

IDEALair™
PRO SERIES
PRO SERIES

STOP

This product is precharged with refrigerant for a **25 feet** of line set.

If **MORE** than 25 feet of line set is required, refer to your Ideal-Air Service Manual for refrigerant charging chart.

For line sets between 25' & 10' in length, **REMOVE .65 oz** of R410A refrigerant per line feed.

According to manufacturer's specifications, under no circumstances should the line set be shorter than 10' in length.

If you need further assistance, please contact:
Ideal-Air Tech Support
877-943-3251
support@ideal-air.com

Service Manual

Model: IAH24MD-D3DNA3D (700476)

IAC24MD-D3DNA3D (700480)

(Refrigerant R410A)

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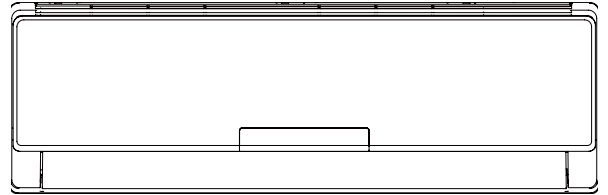
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Part I : Technical Information

1. Summary

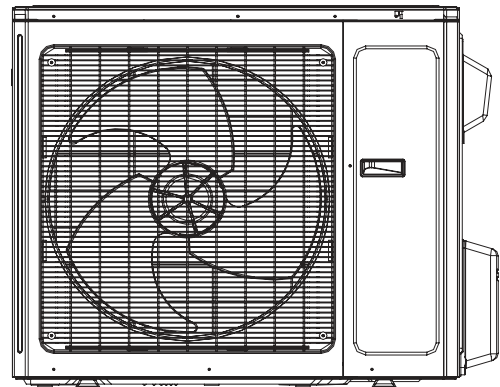
Indoor Unit:

IAC24MD-D3DNA3D/I
IAH24MD-D3DNA3D/I



Outdoor Unit:

IAC24MD-D3DNA3D
IAH24MD-D3DNA3D



Remote Controller:

IARC-24



Model List

NO	MODEL	PART NUMBER	INDOOR MODEL	REMOTE CONTROLLER
1	IAH24MD-D3DNA3D	700476	IAH24MD-D3DNA3D/I	IARC-24
2	IAC24MD-D3DNA3D	700480	IAC24MD-D3DNA3D/I	IARC-24

2. Specifications

2.1 Specification Sheet

Model		IAC24MD-D3DNA3D
Part Number		700480
Power Supply	Rated Voltage	V ~ 208/230
	Rated Frequency	Hz 60
	Phases	1
Power Supply Mode		Outdoor
Cooling Capacity(Min ~ Max)	Btu/h	21400(9600~25000)
Heating Capacity(Min ~ Max)	Btu/h	/
Cooling Power Input(Min ~ Max)	W	1780(500~2650)
Heating Power Input(Min ~ Max)	W	/
Cooling Current Input	A	7.941
Heating Current Input	A	/
Rated Input	W	2650
Rated Current	A	11.757
Air Flow Volume (S/H/M/L)	CFM	589/471/412/353
Dehumidifying Volume	Pint/h	5.28
EER	(Btu/h)/W	12
COP	(Btu/h)/W	/
SEER		18
HSPF		/
Application Area	m ²	27-42
Indoor Unit	Indoor Unit Model	IAC24MD-D3DNA3D/I
	Fan Type	Cross-flow
	Fan Diameter Length(DXL)	Φ3 7/8X30 1/8
	Cooling Speed(S/H/M/L)	inch 1500/1200/1050/900
	Heating Speed(S/H/M/L)	r/min /
	Fan Motor Power Output	r/min
	Fan Motor RLA	W 60
	Fan Motor Capacitor	A 0.24
	Evaporator Form	μF /
	Evaporator Pipe Diameter	W Aluminum Fin-copper Tube
		inch Φ 2/7
	Evaporator Row-fin Gap	inch 2-1/17
	Evaporator Coil Length (LXD _X W)	inch 30 1/8X1X13 1/2
	Swing Motor Model	MP35XX
	Swing Motor Power Output	W 3
	Fuse Current	A 3.15
	Sound Pressure Level (S/H/M/L)	dB (A) 53/45/41/37
	Sound Power Level (S/H/M/L)	dB (A) 63/55/51/47
	Dimension (WXHXD)	inch 39.7X12.4X8.6
	Dimension of Carton Box (LXWXH)	inch 42.2X15.5X12.3
	Dimension of Package (LXWXH)	inch 42.4X15.7X12.9
	Net Weight	lb 35.3
	Gross Weight	lb 46.3

Outdoor Unit	Outdoor Unit Model		IAC24MD-D3DNA3D
	Compressor Manufacturer		mitsubishi electric (GUANGZHOU)COMPRESSOR CO. LTD
	Compressor Model		SNB150FGAMC
	Compressor Oil		PVE/FV50S
	Compressor Type		Rotary
	Compressor LRA.	A	18.5
	Compressor RLA	A	4.9
	Compressor Power Input	W	1420
	Compressor Overload Protector		1NT11L-6578
	Throttling Method		Electron expansion valve
	Set Temperature Range	°F	61 ~ 86
	Cooling Operation Ambient Temperature Range	°F	0 ~ 109.4
	Heating Operation Ambient Temperature Range	°F	/
	Condenser Form		Aluminum Fin-copper Tube
	Condenser Pipe Diameter	inch	Φ2/7
	Condenser Rows-fin Gap	inch	2-1/18
	Condenser Coil Length (LXDXW)	inch	38X1 1/2X29 4/9
	Fan Motor Speed	rpm	800
	Fan Motor Power Output	W	90
	Fan Motor RLA	A	1.1
	Fan Motor Capacitor	μF	4
	Outdoor Unit Air Flow Volume	CFM	2354
	Fan Type		Axial-flow
	Fan Diameter	inch	Φ21 3/4
	Defrosting Method		/
	Climate Type		T1
	Isolation		I
	Moisture Protection		IP24
	Permissible Excessive Operating Pressure for the Discharge Side	PSIG	550
	Permissible Excessive Operating Pressure for the Suction Side	PSIG	450
Sound Pressure Level (H/M/L)	dB (A)	58/-/-	
Sound Power Level (H/M/L)	dB (A)	68/-/-	
Dimension (WXHXD)	inch	38.6X31.1X16.8	
Dimension of Carton Box (LXWXH)	inch	42.5X19X33	
Dimension of Package (LXWXH)	inch	42.6X19.2X33.7	
Net Weight	lb	119.1	
Gross Weight	lb	132.3	
Refrigerant		R410A	
Refrigerant Charge	oz	56.4	
Connection Pipe	Connection Pipe Length	ft	24.6
	Connection Pipe Gas Additional Charge	oz/ft.	0.2
	Outer Diameter Liquid Pipe	inch	1/4
	Outer Diameter Gas Pipe	inch	5/8
	Max Distance Height	ft	32.8
	Max Distance Length	ft	82
Note: The connection pipe applies metric diameter.			

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

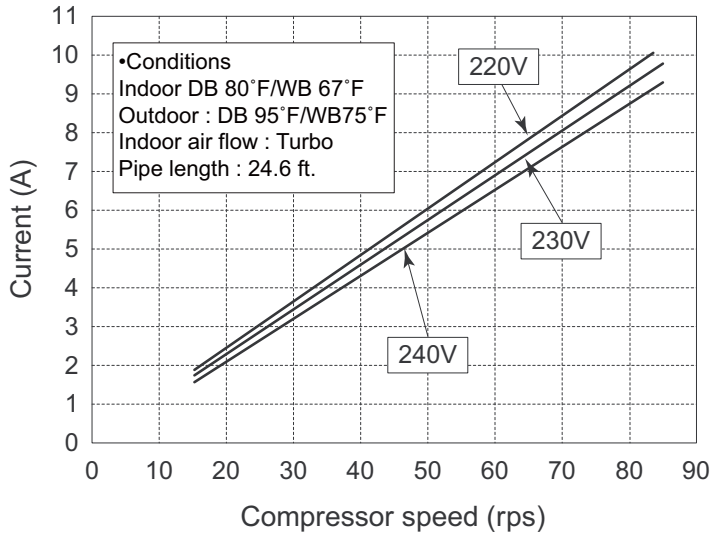
Model			IAH24MD-D3DNA3D	
Part Number			700476	
Power Supply	Rated Voltage	V ~	208/230	
	Rated Frequency	Hz	60	
	Phases		1	
Power Supply Mode			Outdoor	
Cooling Capacity(Min ~ Max)		Btu/h	21400(9600~25000)	
Heating Capacity(Min ~ Max)		Btu/h	23000(4300~26000)	
Cooling Power Input(Min ~ Max)		W	1780(500~2650)	
Heating Power Input(Min ~ Max)		W	2100(400~2750)	
Cooling Current Input		A	7.9	
Heating Current Input		A	9.3	
Rated Input		W	2750	
Rated Current		A	11.80	
Air Flow Volume (S/H/M/L)		CFM	589/471/412/353	
Dehumidifying Volume		Pint/h	5.28	
EER		(Btu/h)/W	12.00	
COP		(Btu/h)/W	10.95	
SEER			18	
HSPF			10	
Application Area		m ²	27-42	
Indoor Unit	Indoor Unit Model		IAH24MD-D3DNA3D/I	
	Fan Type		Cross-flow	
	Fan Diameter Length(DXL)		Φ3 7/8X30 1/8	
	Cooling Speed(S/H/M/L)		inch 1500/1200/1050/900	
	Heating Speed(S/H/M/L)		r/min 1450/1150/1020/950	
	Fan Motor Power Output		r/min	
	Fan Motor RLA		W 60	
	Fan Motor Capacitor		A 0.24	
	Evaporator Form		μF /	
	Evaporator Pipe Diameter		W Aluminum Fin-copper Tube	
			inch Φ 2/7	
	Evaporator Row-fin Gap		inch 2-1/17	
	Evaporator Coil Length (LXD _X W)		inch 30 1/8X1X13 1/2	
	Swing Motor Model		MP35XX	
	Swing Motor Power Output		W 3	
	Fuse Current		A 3.15	
	Sound Pressure Level (S/H/M/L)		dB (A) 53/45/41/37	
	Sound Power Level (S/H/M/L)		dB (A) 63/55/51/47	
	Dimension (WXHXD)		inch 39.7X12.4X8.6	
	Dimension of Carton Box (LXWXH)		inch 42.2X15.5X12.3	
Dimension of Package (LXWXH)		inch 42.4X15.7X12.9		
Net Weight		lb 35.3		
Gross Weight		lb 46.3		

Outdoor Unit	Outdoor Unit Model		IAH24MD-D3DNA3D	
	Compressor Manufacturer		MITSUBISHI ELECTRIC (GUANGZHOU)COMPRESSOR CO. LTD	
	Compressor Model		SNB150FGAMC	
	Compressor Oil		PVE/FV50S	
	Compressor Type		Rotary	
	Compressor LRA.	A	18.50	
	Compressor RLA	A	4.90	
	Compressor Power Input	W	1420	
	Compressor Overload Protector		1NT11L-6578	
	Throttling Method		Electron expansion valve	
	Set Temperature Range	°F	61 ~ 86	
	Cooling Operation Ambient Temperature Range	°F	0 ~ 109	
	Heating Operation Ambient Temperature Range	°F	5~75	
	Condenser Form		Aluminum Fin-copper Tube	
	Condenser Pipe Diameter	inch	Φ2/7	
	Condenser Rows-fin Gap	inch	2-1/18	
	Condenser Coil Length (LXDXW)	inch	38X1 1/2X29 4/9	
	Fan Motor Speed	rpm	800	
	Fan Motor Power Output	W	90	
	Fan Motor RLA	A	0.482	
	Fan Motor Capacitor	μF	/	
	Outdoor Unit Air Flow Volume	CFM	2354	
	Fan Type		Axial-flow	
	Fan Diameter	inch	Φ21 3/4	
	Defrosting Method		Automatic Defrosting	
	Climate Type		T1	
	Isolation		I	
	Moisture Protection		IP24	
	Permissible Excessive Operating Pressure for the Discharge Side	PSIG	550	
	Permissible Excessive Operating Pressure for the Suction Side	PSIG	240	
	Sound Pressure Level (H/M/L)	dB (A)	58/-/-	
	Sound Power Level (H/M/L)	dB (A)	68/-/-	
Dimension (WXHXD)	inch	38.6X31.1X16.8		
Dimension of Carton Box (LXWXH)	inch	42.5X19X33		
Dimension of Package (LXWXH)	inch	42.6X19.2X33.7		
Net Weight	lb	123.3		
Gross Weight	lb	143.3		
Refrigerant		R410A		
Refrigerant Charge	oz	56.4		
Connection Pipe	Connection Pipe Length	ft	24.6	
	Connection Pipe Gas Additional Charge	oz/ft.	0.5	
	Outer Diameter Liquid Pipe	inch	1/4	
	Outer Diameter Gas Pipe	inch	5/8	
	Max Distance Height	ft	32.8	
	Max Distance Length	ft	82	
Note: The connection pipe applies metric diameter.				

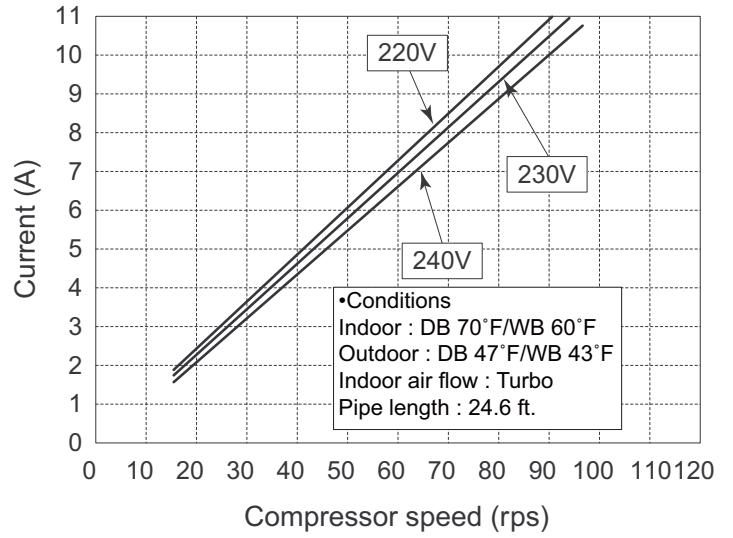
The above data is subject to change without notice. Please refer to the nameplate of the unit.

2.2 Operation Characteristic Curve

Cooling

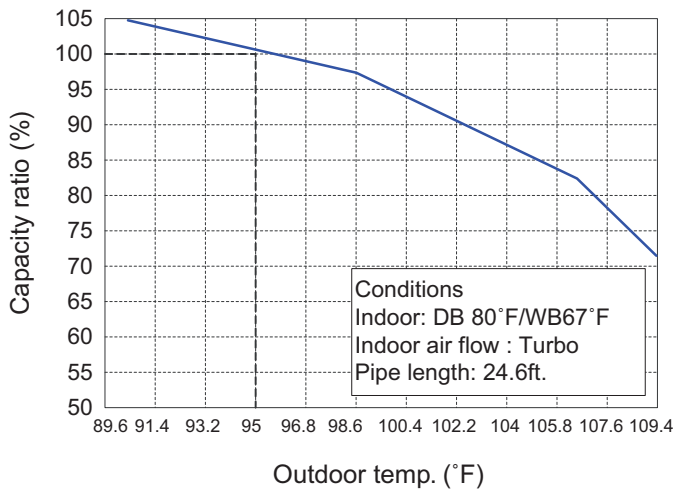


Heating

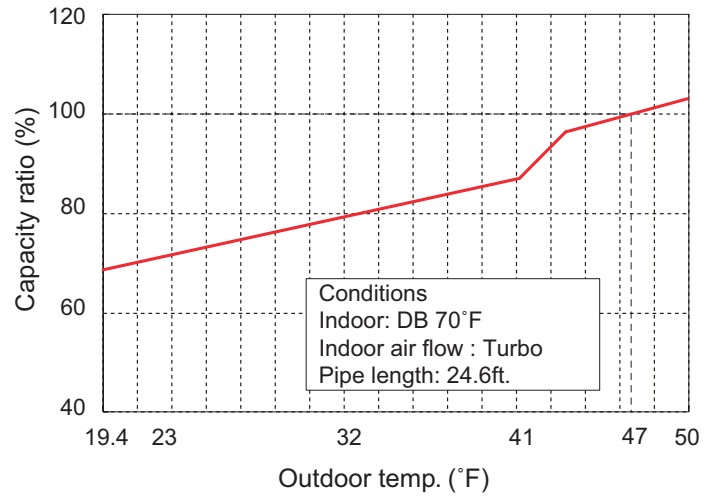


2.3 Capacity Variation Ratio According to Temperature

Cooling



Heating



2.4 Cooling and Heating Data Sheet in Rated Frequency

Cooling:

Rated cooling condition (°F) (DB/WB)		Model	Pressure of gas pipe connecting indoor and outdoor unit	Inlet and outlet pipe temperature of heat exchanger		Fan speed of indoor unit	Fan speed of outdoor unit	Compressor revolution (rps)
Indoor	Outdoor			P (MPa)	T1 (°F)			
80/67	95/75	24K	0.9 to 1.1	50 to 53.6	181.4 to 113	Turbo	High	72

Heating:

Rated heating condition (°F) (DB/WB)		Model	Pressure of gas pipe connecting indoor and outdoor unit	Inlet and outlet pipe temperature of heat exchanger		Fan speed of indoor unit	Fan speed of outdoor unit	Compressor revolution (rps)
Indoor	Outdoor			P (MPa)	T1 (°F)			
70/60	47/43	24K	2.2 to 2.4	111.2 to 107.6	32 to 37.4	Turbo	High	80

Instruction:

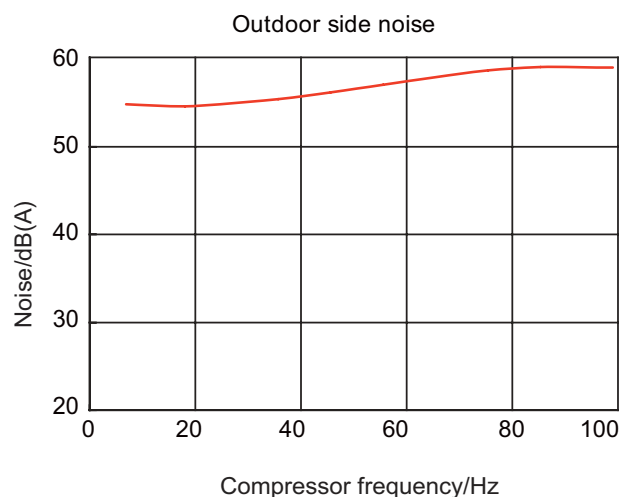
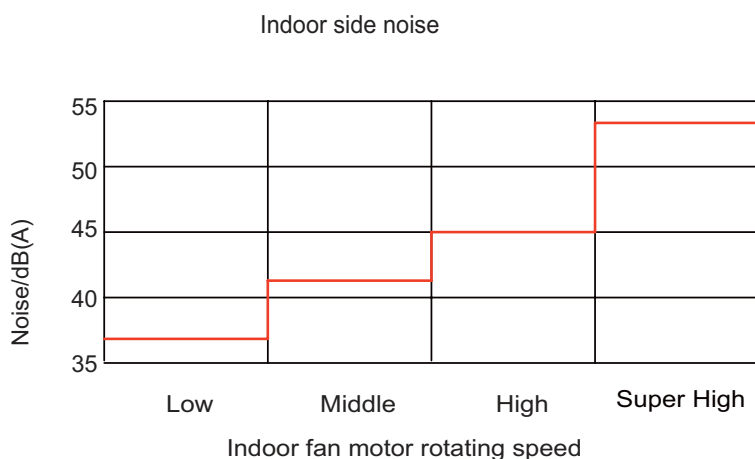
T1: Inlet and outlet pipe temperature of evaporator

T2: Inlet and outlet pipe temperature of condenser

P: Pressure at the side of big valve

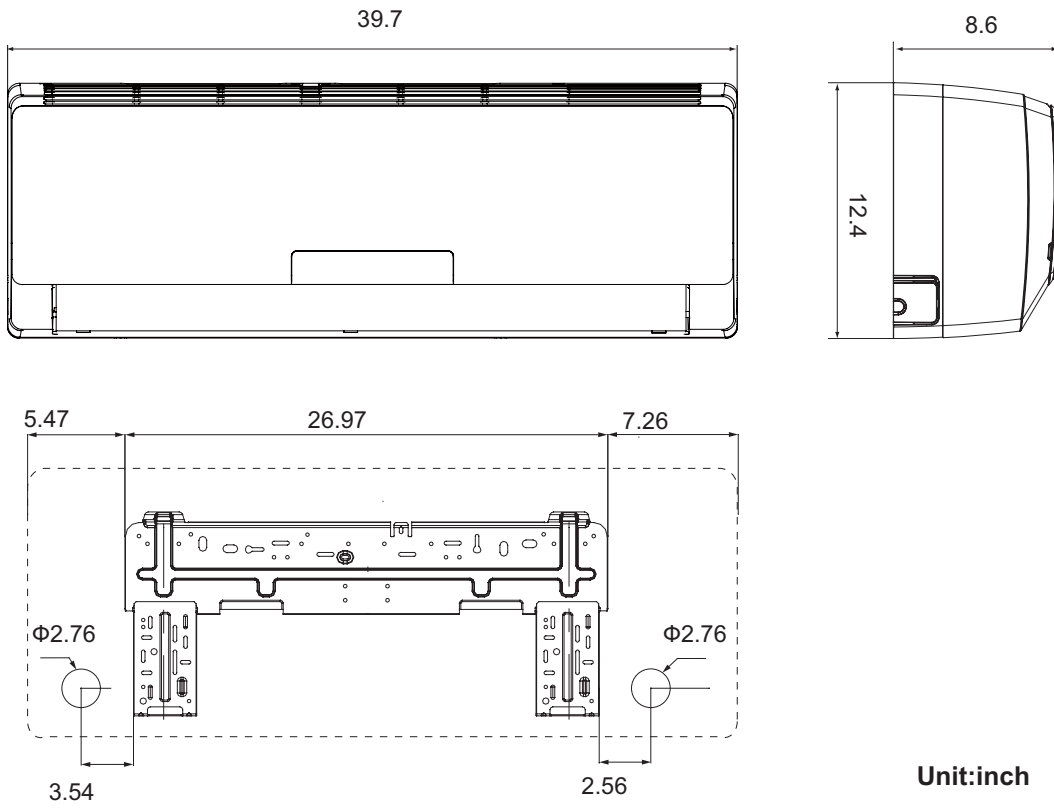
Connection pipe length: 24.6ft.

2.5 Noise Curve

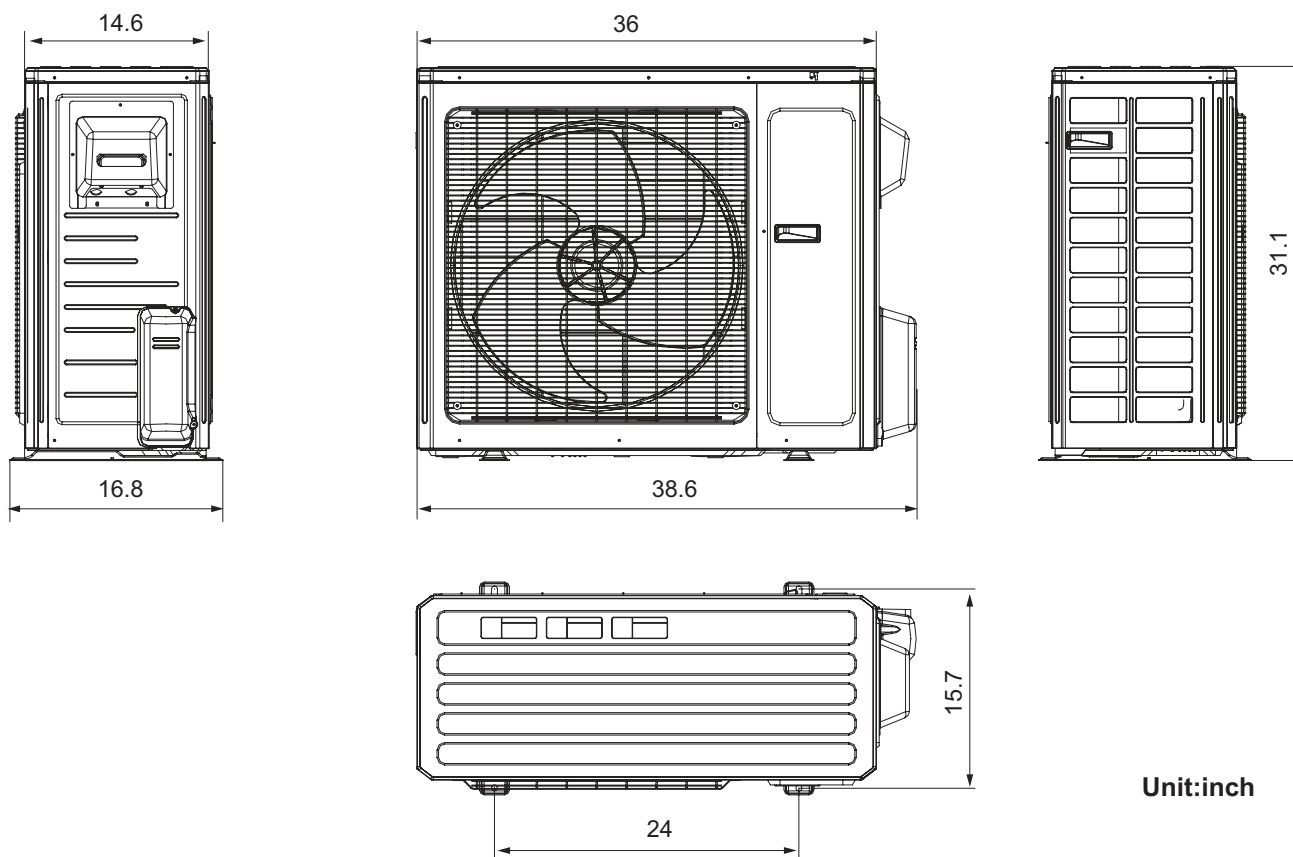


3. Outline Dimension Diagram

3.1 Indoor Unit



3.2 Outdoor Unit

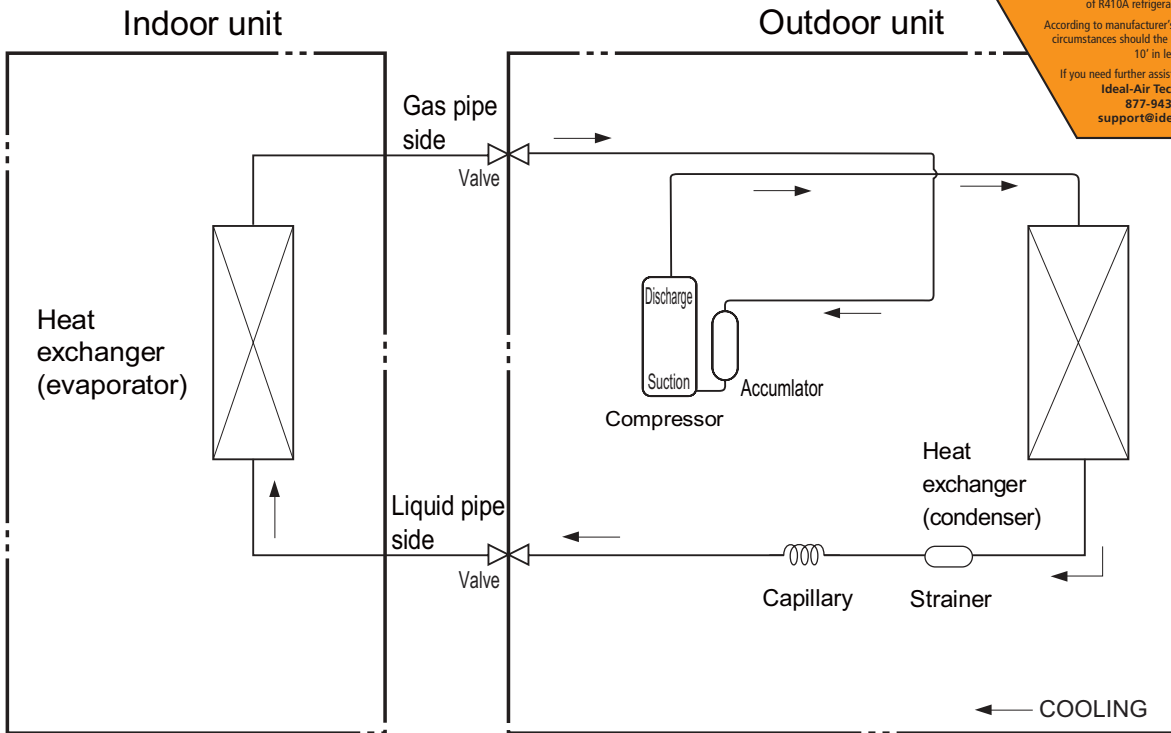


Unit:inch

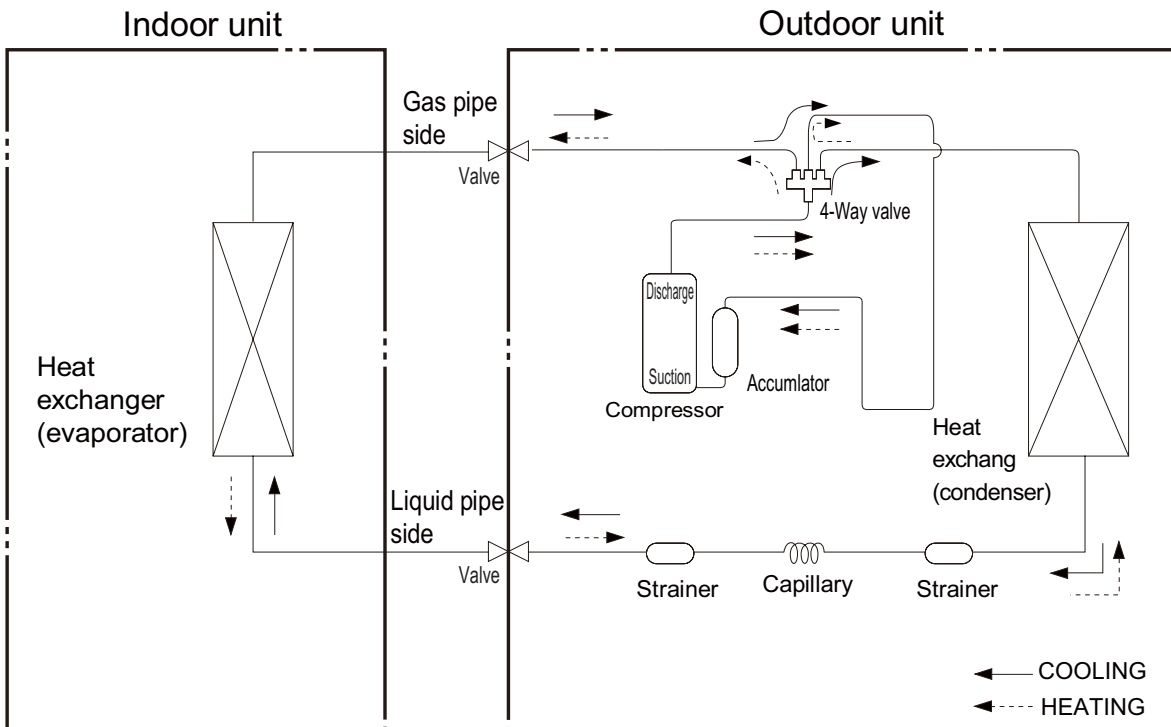
4. Refrigerant System Diagram



Cooling only model



Cooling and heating model



Refrigerant pipe diameter
 Liquid pipe : 1/4" Gas pipe : 5/8"

5. Electrical Part

5.1 Wiring Diagram

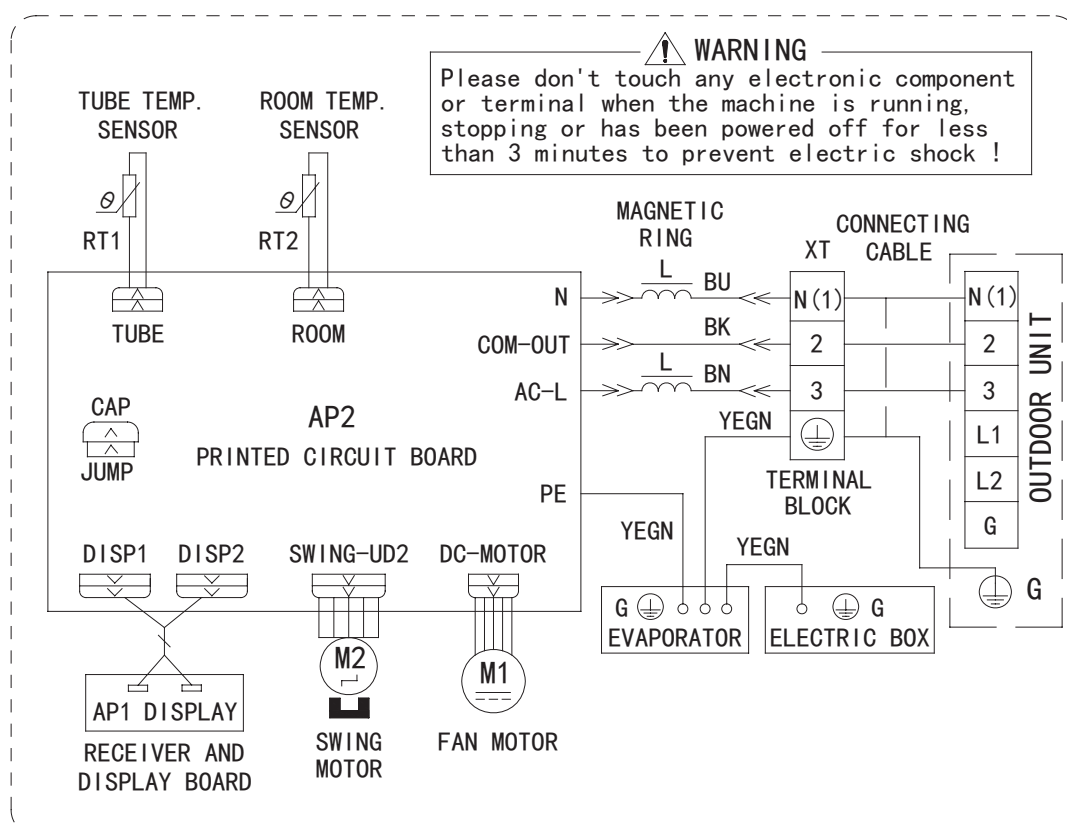
● Instruction

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

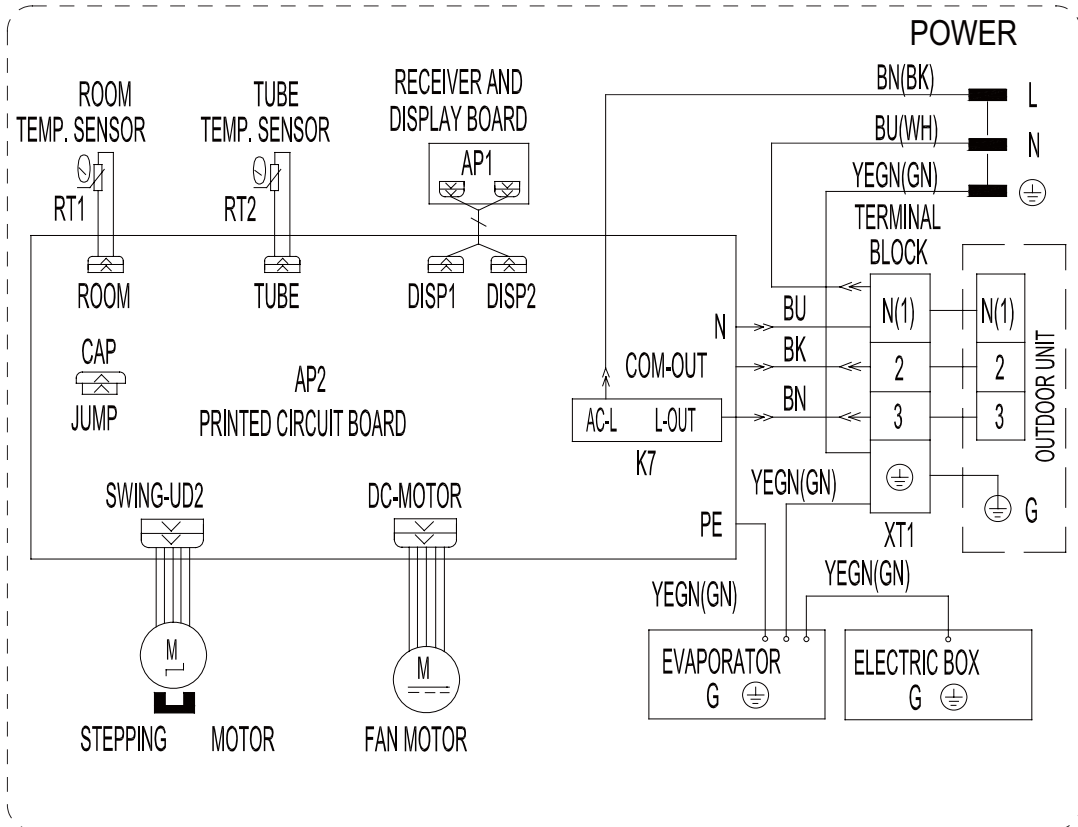
Note: Jumper cap is used to determine fan speed and the swing angle of horizontal lever for this model.

● Indoor Unit

GWC24MD-D3DNA3D/I GWH24MD-D3DNA3D/I

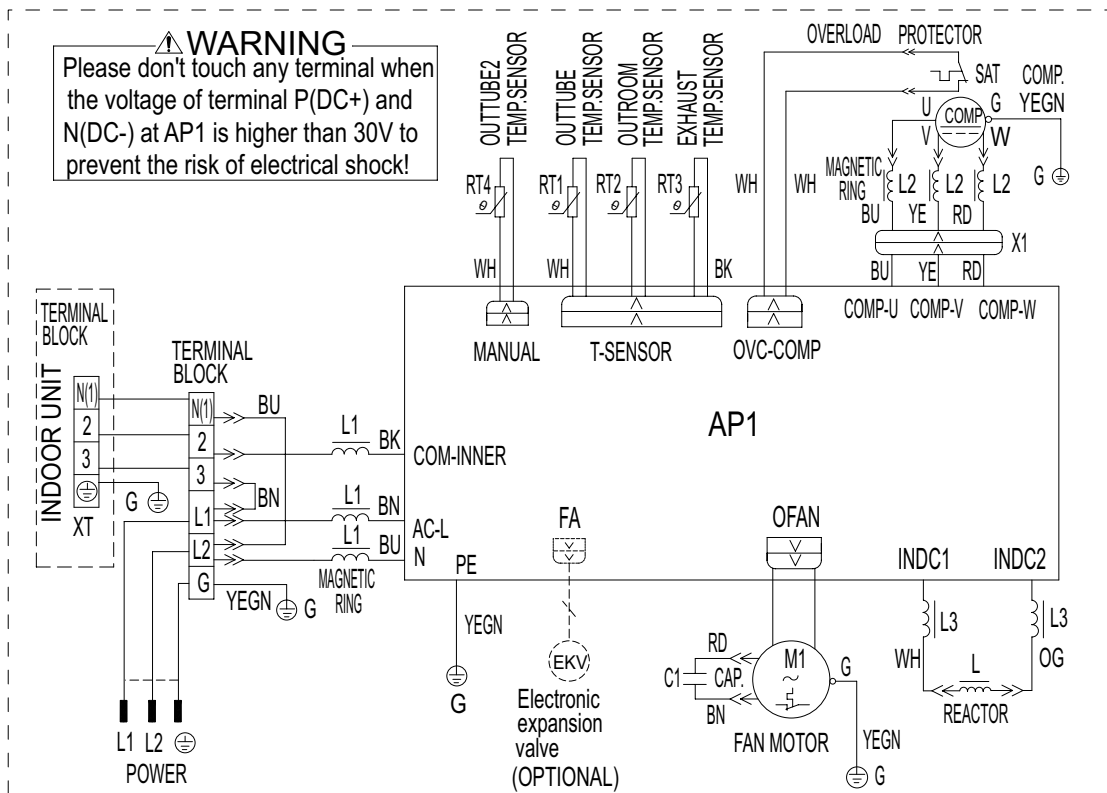


IAH24MD-D3DNA3D/I

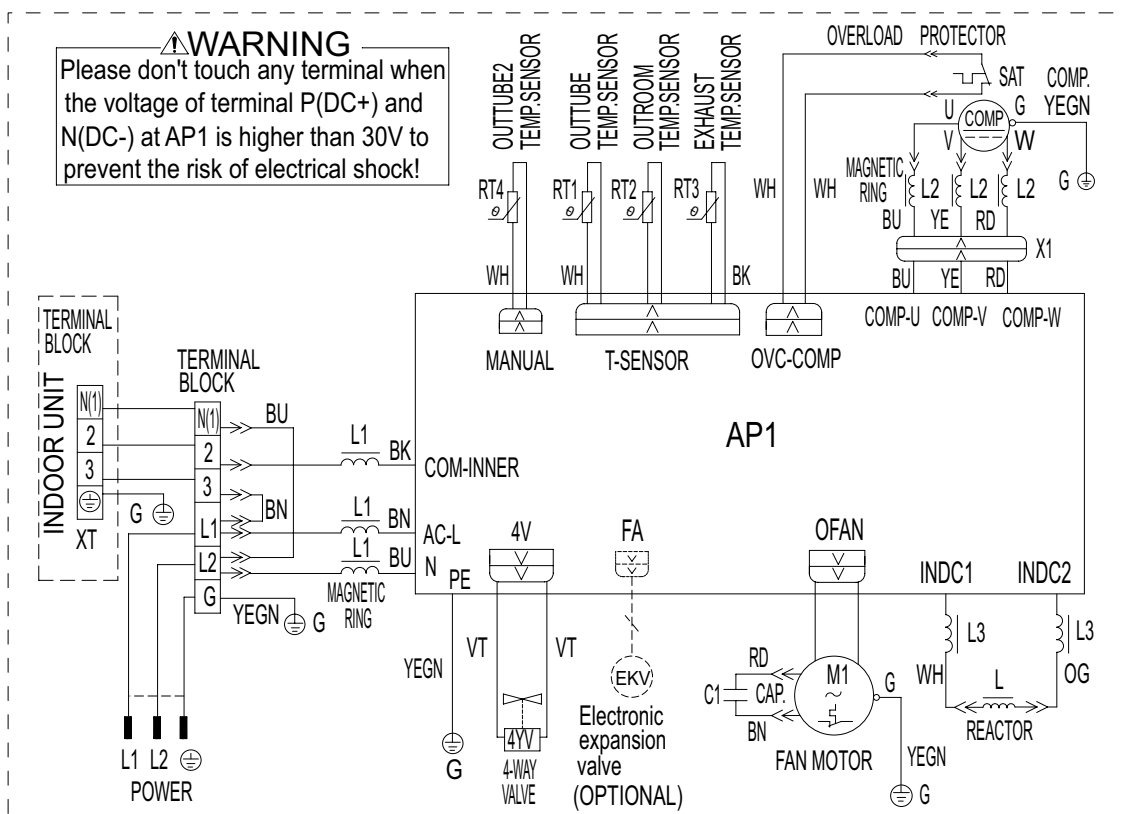


●Outdoor Unit

IAC24MD-D3DNA3D



IAH24MD-D3DNA3D

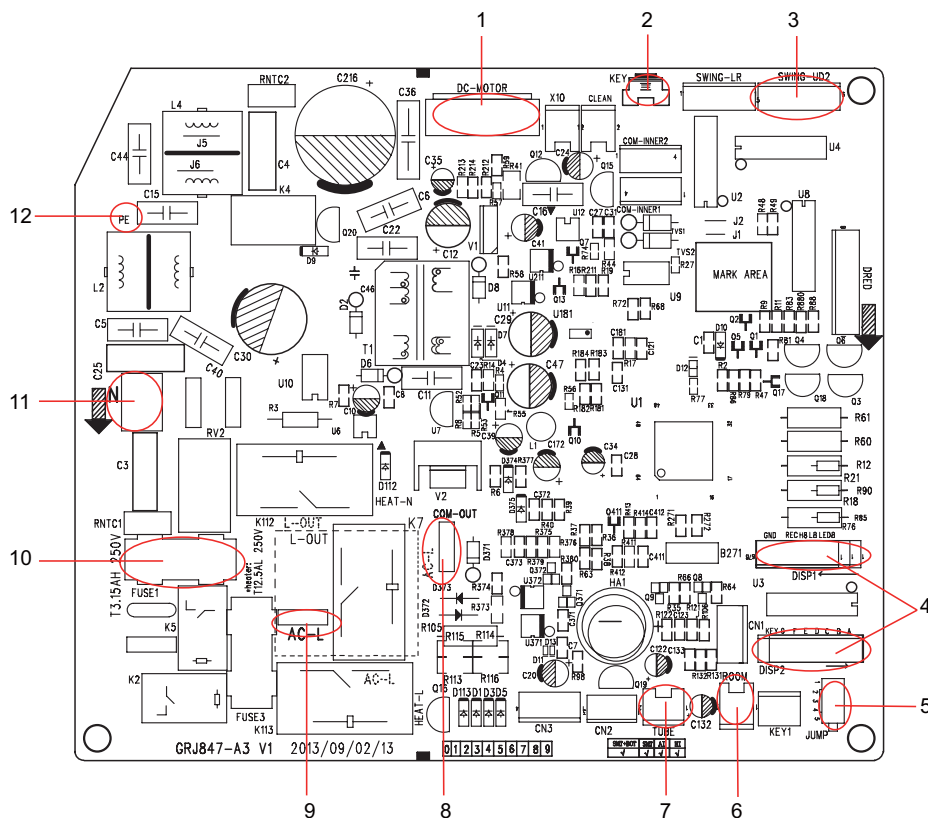


5.2 PCB Printed Diagram

Indoor Unit

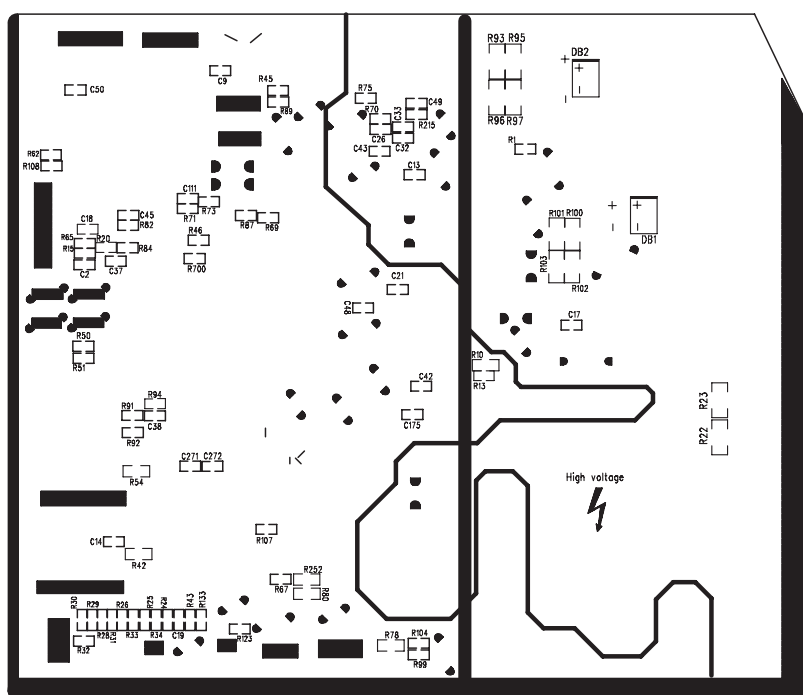
IAC24MD-D3DNA3D/I IAH24MD-D3DNA3D/I

• Top view



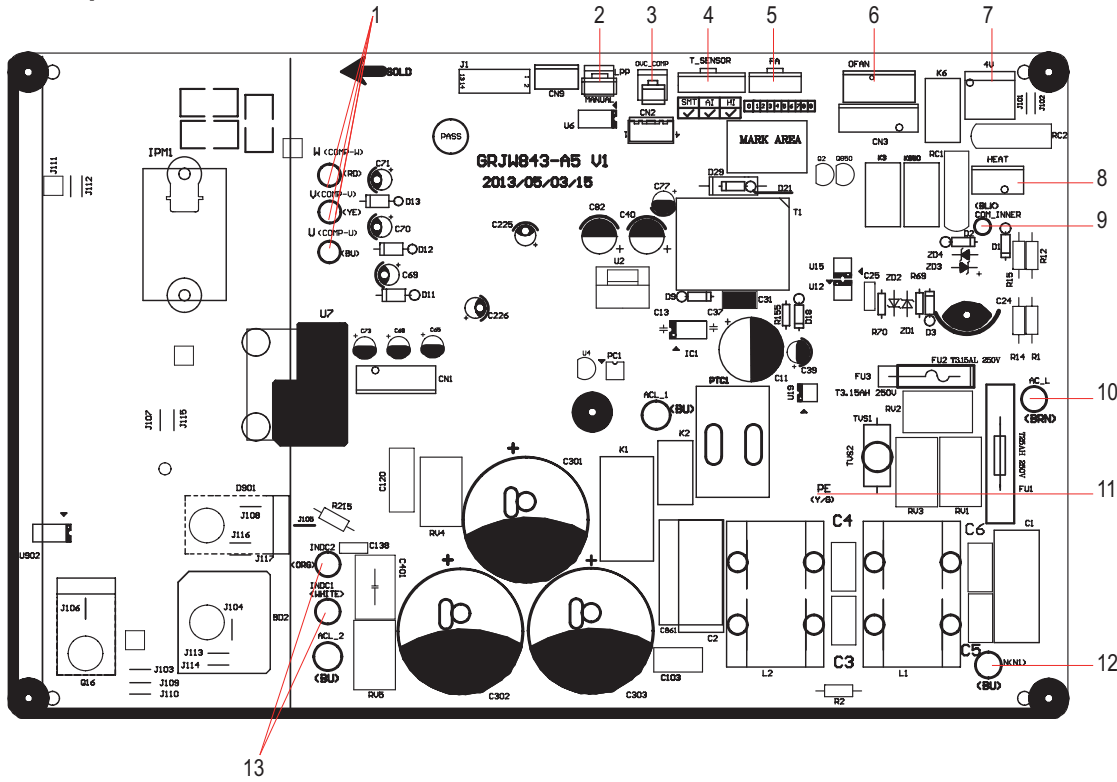
1	DC fan interface
2	Auto button
3	Up and down swing terminal interface
4	Display terminal interface
5	Jumper cap
6	Ambient temp. sensor
7	Tube temp. sensor
8	IDU and ODU communication interface
9	Live wire interface
10	Fuse
11	Neutral wire interface
12	Earth wire terminal interface

• Bottom view



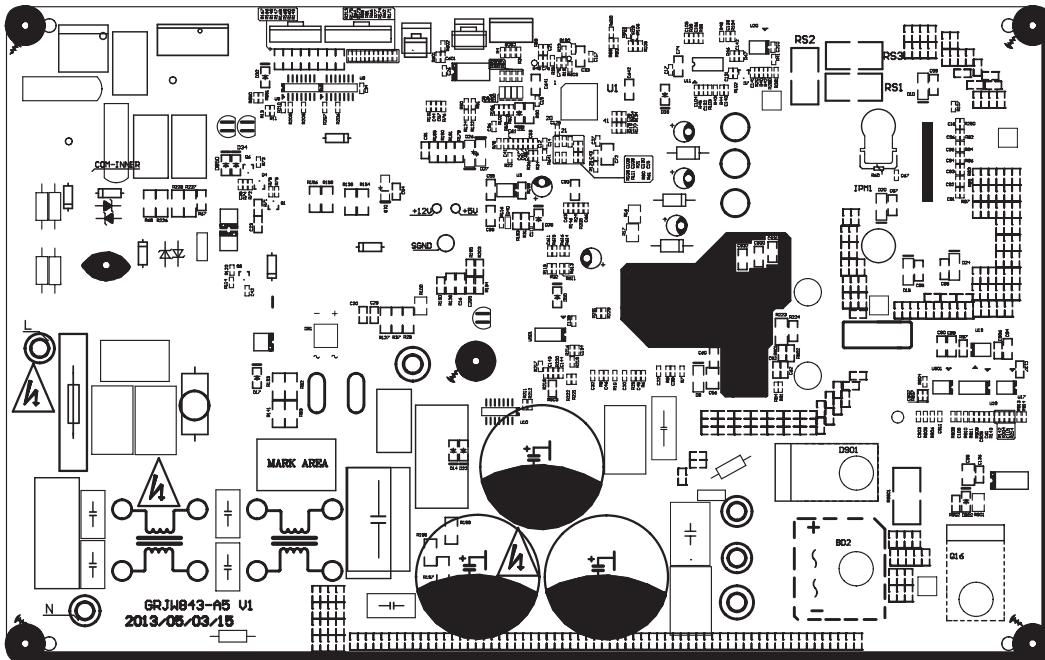
Outdoor Unit

• Top view



1	Compressor wiring connection terminal
2	ODU heat exchanger middle copper pipe temp. sensor terminal
3	Compressor overload protection terminal
4	ODU temp. sensor terminal
5	EXV terminal
6	Outdoor fan terminal
7	Four-way valve terminal
8	Chassis electric heating wiring terminal
9	Communication cable with IDU
10	Power supply live wire
11	Earth wire
12	Power supply neutral wire
13	PFC inductance wire

• Bottom view

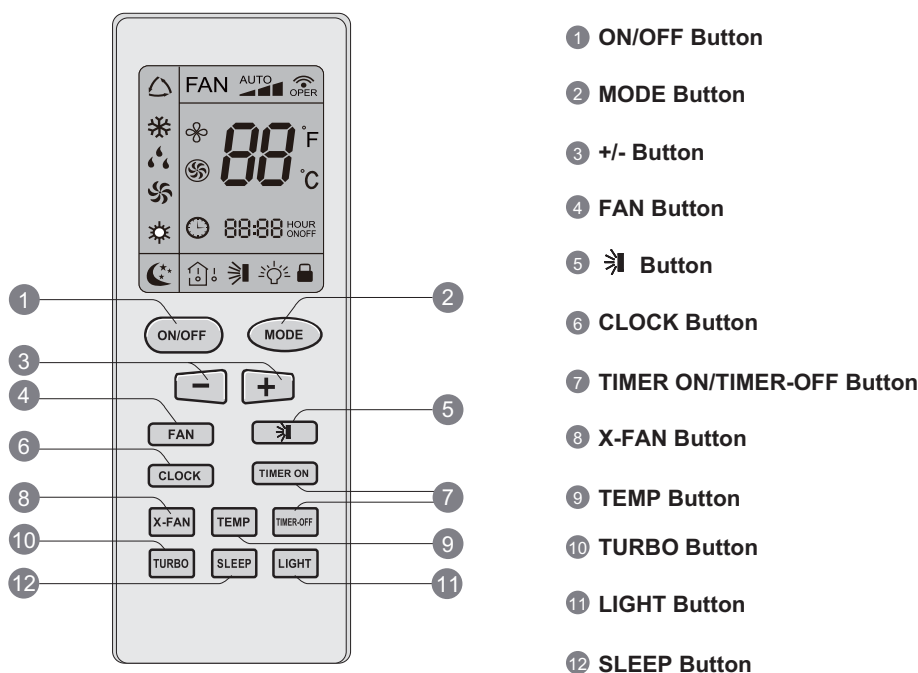


6. Function and Control

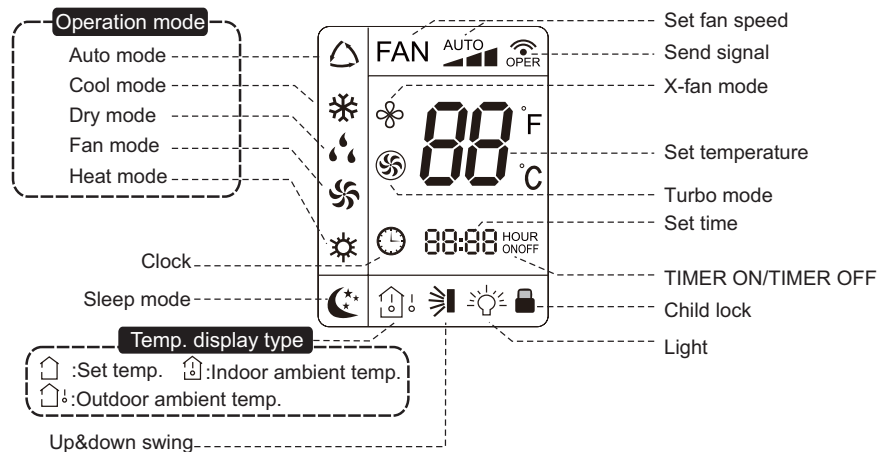
6.1 Remote Controller Introduction

Buttons on Remote Controller

IARC-24



Introduction for Icons on Display Screen



Introduction for Buttons on Remote Controller

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

1. ON/OFF Button

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

2. MODE Button

Press this button to select your required operation mode.



- When selecting auto mode, Air conditioner will start auto operation according to indoor ambient 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. 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. 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. All indicators are OFF. Operation indicator 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. 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:

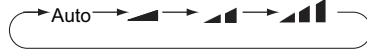
- For preventing cold air, after starting up heating mode, indoor unit will delay 1~5 minutes to blow air (actual delay time is depend on indoor ambient temperature).
- Set temperature range from remote controller: 60.8~86 °F ; Fan speed: auto, low speed, medium speed, high speed.

3. "+" or "-" Button

- Press "+" or "-" button once increase or decrease set temperature 33.8 °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 or CLOCK, press "+" or "-" button to adjust time. (Refer to CLOCK, TIMER ON, TIMER OFF buttons)

4. FAN Button

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

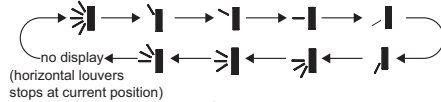


Note:

- Under AUTO speed, the IDU fan motor will adjust the fan speed (high, medium or low speed) according to ambient temperature.
- Fan speed under dry mode is low speed.

5. ↻ Button

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



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

Note:

"↗, ↘, ↙, ↖" may not be available. When air conditioner receives this signal, the air conditioner will blow fan automatically.

6. CLOCK Button

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

Note:

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

7. TIMER-ON/TIMER-OFF Button

- TIMER ON button

TIMER ON button

"TIMER ON" button can set the time for timer on. After pressing this button, "🕒" icon disappears and the word "ON" on remote

controller blinks. Press "+" or "-" button to adjust TIMER ON setting. After each pressing "+" or "-" button, TIMER ON setting will increase or decrease 1min. Hold "+" or "-" button, 2s later, the time will change quickly until reaching your required time. Press "TIMER ON" to confirm it. The word "ON" will stop blinking. "🕒" icon resumes displaying.

Cancel TIMER ON: Under the condition that TIMER ON is started up, press "TIMER ON" button to cancel it.

- **TIMER OFF button**

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

Note:

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

8. X-FAN Button

Press this button under cool and dry mode to start up x-fan function, and "🌀" icon on remote controller will be displayed. Press this button again to cancel x-fan function, and "🌀" icon will disappear.

Note:

- When x-fan function is on, if the air conditioner is turned off, indoor fan will still operate at low speed for a while to blow the residual water inside the air duct.
- During x-fan operation, press X-FAN button to turn off x-fan function. Indoor fan will stop operation immediately.

9. TEMP Button

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



When selecting "🏠" or no display with remote controller, temperature indicator on indoor unit displays set temperature;

When selecting "🏠🏠" with remote controller, temperature indicator on indoor unit displays indoor ambient temperature;

When selecting "🏠⊕" with remote controller, temperature indicator on indoor unit displays outdoor ambient temperature.

Note:

- Outdoor temperature display is not available for some models. At that time, indoor unit receives "🏠⊕" signal, while it displays indoor set temperature.
- It's defaulted to display set temperature when turning on the unit. There is no display in the remote controller.
- Only for the models whose indoor unit has dual-8 display

10. TURBO Button

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

11. SLEEP Button

Under COOL, 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.

12. LIGHT Button

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

Function Introduction for Combination Buttons

Child lock function:

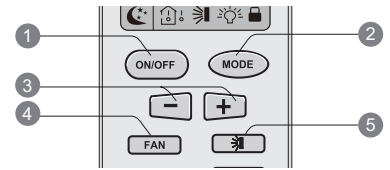
Press "+" and "-" simultaneously to turn on or turn off child lock function. When child lock function is on, "🔒" icon is displayed on remote controller. If you operate the remote controller, it won't send signal.

Temperature display switchover function:

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

Operation Guide

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

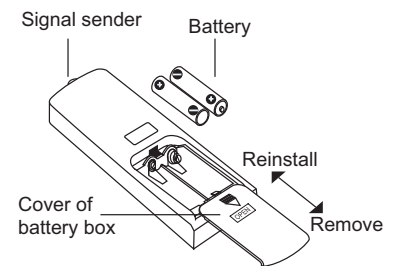


Replacement of Batteries in Remote Controller

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

Note:

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



6.2 Brief Description of Modes and Functions

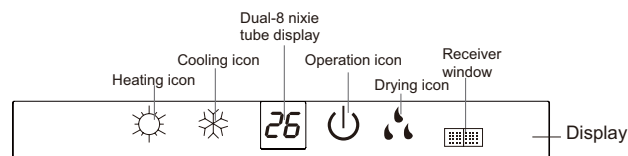
1 General introduction

(1) Buzzer

When the controller is energized or receives any command or signal from the buttons or the remote controller, the buzzer will give out a beep.

(2) Display

After energizing, the unit will display all icons. Under standby status, running indicating icon is displayed in red. If the unit is started by remote controller, running indicating icon is displayed in green (the color may be different for different models); meanwhile, the icon of current running mode will be displayed (mode icons: cooling, heating and dry mode).



(Display content or position may be different from above graphics, please refer to actual products)

(3) Temperature parameters

- ◆ Indoor set temperature (Tset)
- ◆ Indoor ambient temperature (Tamb.)
- ◆ Indoor evaporator inner tube temperature (Tinner tube)
- ◆ Indoor condenser outer tube temperature (Touter tube)
- ◆ Outdoor discharge pipe temperature (Tdischarge)
- ◆ Outdoor IMP module temperature (Tmodule)

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 after the system is energized; if the unit is on before power failure, the compressor will be restarted with an interval of 3 mins.

Once started, the compressor won't stop within 7 mins according to the change of room temp.

(1) Auto mode

① Auto mode conditions and process

In this mode, the unit will automatically select its operation mode (cooling, heating or fan) according to the change of indoor ambient temperature. There is a 30-second delay protection for mode switchover.

- ◆ When $T_{amb} \geq 78^{\circ}\text{F}$, the unit runs in cooling mode; in this case, the factory default set temperature is 77°F .
- ◆ For cooling and heating model: when $T_{amb} \leq 71.6^{\circ}\text{F}$, the unit runs in heating mode; in this case, the factory default set temperature is 68°F .
- ◆ For cooling only model: when $T_{amb} \leq 71.6^{\circ}\text{F}$, the unit runs in fan mode; in this case, the factory default set temperature is 77°F .
- ◆ When $71.6^{\circ}\text{F} < T_{amb} < 78^{\circ}\text{F}$: the unit will run in fan mode when it enters auto mode just after power on; the unit will keep the previous operation mode when it enters auto mode from cooling, heating or fan mode; the unit will run in fan mode when it enters auto mode from dry mode.

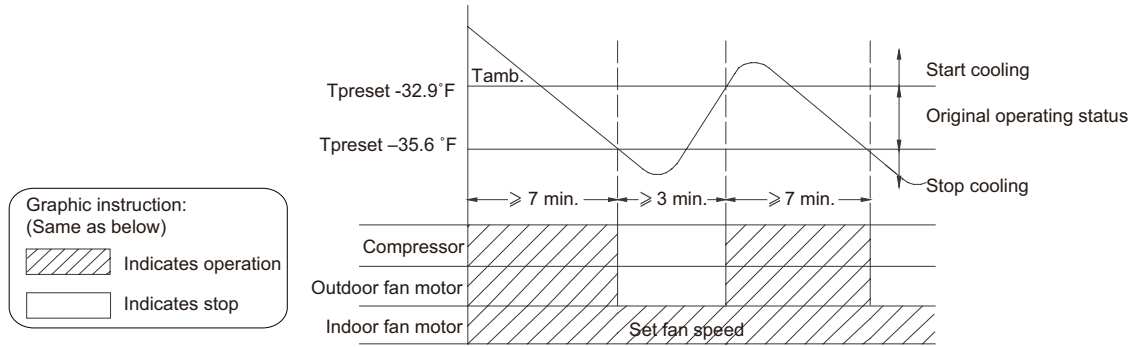
② The indoor unit displays the operation icon, operation mode icon and set temperature, but set temperature can't be adjusted.

③ Protection functions are the same as those in any other mode. (See function protection of this section)

(2) Cooling mode

① Cooling conditions and process

- ◆ When $T_{amb} \geq T_{set} - 32.9^{\circ}\text{F}$, the unit starts cooling. In this case, the compressor and the ODU fan motor run, and the IDU fan motor runs at set speed.
 - ◆ When $T_{amb} \leq T_{set} - 35.6^{\circ}\text{F}$, the compressor and the ODU fan motor stop after a few seconds, while the IDU fan motor runs at set speed.
 - ◆ When $T_{set} - 35.6^{\circ}\text{F} < T_{amb} < T_{set} - 32.9^{\circ}\text{F}$, the unit will maintain its present operation status.
 - ◆ When the unit stops due to malfunction or protection, the compressor and ODU fan motor stop, while the IDU maintains its present operation status.
 - ◆ In cooling process, when T_{amb} is quite different from T_{set} , the compressor will run in relatively high frequency for quick cooling; when T_{amb} is near T_{set} , the compressor frequency will decrease automatically for high coziness and efficiency.
- In this mode, the 4-way valve is de-energized (cooling only unit is without 4-way valve). Temperature setting range is $60.8 \sim 86^{\circ}\text{F}$.



② The indoor unit displays operation icon, cooling icon and set temperature.

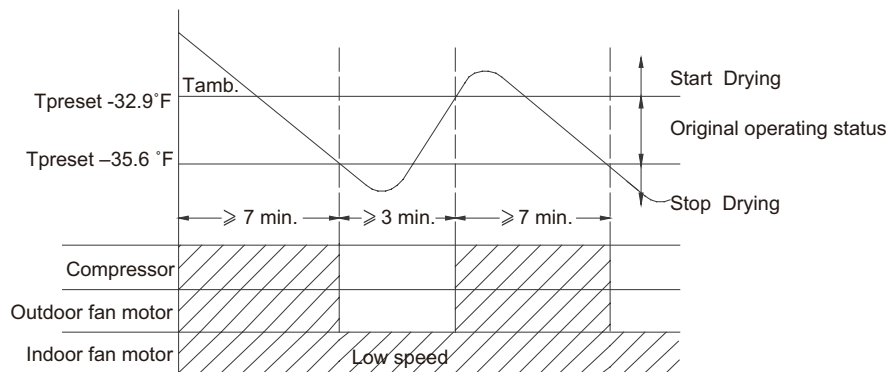
③ Protection functions (See function protection of this section)

(3) Dry Mode

① Dry conditions and process

- ◆ When $T_{amb.} \geq T_{set}-32.9^{\circ}\text{F}$, the unit starts drying and cooling. In this case, the compressor and the ODU fan motor run, and the IDU fan motor runs at low speed.
- ◆ When $T_{amb.} \leq T_{set}-35.6^{\circ}\text{F}$, the compressor and the ODU fan motor stop after a few seconds, while the IDU fan motor runs at low speed.
- ◆ When $T_{set}-35.6^{\circ}\text{F} < T_{amb.} < T_{set}-32.9^{\circ}\text{F}$, the unit will maintain its present operation status.
- ◆ When the unit stops due to malfunction or protection, the indoor unit maintains its present operation status and displays malfunction code.

In this mode, the 4-way valve is de-energized (cooling only unit is without 4-way valve). Temperature setting range is 60.8 ~ 86°F.



② The indoor unit displays operation icon, dry icon and set temperature.

③ Protection functions (See function protection of this section)

(4) Fan mode

① Fan conditions and process

In this mode, IDU fan motor runs at set speed while the compressor and ODU fan motor stop operation. The 4-way valve is de-energized (cooling only unit is without 4-way valve). Temperature setting range is 60.8 ~ 86°F.

② The indoor unit displays operation icon and set temperature.

③ Protection functions (See function protection of this section)

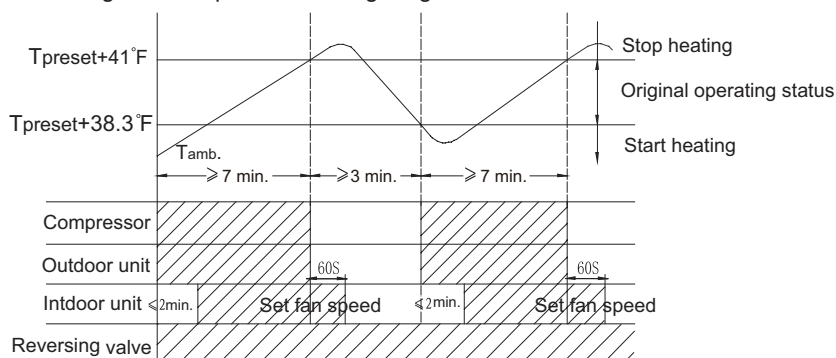
(5) Heating mode (not available for cooling only type)

① Heating conditions and process

- ◆ When $T_{amb.} \leq T_{set}+38.3^{\circ}\text{F}$, the unit starts heating operation. In this case, the 4-way valve, compressor and ODU fan motor run simultaneously; the IDU fan motor runs after a while to prevent blowing out cold air.
- ◆ When $T_{amb.} \geq T_{set}+41^{\circ}\text{F}$, the compressor and ODU fan motor stop after a few seconds; the 4-way valve remains energized; the IDU

fan motor blows residual heat for a while at set speed to prevent high temperature inside the unit.

- ◆ When $T_{set}+38.3^{\circ}\text{F} < T_{amb.} < T_{set}+41^{\circ}\text{F}$, the unit will maintain its previous operation status.
 - ◆ When the unit stops due to malfunction or protection, the compressor, IDU fan motor and ODU fan motor stop operation.
 - ◆ In heating process, when $T_{amb.}$ is quite different from T_{set} , the compressor will run in relatively high frequency for quick heating; when $T_{amb.}$ is near T_{set} , the compressor frequency will decrease automatically for high coziness and efficiency.
- In this mode, the 4-way valve is energized. Temperature setting range is $60.8 \sim 86^{\circ}\text{F}$.



② The indoor unit displays operation icon, heating icon and set temperature.

③ Defrost conditions and process

In order to ensure heating effect, the unit will defrost automatically according to the frost status of outdoor unit. Indoor unit displays H1 during defrosting (for some models, the display status is that heating icon is bright for a while and then off for a while).

④ Protection functions (See function protection of this section)

(6) Compressor control function

(1) The controller controls the operation frequency of compressor according to the relationship between ambient temperature and set temperature and the changing speed of ambient temperature.

(2) When turning on the unit in cooling, heating or dry mode, the compressor starts after the ODU fan motor has operated for 5 seconds.

(3) The compressor stops immediately when turning off the unit, switching to fan modes and unit stops for protection.

(4) In each mode: once started, the compressor won't stop within 7 mins (note: including stop operation when reaching the temperature point; not including malfunction protection, turning off the unit by remote controller or switching modes in which stopping operation of compressor is needed).

(5) In each mode: once stopped, the compressor won't start again within 3 mins; if the unit is with memory function, the compressor can be restarted without delay when turning off the unit and then energizing again.

(7) 4-way valve control function(not available for cooling only type)

(1) The 4-way valve is de-energized in cooling, dry and fan mode;

(2) The 4-way valve is energized in heating mode;

(3) When turning off the unit in heating mode or switching to other mode from heating mode, the compressor stops and the 4-way valve is de-energized after a while;

(4) When the unit stops for protection, the 4-way valve is de-energized after a while;

(5) When starting defrosting, the compressor stops and the 4-way valve is de-energized after a while;

(6) When existing defrosting, the compressor stops and the 4-way valve is energized after a while;

3.Other control functions

(1) Timer function

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

① General timer: the timer precision is 30min and set unit ON/OFF after a desired hour.

◆ Timer ON: timer ON can be set at unit OFF. If selected ON time is reached, the unit will start to run according to previous setting status. Time setting range is 0.5~24hr in 30-minute increments.

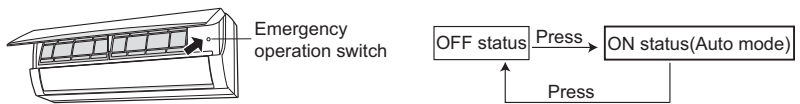
◆ Timer OFF: timer OFF can be set at unit ON. If selected OFF time is reached, the unit will stop. Time setting range is 0.5~24hr in 30-minute increments.

② Clock timer: the timer precision is 1min and set unit ON/OFF at a certain time every day.

- ◆ **Timer ON:** If timer ON is set during operation of the unit, the unit will continue to operate. If timer ON is set at unit OFF, upon ON time reaches the unit will start to run according to previous setting status.
- ◆ **Timer OFF:** If timer OFF is set at unit OFF, the system will keep OFF status. If timer OFF is set at unit ON, upon OFF time reaches the unit will stop operation.
- ◆ **Timer change:**
Although timer has been set, the unit still can be turned on/off by pressing ON/OFF button of the remote controller. You can also reset the timer.
If timer ON and timer OFF are set at the same time during ON status, the unit will keep running at current status. When OFF time reaches, the unit will stop operation. Then upon ON time reaches, the unit will start operation automatically. The unit will operate circularly like this every day.
If timer ON and timer OFF are set at the same time during OFF status, the unit will keep OFF status. When ON time reaches, the unit will start operation. Then upon OFF time reaches, the unit will stop operation automatically. The unit will operate circularly like this every day.

(2) Emergency operation switch

If pressing this button in OFF status, the unit will operate in AUTO mode and IDU fan motor will operate at auto speed; meanwhile, the swing motor operates. Press this button again to turn off the unit.



(3) Sleep function

In this mode, the unit will automatically select appropriate sleep curve to operate according to different set temperature.

- ① If sleep function is set in cooling, the system will increase set temperature automatically for operation in a certain degree.
- ② If sleep function is set in heating mode, the system will decrease set temperature automatically for operation in a certain degree.

(4) Turbo function

This function can be set in cooling or heating mode. When turbo function is set, the system will operate in the highest fan speed.

(5) X-FAN function

This function can be set in cooling or dry mode. When X-FAN function is set, fan motor will run for a while and then stop operation after the unit is turned off. During X-FAN operation, press X-FAN button on remote controller again to exit X-FAN function.

(6) Indoor fan speed control

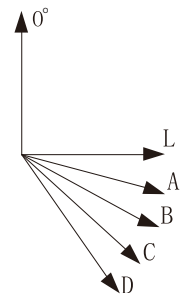
Indoor fan speed can be set in super-high, high, medium and low speed through remote controller; auto fan speed can also be set in cooling, heating and fan mode. In auto fan speed mode, the IDU fan motor will automatically select high, medium or low speed according to the change of ambient temperature. (Note: super-high speed is only available in cooling and heating mode).

(7) Up & down swing

- ① After energizing, up & down swing motor will firstly have the horizontal louver rotate anticlockwise to position 0 to close air outlet. If swing function has not been set after turning on the unit, the horizontal louver will turn clockwise to position D in heating mode, or turn clockwise to level position L in other modes.
- ② If swing function is set when starting up the unit, the horizontal louver will swing between L and D.

There are 7 swing status of horizontal louver:

- ◆ Positions L: corresponding setting on the remote controller:
- ◆ Positions A: corresponding setting on the remote controller:
- ◆ Positions B: corresponding setting on the remote controller:
- ◆ Positions C: corresponding setting on the remote controller:
- ◆ Positions D: corresponding setting on the remote controller:
- ◆ Swing between L and D, corresponding setting on the remote controller:
- ◆ Stop at any position between L and D (angles between L and D are equiangular); corresponding setting on the remote controller: without display
- ③ Upon turning off the unit, the horizontal louver will close at position 0.



④ Swing function is available only when swing function is set and IDU fan motor is operating.

(8) Display of nixie tube on indoor unit

◆ When energized & started for the first time, the nixie tube defaults to displaying current set temperature.

◆ When set temperature display is set by remote controller, it will display set temperature; when switching to indoor ambient temperature display from other display status, indoor ambient temperature will be displayed for 3-5 seconds firstly and then set temperature display returns; if other status are set by remote controller, it will still display original set temperature.

◆ When malfunction occurs, the nixie tube will display corresponding error code. (refer to Error Code List)

◆ In auto defrosting mode, the nixie tube will display "H1". It is a normal phenomenon. (For some models, the display status is that heating icon is bright for a while and then off for a while.)

◆ The display light can be closed by pressing light button.

(9) Memory function

① Power failure in unit ON status

◆ Memorized items: unit ON status, mode, up & down swing, light, set temperature, set fan speed, general timer and Fahrenheit/ Celsius.

◆ General timer will be memorized and the timer time will be recalculated after re-energizing.

◆ Clock timer will not be memorized.

② Power failure in unit OFF status

◆ Memorized items: unit OFF status, mode, up & down swing, light, set temperature, set fan speed, general timer and Fahrenheit/ Celsius.

◆ General timer will be memorized and the timer time will be recalculated after re-energizing.

◆ Clock timer will not be memorized.

(10) Compulsory defrosting function

(1) Start up compulsory defrosting function

Under ON status, set heating mode with remote controller and adjust the temperature to 60.8°F. Press "+, -, +, -, +,-" button successively within 5s and the complete unit will enter into compulsory defrosting status. Meanwhile, Indoor unit Dual-8 display H1. (Note: If complete unit has malfunction or stops operation due to protection, compulsory defrosting function can be started up after malfunction or protection is resumed.)

(2) Exit compulsory defrosting mode

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

(11) Refrigerant recycling function (applicable when changing installation location or in maintenance)

(1) Enter refrigerant recycling function

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

(2) Exit refrigerant recycling function

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

(12) Outdoor fan motor control function

(1) When turning off the unit by remote controller, unit stopping for protection, unit stopping as reaching the temperature point, the compressor stops and outdoor fan motor stops after 1min.

(2) In fan mode, the outdoor fan motor stops.

(3) After entering defrosting mode, the compressor stops and outdoor fan motor stops after 50s.

(4) After finishing defrosting, the compressor restarts heating and outdoor fan motor starts operation 5s ahead.

(5) Outdoor fan motor is DC motor and it will automatically adjust rotation speed according to ambient temperature.

4 Special functions

(1) HEALTH function (applicable for the models with health function)

① If the unit is equipped with the remote controller with HEALTH button, the unit defaults health function ON. Health function will be

closed by pressing the HEALTH button on remote controller or turning off the unit.

② If the unit is equipped with the remote controller without HEALTH button, the unit defaults health function ON. Health function will be closed when turning off the unit.

(2) I FEEL function

When I FEEL command is received, the controller will operate according to the ambient temperature sent by the remote controller (For defrosting and cold air prevention, the unit operates according to the ambient temperature sensed by the air conditioner). The remote controller will regularly send ambient temperature data to the controller. When the data has not been received for a long time, the unit will operate according to the temperature sensed by the air conditioner. If I FEEL function is not set, the ambient temperature will be that sensed by the air conditioner.

5 Main system protection (more details please refer to maintenance section)

(1) Indoor fan motor does not operate (indoor unit displays H6 in cooling, heating, dry or fan mode)

If the controller detects that the rotation speed of indoor fan motor is below 300round/min or the indoor fan motor stops operation, it judges that the motor operation is abnormal. In order to prevent damaging the motor, the system judges that the indoor fan motor is blocked and then stops the unit for protection with error code displayed on the indoor unit (refer to Error Code List). After the unit is turned off, the error code will not be displayed.

Turn off the unit and then turn it on, the malfunction display will be cleared.

(2) Freeze protection (indoor unit displays E2 in cooling or dry mode)

① In cooling and dry mode, if Tindoor pipe $< 32^{\circ}\text{F}$ is detected for 3min continuously, the outdoor unit will stop for freeze protection; if Tindoor pipe $> 42.8^{\circ}\text{F}$ and the compressor has stopped for 3min, the unit will resume previous running status;

② In cooling and dry mode, if Tindoor pipe $< 42.8^{\circ}\text{F}$, running frequency of compressor will be decreased or stop increasing;

③ If the unit stops for freeze protection for 6 times continuously, it can not resume operation automatically and displays error code; it can resume operation by pressing ON/OFF button on the remote controller.

(3) Overload protection (indoor unit displays E8 in cooling, heating or dry mode)

① In cooling and dry mode: if Toutdoor $\geq 149^{\circ}\text{F}$, the unit will stop for overload protection; if Toutdoor pipe $< 131^{\circ}\text{F}$ and the compressor has stopped for 3min, the unit will resume previous running status;

② In cooling and dry mode: if Toutdoor pipe $\geq 131^{\circ}\text{F}$, running frequency of compressor will be decreased or stop increasing;

③ In heating mode: if Tindoor pipe $\geq 147.2^{\circ}\text{F}$, the unit will stop for overload protection; if Tindoor pipe $< 129.2^{\circ}\text{F}$ and the compressor has stopped for 3min, the unit will resume running;

④ In heating mode: if Tindoor pipe $\geq 131^{\circ}\text{F}$, running frequency of compressor will be decreased or stop increasing.

(4) Compressor high discharge temperature protection (indoor unit displays E4 in cooling, heating or dry mode)

① If Tdischarge $\geq 239^{\circ}\text{F}$, the unit will stop for high discharge temperature protection; if Tdischarge $< 206.6^{\circ}\text{F}$ and the compressor has stopped for 3min, the unit will resume running;

② If Tdischarge $\geq 206.6^{\circ}\text{F}$, running frequency of compressor will be decreased or stop increasing.

(5) Drop off voltage protection (indoor unit displays U3 in cooling, heating or dry mode)

During compressor operation, if voltage drops off rapidly, the system will stop running for drop off voltage protection; when the voltage resumes normal, the malfunction will be eliminated automatically; if the compressor has stopped for 3min, the unit will resume previous running status.

(6) Communication malfunction (indoor unit displays E6 in cooling, heating, dry or fan mode)

If the indoor unit and outdoor unit can not communicate smoothly, the unit will stop for communication malfunction; if communication malfunction is eliminated and the compressor has stopped for 3min, the unit will resume previous running status.

(7) IPM module protection (indoor unit displays H5 in cooling, heating or dry mode)

① When the compressor starts, if there is overcurrent or low control voltage for IPM module due to some abnormal reasons, the unit will stop for IMP module protection; when the IMP module current decreases or control voltage increases, the protection will be eliminated automatically; if the compressor has stopped for 3min, the unit will resume previous running status.

② If unit stopping for module protection continuously occurs for three times, the unit can not resume running automatically and you should press ON/OFF button on remote controller to resume running.

(8) Module overheating protection (indoor unit displays P8 in cooling, heating or dry mode)

① If Tmodule $\geq 80^{\circ}\text{C}$, running frequency of compressor will be decreased or stop increasing;

② If Tmodule $\geq 95^{\circ}\text{C}$, the unit will stop for module overheating protection; if Tmodule $< 188.6^{\circ}\text{F}$ and the compressor has stopped for 3min, the unit will resume running.

(9) Compressor overload protection (indoor unit displays H3 in cooling, heating or dry mode)

① If disconnection of compressor overload switch is detected for 3S continuously, the system will stop for compressor overload protection; when the protection is eliminated and the compressor has stopped for 3min, the unit will resume running;

② If unit stopping for compressor overload protection continuously occurs for three times, the unit can not resume running automatically and you should press ON/OFF button on remote controller to resume running; the times of compressor overload protection will be cleared if the compressor has run for 30min.

(10) Overcurrent protection (indoor unit displays E5 in cooling, heating or dry mode)

If overcurrent is detected for 3s continuously, the system will stop for overcurrent protection; when the protection is eliminated and the compressor has stopped for 3min, the unit will resume running.

(11) Temperature sensor malfunction detection (indoor unit displays F1, F2, F3, F4, F5 in cooling, heating, dry or fan 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.

When temperature sensor malfunction occurs, the unit stops for protection.

Part II : Installation and Maintenance

7. Notes for Installation and Maintenance

Safety Precautions: Important!

Please read the safety precautions carefully before installation and maintenance.

The following contents are very important for installation and maintenance.

Please follow the instructions below.

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



Warnings

Electrical Safety Precautions:

1. Cut off the power supply of air conditioner before checking and maintenance.
2. The air condition must apply specialized circuit and prohibit share the same circuit with other appliances.
3. The air conditioner should be installed in suitable location and ensure the power plug is touchable.
4. Make sure each wiring terminal is connected firmly during installation and maintenance.
5. Have the unit adequately grounded. The grounding wire can't be used for other purposes.
6. Must apply protective accessories such as protective boards, cable-cross loop and wire clip.
7. The live wire, neutral wire and grounding wire of power supply must be corresponding to the live wire, neutral wire and grounding wire of the air conditioner.
8. The power cord and power connection wires can't be pressed by hard objects.
9. If power cord or connection wire is broken, it must be replaced by a qualified person.

10. If the power cord or connection wire is not long enough, please get the specialized power cord or connection wire from the manufacture or distributor. Prohibit prolong the wire by yourself.

11. For the air conditioner without plug, an air switch must be installed in the circuit. The air switch should be all-pole parting and the contact parting distance should be more than 0.12inch.

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.
3. When installing the indoor unit and outdoor unit, a sufficient fixing bolt must be installed; make sure the installation support is firm.
4. Ware safety belt if the height of working is above acceptable standards.
5. Use equipped components or appointed components during installation.
6. Make sure no foreign objects are left in the unit after finishing installation.

Refrigerant Safety Precautions:

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

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

Main Tools for Installation and Maintenance

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

8. Installation

8.1 Installation Dimension Diagram

STOP

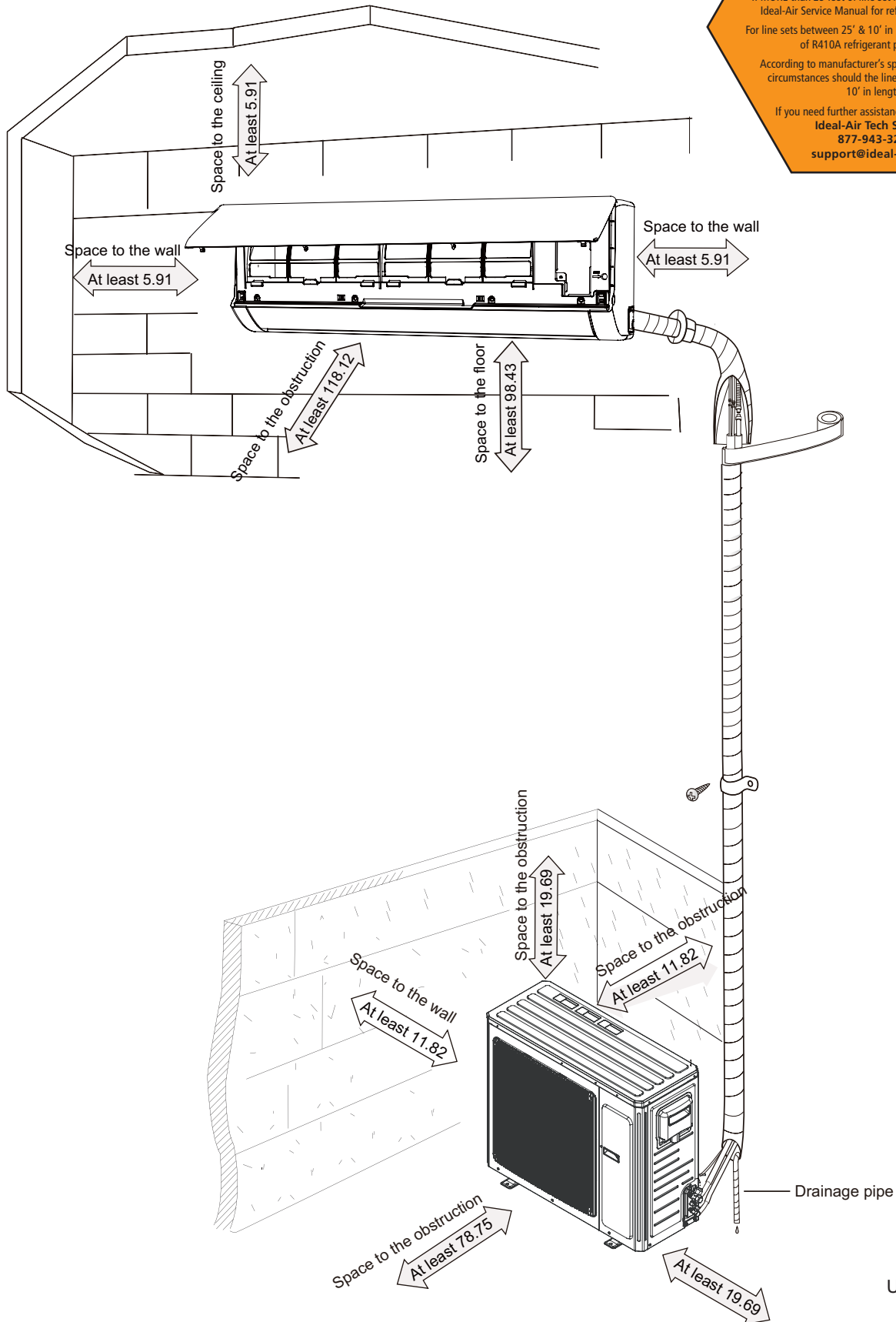
This product is precharged with refrigerant for a **25 feet** of line set.

If **MORE** than 25 feet of line set is required, refer to your Ideal-Air Service Manual for refrigerant charging chart.

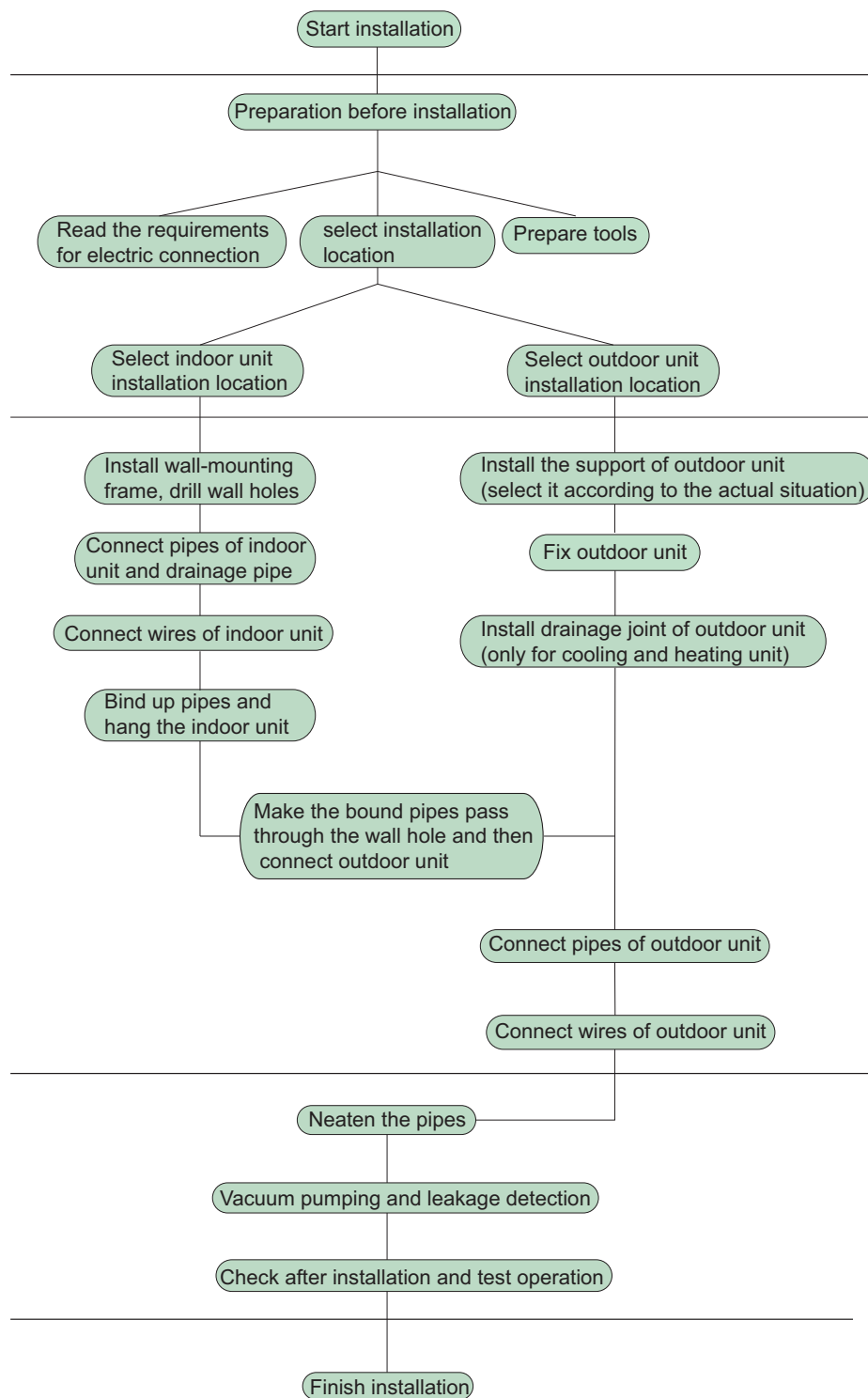
For line sets between 25' & 10' in length, **REMOVE .65 oz** of R410A refrigerant per line feed.

According to manufacturer's specifications, under no circumstances should the line set be shorter than 10' in length.

If you need further assistance, please contact:
Ideal-Air Tech Support
 877-943-3251
 support@ideal-air.com



Installation procedures



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

8.2 Installation Parts-checking

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

⚠ Note:

- 1.Please contact the local agent for installation.
- 2.Don't use unqualified power cord.

8.3 Selection of Installation Location

1. Basic Requirement:

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

- (1) The place with strong heat sources, vapors, flammable or explosive gas, or volatile objects spread in the air.
- (2) The place with high-frequency devices (such as welding machine, medical equipment).
- (3) The place near coast area.
- (4) The place with oil or fumes in the air. in the air.
- (5) The place with sulfureted gas.
- (6) Other places with special circumstances.

2. Indoor Unit:

- (1) There should be no obstruction near air inlet and air outlet.
- (2) Select a location where the condensation water can be dispersed easily and won't affect other people.
- (3) Select a location which is convenient to connect the outdoor unit and near the power socket.
- (4) Select a location which is out of reach for children.
- (5) The location should be able to withstand the weight of indoor unit and won't increase noise and vibration.
- (6) The appliance must be installed 98.4inch above floor.
- (7) Don't install the indoor unit right above the electric appliance.
- (8) The appliance shall not be installed in the laundry

3. Outdoor unit:

- 1.Select a location where the noise and outflow air emitted by the outdoor unit will not affect neighborhood.
- 2.The location should be well ventilated and dry, in which the outdoor unit won't be exposed directly to sunlight or strong wind.
- 3.The location should be able to withstand the weight of outdoor unit.
- 4.Make sure that the installation follows the requirement of installation dimension diagram.
- 5.Select a location which is out of reach for children and far away from animals or plants.If it is unavoidable, please add fence for safety purpose.

8.4 Electric Connection Requirement

1. Safety precaution

- (1) Must follow the electric safety regulations when installing the unit.
- (2) According to the local safety regulations, use qualified power supply circuit and air switch.
- (3) Make sure the power supply matches with the requirement of air conditioner. Unstable power supply or incorrect wiring may result in electric shock,fire hazard or malfunction. Please install proper power supply cables before using the air conditioner.

Air-conditioner	Air switch capacity
24K	25A

- (4) Properly connect the live wire, neutral wire and grounding wire of power socket.
- (5) Be sure to cut off the power supply before proceeding any work related to electricity and safety.
- (6) Do not put through the power before finishing installation.
- (7) For appliances with type Y attachment,the instructions shall contain the substance of thefollowing.If the supply cord is damaged,it must be replaced by the manufacturer,its service agent or similarly qualified persons in order to avoid a hazard.
- (8) The temperature of refrigerant circuit will be high, please keep the interconnection cable away from the copper tube.

2. Grounding requirement:

- (1) The air conditioner is first class electric appliance. It must be properly grounding with specialized grounding device by a professional. Please make sure it is always grounded effectively, otherwise it may cause electric shock.
- (2) The yellow-green wire in air conditioner is grounding wire, which can't be used for other purposes.
- (3) The grounding resistance should comply with national electric safety regulations.
- (4) The appliance must be positioned so that the plug is accessible
- (5) An all-pole disconnection switch having a contact separation of at least 0.12inch in all poles should be connected in fixed wiring.
- (6) Including an air switch with suitable capacity, please note the following table. Air switch should be included magnet buckle and heating buckle function, it can protect the circuit-short and overload. (Caution: please do not use the fuse only for protect the circuit)

8.5 Installation of Indoor Unit

1. Choosing Installation location

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

2. Install Wall-mounting Frame

- (1) Hang the wall-mounting frame on the wall; adjust it in horizontal position with the level meter and then point out the screw fixing holes on the wall.
- (2) Drill the screw fixing holes on the wall with impact drill (the specification of drill head should be the same as the plastic expansion particle) and then fill the plastic expansion particles

in the holes.

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

3. Install Wall-mounting Frame

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

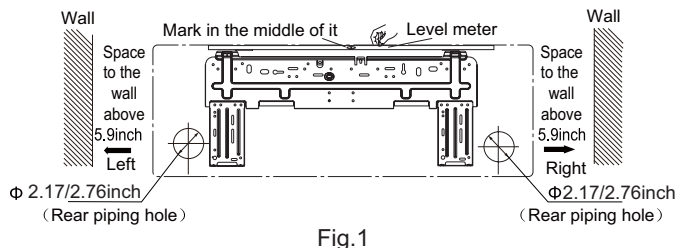


Fig.1

(2) Open a piping hole with the diameter of 2.17/2.76inch on the selected outlet pipe position. In order to drain smoothly, slant the piping hole on the wall slightly downward to the outdoor side with the gradient of 5-10°.(As show in Fig.2)

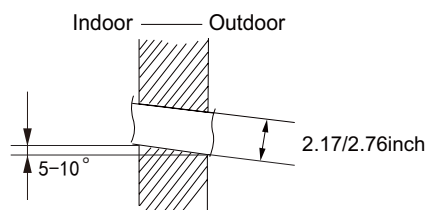


Fig.2

⚠ Note:

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

4. Outlet pipe

(1) The pipe can be led out in the direction of right, rear right, left or rear left.(As show in Fig.3)

(2) When selecting leading out the pipe from left or right, please cut off the corresponding hole on the bottom case.(As show in Fig.4)

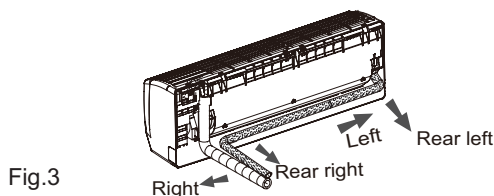


Fig.3

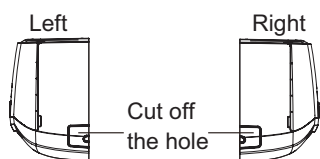


Fig.4

STOP

This product is precharged with refrigerant for a **25 feet** of line set.

If MORE than 25 feet of line set is required, refer to your Ideal-Air Service Manual for refrigerant charging chart.

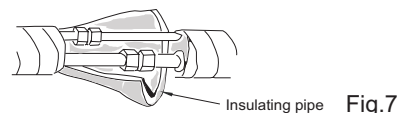
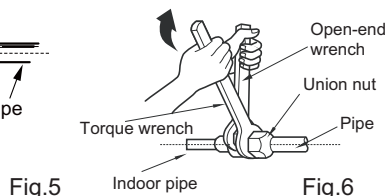
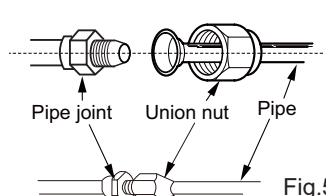
For line sets between 25' & 10' in length, **REMOVE .65 oz** of R410A refrigerant per line feed.

According to manufacturer's specifications, under no circumstances should the line set be shorter than 10' in length.

If you need further assistance, please contact:
Ideal-Air Tech Support
 877-943-3251
 support@ideal-air.com

5. Connect the Pipe of Indoor Unit

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



Refer to the following table for wrench moment of force:

Outside diameter inch	Tightening torque N.m
Φ0.24	15~20
Φ0.37	30~40
Φ0.47	45~55
Φ0.63	60~65
Φ0.75	70~75

6. Install Drain Hose

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

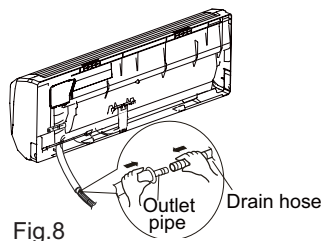


Fig.8

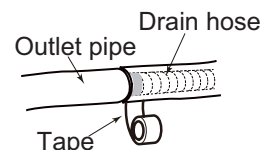


Fig.9

⚠ Note:

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

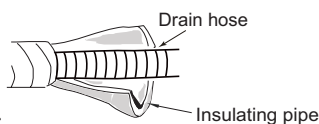
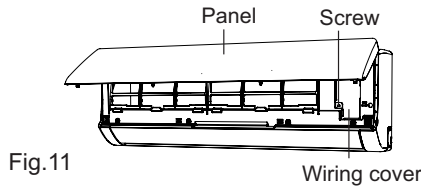


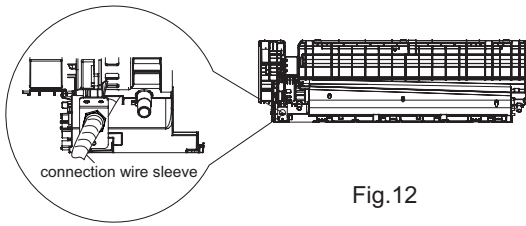
Fig.10

7. Connect Wire of Indoor Unit

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



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



(3) 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 connection wire with wire clip.(As show in Fig.13)

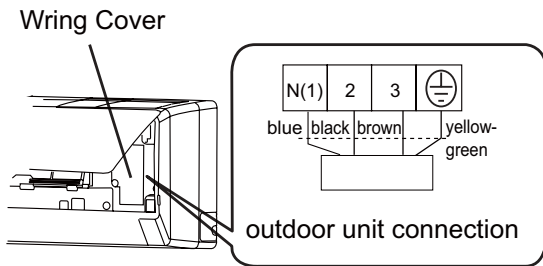


Fig.13

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

⚠ Note:

- (1) All wires of indoor unit and outdoor unit should be connected by a professional.
- (2) If the length of power connection wire is insufficient, please contact the supplier for a new one. Avoid extending the wire by yourself.
- (3) For the air conditioner with plug, the plug should be reachable after finishing installation.
- (4) For the air conditioner without plug, an air switch must be installed in the line. The air switch should be all-pole parting and the contact parting distance should be more than 0.12inch.

8. Bind up Pipe

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

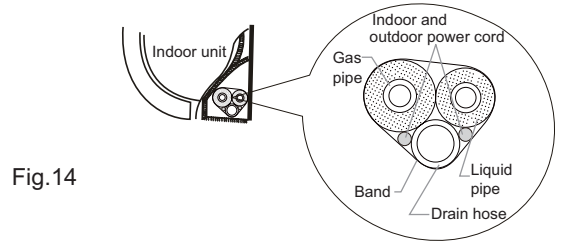


Fig.14

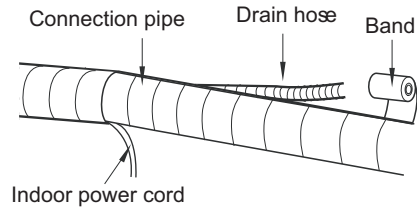


Fig.15

⚠ Note:

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

9. Hang the Indoor Unit

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

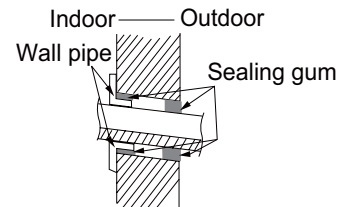


Fig.16

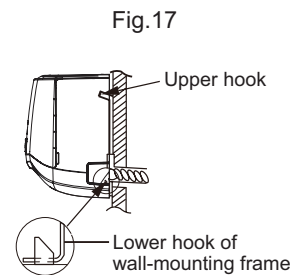


Fig.17

⚠ Note:

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

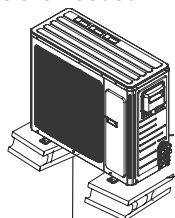
8.6 Installation of Outdoor Unit

1. Fix the support of outdoor unit(select it according to the actual installation situation)

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

⚠ Note:

- (1) Take sufficient protective measures when installing the outdoor unit.
- (2) Make sure the support can withstand at least four times the unit weight.
- (3) The outdoor unit should be installed at least 1.18inch above the floor in order to install drain joint.(As show in Fig.18)
- (4) For the unit with cooling capacity of 2300W~5000W, 6 expansion screws are needed; for the unit with cooling capacity of 6000W~8000W, 8 expansion screws are needed; for the unit with cooling capacity of 10000W~16000W, 10 expansion screws are needed.



At least 3cm above the floor
Fig.18

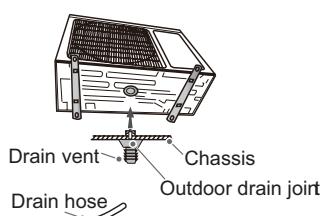


Fig.19

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

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

3. Fix Outdoor Unit

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

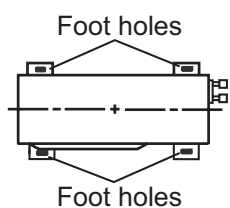


Fig.20

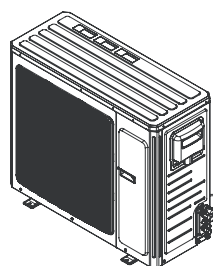


Fig.21

4. Fix Outdoor Unit

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

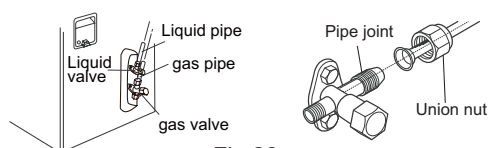


Fig.22

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

Refer to the following table for wrench moment of force :

Outside diameter inch	Tightening torque N.m
Φ0.24	15~20
Φ0.37	30~40
Φ0.47	45~55
Φ0.63	60~65
Φ0.75	70~75

5. Connect Outdoor Electric Wire

- (1) Remove the wire clip; connect the power connection cable and power cord to the wiring terminal according to the color; fix them with screws.(As show in Fig.23)
- (2) Fix the power connection wire and power cord with wire clip.

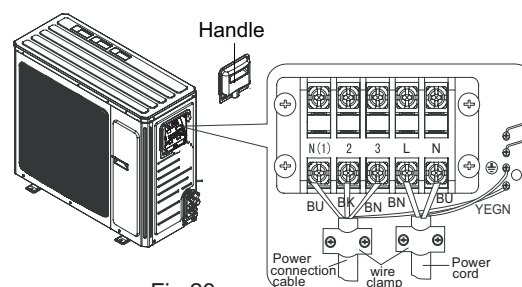
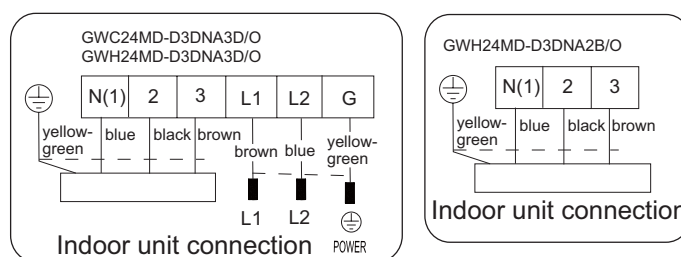


Fig.23

⚠ 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 3.94inch.
- (2) If the outdoor unit is higher than the wall hole, you must set a U-shaped curve in the pipe before pipe goes into the room, in order to prevent rain from getting into the room.(As show in Fig.24)

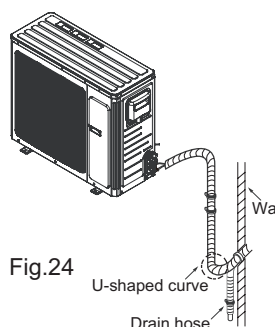


Fig.24

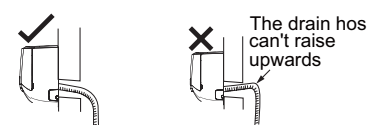
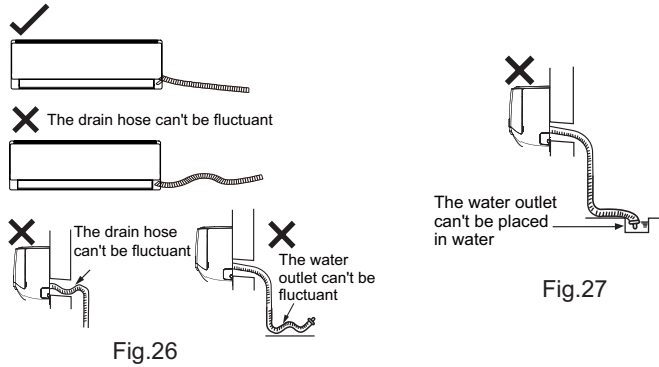


Fig.25

⚠ Note:

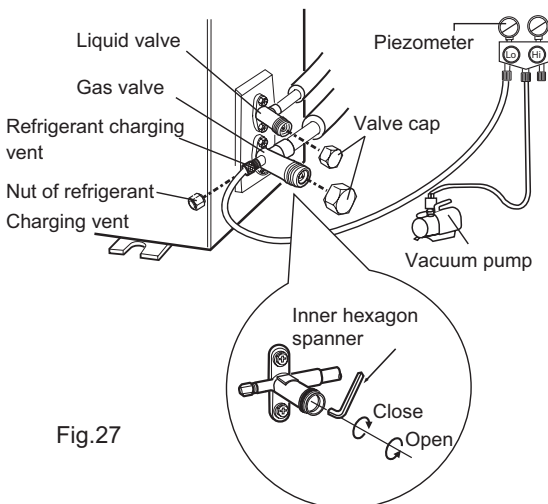
- (1) The through-wall height of drain hose shouldn't be higher than the outlet pipe hole of indoor unit.(As show in Fig.25)
- (2) Slant the drain hose slightly downwards. The drain hose can't be curved, raised and fluctuant, etc.(As show in Fig.26)
- (3) The water outlet can't be placed in water in order to drain smoothly.(As show in Fig.27)



8.7 Vacuum Pumping and Leak Detection

1. Use Vacuum Pump

- (1) Remove the valve caps on the liquid valve and gas valve and the nut of refrigerant charging vent.
 - (2) Connect the charging hose of piezometer to the refrigerant charging vent of gas valve and then connect the other charging hose to the vacuum pump.
 - (3) Open the piezometer completely and operate for 10-15min to check if the pressure of piezometer remains in -0.1MPa.
 - (4) Close the vacuum pump and maintain this status for 1-2min to check if the pressure of piezometer remains in -0.1MPa. If the pressure decreases, there may be leakage.
 - (5) Remove the piezometer, open the valve core of liquid valve and gas valve completely with inner hexagon spanner.
 - (6) Tighten the screw caps of valves and refrigerant charging vent.
- (As show in Fig.27)



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).
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.

2. Test operation

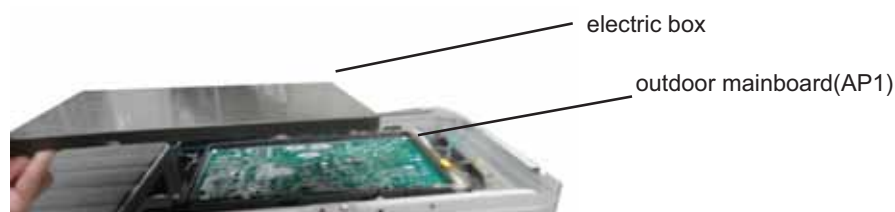
- (1) Preparation of test operation
 - The client approves the air conditioner installation.
 - Specify the important notes for air conditioner to the client.
- (2) Method of test operation
 - Put through the power, press ON/OFF button on the remote controller to start operation.
 - Press MODE button to select AUTO, COOL, DRY, FAN and HEAT to check whether the operation is normal or not.
 - If the ambient temperature is lower than 60.8°F, the air conditioner can't start cooling.

9. Maintenance

9.1 Precautions before Maintenance

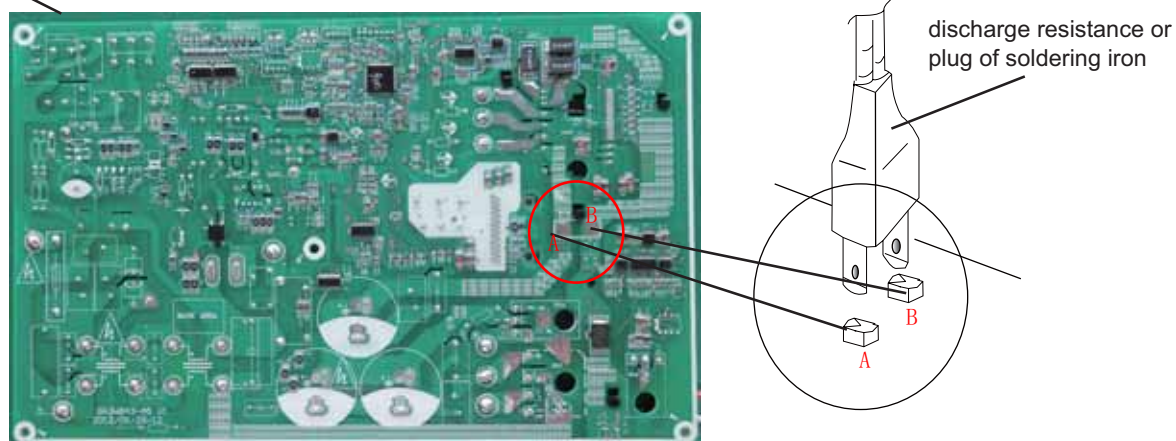
There are high-capacity electrolytic capacitors on the outdoor mainboard. Thus, even the power is cut off, there is high voltage inside the capacitors and it needs more than 20min to reduce the voltage to safety value. Touching the electrolytic capacitor within 20min after cutting the power will cause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

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



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

outdoor mainboard(AP1)



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

9.2 Error Code List

No.	Malfunction Name	Display Method of Indoor Unit				Display Method of Outdoor Unit (Indicator has 3 kinds of display status and they will be displayed circularly every 5s.)				A/C Status	Possible Causes	Countermeasures	
		Display of dual-8 nixie tube	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)			<input type="checkbox"/> OFF <input checked="" type="checkbox"/> Illuminated <input checked="" type="checkbox"/> Blink							
			Operation Indicator	Cool Indicator	Heat Indicator	D40/D5	D41/D6	D42/D16	D43/D30				
1	Freeze protection	E2	Flash twice every 3s							During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	Poor air return of indoor unit;	1. Check whether indoor unit's horizontal louver can close normally;	
							■	□	■		□	Rotation speed of indoor fan is abnormal;	2. Replace indoor unit's main board → replace indoor fan
													Evaporator is dirty;
2	High discharge temperature protection of compressor	E4	Flash 4 times every 3s							During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	See 9.3 (diagnosis of overheating prevention and overload protection)	Refer to maintenance flowchart	

3	Overcurrent protection	E5	Flash 5 times every 3s				□	■	☆	□	During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	Power voltage is unstable, big fluctuation.	1. Check whether power supply network is abnormal;
												Power voltage is too low; overload.	2. Reduce load;
												Malfunction of hardware.	3. Replace outdoor unit's main board AP1
4	Communication malfunction	E6	Flash 6 times every 3s				□	□	□	☆	During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	See 9.3 (diagnosis of communication malfunction)	Refer to maintenance flowchart
5	Overload protection	E8	Flash 8 times every 3s				■	□	■	■	During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	See 9.3(diagnosis of overheating prevention and overload protection)	Refer to maintenance flowchart

6	Indoor ambient temperature sensor is open/short-circuited	F1		Flash once every 3s						The unit will stop operation as it reaches the temperature point. During cooling and drying operation, compressor and outdoor unit stop, while indoor fan operates; During heating operation, the complete unit stops operation.	Connection terminal between indoor ambient temperature sensor and main board is loose or poor connection.	Refer to maintenance flowchart
											There's short circuit due to trip-over of the parts on main board;	
											Indoor ambient temperature sensor is damaged (Please check it by referring to the resistance table for temperature sensor)	
											Main board is damaged.	
7	Indoor evaporator temperature sensor is open/short-circuited	F2		Flash twice every 3s						The unit will stop operation as it reaches the temperature point. During cooling and drying operation, compressor and outdoor unit stop, while indoor fan operates; During heating operation, the complete unit stops operation.	Connection terminal between indoor evaporator temperature sensor and main board is loose or poor connection.	Refer to maintenance flowchart
											There's short circuit due to trip-over of the parts on main board;	
											Indoor evaporator temperature sensor is damaged (Please check it by referring to the resistance table for temperature sensor)	
											Main board is damaged.	

8	Blockage protection of indoor unit	H6	Flash 11 times every 3s							Indoor fan, outdoor fan, compressor and electric heating tube all stop operation; horizontal louver stops at current position.	<p>Feedback terminal of PG motor hasn't been inserted tightly.</p> <p>Control terminal of PG motor is not inserted tightly.</p> <p>Fan is blocked</p> <p>Malfunction of motor.</p> <p>Circuit malfunction of main board.</p>	Refer to maintenance flowchart
9	Malfunction protection of jumper cap	C5	Flash 15 times every 3s							Operation of remote controller or control panel is available, but the unit won't act.	<p>Jumper cap hasn't been inserted on main board.</p> <p>Jumper cap hasn't been inserted correctly and tightly.</p> <p>Jumper cap is damaged.</p> <p>Circuit of main board is abnormal.</p>	Refer to maintenance flowchart
10	Malfunction of outdoor ambient temperature sensor	F3	Flash 3 times every 3s			□	□	☆	■	During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	1.T-SENSOR terminal hasn't been inserted tightly; 2. Hardware malfunction of outdoor unit's main board;	1. After de-energization, reinsert T-SENSOR terminal tightly; 2. Replace outdoor unit's main board AP1;

11	Malfunction of outdoor condenser temperature sensor	F4		Flash 4 times every 3s		□	□	☆	□	During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	1.T-SENSOR terminal hasn't been inserted tightly; 2. Hardware malfunction of outdoor unit's main board;	1. After de-energization, reinsert T-SENSOR terminal tightly; 2. Replace outdoor unit's main board AP1;
12	Malfunction of outdoor discharge temperature sensor	F5		Flash 5 times every 3s		□	□	☆	☆	During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.		
13	Limit/decrease frequency due to overload	F6		Flash 6 times every 3s		■	□	☆	☆	All loads operates normally, while operation frequency of compressor decreases.	See 9.3(diagnosis of overheating prevention and overload protection)	Refer to maintenance flowchart
14	Decrease frequency due to overcurrent	F8		Flash 8 times every 3s		■	■	□	■	All loads operates normally, while operation frequency of compressor decreases.	Input power voltage is too low;	1. Check whether power supply network is abnormal;
											Pressure of system is too high; overload	2. Reduce load;

15	Decrease frequency due to high air discharge	F9		Flash 9 times every 3s		■	■	□	□	All loads operates normally, while operation frequency of compressor decreases.	Overload; ambient temperature is too high; Refrigerant is not enough Malfunction of electronic expansion valve (EKV)	1. Reduce load; 2. Add refrigerant 3. Replace electronic expansion valve → replace outdoor unit's main board AP1
16	DC busbar voltage is too high	PH		Flash 11 times every 3s		□	■	□	☆	During cooling and drying operation, compressor stops while indoor fan operates. During heating operation, all loads stop.	1. Measure the voltage at position L and N on wiring board (XT). If the voltage is higher than 265VAC, wait until the power voltage is decreased within normal range and then turn on the unit; 2. If AC input is normal, measure the voltage between A and B ends of electrolytic capacitor (fig. 30 in 9.1) on control board (AP1) after turning on the unit. If it's normal, the circuit has malfunction. Please replace the main board of outdoor unit.	1. Check whether power supply network is abnormal; 2. Replace outdoor unit's main board AP1;
17	Detection malfunction of system current	U5		Flash 13 times every 3s		□	■	☆	■	During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	Malfunction of circuit on outdoor unit's main board AP1. Replace outdoor unit's main board AP1.	1. Replace outdoor unit's main board AP1

18	Overcurrent protection of phase current	P5		Flash 15 times every 3s		□	☆	□	□	During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	See 9.3 (diagnosis of IPM protection, desynchronizing malfunction, overcurrent protection of phase current of compressor)	Refer to maintenance flowchart
19	Defrosting	H1									Normal function	
20	Overload protection of compressor	H3		Flash 3 times every 3s		□	☆	☆	□	During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	1:Wiring terminal OVC-COMP is loose (Under normal circumstances, the resistance between both ends of this terminal should be less than 1Ω.)	1. After de-energization, insert OVC-COMP terminal tightly;
											2: See 9.3 (diagnosis of overload and discharge protection)	2. Refer to maintenance flowchart
21	IPM protection	H5		Flash 5 times every 3s		□	☆	□	■	During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	See 9.3 (diagnosis of IPM protection, desynchronizing malfunction, overcurrent protection of phase current of compressor)	Refer to maintenance flowchart

22	PFC protection	HC			Flash 6 times every 3s	□	■	☆	☆	During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	See 9.3 (diagnosis of PFC protection)	Refer to maintenance flowchart
23	Desynchronizing of compressor	H7			Flash 7 times every 3s	□	☆	■	☆	During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	See 9.3 (diagnosis of IPM protection, desynchronizing malfunction, overcurrent protection of phase current of compressor)	Refer to maintenance flowchart
24	Failure startup	Lc			Flash 11 times every 3s	□	☆	□	☆	During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	See 9.3 (diagnosis of failure startup)	Refer to maintenance flowchart
25	Circuit malfunction of phase current circuit detection for compressor	U1			Flash 13 times every 3s	□	☆	■	□	During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	Hardware malfunction of outdoor unit's main board;	1. Replace outdoor unit's main board AP1

26	malfunction of read EEPROM	EE			Flash 15 times every 3s	□	□	□	■	During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	Wrong match between indoor unit and outdoor unit;	1. Check whether the capacity of indoor unit and outdoor unit is matching with each other;
											Hardware malfunction of indoor unit's main board;	2. Replace indoor unit's main board AP2;
											Hardware malfunction of outdoor unit's main board;	3. Replace outdoor unit's main board AP1;
27	Charging malfunction of capacitor	PU			Flash 17 times every 3s	□	■	□	■	During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	See 9.3 (diagnosis of charging malfunction for capacitor)	Refer to maintenance flowchart
28	Circuit malfunction of module temperature sensor	P7			Flash 18 times every 3s	□	□	■	☆	During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	Hardware malfunction of outdoor unit's main board;	1. Replace outdoor unit's main board AP1;
29	Module temperature protection	P8			Flash 19 times every 3s	■	□	☆	■	During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	Radiating grease on IPM module of outdoor unit's main board is not enough; screws haven't been fixed tightly;	1. After the system is de-energized for 20min and discharge, check whether radiating grease on IPM Module of outdoor control board AP1 is enough and whether the radiating is fixed tightly;
											Hardware malfunction of outdoor unit's main board;	2. Replace outdoor unit's main board AP1;

30	Drop malfunction of DC busbar voltage	U3			Flash 20 times every 3s	□	■	■	■	During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	Power voltage is unstable, big fluctuation.	1. Check whether power supply network is abnormal;
31	Low voltage protection of DC bus bar	PL			Flash 21 times every 3s	□	■	■	□	During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	The voltage at positions L and N on wiring board (XT) is lower than 150 VAC	1. Check whether power supply network is abnormal;
											Hardware malfunction of outdoor unit's main board;	2. Replace outdoor unit's main board AP1;
32	Limit/ decrease frequency due to module temperature protection	EU				■	■	■	☆	All loads operates normally, while operation frequency of compressor decreases.	Radiating grease on IPM module of outdoor unit's main board is not enough; screws haven't been fixed tightly;	1. After the system is de-energized for 20min and discharge, check whether radiating grease on IPM Module of outdoor control board AP1 is enough and whether the radiating is fixed tightly;
											Hardware malfunction of outdoor unit's main board;	2. Replace outdoor unit's main board AP1;
33	4-way valve is abnormal	U7				■	□	☆	□	This malfunction occurs under heating operation: all loads stop.	Power voltage is lower than AC175V	
											Wiring terminal 4V is loose or broken	2. After de-energization, insert OVC-COMP tightly or replace wiring
											Hardware malfunction of outdoor unit's main board;	3. Replace outdoor unit's main board AP1;

34	Zero-crossing malfunction of outdoor unit	U9				■	■	☆	□	During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	Hardware malfunction of outdoor unit's main board;	1. Replace outdoor unit's main board AP1;
35	Limit/decrease frequency due to freeze protection	FH				■	■	■	□	All loads operates normally, while operation frequency of compressor decreases.	Poor air return of indoor unit or speed of fan is too low	1. Check whether indoor unit's horizontal louver can close normally → replace indoor unit's main board → replace indoor unit's motor;
36	Outdoor DC fan motor malfunction	L3								Outdoor DC fan motor malfunction lead to compressor stop operation	DC fan motor malfunction or system blocked or the connector loosed	

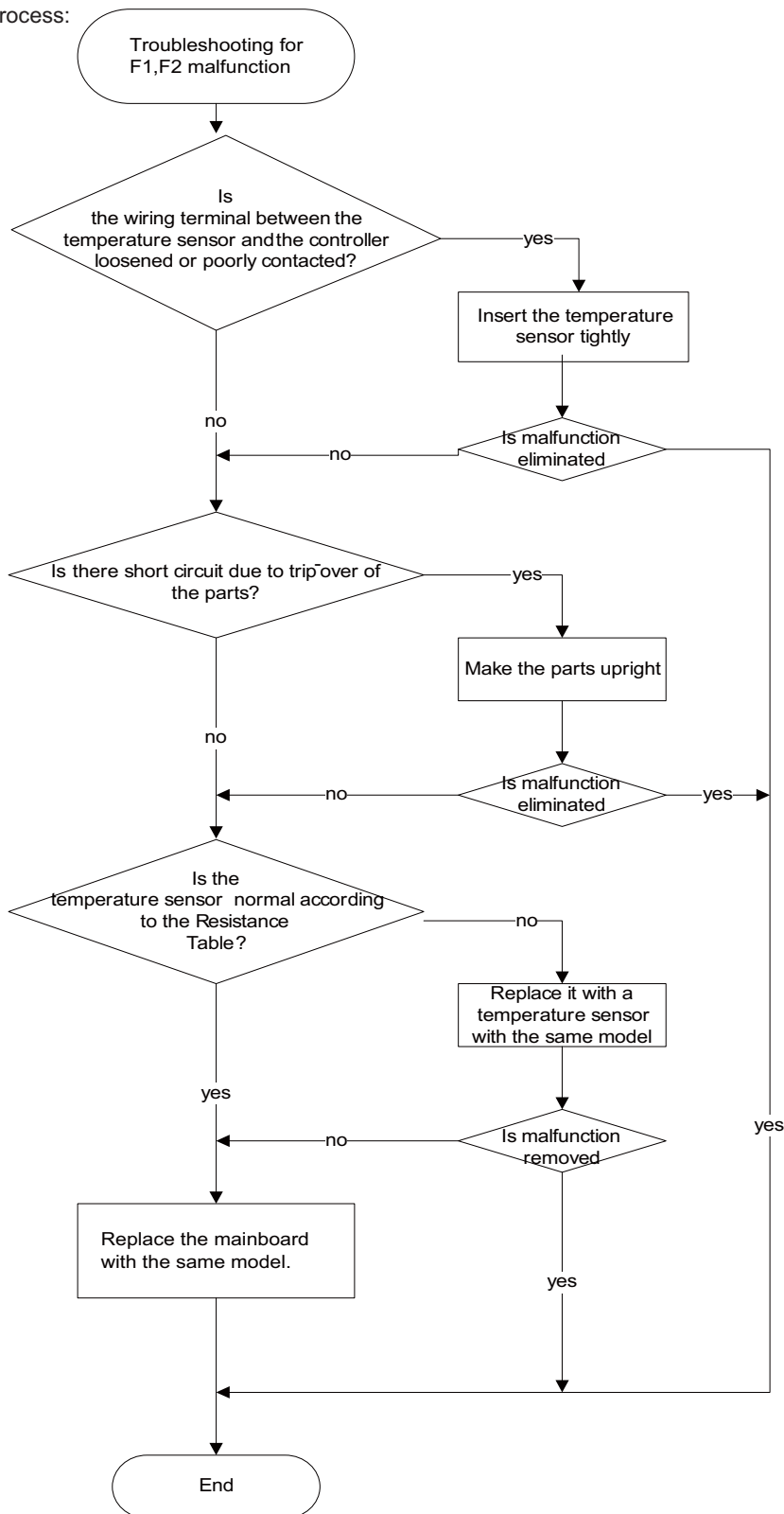
9.3 Troubleshooting for Main Malfunction

1. Malfunction of Temperature Sensor F1, F2

Main detection points:

- Is the wiring terminal between the temperature sensor and the controller loosened or poorly contacted?
- Is there short circuit due to trip-over of the parts?
- Is the temperature sensor broken?
- Is mainboard broken?

Malfunction diagnosis process:

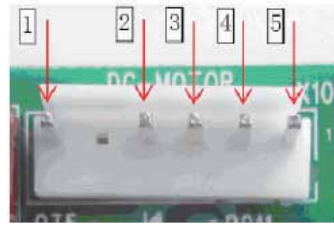
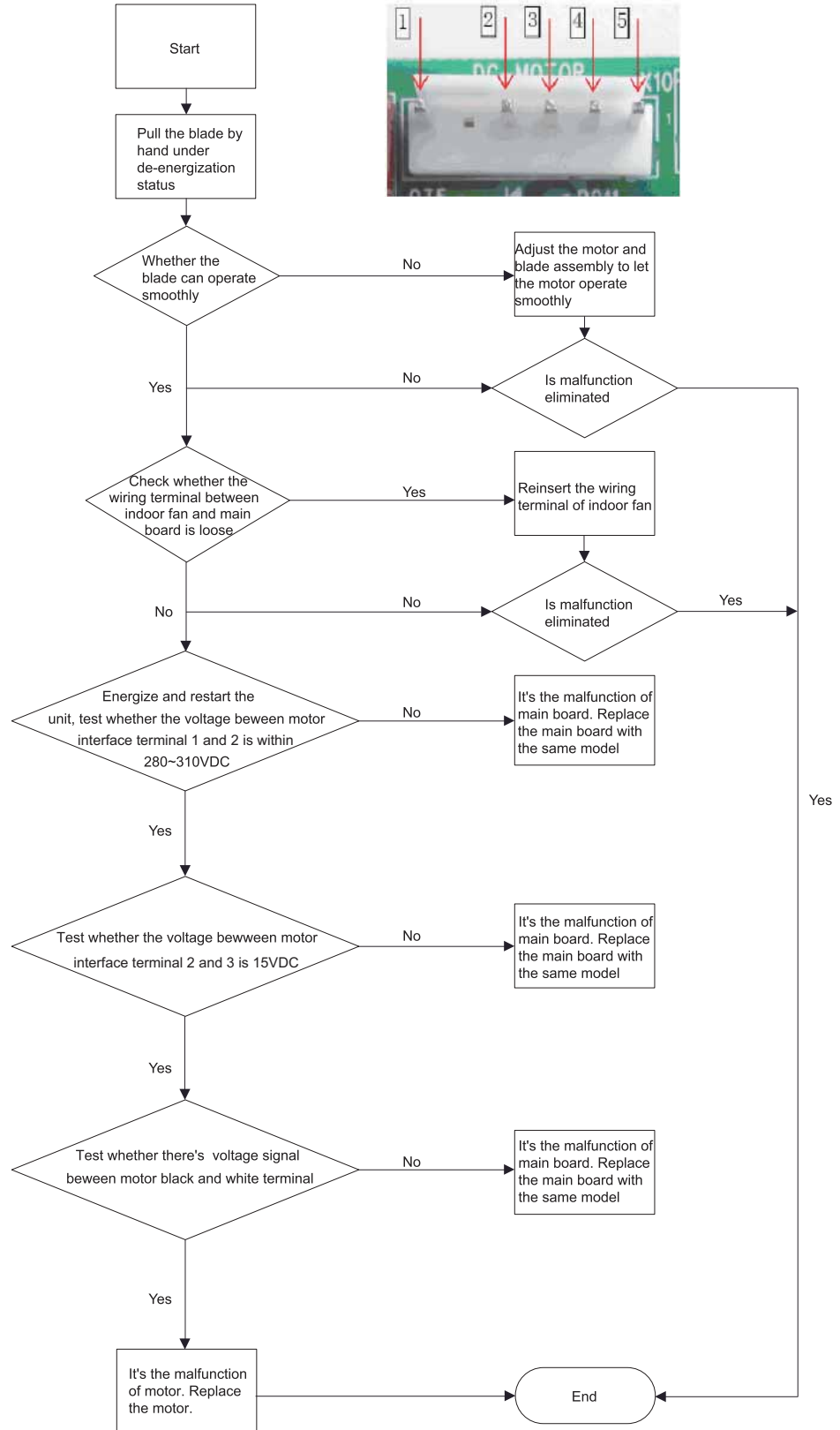


2. Malfunction of Blocked Protection of IDU Fan Motor H6

Main detection points:

- Smoothly Is the control terminal of PG motor connected tightly?
- Smoothly Is the feedback interface of PG motor connected tightly?
- The fan motor can't operate ?
- The motor is broken?
- Detection circuit of the mainboard is defined abnormal?

Malfunction diagnosis process:

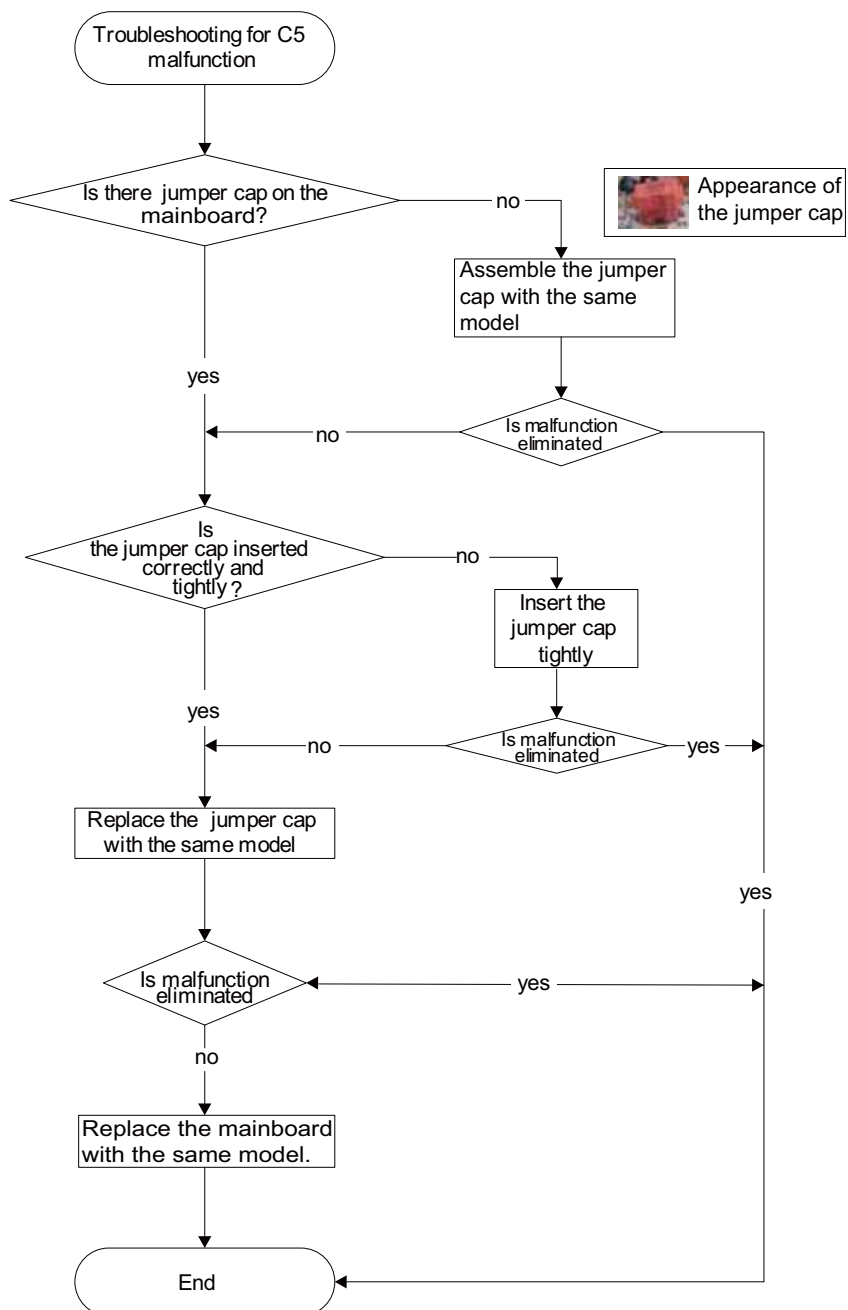


3. Malfunction of Protection of Jumper Cap C5

Main detection points:

- MalfunctionIs there jumper cap on the mainboard?
- Is the jumper cap inserted correctly and tightly?
- The jumper is broken?
- Detectioncircuit of the mainboard isdefined abnormal?

Malfunction diagnosis process:



4. Malfunction of Overcurrent Protection E5

Main detection points:

- Eliminated Is the supply voltage unstable with big fluctuation?
- Is the supply voltage too low with overload?
- Hardware trouble?

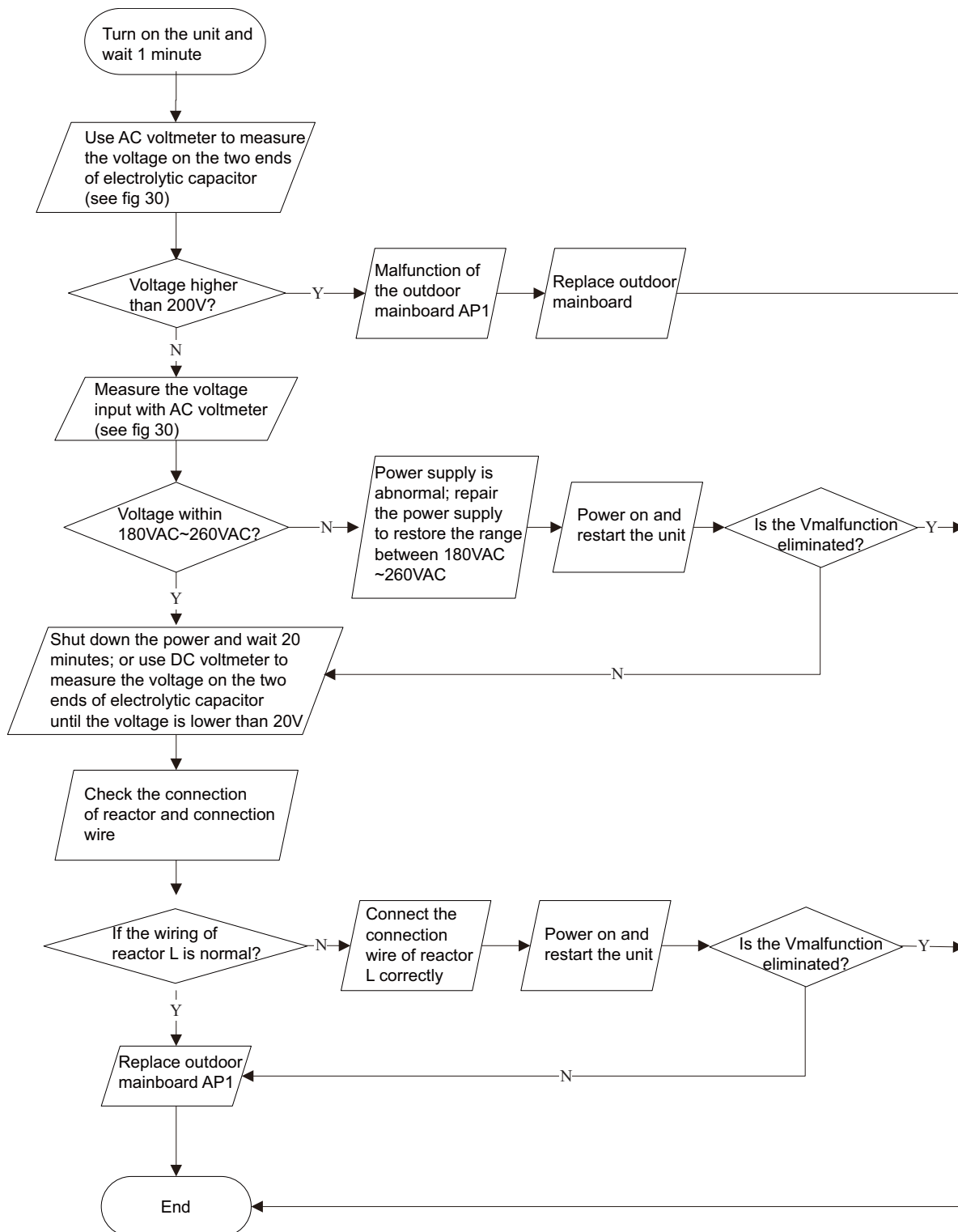
Malfunction diagnosis process:



5.Capacity charging malfunction (outdoor unit malfunction) (AP1 below means control board of outdoor unit)

Main detection points:

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

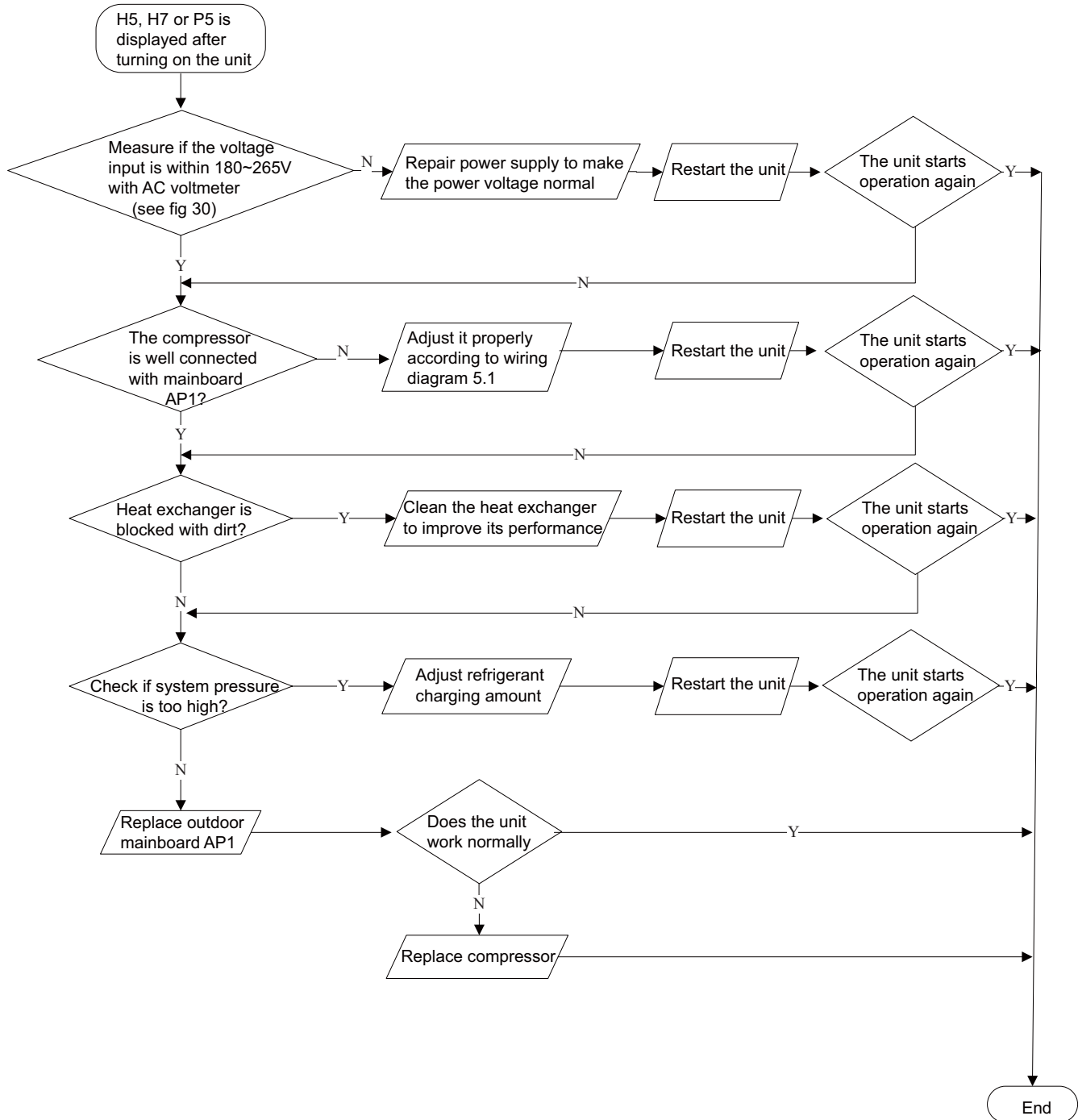


6. IPM protection (H5), desynchronizing malfunction (H7), overcurrent of compressor phase current (P5) (AP1 below means control board of outdoor unit)

Main detection points:

- Is voltage input within the normal range
- If the control board AP1 is well connected with compressor COMP? If they are loosened? If the connection sequence is correct?
- Heat exchange of unit is not good (heat exchanger is dirty and unit radiating environment is bad);
- If the system pressure is too high?
- If the refrigerant charging amount is appropriate?
- If coil resistance of compressor is normal? Is compressor coil insulating to copper pipe well?
- If the work load of unit is heavy? If radiating of unit is good?

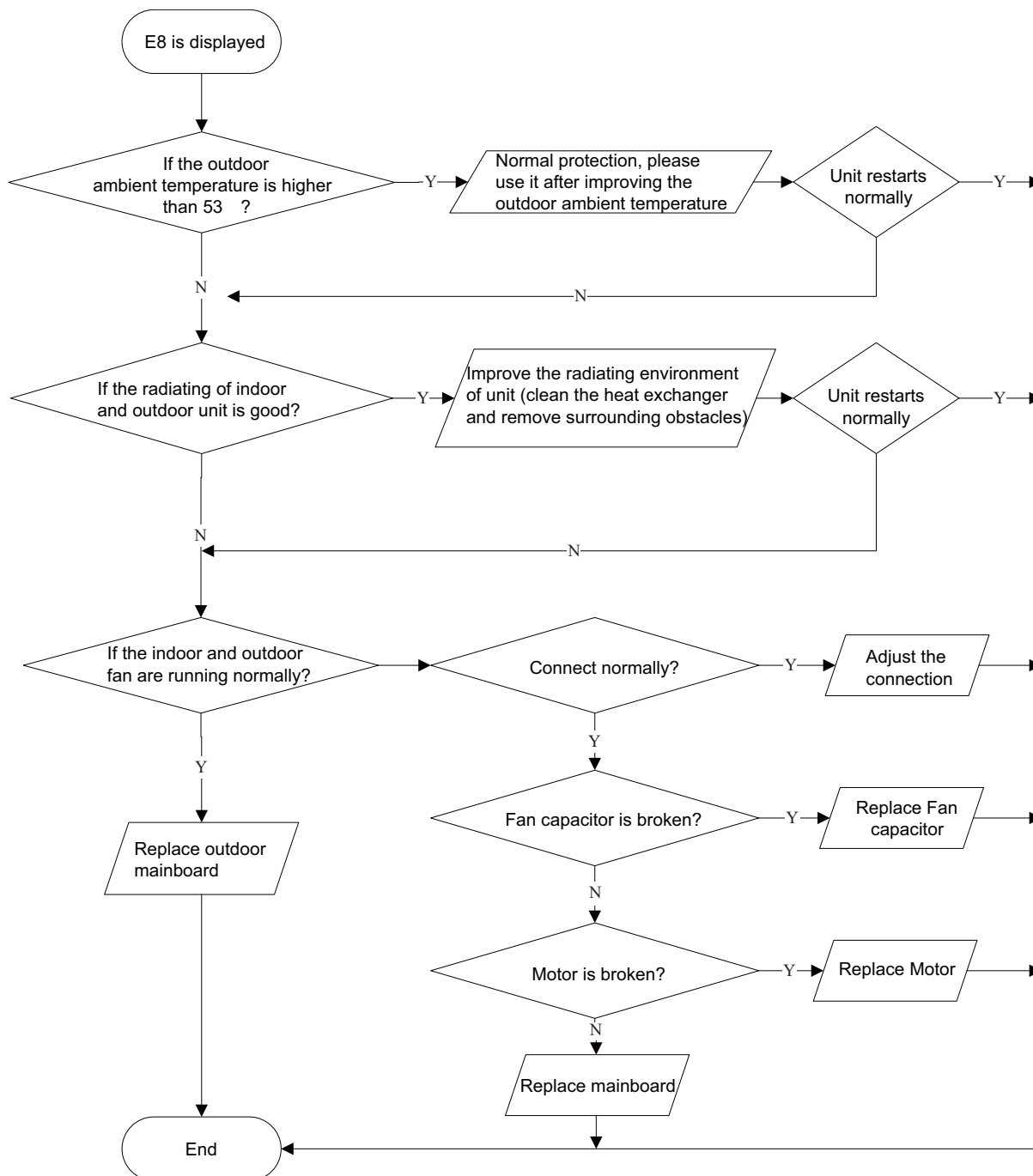
Malfunction diagnosis process:



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

Main detection points:

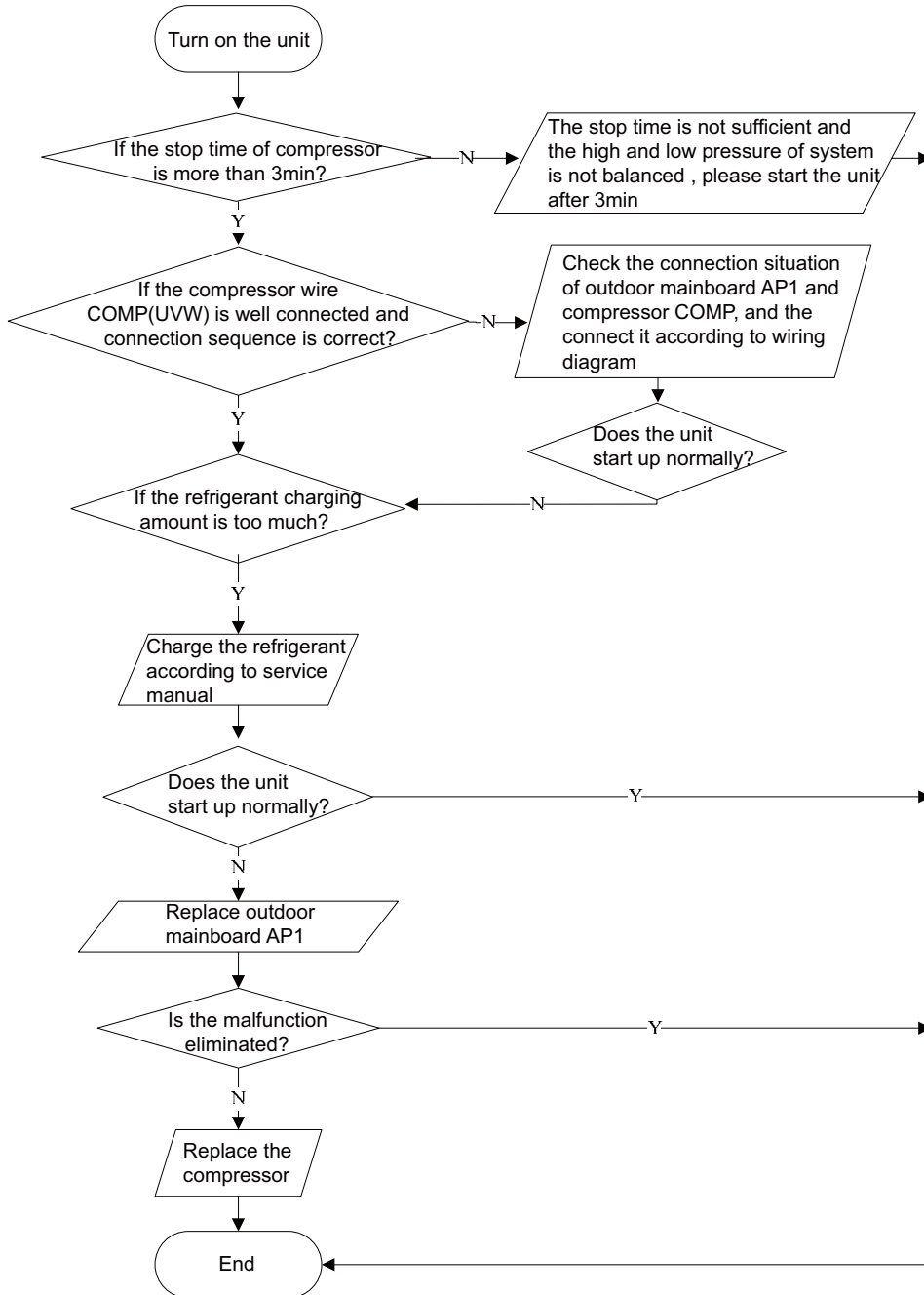
- If the outdoor ambient temperature is in normal range;
- If the indoor and outdoor fan are running normally;
- If the radiating environment of indoor and outdoor unit is good.



8.Start-up failure (LC) (AP1 below means control board of outdoor unit)

Main detection points:

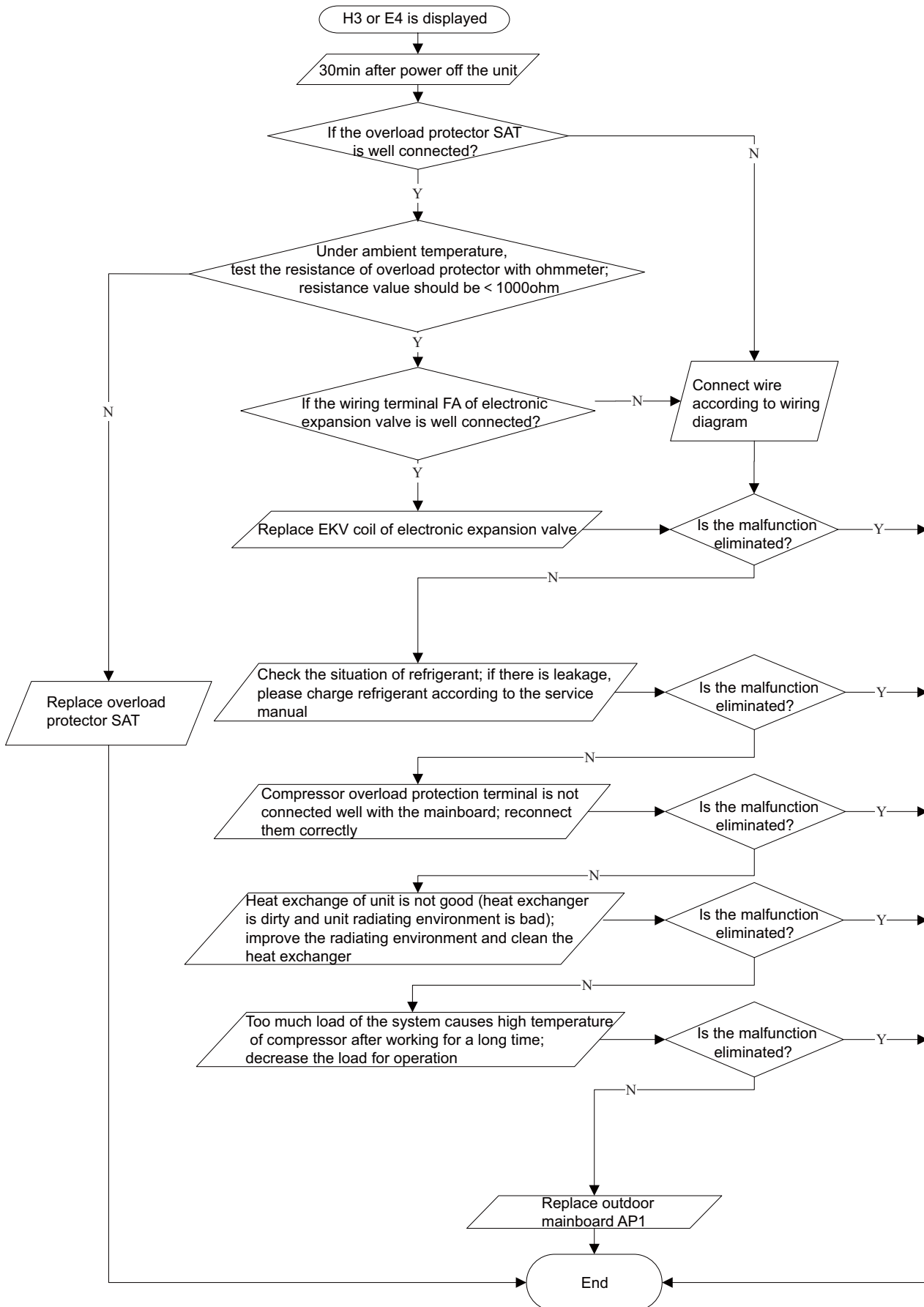
- If the compressor wiring is correct?
- If the stop time of compressor is sufficient?
- If the compressor is damaged?
- If the refrigerant charging amount is too much?



9. Overload and high discharge temperature malfunction

Main detection points:

- If the electronic expansion valve is connected well? Is the electronic expansion valve damaged?
- If the refrigerant is leaked?
- The compressor overload protection terminal is not connected well with the mainboard?
- If the overload protector is damaged?
- Heat exchange of unit is not good? (heat exchanger is dirty and unit radiating environment is bad)
- Too much load of the system causes high temperature of compressor after working for a long time?
- Malfunction of discharge temperature sensor?

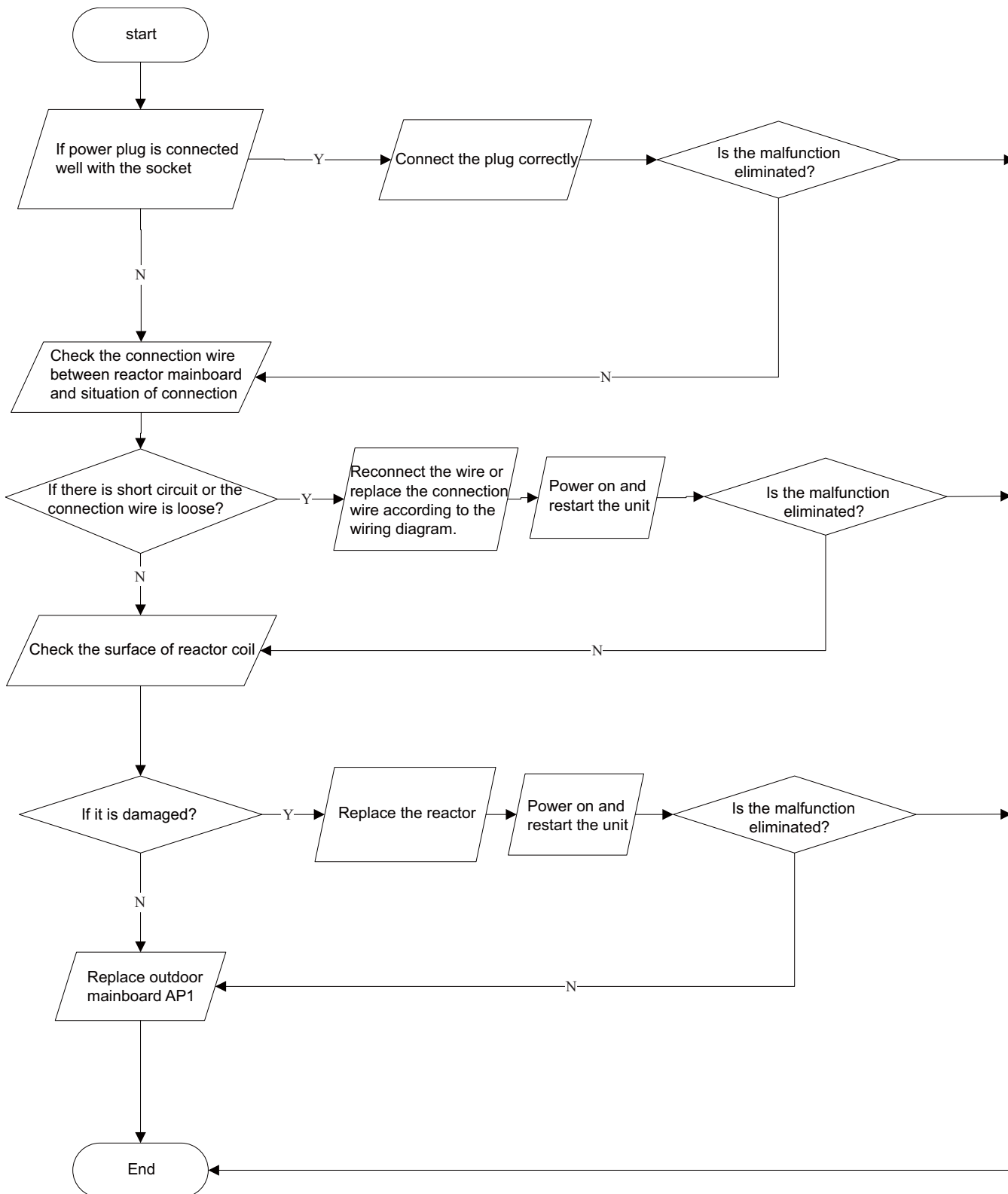


10.PFC (correction for power factor) malfunction (outdoor unit malfunction)

Main detection points:

- Check if power plug is connected well with the socket
- Check if the reactor of outdoor unit is damaged?

Malfunction diagnosis process:

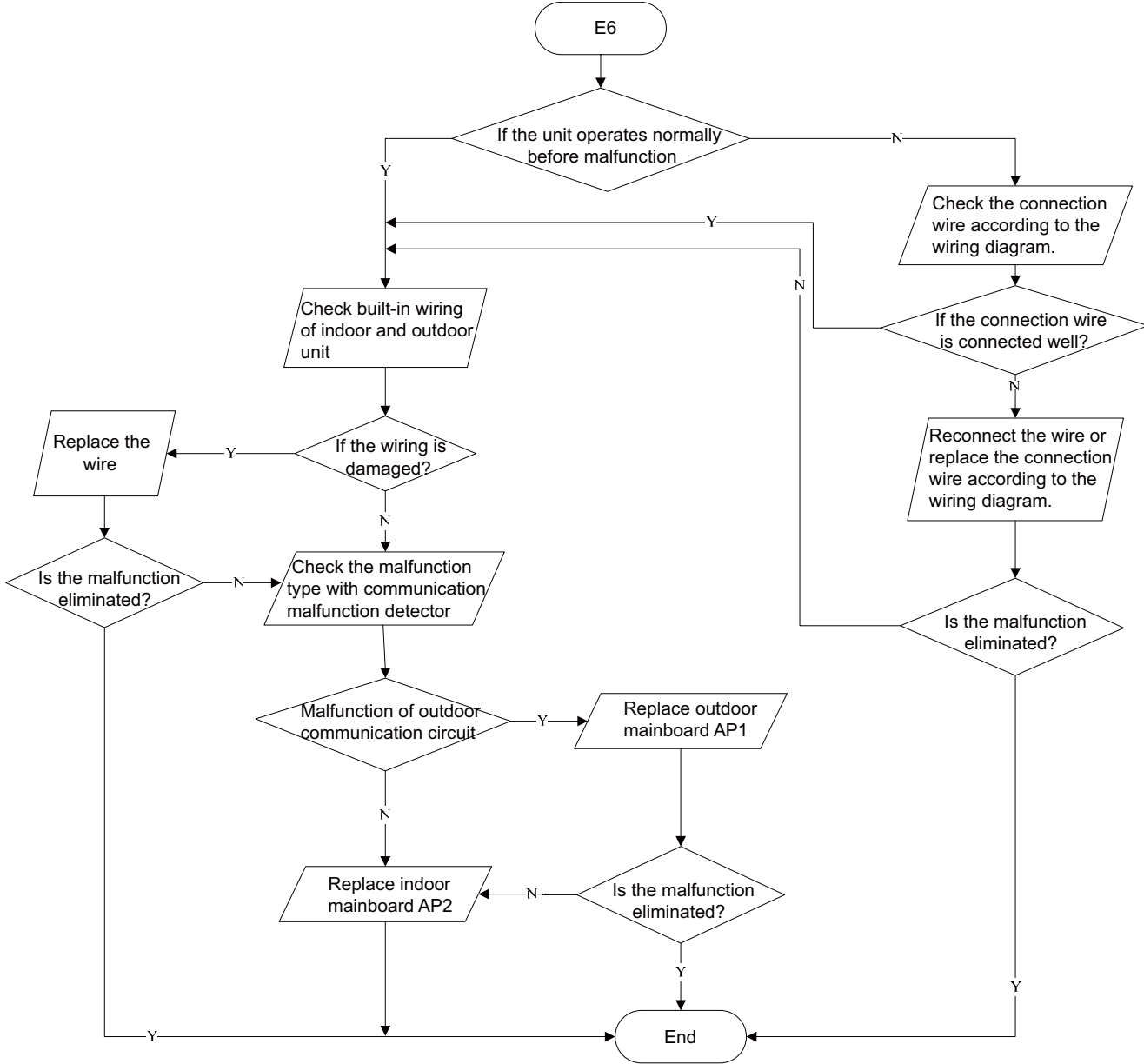


11. Communication malfunction (E6)

Main detection points:

- Check if the connection wire and the built-in wiring of indoor and outdoor unit are connected well and without damage;
- If the communication circuit of indoor mainboard is damaged? If the communication circuit of outdoor mainboard (AP1) is damaged?

Malfunction diagnosis process:



9.4 Troubleshooting for Normal Malfunction

1. Air Conditioner Can't be Started Up

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

2. Poor Cooling (Heating) for Air Conditioner

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

3. Horizontal Louver Can't Swing

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

4. ODU fan Motor Can't Operate

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

5. Compressor Can't Operate

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

6. Air Conditioner is Leaking

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

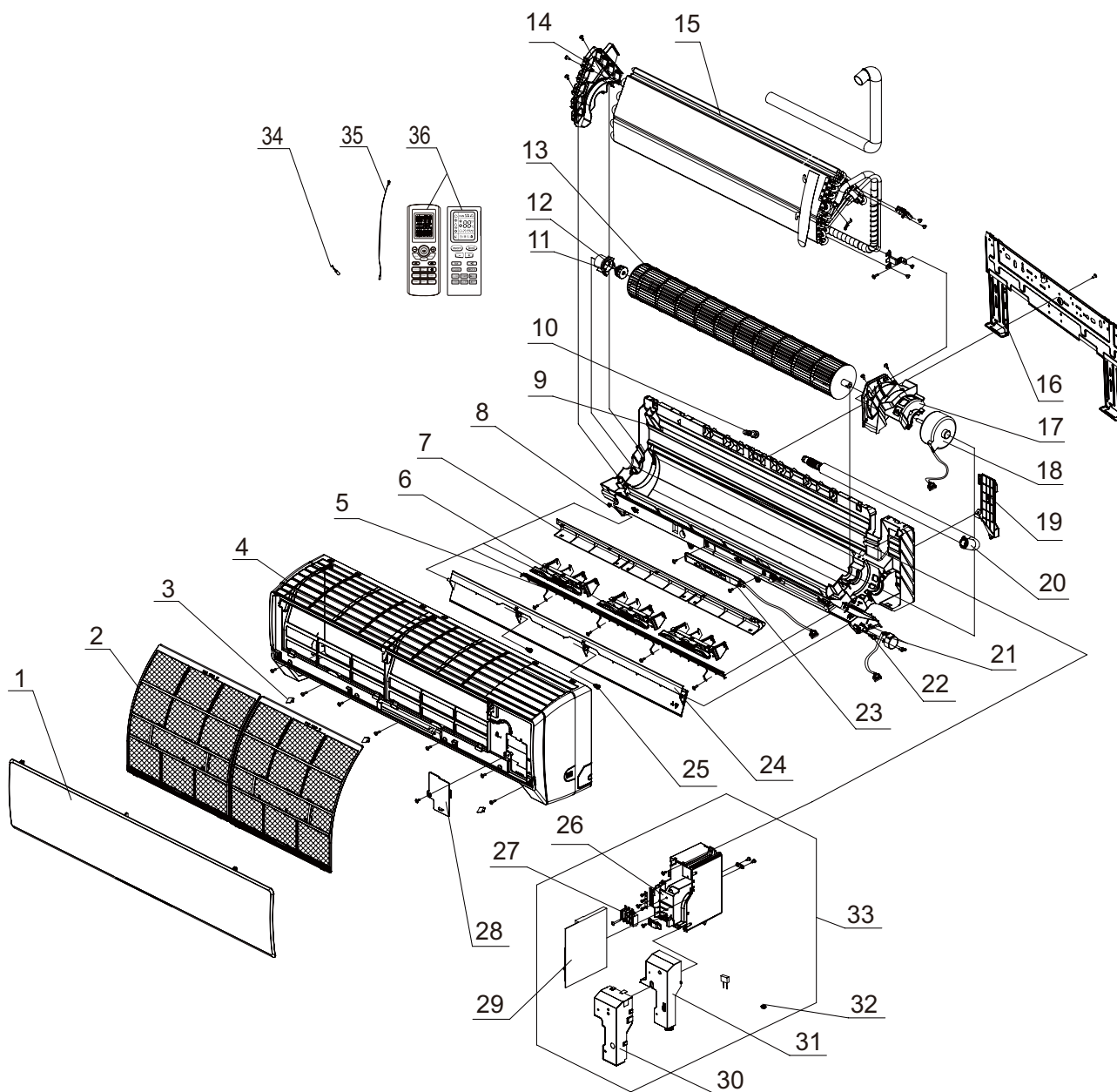
7. Abnormal Sound and Vibration

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

10. Exploded View and Parts List

10.1 Indoor Unit

IAC24MD-D3DNA3D/I IAH24MD-D3DNA3D/I



NO.	Description	Part Code		Qty
		IAC24MD-D3DNA3D/I		
	Part Number	700480		
1	Front Panel Assy	20012328		1
2	Filter Sub-Assy	11122091		2
3	Screw Cover	24252016		3
4	Front Case Assy	2001232901		1
5	Air Louver	10512141		1
6	Helicoid tongue	26112187		3
7	Left Axile Bush	10512037		1
8	Rear Case Assy	2220211701		1
9	Rubber Plug(Water Tray)	76712012		1
10	Ringof Bearing	26152025		1
11	O-Gasket sub-assy of Bearing	7651205102		1
12	Cross Flow Fan	10352030		1
13	Evaporator Support	24212103		1
14	Evaporator Assy	0100257204		1
15	Wall Mounting Frame	01252032		1
16	Motor Press Plate	26112316		1
17	Fan Motor	15012136		1
18	Connecting pipe clamp	26112188		1
19	Drainage hose	0523001401		1
20	Stepping Motor	1521300101		1
21	Crank	10582070		1
22	Display Board	30565038		1
23	Mesh Enclosure (Air Outlet)	01472016		1
24	Guide Louver	10512118		1
25	Axile Bush	10542036		2
26	Electric Box	2011210802		1
27	Terminal Board	42011233		1
28	Electric Box Cover2	2011208103		1
29	Main Board	30148235		1
30	Shield cover of ElectricBox	01592092		1
31	Electric Box Cover1	20122154		1
32	Jumper	4202300108		1
33	Electric Box Assy	20302426		1
34	Temperature Sensor	390000598		1
35	Temperature Sensor	390000451		1
36	Remote Controller	305100482		1

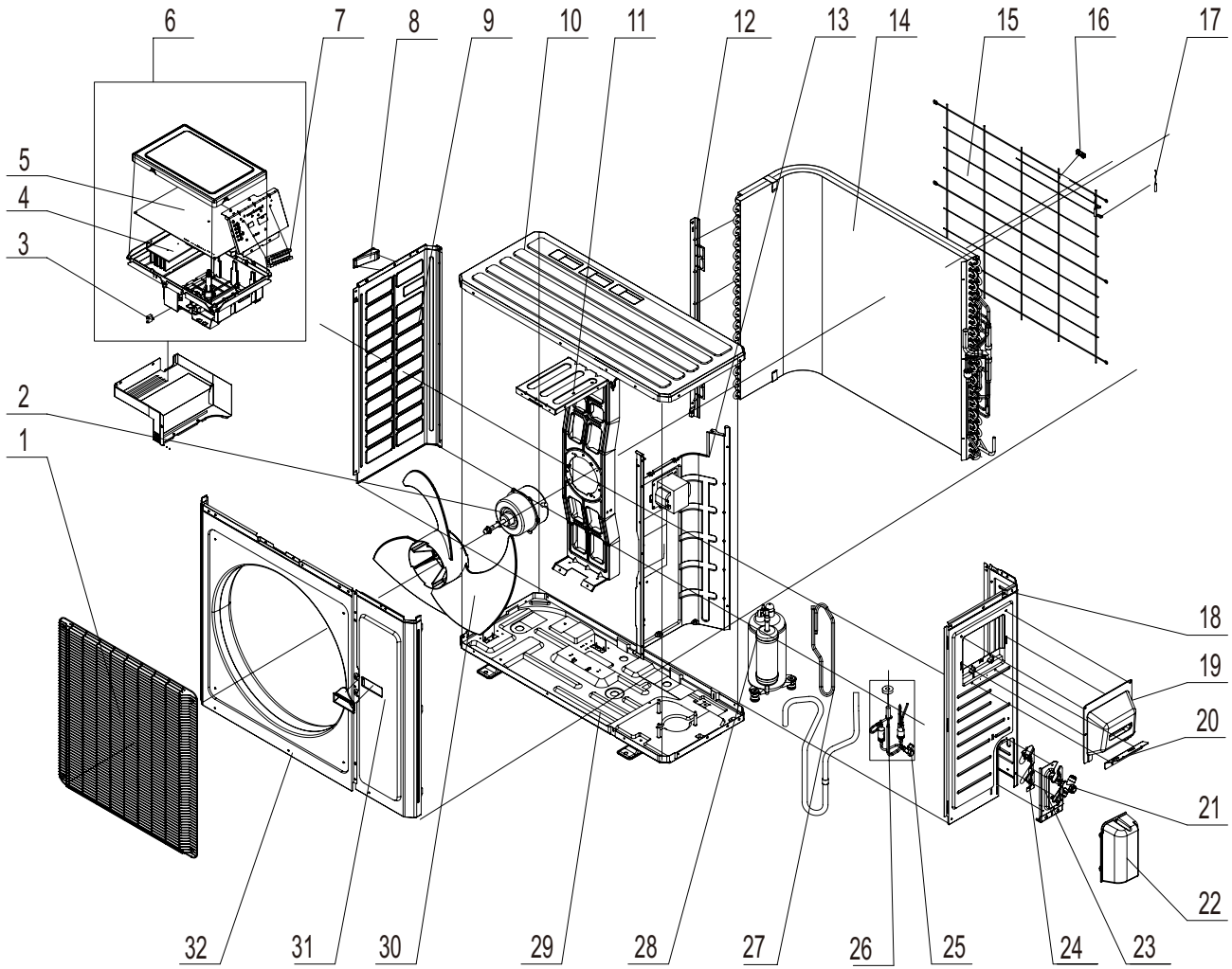
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NO.	Description	Part Code		Qty
		IAH24MD-D3DNA3D/I		
	Part Number	700476		
1	Front Panel Assy	20012328		1
2	Filter Sub-Assy	11122091		2
3	Screw Cover	24252016		3
4	Front Case Assy	2001232901		1
5	Air Louver	10512141		1
6	Helicoid tongue	26112187		3
7	Left Axile Bush	10512037		1
8	Rear Case Assy	2220211701		1
9	Rubber Plug(Water Tray)	76712012		1
10	Ringof Bearing	26152025		1
11	O-Gasket sub-assy of Bearing	7651205102		1
12	Cross Flow Fan	10352030		1
13	Evaporator Support	24212103		1
14	Evaporator Assy	0100257204		1
15	Wall Mounting Frame	01252032		1
16	Motor Press Plate	26112316		1
17	Fan Motor	15012136		1
18	Connecting pipe clamp	26112188		1
19	Drainage hose	0523001401		1
20	Stepping Motor	1521300101		1
21	Crank	10582070		1
22	Display Board	30565038		1
23	Mesh Enclosure (Air Outlet)	01472016		1
24	Guide Louver	10512118		1
25	Axile Bush	10542036		2
26	Electric Box	2011210802		1
27	Terminal Board	42011233		1
28	Electric Box Cover2	2011208103		1
29	Main Board	30148236		1
30	Shield cover of ElectricBox	01592092		1
31	Electric Box Cover1	20122154		1
32	Jumper	4202300108		1
33	Electric Box Assy	20302425		1
34	Temperature Sensor	390000598		1
35	Temperature Sensor	390000451		1
36	Remote Controller	305100482		1

Above data is subject to change without notice.

10.2 Outdoor Unit

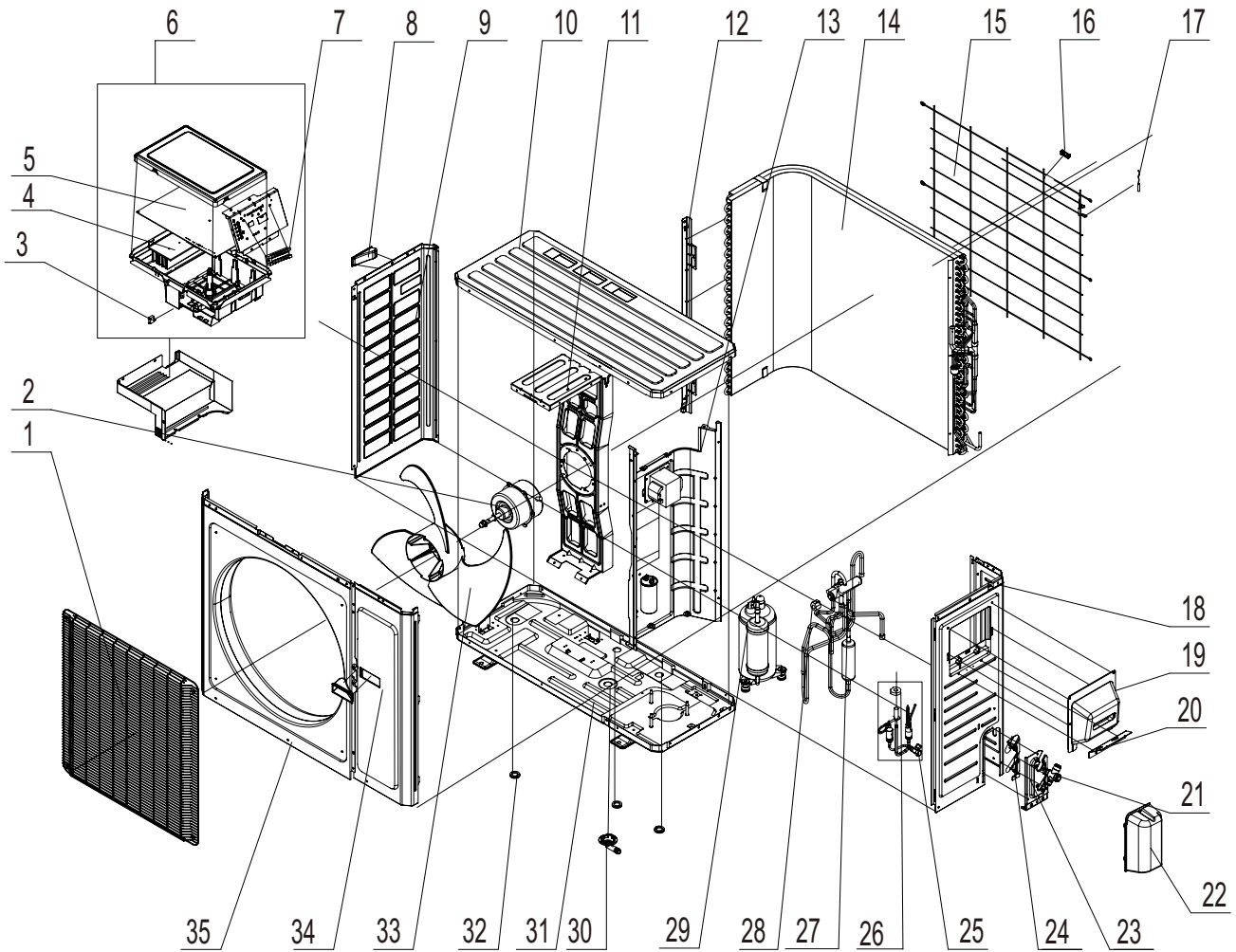
IAC24MD-D3DNA3D/O



NO.	Description	Part Code	Qty
		IAC24MD-D3DNA3D	
	Part Number	700480	
1	Front Grill	01473050	1
2	Fan Motor	1501403402	1
3	Capacitor CBB61	33010011	1
4	Radiator	49010252	1
5	Main Board	30138000152	1
6	Electric Box Assy	01403000056	1
7	Terminal Board	42010255	1
8	Left Handle	26235401	2
9	Left Side Plate	01305043P	1
10	Top Cover	01255006P	1
11	Motor Support Sub-Assy	01705025	1
12	Condenser Support Plate	01175092	1
13	Clapboard Assy	01233154	1
14	Condenser Assy	01103000203	1
15	Rear Grill	01475013	1
16	Wiring Clamp	26115004	1
17	Temperature Sensor	39000072	1
18	Right Side Plate	0130504402P	1
19	Handle assy	02113109	1
20	Retaining Plate	02115006P	1
21	Cut off Valve	07133157	1
22	Valve Cover	22245003	1
23	Valve Support Sub-Assy	0171501201P	1
24	Baffle(Valve Support)	01365435P	1
25	Cut off Valve	07133157	1
26	Electric Expand Valve Fitting	4300876705	1
27	Discharge Tube Sub-assy	03833877	1
28	Compressor and Fittings	00103873	1
29	Chassis Sub-assy	02803080P	1
30	Axial Flow Fan	10335014	1
31	Front Side Plate	01303249P	1
32	Cabinet	0143500401P	1

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IAH24MD-D3DNA3D



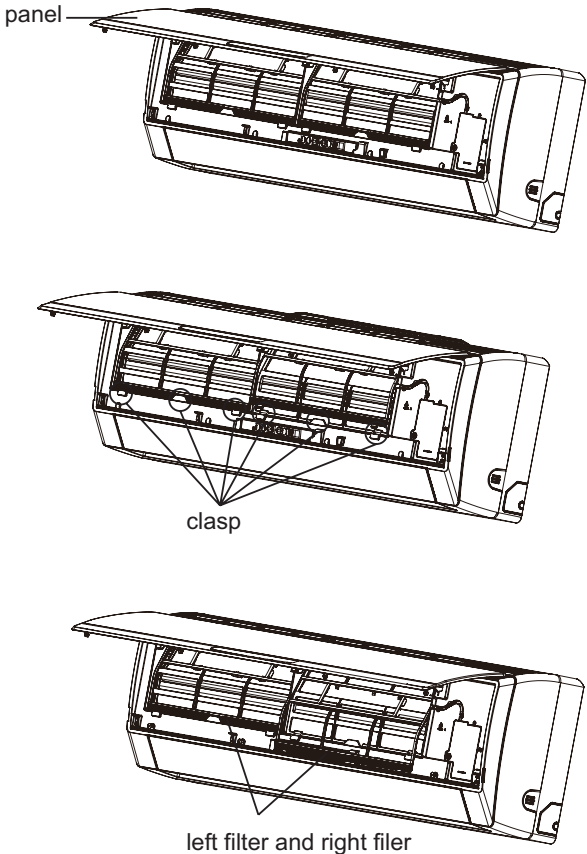
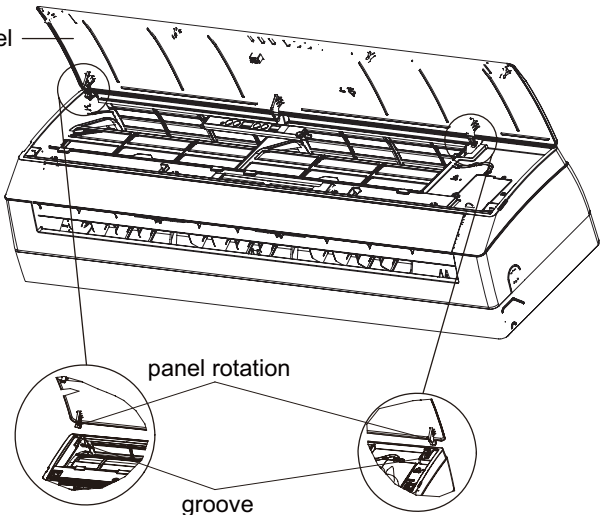
NO.	Description	Part Code			Qty
		IAH24MD-D3DNA3D			
		Part Number			
1	Front Grill	01473050			1
2	Fan Motor	1501403402			1
3	Capacitor CBB61	33010011			1
4	Radiator	4901302801			1
5	Main Board	30138000153			1
6	Electric Box Assy	01403000086			1
7	Terminal Board	42010255			1
8	Left Handle	26233053			2
9	Left Side Plate	01305043P			1
10	Top Cover	01255006P			1
11	Motor Support Sub-Assy	01705025			1
12	Condenser Support Plate	01175092			1
13	Clapboard Assy	01233154			1
14	Condenser Assy	01163427			1
15	Rear Grill	01475013			1
16	Wiring Clamp	26115004			1
17	Temperature Sensor	39000072			1
18	Right Side Plate	0130504402P			1
19	Handle assy	02113109			1
20	Retaining Plate	02115006P			1
21	Cut off Valve	07133157			1
22	Valve Cover	22245003			1
23	Valve Support Sub-Assy	01715020P			1
24	Baffle(Valve Support)	01365435P			1
25	Cut off Valve Sub-Assy	07135072			1
26	Electric Expand Valve Fitting	4300876705			1
27	4-Way Valve Assy	03123863			1
28	Magnet Coil	4300040045			1
29	Compressor and Fittings	00103873			1
30	Drainage Connector	06123401			1
31	Chassis Sub-assy	02803080P			1
32	Drainage Plug	06813401			3
33	Axial Flow Fan	10335005			1
34	Front Side Plate	01305086P			1
35	Cabinet	0143500401P			1

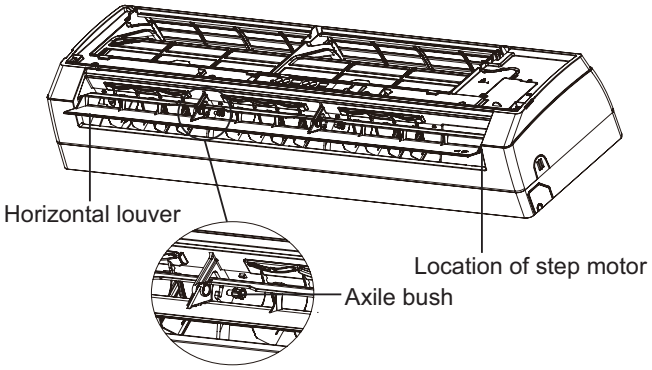
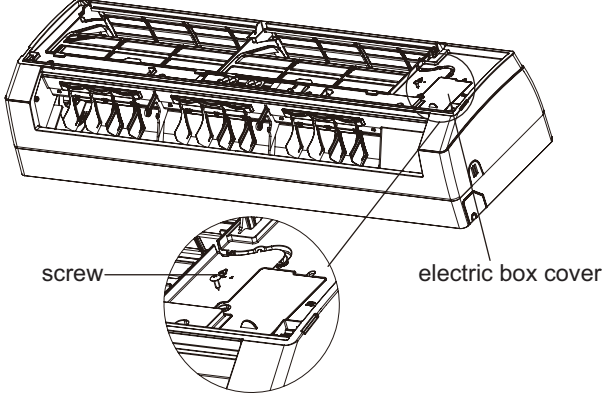
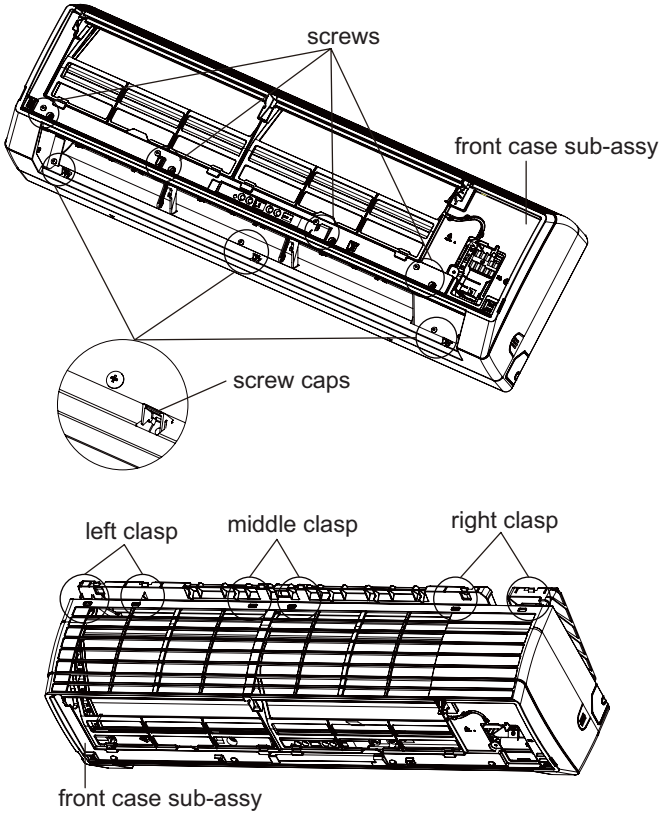
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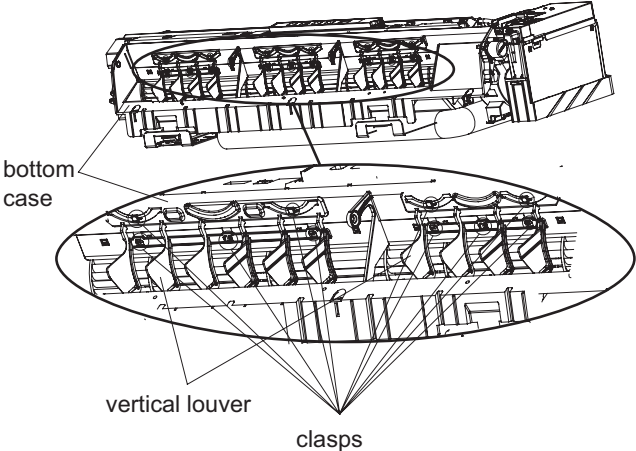
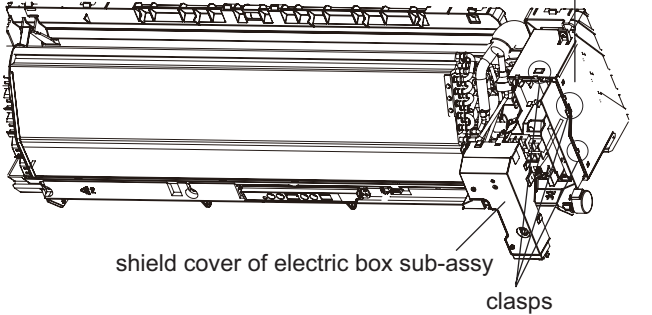
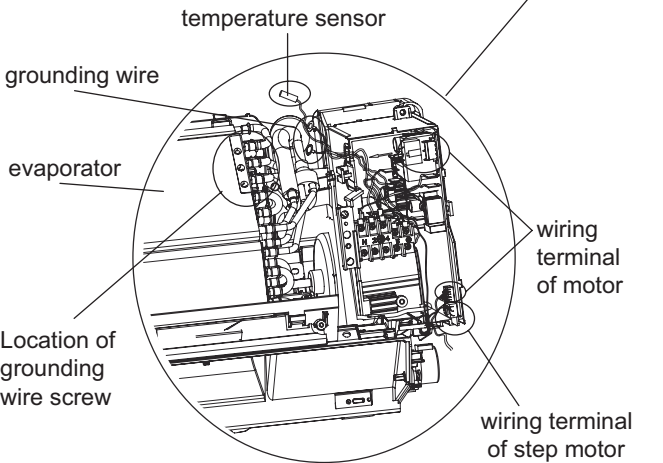
11. Removal Procedure

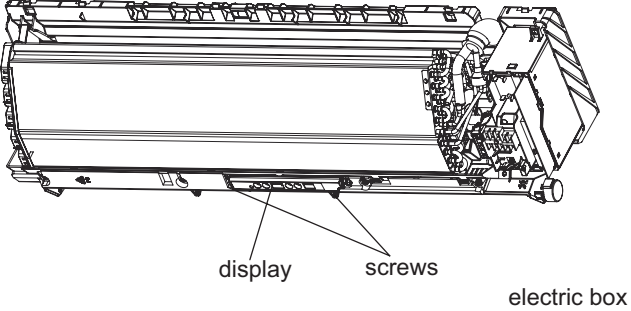
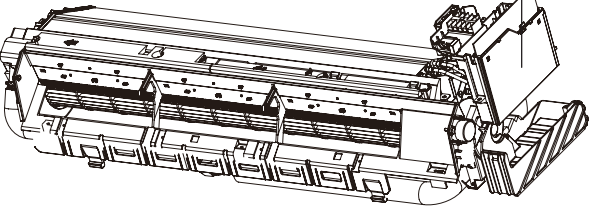
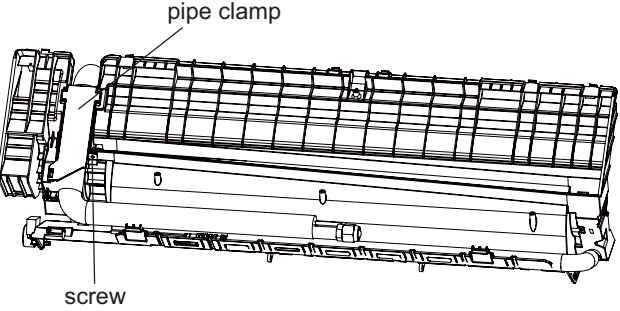
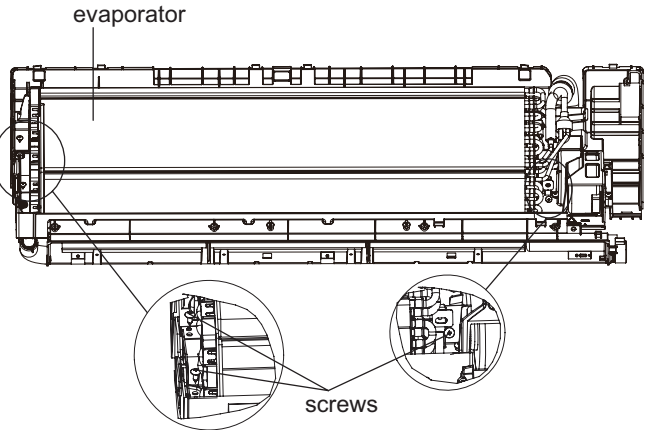
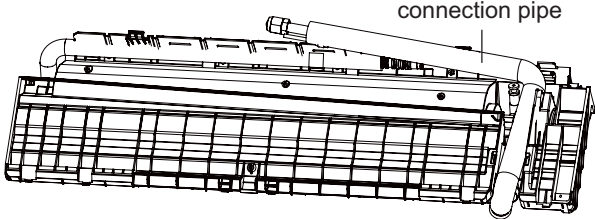
 **Caution: discharge the refrigerant completely before removal.**

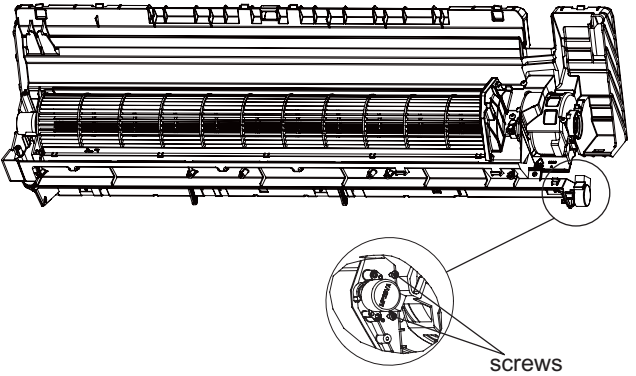
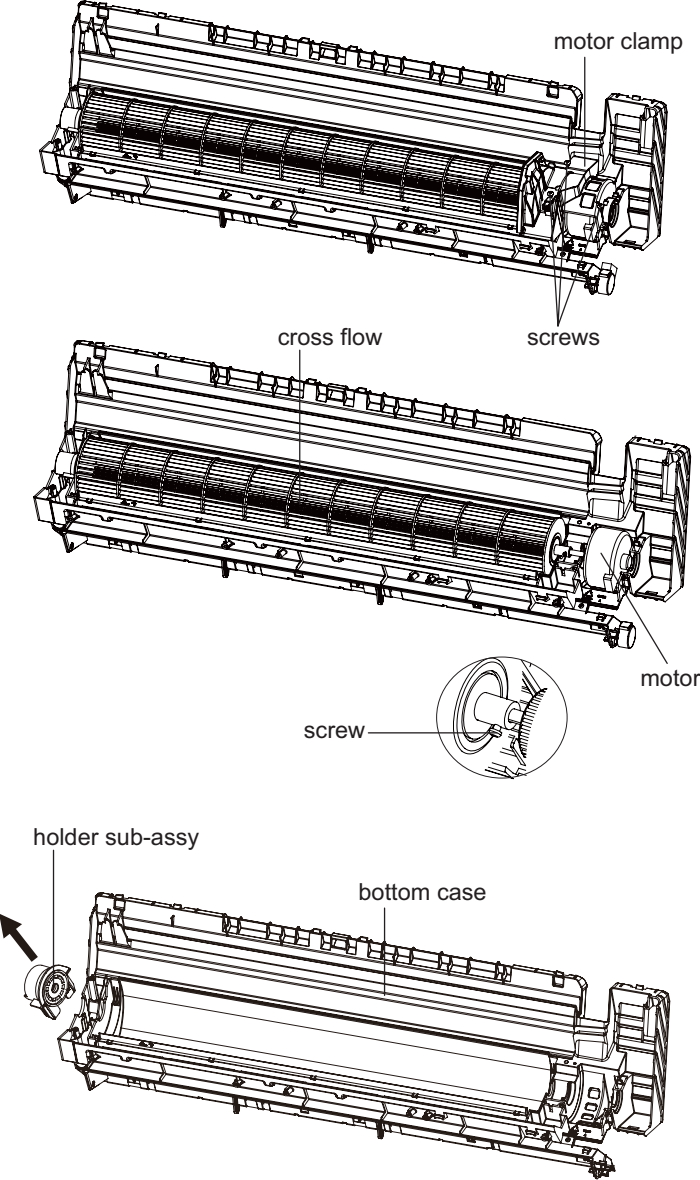
11.1 Removal Procedure of Indoor Unit

Steps	Procedure	Procedure
<p>1. Remove filter</p> <p>a</p> <p>b</p>	<p>Open the panel.</p> <p>Loosen the clasp shown in the fig and then pull the left filter and right filter outwards to remove them.</p>	 <p>panel</p> <p>clasp</p> <p>left filter and right filter</p>
<p>2. Remove panel</p>	<p>Open the front panel; separate the panel rotation shaft from the groove fixing the front panel and then removes the front panel.</p> <p>Note: The display of some models is fixed on the panel; unscrew the screws fixing the display on the panel before removing the panel.</p>	 <p>panel</p> <p>panel rotation</p> <p>groove</p>

Steps	Procedure
<p>3. Remove horizontal louver</p>	<p>Push out the axle bush on horizontal louver. Bend the horizontal louver with hand and then separate the horizontal louver from the crankshaft of step motor to remove it.</p>  <p>Horizontal louver</p> <p>Location of step motor</p> <p>Axile bush</p>
<p>4. Remove electric box cover</p>	<p>Remove the screws on the electric box cover to remove the electric box cover.</p>  <p>screw</p> <p>electric box cover</p>
<p>5. Remove front case sub-assy</p> <p>a</p> <p>Remove the screws fixing front case.</p> <p>Note: 1. Open the screw caps before removing the screws around the air outlet. 2. The quantity of screws fixing the front case sub-assy is different for different models.</p> <p>b</p> <p>Loosen the clasps at left, middle and right sides of front case. Lift the front case sub-assy upwards to remove it.</p>	 <p>screws</p> <p>front case sub-assy</p> <p>screw caps</p> <p>left clasp</p> <p>middle clasp</p> <p>right clasp</p> <p>front case sub-assy</p>

Steps	Procedure
6. Remove vertical louver	
7. Remove electric box assy	<p data-bbox="1326 779 1449 808">electric box</p> <p data-bbox="132 931 153 960">a</p> <p data-bbox="236 931 727 1055">Loosen the connection clasps between shield cover of electric box sub-assy and electric box, and then remove the shield cover of electric box sub-assy.</p>  <p data-bbox="132 1312 153 1341">b</p> <p data-bbox="236 1312 738 1559">Cut off the tieline which binding the temperature sensor and grounding wire on the evaporator, and then pull out the indoor tube temperature sensor from the evaporator. Remove the screws at the connection place between grounding wire and evaporator. Pull out the wiring terminal of motor and wiring terminal of step motor from the mainboard.</p> <p data-bbox="236 1592 738 1805">Note: 1. Location of tube temperature sensor and tieline on the evaporator is different for different models. 2. When pulling out the wiring terminal, pay attention to loose the clasp and don't pull it so hard.</p> 

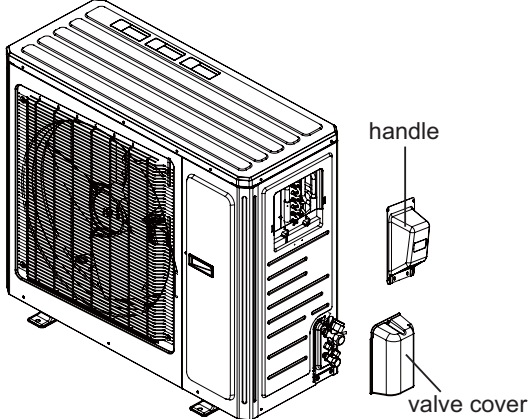
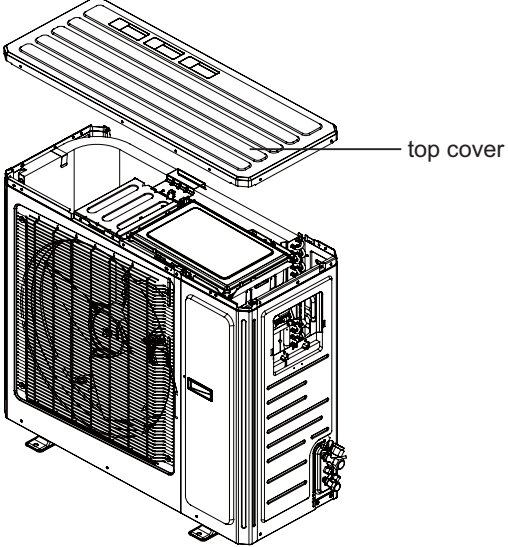
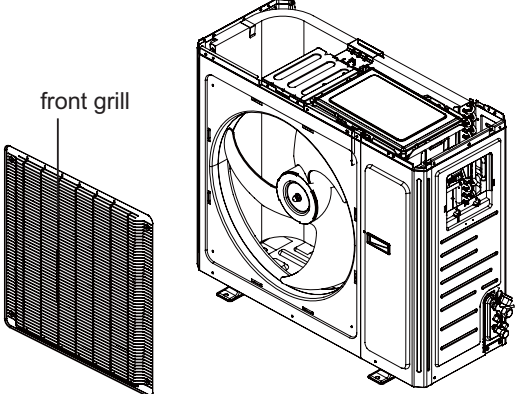
Steps	Procedure	Procedure
<p>c</p> <p>Remove two screws fixing display.</p> <p>Note: The display of some models is fixed on the panel; unscrew the screws fixing the display on the panel before removing the panel.</p>		 
<p>8. Remove evaporator assy</p>		
<p>a</p> <p>At the back of the unit, remove the screw fixing connection pipe clamp and then remove the connection pipe clamp.</p> <p>b</p> <p>Remove 3 screws fixing evaporator assy.</p> <p>c</p> <p>Adjust the position of connection pipe on evaporator slightly and then lift the evaporator upwards to remove it.</p>		  

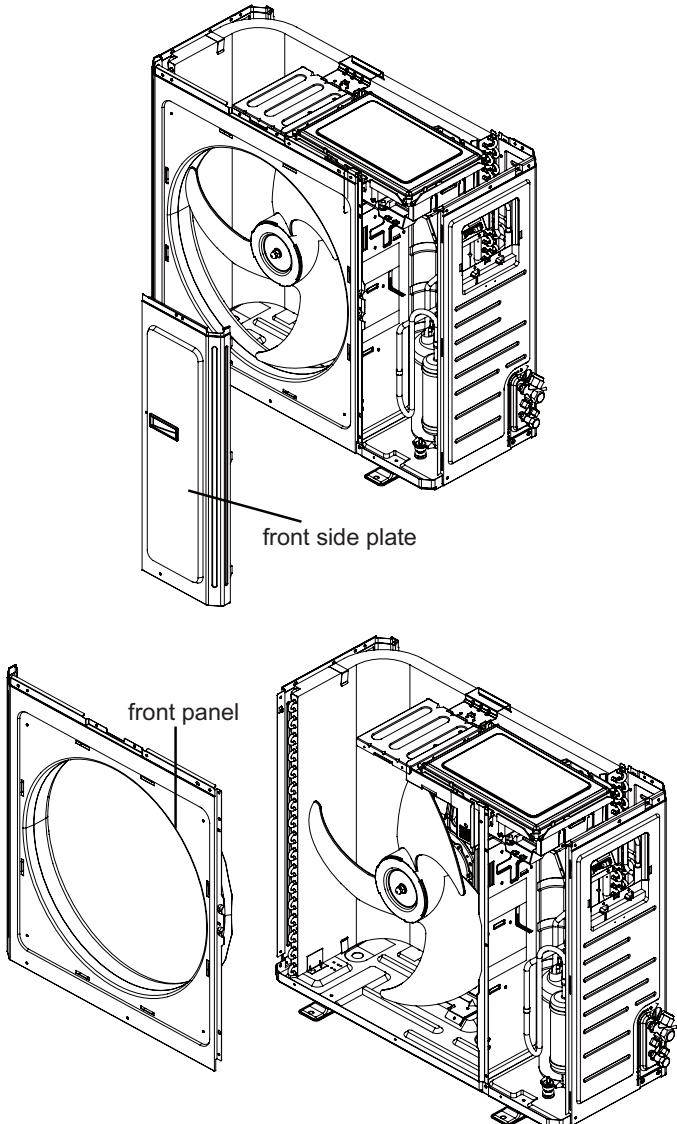
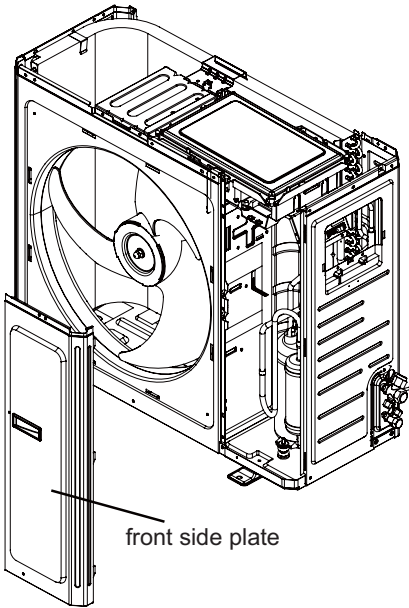
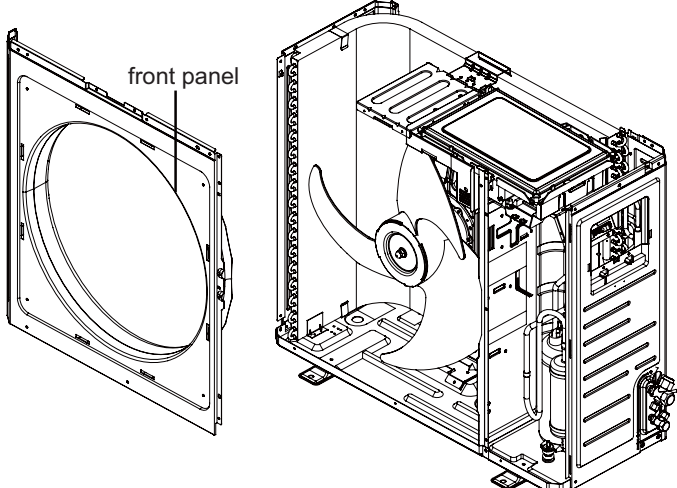
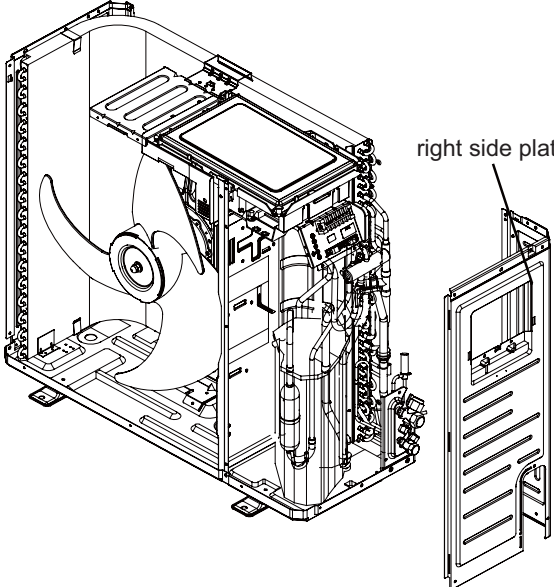
Steps	Procedure
<p>9. Remove stepping motor</p>	 <p>Remove the screw fixing step motor and then remove the step motor.</p>
<p>10. Remove motor and cross flow blade</p> <p>a</p> <p>b</p> <p>c</p>	 <p>Remove the screws fixing motor clamp and then remove the motor clamp.</p> <p>Remove the screws at the connection place of cross flow blade and motor; lift the motor and cross flow blade upwards to remove them.</p> <p>Remove the bearing holder sub-assy.</p>

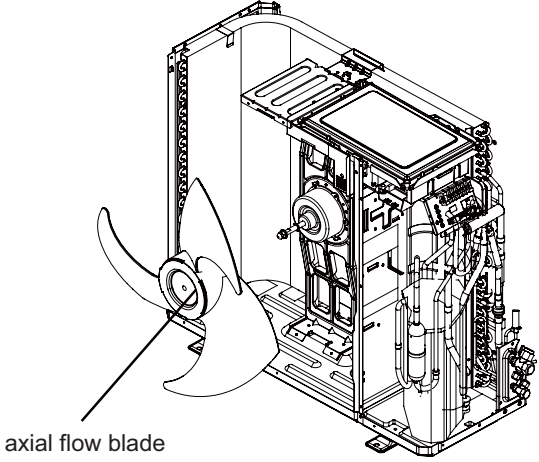
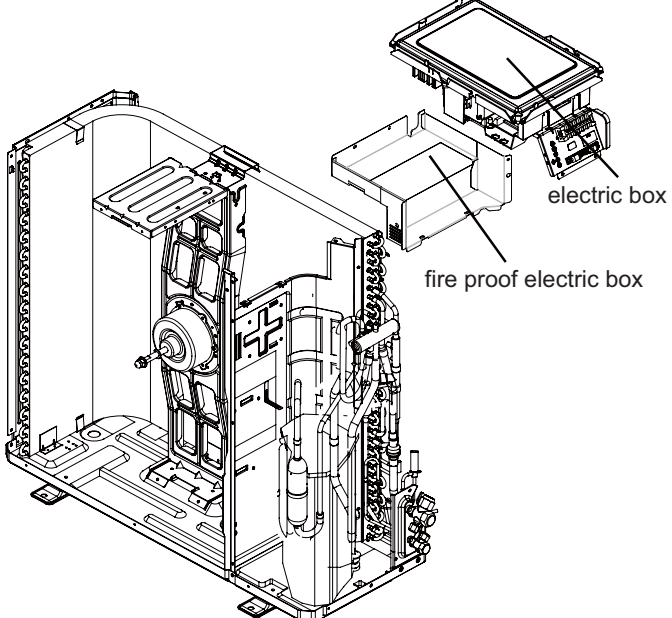
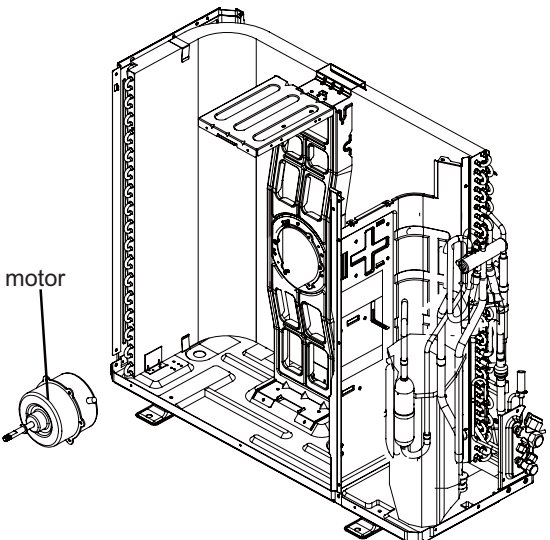
11.2 Removal Procedure of Outdoor Unit

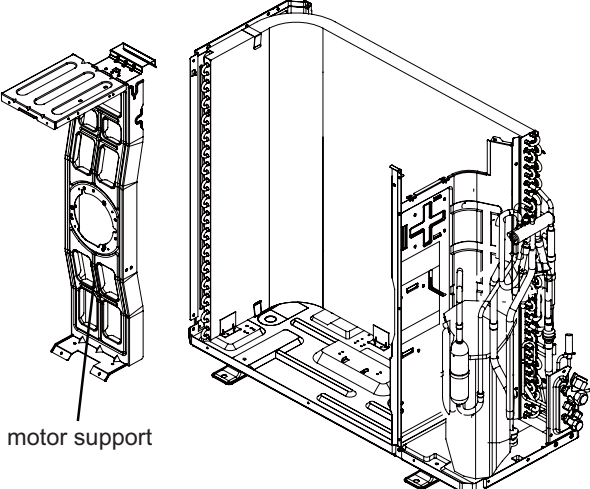
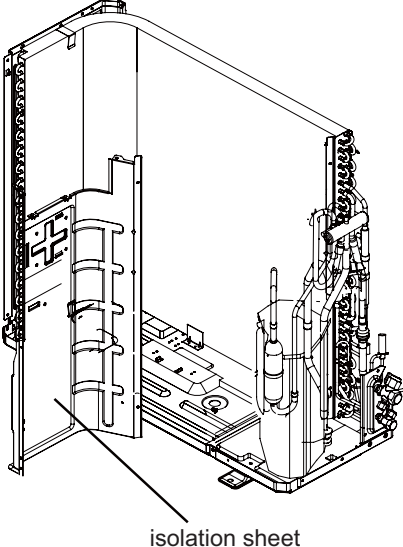
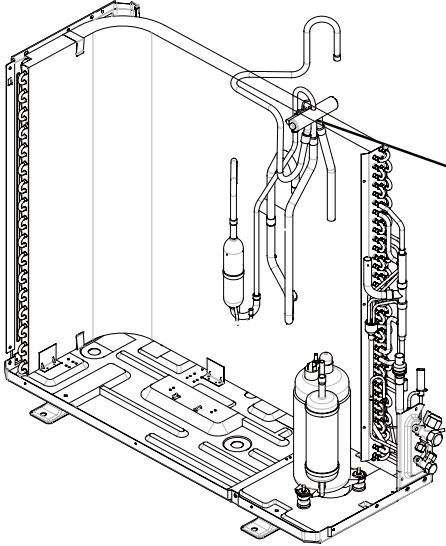
⚠ Warning: Be sure to wait for a minimum of 20 minutes after turning off all power supplies and discharge the refrigerant completely before removal.

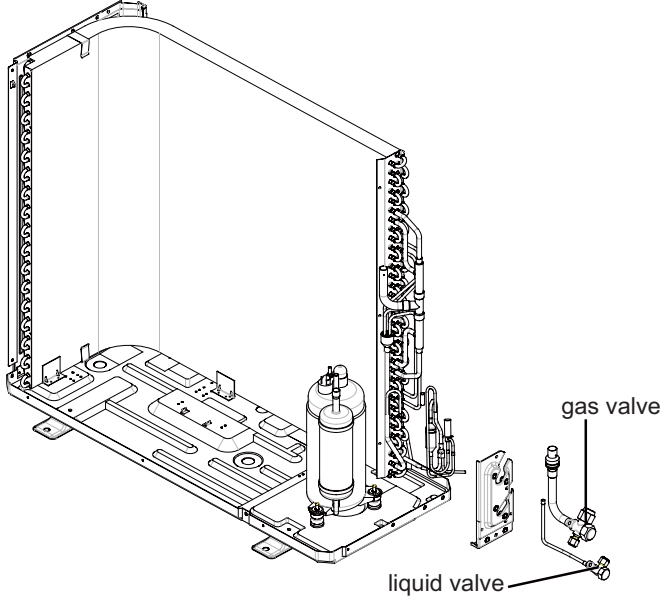
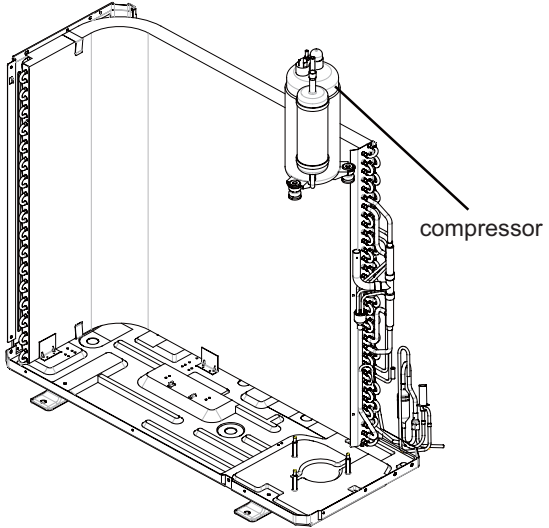
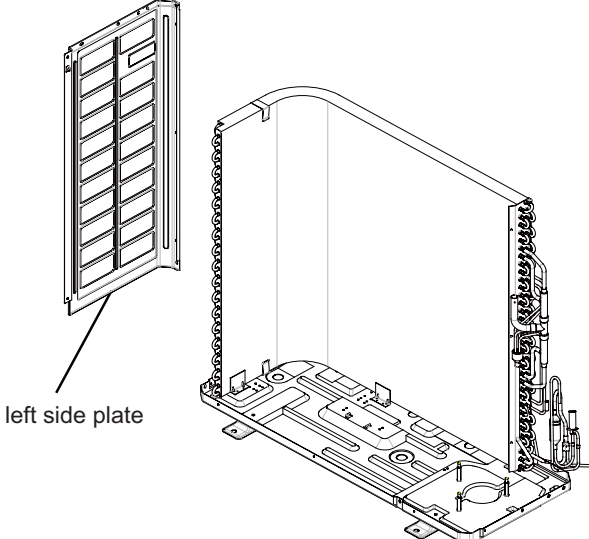
NOTE: Take heat model for example.

Steps	Procedure	Image
1.Remove handle and valve cover	Twist off the screws used for fixing the handle, pull the handle upward to remove it.Looseen the screws fixing the valve cover and then remove it.	
2.Remove top cover	Remove connection screws connecting the top cover plate with the front panel and the right side plate,and then remove the top cover.	
3.Remove front grill	Remove the screws connecting the front grill and the front panel. Remove the front grill.	

Steps	Procedure	
4.Remove front side plate and front panel		 <p>The diagram illustrates the process of removing the front side plate and front panel. It shows three stages: 1) The front side plate is shown being detached from the main chassis. 2) The front panel is shown being detached from the chassis and motor support. 3) The front panel is shown fully removed, leaving the internal components exposed.</p>
1	Remove screws connecting front side plate, outer case and chassis,and then remove the front side plate.	 <p>front side plate</p>
2	Remove screws fixing front panel,chassis and motor support, and then remove the front panel.	 <p>front panel</p>
5.Remove right side plate		
	Remove screws connecting right side plate and chassis, valve support and condenser, and then remove the right side plate.	 <p>right side plate</p>

Steps	Procedure
6.Remove axial flow blade	<p data-bbox="197 495 743 551">Remove nut on blade with wrench,and then remove the axial flow blade.</p>  <p data-bbox="842 719 1007 745">axial flow blade</p>
7.Remove electric box and fireproof electric box	<p data-bbox="197 1032 759 1173">Remove screws fixing electric box,cut off the tielen with scissors, pull out the wiring terminal and then lift up the electric box to remove it. Twist off the screws on fireproof electric box and then remove the fireproof electric box.</p>  <p data-bbox="1358 999 1485 1025">electric box</p> <p data-bbox="1230 1077 1461 1104">fire proof electric box</p>
8.Remove motor and motor support	<p data-bbox="129 1637 759 1715">1 Twist off the tapping screws fixingthe motor, pull out the pin of leading wire for motor and then remove the motor.</p>  <p data-bbox="831 1738 895 1765">motor</p>

Steps	Procedure	
2	<p>Twist off the tapping screws fixing the motor support, pull it upwards and then remove the motor support.</p>	 <p>motor support</p>
9.Remove isolation sheet	<p>Twist off the screws connecting isolation sheet and end plate of condenser and chassis, and then remove the isolation sheet.</p>	 <p>isolation sheet</p>
10.Remove 4-way valve	<p>Unsolder the pipe line between compressor, condenser, gas and liquid valve, and then remove the 4-way valve. (note: release all refrigerant before unsoldering).</p>	 <p>4-way valve</p>

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

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
 - 16.40ft, 24.61ft, 26.25ft.
- Min. length of connection pipe is 9.84ft.
- Max. length of connection pipe and max. high difference.
- The additional refrigerant oil and refrigerant charging required after prolonging connection pipe
 - After the length of connection pipe is prolonged for 32.81ft at the basis of standard length, you should add 0.0013gal of refrigerant oil for each additional 16.40ft of connection pipe.
 - The calculation method of additional refrigerant charging amount (on the basis of liquid pipe):

Cooling capacity	Max length of connection pipe	Max height difference
5000 Btu/h(1465 W)	49.21ft	16.40ft
7000 Btu/h(2051 W)	49.21ft	16.40ft
9000 Btu/h(2637 W)	49.21ft	32.81ft
12000 Btu/h(3516 W)	65.62ft	32.81ft
18000 Btu/h(5274 W)	82.02ft	32.81ft
24000 Btu/h(7032 W)	82.02ft	32.81ft
28000 Btu/h(8204 W)	98.43ft	32.81ft
36000 Btu/h(10548 W)	98.43ft	65.62ft
42000 Btu/h(12306 W)	98.43ft	65.62ft
48000 Btu/h(14064 W)	98.43ft	65.62ft

- When the length of connection pipe is above 16.40ft, add refrigerant according to the prolonged length of liquid pipe. The additional refrigerant charging amount per meter is different according to the diameter of liquid pipe. See the following sheet.
- Additional refrigerant charging amount = prolonged length of liquid pipe X additional refrigerant charging amount per meter

Additional refrigerant charging amount for R22, R407C, R410A and R134a			
Diameter of connection pipe		Outdoor unit throttle	
Liquid pipe(inch)	Gas pipe(inch)	Cooling only(oz./ft.)	Cooling and heating(oz./ft.)
Φ0.24	Φ0.37 or Φ0.47	0.2	0.2
Φ0.24 or Φ0.37	Φ0.63 or Φ0.75	0.2	0.5
Φ0.47	Φ0.75 or Φ0.87	0.3	1.3
Φ0.63	Φ1 or Φ1.25	0.6	1.3
Φ0.75	/	2.7	2.7
Φ0.87	/	3.8	3.8



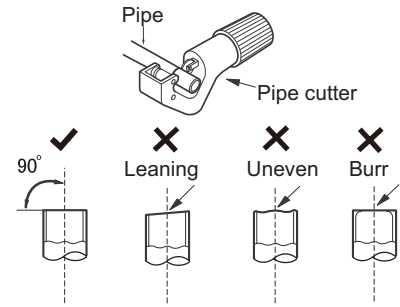
Appendix 3: Pipe Expanding Method

⚠ Note:

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

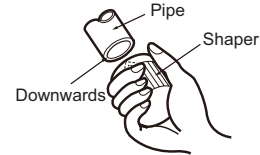
A: Cut the pipe

- 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

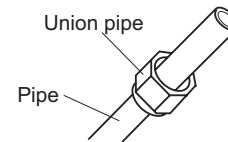
- Remove the burrs with shaper and prevent the burrs from getting into the pipe.



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.



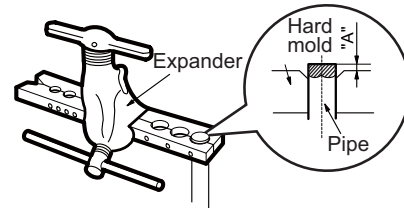
E: Expand the port

- Expand the port with expander.

⚠ Note:

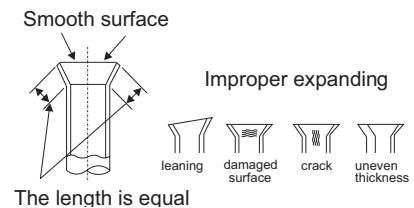
- "A" is different according to the diameter, please refer to the sheet below:

Outer diameter(inch)	A(inch)	
	Max	Min
Φ0.24 - 0.25 (1/4")	0.05	0.03
Φ0.37 (3/8")	0.06	0.04
Φ0.47 - 0.50 (1/2")	0.07	0.04
Φ0.63 - 0.625 (5/8")	0.09	0.09



F: Inspection

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



STOP

This product is precharged with refrigerant for a **25 feet** of line set.

If **MORE** than 25 feet of line set is required, refer to your Ideal-Air Service Manual for refrigerant charging chart.

For line sets between 25' & 10' in length, **REMOVE .65 oz** of R410A refrigerant per line feed.

According to manufacturer's specifications, under no circumstances should the line set be shorter than 10' in length.

If you need further assistance, please contact:
Ideal-Air Tech Support
 877-943-3251
 support@ideal-air.com

Appendix 4: List of Resistance for Ambient Temperature Sensor

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

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

Resistance Table of Ambient Temperature Sensor for Indoor and Outdoor Units(20K)

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

Resistance Table of Ambient Temperature Sensor for Indoor and Outdoor Units(50K)

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



IDEALair™

PRO SERIES

Limited Warranty Statement

Ideal Air™ Pro Series

APPLICABLE PRODUCTS:

Pro Series Mini Split Air Conditioners and Heat Pumps (Part #'s 700476, 700478, 700480, 700482)

WARRANTY: Ideal Air & Sunlight Supply, Inc. warrants to the original owner of this product, should it prove defective by reason of improper workmanship and/or material, that the defective parts are warranted for a period of ONE YEAR. This warranty is not transferrable.

DIRECTIONS FOR WARRANTY CLAIMS: The following specific steps must be followed to qualify for warranty claim:

1. DO NOT return the product to the reseller from where it was purchased. Instead, please contact Ideal Air Support at (877) 9-IDEAL-1 or support@Ideal-Air.com. Ideal Air Technical Support will provide troubleshooting assistance to help identify any failed parts, and determine if the item qualifies under the terms and conditions below.
2. If a product is authorized for warranty by Ideal Air, the owner may choose from one of three options below:
 - a. Ideal Air will provide a new or refurbished part and provide phone technical support to help the owner make the repair themselves;
 - b. For difficult repairs, Ideal Air will pay (up to \$300 per repair) for a qualified professional repair technician to perform a repair and provide the warranted replacement part;
 - c. The owner can request to have Ideal Air Technicians perform the repair, provided the owner pays the shipping costs to deliver the product to the Ideal Air repair location. Ideal Air will make needed repairs and pay for shipment of the product back to the owner.

TERMS AND CONDITIONS:

- A. **REPLACEMENT PARTS.** Ideal Air & Sunlight Supply, Inc. will replace any defective part without charge for the part, for a period of 1 year. Replacement parts are warranted for the remainder of the original applicable warranty period. Defective parts may be required to be supplied to Sunlight Supply, Inc. in exchange for the replacement part and become the property of Sunlight Supply, Inc.
- B. **NO LABOR.** This limited warranty DOES NOT INCLUDE LABOR or any other costs incurred for service, or replacement of the parts or product except where pre-approved by Ideal Air Technical Support. This includes maintenance, repair, removing, replacing, installing, complying with local building and electric codes, shipping or handling.
- C. **MAINTENANCE REQUIRED.** Ideal Air products are designed to be maintained by the owner, and the owner is solely responsible for all labor and other costs involved in owner-required maintenance. Instructions for air filter cleaning and other maintenance procedures can be found in the Owner's Manual for the product. Failure to maintain an Ideal Air product will VOID its warranty.
- D. **PROPER INSTALLATION.** This Limited Warranty applies only to products that are installed according to the INSTALLATION INSTRUCTIONS. Failure to adhere to the Installation Instructions will VOID this warranty.
- E. **MODIFICATIONS.** Modifications to the equipment or systems will VOID this warranty.
- F. **PROOF OF WARRANTY QUALIFICATION:** The warranty period begins at the time of purchase. Proof of Purchase shall be an *original sales receipt*. It is strongly suggested that end-users save their sales receipt. In the absence of the sales receipt, the warranty period shall be begin 90 days after the date of manufacture found on unit (in some cases, within the serial number).
- G. **EXCLUSIONS:** This limited warranty DOES NOT COVER: property damages, malfunction or failure of the product, or personal injury caused by or resulting from: (a) accident, abuse, negligence or misuse; (b) operating the product in a corrosive or wet environment including but not limited to hazardous chemicals; (c) products that have had a serial number or any part thereof altered, defaced or removed; (d) product used and/or installed in any manner contrary to the Installation and/or Operation Manual; or (e) damage caused by force majeure or the result of power surge damage caused by lightning and fluctuations in or interruptions of electrical power. Owners are strongly encouraged to be prepared by keeping a back-up source of heating/cooling in case of emergency.
- H. **LIMITATIONS:** This Limited Warranty shall not be enlarged, extended or affected by:
 - a. Any technical advice, information, and/or service to Owner in connection with the product.
 - b. Under no circumstances shall Ideal Air be held liable for: (i) damages to person or property; (ii) loss of revenue or profit; (iii) removal or disposal of system, resulting from any product defect.
 - c. This Limited Warranty is valid only in the continental United States, Alaska and Hawaii, and it is not transferable.



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Sunlight Supply, Inc.

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