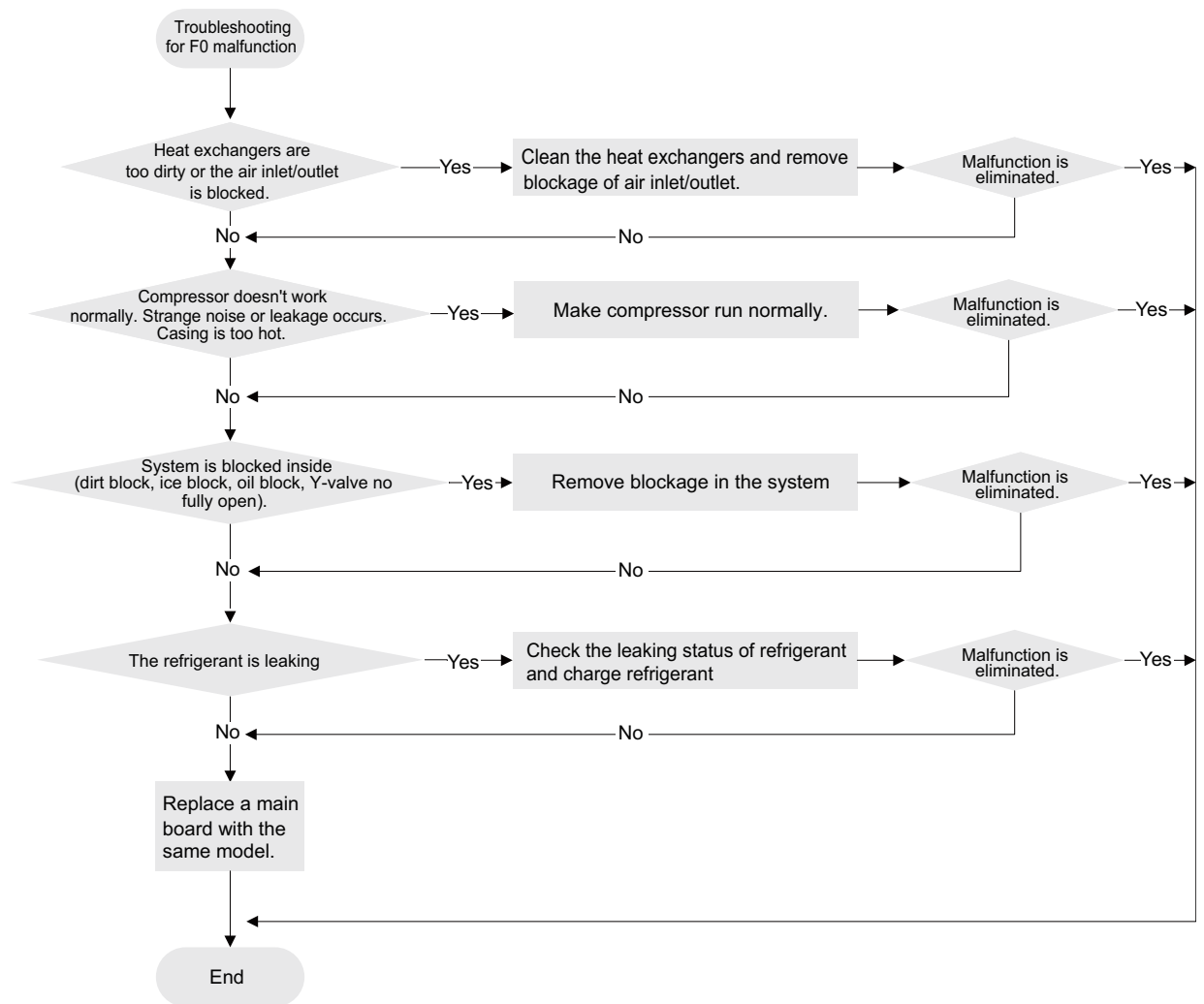
- If the outdoor ambient temperature is in normal range;
- If the indoor and outdoor fan are running normally;
- If the radiating environment of indoor and outdoor unit is good.

Malfunction diagnosis process:



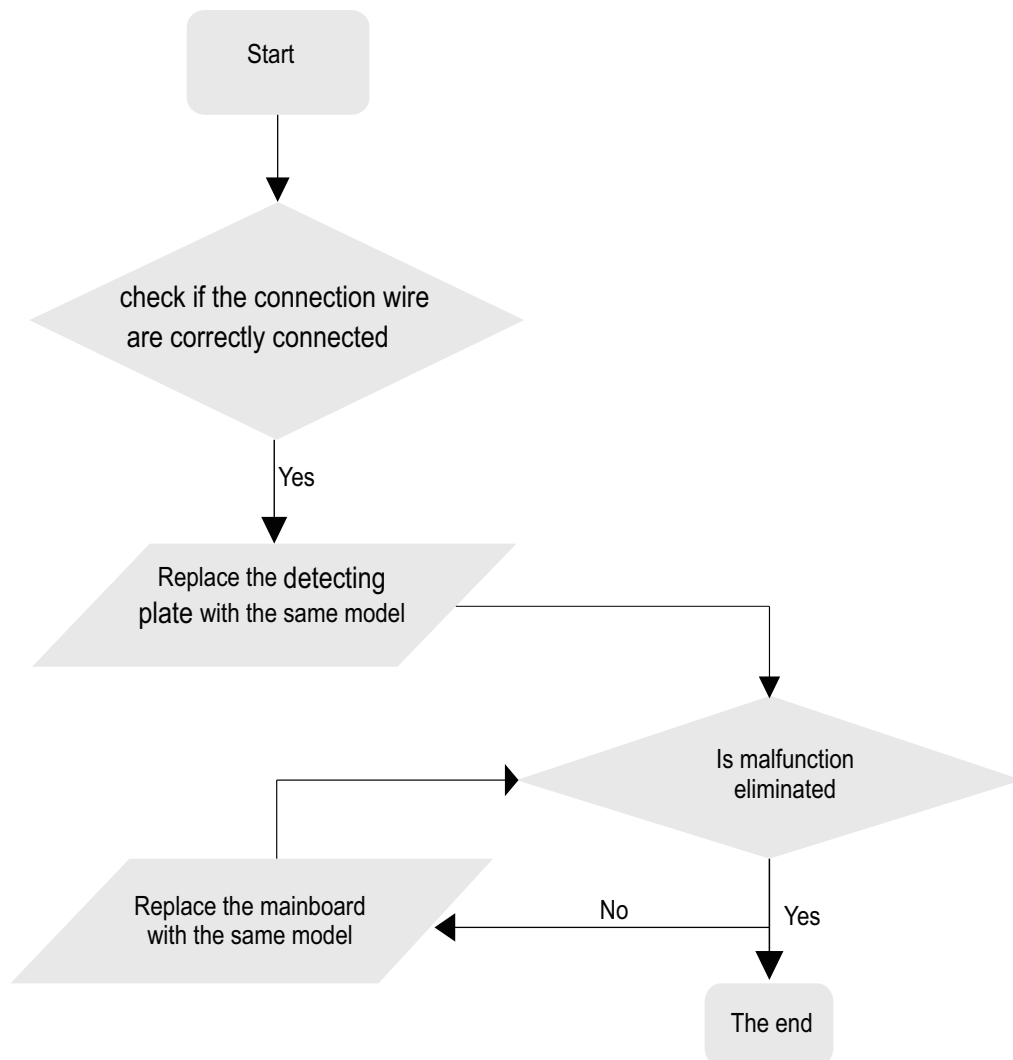
9. Maintenance

9. Malfunction of Insufficient fluorine protection F0



9. Maintenance

10. Malfunction of detecting plate(WIFI) JF



9. Maintenance

9.3 How to Check Simply the Main Part of Outdoor

1. E1: High pressure protection

Malfunction description: The pressure of ODU high pressure side is too high.

Main check points:

- Is the system pressure is normal;
- Is the pressure switch is normal;
- If above two issues are normal, the mainboard circuit is with malfunction, please replace mainboard.

2. E2: Freeze protection

Malfunction description: Too low tube temperature of IDU under cooling mode.

Main check point:

- Check if the IDU fan speed is normal, if the air inlet/outlet is smooth;
- Check if the IDU, ODU heat exchanger is too dirty that affect the heat exchanging effect.

3. E3: Low pressure protection

Malfunction description: The pressure of ODU low pressure side is too low

Main check points:

- Is the system pressure is normal;
- Is the pressure switch is normal;
- If above two issues are normal, the mainboard circuit is with malfunction, please replace mainboard.

4. E4: The air discharging temperature is too high

Main check points:

- Pull off the ODU air discharging temp. sensor, check if the temp. sensor resistance value match with present temperature;
- Check if the refrigerant is too much or too little;
- Check if the IDU, ODU heat exchanger is too dirty that affect the heat exchanging effect.

5. E6: IDU, ODU communication malfunction

Main check points:

- Check if the wiring connection if IDU and ODU is correct;
- Check if the communication power supply voltage is normal, if the DC voltage is more than $56 \pm 15\%$, please replace the ODU mainboard.

6. F4: Outdoor condenser temperature sensor open or short circuit

Malfunction description: The ODU condenser temp. sensor temperature value is too high or too low that out of the normal range.

Main check points:

- Pull off the ODU condenser temp. sensor, check if the temp. sensor resistance value match with present temperature;

b. If the temp. sensor resistance is normal, please replace ODU mainboard;

7. F3: ODU ambient temp. sensor open/short circuit

Malfunction description: The ODU ambient temp. sensor temperature value is too high or too low that out of the normal range.

Main check points:

- Pull off the ODU ambient temp. sensor, check if the temp. sensor resistance value match with present temperature;
- If the temp. sensor resistance is normal, please replace ODU mainboard;

8. F5: ODU air discharging temp. sensor open, short circuit

Malfunction description: The ODU air discharging temp. sensor temperature value is too high or too low that out of the normal range.

Main check points:

- Pull off the ODU air discharging temp. sensor, check if the temp. sensor resistance value match with present temperature;
- If the temp. sensor resistance is normal, please replace ODU mainboard;

9. H3: Compressor overload protection

Malfunction description: Temperature of top compressor is over than the limit value

Main check points:

- Normally the compressor overload protection switch is always on, check if the switch is normal.

10. H5: IPM module protection

Main check points:

- Check if the compressor wiring connection is well connected, if the compressor wiring sequence is correct. The correct wiring sequence is yellow, blue, red in anticlockwise direction.
- Pull off the compressor connection wire, measure the impedance between phase U/V/W and P/N, if any of them is short circuit, please replace the ODU mainboard;
- Check if the compressor is damaged, measure the resistance between any two phases of the compressor three phases.

They should be almost the same, if they're with big difference, the compressor is damaged, please check the insulation condition of three phases to the case.

11. HC: PFC protection

Main check points:

- Check if the unit voltage input is normal;
- Check if the inductance wire is well connected;

9. Maintenance

c. If the above two issues are normal, please replace the ODU mainboard.

12. H7: Compressor out-of-step malfunction

Main check points:

- a. Check if the system pressure is too high?
- b. Check if the working voltage is too low?

13. Lc; Compressor startup failure

Main check points:

- a. Check if the compressor wiring connection is well connected;
- b. Check if the compressor startup interval is over 3 minutes, if not, please wait for 3 minutes then turn on the unit;
- c. Check if there's too much refrigerant.
- d. Check if the compressor is damaged, measure the resistance between any two phase of the three phases, they should be almost the same, if they're with big difference, the compressor is damaged, please check the insulation condition of three phases to the case.

14. PU: ODU capacitor charging malfunction

Malfunction description: after the unit is energized, before the compressor starting operation, the electrolytic capacitor on mainboard should be charging. After the charging command is received, if it is detected by chip that the voltage of electrolytic capacitor is low, it is ODU capacitor charging malfunction.

Main check points:

- a. Check if the unit voltage input is within normal range.
- b. Check if the electric reactor connection wiring and capacitor connection wiring is well connected, if the electric reactor is open circuit.
- c. If above two issues are normal, please replace ODU mainboard.

15. P7: Module temp. sensor circuit malfunction

Malfunction description: There's a thermal resistance on top of IPM module, for detecting the module surface temperature, if it is detected by chip that the temperature is over the normal range.

Main check points:

- a. The circuit on mainboard is damaged, please replace the ODU mainboard.

16. P8: Module temperature too high protection

Main check points:

- a. After daubing radiating glue on IPM module, fix it with screw, if the glue is aging or the fixing screw is loosened, please daub the glue again or fix the screw and test again, if the malfunction still exist, please replace the mainboard.

17. PH: ODU DC bus bar voltage too high

Malfunction description: When it is detected the voltage of DC bus bar on electrolytic capacitor is over 420V.

Main check points:

- a. Check if the input voltage is too high that out of normal power supply voltage range.

18. PL: ODU DC bus bar voltage too low

Malfunction description: When it is detected the voltage of DC bus bar on electrolytic capacitor is less than 200V.

Main check points:

- a. Check if the input voltage is too low that out of normal power supply voltage range.

19. PU: Charging circuit malfunction

Malfunction description: The DC bus bar voltage is less than 100V during charging.

Main check points: Check if the circuit wiring connection is loosened or correct as wiring diagram, well connect the wire, if the malfunction still exist, please replace the mainboard.

9. Maintenance

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 are 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 position 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; Units 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 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

9. Maintenance

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

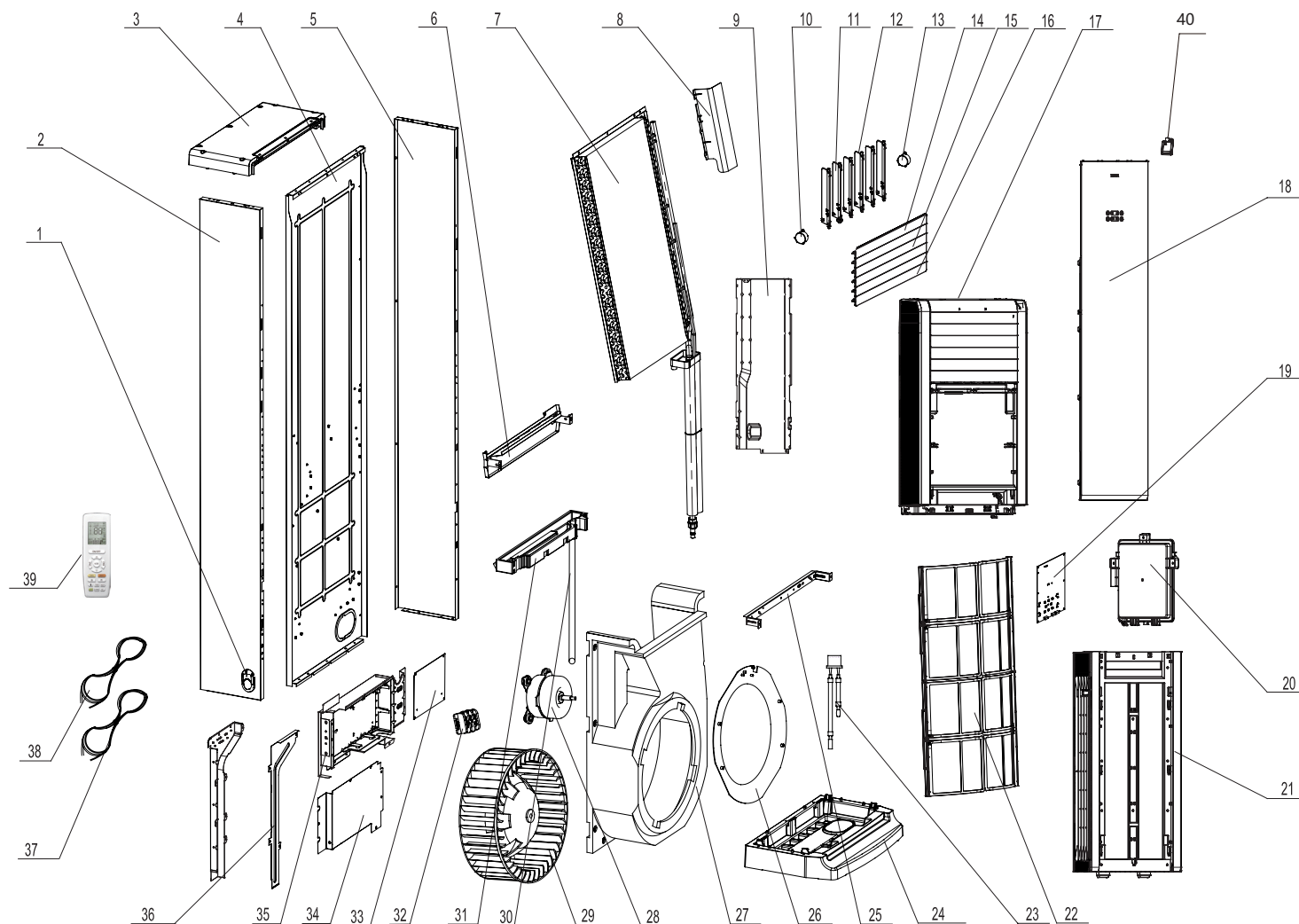
7. Abnormal Sound and Vibration

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 are parts touching together inside the indoor unit	There's abnormal sound from 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 are parts touching together inside the outdoor unit	There's abnormal sound from 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

GVC30AMXH-K6NNC7B/I



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

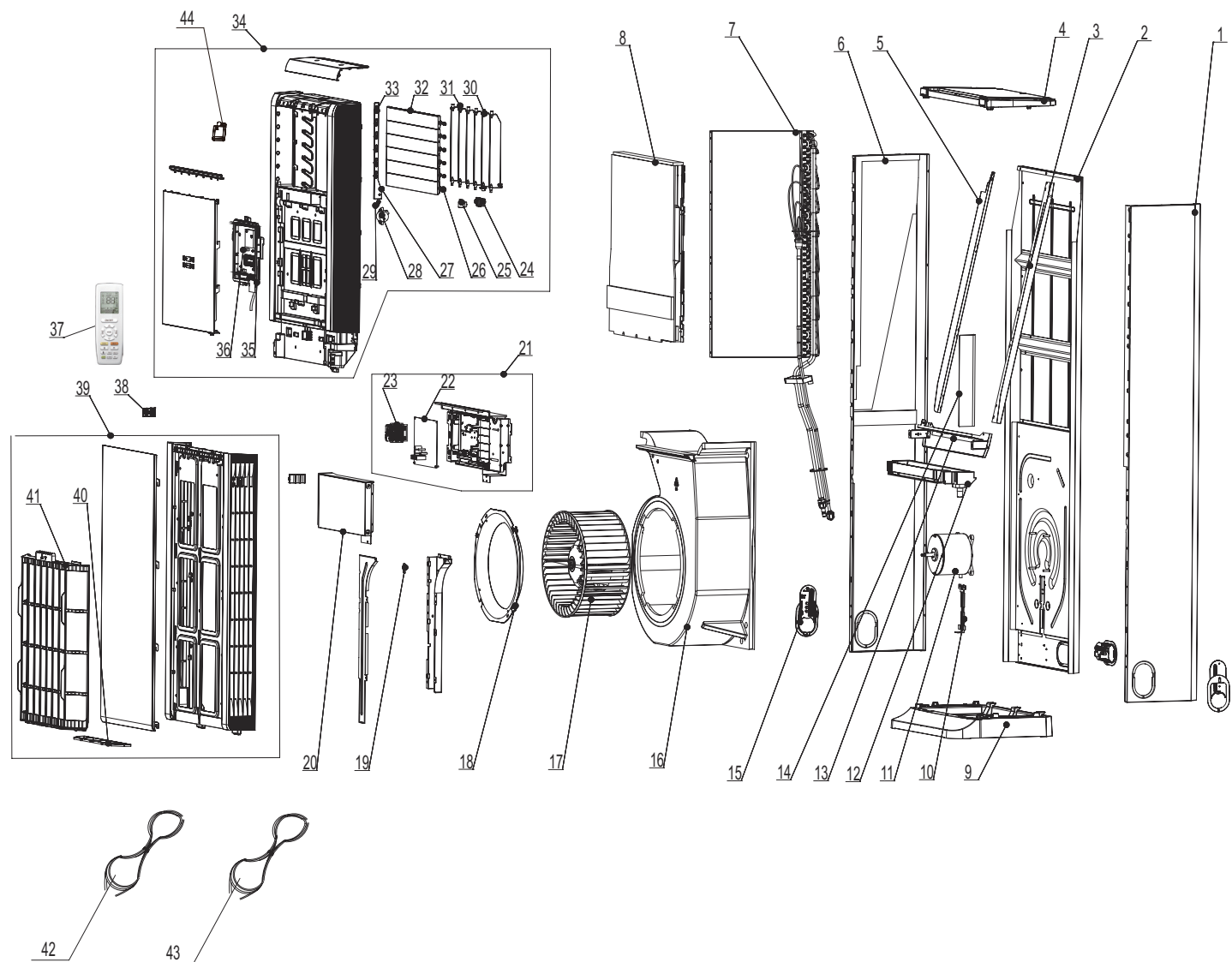
10. Exploded View and Parts List

NO.	Description	NO.	Description
1	Baffle Plate	21	Air Intake Panel Assy
2	Left Side Plate Sub-Assy	22	Filter Sub-Assy
3	Top Cover Sub-Assy	23	Temperature Sensor
4	Rear Plate Sub-Assy	24	Chassis
5	Right Side Plate Sub-Assy	25	Propeller HousingPress Plate
6	Breakwater Sub-Assy	26	Diversion Circle
7	Evaporator Assy	27	Propeller Housing Sub-assy
8	Protection Cover	28	Fan Motor
9	Air Guard Sub-Assy	29	Centrifugal Fan
10	Stepping Motor	30	Drainage Pipe Sub-assy
11	Air Louver 1	31	Water Tray Sub-Assy
12	Air Louver 2	32	Terminal Board
13	Stepping Motor	33	Main Board
14	Guide Louver 1	34	Electric Box Cover Sub-Assy
15	Guide Louver 2	35	Electric Box Assy
16	Guide Louver 3	36	Cover of pass
17	Air Outlet Panel Assy	37	Connecting Cable
18	Front Door Plate Sub-assy	38	Connecting Cable
19	Display Board	39	Remote Controller
20	Display Sub-Assy	40	Detecting Plate

Some models may not contain some parts, please refer to the actual product.

10. Exploded View and Parts List

GVC36ALXH-K6NNC7B/I GVC48ALXH-M6NNC7B/I



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

10. Exploded View and Parts List

NO.	Description	NO.	Description
1	Right Side Plate Sub-Assy	23	Terminal Board
2	Rear Plate Sub-Assy	24	Motor Cover
3	Right Air Guard	25	SteppingMotor
4	Top Cover Sub-Assy	26	Air Guide Bushing
5	Left Air Guard	27	Guide Blade Lever
6	Left Side Plate Sub-Assy	28	SteppingMotor
7	Evaporator Assy	29	Crank 1
8	Air Guard Assy	30	Air Louver 1
9	Chassis	31	Air Louver 2
10	Wire Clamp	32	Guide Louver
11	Fan Motor	33	Crankshaft of Guide Louver
12	Water Tray Sub-Assy	34	Air Outlet Panel Assy
13	Breakwater Sub-Assy	35	Display Sub-Assy
14	Protection Cover	36	Display Board
15	Remote Control Panel Sub-assy	37	Remote Controller
16	Propeller Housing Sub-assy	38	Screw Cover
17	Centrifugal Fan	39	Air Intake Panel Assy
18	Diversion Circle	40	Filter (lower)
19	Gasket	41	Filter Sub-assy(Upper)
20	Electric Box Cover Sub-Assy	42	Connecting Cable
21	Electric Box Assy	43	Connecting Cable
22	Main Board	44	Detecting Plate

Some models may not contain some parts, please refer to the actual product.

10. Exploded View and Parts List

NO.	Description	NO.	Description
1	Front Grill	22	Rear Grill
2	Front Panel Assy	23	Capillary Sub-assy
3	Axial Flow Fan	24	Discharge Tube Sub-assy
4	Brushless DC Motor	25	Condenser Assy
5	Chassis Sub-assy	26	Pipe Clamp
6	Nut with Washer	27	Over Coil-assy
7	Clapboard	28	Top Cover Sub-Assy
8	Inhalation Tube Sub-assy	29	Motor Support Sub-Assy
9	Compressor and fittings	30	Left Side Plate
10	Right Side Plate Assy	31	Electric Box Assy
11	Valve Support	32	Filter Board
12	Cut-off valve 5/8(N)	33	Speed Control Band
13	Nut(Rear Cover)	34	Capacitor Clamp
14	Cut-off valve 1/4(N)	35	Capacitor
15	Nut(Rear Cover)	36	Module Support
16	Valve Cover	37	Electric Box
17	Pipe Connection Nut ("I" shape)	38	Mains Transfarmer
18	Pipe Connection Nut ("D" shape)	39	Over Coil-assy
19	Handle	40	Ac Contactor
20	Support	41	Main Board
21	Valve Support Baffle		

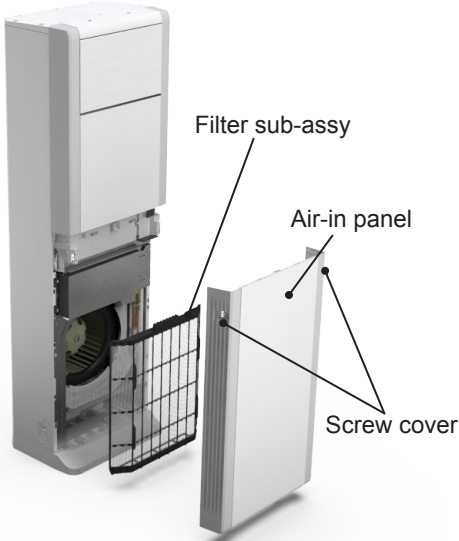
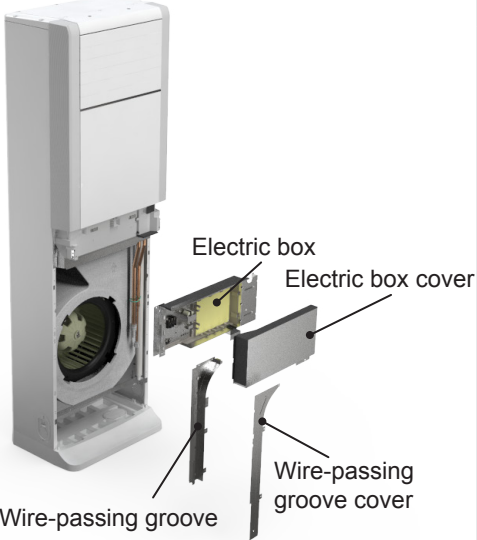
Some models may not contain some parts, please refer to the actual product.

11. Removal Procedure

11.1 Removal Procedure of Indoor Unit

Note: Take 48K indoor unit for example.

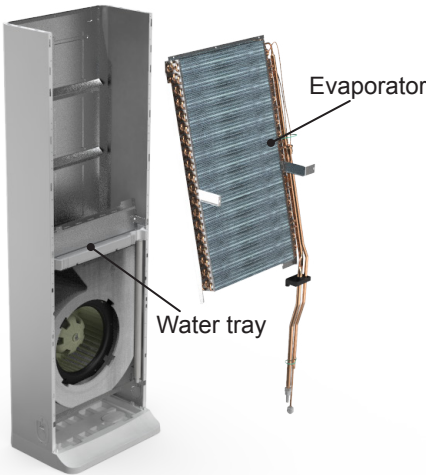
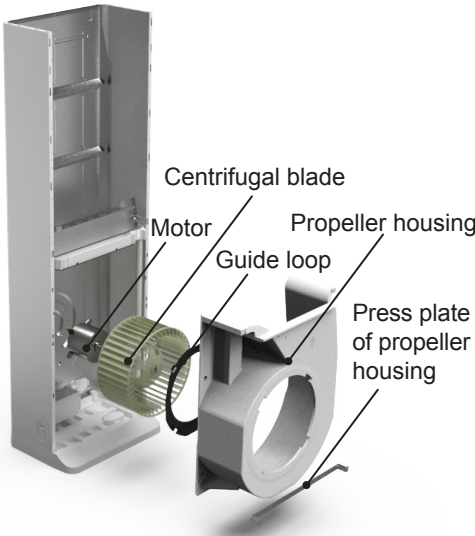
 **Caution: discharge the refrigerant completely before removal.**

Step	Procedure
1. Before disassemble	
2. Remove filter sub-assy	(1) Open the screw cover, use the screwdriver to remove 2 screws at both sides of air-in panel and then pull the air-in panel to remove it; (2) Draw out the filter sub-assy. 
3. Remove electric box and wire-passing groove sub-assy	Remove 4 screws used for fixing the electric box cover, remove the electric box cover and then pull out the wiring terminals for each component. At this time, you can remove related electric components according to the needs; Remove 9 screws used for fixing the electric box, pull the electric box outwards to remove it. Remove 3 screws used for fixing the wirepassing groove, and then remove the wirepassing groove cover. Remove 3 screws used for fixing the wirepassing groove and then remove the wirepassing groove sub-assy. 

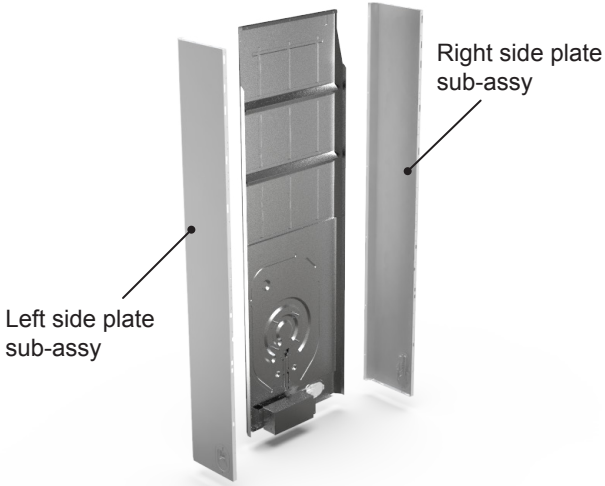
11. Removal Procedure

Step	Procedure
4. Remove air-outlet panel	Remove 3 screws at the top part of the air-out panel, 2 screw at the lower part and screws under the screw cover, push the air-output panel upwards slightly and then remove the air-output panel. 
5. Remove air damper	Remove 10 screws used for fixing the air damper, and then the air damper can be removed. 
6. Remove top cover	Remove 7 screws on the top cover, and then pull the top cover upwards to remove it. 

11. Removal Procedure

Step	Procedure
7. Remove evaporator	 Remove 3 screws on the evaporator, 2 screw at the middle part and 2 screws at the lower part. Pull left and right side plates outwards slightly and then take out the evaporator, baffle board and water tray. When the evaporator is removed, the left and the right air damper and the baffle board of the evaporator can be removed.
8. Remove retaining plate of water tray and evaporator	 Remove 3 screws used for fixing the press plate of propeller housing and then remove the press plate of propeller housing; Rotate the guide loop to a certain position along the clockwise direction, and then remove the guide loop; Remove 9 screws used for fixing the propeller housing, and then remove the propeller housing; Use wrench to twist off the nuts used for fixing the centrifugal chiller and then pull the centrifugal blade outwards; Remove the centrifugal blade; Remove 4 nuts used for fixing the motor and 2 screws used for fixing the wire-pressing plate, and then remove the motor.
9. Remove breakwater sub-assy and water tray sub-assy	 Remove 2 screws used for fixing the left and right side plate and then remove the breakwater sub-assy and water tray sub-assy.

11. Removal Procedure

Step	Procedure
10. Remove chassis	
11. Remove left and right side plate sub-assys	

11. Removal Procedure

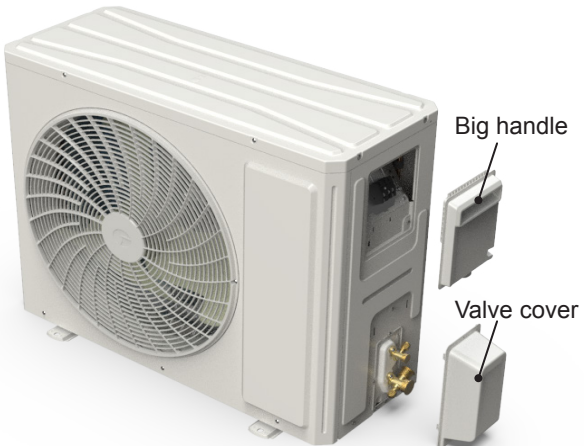
11.2 Removal Procedure of Outdoor Unit

48K

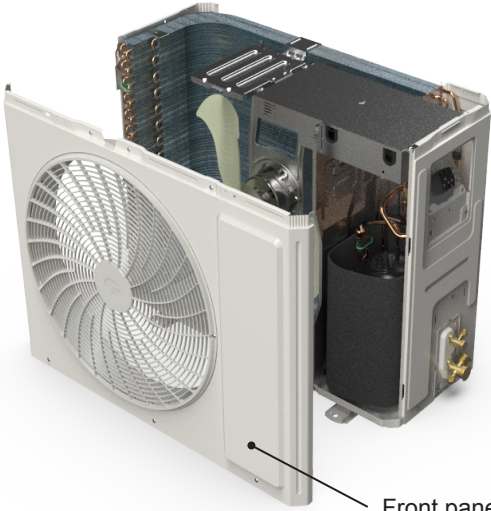
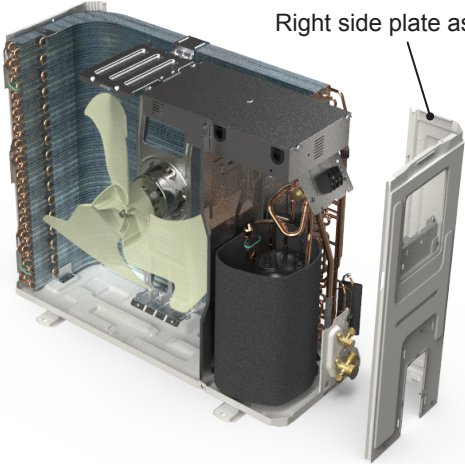
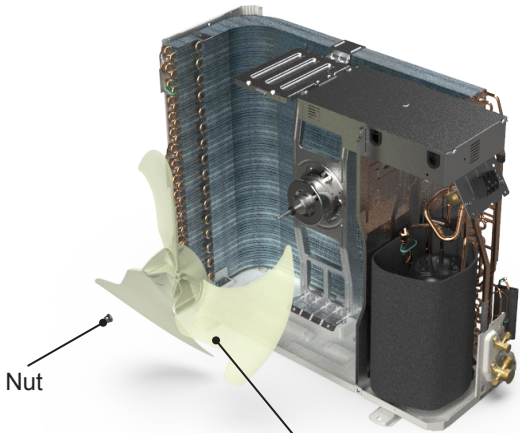
NOTE:Take heat pump for example.



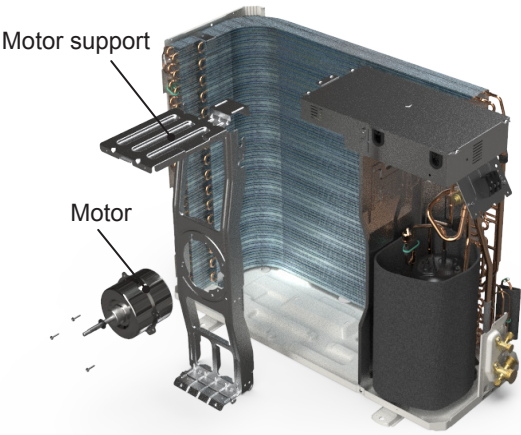
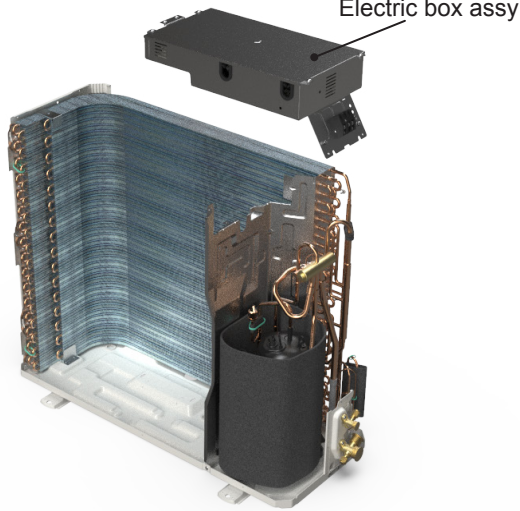
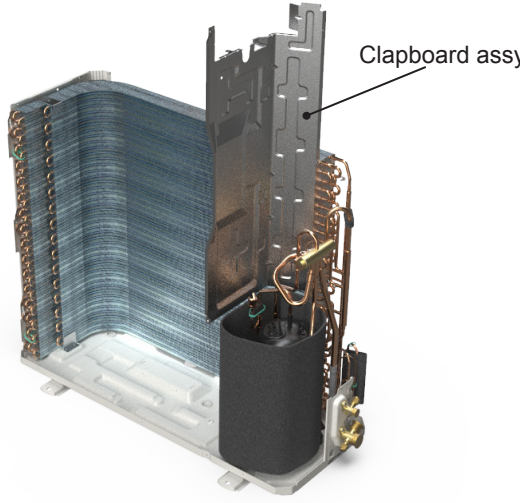
Caution: discharge the refrigerant completely before removal.

Step	Procedure
1. Before disassembly	
2. Remove big handle and valve cover	Remove the screws fixing big handle, valve cover and then remove them. 
3. Remove top cover	Remove the screws fixing top panel and then remove the top panel. 

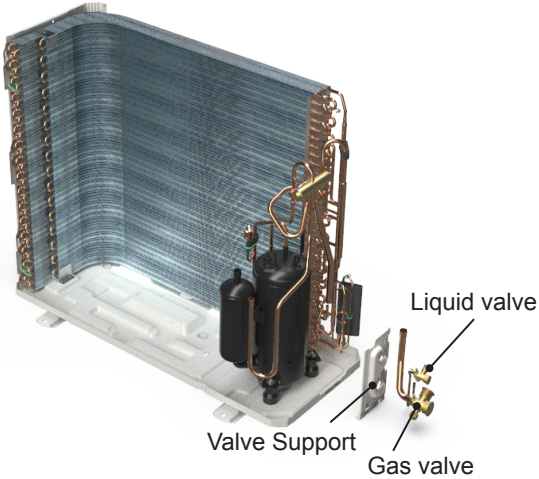
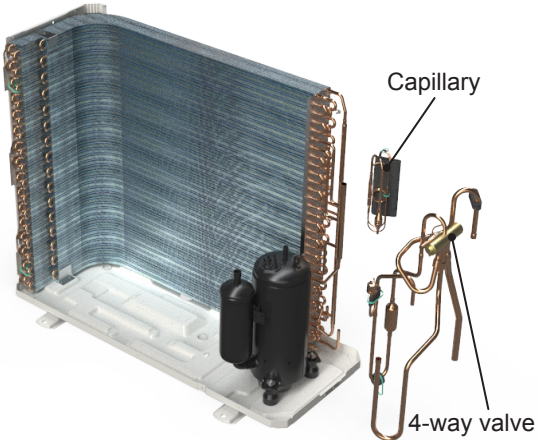
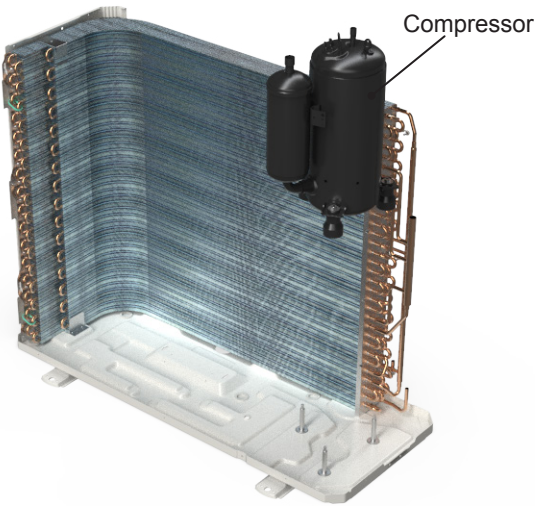
11. Removal Procedure

Step	Procedure
4. Remove front panel assy	Remove connection screws connecting the front panel assy with the chassis and the motor support, and then remove the front panel assy.  Front panel assy
5. Remove right side plate assy	Rescrew the ground screws, remove the ground wires, loosen the screws fixing terminal board, remove the terminal board, rescrew the screws fixing the right plate, and remove the right side plate assy.  Right side plate assy
6. Remove axial flow fan	Remove the nut on the fan and then remove the axial flow fan.  Nut Axial flow fan

11. Removal Procedure

Step	Procedure
7. Remove motor support and motor	Remove the screws fixing the motor support and lift the motor support to remove it. Remove the screws fixing the motor and then remove the motor.  Motor support Motor
8. Remove electric box assy	Remove the terminals, lift up and rotate the electrical box assy to the right so that the snaps on the clapboard are removed and the electrical box assy are removed.  Electric box assy
9. Remove clapboard assy	Remove the screws fixing the clapboard assy and then remove the clapboard assy.  Clapboard assy

11. Removal Procedure

Step	Procedure
10. Remove gas valve and liquid valve	Remove the valve support bolck, remove the screws fixing the gas valve and the liquid valve,unsolder the welding joint connecting the gas valve and the liquid valve, remove them. Note: Discharge the refrigerant completely before unsoldering; when unsoldering, wrap the gas valve with a wet cloth completely to avoid damage to the valve caused by high temperature. 
11. Remove 4-way valve and capillary	Unsolder the welding joints connecting capillary, and then remove it. Unsolder the welding joints connecting the 4-way valve assy with capillary sub-assy, compressor and condenser; remove the 4-way valve.Cooling only unit removes Discharge Tube and Inhalation Tube. 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. 
12. Remove compressor	Remove the 3 foot nuts on the compressor and then remove the compressor. 

Appendix:

Appendix 1: Reference Sheet of Celsius and Fahrenheit

Conversion formula for Fahrenheit degree and Celsius degree: $T_f = T_c \times 1.8 + 32$

Set temperature

Fahrenheit display temperature (°F)	Fahrenheit (°F)	Celsius (°C)	Fahrenheit display temperature (°F)	Fahrenheit (°F)	Celsius (°C)	Fahrenheit display temperature (°F)	Fahrenheit (°F)	Celsius (°C)
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 (°F)	Fahrenheit (°F)	Celsius (°C)	Fahrenheit display temperature (°F)	Fahrenheit (°F)	Celsius (°C)	Fahrenheit display temperature (°F)	Fahrenheit (°F)	Celsius (°C)
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

- Standard length of connection pipe (More details please refer to the specifications.)
- Min. length of connection pipe is 3m.
- Max. length of connection pipe and max. high difference.(More details please refer to the specifications.)
- The additional refrigerant oil and refrigerant charging required after prolonging connection pipe
 - After the length of connection pipe is prolonged for 10m at the basis of standard length, you should add 5ml of refrigerant oil for each additional 5m 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 R32				
Piping size		Indoor unit throttle	Outdoor unit throttle	
Liquid pipe	Gas pipe	Cooling only, cooling and heating (g / m)	Cooling only(g/m)	Cooling and heating(g/m)
1/4"	3/8" or 1/2"	14	12	16
1/4" or 3/8"	5/8" or 3/4"	40	12	40
1/2"	3/4" or 7/8"	80	24	96
5/8"	1" or 1 1/4"	136	48	96
3/4"	/	200	200	200
7/8"	/	280	280	280

Appendix:

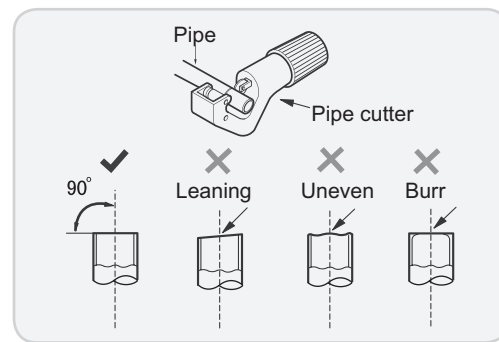
Appendix 3: Pipe Expanding Method

⚠ Note:

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

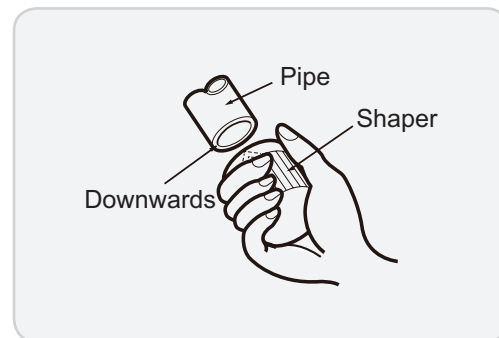
A: Cut the pipe

- 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

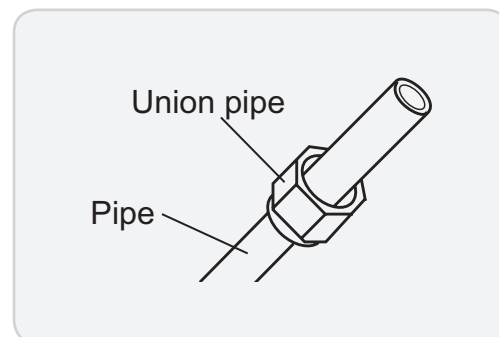
- Remove the burrs with shaper and prevent the burrs from getting into the pipe.



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.



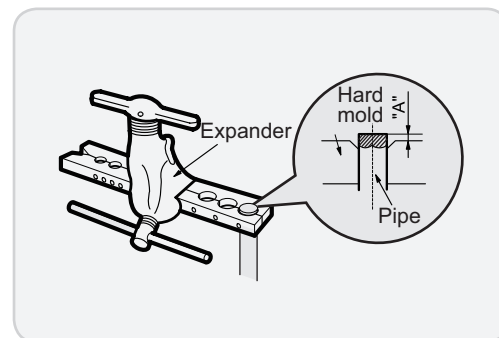
E: Expand the port

- Expand the port with expander.

⚠ Note:

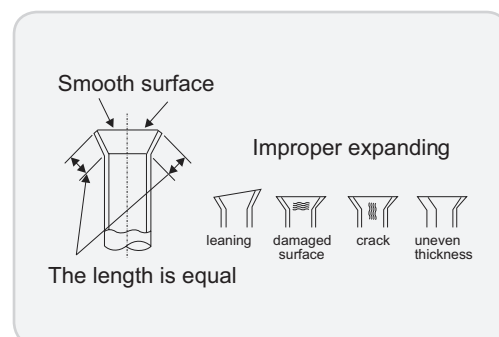
- "A" is different according to the diameter, please refer to the sheet below:

Outer diameter(mm)	A(mm)	
	Max	Min
Φ6 - 6.35 (1/4")	1.3	0.7
Φ9.52 (3/8")	1.6	1.0
Φ12 - 12.70 (1/2")	1.8	1.0
Φ16 - 15.88 (5/8")	2.4	2.2



F: Inspection

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



Appendix:

Appendix 4: List of Resistance for Temperature Sensor

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

Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)
-19	138.10	0	49.02	20	18.75	40	7.97
-18	128.60	2	44.31	22	17.14	42	7.35
-16	115.00	4	40.09	24	15.68	44	6.79
-14	102.90	6	36.32	26	14.36	46	6.28
-12	92.22	8	32.94	28	13.16	48	5.81
-10	82.75	10	29.90	30	12.07	50	5.38
-8	74.35	12	27.18	32	11.09	52	4.99
-6	66.88	14	24.73	34	10.20	54	4.63
-4	60.23	16	22.53	36	9.38	56	4.29
-2	54.31	18	20.54	38	8.64	58	3.99

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

Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)
-19	181.40	20	25.01	60	4.95	100	1.35
-15	145.00	25	20.00	65	4.14	105	1.16
-10	110.30	30	16.10	70	3.48	110	1.01
-5	84.61	35	13.04	75	2.94	115	0.88
0	65.37	40	10.62	80	2.50	120	0.77
5	50.87	45	8.71	85	2.13	125	0.67
10	39.87	50	7.17	90	1.82	130	0.59
15	31.47	55	5.94	95	1.56	135	0.52

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

Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)
-30	911.400	10	98	50	17.65	90	4.469
-25	660.8	15	77.35	55	14.62	95	3.841
-20	486.5	20	61.48	60	12.17	100	3.315
-15	362.9	25	49.19	65	10.18	105	2.872
-10	274	30	39.61	70	8.555	110	2.498
-5	209	35	32.09	75	7.224	115	2.182
0	161	40	26.15	80	6.129	120	1.912
5	125.1	45	21.43	85	5.222	125	1.682



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