Sensei

SERVICE MANUAL

MODEL

SAC-09SKWN/I
SAC-12SKWN/I
(RefrigerantR32)

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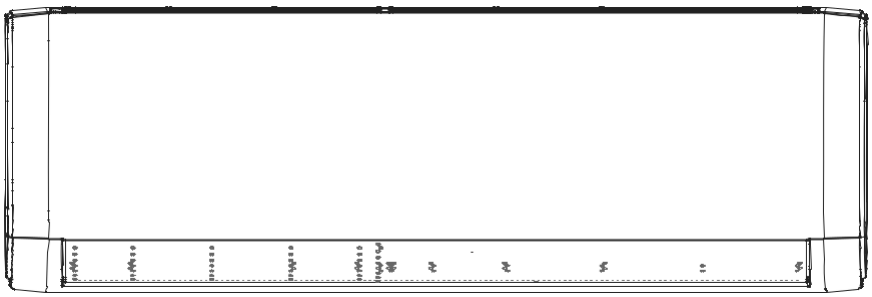
1. Summary and Features

Model	Product Code	Indoor unit	Outdoor unit	Power Supply	Power Supply Intake
SAC-09SKWN/I	Q5AA0Z00209	SAC-09SKWN/I	SAC-U09SWKN/I	220-240V~, 50Hz,1Ph	Outdoor Unit
SAC-12SKWN/I	Q5AA0Z00208	SAC-12SKWN/I	SAC-U12SKWN/I		

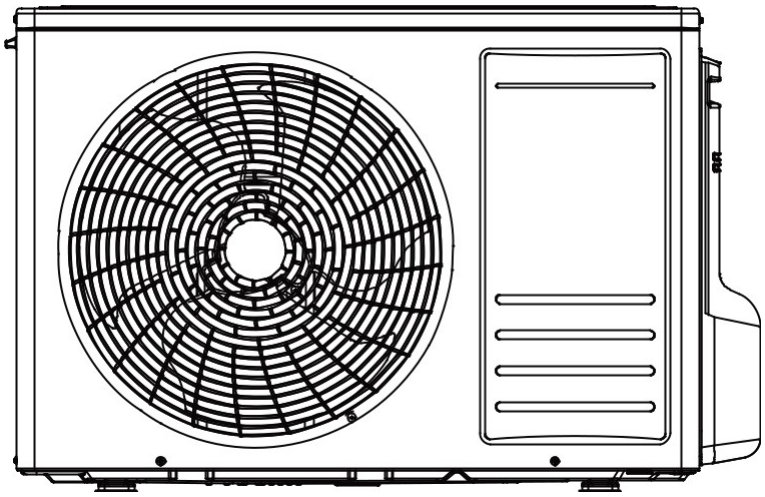
Indoor Unit

SAC-09SKWN/I
SAC-12SKWN/I



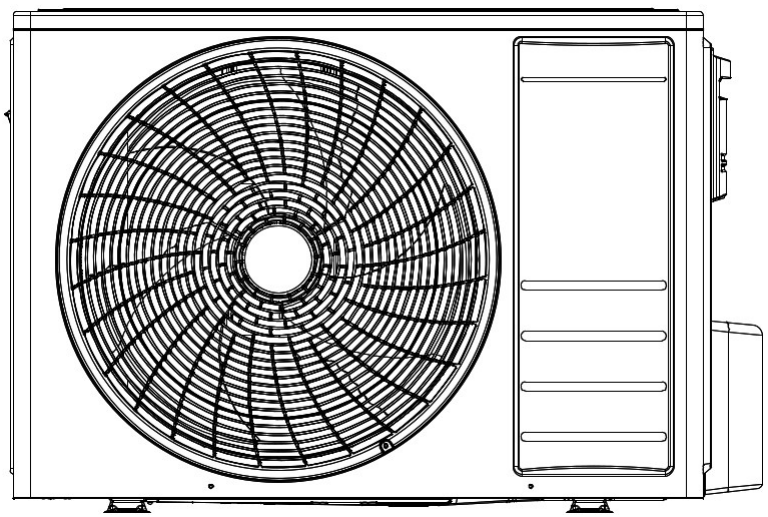
Outdoor Unit

SAC-U09SWKN/I



Outdoor Unit

SAC-U12SKWN/I



Remote Controller

RA1A1

2. Safety Precautions

Installing, starting up, and servicing air conditioner can be hazardous due to system pressure, electrical components, and

equipment.Untrained personnel can perform basic maintenance functions such as cleaning coils. All other operations should be performed by trained service personnel.When handling the equipment, observe precautions in the manual and on tags, stickers, and labels attached to the equipment. Follow all safety codes. Wear safety glasses and work gloves. Keep quenching cloth

attached to the unit. Consult local building codes and current editions of national as well as local electrical codes.

Recognize the following safety information:

Warning

Incorrect handling could result inpersonal injury or death.

Caution

Incorrect handling may result inminor injury,or damage to product or property.

- Make sure the outdoor unit is installed on a stable, level surface with no accumulation of snow, leaves, or trash beside.
- Make sure the ceiling/wall is strong enough to bear the weight of the unit.
- Make sure the noise of the outdoor unit does not disturb neighbors.
- Follow all the installation instructions to minimize the risk of damage from earth quakes, typhoons or strong winds.
-
-

it may lead to rupture and other hazards.

- Make sure no refrigerant gas is leaking out when installation is completed.
- Should there be refrigerant leakage, the density of refrigerant in the air shall in no way exceed its limited value, or it may lead to explosion.
-
- Clear the site after installation. Make sure no foreign objects are left in the unit.
- Always ensure effective grounding for the unit.

Warning

All electric work must be performed by a licensed technician according to local regulations and the instructions given in this manual.

Before installing, modifying, or servicing system, mainelectrical disconnect switch must be in the OFF position. There may be more than 1 disconnect switch. Lock out and tag switch with a suitable warning label.

Never supply power to the unit unless all wiring and tubing are completed, reconnected and checked.

This system adopts highly dangerous electrical voltage. Incorrect connection or inadequate grounding can cause personal injury or death. Stick to the wiring diagram and all the instructions when wiring.

Have the unit adequately grounded in accordance with local electrical codes.

Have all wiring connected tightly. Loose connection may lead to overheating and a possible fire hazard.

All installation or repair work shall be performed by your dealer or a specialized subcontractor as there is the risk of fire, electric shock, explosion or injury.

Caution

Never install the unit in a place where a combustible gas might leak, or it may lead to fire or explosion.

Make a proper provision against noise when the unit is installed at a telecommunication center or hospital.

Provide an electric leak breaker when it is installed in a watery place.

Never wash the unit with water.

Handle unit transportation with care. The unit should not be carried by only one person if it is more than 20kg.

Never touch the heat exchanger fins with bare hands.

Never touch the compressor or refrigerant piping without wearing glove.

Do not have the unit operate without air filter.

Should any emergency occur, stop the unit and disconnect the power immediately.

Properly insulate any tubing running inside the room to prevent the water from damaging the wall.

Please read this operating manual carefully before operating the unit.


Appliance filled with flammable gas R32.

The Refrigerant

To realize the function of the air conditioner unit, a special refrigerant circulates in the system.The used refrigerant is the fluoride R32,which is specially cleaned.The refrigerant is flammable and inodorous. Furthermore,it can leads to explosion under certain

Compared to common refrigerants, R32 is a nonpolluting refrigerant with no harm to the ozonosphere.The influence upon the

therefore need a less filling.

WARNING:

Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacture.Should repair be necessary, contact your nearest authorized Service Center.

The appliance shall be stored in a room without continuously operating ignition sources.

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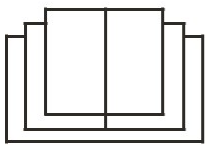
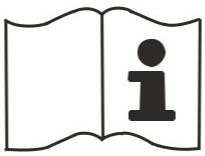
Do not pierce or burn.

"X"m^2

instructions only.
Be aware that refrigerants not contain odour.
Read specialist's manual.





3. Specifications

3.1 Unit Specifications

Parameter		Unit	Value	Value
Model		--	SAC-09SKWN/I	SAC-12SKWN/I
Product Code		~ --	Q5AA0Z00209	Q5AA0Z00208
Power Supply	Rated Voltage	V	220-240	220-240
	Rated Frequency	Hz	50	50
	Phases	--	1	1
	Power Supply Mode	--	outdoor	outdoor
Cooling(Standard conditions)	Capadty	Btu/h	9000	12000
	Input	W	650	900
	Current	A	2.8	3.8
heating(Standard conditions)	Capadty	Btu/h	11259	12624
	Input	W	800	1000
	Current	A	4.5	5
Seasonal Cooling	Pdesignc	kW	2.6	3.5
	SEER	W/W	8.5	8.5
	Energy Efficiency Class		A+++	A+++
Heating(Average)	Pdesignh	kW	2.6	3.2
	SCOP	W/W	4.6	4.6
	Energy Efficiency Class		A++	A++
	Tbiv	℃	-7	-7
Min. Cooling Capacity		W	400	550
Max. Cooling Capacity		W	3300	4000
Min. Heating Capacity		W	400	600
Max. Heating Capacity		W	4100	5130
Min. Cooling Power Input		W	150	180
Max. Cooling Power Input		W	1430	1560
Min. Heating Power Input		W	180	220
Max. Heating Power Input		W	1550	1800
Cross-sectional Area of Power Cable Conductor		mm^2	1	1
Recommended Power Cable(Core)		--	3	3
Min/Max. Voltage		V	198/264	198/264
Rated Input		W	1600	1700
Rated Current		A	9	9
Starting Current		A	/	/
Air Flow Volume		m^3/h	700/650/600/500	700/650/600/500
Dehumidifying Volume 只与内机壳体有关		L/h	0.8	1.4
Application Area		m^2	12~18	16-24
Indoor Unit	Indoor Unit Model	--	SAC-09SKWN/I	SAC-12SKWN/I
	Fan Type 风扇	--	Cross-flow	Cross-flow
	Fan Diameter Length(D×L)	mm	Φ92×680	Φ92×680
	Fan Diameter Length(D×L)	inch	/	/
	Cooling Speed 跳线帽有关	r/min	1200/1100/900/850	1200/1100/900/850
	Heating Speed	r/min	1200/1100/900/850	1200/1100/900/850
	Fan Motor Power Output 风扇输	W	20	20
	Fan Motor RLA 运转电流	A	0.24	0.24
	Fan Motor Capacitor 电容	μF	/	/
	Evaporator Form	--	Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Evaporator Pipe Diameter	mm	φ7	φ7
	Evaporator Pipe Diameter	inch	/	/
	Evaporator Row-fin Gap 排-距	mm	2-1.4	2-1.4
	Evaporator Row-fin Gap	inch	/	/
	Evaporator Coil Length	mm	679×25.4×266	679×25.4×266
	Evaporator Coil Length	inch	/	/
	Swing Motor Model 步进电机	--	24BJ-A2	24BJ-A2
	Swing Motor Power Output	W	1.5	1.5
	Set Temperature Range	℃	16～31	16～31

	Set Temperature Range	℉	/	/
	Sound Pressure Level	dB (A)	43/39/30/25	43/39/30/25
	Sound Power Level	dB (A)	/	/
	Dimension (W×H×D)	mm	896X295X192	896X295X192
	Dimension (W×H×D)	inch	/	/
	Dimension of Carton Box (W×H×D)	mm	971X368X269	971X368X269
	Dimension of Carton Box (W×H×D)	inch	/	/
	Dimension of	mm	977x374x278	977x374x278
	Dimension of	inch	/	/
	Stacked Layers 堆放层数	-	7	7
	Net Weight 净重	kg	10.5	10.5
	Net Weight	lb	/	/
	Gross Weight 毛重	kg	12.5	12.5
	Gross Weight	lb	/	/
Outdoor Unit	Outdoor Unit Model	--	SAC-U09SWKN/I	SAC-U12SKWN/I
	Compressor Trademark		GMCC	GMCC
	Compressor Manufacturer	--	ZheJiang GMCC	ZheJiang GMCC
	Compressor Model	--	KSN98D64UFZ3	KSN98D64UFZ3
	Compressor Oil	--	ESTER OIL VG74	ESTER OIL VG74
	Compressor Type	--	Rotary	
	Compressor LRA.	A	4.65	4.65
	Compressor RLA	A	/	/
	Compressor Power Input	W	758	758
	Compressor Overload Protector	--	/	/
	Fan Type	--	Axial-flow	Axial-flow
	Fan Diameter	mm	Φ405	Φ455
	Fan Diameter	inch	/	/
	Fan Motor Speed	rpm	880	820
	Fan Motor Power Output	W	30	55
	Fan Motor RLA	A	0.4	0.47
	Fan Motor Capacitor	μF	/	/
	Outdoor Unit Air Flow Volume	m^3/h	1800	2800
	Condenser Form	--	Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Condenser Pipe Diameter	mm	φ7	φ7
	Condenser Pipe Diameter	inch	/	/
	Condenser Rows-fin Gap	mm	2-1.4	2-1.4
	Condenser Rows-fin Gap	inch	/	/
	Condenser Coil Length (L×D×W)	mm	742×38.1×506	869×38.1×572
	Condenser Coil Length (L×D×W)	inch	/	/
	Permissible Excessive Operating Pressure for the Discharge Side	MPa	4.3	4.3
	Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5	2.5
	Maximum Allowable Pressure	MPa	4.3	4.3
	Cooling Operation Ambient Temperature Range	℃	18~43	18~43
	Heating Operation Ambient Temperature Range	℃	-15~24	-15~24
	Cooling Operation Ambient Temperature Range	℉	/	/
	Throttling Method	--	EEV	EEV

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

	Defrosting Method	--	Intelligent	Intelligent
	Climate Type	--	T1	T1
	Climate Zone	--	Temperate Zone	Temperate Zone
	Isolation	--	I	I
	Moisture Protection	--	IPX4	IPX4
	Sound Pressure Level	dB (A)	52	53
	Sound Power Level	dB (A)	62	63
	Dimension (W×H×D)	mm	830x540x325	890x598x372
	Dimension (W×H×D)	inch	/	/
	Dimension of Carton Box (W×H×D)	mm	876x585x363	938x647x409
	Dimension of Carton Box (W×H×D)	inch	/	/
	Dimension of Package(W×H×D)	mm	879x605x366	941x663x412
	Dimension of Package(W×H×D)	inch	/	/
	Stacked Layers	--	5	5
	Net Weight	kg	30	38
	Net Weight	lb	/	/
	Gross Weight	kg	32.5	41
	Gross Weight	lb	/	/
	Refrigerant	--	R32	R32
	Refrigerant Charge	kg	0.8	0.9
	Refrigerant Charge	oz	/	/
Connection Pipe	Length	m	5	5
	Length	ft	/	/
	Gas Additional Charge	g/m	20	20
	Gas Additional Charge	oz/ft.	/	/
	Outer Diameter of Liquid Pipe(Skyworth Allocation)(Metric)	mm	φ6	φ6
	Outer Diameter of Liquid Pipe(British System Allocation)	inch	1/4"	1/4"
	Outer Diameter of Gas Pipe(Skyworth Allocation)(Metric)	mm	φ9.52	φ9.52
	Outer Diameter of Gas Pipe(British System Allocation)	inch	3/8"	3/8"
	Max Distance Height	m	10	10
	Max Distance Height	ft	32.8	32.8
	Max Distance Length	m	20	20
	Max Distance Length	ft	65.6	65.6
Loading Quantity	Loading Quantity (20' Container)	unit	96	81
	Loading Quantity (40' Container)	unit	204	170
	Loading Quantity (40' High Cube Container)	unit	230	194
Air Condition Function				
	Automatic Operation		YES	YES
	Cooling		YES	YES
	Heating		YES	YES
	Dehumidify		YES	YES
	Fan		YES	YES
	Sleep Mode		YES	YES
	Auto Swing(Vertical Auto Swing)		YES	YES
	Auto Swing(Horizontal Auto Swing)		NO	NO

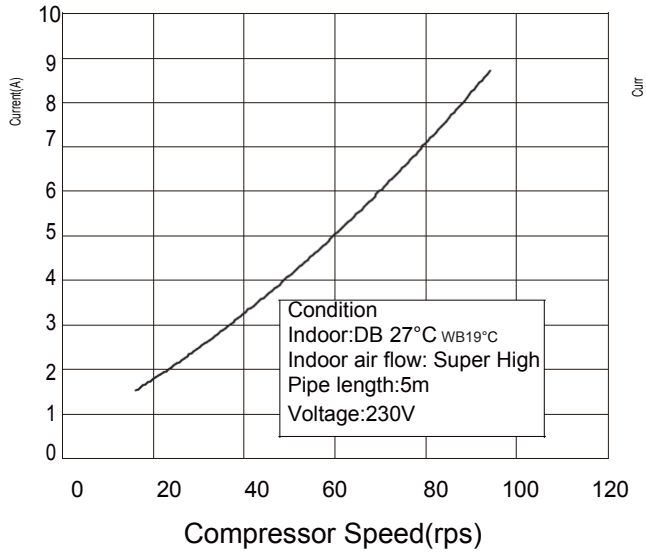
The above data is subject to change without notice. Please refer to the nameplate of the unit.

Function	Auto Fan		YES	YES
	Quiet		YES	YES
	I Feel		YES	YES
	Anion		NO	NO
	Cold Plasma		Optional	Optional
	Intelligent Preheating		NO	NO
	Fresh Air		NO	NO
	Dry Anti-Mildew Design		YES	YES
	Several Optional Filters (eg : Active Carbon)		Optional	Optional
	Auto Clean		YES	YES
	Timer		YES	YES
	Auto Restart		YES	YES
	Turbo		YES	YES
	Clock		YES	YES
	Temperature		YES	YES
	Soft Start		YES	YES
	Self Diagnosis		YES	YES
	Lock		YES	YES
	CO Detection		NO	NO
	CO_2 Detection		NO	NO
	Filter Dirty Alarm		NO	NO
	Intelligent Open-Close Panel		NO	NO
	Compressor Electric Heater Function		NO	NO
	Chassis Electric Heater Function		Optional	Optional
	Quick Connector		NO	NO
	LCD (No Back Light)		YES	YES
	LCD (Back Light)		NO	NO
	LED		YES	YES
	Intelligent Defrosting		YES	YES
	Force Defrosting		YES	YES
	Auxiliary Electrical Heater		NO	NO
	Energy Saving		YES	YES
	8℃ Heating Mode		YES	YES
	Turbo Cooling		YES	YES
	High-Voltage Electrostatic Dedust		NO	NO
	Low Ambient Cooling		NO	NO
	Low Ambient Heating		Optional	Optional
	Low Voltage Startup		YES	YES
	Standby		YES	YES
	Multi Speeds		YES	YES
	uvc		Optional	Optional

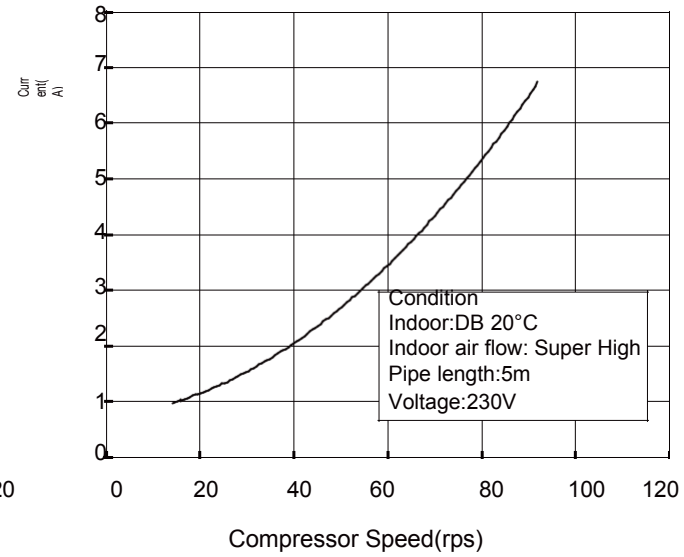
The above data is subject to change without notice. Please refer to the nameplate of the unit.

3.2 Operation Characteristic Curve

Cooling



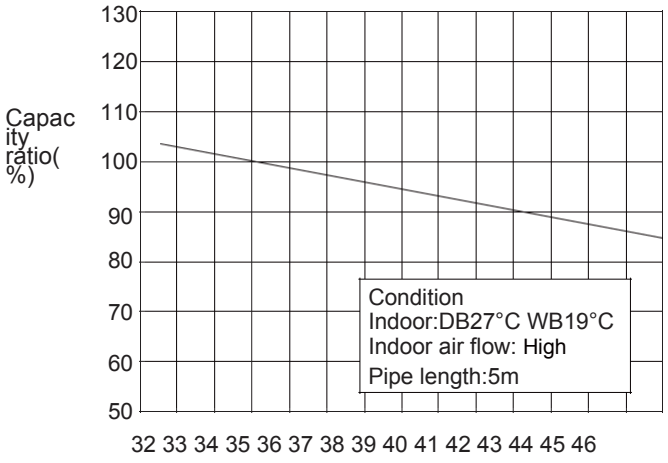
Heating



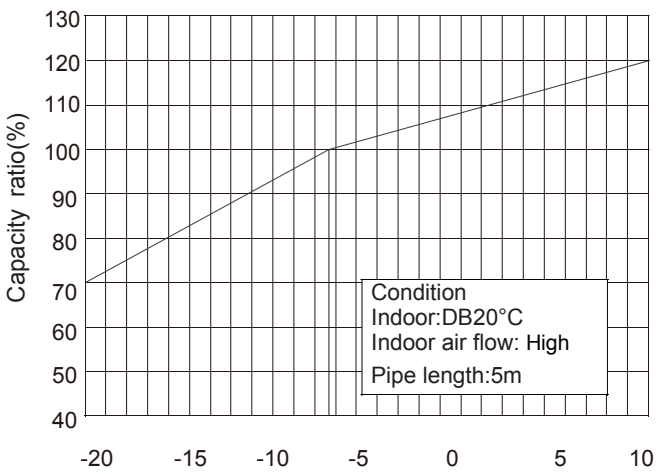
3.3 Capacity Variation Ratio According to Temperature

Heating operation ambient temperature range is -20ºC~24ºC

Cooling

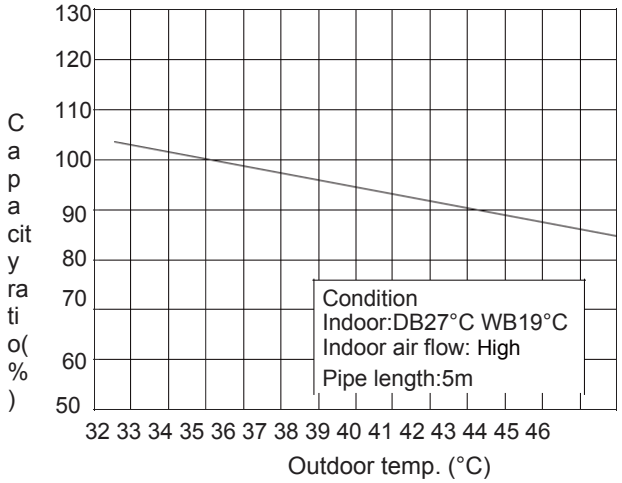


Heating

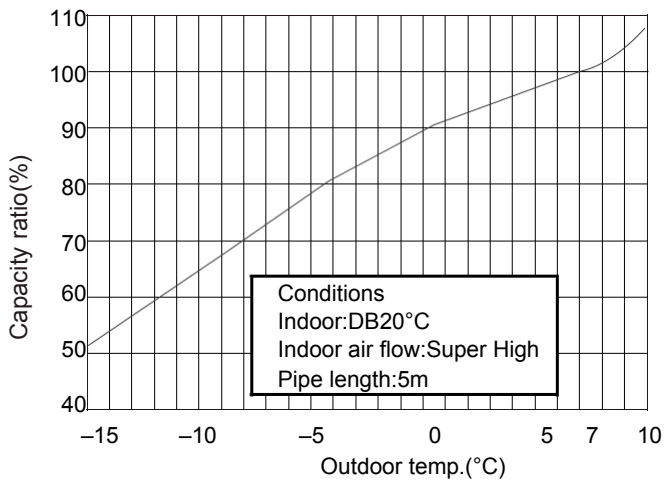


Heating operation ambient temperature range is -15ºC~24ºC

Cooling



Heating



3.4 Cooling and Heating Data Sheet in Rated Frequency

Model	Rated cooling condition(°C) (DB/WB)		Pressure of gas pipe connecting indoor and outdoor unit	Inlet and outlet pipe temperature of heat exchanger		Fan speed of indoor unit	Outdoor fan mode (rpm)
	Indoor	Outdoor	P (MPa)	T1 (°C)	T2 (°C)	Super High	
09K,12K	27/19	35/24	0.9~1.1	12 to 14	75 to 37		820

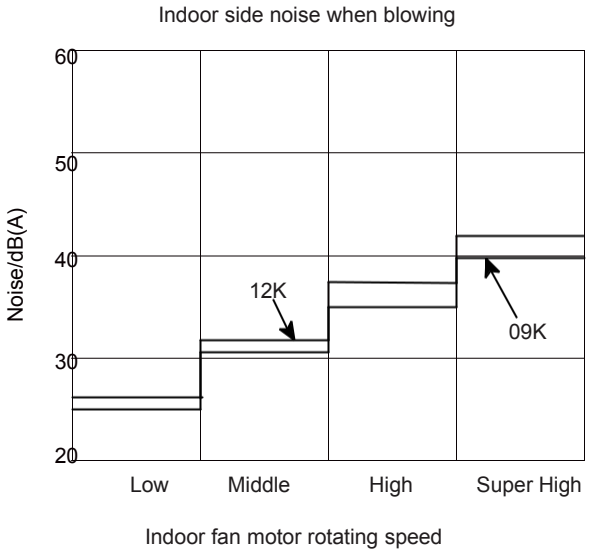
Model	Rated heating condition(°C) (DB/WB)		Pressure of gas pipe connecting indoor and outdoor unit	Inlet and outlet pipe temperature of heat exchanger		Fan speed of indoor unit	Outdoor fan mode (rpm)
	Indoor	Outdoor	P (MPa)	T1 (°C)	T2 (°C)	Super High	
09K,12K	20/-	7/6	2.2~2.4	70 to 35	2 to 4		820

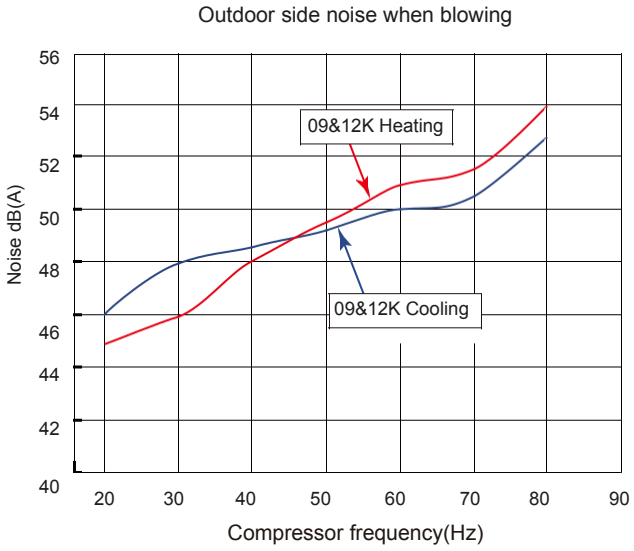
T1: Inlet and outlet pipe temperature of evaporator; T2: Inlet and outlet pipe temperature of condenser;
P: Pressure of air pipe connecting indoor and outdoor units.

NOTES :
(1) Measure surface temperature of heat exchanger pipe around center of heat exchanger path U bent.(Thermistor themometer)
(2) Connecting piping condition : 5m

3.5 Noise Curve

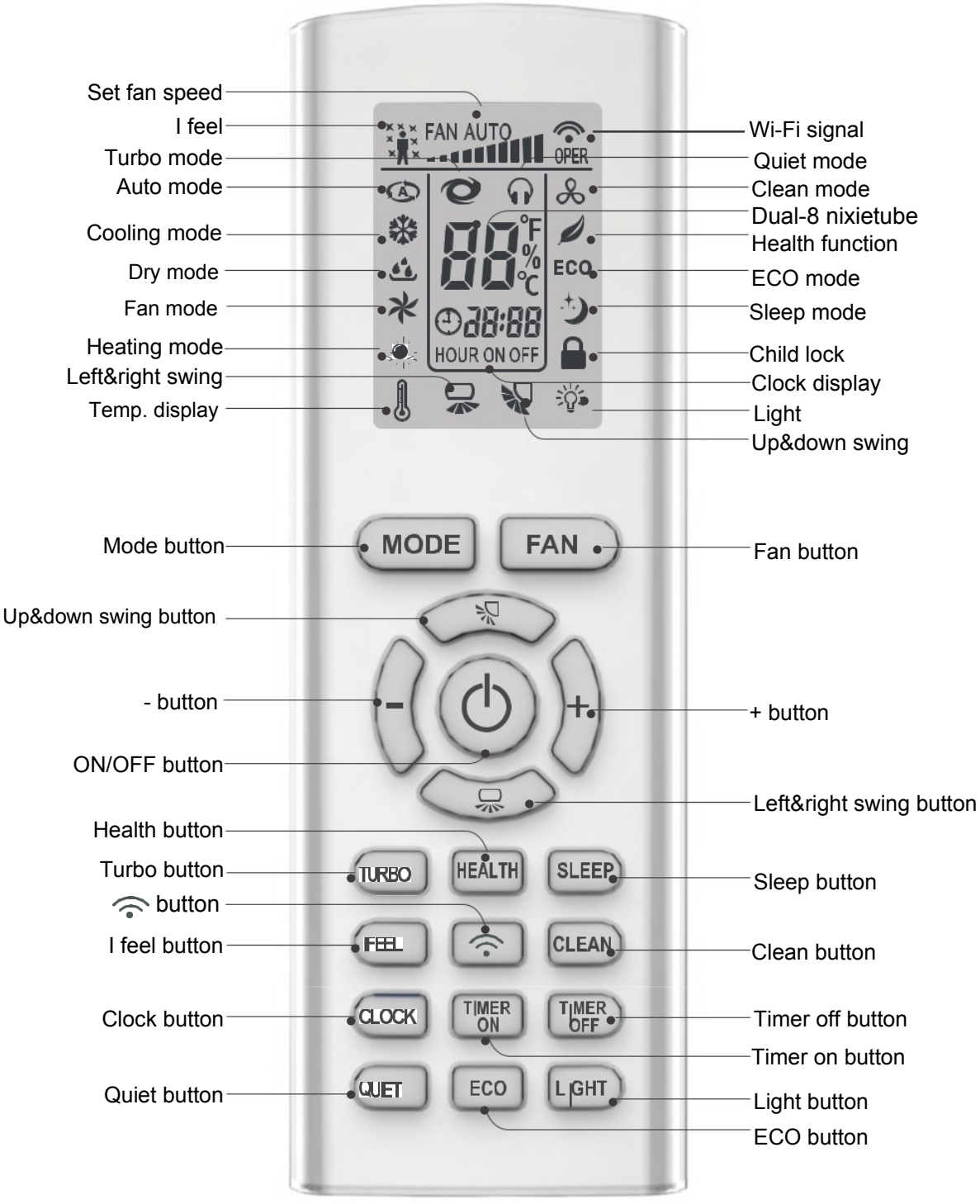
- 09K&12K





4. Function and Control

4.1 Remote Controller Operations



After connecting the power, the air conditioner will make a sound.
Power indicator is ON. After that, you can operate the air conditioner by using remote controller.
Under on status, pressing the button on the remote controller, the display will show the corresponding set function icons.
Under off status, light and clock icon will be displayed on the display of remote controller (If timer on, timer off and light functions are set, the corresponding icons will be displayed on the display of remote controller at the same time).

ON/OFF button

Press this button can turn on or turn off the air conditioner.

MODE button

Press this button to select your required operation mode.

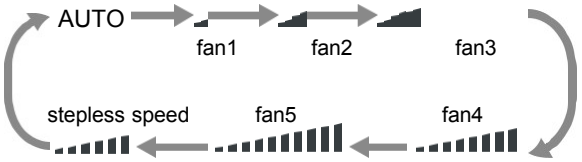
- When selecting auto mode, air conditioner will operate automatically according to ex-factory setting. Set temperature can't be adjusted and will not be displayed as well. Press "FAN" button can adjust fan speed. Press " " or " " button can adjust fan blowing angle.
- After selecting cool mode, air conditioner will operate under cool mode. Press "+" or "-" button to adjust set temperature. Press "FAN" button to adjust fan speed. Press " " or " " button to adjust fan blowing angle.
- When selecting dry mode, the air conditioner operates at fan1, fan speed can't be adjusted. Press " " or " " button to adjust fan blowing angle.
- When selecting fan mode, the air conditioner will only blow fan, no cooling and no heating. Press "FAN" button to adjust fan speed. Press " " or " " button to adjust fan blowing angle.
- When selecting heat mode, the air conditioner operates under heat mode. Press "+" or "-" button to adjust set temperature. Press "FAN" button to adjust fan speed. Press " " or " " button to adjust fan blowing angle. (Cooling only unit won't receive heat mode signal. If setting heat mode with remote controller, press "ON/OFF" button can't start up the unit).

Note:

- For preventing cold air, after starting up heating mode, indoor unit will delay 1~5 minutes to blow air (actual delay time is depend on indoor ambient temperature).
- Set temperature range from remote controller: 16~31°C; Fan speed: auto, fan1, fan2 , fan3 , fan4, fan5, stepless speed.

FAN button

Pressing this button can set fan speed circularly as: auto (AUTO), fan1( ), fan2 ( ) ,fan3 ( ) , fan4 ( ), fan5 ( ), stepless speed.



Note:

- In AUTO speed, air conditioner will select proper fan speed automatically according to ambient temperature.
- Fan speed under dry mode is fan1.
- After entering the stepless speed mode, users can adjust the fan speed according to the button "+" or "-".

button

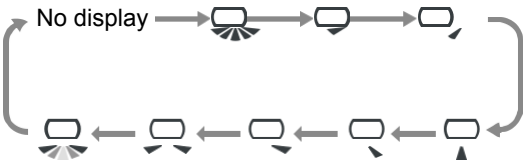
- Press this button the up&down swing function can be started and canceled. The remote controller defaults to static swing condition.
- Press "MODE" button and " " button at the same time when remote controller OFF to switch between simple swing and static swing.
- In static swing condition, pressing this button, the swing angle of up&down swing louver changes as below:

Note:

- When selecting " " with remote controller, it's auto swing. up&down swing louver of air conditioner will swing up&down automatically at the maximum angle.
- When selecting " " with remote controller, it's the fixed position swing. Up&down swing louver of air conditioner will stop at that position as shown by the icon to swing.

button

- Press this button the left&right swing function can be started and canceled. The remote controller defaults to static swing condition.
- Press "MODE" button and " " button at the same time at remote controller OFF to switch between simple swing and static swing.
- In static swing condition, pressing this button, the swing angle of left&right swing louver changes as below:



- When selecting " " with remote controller, it's auto swing. left&right swing louver of air conditioner will swing left&right automatically at the maximum angle.
- When selecting " ,, , ,, , , " with remote controller,it's the fixed position swing. Left&right swing louver of air conditioner will stop at that position as shown by the icon to swing.
- When selecting " ", it's the circulating swing. Left&right swing louver of air conditioner will swing circularly according to the angle as shown by the icon.

Note:

There is no this function for the units. If press this button, the main unit will sound, but it also runs under original status.

+ and - button

Press "+" or "-" button once to increase or decrease 1°C of set temperature. Holding "+" or "-" button, set temperature on remote

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).

TURBO button

Press this button to turn on or turn off the TURBO function in cool,heat,fan mode.

Note:

- Press "QUIET" or "FAN" button the unit will quit this function.
- This function is no use in auto mode or dry mode.

HEALTH button

Press this button to turn on or turn off the health function.

Note: This function is not available for some models.

SLEEP button

Press this button to turn on or turn off the SLEEP function under cool,heat ,dry mode.

Note:

- This function is off as defaulted after power on.
- It will be cleared after changing mode.
- It is no use under "FAN" mode and "AUTO" mode.

I FEEL button

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

Note:

can receive the remote code when this function is set. Do not put the remote controller near the object of high temperature or low temperature in order to avoid detecting inaccurate ambient temperature.

CLEAN button

- Press this button to start or cancel clean function.
- It is unable to set clean function when the unit is on; if the air conditioner runs in cool or dry mode before turning off, press "CLEAN" button and show " " then the clean function is on; press "CLEAN" button again, " " disappeared, then the clean function is off, or running 10 mins in clean function then turn off automatically.
- In the first power on, the clean function is off acquiescently.
- The clean function can not be set and displayed when the air conditioner is in auto, fan and heat mode before turn off.

CLOCK button

Press this button to set clock time. " "and " " 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 hour. Press this button again, " " and " " icon on remote controller will blink. Press "+" or "-" button within 5s to set clock time. Press this button another time, " " and " " icon on remote controller will blink. Press "+" or "-" button within 5s to set clock time. If hold "+" or "-" button, clock " " 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.

TIMER ON button

This button can set the time for timer on. After pressing this button, " ⏲ " icon disappears, "ON" and " 88:88 " icon on remote controller blinks. Press "+" or "- "button within 5s to set "TIMER ON" time. Each pressing of "+" or "-" button, the time will increase or decrease 1 hour. Press this button again, "ON" and " 88:88 " icon on remote controller will blink. Press "+" or "-" button within 5s to set the time. Press this button another time, "ON" and " 88:88 " icon on remote controller will blink. Press "+" or "-" button within 5s to set the time. Hold "+" or "-" button, 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

This button can set the time for timer off. After pressing this button, " ⏲ " icon disappears, "OFF" and " 88:88 " icon on remote controller blink. Press "+" or "-" button within 5s to set "TIMER OFF" time. Each pressing of "+" or "-" button,the time will increase or decrease 1 hour. Press this button again, "OFF" and " 88:88 " icon on remote controller will blink. Press "+" or "-" button within 5s to set the time. Press this button another time, "OFF" and " 88:88 " icon on remote controller will blink. Press "+" or "-" button within 5s to set the time. Hold "+" or "-" button, 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.

QUIET button

Press this button to turn on or turn off the QUIET function in cool,heat,auto mode.

Note:

- Press "TURBO" or "FAN" button the unit will quit this function.
- This function is no use in fan mode or dry mode.

ECO button

In cool mode, press "ECO" button and the unit will operate under ECO mode.

Note:

- Remote controller displays " **ECO** ".
- Air conditioner will operate at auto speed. Set temperature can't be adjusted.
- Under cool mode, sleep function can not work with ECO mode together at the same time.
- Change mode will exit the ECO mode.

LIGHT button

Press this button can turn off the light for indoor unit's display. " 💡 " icon on remote controller will disappear.Press this button again to turn on the light for indoor unit's display. " 💡 " icon on remote controller will be displayed.

button

Press this button to turn on or turn off the SMART function, for more details, please see next page for Smart APP User Guide.

Function introduction for combination buttons

Child lock function

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

Temperature display switchover function

In the off mode, press "-" and "MODE" buttons simultaneously to switch temperature display between °C and °F.

Timing defrost

In the heating mode, press "SLEEP" and "TURBO" buttons together for 3s would start or cancel the Timing defrost.

The minimum cooling temperature setting

In the off mode,pressing "TEMP"and "-" button at the same time,the LCD will display the minimum cooling temperature.The default temperature is 16°C and you can adjust the temperature with "+" or "-" from 16°C to 31°C, 3 seconds later it will return to the standby mode.

The maximum heating temperature setting

In the off mode,pressing "TEMP" and "+" button at the same time,the LCD will display the maximum heating temperature.The default temperature is 31°C and you can modulate the temperature with "+" or "-" from 16°C to 31°C, 3 seconds later it will return to the standby mode.

Low temperature heating function setting

- In heating mode, pressing "Mode" and "+" button at the same time will enter/exit the low temperature heating function.
- "LA" would be showed on the remote controller after entered into the low temperature heating funtion.
- When switching from one mode to another mode, low temperature heating function was canceled. Turn off and then turn on air conditioner that will remain the low temperature heating function. After powered on, the low temperature heating mode was default to off status.
- In the low temperature heating mode, "SLEEP" and "Low temperature heating" function cannot start at same time.When low temperature heating mode has already started, meanwhile you press the "SLEEP" button, the air conditioner will exit low temperature heating mode and enter the sleep mode. Vice versa.

Note:

1. In the low temperature heating mode, the fan speed was default to Auto and non-ajusatable.
2. In the low temperature heating mode, "TURBO" and "QUIET" can't be set. If enter the low temperature heating mode, the turbo and quiet function that started before will be canceled. As well as when exit the low temperature heating mode, it will not resume.
3. When exit from the low temperature heating mode, the speed and temperature will turn into the original condition before it started.
4. You can set up other function.

Manually defrost

Press the "FAN" and "MODE" 3s at the same time in heating mode,it will enter or exit the manually defrost.Remote controller will display "dF" 5s,and it will show the setting temperature after 5s.

Collecting freon

Repowered within 5mins, set 16 degree under cooling mode, then press the "TURBO" button 6 times within 3s, will enter this function.

Memory setting

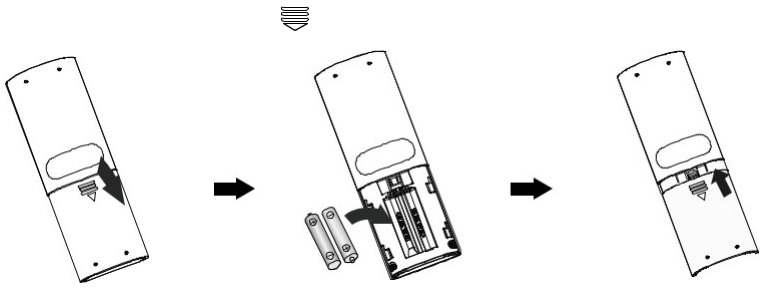
Setting the dehumidifying mode with 30 degree after the unit is powered on within 60s.And then press "LIGHT" → "SLEEP" → "LIGHT" → "SLEEP",it could change the memory to not memory function.The light blink and show the error code 3s.

Display by remote controller

Press "light" and "-" button together for 3s,It could enter or exit this function.It will show the error code when this function is on.

Replacement of Batteries

along the arrow direction.



2. Installation 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.

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.

4.3 Description of Each Control Operation

4.3.1 The mainboard design with below function

(1) Auto (2) Cooling (3) Dehumidifying (4) Air fan (5) Heating

4.3.2 Control

Indoor fan(Quiet、speed 1、speed 2、speed 3、speed 4、speed 5、Turbo), left and right louver, up and down louver, buzzer, display, outdoor electric heater(option), outdoor power, healthy(option).

4.3.3 Basis control function

Cooling mode

(1) Setting Temp 16-31 degree,the indoor fan and louver run as the original mode.

(2) The indoor will run as original mode if the outdoor does not work,and the indoor will show error code.

Fan

(1) Setting Temp 16-31 degree,the indoor fan and louver run as the original mode.

(2) The indoor will run as original mode if the outdoor does not work,and the indoor will show error code.

Heating mode

(1) Setting temperature range 16-31 degree.

f.

(3) Indoor power light blink and then indoor fan stop after unit entering defrost mode.

(4) Indoor blow hot air one minute if outdoor is malfunction.

(5) Indoor blow hot air 10 minutes after turn off unit when indoor fan is running.

4.3.4 Auto mode

(1) When environment temperature is equal or above 26 degree,and setting the cooling mode,the setting temperature will reach 25 degree.

(2)When the environment temperature i is equal or below 19 degree plus additional temperature,it will run in heating mode,and the setting temperature reach 20 degree at that time.

entering auto mode.It will run in original mode if it change from cooling and heating mode.If original mode is dehumidifying,it will be in airfan after change into auto mode.

4.3.5 Protect

(1)Anti cold air

The louver will be in horizontal level when evaporator temperature is too low,and indoor fan does not work or run in low speed.

(2)Blow hot air

Indoor will run in few minutes before turn off when turn off in heating or indoor temperature above environment temperature.

(3)Sensor malfunction

If the environment sensor or pipe sensor AD is above or equal 250 5s continually or the environment sensor or pipe sensor AD is below 5 when the unit is on ,it means sensor malfunction.

(4)Motor blockage

fan,indoor fan and louver stop running.Indoor will show error code.

(5)Jumper malfunction

Un-install the jumper

(6)Communication malfunction

When the unit is running except for airfan mode,outdoor and indoor can not communicate 3 minutes.It will show error code.

(7)Defrost

When outdoor condensing defrost,it will start defrost mode.

(8)Manually Defrost

Press the "FAN" and "MODE" 3s at the same time in heating mode,it will enter or exit the manually defrost,and indoor will buzz.

4.3.6 Other Function

(1) Auto button

when you press this button,it will enter auto mode,indoor motor in auto fan speed,Indoor fan run and louver motor stop. Press the auto button,unit will be off.

(2) Filter cleaning

(3) Health

Indoor healthy function start when push healthy button.

(4) Dry

Unit will run in cooling 10 min after set up dry function.

(5) Saving energy

Indoor will show in ECO after unit run in energy saving mode.

(6) Low temperature heating

Press "MODE" and "+" button at the same time in heating mode,it will show LA.

(7) Environment temperature

push temperature button,it will show environment temperature 5s and the setting temperature.

(8) Outdoor power

Power on,outdoor power is off.

(9) When unit is on except for fan mode,outdoor power supply input high frequency.

(10) Entering off mode or fan mode,outdoor power is off after 4 minutes.

(11) 1W Standby.

4.3.7 Display

(1) Basis display,Power on,it maintain 2s-3s display,and then power light is on.

(2) The running light is on when remote controller turn on unit,and indoor show the running mode.

(3) If turn off the light button,and all display is off.

(4) It displays as original mode after setting sleeping function.

5. Installation Manual

5.1 Safety operation of flammable refrigerant

All the work men who are engaging in the refrigeration system should bear thevalid certification awarded by the authoritative

refrigerant.It can only be repaired by the method suggested by the equipment's manufacturer.

5.1.2 Installation notes

1.The air conditioner is not allowed to use in a room that has g heater).
2.It is not allowed to drill hole or burn the connection pipe.
3.The air conditioner must be installed in a room that is larger than the minimum roomarea.
The minimum room area is shown on the nameplate or following table 1.
4.Leak test is a must after installation.

Table 1:Minimum room area (m^2)

Minimum room area (m^2)	Charge amount (kg)	≤1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5
	floor location	/	14.5	16.8	19.3	22.0	24.8	27.8	31.0	34.4	37.8	41.5	45.4	49.4	53.6
	window mounted	/	5.2	6.1	7.0	7.9	8.9	10.0	11.2	12.4	13.6	15	16.3	17.8	19.3
	wall mounted	/	1.6	1.9	2.1	2.4	2.8	3.1	3.4	3.8	4.2	4.6	5	5.5	6.0
	ceiling mounted	/	1.1	1.3	1.4	1.6	1.8	2.1	2.3	2.6	2.8	3.1	3.4	3.7	4.0

5.1.3 Maintenance notes

Check whether the maintenance area or the room area meet the requirement of the nameplate.
— It's only allowed to be operated in the rooms that meet the requirement of the nameplate.
Check whether the maintenance area is well-ventilated.
— The continuous ventilation status should be kept during the operation process.
Check whether there is fire source or potential fire source in the maintenance area.
—
Check whether the appliance mark is in good condition.
— Replace the vague or damaged warning mark.

5.1.4 Welding

If you should cut or weld the refrigerant system pipes in the process of maintaining, please follow the steps as below:
1. Shut down the unit and cut power supply.
2. Eliminate the refrigerant.
3. Vacuuming.
4. Clean it with N2 gas.
5. Cutting or welding.
6. Carry back to the service spot for welding.

of the vacuum pumpand it's well-ventilated.

5.1.5 Filling the refrigerant

each other.

4.Don't overfilling.

it's removed.

5.1.6 Safety instructions for transportation and storage

2.No fire source and smoking.
3.According to the local rules and laws.

5.1.6 Installation prepare

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

WARNING

1. When installing or relocating the unit, be sure to keep the refrigerant circuit free from air or substances other than the specified refrigerant.

— Any presence of air or other foreign substance in the refrigerant circuit will cause system pressure rise or compressor rupture, resulting in injury.

2. When installing or moving this unit, do not charge the refrigerant which is not comply with that on the nameplate or unqualified refrigerant.

— Otherwise, it may cause abnormal operation, wrong action, mechanical malfunction or even series safety accident.

3. When refrigerant needs to be recovered during relocating or repairing the unit, be sure that the unit is running in cooling mode.Then, fully close the valve at high pressure side (liquid valve).About 30-40 seconds later, fully close the valve at low pressure side (gas valve), immediately stop the unit and disconnect power. Please note that the time for refrigerant recovery should not exceed 1 minute.

— If refrigerant recovery takes too much time, air may be sucked in and cause pressure rise or compressor rupture, resulting in injury.

4. During refrigerant recovery, make sure that liquid valve and gas valve are fully closed and power is disconnected before detaching the connection pipe.

— If compressor starts running when stop valve is open and connection pipe is not yet connected, air will be sucked in and cause pressure rise or compressor rupture, resulting in injury.

5. When installing the unit, make sure that connection pipe is securely connected before the compressor starts running.

— If compressor starts running when stop valve is open and connection pipe is not yet connected, air will be sucked in and cause pressure rise or compressor rupture, resulting in injury.

6.

— If there leaked gas around the unit, it may cause explosion and other accidents.

7. Do not use extension cords for electrical connections. If the electric wire is not long enough, please contact a local service center authorized and ask for a proper electric wire.

— Poor connections may lead to electric shock or fire.

8. Use the specified types of wires for electrical connections between the indoor and outdoor units. Firmly clamp the wires so that their terminals receive no external stresses.

—

5.2 Notices for Installation

Caution

1.The unit should be installed only by authorized service center according to local or government regulations and in compliance with this manual.

2.Before installing, please contact with local authorized maintenance center. If the unit is not installed by the authorized service center, the malfunction may not be solved due to incovenient contact between the user and the service personnel.

3.When removing the unit to the other place, please firstly contact with the local authorized service center.

4.Warning: Before obtaining access to terminals, all supply circuits must be disconnected.

5.For appliances with type Y attachment, the instructions shall contain the substance of the following. 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.

6.The appliance must be positioned so that the plug is accessible.

7.The temperature of refrigerant line will be high; please keep the interconnection cable away from the copper tube.

8.The instructions shall state the substance of the following:This appliance is not intended for use by persons(including children)with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

^{2} (see table 1).

the risk of severe damages of people andmaterial. Details to this refrigerant are found in chapter "refrigerant".

5.1.1 Installation Site Instructions

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

.

2.The place with high-frequency devices (such as welding machine,medical equipment).
3.The place near coast area.
4.The place with oil or fumes in the air.
5.The place with sulfureted gas.
6.Other places with special circumstances.
7.The appliance shall not be installed in the laundry.

5.1.2 Installation Site of Indoor Unit

1. There should be noobstruction 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 ableto withstand the weight of indoor unit and won't increase noise and vibration.
6. The appliance must be installed 2.5m above floor.
7. Don't install the indoor unit right above the electric appliance.
8. Please try your best to keep way from fluorescent lamp.

5.1.3 Installation Site of Outdoor Unit

fect 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 the fence for safety purpose.

5.1.4 Safety Precautions for Electric Appliances

1. A dedicated power supply circuit should be used in accordance with local electrical safety regulations.
2. Don't drag the power cord with excessive force.
3. The unit should be reliably earthed and connected to an exclusive earth device by the professionals.
4. The air switch must have the functions of magnetic tripping and heat tripping to prevent short circuit and overload.
5. The minimum distance between the unit and combustive surface is 1.5m.
6. The appliance shall be installed in accordance with national wiring regulations.
7. An all-pole disconnection switch with a contact separation of at least 3mm in all poles should be connected in fixed wiring.

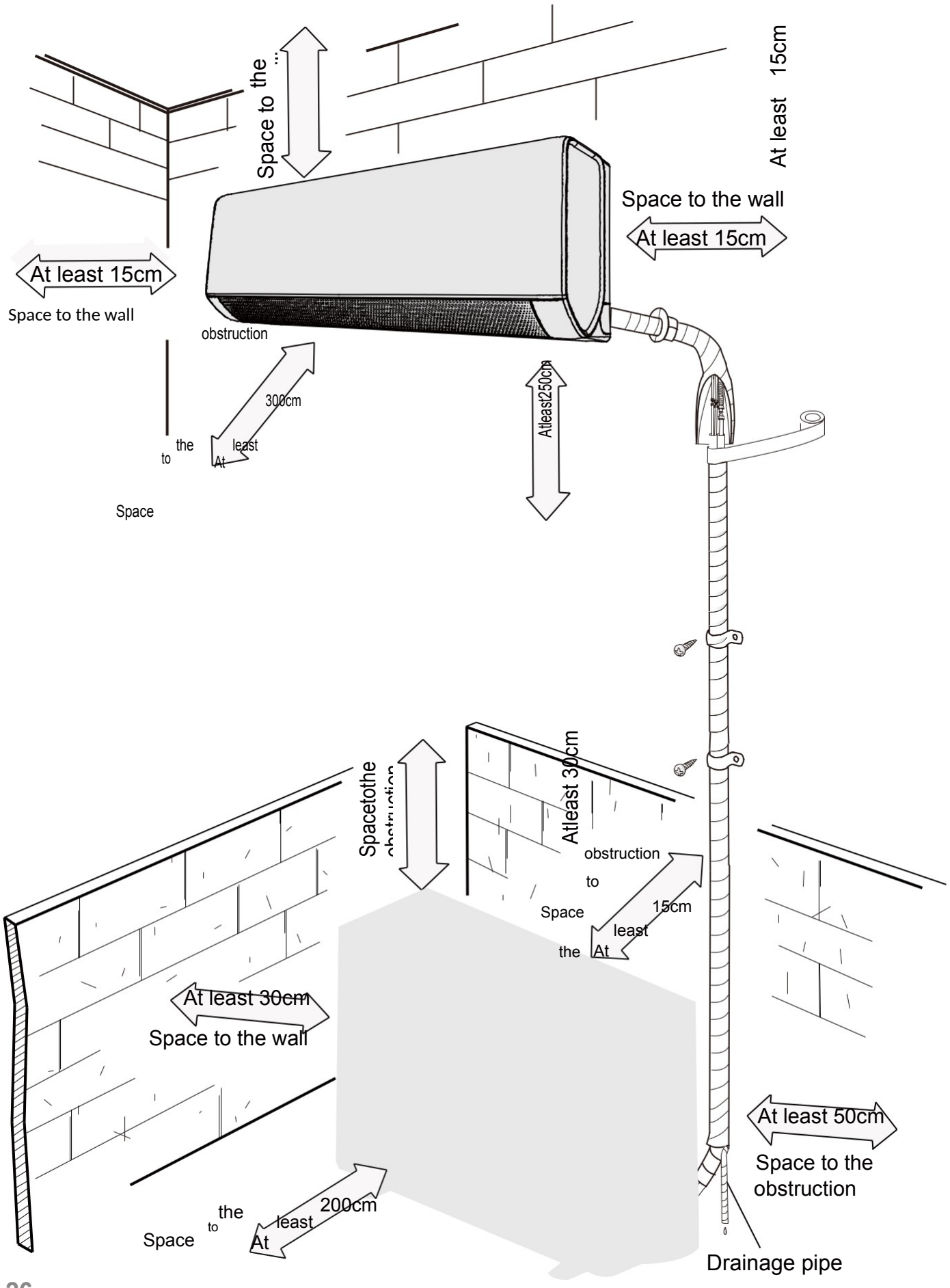
Note:

- **Make sure the live wire, neutral wire and earth wire in the family power socket are properly connected. There should be reliable circuit in the diagram.**
- **Inadequate or incorrect electrical connections may cause electric shock or fire.**

5.1.5 Earthing Requirements

1. Air conditioner is type Ⅰ electric appliance. Please ensure that the unit is reliably earthed.
2. The yellow-green wire in air conditioner is the earthing wire which can not be used for other purposes. Improper earthing may cause electric shock.
3. The earth resistance should accord to the national criterion.
4. The power must have reliable earthing terminal. Please do not connect the earthing wire with the following:
   - Water pipe
   - Gas pipe
   - Contamination pipe
   - Other place that professional personnel consider is unreliable
5. The model and rated values of fuses should accord with the silk print on fuse cover or related PCB.

5.3 Installation Dimension Diagram



5.4 Installation Indoor Unit

Step 1: Choosing installation location

Step 2: Install wall-mounting frame

holes on the wall .

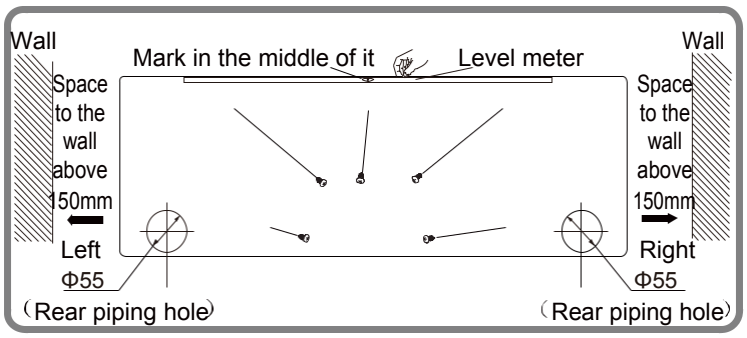
3. Fix the wall-mounting frame on the wall with tapping screws (ST4.2X25TA) and then check if the frame is firmly inatalled by pulling

.

Step 3: Open piping hole

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, shown as below.

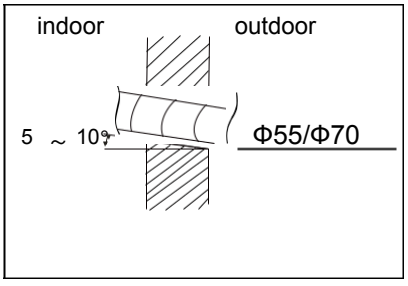
Dimension: 896X295X192



2. Open a piping hole with the diameter of Φ55/Φ70 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°.

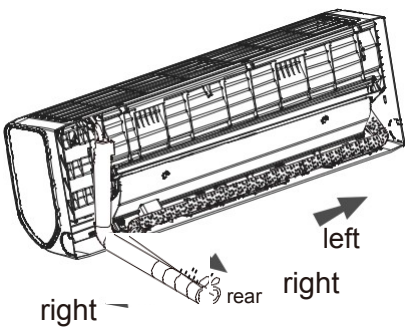
Note:

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

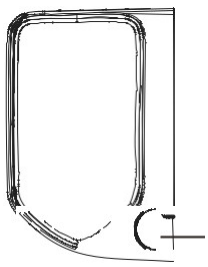


Step 4: Outlet pipe

1.The pipe can be led out in the direction of right, rear right or left.

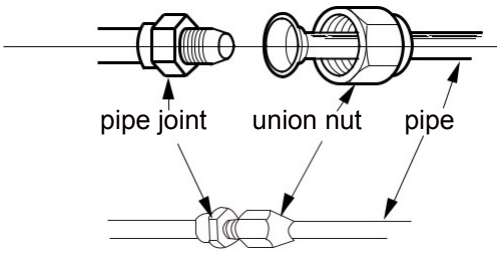


2.When select leading out the pipe from left or right, please cut off the corresponding hole on the bottom case.



Step 5: Connect the pipe of indoor unit

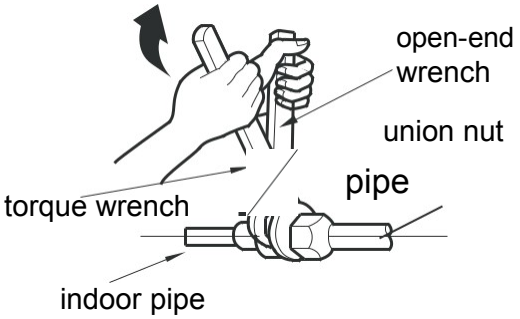
1. Aim the pipe joint at the corresponding bellmouth.



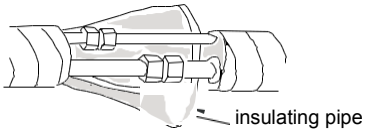
2. Pretightening the union nut with hand.

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.

Hex nut diameter	Tightening torque (N·m)
Φ 6	15~20
Φ 9.52	30~40
Φ 12	45~55
Φ 16	60~65
Φ 19	70~75

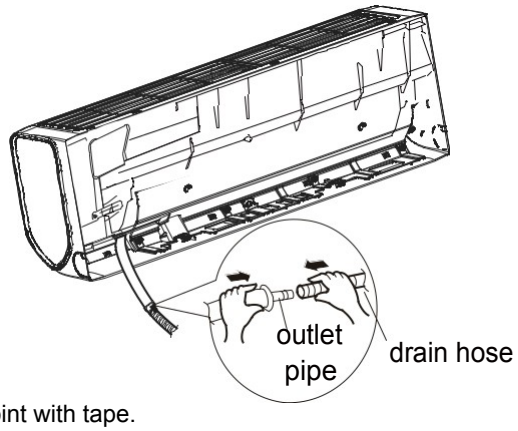


4. Wrap the indoor pipe and joint of connection pipe with insulating pipe, and then wrap it with tape.

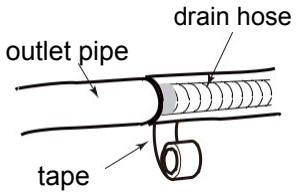


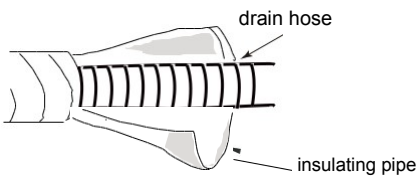
Step 6: Install drain hose

1. Connect the drain hose to the outlet pipe of indoor unit.



2. Bind the joint with tape.



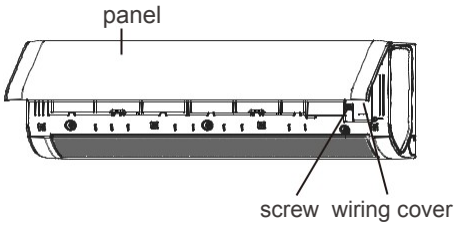


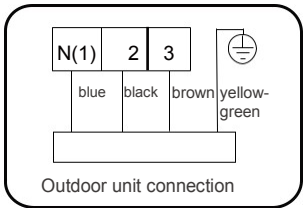
Note:

- Add insulating pipe in the indoor drain hose in order to prevent condensation.
- The plastic expansion particles are not provided.

Step 7: Connect wire of indoor unit

1. Open the panel, remove the screw on the wiring cover and then take down the cover.





2. Make the power connection wire go through the cable-cross hole at the back of indoor unit and then pull it out from the front side.
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 wirewith wire clip.
4. Put wiring cover back and then tighten the screw.
5. Close the panel.

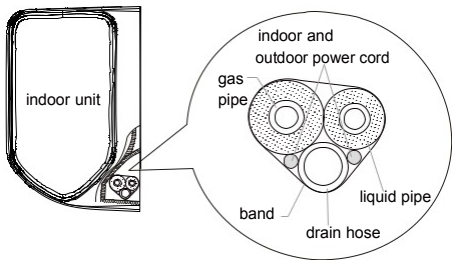
Note:

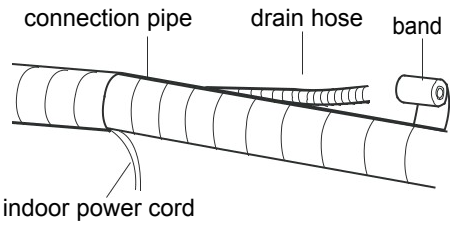
● All wires of indoor unit and outdoor unit should be connected by a professional. Avoid extending the wire by yourself.

● For the air conditioner without plug, an air switch must be installed in the line. The air switch should be all-pole parting and the contact parting distance should be more than 3mm.

Step 8: Bind up pipe

1. Bind up the connection pipe, power cord and drain hose with the band.
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.





3. Bind them evenly.
4. The liquid pipe and gas pipe should be bound separately at the end.

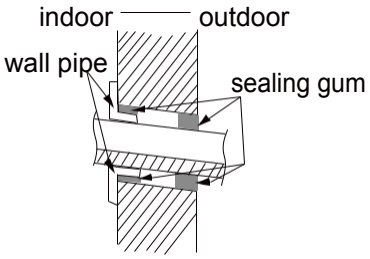
Note:

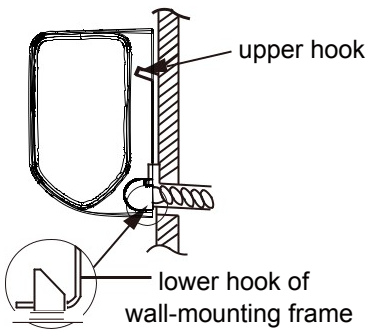
● The power cord and control wire can't be crossed or winding.

● The drain hose should be bound at the bottom.

Step 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.





Note:

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

5.5 Installation Outdoor Unit

Step 1: Fix the support of outdoor

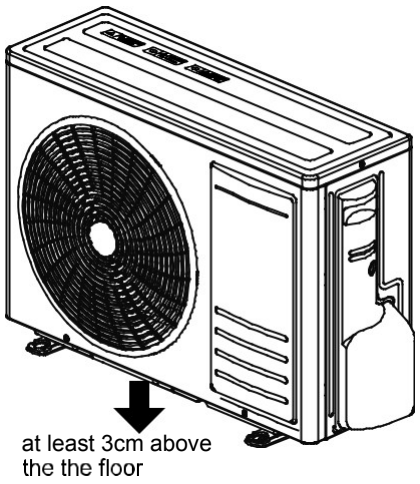
Select it according to the actual installation situation

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

Note:

- Make sure the support can withstand at least four times of the unit weight.

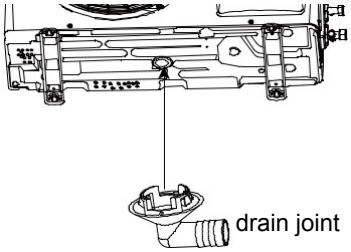
  to install drain joint.
- For the unit with cooling capacity of 2300W~5000W, 6 expansion screws are needed; for the unit with cooling capacity of 6000W~8000W, 8 expansion screws are needed; for the unit with cooling capacity of 10000W~16000W, 10 expansion screws are needed.



Step 2: Install drain joint

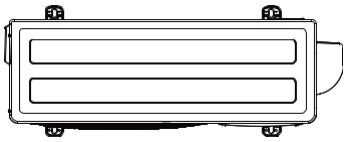
(Only for cooling and heating unit)

1. Connect the outdoor drain joint into the hole on the chassis, as shown in the picture below.
2. Connect the drain hose into the drain vent.



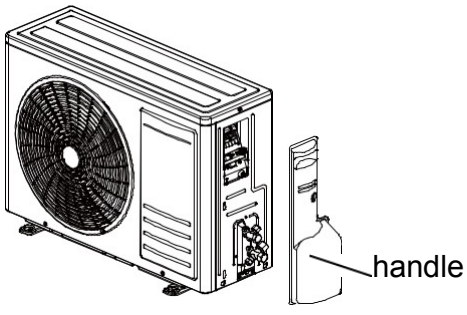
Step 3: Fix outdoor unit

1. Place the outdoor unit on the support.
2. Fix the foot holes of outdoor unit with bolts.

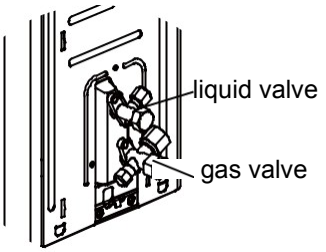


Step 4: Connect indoor and outdoor pipe

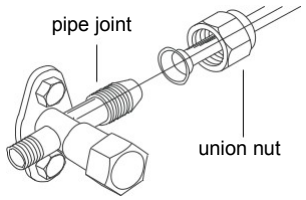
1. Remove the screw on the right handle of outdoor unit and then remove the handle.



2. Remove the screw cap of valve and aim the pipe joint at the bell mouth of pipe.



3. Pretightening the union nut with hand.

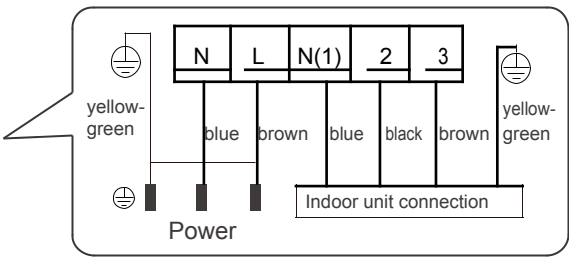


4. Tighten the union nut with torque wrench by referring to the sheet below.

Hex nut diameter	Tightening torque (N·m)
Φ 6	15~20
Φ 9.52	30~40
Φ 12	45~55
Φ 16	60~65
Φ 19	70~75

Step 5: Connect indoor and outdoor pipe

1. Remove the wire clip; connect the power connection wire and signal control wire (only for cooling and heating unit) to the wiring terminal according to the color,fix them with screws.
2. Fix the power connection wire and signal control wire with wire clip (only for cooling and heating unit).



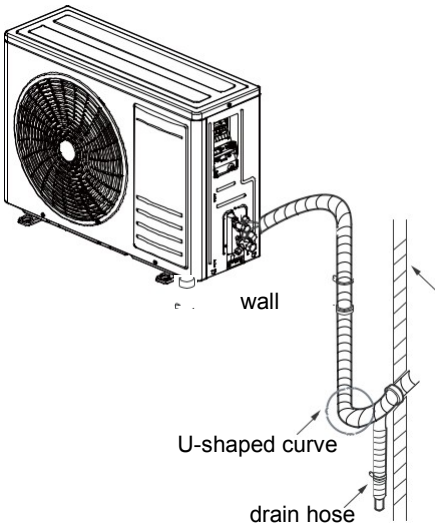
Note:

● Never cut the power connection wire to prolong or shorten the distance.

Step 6: Neaten the pipes

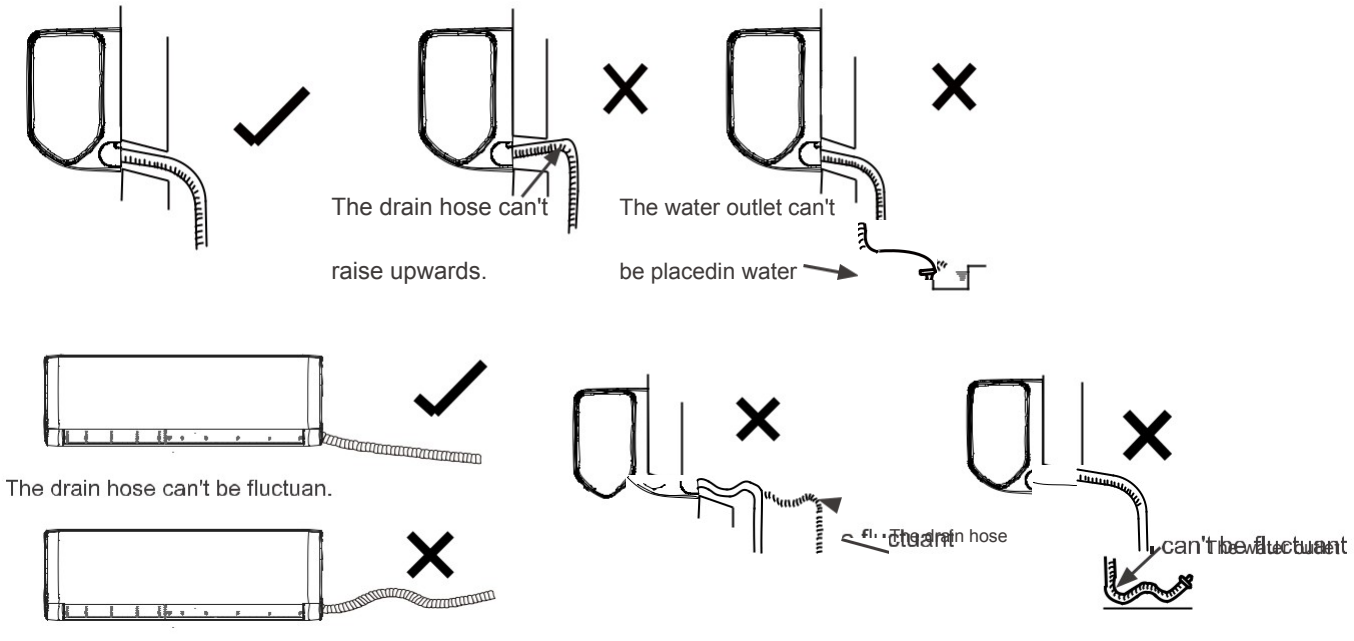
1. The pipes should be placed along the wall,bent reasonably and hidden possibly. Min.semidiameter of bending the pipe is 10cm.

2. If the outdoor unit is higher than the wall hole, you must set a U-shaped curve in the pipe before pipe goes into the room, in order to prevent rain from getting into the room.



Note:

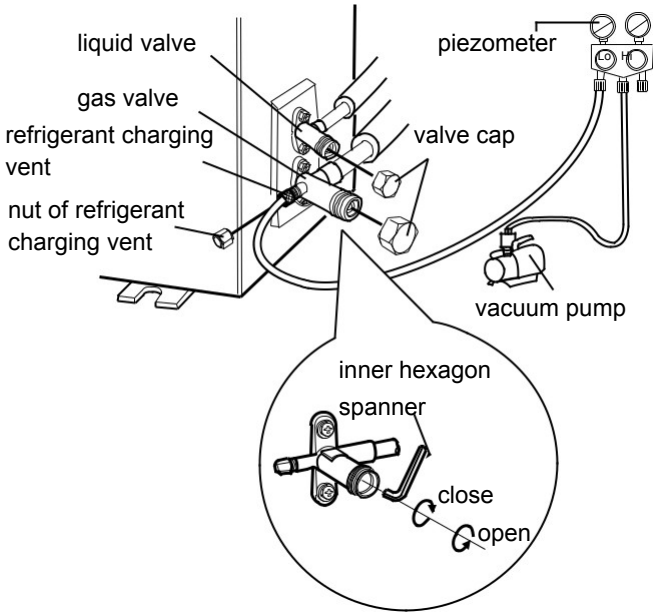
The through-wal height of drain hose shouldn't be higher than the outlet pipe hole of indoor unit.
The water outlet can't be placed in water in order to drain smoothly.



Step 7: Vacuum pumping

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 valve and refrigerant charging vent.
7. Reinstall the handle.



Step 8：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.

5.6 Check after installation

Check according to the following requirement after finishing installation.

Items to be checked	Possible malfunction
Has the unit been installed firmly?	The unit may drop, shake or emit noise
Have you done the refrigerant leakage test?	It may cause in sufficient cooling(heating) capacity.
Is heat insulation of pipeline sufficient?	It may cause condensation and water dripping.
Is water drained well?	It may cause condensation and water dripping.
Is the voltage of power supply according to the voltage marked on the nameplate?	It may cause malfunction or damaging the parts.
Is electric wiring and pipeline installed correctly?	It may cause malfunction or damaging the parts.
Is the unit grounded securely?	It may cause electric leakage
Does the power cord follow the specification?	It may cause malfunction or damaging the parts.
Is there any obstruction in the air inlet and outlet?	It may cause in sufficient cooling(heating) capacity.
The dust and sundries caused during installation are removed?	It may cause malfunction or damaging the parts.
The gas valve and liquid valve of connection pipe are open completely?	It may cause in sufficient cooling(heating) capacity.

5.7 Test operation

1. Preparation of test operation

- The client approves the air conditioner.
- Specify the important notes for air conditioner to the client.

2. Method of test operation

- Put through the power, press ON/OFF button on the remote controller to start operation.
- Press MODE button to select AUTO, COOL, DRY, FAN and HEAT to check whether the operation is normal or not.
- If the ambient temperature is lower than 16℃ , the air conditioner can’t start cooling.

5.8 Configuration of connection pipe

1. Standard length of connection pipe
   ● 5m, 7.5m, 8m.
2. Min. length of connection pipe is 3m.
3. Max. length of connection pipe and max. high difference.

Cooling capacity	Max length of connection pipe	Max height difference	Cooling capacity	Max length of connection pipe	Max height difference
5000Btu/h(1465W)	15	5	24000Btu/h(7032W)	25	10
7000Btu/h(2051W)	15	5	28000Btu/h(8204W)	30	10
9000Btu/h(2637W)	15	5	36000Btu/h(10548W)	30	20
12000Btu/h(3516W)	20	10	42000Btu/h(12306W)	30	20
18000Btu/h(5274W)	25	10	48000Btu/h(14064W)	30	20

4. The additional refrigerant oil and refrigerant charging required after prolonging connection pipe
● After the length of connection pipe is prolonged for 10m at the basis of standard length, you should add 5ml of refrigerant oil for each additional 5m of connection pipe.
● The calculation method of additional refrigerant charging amount (on the basis of liquid pipe):
Additional refrigerant charging amount = prolonged length of liquid pipe × additional refrigerant charging amount per meter

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

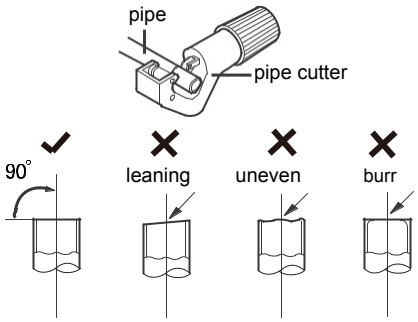
Additional refrigerant charging amount for R22, R407C, R410A and R134a

Diameter of connection pipe		Outdoor unit throttle	
Liquid pipe(mm)	Gas pipe(mm)	Cooling only(g/m)	Cooling and heating(g/m)
Φ6	Φ9.52 or Φ12	15	20
Φ6 or Φ9.52	Φ16 or Φ19	15	50
Φ12	Φ19 or Φ22.2	30	120
Φ16	Φ25.4 or Φ31.8	60	120
Φ19	-	250	250
Φ22.2	-	350	350

5.9 Pipe expanding method

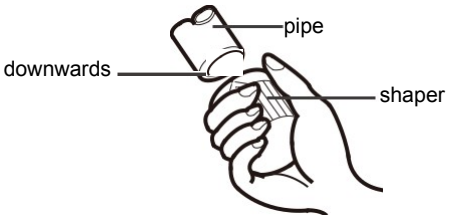
Improper pipe expanding is the main cause of refrigerant leakage. Please expand the pipe according to the following steps:

A: Cut the pipe



B: Remove the burrs

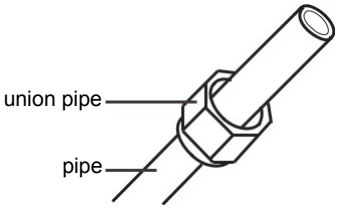
Remove the burrs with shaper and prevent the burrs from getting into the pipe.



C: Put on suitable insulating pipe

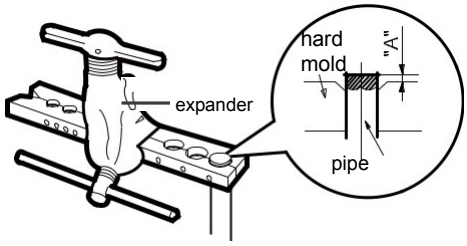
D: Put on the union nut

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



E: Expand the port

Expand the port with expander.



Note:

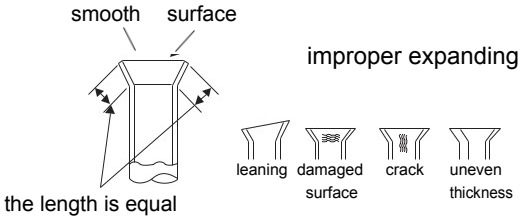
"A" is different according to the diameter, please refer to the sheet below:

Outer diameter(mm)	A(mm)	
	Max	Min
Φ6 - 6.35(1/4")	1.3	0.7
Φ9.52(3/8")	1.6	1.0
Φ12-12.7(1/2")	1.8	1.0
Φ15.8-16(5/8")	2.4	2.2

F: Inspection

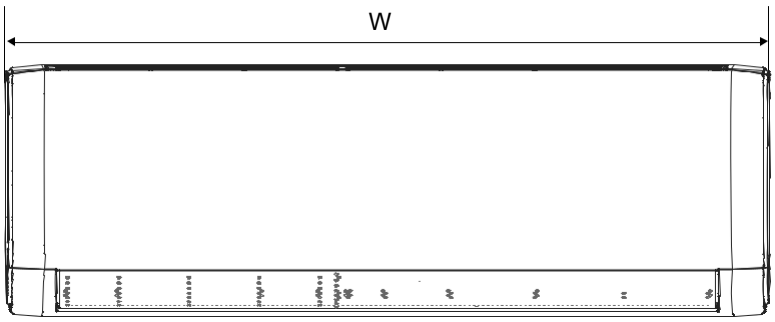
Check the quality of expanding port.

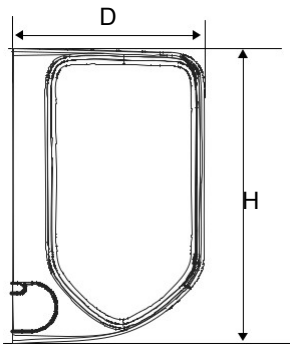
If there is any blemish, expand the port again according to the steps above.



6. Construction Views

6.1 Indoor Unit

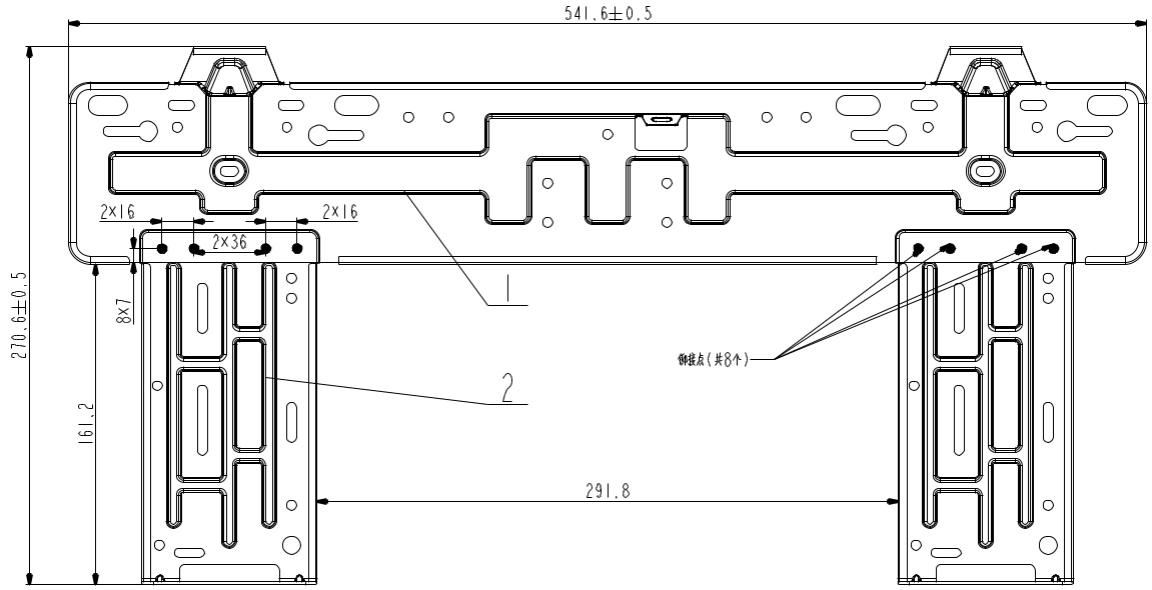




Unit:mm

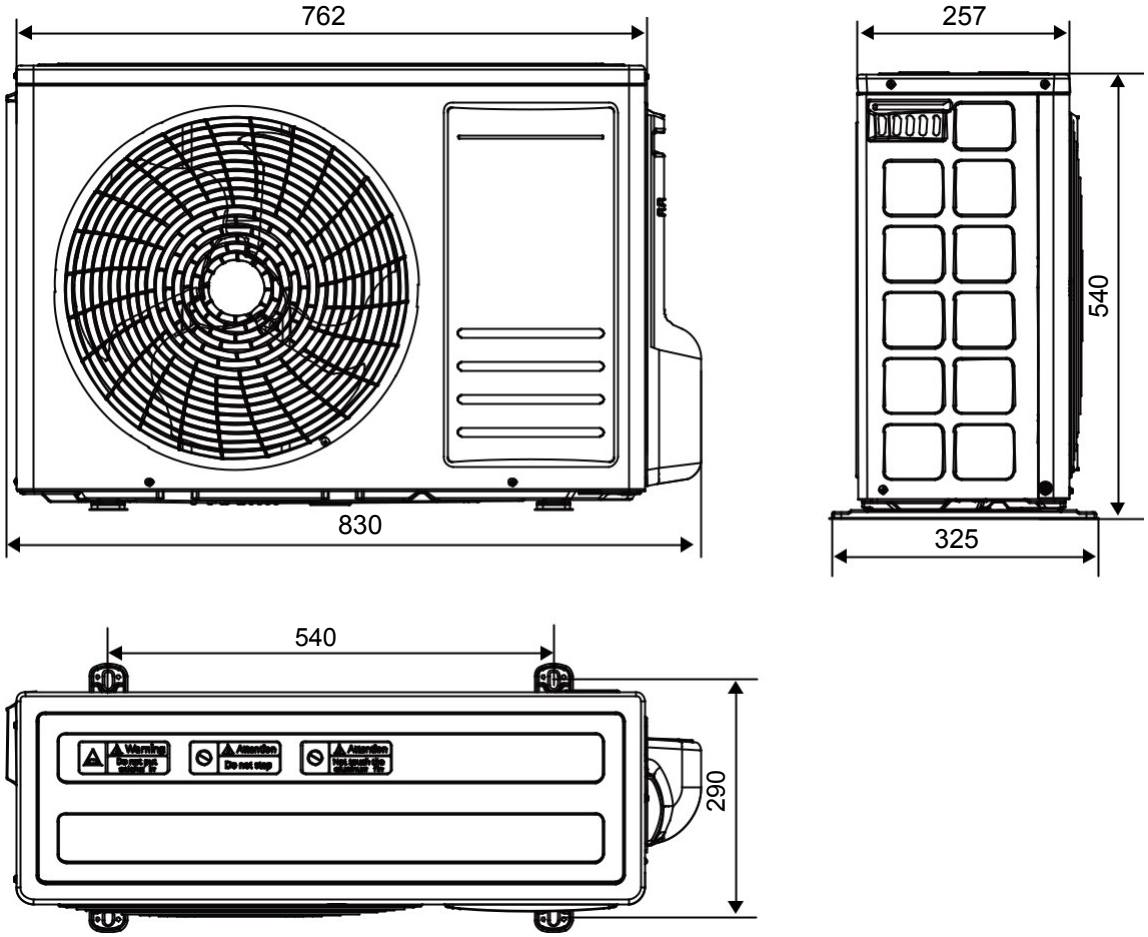
Model	W(mm)	H(mm)	D(mm)
09K	896	295	192
12K	896	295	192

- 9K/12K

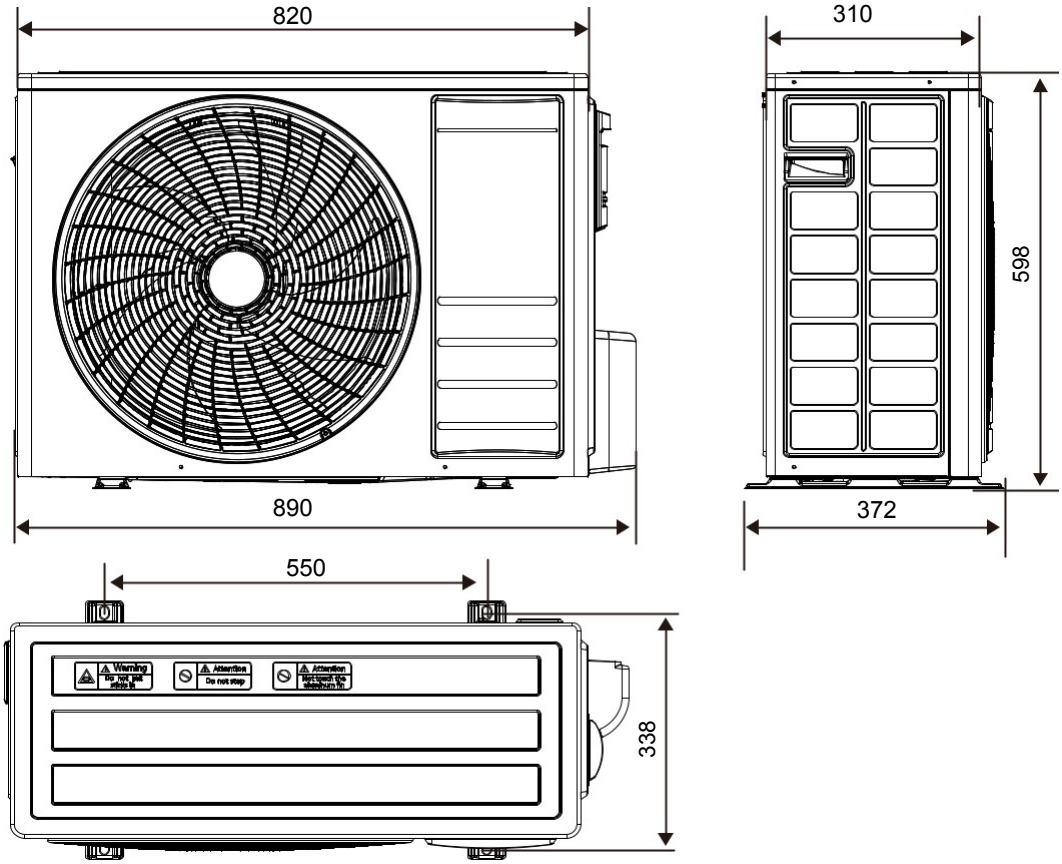


6.2 Outdoor Unit

Model: SAC-U09SWKN/I



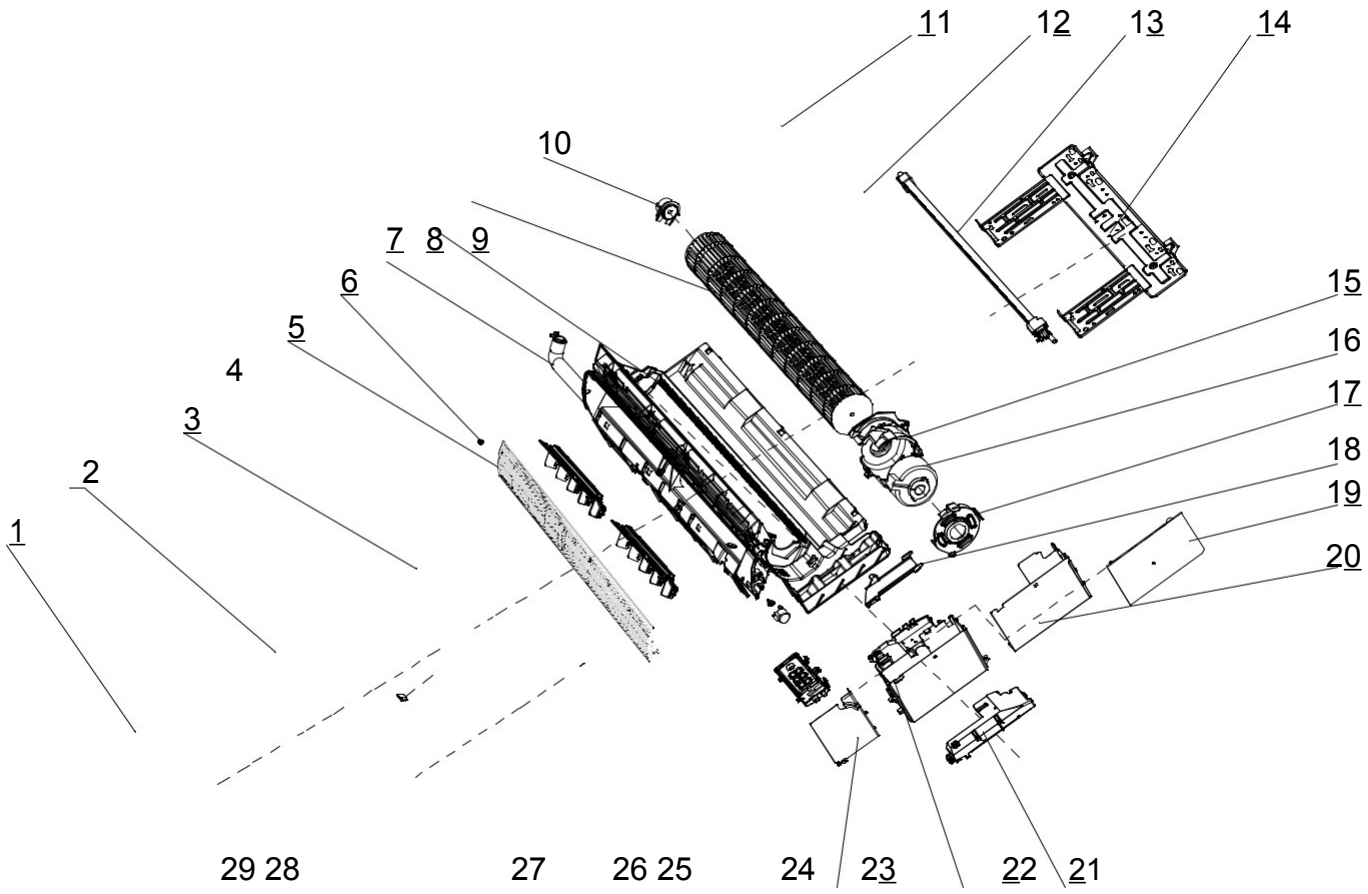
Model: SAC-U12SKWN/I



7. Exploded Views and Parts List

7.1 Indoor Unit

Model:SAC-09SKWN/I、SAC-12SKWN/I

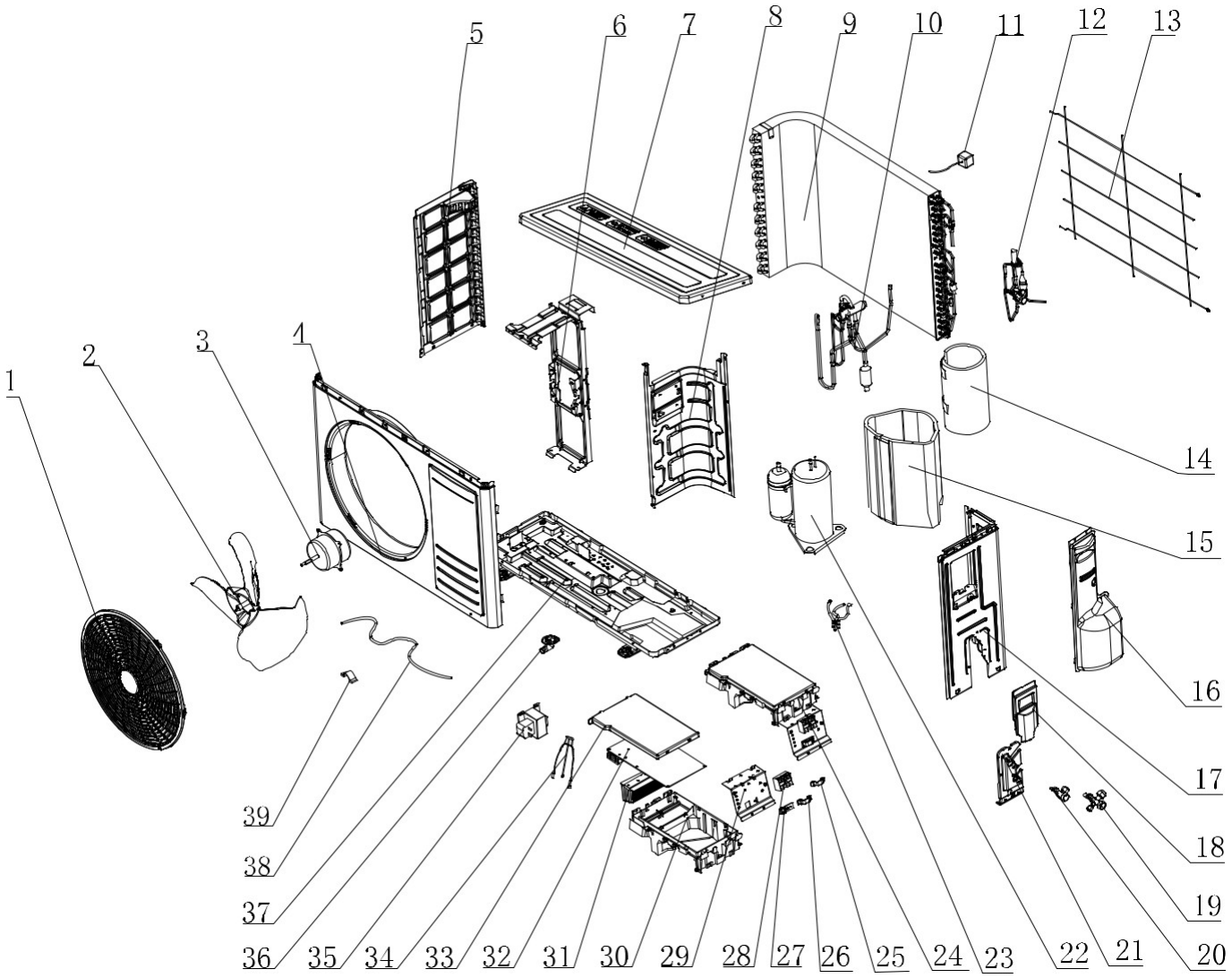


NO.	Description	Part Code SAC-09SKWN/I SAC-12SKWN/I	Qty
1	panel	N031131-000008-001	1
2	filter subassembly	N041104-000038-001	2
3	panel body	N031132-000198-001	1
4	axile bush	N041102-000003-001	1
5	air louver	N041104-001070-001	1
6	left axile bush	N041102-000002-001	1
7	drain pipe	N041113-000005-000	1
8	chassis subassembly	N031131-000014-001	1
9	cross-flow fan	N041101-000004-001	1
10	bearing rubber ring subassembly	N031132-000678-000	1
11	evaporator angular carriage	N041104-000142-001	1
12	evaporator assembly	N031111-000261-002	1
13	PTC	无	1
14	wall frame	N031132-000171-000	1
15	fan motor clamp board	N041104-000139-001	1
16	fan motor	N021101-000003-001	1
17	Motor cover plate	N041104-000140-001	1
18	fan motor clamp board	N041104-000909-001	1
19	main board	N031102-000691-000	1
20	electrical box cover	N041105-000601-001	1
21	electrical box cover	N041104-000314-001	1
22	electrical box	N041104-000313-001	1
23	electrical box cover	N041105-000602-001	1
24	display board	N031102-000568-000	1
25	step motor	N021103-000002-001	1
26	crank	N041102-000018-001	1
27	swing louver	N041104-000300-001	2
28	media box	N041104-000151-001	1
29	screw cap	N041104-000900-001	1

The data above are subject to change without notice.

7.2 Outdoor Unit

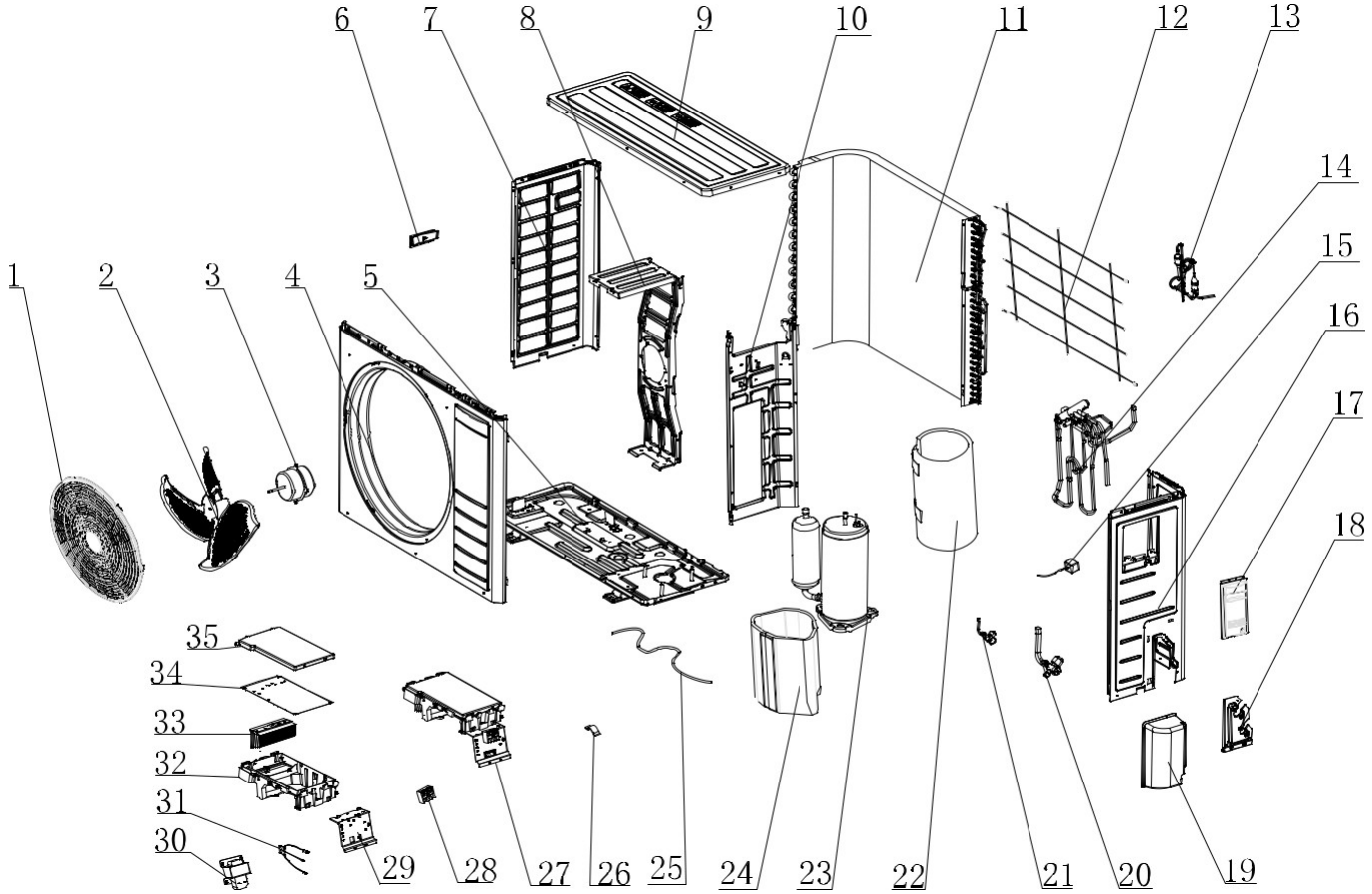
Model: SAC-U09SWKN/I



NO.	Description	Part Code	Qty
		SAC-U09SWKN/I	
1	grill（apricot grey)	N041104-000863-001	1
2	axial flow fan（original color）	N041101-000013-001	1
3	motor	N021101-000005-001	1
4	front panel（apricot grey）	N041105-000535-001	1
5	left side panel	N041104-000307-001	1
6	motor support	N041105-000631-001	1
7	top cover（apricot grey）	N041105-000120-001	1
8	Partition board subassembly	N031132-000170-001	1
9	condenser assembly	N031111-000201-009	1
10	4-way-valve assembly	N031112-000742-101	1
11	electromagnetics valve coil	N013602-000008-001	1
12	capillary subassembly	N031112-000726-003	1
13	mesh enclosure(Iron mesh)	N041105-000291-001	1
14	noise-absorption sponge	N041107-000087-000	1
15	noise-absorption sponge	N041107-000086-000	1
16	big handle（apricot grey）	N041104-000937-001	1
17	right side panel（apricot grey）	N041105-000162-001	1
18	big handle guard board	无	1
19	stop valve	N091103-000009-001	1
20	stop valve	N091103-000005-001	1
21	valve support（apricot grey）	N041105-000610-001	1
22	compressor and accessory	N021108-000137-001	1
23	wiring（compressor）	N011904-000109-001	1
24	electric box assembly	N031101-000001-08G	1
25	wire fix clamp	N041103-000015-001	1
26	wire fix clamp	N041103-000014-001	1
27	insulation gasket	N041199-000115-000	1
28	wiring board	N012901-000021-001	1
29	wiring board support	N041105-000649-001	1
30	electric box	N041104-001108-001	1
31	radiator	无	1
32	main board	N031102-000560-001	1
33	electric box cover	N041104-000730-001	1
34	temp. sensor	N010405-000009-001	1
35	reactor	无	1
36	drain joint	N041104-000370-001	1
37	chassis subassembly	N031132-000917-100	1
38	electric heating belt（chassis）	N013201-000010-001	1
39	electric heating cable tabletting	N041105-000677-001	13

The data above are subject to change without notice.

Model: SAC-U12SKWN/I



NO.	Description	Part Code	Qty
		SAC-U12SKWN/I	
1	grill（apricot grey)	N041104-000867-001	1
2	axial flow fan	N041101-000018-001	1
3	fan motor	N021101-000012-001	1
4	front panel	N041105-000544-001	1
5	chassis subassembly	N031132-000444-100	1
6	small handle	N041104-000938-002	1
7	left side panel	N041105-000195-001	1
8	motor support subassembly	N041105-000623-001	1
9	top cover	N041105-000147-001	1
10	Partition board subassembly	N031132-000166-001	1
11	condenser subassembly	N031111-000129-001	1
12	capillary subassembly	N031112-000745-001	1
13	4-way-valve assembly	N031112-000744-102	1
14	4-way-valve coil	N013601-000002-001	1
15	right side panel（apricot grey）	N041105-000195-002	1
16	big handle（apricot grey）	N041104-000936-001	1
17	valve support subassembly	N031132-000500-101	1
18	valve cover	N041104-000843-001	1
19	stop valve	N031112-000208-002	1
20	stop valve	N091103-000005-001	1
21	compressor and accessory	N021108-000137-001	1
22	noise-absorption sponge（outside）	N041107-000104-000	1
23	electric heating belt（chassis）	N013201-000010-001	1
24	electric heating cable tabletting	N041105-000677-001	9
25	Electric Box assembly	N031101-000001-08L	1
26	wiring board	N012901-000021-001	1
27	wiring board support	N041105-000649-001	1
28	reactor	/	1
29	temp sensor	N010405-000009-001	1
30	Electric Box	N041104-001108-001	1
31	radiator	/	1
32	main board	N031102-000561-001	1
33	electric box cover	N041104-000730-001	1

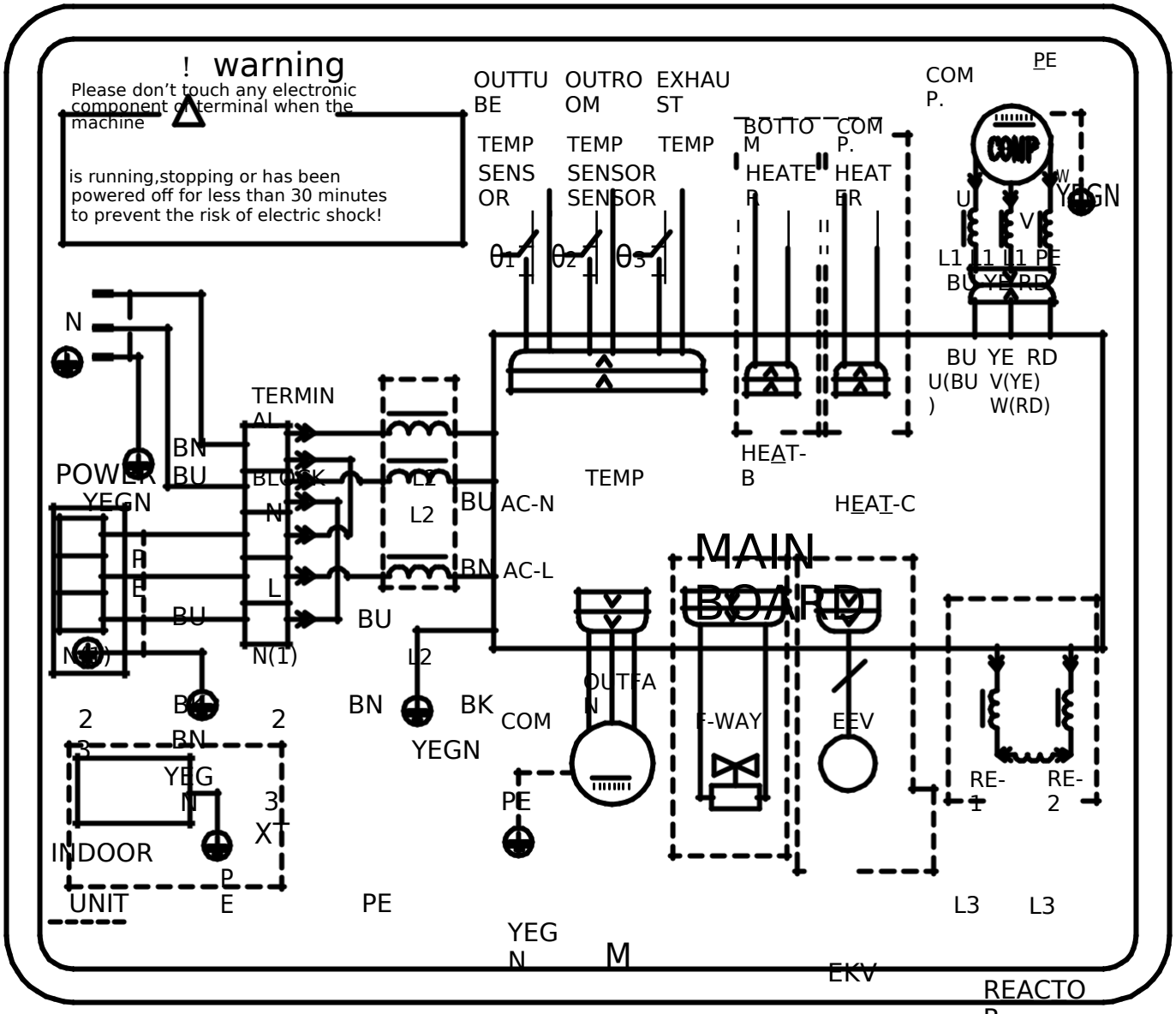
8. Schematic Diagram

8.1 Electrical Wiring

Meaning of marks

Symbol	OG	WH	YE	RD	YEGN	BN	BU	BK	VT
Color symbol	ORANGE	WHITE	YELLOW	RED	YELLOW GREEN	BROWN	BLUE	BLACK	VIOLET
Symbol	COMP.		4WAY		EKV			⏚ /PE	
Name	COMPRESSOR		4-WAY VALVE		ELECTRONIC EXPANSION VALVE			PROTECTIVE EARTH	

◆ **Indoor Unit**



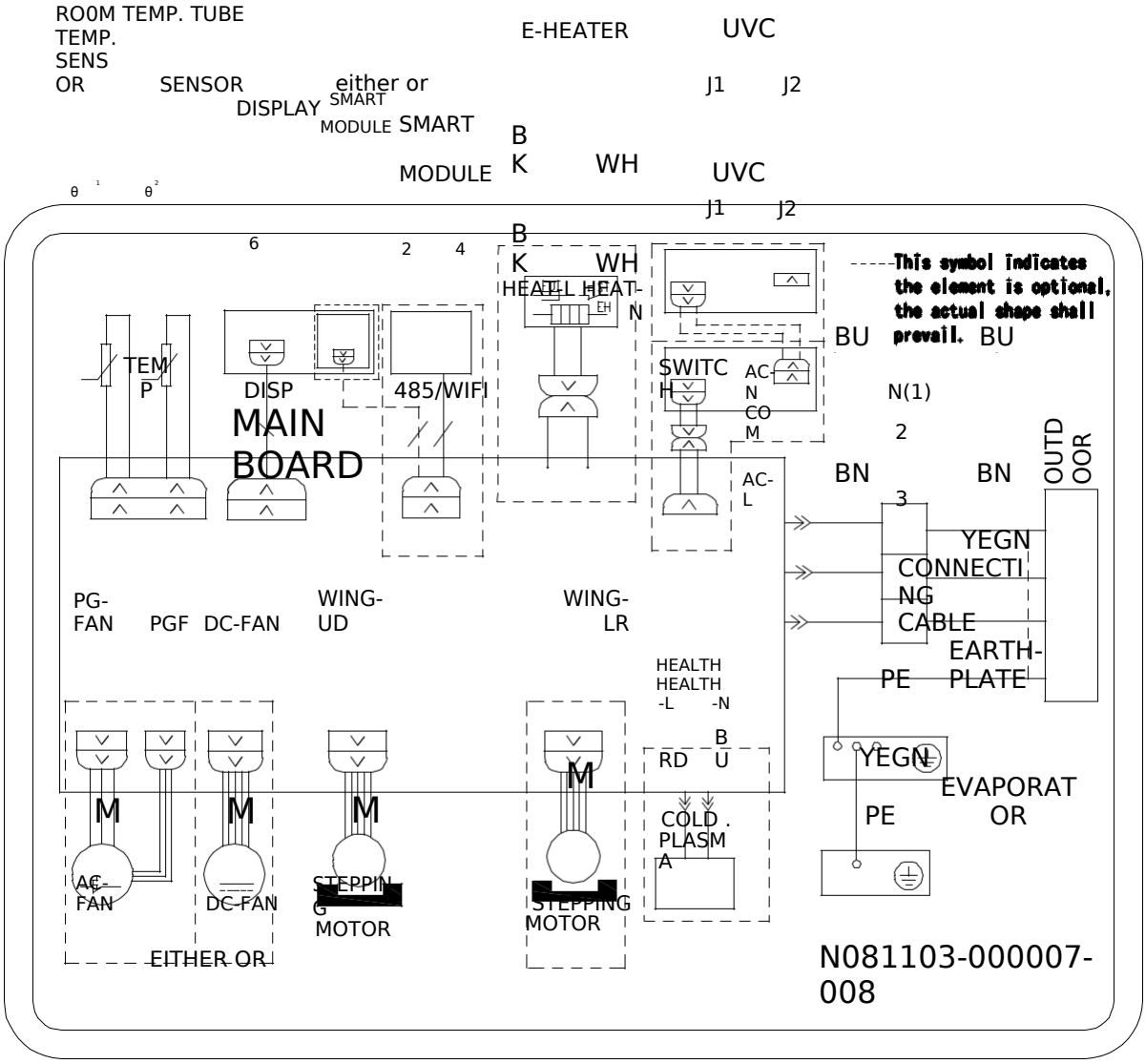
This symbol indicates the optional,the actual shape element is shall prevail

N081103-000431-001

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

◆ Outdoor Unit

Model: SAC-U09SWKN/I , SAC-U12SKWN/I

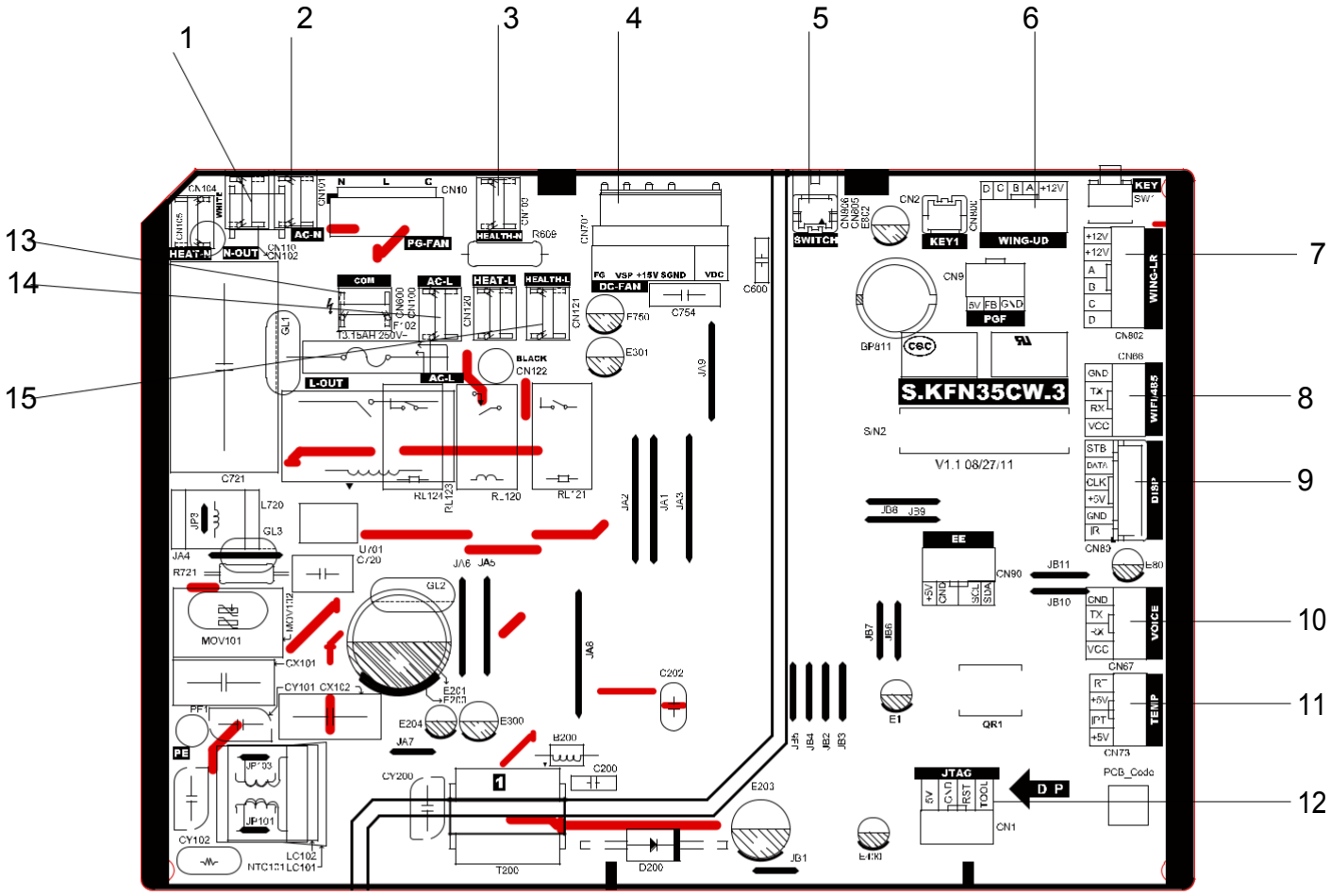


These circuit diagrams are subject to change without notice, please refer to the one supplied with the unit.

8.2 PCB Printed Diagram

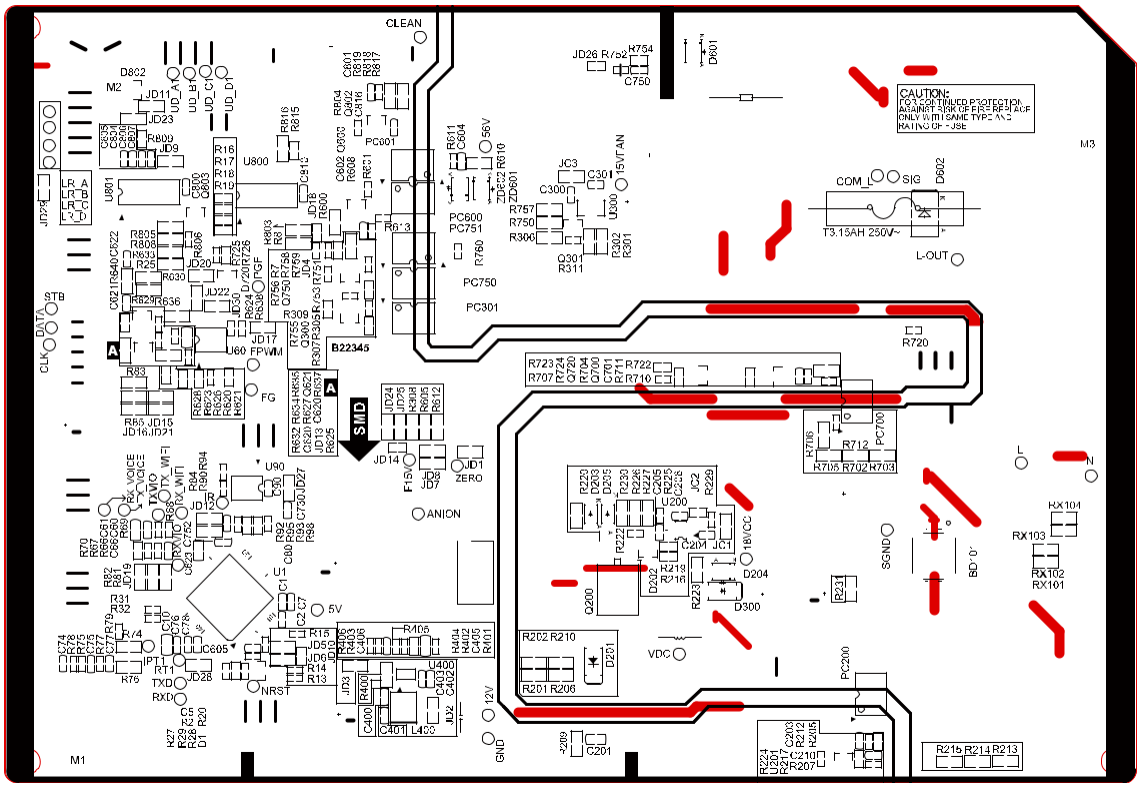
8.2.1 Indoor Unit

TOP VIEW



No.	Function
1	Outdoor zero wire connector
2	Power supply zero wire connector
3	Cold plasma zero wire connector
4	DC motor connector
5	UV Disinfection connector
6	Up and down louver motor connector
7	Left and right louver motor connector
8	485 comminication or WiFi module connector
9	Display connector
10	Voice module connector
11	Temperature sensor connector
12	Software program connector
13	Communication connector
14	Power supply fire wire connector
15	Cold plasma fire wire connector

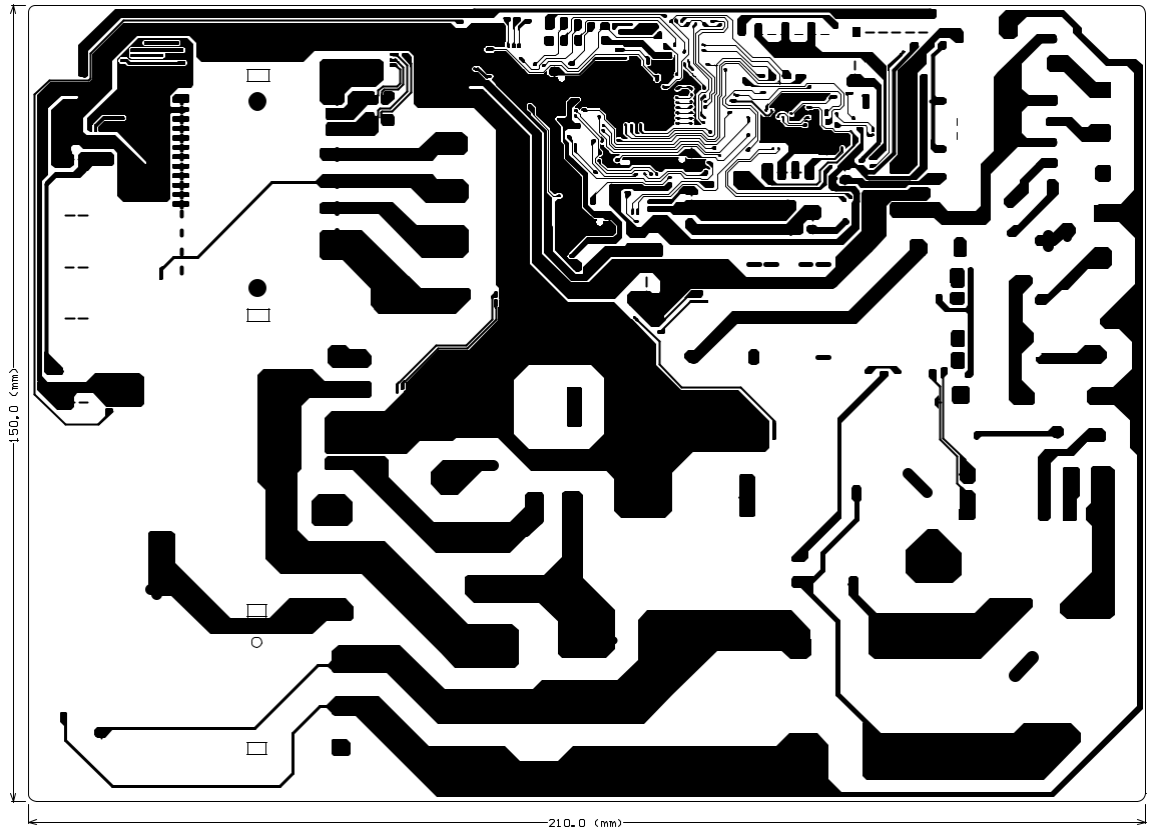
BOTTOM VIEW

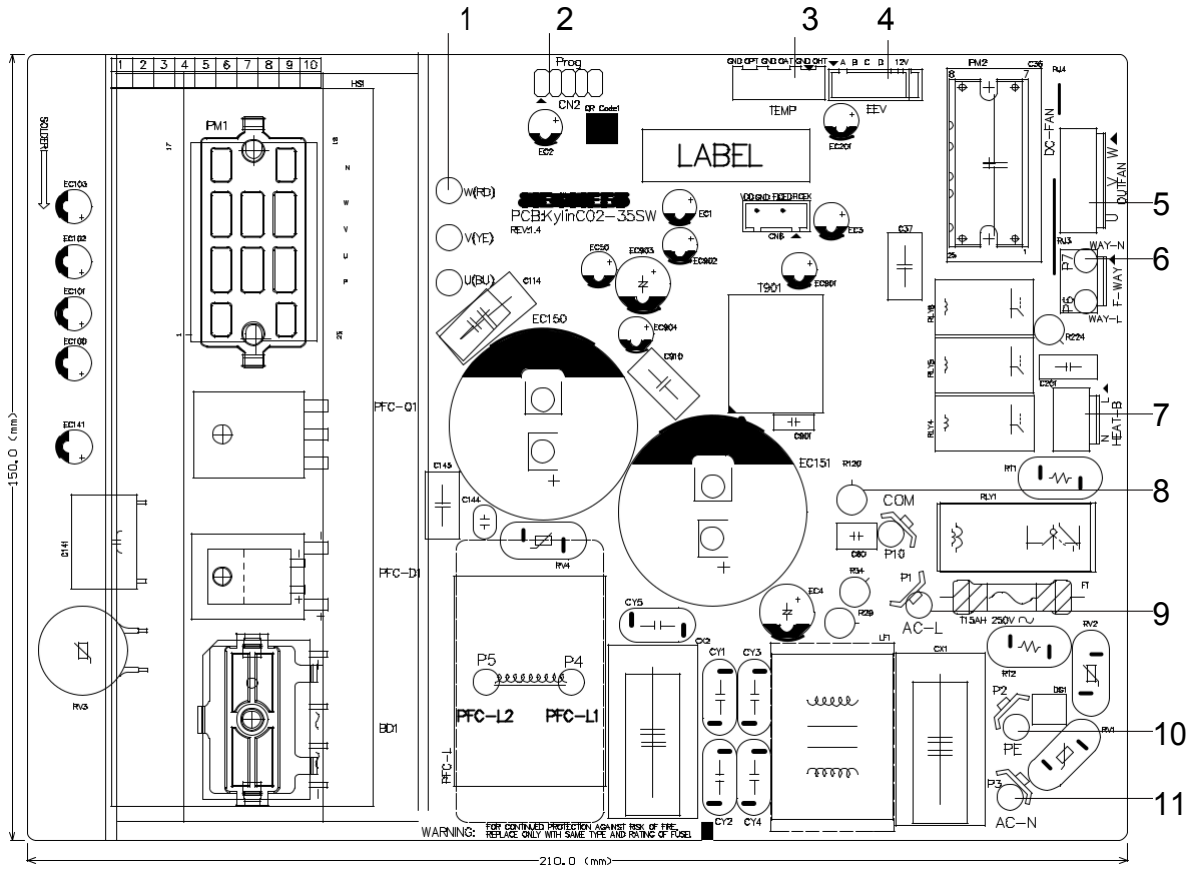


8.2.2 Outdoor Unit

Model:SAC-U09SWKN/I, SAC-U12SKWN/I

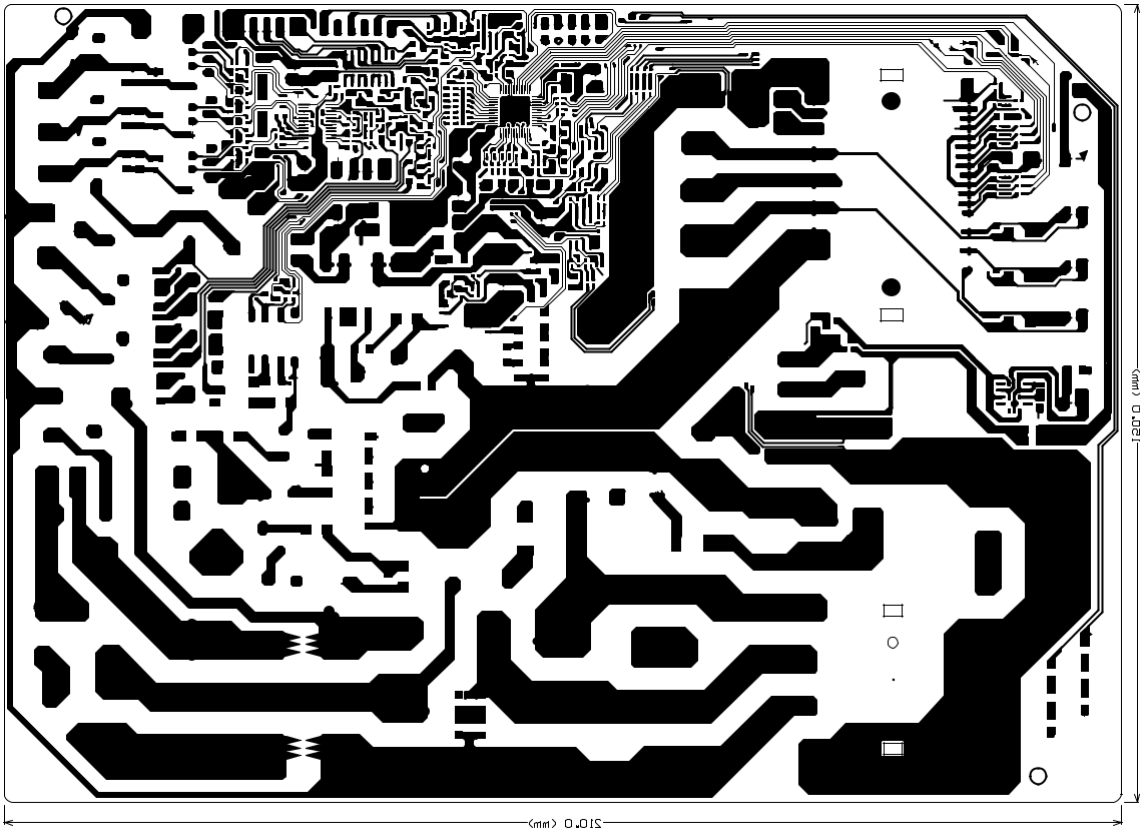
● Top View

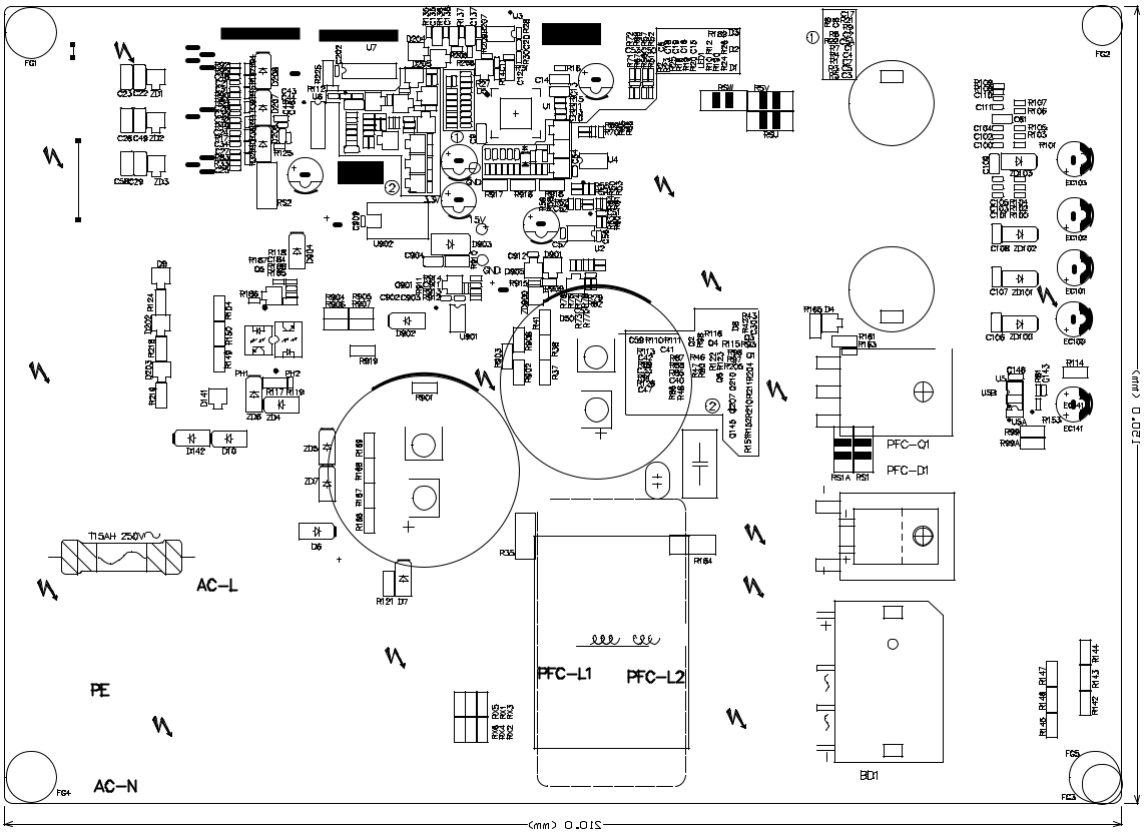




No.	Silk scren name	Function
1	U(Bu),V(YE),W(RD)	Compressor connector
2	Prog	Programing connector
3	TEMP	Temperature sensor connector
4	EEV	Electronic expansion valve connector
5	OUTFAN	Outdoor fan connector
6	F-WAY	4-way valve connector
7	HEAT-B	Electric heater connector
8	COM	Communication wire
9	AC-L	Power fire wire
10	PE	Power earth wire
11	AC-N	Power zero wire

● Bottom View





9. Troubleshooting

9.1 Error Code List

Error Code	Name of malfunction and status	Way of display			Error Type	Possible Causes	Solution
		Display directly	By remote conrol procedure only	By remote control procedure within compressor stop 200s or direcly after compressor stop 200s			
CL	Filter cleaning reminder	√			Indoor	Filter may have dust	Clean the fliter
d0	Compressor RMS phase current limit down		√		Outdoor	Compressor phase current effective value is too high, the compressor need to limit the frequency or frequency reduction operation	The normal limit frequency reduction function.
d1	RMS machine current limit down		√		Outdoor	The whole unit current effective value is too high, compressor need to limit the frequency or frequency reduction operation	The normal limit frequency reduction function.
d2	Exhaust gas temperature limit down		√		Outdoor	The Exhaust pipe temperature is too high, compressor need to limit the frequency or frequency reduction operation	The normal limit frequency reduction function.
d3	Anti-freeze limit down		√		Outdoor	The inner pipe temperature is too low, compressor need to limit the frequency or frequency reduction operation	The normal limit frequency reduction function.
d4	Overload limit down		√		Outdoor	The system is overload, compressor need to limit the frequency or frequency reduction operation	The normal limit frequency reduction function.
d5	IPM temp limit down		√		Outdoor	The compressor module temperature is too high, compressor need to limit the frequency or frequency reduction operation	The normal limit frequency reduction function
E0	High discharge temp protection			√	Outdoor	See Diagram 1	See Diagram 1
E1	Overload protection			√	Outdoor	See Diagram 2	See Diagram 2
E2	Compressor overload protection			√	Outdoor	See Diagram 3	See Diagram 3
E3	Anti-freeze protection			√	Outdoor	1. Indoor machine return air is not smooth. 2. The fan speed is too low. 3. The filter or evaporator not clean. 4. The inner temperature sensor abnormal.	1. Indoor machine return air is not smooth. 2. The fan speed is too low. 3. The filter or evaporator not clean. 4. Change the temperature sensor abnormal.
E7	4 way valve malfunction			√	Outdoor	1.Supply voltage is unstable 2.Mainboard and 4-Way valve unconnected. 3.4-Way valve is broken.	1.Check the voltage of power supply. 2.Check the connecting of mainboard and 4-way valve. 3.Change the 4-Way valve.
E8	Outdoor ambient temperature abnormal protection		√		Outdoor	1. The outdoor environment temperature is too high or too low. 2. The outdoor environment temprature sensor is damage.	1. The outdoor environment temperature is in normal range. 2. Change the temprature sensor.
H0	Compressor stalling			√	Outdoor	See Diagram 4	See Diagram 4
H1	Start up failure			√	Outdoor	See Diagram 5	See Diagram 5

H2	Compressor phase current peak protection			√	Outdoor	See Diagram 6	See Diagram 6
H3	Compressor phase current RMS protection			√	Outdoor	See Diagram 7	See Diagram 7
H4	IPM protection			√	Outdoor	See Diagram 8	See Diagram 8
H5	IPM overheat protection			√	Outdoor	1. The radiator ventilation is abnormal 2. IPM module thermal paste dry solid or screw loose 3. the mainboard is damage	1. Check the radiator ventilation is normal 2. Check the IPM module thermal paste dry solid or screw loose is normal 3. Change the main board
H6	Compressor phase ciurcuit detection error	√			Outdoor	the mainboard is broken	change the mainboard
H7	Compressor phase loss error			√	Outdoor	1.mainboard and compressor unconnected 2.the mainboard is broken	1.check the connecting of mainboard and compressor 2.change the mainboard
H8	Outdoor DC fan motor error			√	Outdoor	1.Outdoor motor fan is blocked 2.mainboard and DC fan motor unconnected 3.the mainboard is broken 4.DC fan motor is broken	1.remove the block 2.check the connecting of mainboard and DC fan motor 3.change the mainboard 4.change the DC fan motor
H9	Outdoor DC fan motor phase current detection circuit error	√			Outdoor	The mainboard is broken	Change the mainboard
L0	Jumper error	√			Indoor	See Diagram 9	See Diagram 9
L1	PG Indoor motor zero crossing detecting circuit malfunction	√			Indoor	The mainboard is broken	Change the mainboard
L2	Indoor fan motor error	√			Indoor	See Diagram 10	See Diagram 10
L3	Indoor display communication between Indoor and Outdoor failure	√			Indoor	See Diagram 11	See Diagram 11
L4	Select the port level abnormal error		√		Indoor	The mainboard is broken	Change the mainboard
L5	Indoor EEPREM error		√		Indoor	See Diagram	See Diagram
L6	Outdoor display communication between Indoor and Outdoor failure	√			Outdoor	See Diagram 12	See Diagram 12
LL	Trial running		√		Indoor	Normal Function	Normal Function
P0	Outdoor EEPREM error	√			Outdoor	1.EEPROM chip(U8)loose. 2.The mainboard is broken.	1.Check the EEPROM chip(U8)is fixed. 2.Change the mainboard.
P1	Power On failure \ Chaging ciurcuit error	√			Outdoor	1.The voltage of power supply is too low. 2.The mainboard is broken.	1.Check the voltage of power supply. 2.Change the mainboard.
P2	Alternating current protection \ Feedforward voltage protection			√	Outdoor	1.The voltage of power supply is too low. 2.The mainboard is broken	1.Check the voltage of power supply. 2.Change the mainboard.
P3	High voltage protection			√	outdoor	1.The voltage of power supply is too high. 2.The mainboard is broken.	1.Check the voltage of power supply. 2.Change the mainboard.
P4	Low voltage protection			√	Outdoor	1.The voltage of power supply is too low. 2.The mainboard is broken.	1.Check the voltage of power supply. 2.Change the mainboard.
P5	DC line voltage drop protection			√	Outdoor	1.The voltage of power supply is unstable. 2.The mainboard is broken.	1.Check the voltage of power supply. 2.Change the mainboard.
P6	Machine current detection circuit error	√			Outdoor	1.Refrigerant leakage. 2.The mainboard is broken.	1.Check the refrigerant leakage. 2.Change the mainboard.
P7	Over-current protection			√	Outdoor	See Diagram 13	See Diagram 13
P8	PFC current detection circuit error	√			Outdoor	The mainboard is broken	Change the mainboard
P9	PFC protection			√	Outdoor	See Diagram 14	See Diagram 14

PA	Indoor and outdoor mismatch	√			Outdoor	1. The outdoor unit valve is close. 2. The refrigerant connecting pipe installation errors. 3. The inside and outside the machine connecting wiring error. 4. The refrigerant connecting pipe with the connection order sequence.	1. Check the outdoor unit valve is open. 2. The refrigerant connecting pipe installation errors. 3. Check the inside and outside the machine connecting wiring is correct. 4. Check the refrigerant connecting pipe with the connection is in order sequence.
PC	Mode conflict	√			Outdoor	Failure in indoor model conflicts with the operation mode of the outdoor unit.	Power off or change the failure in indoor unit mode to non-conflicts mode.
U0	Indoor ambiet temp sensor short\open	√			Indoor	1.The wiring terminal between the temperature sensor and the mainboard loosened or poorly contacted. 2.The sensor is broken. 3.The mainboard is broken.	1.Check the wiring terminal. 2.Change the sensor. 3.Change the mainboard.
U1	Indoor mide pepe temp sensor short\open	√			Indoor	1.The wiring terminal between the temperature sensor and the mainboard loosened or poorly contacted. 2.The sensor is broken. 3.The mainboard is broken.	1.Check the wiring terminal. 2.Change the sensor. 3.Change the mainboard.
U2	Outdoor ambient temp sensor short\open	√			Outdoor	1.The wiring terminal between the temperature sensor and the mainboard loosened or poorly contacted. 2.The sensor is broken. 3.The mainboard is broken.	1.Check the wiring terminal. 2.Change the sensor. 3.Change the mainboard.
U3	Outdoor mid-coil temp sensor short\open	√			Outdoor	1.The wiring terminal between the temperature sensor and the mainboard loosened or poorly contacted. 2.The sensor is broken. 3.The mainboard is broken.	1.Check the wiring terminal. 2.Change the sensor. 3.Change the mainboard.
U4	Outdoor pipe temp sensor short\open	√			Outdoor	1.The wiring terminal between the temperature sensor and the mainboard loosened or poorly contacted. 2.The sensor is broken. 3.The mainboard is broken.	1.Check the wiring terminal. 2.Change the sensor. 3.Change the mainboard.
U5	IPM temp sensor short\ open	√			Outdoor	The IPM temp sensor is broken.	Change the mainboard.
U6	Liquid pipe outlet temp sensor short\open	√			Outdoor	1.The wiring terminal between the temperature sensor and the mainboard loosened or poorly contacted. 2.The sensor is broken. 3.The mainboard is broken.	1.Check the wiring terminal. 2.Change the sensor. 3.Change the mainboard.
U7	Gas pipe outlet temp sensor short\open	√			Outdoor	1.The wiring terminal between the temperature sensor and the mainboard loosened or poorly contacted. 2.The sensor is broken. 3.The mainboard is broken.	1.Check the wiring terminal. 2.Change the sensor. 3.Change the mainboard.
U8	Discharge temp sensor short\open	√			Outdoor	1.Outdoor pipe temp sensor is not in the right position. 2.The sensor is broken. 3.The mainboard is broken.	1.Check the sensor position. 2.Change the sensor. 3.Change the mainboard.

9.2 Procedure of Troubleshooting

Diagram 1:

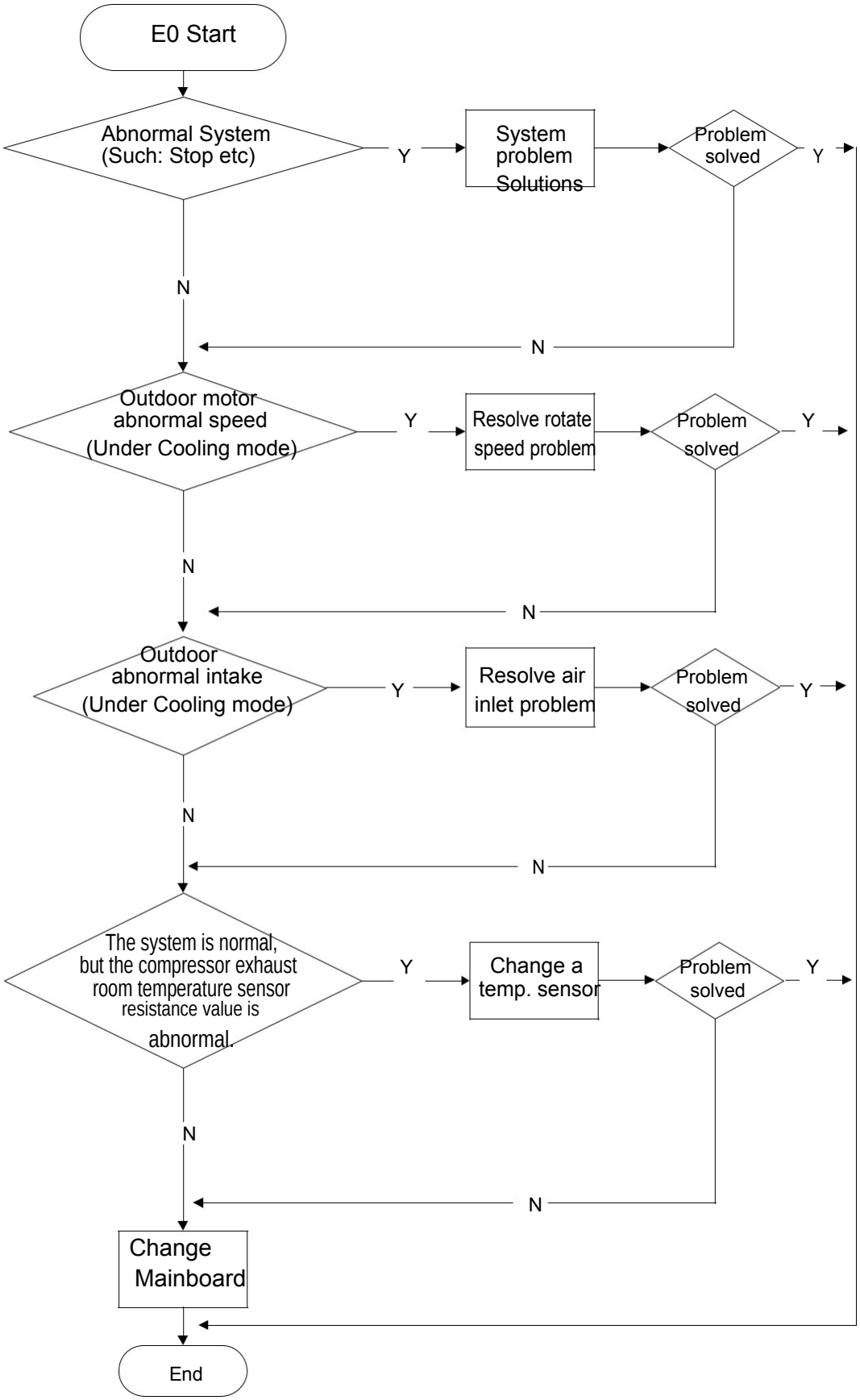


Diagram 2:

Main test points:

- Is the temperature of Indoor and Outdoor Unit too high?
- Is the fan of Indoor and Outdoor Unit operating normal?
- Is the radiating of Indoor and Outdoor Unit well(Including the fan speed is lower or not)?
- Is the pipe temperature sensor normal?

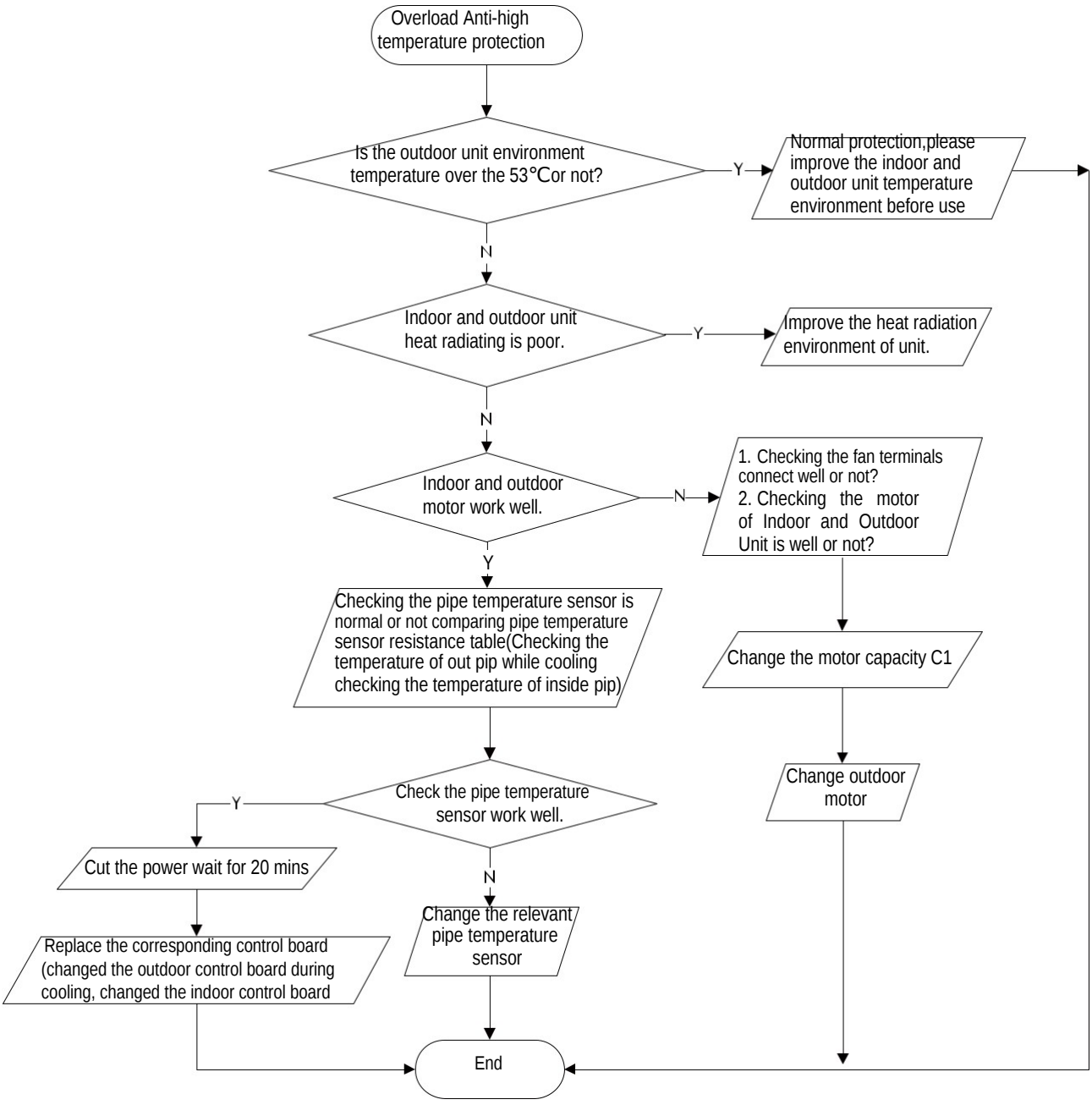


Diagram 3:

Main test points:

- Check the electronic expansion valve is connected.
- Check the electronic expansion valve is in good condition.
- Check the refrigerant leakage or not.
- Check the overload protector is in good condition.
- Check the pipe temperature sensor is in good condition.

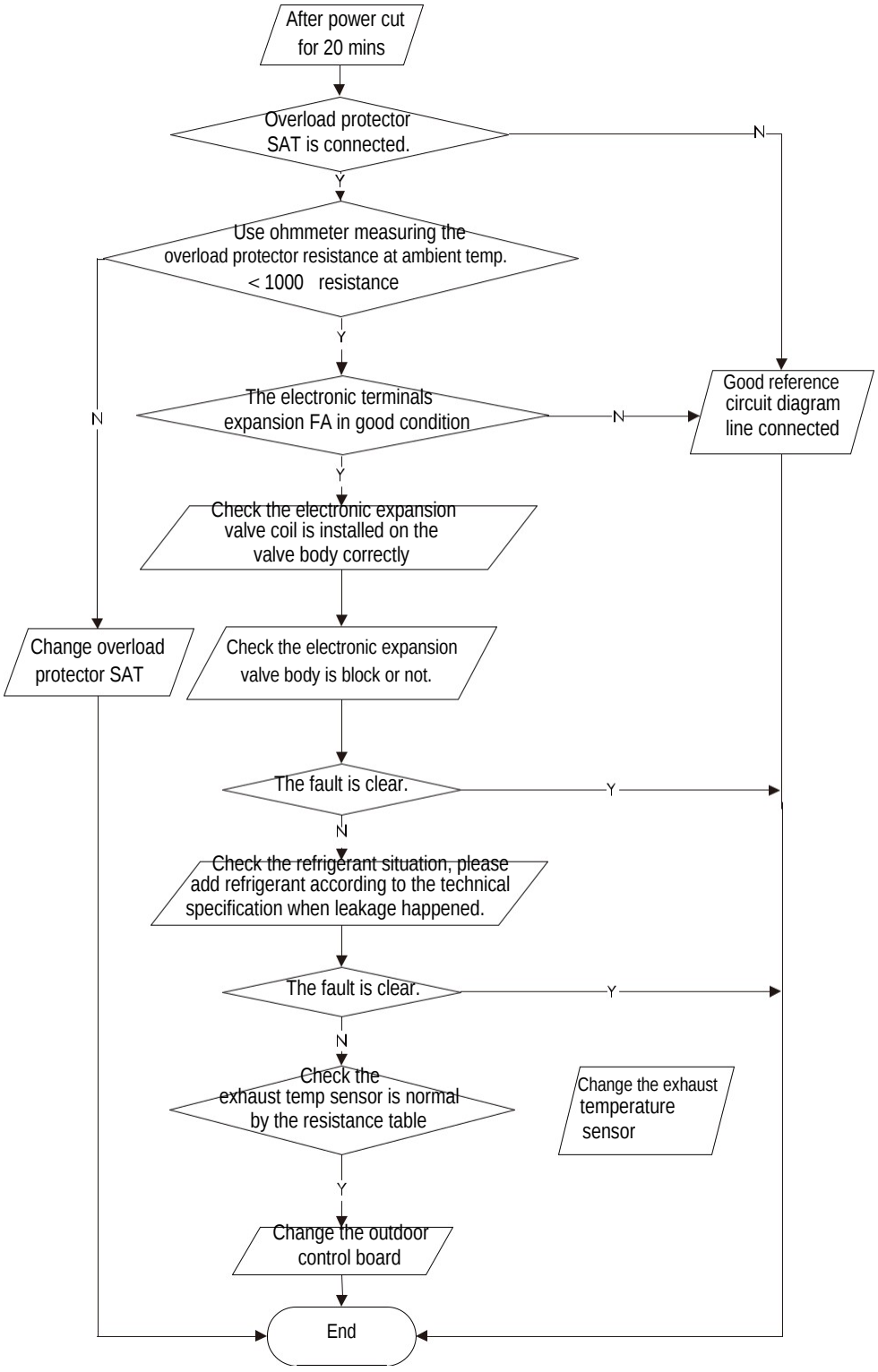


Diagram 4:

Main test points:
- Check the system pressure is high.
- Check the voltage is low.

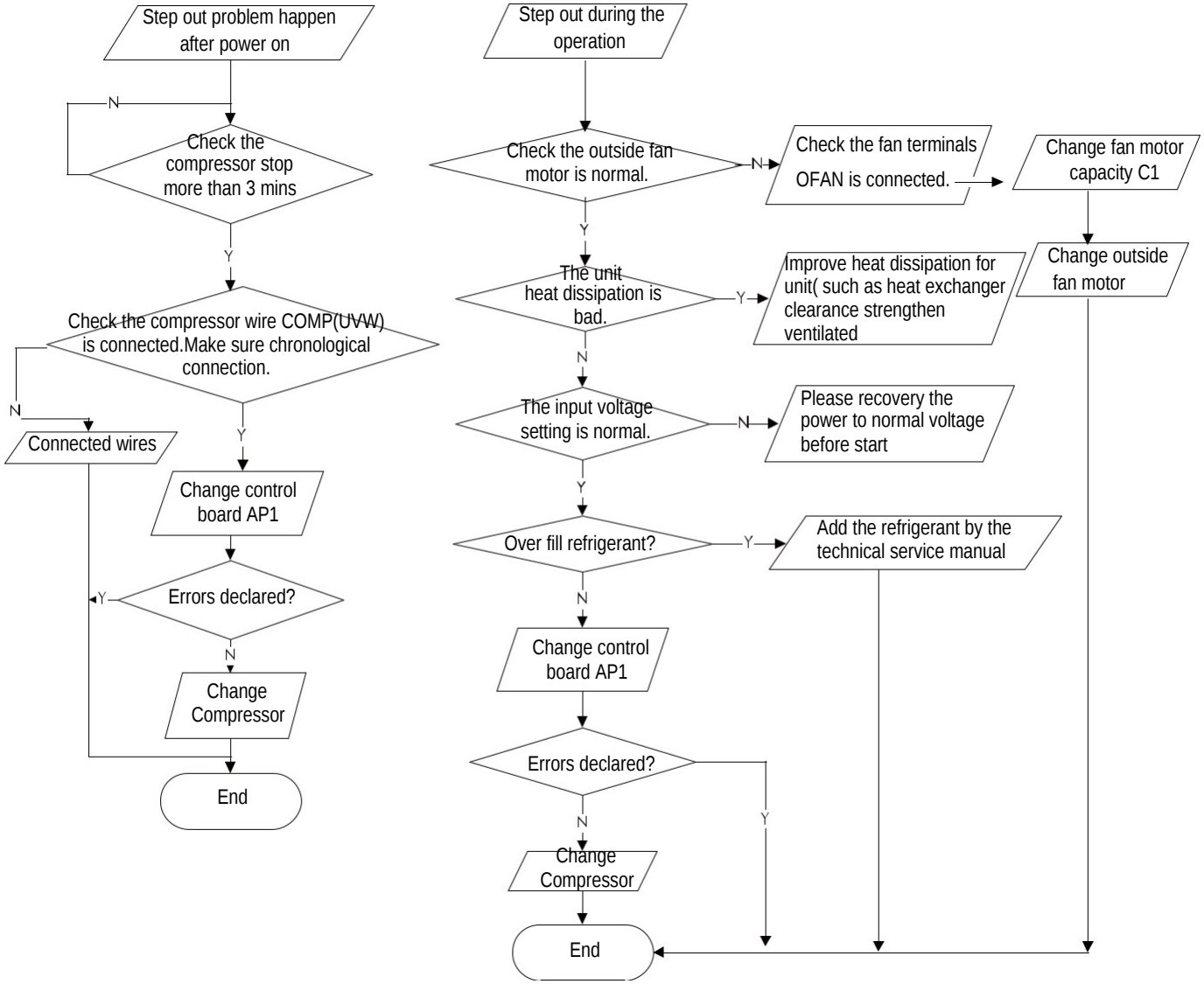


Diagram 5:

Main test points:
- Whether the compressor wiring is connected correct?
- Is compressor broken?
- Is time for compressor stopping enough?
- Whether refrigerant was charged too much?

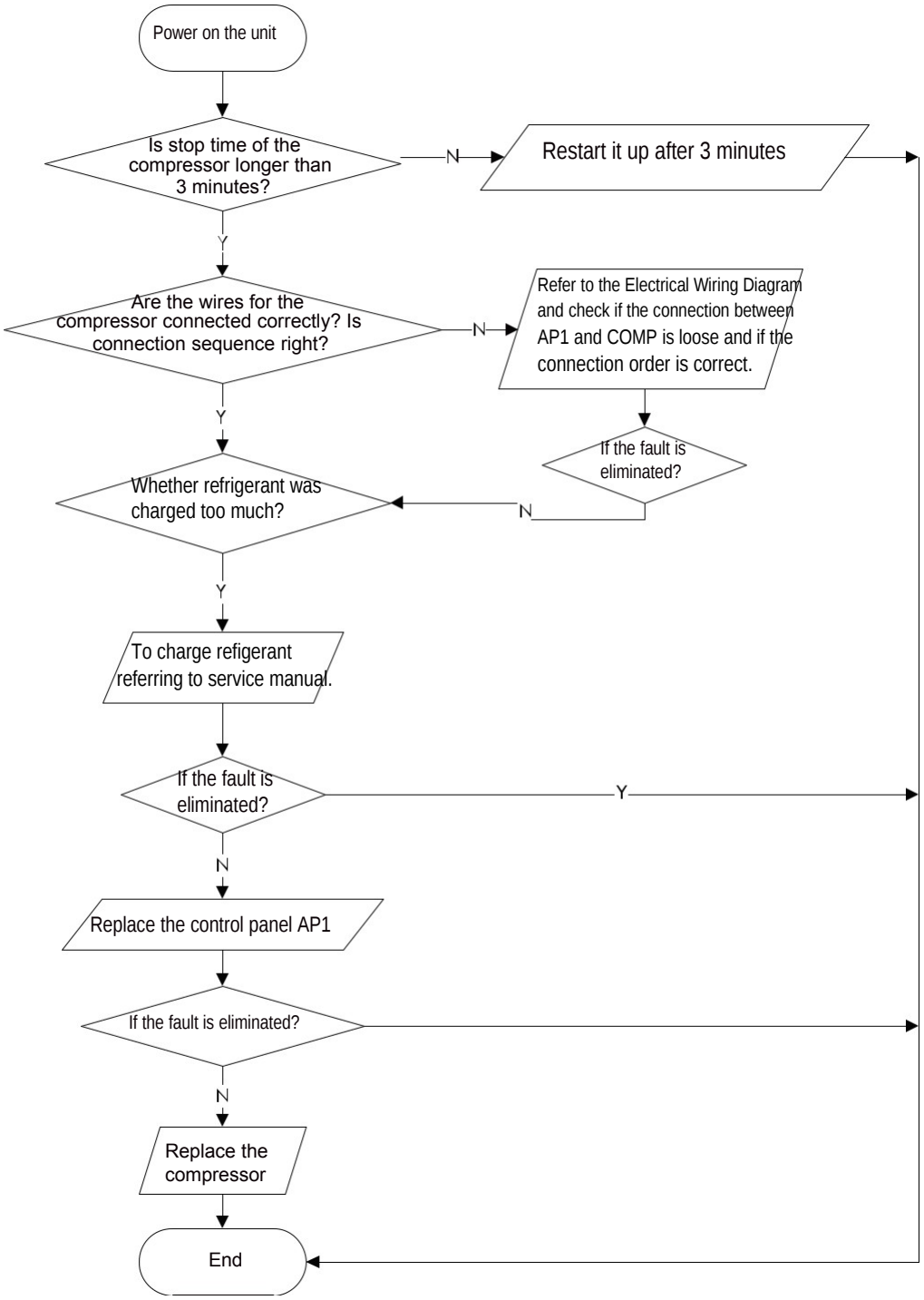


Diagram 6 , 7, 8:

Main check points:

●Is the connection between control panel AP1 and compressor COMP secure? Loose? Is the connection in correct order?

●Is the voltage input of the machine within normal range? (Use AC voltmeter to measure the voltage between terminal L and N on the wiring board XT) ●Is the compressor coil resistance normal? Is the insulation of compressor coil against the copper tube in good condition? ●Is the working load of the machine too high? Is the radiation good?

●Is the charge volume of refrigerant correct?

Fault diagnosis process:

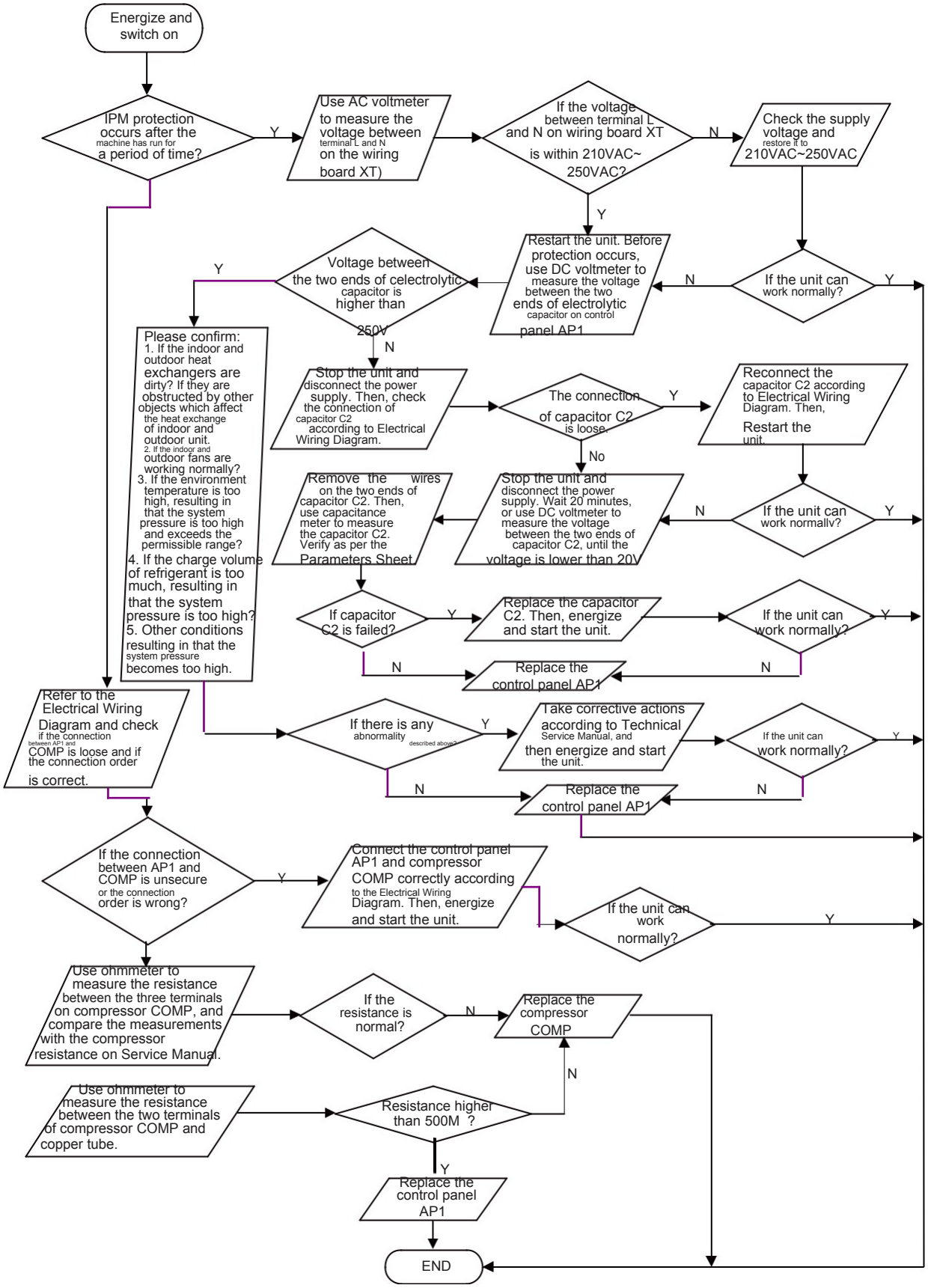


Diagram 9:

Main detection points:

Is there jumper cap on the main board?

Is the jumper cap inserted correctly and tightly? The jumper is broken?

The motor is broken?

- Detection circuit of the mainboard is defined abnormal.

Malfunction diagnosis process:

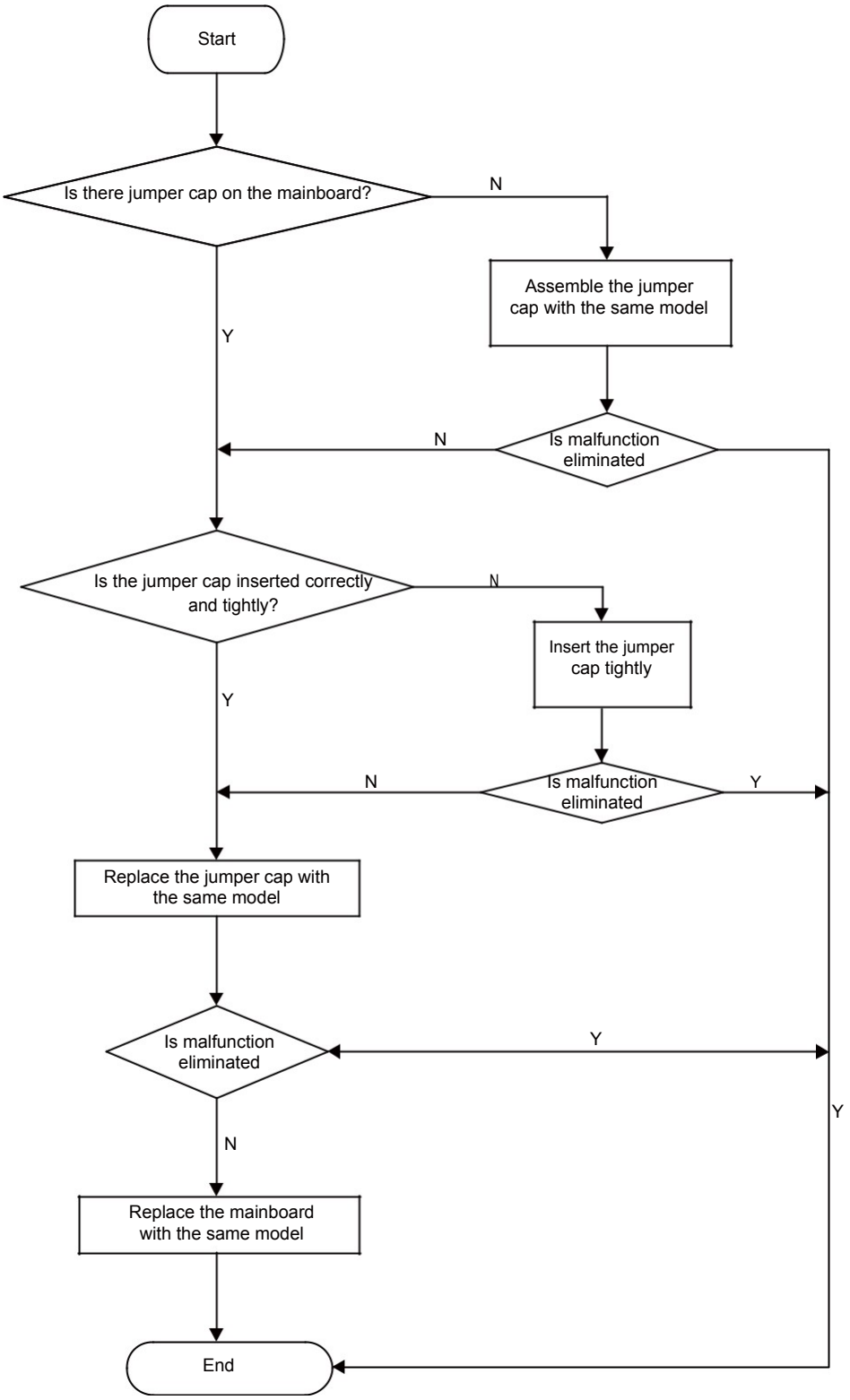


Diagram 10:

Malfunction of Blocked Protection of IDU Fan Motor L2

Main detection points:

- Smoothlyls the control terminal of PG motor connected tightly?
- Smoothlyls 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:

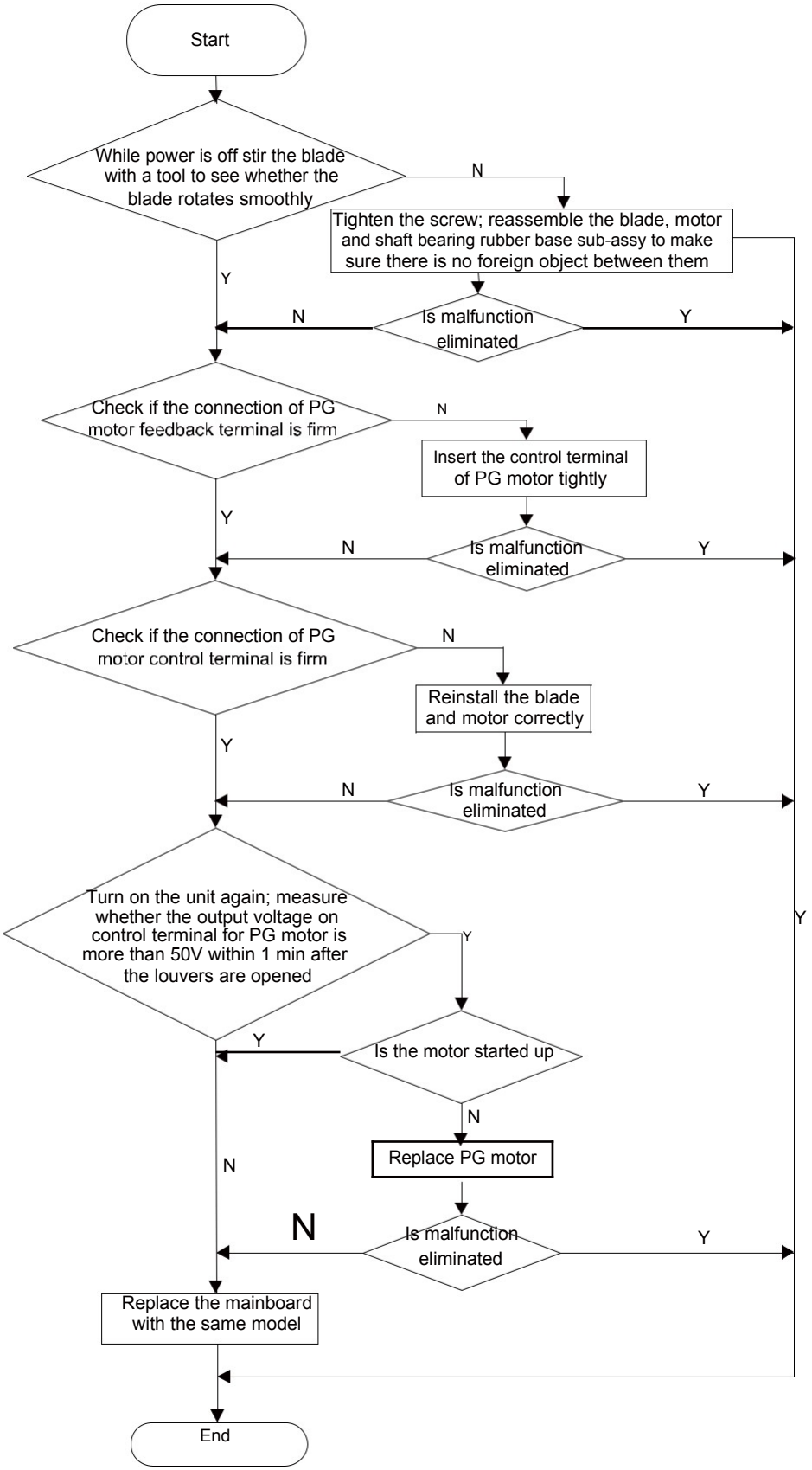


Diagram 11:

Main check points:

- Test the indoor and outdoor unit connection wire and internal wiring is connected or in good condition.
- Check the indoor unit main board communication circuit and outdoor unit main board communication circuit (AP1)are in good condition.

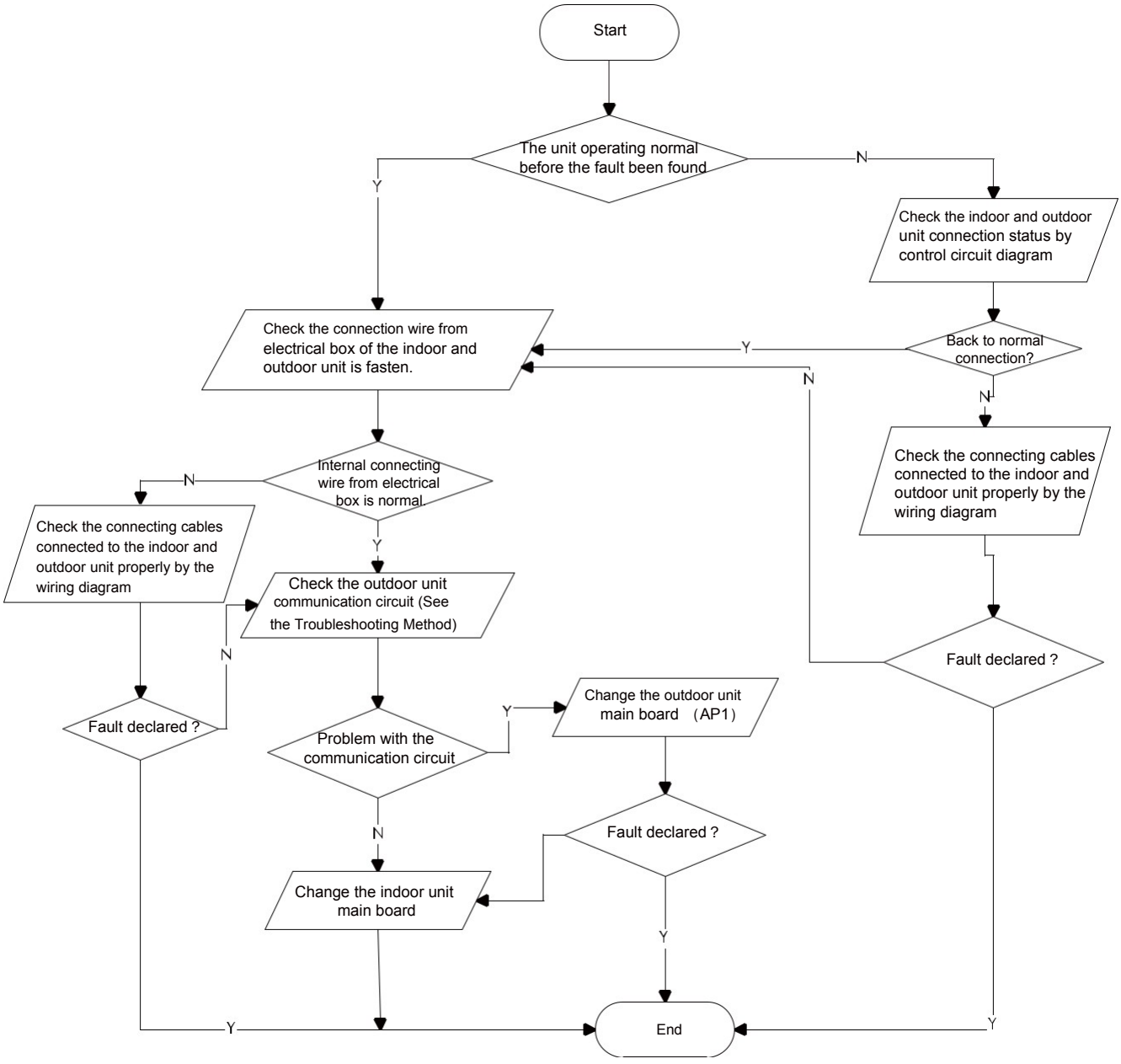


Diagram 12:

Outdoor unit communication circuit detection process as follows (outdoor unit key test points)

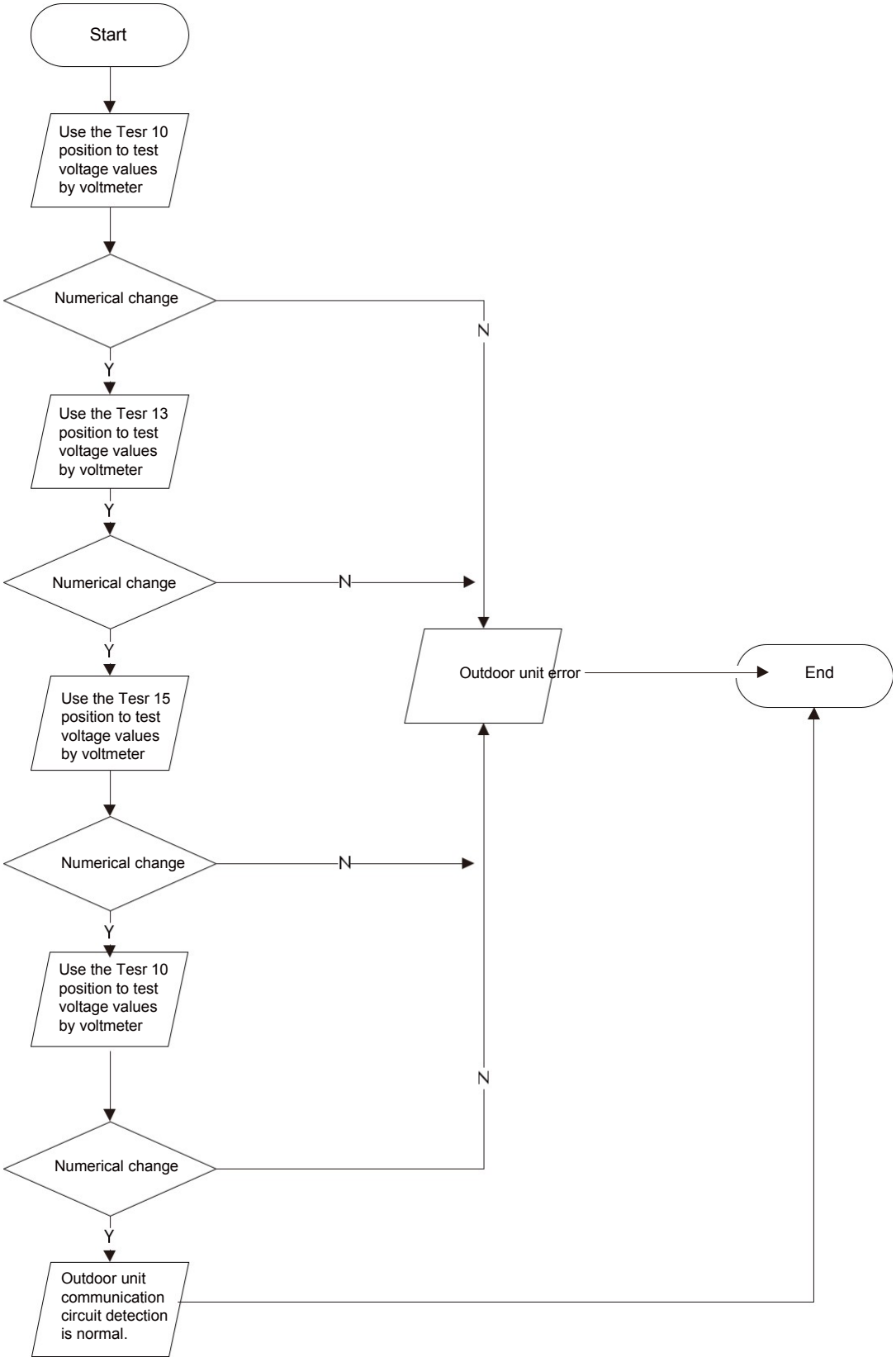


Diagram 13:

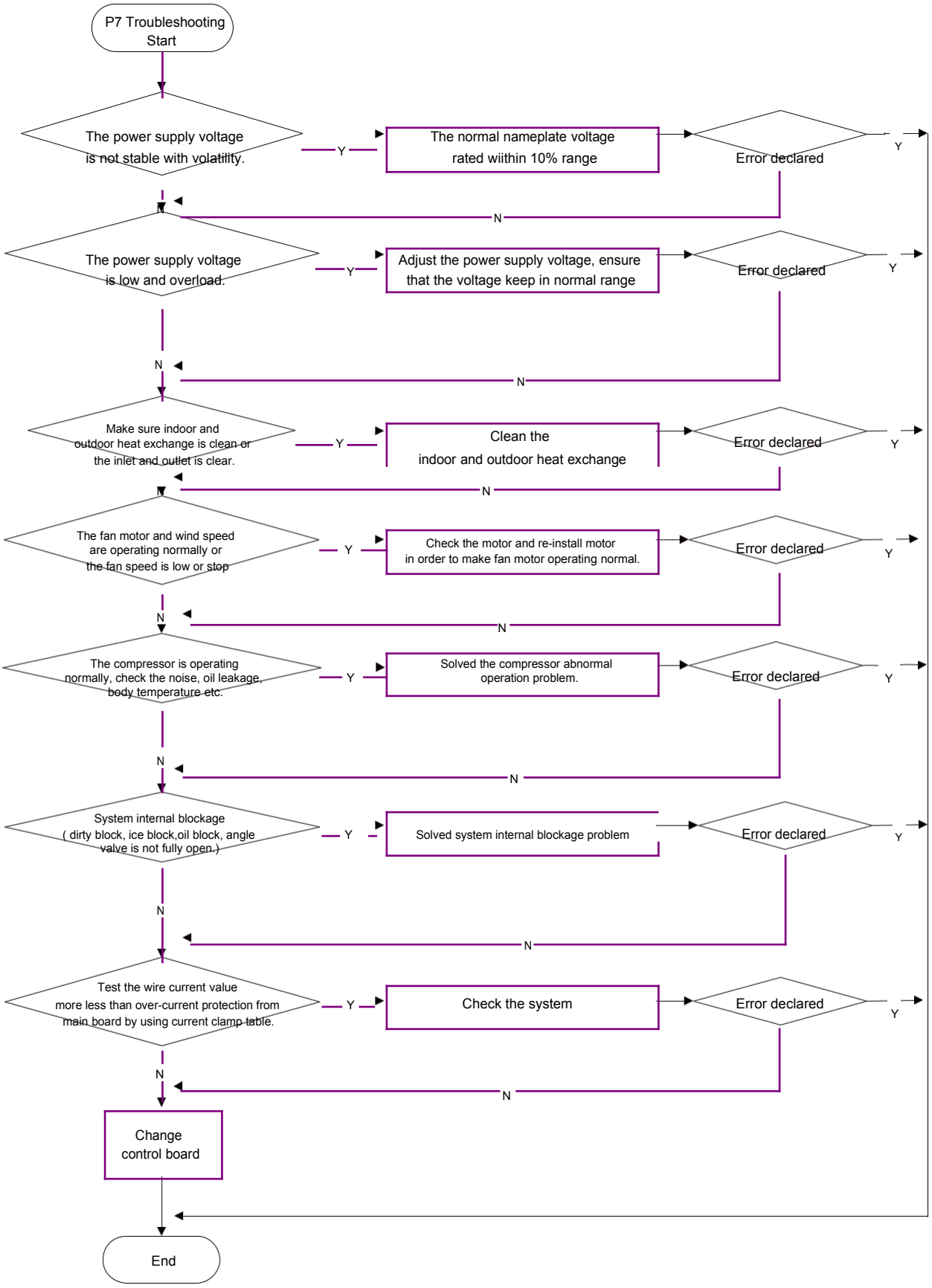
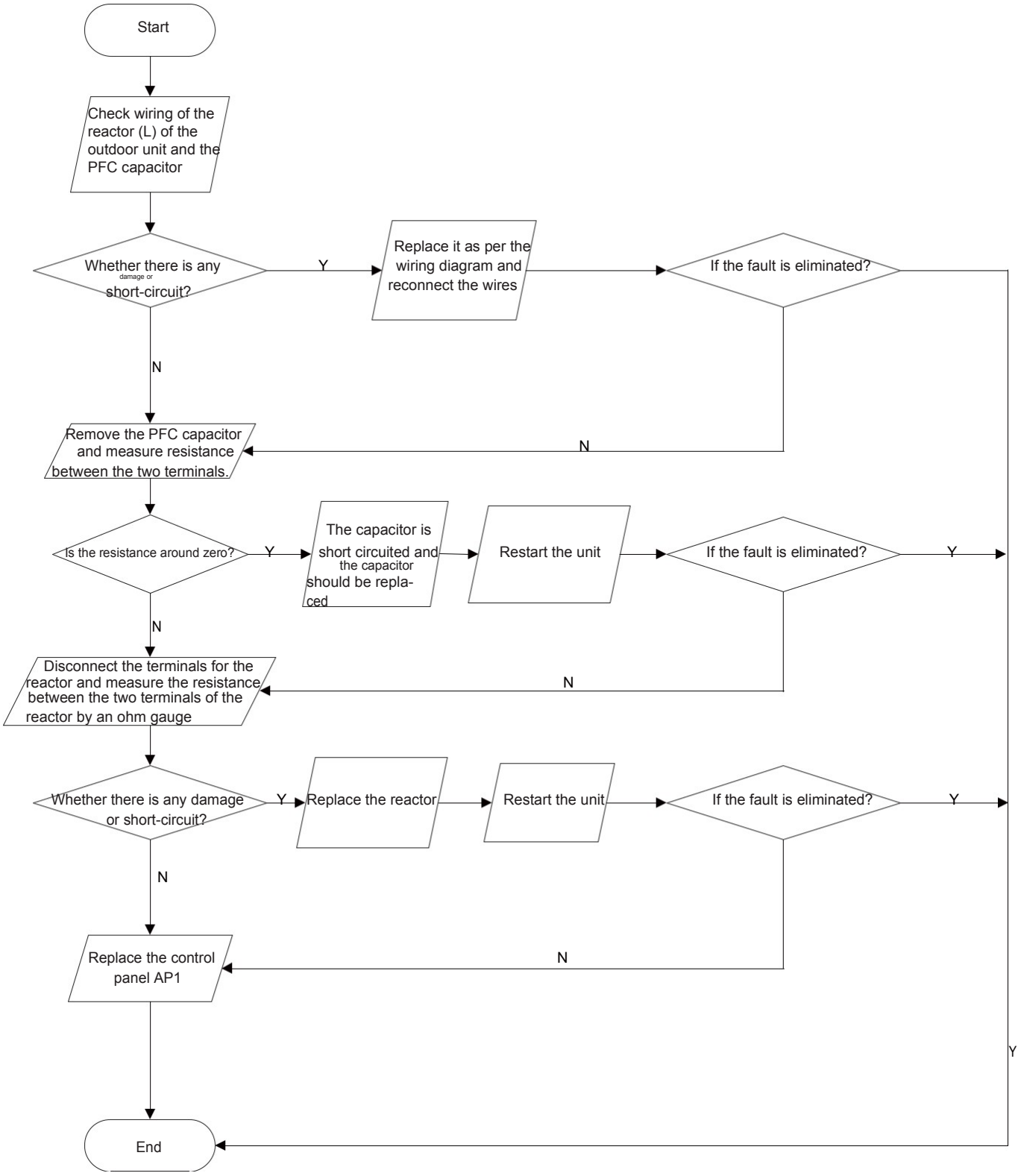

P7 Troubleshooting Start
The power supply voltage is not stable with volatility.
Y
The normal nameplate voltage rated wiithin 10% range
Error declared
Y
N
The power supply voltage is low and overload.
Y
Adjust the power supply voltage, ensure that the voltage keep in normal range
Error declared
Y
N
N
Make sure indoor and outdoor heat exchange is clean or the inlet and outlet is clear.
Y
Clean the indoor and outdoor heat exchange
Error declared
Y
N
The fan motor and wind speed are operating normally or the fan speed is low or stop
Y
Check the motor and re-install motor in order to make fan motor operating normal.
Error declared
Y
N
N
The compressor is operating normally, check the noise, oil leakage, body temperature etc.
Y
Solved the compressor abnormal operation problem.
Error declared
Y
N
N
System internal blockage (dirty block, ice block,oil block, angle valve is not fully open.)
Y
Solved system internal blockage problem
Error declared
Y
N
N
Test the wire current value more less than over-current protection from main board by using current clamp table.
Y
Check the system
Error declared
Y
N
N
Change control board
End

Diagram 14:

Power factor correct (PFC) fault P9 (a fault of outdoor unit) (AP1 here in after refers to the control board of the outdoor unit)
Mainly detect:
● Check if the reactor (L) of the outdoor unit and the PFC capacitor are
broken. Fault diagnosis process:



9.3 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 make sure wires correctly. Make sure all wiring terminals are connected firml
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 filte
Installation position for indoor unit and outdoor unit is improper	Check whether the installation postion is proper according to installation requirement for air conditioner	Adjust the installation position, and install the rainproof and sunproof for outdoor unit
Refrigerant is leaking	Discharged air temperature during cooling is higher than normal discharged wind temperature; Discharged air temperature during heating is lower than normal discharged wind temperature; Unit's pressure is much lower than regulated range	Find out the leakage causes and deal with it. Add refrigerant.
Malfunction of 4-way valve	Blow cold wind during heating	Replace the 4-way valve
Malfunction of capillary	Discharged air temperature during cooling is higher than normal discharged wind temperature; Discharged air temperature during heating is lower than normal discharged wind temperature; Unit't pressure is much lower than regulated range. If refrigerant isn't leaking, part of capillary is blocked	Replace the capillary
Flow volume of valve is insufficient	The pressure of valves is much lower than that stated in the specification	Open the valve completely
Malfunction of horizontal louver	Horizontal louver can't swing	Refer to point 3 of maintenance method for details
Malfunction of the IDU fan motor	The IDU fan motor can't operate	Refer to troubleshooting for H6 for maintenance method in details
Malfunction of the ODU fan motor	The ODU fan motor can't operate	Refer to point 4 of maintenance method for details
Malfunction of compressor	Compressor can't operate	Refer to point 5 of maintenance method for details

3. Horizontal Louver Can't Swing

Possible Causes	Discriminating Method (Air conditioner Status)	Troubleshooting
Wrong wire connection, or poor connection	Check the wiring status according to circuit diagram	Connect wires according to wiring diagram to make sure all wiring terminals are connected firml
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 fnd 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 fnd 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 airconditioner	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.

Appendix1:Resistance Table for Indoor and Outdoor Ambient Temperature Sensors (15K)

Temp.(℃)	Resistance(kΩ)	Temp.(℃)	Resistance(kΩ)	Temp.(℃)	Resistance(kΩ)	Temp.(℃)	Resistance(kΩ)
-20	144	16	22.53	52	4.986	88	1.451
-19	138.1	17	21.51	53	4.802	89	1.408
-18	128.6	18	20.54	54	4.625	90	1.363
-17	121.6	19	19.63	55	4.456	91	1.322
-16	115	20	18.75	56	4.294	92	1.282
-15	108.7	21	17.93	57	4.139	93	1.244
-14	102.9	22	17.14	58	3.99	94	1.207
-13	97.4	23	16.39	59	3.848	95	1.171
-12	92.22	24	15.68	60	3.711	96	1.136
-11	87.35	25	15	61	3.579	97	1.103
-10	82.75	26	14.36	62	3.454	98	1.071
-9	78.43	27	13.74	63	3.333	99	1.039
-8	74.35	28	13.16	64	3.217	100	1.009
-7	70.5	29	12.6	65	3.105	101	0.9801
-6	66.88	30	12.07	66	2.998	102	0.9519
-5	63.46	31	11.57	67	2.898	103	0.9247
-4	60.23	32	11.09	68	2.797	104	0.8984
-3	57.18	33	10.63	69	2.702	105	0.873
-2	54.31	34	10.2	70	2.611	106	0.8484
-1	51.59	35	9.779	71	2.523	107	0.8246
0	49.02	36	9.382	72	2.439	108	0.8016
1	46.8	37	9.003	73	2.358	109	0.7793
2	44.31	38	8.642	74	2.28	110	0.7577
3	42.14	39	8.297	75	2.205	111	0.7369
4	40.09	40	7.967	76	2.133	112	0.7167
5	38.15	41	7.653	77	2.064	113	0.6971
6	36.32	42	7.352	78	1.997	114	0.6782
7	34.58	43	7.065	79	1.933	115	0.6599
8	32.94	44	6.791	80	1.871	116	0.6421
9	31.38	45	6.529	81	1.811	117	0.625
10	29.9	46	6.278	82	1.754	118	0.6083
11	28.51	47	6.038	83	1.699	119	0.5922
12	27.18	48	5.809	84	1.645	120	0.5765
13	25.92	49	5.589	85	1.594	121	0.5614
14	24.73	50	5.379	86	1.544	122	0.5467
15	23.6	51	5.179	87	1.497	123	0.5324

Appendix2:ResistanceTable for Indoor and Outdoor Ambient Temperature Sensors (20K)

Temp.(℃)	Resistance(kΩ)	Temp.(℃)	Resistance(kΩ)	Temp.(℃)	Resistance(kΩ)	Temp.(℃)	Resistance(kΩ)
-30	361.8	6	48.42	42	9.803	78	2.663
-29	339.8	7	46.11	43	9.42	79	2.577
-28	319.2	8	43.92	44	9.054	80	2.495
-27	300	9	41.84	45	8.705	81	2.415
-26	282.2	10	39.87	46	8.37	82	2.339
-25	265.5	11	38.01	47	8.051	83	2.265
-24	249.9	12	36.24	48	7.745	84	2.194
-23	235.3	13	34.57	49	7.453	85	2.125
-22	221.6	14	32.98	50	7.173	86	2.059
-21	208.9	15	31.47	51	6.905	87	1.996
-20	196.9	16	30.04	52	6.648	88	1.934
-19	181.4	17	28.68	53	6.403	89	1.875
-18	171.4	18	27.39	54	6.167	90	1.818
-17	162.1	19	26.17	55	5.942	91	1.763
-16	153.3	20	25.01	56	5.726	92	1.71
-15	145	21	23.9	57	5.519	93	1.658
-14	137.2	22	22.85	58	5.32	94	1.609
-13	129.9	23	21.85	59	5.13	95	1.561
-12	123	24	20.9	60	4.948	96	1.515
-11	116.5	25	20	61	4.773	97	1.47
-10	110.3	26	19.14	62	4.605	98	1.427
-9	104.6	27	18.32	63	4.443	99	1.386
-8	99.13	28	17.55	64	4.289	100	1.346
-7	94	29	16.8	65	4.14	101	1.307
-6	89.17	30	16.1	66	3.998	102	1.269
-5	84.61	31	15.43	67	3.861	103	1.233
-4	80.31	32	14.79	68	3.729	104	1.198
-3	76.24	33	14.18	69	3.603	105	1.164
-2	72.41	34	13.59	70	3.481	106	1.131
-1	68.79	35	13.04	71	3.364	107	1.099
0	65.37	36	12.51	72	3.252	108	1.069
1	62.13	37	12	73	3.144	109	1.039
2	59.08	38	11.52	74	3.04	110	1.01
3	56.19	39	11.06	75	2.94	111	0.9825
4	53.46	40	10.62	76	2.844	112	0.9556
5	50.87	41	10.2	77	2.752	113	0.9295

Appendix 3: Resistance Table for Indoor and Outdoor Ambient Temperature Sensors (50K)

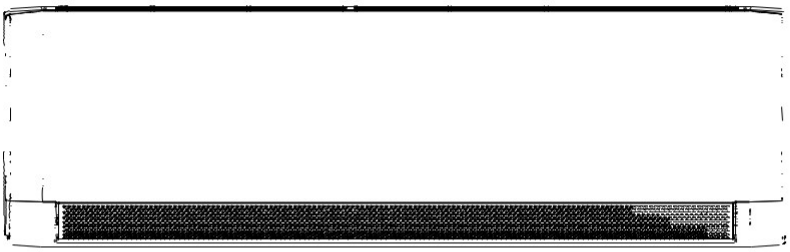
Temp. ( )	Resistance (kΩ)	Temp. ( )	Resistance (kΩ)	Temp. ( )	Resistance (kΩ)	Temp. ( )	Resistance (kΩ)
-30	894.497	6	121.073	42	24.544	78	6.565
-29	841.108	7	115.255	43	23.584	79	6.350
-28	791.159	8	109.752	44	22.667	80	6.143
-27	744.415	9	104.544	45	21.790	81	5.944
-26	700.663	10	99.615	46	20.951	82	5.752
-25	659.701	11	94.948	47	20.148	83	5.568
-24	621.342	12	90.526	48	19.380	84	5.391
-23	585.412	13	86.337	49	18.644	85	5.220
-22	551.747	14	82.366	50	17.940	86	5.056
-21	520.197	15	78.601	51	17.266	87	4.898
-20	490.621	16	75.030	52	16.620	88	4.746
-19	462.888	17	71.642	53	16.001	89	4.599
-18	436.875	18	68.427	54	15.408	90	4.459
-17	412.468	19	65.374	55	14.840	91	4.323
-16	389.563	20	62.475	56	14.295	92	4.192
-15	368.059	21	59.721	57	13.773	93	4.067
-14	347.865	22	57.104	58	13.272	94	3.946
-13	328.895	23	54.616	59	12.792	95	3.829
-12	311.070	24	52.250	60	12.331	96	3.717
-11	294.315	25	50.000	61	11.889	97	3.609
-10	278.561	26	47.859	62	11.465	98	3.505
-9	263.743	27	45.822	63	11.058	99	3.405
-8	249.801	28	43.882	64	10.667	100	3.309
-7	236.679	29	42.034	65	10.292	101	3.216
-6	224.325	30	40.275	66	9.931	102	3.127
-5	212.690	31	38.598	67	9.585	103	3.041
-4	201.728	32	37.000	68	9.253	104	2.959
-3	191.397	33	35.476	69	8.933	105	2.879
-2	181.657	34	34.032	70	8.627		
-1	172.472	35	32.637	71	8.332		
0	163.807	36	31.315	72	8.049		
1	155.630	37	30.052	73	7.776		
2	147.910	38	28.847	74	7.515		
3	140.620	39	27.697	75	7.263		
4	133.733	40	26.597	76	7.021		
5	127.225	41	25.547	77	6.789		

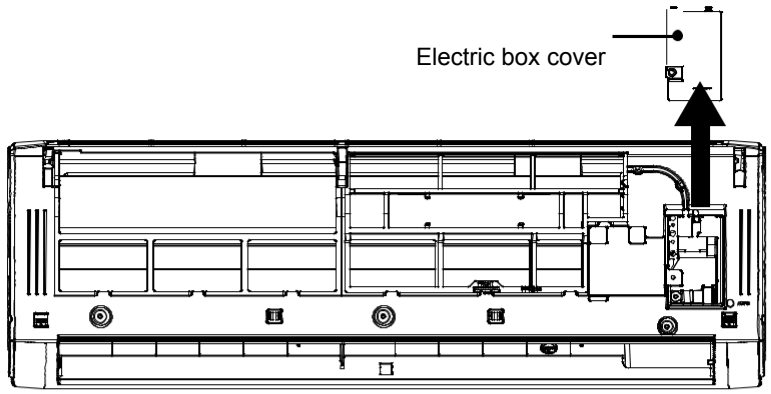
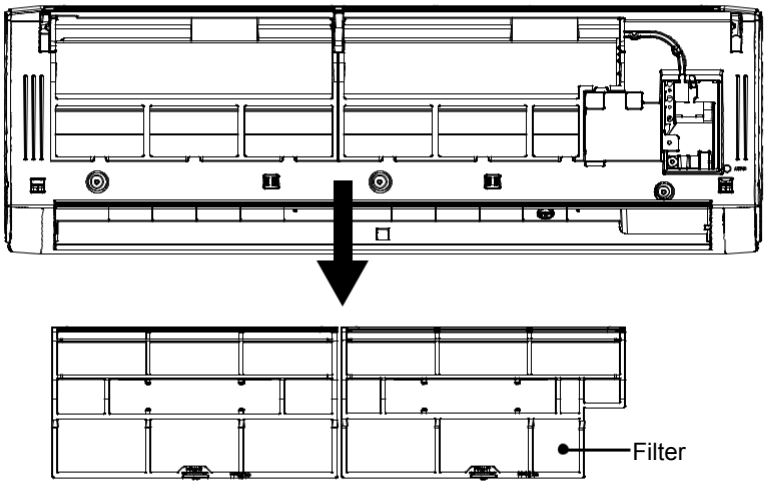
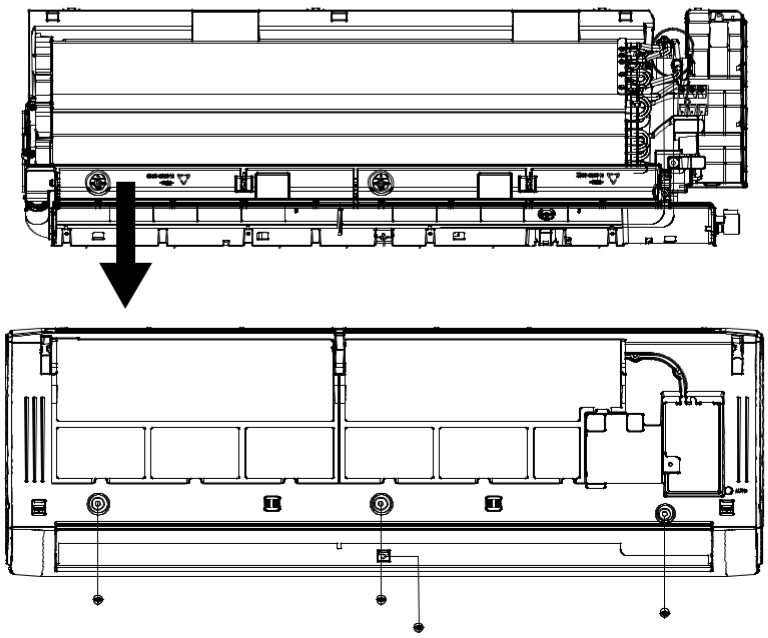
Note: The information above is for reference only.

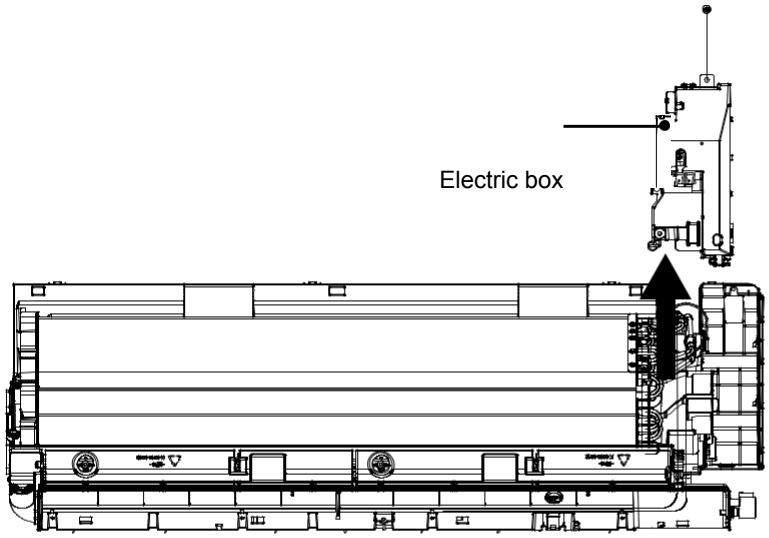
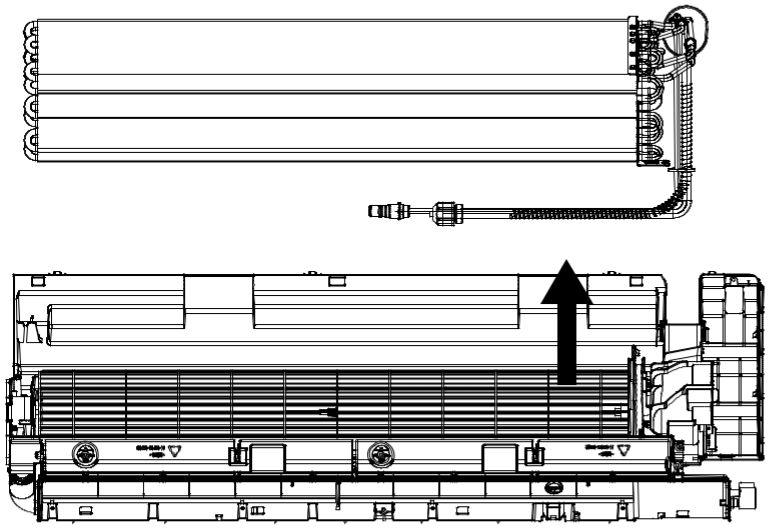
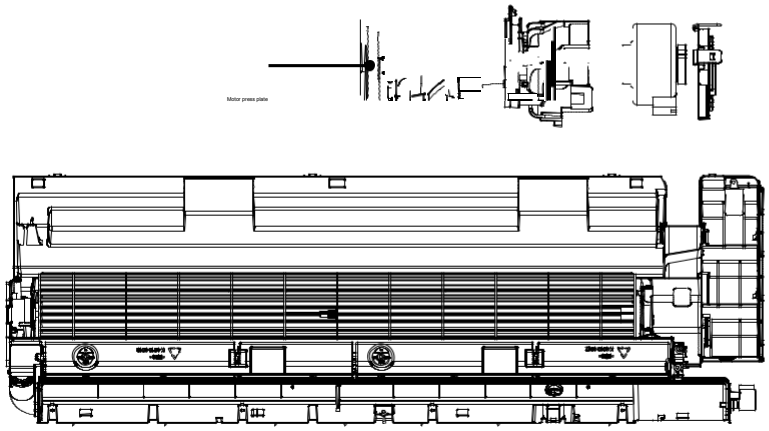
10. Removal Procedure

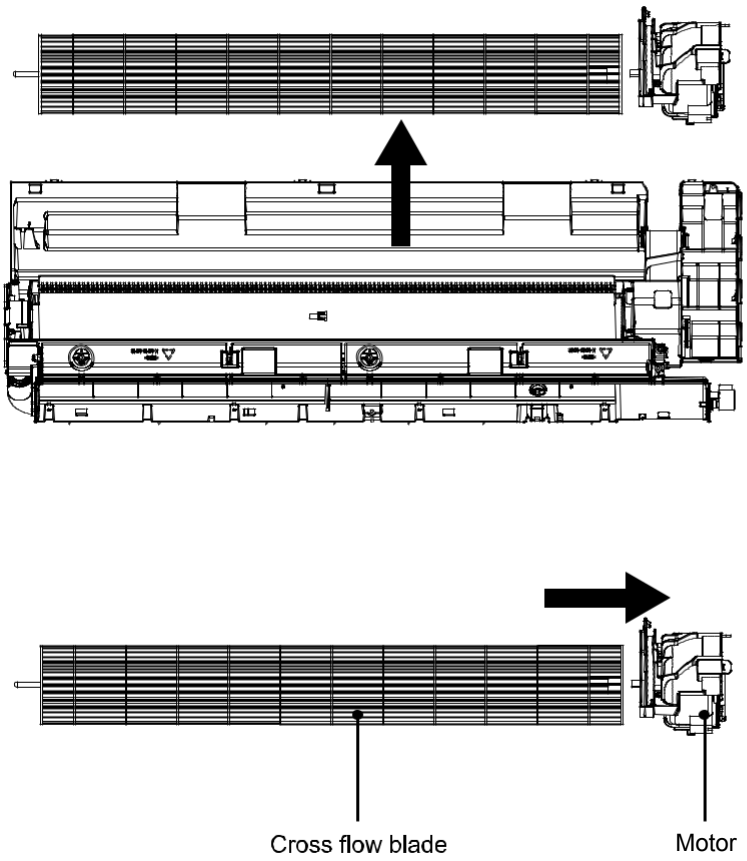
10.1 Removal Procedure of Indoor Unit

Warning **Be sure to wait for a minimum of 10 minutes after turning off all power supplies before disassembly.**

Procedure	Note
	**1. Before disassembly**
	2. Remove panel and Display Board A: Open the front panel. B: Loosen the screws of the display board with screw driver. C: Push the rotor shaft on both sides of the panel to make it separate from the groove. Remove the panel.
Guide louver	**3. Remove guide louver** Remove axial sleeve of guide louver.

Procedure	Note
	**4. Remove electric box cove** Loosen the screws of the electric box cover with screw driver.
	**5. Remove the filter** Push the filter inward and then draw it upward to remove it.
	**6. Remove the front case** A: Open the screw cap on the front case. Remove the screws fixing the front case. B: Remove the front case to seperate it with bottom assembly.

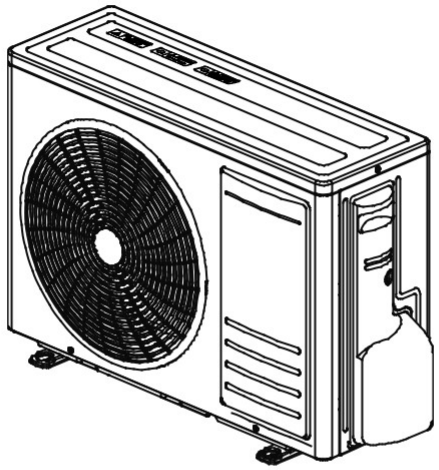
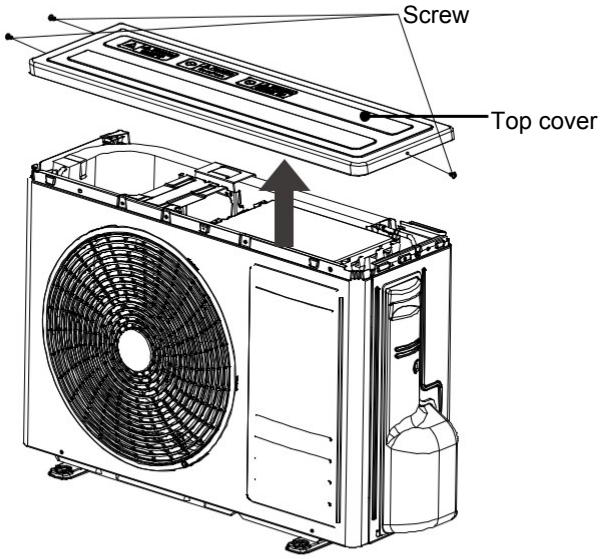
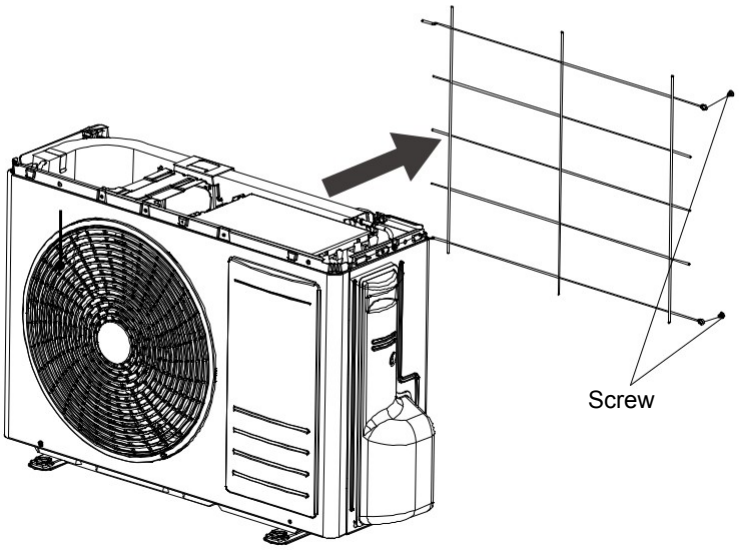
Procedure	Note
	**7. Remove electric box** A: Disconnect the indoor tube temperature sensor. B: Remove the screws at the joint of the earthing wire and evaporator. C: Loosen the clasp at the joint of the electric box.
	**8. Remove evaporator** A: Remove the screws at the joint of the evaporator and rear case. B: Adjust slightly the pipe on the evaporator to separate the pipe with the evaporator. C: Remove the evaporator to separate the evaporator with rear case assy.
	**9. Remove motor press plate** Remove the screw of the motor press plate and then remove the press plate.

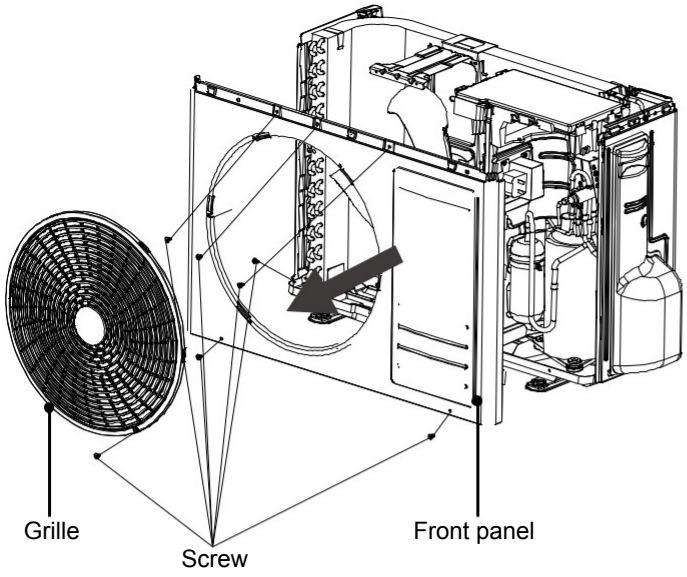
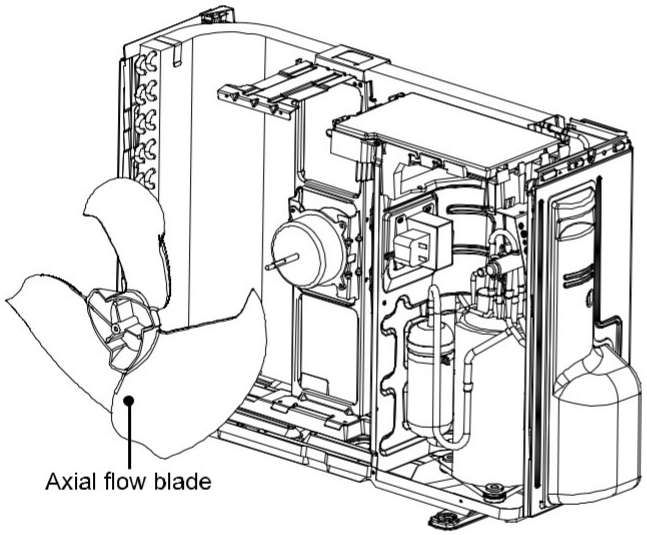
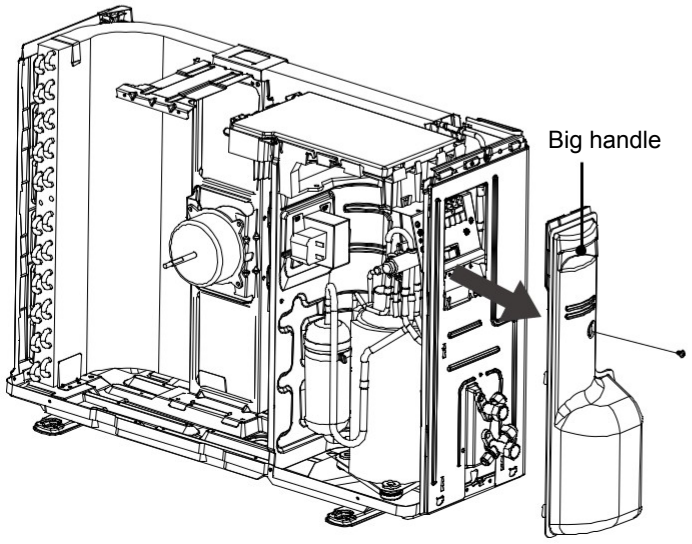
Procedure	Note
	**10. Remove motor and cross flow blade** A: Remove the cross flow blade and motor. B: Remove the screws at the joint of the cross flow blade and the motor. Take down the motor.

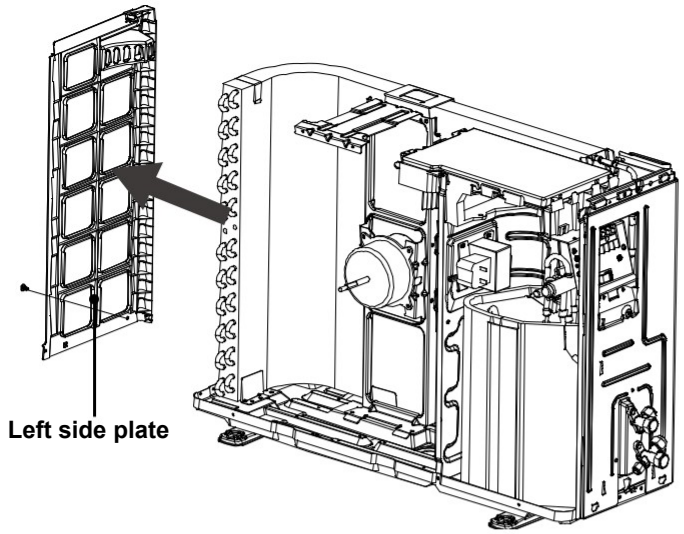
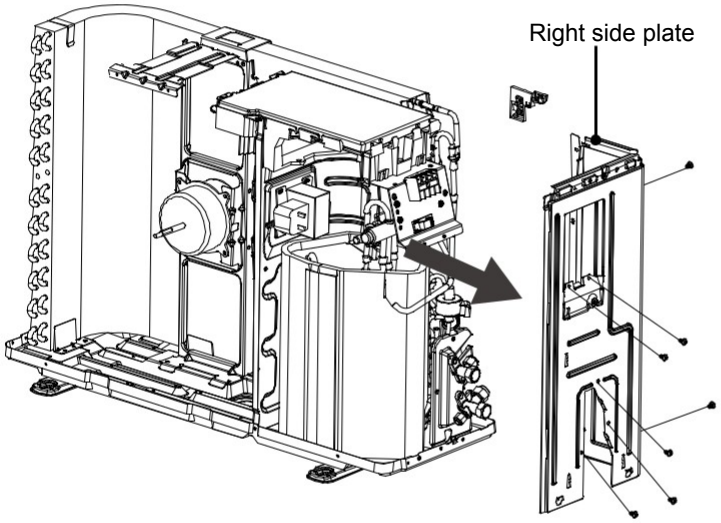
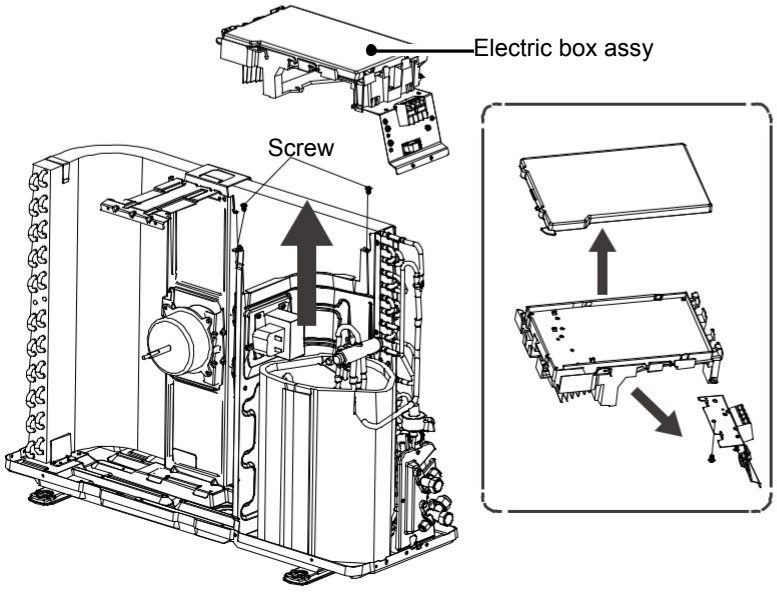
10.2 Removal Procedure of Outdoor Unit

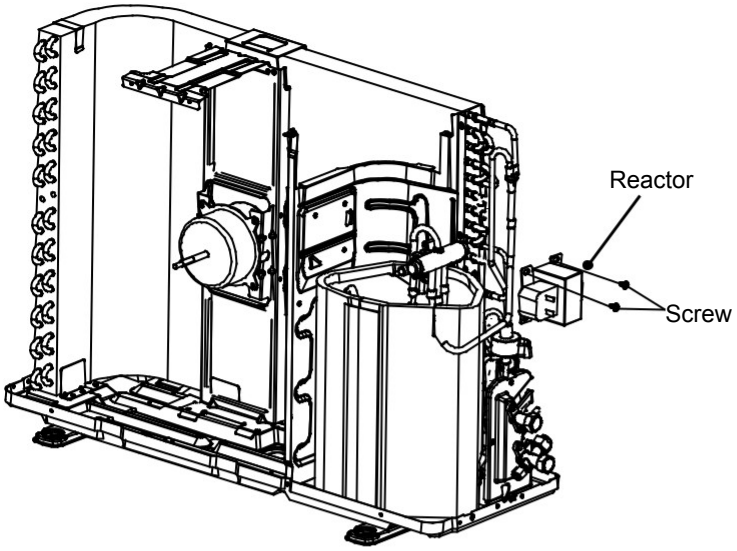
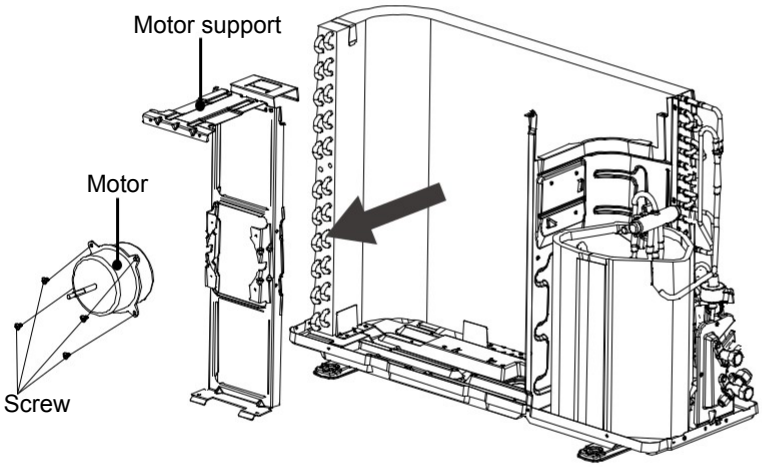
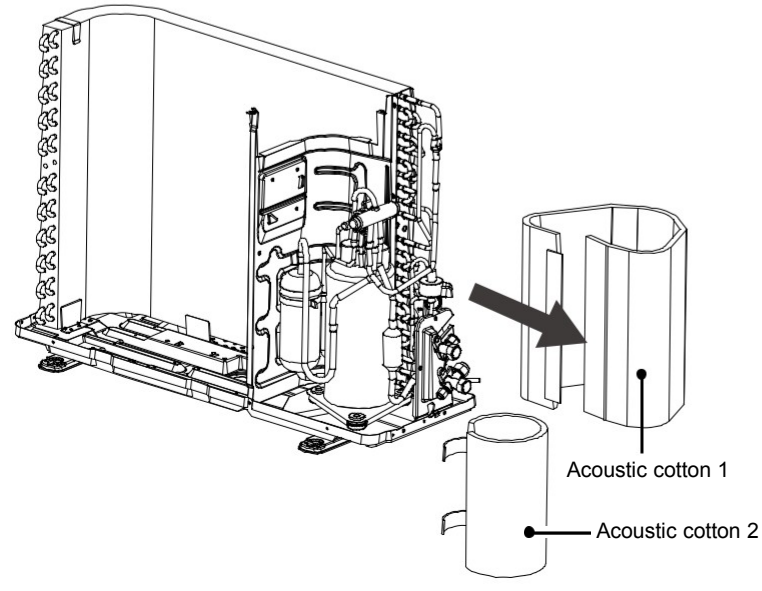
Warning **Be sure to wait for a minimum of 10 minutes after turning off all power supplies before disassembly.**

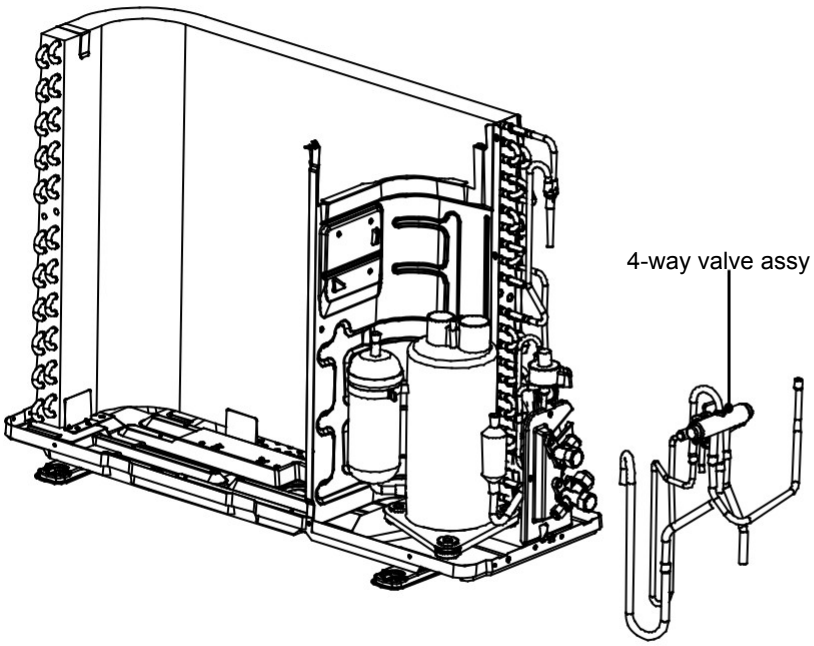
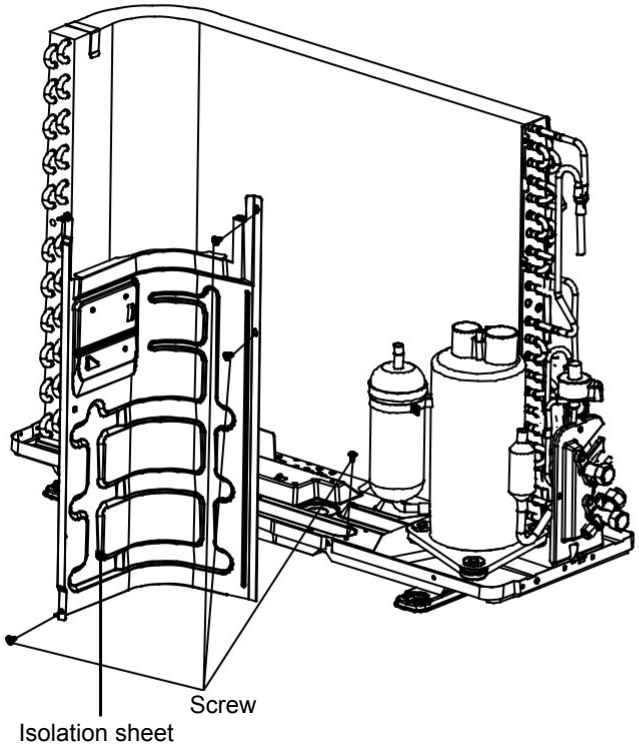
NOTE: Take SAC-U09SWKN/I,SAC-U12SKWN/I for example.

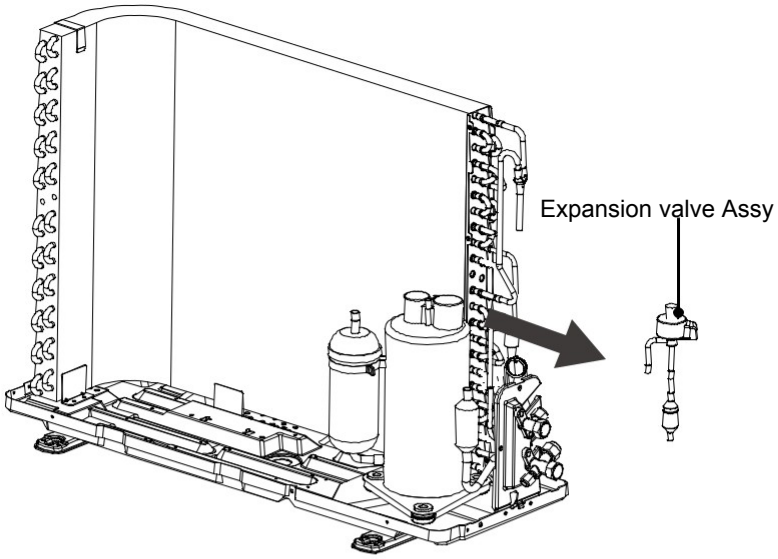
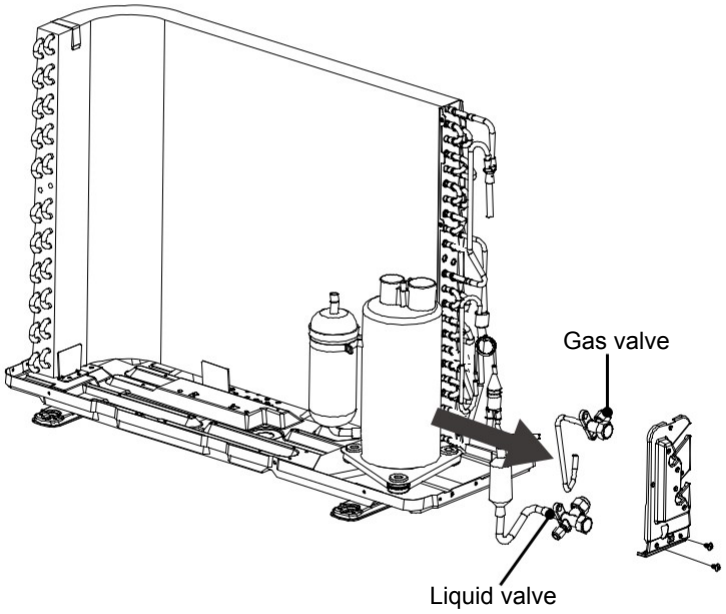
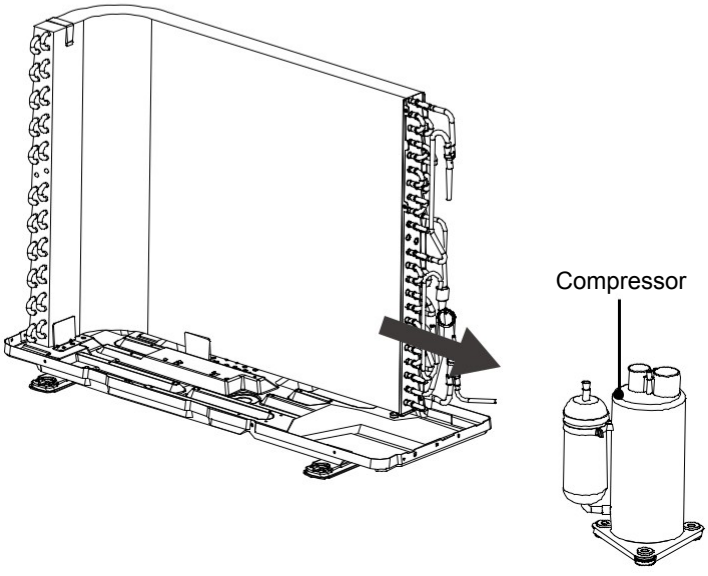
Procedure	Note
	**1.Before disassembly**
	**2. Remove top cover** Remove connection screws connecting the top cover plate with the front panel and the right side plate, and then remove the top panel.
	**3. Remove protective grille** Remove the screws fixing protective grille and then remove the protective grille.

Procedure	Note
	**4.Remove grille and panel** A: Remove connection screws between the front grille and the front panel. Then remove the front grille. B: Remove connection screws connecting the front panel with the chassis and the motor support, and then remove the front panel.
	**4.Remove axial flow blade** Remove the nut fixing the blade and then remove the axial flow blade.
	**5.Remove big handle** Remove the connection screw fixing the big handle and then remove the handle.

Procedure	Note
	**6. Remove left side plate** Remove connection screws connecting the left side plate with the condenser assy. Then remove the left side plate.
	**7. Remove right side plate** Remove connection screws connecting the right side plate with the valve support and the electric box. Then remove the right side plate.
	**8. Remove electric box assy** Remove screws fixing the electric box assy; loosen the wire bundle and unplug the wiring terminals. Then lift the electric box to remove it.

Procedure	Note
	**9. Remove Reactor** Take off the fixed screw,and you could take off the reactor.
	**10. Remove motor and motor support** Remove tapping screws fixing the motor and disconnect the leading wire insert of the motor. Then remove the motor. Remove tapping screws fixing the motor and lift the motor support to remove it.
	**11. Remove acoustic cotton** Split the acoustic cotton lock,and take out 2 pcs slowly. NOTE: Do not damage the pipe.

Procedure	Note
	**12. Remove 4-way valve assy** Unsolder the spot weld of 4-way valve assy, compressor and condenser, and then remove the 4-way valve assy. **Warning** Discharge the refrigerant completely before unsoldering,when unsoldering, wrap the gas valve with awet cloth completely to avoid damage to the valve caused by high temperature. When unsoldering the spot weld, wrap the 4-way valve with wet cloth completely to avoid damaging the valve due to high temperature.
	**13. Remove isolation sheet** Remove the screws fixing the isolation sheet and then remove the isolation sheet.

Procedure	Note
	**14. Remove Expansion valve Assy** Unsolder the spot weld of expansion valve assy, liquid valve and condenser, and then remove the expansion valve assy .
 	**14. Remove the compressor** A: Remove the 2 screws fixing the gas valve and unsolder the welding joint between the gas valve and the air-return pipe to remove the gas valve. B: Remove the foot nuts on the compressor and then remove the compressor.

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