Inverter Air Conditioner

Service Manual

Models:

WYT012ALUI17RL WYT012GLUI17RL
WYT018GLUI17RL WYT024GLUI17RL
WYT036GLUI17RL

CONTENTS

Part Ⅰ Technical Information

1. Important Notice

This service manual is intended for individuals with adequate electrical, electronic, and mechanical experience. Any attempt to repair the appliance may result in personal injury and property damage. The manufacturer or seller cannot be responsible for the interpretation of this information, nor can it assume any liability in connection with its use.

The information, specifications, and parameters are subject to change due to technical modification or improvement without any prior notice. The accurate specifications are presented on the nameplate label.

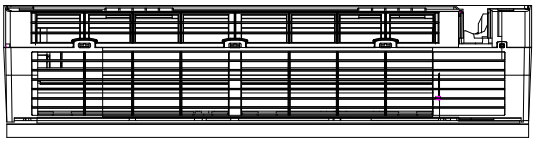
How to Order Spare Parts

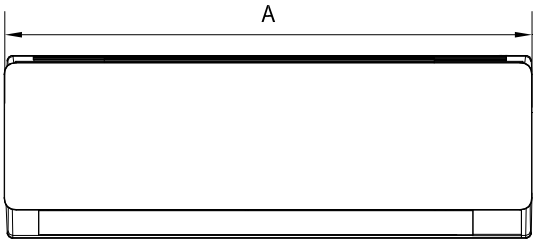
To ensure you place an accurate order, provide the following information:

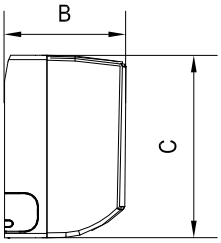
1. Model number of the indoor and outdoor units
2. Item number in exploded diagram
3. Part number
4. The quantity you want to order

2. Product Dimensions

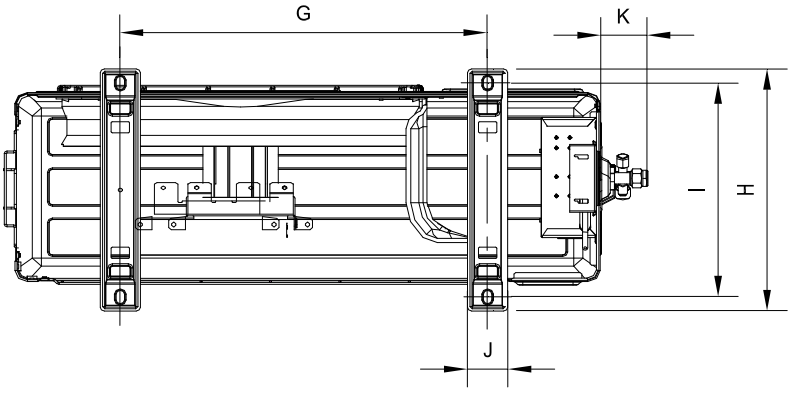
Indoor Unit:

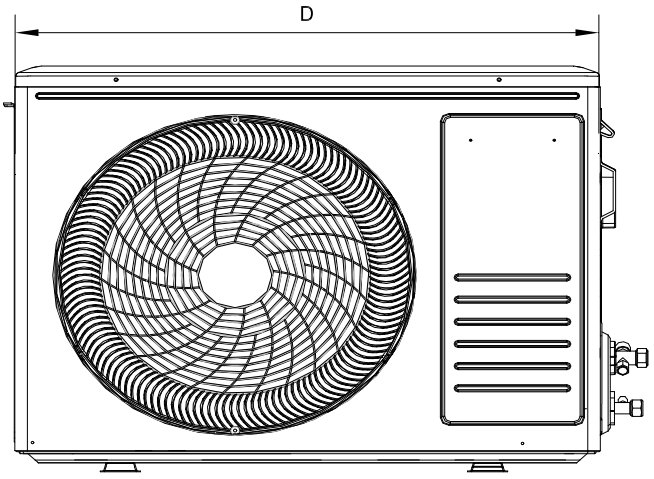


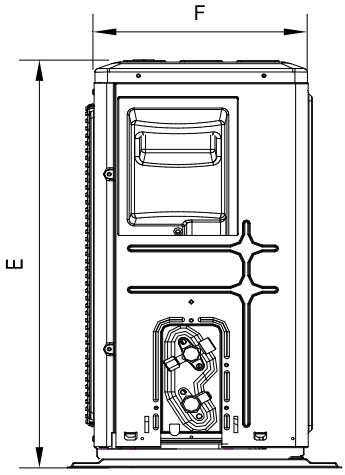




Outdoor Unit:



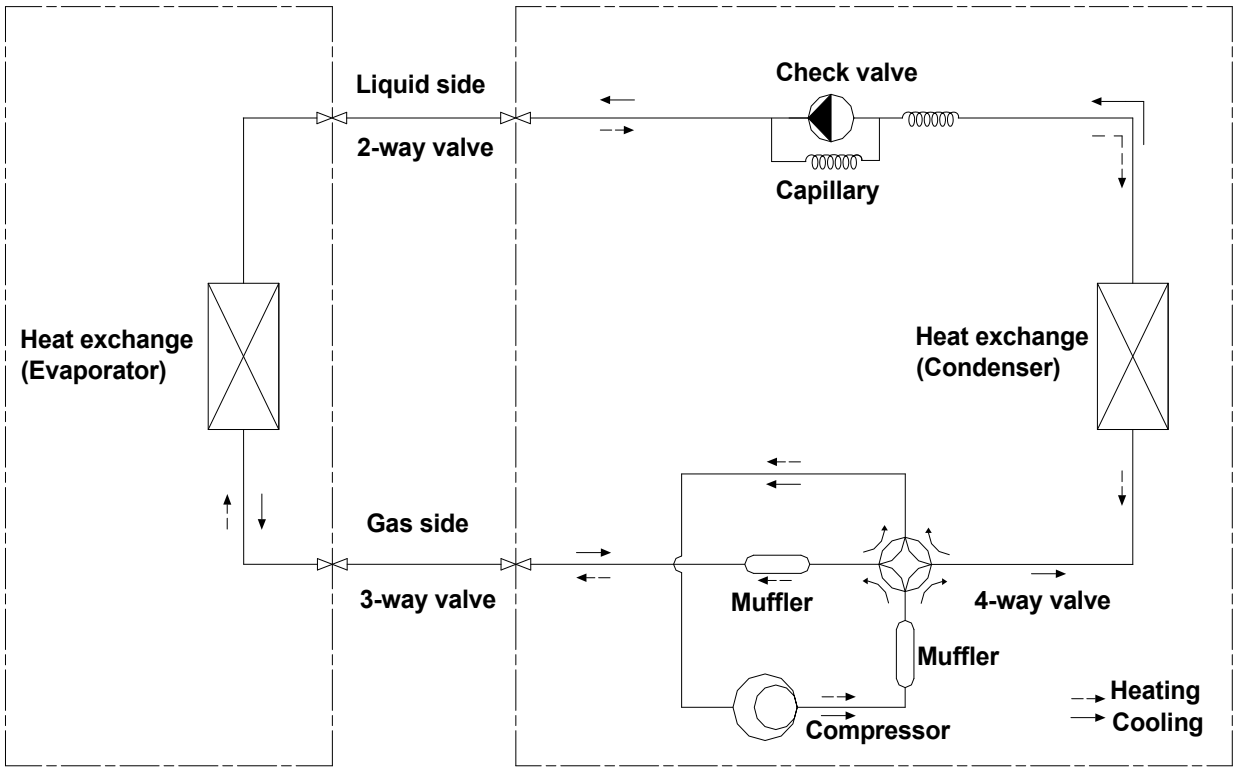




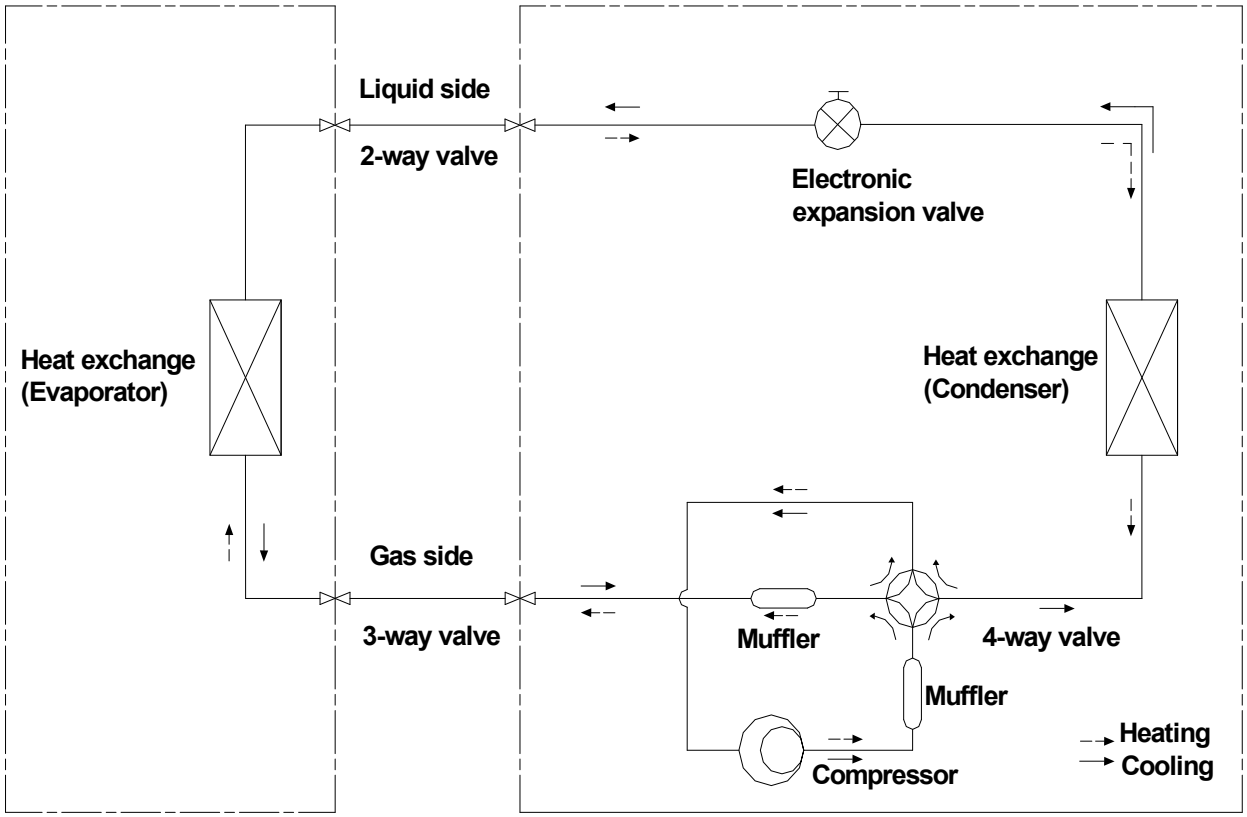
Model	Indoor Unit (mm/inch)			Outdoor Unit (mm/inch)							
	A	B	C	D	E	F	G	H	I	J	K
WYT012ALUI17RL	777	205	250	712	498	234	415	291	225	48.5	52
	/30.59	/8.07	9.84	/28.03	/19.61	/9.21	16.34	/11.46	/8.86	/1.91	/2.05
WYT012GLUI17RL	777	/205	250	712	498	234	415	291	225	48.5	52
	/30.59	8.07	9.84	/28.03	/19.61	/9.21	16.34	/11.46	/8.86	/1.91	/2.05
WYT018GLUI17RL	910	205	292	726	549	252	433.8	305	278	48	52
	/35.83	/8.07	/11.5	/28.7	/21.61	/9.92	/17.08	/12.01	/10.94	/1.89	/2.05
WYT024GLUI17RL	1010	315	220	780	602	288	516	349	314	54	57
	/39.76	/12.4	/8.66	/30.71	/23.7	/11.34	/20.31	/13.74	/12.36	/2.13	/2.24
WYT036GLUI17RL	1186	340	268	910	803	359	607	421	390	60	63
	/46.69	/13.39	/10.55	/35.83	/31.61	/14.13	/23.9	/16.57	/15.35	/2.36	/2.48

3. Refrigeration Cycle Diagram

Heat Pump

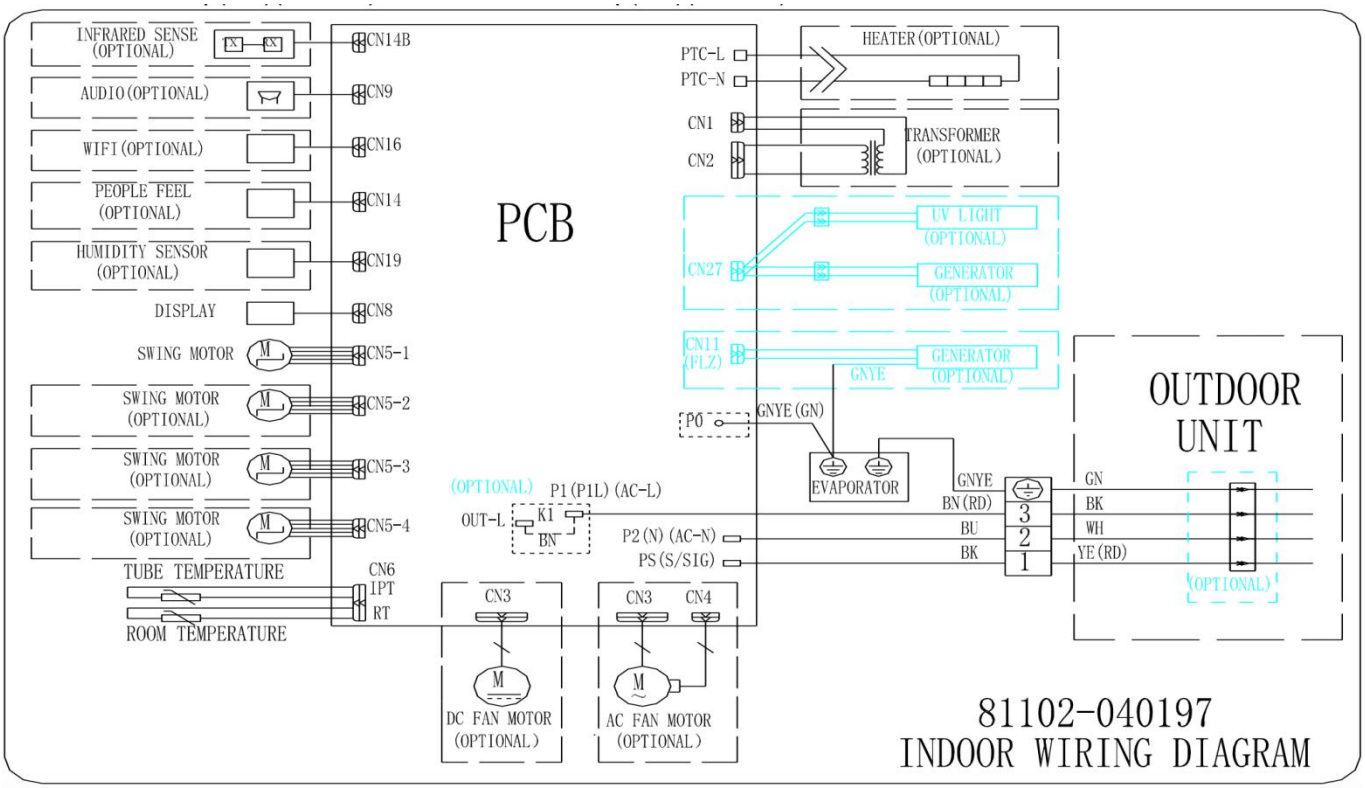


or

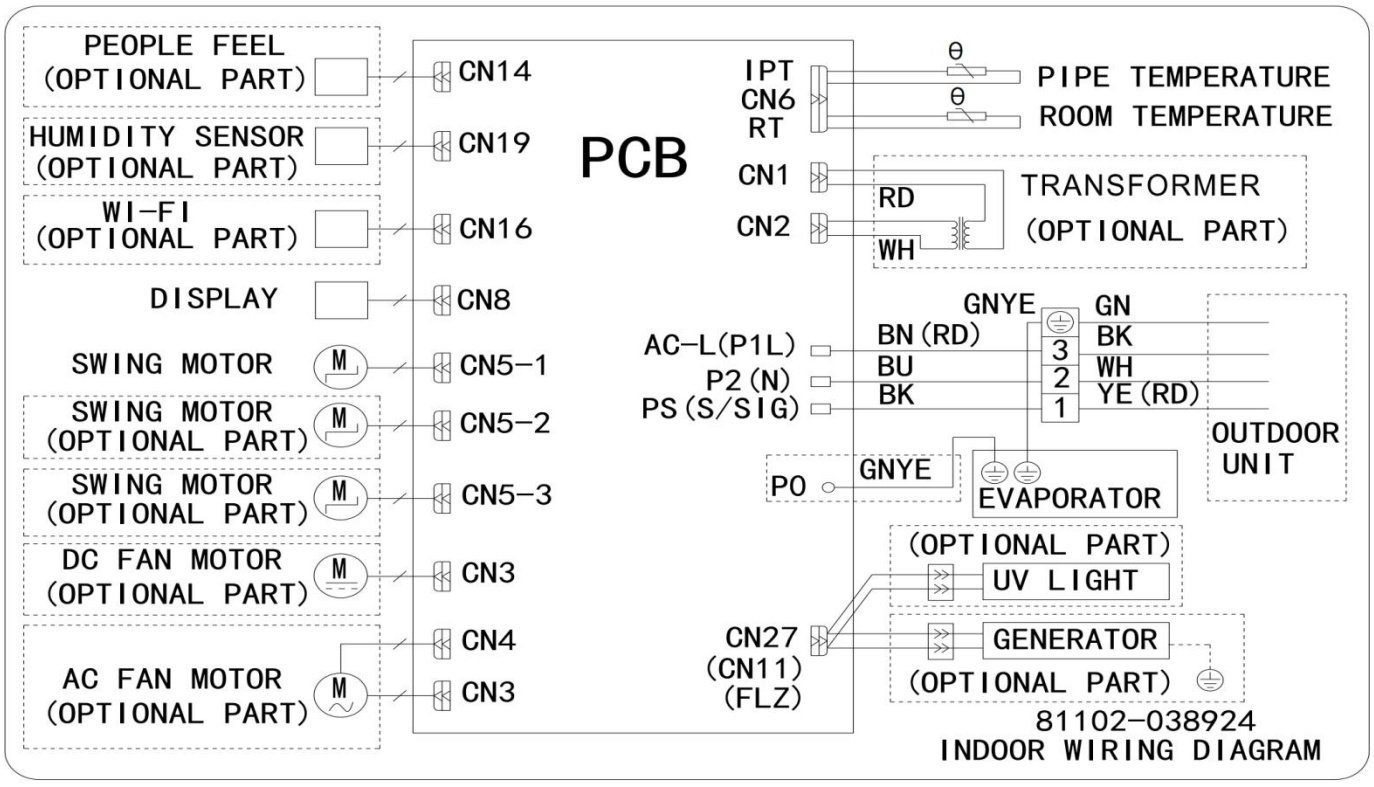


4. Wiring Diagram

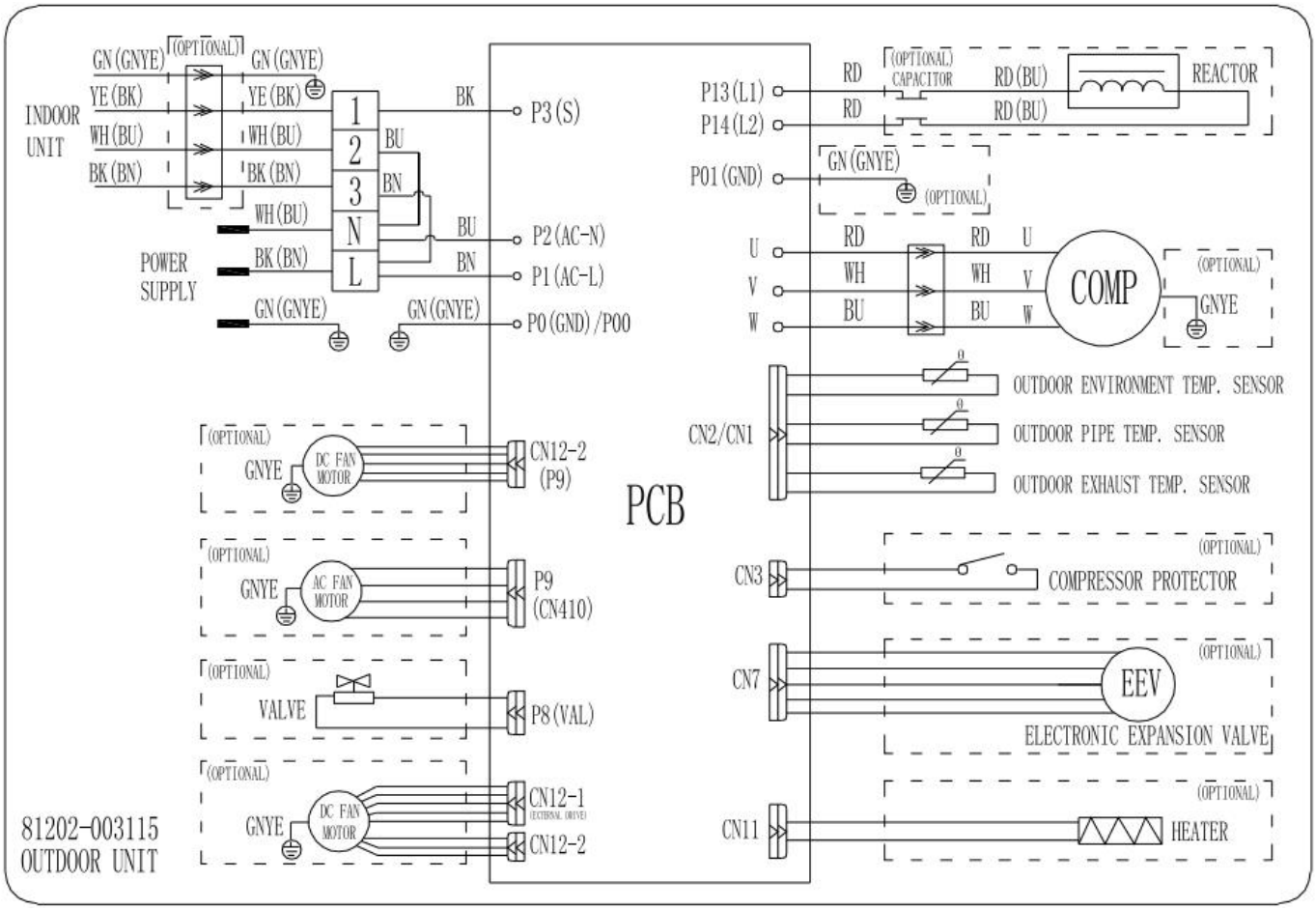
Indoor Unit: WT012ALUI17HLD | WT012GLUI17HLD | WT018GLUI17HLD | WT024GLUI17HLD



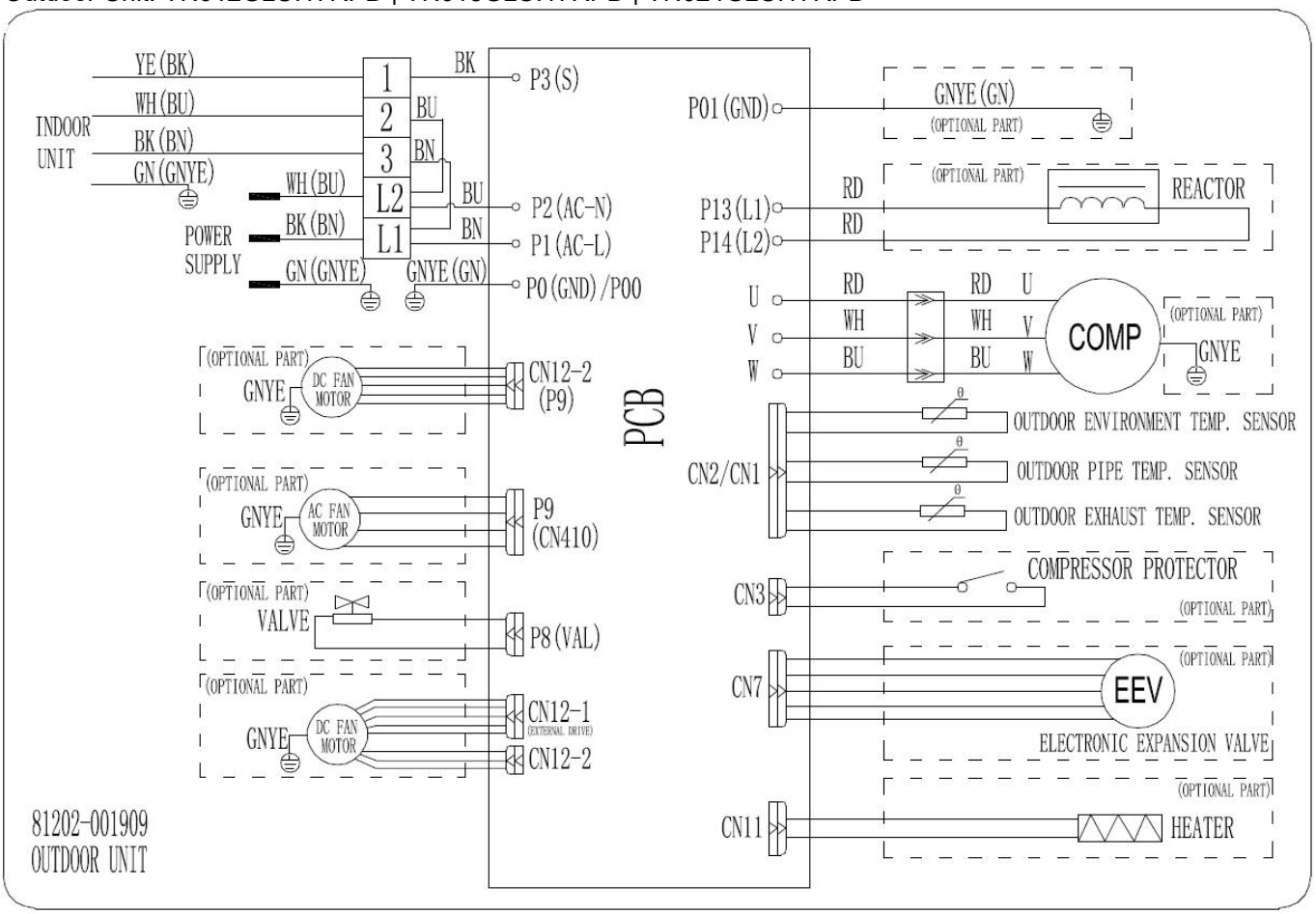
Indoor Unit: WT036GLUI17HLD



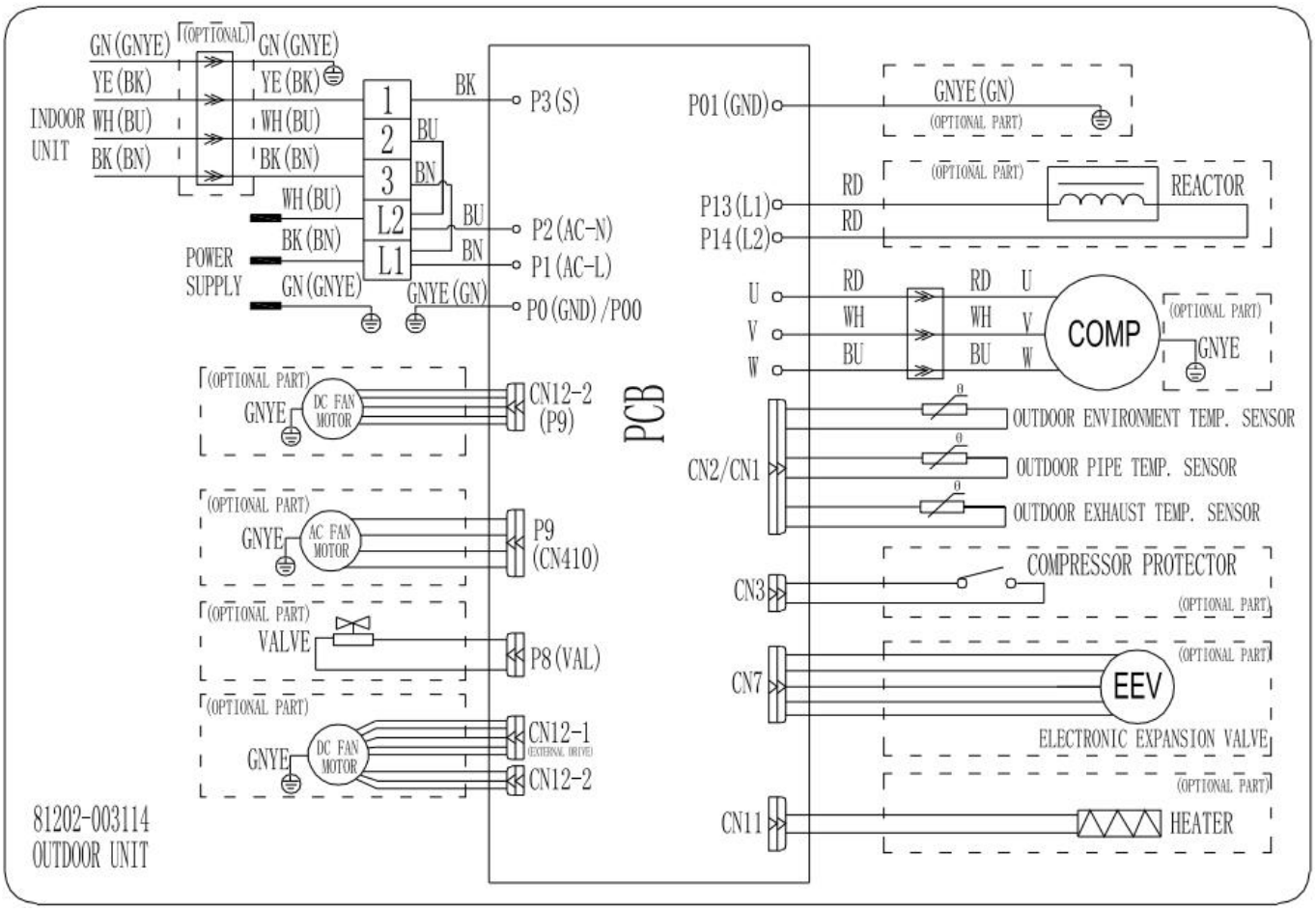
Outdoor Unit: YN012ALUI17RPD



Outdoor Unit: YN012GLUI17RPD | YN018GLUI17RPD | YN024GLUI17RPD



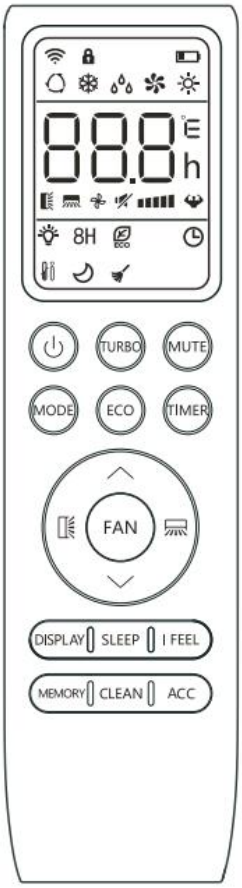
Outdoor Unit: YN036GLUI17RPD



5. Electronic Controller Introduction

5.1 Remote Controller

No.	Symbols	Meaning
1		Battery indicator
2		Auto Mode
3		Cooling Mode
4		Dry Mode
5		Fan only Mode
6		Heating Mode
7	ECO	ECO Mode
8		Timer
9	8.8°E	Temperature indicator
10		Fan speed: Auto/ low/ low-mid/ mid/ mid-high/ high
11		Mute function
12		TURBO function
13		Up-down auto swing
14		Left-right auto swing
15		SLEEP function
16		I FEEL function
17	8H	8°C heating function
18		Signal indicator
19		Child-Lock
20		Display ON/OFF
21		Self-Clean function



⚠The appearance and some functions of the remote controller may differ.

⚠The shape and position of the switches and indicators may be different according to the model, but their function is the same. The actual shape and position shall prevail.

Remote Controller Display

No.	Button	Function
1	⏻	To turn on/off the air conditioner .
2	∧	To increase temperature, or Timer setting hours.
3	∨	To decrease temperature, or Timer setting hours.
4	MODE	To select the mode of operation (AUTO, COOL, DRY, FAN, HEAT).
5	ECO	To activate/deactivate the ECO function.
		Long press to activate/deactivate the 8°C heating function (depending on models).
6	TURBO	To activate/deactivate the TURBO function.
7	FAN	To select the fan speed of auto/mute/low/low-mid/mid/mid-high/high/turbo.
8	TIMER	To set the time for timer on/off.
9	SLEEP	To switch-on/off the function SLEEP.
10	DISPLAY	To switch-on/off the LED display.
11		To stop or start horizontal flaps louver movement or set the desired up/down air flow direction.
12		To stop or start vertical deflectors louver movement or set the desired left/right air flow direction.
13	I FEEL	To switch-on/off the I FEEL function.
14	MUTE	To switch-on/off the MUTE function.
		Long press to activate/deactivate the GEN function (depending on models).
15	MODE + TIMER	To activate/deactivate the CHILD-LOCK function.
16	CLEAN	To activate/deactivate the SELF-CLEAN function (depending on models).
17	MEMORY	To memory the setting temperature, setting mode and setting fan speed as you need.
18	ACC	/

⚠The appearance and some functions of the remote controller may differ.

⚠The shape and position of the buttons and indicators may vary according to the model, but their function is the same.

⚠The unit will beep to confirm the correct reception of each button.

5.2 Electronic Controller

RT --- Room Temperature
IPT --- Indoor Pipe (Coil) Temperature
ST --- Indoor Setting Temperature
OPT --- Outdoor Pipe Temperature
OAT --- Outdoor Ambient Temperature
ODT --- Outdoor Discharge Temperature
CRT --- Compensated Room Temperature
IDU --- Indoor Unit
ODU --- Outdoor Unit

Note: When finishing installation, the air inlet on the unit and airflow throughout the room can vary in temperature. This occurs because the air ventilation and temperature test sensor are in different locations. The sensor is located in the unit's air inlet. The temperature for the IDU PCB control needs compensation.

1. Cooling Mode CRT=RT;

2. Heating Mode CRT=RT 27°F-----Split AC

5.2.1 Auto Mode

1. The set temperature can be adjusted from 61-88°F in Auto mode. The fan speed and louver position will automatically adjust based on Auto mode presets.

2. Operation
When the unit is set to Auto mode, it will work on Cooling, Heating, or Fan mode according to Δt -- the temperature difference between RT and ST shown as table:

Mode	Δt=RT-ST
Cooling	Δt > 34°F
Fan	30°F≤Δt≤ 34°F
Heating	Δt < 30°F

5.2.2 Cooling Mode

1. Temperature Control: 61-88°F, and the fan speed and louver position will automatically adjust based on Cooling mode presets.

2. Compressor and Process Control:
1). When RT-ST≥33°F, the compressor starts up and the AC operates as customer preset;
2). When

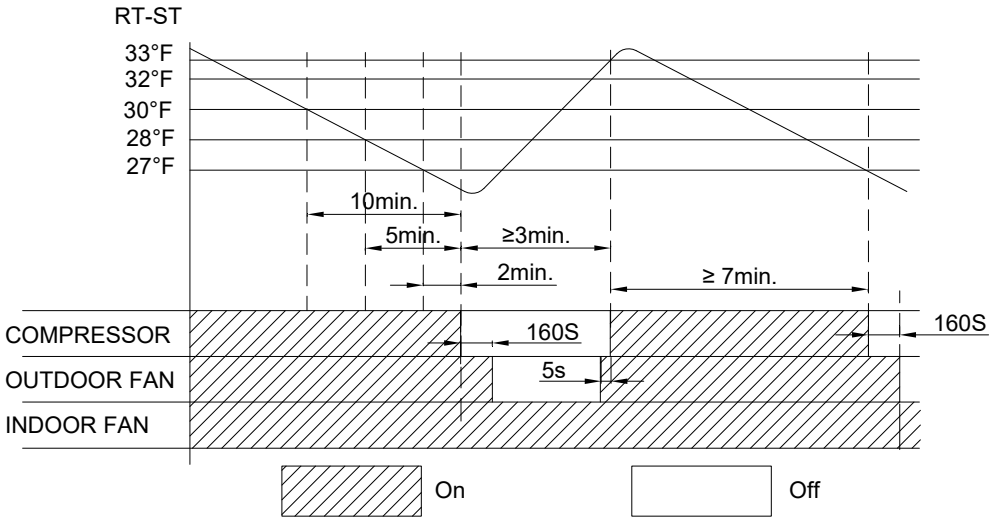
a. RT-ST≤27°F and compressor keeps 2 min continuously; or
b. RT-ST≤28°F and compressor works in lowest frequency for 5 min continuously; or
c. RT-ST≤30°F and compressor works in lowest frequency for 10 min continuously,
The compressor stops operation.
3). The compressor frequency control: Based on the relation of RT and ST and changing speed of RT.
4). The compressor also stops working while the unit is:

a. Switched Off
b. Under protection
c. Changed to Fan mode
5).The compressor works for a minimum of 7 min before being stopped by its programming in normal operation.
6).In the process of unit operation, once the compressor is ceased, it should be a 3-min delay until the next procedure.

3. ODU Fan Motor Control:
1). While the unit is:
a. Switched Off
b. Under protection
c. To the set temperature
After the compressor ceases, the fan motor stops working according to the temperature of OPT and OAT. The max delay for the motor should be less than 160s.
2). When switching the unit On in Cooling mode, the ODU fan motor will delay 5s after the compressor starts up.

4. When ODU failure or stops for protection, IDU works as preset.

5. Anti-Frosting Protection:
Control the unit operation frequency and frequency-changing rate to achieve anti-frosting protection.
1). Frequency Slowly Increasing(FSI):
a. If 43°F≤ IPT < 45°F, the frequency increasing rate is 1Hz/60s, slowly increasing operation speed.
b. When IPT≥ 45°F, the unit quits from protection.
2). Frequency Limitation:
If 41°F≤IPT < 43°F, the compressor frequency is forbidden to increase.
3). Normal Frequency Decreasing (NFD):
If 37°F≤IPT < 39°F, the frequency decreasing rate is 8Hz/90s, until to the lower frequency limit. 4).
Fast Frequency Decreasing (FFD):
If 36°F≤IPT < 37°F, the frequency decreasing rate is 16Hz/90s, until to the lower frequency limit. 5).
Unit stop:
a. When IPT < 34°F for 3 min continuously, the unit stops working for anti-defrosting protection.
b. While IPT > 43°F and the unit has stopped for 3 min already, the unit can recover to operation.



5.2.3 Dry Mode

1. Temperature Control: 61-88°F
Fan Speed: Low
Vane Blade Position: As customer preset
2. When ODU failure or stops for protection, IDU works as preset.
3. Failure Protection: As Cooling mode
4. Energy Saving and Sleep Mode: Invalid

5.2.4 Heating Mode

1. Temperature Control: 61-88°F

2. Compressor and Process Control:
1). When ST-CRT≥33°F, the compressor starts up and the AC operates as customer preset
2). When

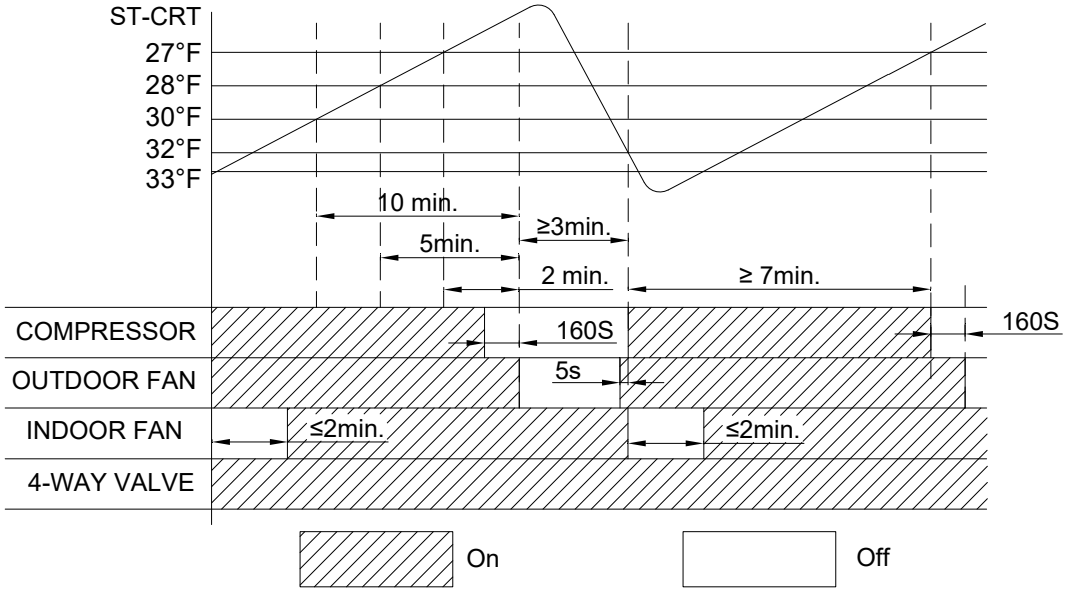
a. ST-CRT≤27°F and the compressor keeps 2 min continuously; or
b. ST-CRT≤28°F and the compressor works in lowest frequency for 5 min continuously; or
c. ST-CRT≤30°F and the compressor works in lowest frequency for 10 min continuously,
The compressor stops operation.
3). The compressor frequency control: Based on the relation of RT and ST and the changing speed of RT.
4). The compressor will also stop working while the unit is:
a. Switched Off
b. Under protection

c. Changed to Fan mode
5). Under normal operation, the compressor can be stopped by program only working after 7 min once it starts up.
6). In the process of unit operation, once the compressor is ceased, it should be a 3-min delay until the next procedure.

3. IDU Time Delay: When the compressor stops or the unit switches off while in Heating mode, the IDU fan motor will work for a few seconds more to prevent overheat.

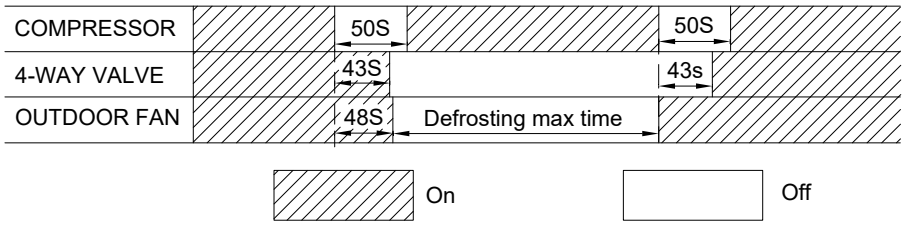
4: ODU Fan Motor Control:
1). While unit:
a. Switched Off
b. Under protection
c. To the set temperature
After compressor ceased, the fan motor stops working according to the temperature of OPT and OAT. The max delay for the motor should be less than 160s.
2). When switching the unit On in Heating mode, the ODU fan motor will delay 5s after the compressor starts up.
3). In the defrosting process, the fan motor will stop operation for a 48s delay after the compressor stops.
4). When defrosting finishes, the compressor stops operation and the fan motor will start working simultaneously.

5. 4-Way Valve Control:
1). On Cooling/Dry/Fan mode, the 4-way valve will be Off / When unit switches on Heating mode, the 4-way valve will be On.
2). When Heating mode switches off or changes from heating to other modes, the 4-way valve will be Off for a 2-min delay after the compressor stops working.
3). The unit stops working caused by any kind of protection, the 4-way valve will be Off for a 4-min delay.
4). In the defrosting process, the 4-way valve will be Off for a 43s delay after the compressor stops.
5). When defrosting finishes, the compressor stops operation and the 4-way valve will be On after a 43s delay.



6. Defrost
Note:
t1: The compressor continuous work time.
t2: AC unit operation first time going to defrost circle.
t3: The compressor accumulated working time (when OPT≤37°F unit starts to count the time for t3).

When AC unit working to:
t1 ≥ t2, or
t3 ≤ t1 < t2.
and also the temperature (related to OAT & OPT) tested 3 min continuously meets for defrosting.
Defrosting start up: The compressor stops working, restarts, and begins working again after 50s delay; Conditions for quitting defrosting:
After defrosting 60s, and OAT≥54°F; or
OAT < 23°F, and OPT ≥7~46°F for 80s continuously; or
The defrosting for 10 min.
When AC meet any of condition a, b or c, defrosting finish.



Defrosting end off: The compressor stops working, restarts, and begins working again after 50s delay;

7. Cold Air Prevention:

This function prevents cold air from being discharged when the heating operation starts up.

1). IDU fan motor cold air prevention.

When RT < 75°F:

a. If ITP > 88°F while compressor works for 5 min, the fan motor will work according to preset fan speed.

b. If IPT≤88°F, the fan motor stops working while compressor operation within 2min.

c. If IPT≥81°F, the fan motor works in low speed for 2 min, then changes to preset speed.

When RT≥75°F:

a. Within 2 min after the compressor starts up and once IPT > 81°F, the fan motor changes to preset speed.

b. After the compressor starts working for 2 min, the fan motor changes to preset speed directly.

2). Vane blade operation for cold air prevention.

If the vane works on the status of **non-swing** while IPT increases to a special degree, the vane blade will change the position to:

Default angle; or

Previous position; or

Customer preset.

The above operation can only work one time. When the compressor stops working, the unit will once again inspect the function.

If the vane works on **swing** when the IDU quits from cold air prevention, the vane blade operates as preset.

8. "46°F" Heating

When this function is effective, it ensures the room temperature will not reach lower than 46°F. Once the room temperature is lower than 46°F, the unit works on Heating mode.

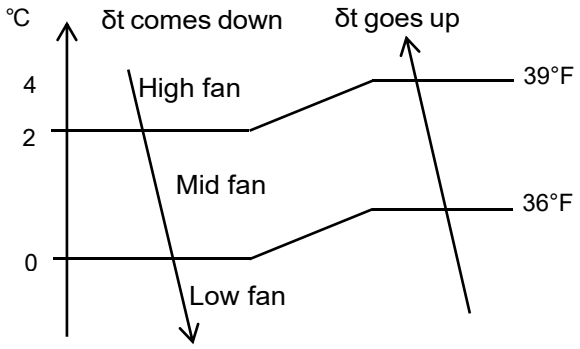
5.2.5 Fan mode

1. The Temperature Setting: 61-88°F

Fan Speed and Vane Position: As preset. The function for remote controller 58E only.

2. For the above function, when unit preset to be Auto Fan mode, the fan motor will change its operation speed based on the temperature difference of ambient and preset temperature.

3. ODU always Off



5.2.6 Timer

The unit has times control. When the unit meets the timer preset, it will be switched On or Off automatically.

TIMER ON

1). TIMER ON can only be set when the air conditioner is Off.

2). Press TIMER on the remote control once to enter the time setting.

3). Press "▲" or "▼" to set the start time for the unit.
4). Set other function as MODE, FAN SPEED, SWING, etc.
5). Press TIMER once again to confirm the TIME ON setting.

TIMER OFF

1). TIMER OFF can be set only when the air conditioner is On.
2). Press TIMER on the remote control once to enter the time setting.
3). Press "▲" or "▼" to set the stop time for the unit.
4). Press TIMER once again to confirm the TIME OFF setting

Note: If you do not input a selection for the time setting within 10s, the timer function will turn Off automatically.

5.2.7 Sleeping Mode

While the AC works in Sleeping mode, the power supply and sleep lights will always be On. The temperature display will be Off after 15s.
In this mode, the AC unit works according to the Sleep Curve as designed.
In Sleeping mode, the unit can work 10 hours continuously. After, the unit will quit from this mode and work as previous preset.

5.2.8 Emergency Switch

When the emergency switch is pressed one time, Cooling mode is selected. If the switch is pressed again within 3s, Heating mode is selected. If pressed once again, the unit will be switched Off.
For example, if the remote controller is out of function and the batteries lost power, the emergency button on the front of the indoor unit can be used for function test.

Note: Do not press the emergency switch during normal operation.

5.2.9 Auto-Restart Function

While the air conditioner is operating in one mode, all of its operation data will be memorized into IC by the main PCB, such as working mode, preset temperature, etc. If the power supply cut off due to reasons and recovers again, the Auto-Restart function will set synchronously and the air conditioner would work in the same mode as before.
Note: The function setting:
Within 3 min of powering On the unit, set the unit to Cooling mode, temperature 86°F, and mid fan speed. Press the ECO or SLEEP button 10 times consecutively within 8s and the Auto-Restart function activates.

5.2.10 Protection

5.2.10.1 Overload Protection

1. Overload Protection for Cooling or Dry Mode

1). If:

a. OPT≥144°F, the unit stops working for overload protection.

b. OPT < 131°F and after the compressor stopped for 3 min, the unit can be started to operate.

2). When OPT≥131°F, the compressor will be frequency limited/reduced for overload protection.

3). If the unit has entered overload stop-working protection 6 times consecutively, the protection can't be recovered unless pressing the On/Off button. The unit will show a failure code.

Once the compressor runs more than 6 min continuously, the counter of the overload stop-working protection will be reset to zero, restarting the counting process.
The failure and times for protection will be eliminated immediately once the unit has switched Off or changed to Fan or Heating mode.

Note: If the defective failure can't be recovered, the failure can't be eliminated even if the operation mode changed.

2. Overload Protection for Heating Mode

1). If:
a. IPT≥144°F, the unit stops working for overload protection.

b. IPT < 131°F and after the compressor stopped for 3 min, the unit can be started to operate.

2). When IPT≥131°F, the compressor will be frequency limited/reduced for overload protection.

3). If the unit has entered overload stop-working protection 6 times consecutively, the protection can't be recovered unless pressing the On/Off button. The unit will show a failure code.
Once the compressor runs more than 6 min continuously, the counter of the overload stop-working protection will be reset to zero, restarting the counting process.

The failure and times for protection will be eliminated immediately once the unit has switched Off or changed to Fan or Heating mode.

Note: If the defective failure can't be recovered, the failure can't be eliminated even if the operation mode has changed.

5.2.10.2 Compressor Discharge Temperature Protection

1. If ODT≥239°F, the unit stops working for over-temperature protection;

While ODT < 212°F and after the compressor stopped for 3 min, the unit can be started to operate.

2. If ODT≥212°F, the compressor will be frequency limited/reduced for over-temperature protection.

3. If the unit has entered discharge over-temperature stop-working protection 6 times consecutively, the protection can't be recovered unless pressing the On/Off button. The unit will show a failure code.
Once the compressor runs more than 6 min continuously, the counter of the discharge over-temperature stop-working protection will be reset to zero, restarting the counting process.
The failure and times for protection will be eliminated immediately once the unit has switched Off or changed to Fan mode.

Note: If the defective failure can't be recovered, the failure can't be eliminated even if the operation mode changed.

5.2.10.3 The Current Protection

1. If the unit A/C working current is more than **limited current (I_{LC})**, the compressor will be frequency limited/reduced for over-current protection.
2. When the unit A/C working current is more than **stopped current (I_{SC})**, the AC unit stops working. Only when the compressor stops for 3 min can the unit be recovered operation.
3. If the unit has entered over-current stop-working protection 6 times consecutively, the protection can't be recovered unless pressing the On/Off button.
Once the compressor runs more than 6 min continuously, the counter of the stop-working protection will be reset to zero, restarting the counting process.

Note: For different models, I_{LC} and I_{SC} have different programmed values.

5.2.10.4 IPM Overheating Protection

1. When IPM temperature T_{IPM}≥189°F, the compressor will be frequency limited/reduced for IPM over-temperature protection.

2. When T_{IPM}≥203°F, the AC unit stops working for AC-system protection.

If T_{IPM} < 189°F and after the compressor stops for 3 min, the unit can be started to operate.

3. If the unit has entered IPM over-temperature stop-working protection 6 times consecutively, the protection can't be recovered unless pressing the On/Off button. The unit will show a failure code.
Once the compressor runs more than 6 min continuously, the counter of the overload stop-working protection will be reset to zero, restarting the counting process.
The failure and times for protection will eliminate immediately once the unit is switched Off or changed to Fan mode.

Note: If the defective failure can't be recovered, the failure can't be eliminated even if operation mode changed.

5.2.11 Complementary

5.2.11.1 Energy Saving (ECO)

Function effective in Cooling and Heating mode only.

On Cooling mode, the set temperature range is from 79-88°F. On Heating mode, the set temperature range is from 61-77°F.

5.2.11.2 Turbo

Function effective in Cooling, Heating, Fan, and Auto modes. The fan speed operates on highest.

5.2.11.3 The Communication Control

If ODU PCB can't get signal feedback from IDU for 2 min continuously, the AC unit stops working and shows the E0 error code. The E0 error code represents IDU/ODU communication failure.
The unit can be recovered to operate after the IDU and ODU communication recovers and the compressor stops for 3 min.

PART Ⅱ Installation and Maintenance

1. Notes for Installation and Maintenance

Safety Precautions

Important!

Read the safety precautions carefully before installation and maintenance. The following contents are very important for installation and maintenance. Follow the instructions below:

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

Warnings

Electrical Safety Precautions

1) Cut off the air conditioner's power supply before checking and starting maintenance.
2) The air conditioner must apply a specialized circuit and prohibit sharing the same circuit with other appliances.
3) The air conditioner should be installed in a suitable location. Ensure the power plug is touchable.
4) Make sure each wiring terminal is connected firmly during installation and maintenance.
5) Have the unit adequately grounded. The grounding wire can’t be used for other purposes.
6) Must apply protective accessories such as protective boards, cable-cross loop, and wire clip.
7) The live, neutral, and grounding wires of the power supply must correspond to the live, neutral, and grounding wires of the air conditioner.
8) The power cord and power connection wires can’t be pressed by hard objects.
9) If the power cord or connection wire is broken, it must be replaced by a qualified person.
10) If the power cord or connection wire is not long enough, get a specialized power cord or connection wire from the manufacture or distributor. Prohibit prolonging the wire by yourself.
11) For air conditioners without plugs, an air switch must be installed in the circuit. The air switch should be all-pole parting and the contact parting distance should be more than 0.1in.
12) Confirm all wires and pipes are connected properly and the valves are opened before energizing.
13) Check if there is electric leakage on the unit body. If yes, please eliminate the electric leakage.
14) Replace the fuse with a new one of the same specification if it is burnt down. Don’t replace it with cooper or conducting wire.
15) If installing the unit in a humid place, a circuit breaker must be installed.

Installation Safety Precaution

1) Select the installation location according to the requirements in this manual. (See the requirements in installation part)
2) Handle unit transportation with care. The unit should not be carried by only one person if it is more than 44lbs.
3) When installing the indoor and outdoor units, a sufficient fixing bolt must be installed, ensuring the installation supporter is firm.
4) Wear a safety belt if the working height is above 7ft.
5) Use equipped or appointed components during installation.

6) Make sure no foreign objects are left in the unit after finishing installation.

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

Safety precautions for installing and relocating the unit.
To ensure safety, be mindful of the following precautions.

⚠ Warnings

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 substances in the refrigerant circuit will cause a rise in system pressure or the compressor to rupture, resulting in injury.
When charging the refrigerant during the installation or relocation of this unit, ensure you comply with the requirements displayed on the unit nameplate. Do not use unqualified refrigerant.
Otherwise, it may cause abnormal operation, wrong action, mechanical malfunction, or even series safety accident. When refrigerant needs to be recovered during relocating or repairing the unit, confirm the unit is running in Cooling mode. Then, fully close the valve at the high-pressure side (2-way valve). About 30-40s later, fully close the valve at the low-pressure side (3-way valve). Immediately stop the unit and disconnect power.
Note: The time for refrigerant recover should not exceed 1 min.
If refrigerant recovery takes too much time, it may cause the compressor to overheat, resulting in injury.
During refrigerant recovery and before detaching the connecting pit, make sure that 2-way and 3-way valves are fully closed and the power is disconnected.
If the compressor starts running when the valves are open and the connecting pipe is not yet connected, air will be sucked in, causing pressure to rise. This leads to compressor overheating or a gas leak, which may result in injury. When installing the unit, confirm the connecting pipe is securely connected before the compressor starts running.
If the compressor starts running when the valves are open and the connecting pipe is not yet connected, air will be sucked in and cause the pressure to rise. This leads to compressor overheating or a gas leak, which may result in injury.
Prohibit installing the unit in a place where there may be leaked-corrosive or flammable gas.
If there is leaked gas around the unit, it may cause explosion and other accidents.
Do not use extension cords for electrical connections. If the electric wire is not long enough, contact an authorized local service center and ask for proper electric wire.
Poor connection may lead to electric shock or fire.
Use the specified types of wires for electrical connections between the indoor and outdoor units. Firmly clamp the wires so their terminals receive no external stresses.

Electric wires with insufficient capacity, wrong wire connections, or insecure wire terminals may cause electric shock or fire.

Introduction R32 Air Conditioner Installation

Introduction to Refrigerants R32

The refrigerants used for air conditioners are environmentally-friendly hydrocarbons R32. The two kinds of refrigerants are combustible and odorless. In addition, they can burn and explode under certain condition. However, there will be no risk of burning and explosion, if you correctly utilize the following table to install your air conditioner in a room with an appropriate area.
Compared with ordinary refrigerants, Refrigerants R32 are environmentally friendly and do not destroy the ozone sphere. Their values of greenhouse effect are also very low.

R32 Air Conditioner Installation Area Requirement

$m1=(4m^3)\times LFL$, $m2=(26m^3)\times LFL$, $m3=(130m^3)\times LFL$
Where LFL is the lower-flammable limit in kg/m^3, R32 LFL is $0.306kg/m^3$.
For the appliances with a charge amount m1<M<m2:
The maximum charge in a room shall be in accordance with the flowing: $M_{max}=2.5\times(LFL)^{(5/4)}\times h_0\times A^{1/2}$
The required minimum floor area A_{min} to install an appliance with refrigerant charge M(kg) shall be in accordance with the following: $A_{min}= (M/ (2.5 \times (LFL)^{(5/4)} \times h^0))\ 2$
Where:
M_{max} is the allowable maximum charge in a room, in kg;
M is the refrigerant charge amount in appliance, in kg;

A_{min} is the required minimum room area, in m2;
A is the room area, in m2;
LFL is the lower flammable limit, in kg/m3;
h0 is the installation height of the appliance, in meters for calculating M_{max} or A_{min}, 1.8 m for wall mounted;

Table GG.1 - Maximum Charge (kg)

Category	LFL (kg/m3)	h0 (m)	Floor Area (m^2) **Maximum Charge (kg)**						
			4	7	10	15	20	30	50
R32	0.306	0.6	0.68	0.9	1.08	1.32	1.53	1.87	2.41
		1	1.14	1.51	1.8	2.2	2.54	3.12	4.02
		1.8	2.05	2.71	3.24	3.97	4.58	5.61	7.254
		2.2	2.5	3.31	3.96	4.85	5.6	6.86	8.85

Table GG.2 - Minimum Room Area (m2)

Category	LFL (kg/m3)	h0 (m)	Charge Amount (M) (kg) **Minimum Room Area (m2)**						
			1.224kg	1.836kg	2.448kg	3.672kg	4.896kg	6.12kg	7.956kg
R32	0.306	0.6	/	29	51	116	206	321	543
		1	/	10	19	42	74	116	196
		1.8	/	3	6	13	23	36	60
		2.2	/	2	4	9	15	24	40

Caution:

- Contact your nearest after-sale service center when maintenance is necessary. At the time of maintenance, the maintenance personnel must strictly comply with the Operation Manual provided by the corresponding manufacturer. Any non-professional is prohibited to maintain the air conditioner.
- It is necessary to comply with the provisions of gas-related national laws and regulations.
- It is necessary to clear away the refrigerant in the system when maintaining or scrapping an air conditioner.
- When filling the combustible refrigerant, any of your rude operations may cause serious injury or injuries to human body or bodies and object or objects.
- A leak test must be done after the installation is completed.
- Before maintaining or repairing an air conditioner using combustible refrigerant, complete the safety inspection in order to ensure the fire risk is reduced to minimum.

1) Installation Safety

Installation Safety Principles

Site Safety

Open Flames Prohibited

Ventilation Necessary

Operation Safety

Open Flames Prohibited

Mind static electricity Must wear protective clothing and anti-static gloves Don`t use mobile phone

Installation Safety

• Refrigerant Leak Detector • Appropriate Installation Location		The left picture is the schematic diagram of a Refrigerant Leak Detector.

Caution:

- Installation should take place in a well-ventilated location.
- When using Refrigerant R290/R32 during installation or maintenance, the location should be free from open fire, welding, smoking, drying oven, or any other goods with temperatures higher than 698°F (R290) or 1,018°F(R32).
- Appropriate anti-static measures, such as wearing anti-static clothing and gloves, are necessary when installing air conditioners using R290/R32.
- Select a location where the indoor and outdoor units' air inlets and outlets are unobstructed. Ensure the air inlets and outlets of the indoor unit are even.
- Ensure the location is not near heat sources or a combustible/explosive environment.
- Avoid locations where electrical products, power switch plugs, electrical sockets, kitchen cabinets, beds, sofas, and other valuables are right under the lines of the indoor unit on two sides.
- If the indoor unit experiences a refrigerant leak during installation, immediately turn off the valve of the outdoor unit. All personnel must leave the location for at least 15 min until the refrigerant leaks completely. If the product is damaged, carry it back to the maintenance station. Welding the refrigerant pipe or conducting other operations on the user’s site is prohibited.

Special Tools:

Tool Name	Requirement(s) for Use
Mini Vacuum Pump	An explosion-proof vacuum pump that can ensure certain precision. Its vacuum degree should be lower than 10Pa.
Filling Device	A special explosion-proof filling device that can ensure certain precision. Its filling deviation should be less than 5g.
Leak Detector	Ensure it is calibrated regularly. Its annual leak rate should not exceed 10g.
Concentration Detector	A) Equip the maintenance site with a fixed-type combustible refrigerant concentration detector. Connect the detector to a safeguard alarm system. Its error must not exceed 5%. B) Equip the installation site with a portable combustible refrigerant concentration detector that can realize the two-level audible and visual alarm. Its error must not exceed more than 10%. C) Ensure the concentration detectors are calibrated regularly. D) Check and confirm the functions before using the concentration detectors.
Pressure Gauge	A) Ensure the pressure gauges are calibrated regularly. B) The pressure gauge used for Refrigerant 22 can also be used for Refrigerants R290 and R161. The pressure gauge used for R410A can also be used for Refrigerant 32.

Fire Extinguisher	Carry fire extinguisher(s) during installation and maintenance. On the maintenance site, ensure there are two or more kinds of dry powder, carbon dioxide, and foam fire extinguishers. The items should have eye-catching labels and be placed at stipulated positions.

Maintenance

1). Inspections Before Maintenance

(1) **Inspection of Maintenance Environment**

(2) Before operation, ensure no leaked refrigerant is present in the room.

(3) Only operate in rooms meeting the area requirements on the nameplate.

(4) Ensure the room maintains a continuous ventilation state.

(5) Restrict fire, welding, smoking, drying oven, or any other goods with temperatures higher than 698°F (R290) or 1,018°F (R32) from being in the room.

(6) Ensure mobile phones or any electronic products containing radiation are powered Off while in the room.

(7) Equip the maintenance area with a functioning drying powder or carbon dioxide fire extinguisher.

(8) **Inspection of Maintenance Equipment**

(9) Check whether the maintenance equipment is applicable to the refrigerant or not. Only use the professional equipment recommended by the air conditioner manufacturer.

(10) Check whether the refrigerant leak detector has been calibrated. The set maximum alarm concentration of the refrigerant leak detector should not exceed 25% of the lower explosion limit (LEL). The refrigerant leak detector must be working during maintenance.

2). Inspection of Air Conditioner

- Before maintenance, ensure the air conditioner is in reliable ground connection.
- Ensure the air conditioner's power supply is Off. Before maintenance, turn Off the power and discharge the capacitor power, which is used in the air conditioner. If you must need the power supply during maintenance, perform ongoing leak detections at the most dangerous position/point to avoid potential danger.
- Check whether the warning labels on the air conditioner are in good condition. It is necessary to replace damaged or smeared warning labels.

3). Leak Inspection Before Maintenance

Before maintenance, check whether the air conditioner is leaking using the leak detector or concentration detector (pump-type) recommended by the corresponding air conditioner manufacturer.

Warning

If a leak potentially exists, extinguish or remove all the fire from the site. Then, immediately shut Off the air conditioner. Meanwhile, ensure the area is well-ventilated.

4). Safety Principles During Maintenance

- During maintenance, ensure the site is well-ventilated.
- Using fire, such as welding or smoking, is prohibited. Using mobile phones is also prohibited.
- If the relative humidity is lower than 40%, wear anti-static clothing and gloves.
- If the combustible refrigerant is found leaking during maintenance, immediately implement forced ventilation and plug up the leak source.

- If the product is damaged to the extent that the refrigerant system must be opened for maintenance, carry the product back to the maintenance station. Welding refrigerant pipes or conducting similar operations are prohibited at the user's site.
- If providing visiting service is necessary due to lacking spare parts during maintenance, return the air conditioner to its initial state. Ensure the refrigerating system is in secure ground connection.
- When storing the cylinder in a vehicle or on the maintenance site, ensure it is placed vertically and securely. Keep the cylinder away from heat, combustion, and radiation sources, as well as electrical equipment.

5). Requirements for Maintenance-Station Site

- The maintenance location should be well-ventilated with a leveled ground. The location should not be in a basement.
- Divide the maintenance location into welding and non-welding areas and label them clearly. Ensure there is a certain safety distance between the two areas.
- Equip the maintenance location with ventilating and air-exhausting equipment to prevent the refrigerant gas from aggregating.
- Provide relevant instruments, such as a combustible refrigerant leak detector and leak detecting instrument management system. Confirm the leak detector works normally before maintenance.
- Set the main power switch outside the maintenance location. Equip the main power switch with protective (explosion-proof) devices.
- Provide firefighting devices appropriate for extinguishing electrical fires, such as dry powder or carbon dioxide fire extinguishers. Keep the firefighting devices in usable condition.
- Temporary wires and sockets are prohibited in the maintenance location.

6). Requirements for Filling the Refrigerants

- Before operating the refrigerant system, clear the cyclic system using nitrogen. Vacuum the outdoor unit for at least 30 min.
- Ensure there is no cross contamination among different refrigerants when using the refrigerant filling device. The total length, including the refrigerant pipeline, should be as short as possible in order to reduce the residual refrigerant inside the pipeline.
- Vertically place the refrigerant storage tanks.
- Ensure the refrigerating system is in ground connection before filling the refrigerant.
- When filling the refrigerant, utilize the corresponding type and volume of refrigerant as per the requirements on the product nameplate. Overfilling is prohibited.
- Seal the system safely after maintaining the refrigerating system.
- Ensure the maintenance will not damage or reduce the safety protection grade of the original system.

7). In-Maintenance Welding

- Ensure the maintenance location is well-ventilated.
- Before welding the outdoor unit, confirm the refrigerant system has been drained and cleaned. Ensure there has been no refrigerant in the outdoor unit.
- Close the stop valve of the outdoor unit when using a welding gun for maintenance.

8). Maintenance of Electrical Components

- Use a special leak detector to check whether the location of the maintained electrical parts has a refrigerant leak.
- It is prohibited to refit, remove, or cancel any component with the safety protection function after finishing maintenance.
- When maintaining the sealed parts, you must turn Off the air conditioner's power before opening the sealing cover. When power supply is needed, perform ongoing leak detection at the most dangerous position.
- It is necessary to note the maintenance of electrical components will not affect the replacement of protective cover.
- Ensure the sealing function is not damaged after maintenance. Ensure the sealing material's ability to prevent combustible gas leaks will not diminish due to aging. The substitute components should meet the requirements recommended by the air conditioner manufacturer.

Warning

Before doing the trial operation after finishing maintenance, use a practical leak detector to inspect the leakage and reliability of ground connection. This is required to ensure there is a reliable ground connection and no refrigerant leakage. Separately place the refrigerant storage tanks in a well-ventilated place with the temperatures ranging from 14-122°F. Label refrigerant storage tanks with warning labels.

9). Emergency Accident Handling

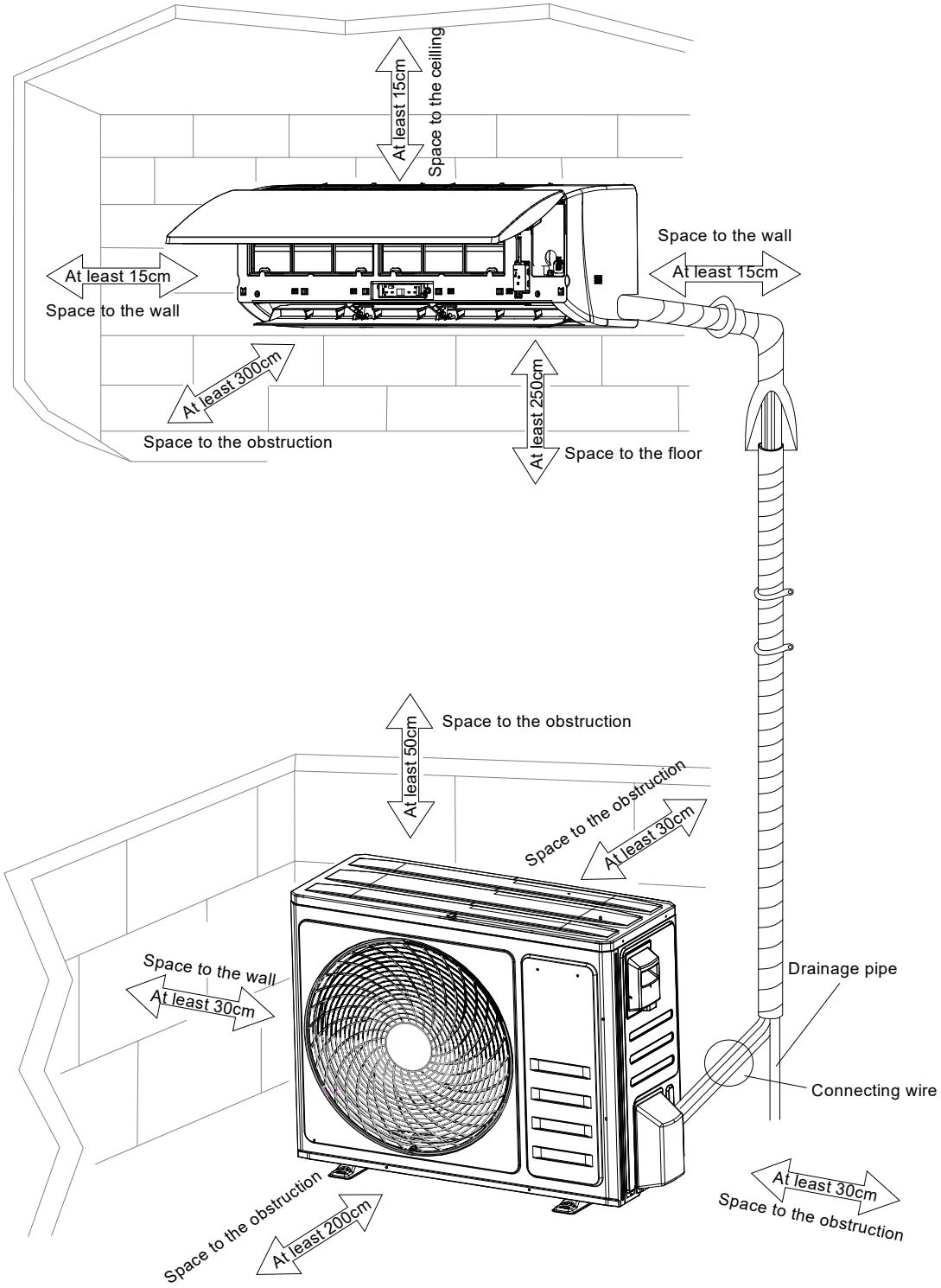
Establish emergency handling plans for the maintenance station. Take appropriate precautionary measures while working. For example, it is prohibited to enter the location with any kindling material or wear clothing and shoes that easily produce static.

Use these suggestions if a large amount of combustible refrigerant leaks:

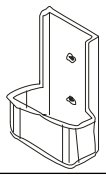
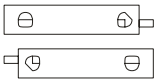
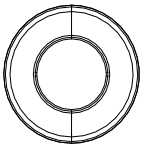
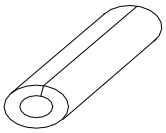
- Immediately operate the ventilating equipment while cutting off other power supply. Evacuate the affected personnel urgently from the location.
- Inform nearby residents to evacuate over 66ft from the location and make an alarm call. Set the emergency area and prohibit irrelevant personnel and vehicles from approaching.
- The professional firefighters should wear anti-static clothing to handle the emergency on the site. The firefighters should also cut off the source of the leak.
- Use nitrogen for blowing the site, especially the low-lying positions. Clear away the residual combustible refrigerant gas from any area surrounding the leak point and nearby. Use a handheld detector for detection. Do not clear the alarm until the concentration of refrigerant is zero.

2 Installation

2.1 Installation Dimension Diagram



2.2 Accessory

Remote Controller 	Remote Controller Supporter 	Batteries 	Vinyl Tape 
Drain Hose 	Hole Cover 	Screw 	Insulation Material 

2.3 Tools

Tool Name	Picture	Tool Name	Picture	Tool Name	Picture
Standard Wrench		Pipe Cutter		Vacuum Pump	
Adjustable/ Crescent Wrench		Screw Drivers (Phillips & Flat Blade)		Safety Glasses	
Torque Wrench		Manifold & Gauges		Work Gloves	
Hex Keys or Allen Wrenches		Level		Refrigerant Scale	
Drill & Drill Bits		Flaring Tool		Micron Gauge	
Hole Saw		Clamp-on Amp Meter			

2.4 Position

Indoor Unit

- Install the indoor unit level on a strong wall that is not subject to vibrations.
- The inlet and outlet ports should not be obstructed. The air should be able to blow all over the room.
- Do not install the unit near a source of heat, steam, or flammable gas.
- Do not install the unit in places that are too windy or dusty.
- Do not install the unit where people often pass. Select a place where the air discharge and operating sound level will not disturb the neighbors.
- Install the unit in a location that simplifies the connection process for the indoor and outdoor units.
- Install the unit where it is easy to drain the condensed water.
- Check the machine operation regularly and leave the necessary spaces as shown in the picture. Install the indoor unit where the filter can be easily accessible.

Outdoor Unit

- Do not install the outdoor unit near sources of heat, steam, or flammable gas.
- Do not install the unit in places that are too windy or dusty places.
- Do not install the unit where people often pass. Select a place where the air discharge and operating sound level will not disturb the neighbors.
- Avoid installing the unit where it will be exposed to direct sunlight. If needed, use protection that will not interfere with the air flow.
- Leave spaces as shown in the picture for the air to circulate freely.
- Install the outdoor unit in a safe and solid space.
- If the outdoor unit is subject to vibration, place rubber gaskets onto the feet of the unit.
- Install the indoor unit in a room that will be air-conditioned. Avoid installation in corridors or communal areas.
- Install the indoor unit at a height of at least 8ft from the ground. The minimum space to be left (mm) showing in the picture.

2.5 Electricity and Wiring

Safety Precautions

1) Follow the electric safety regulations when installing the unit.
2) According to the local safety regulations, use qualified power supply circuits and air switches.
3) Ensure the power supply matches with the requirement of air conditioner. Unstable power supply or incorrect wiring may result in electric shock, fire hazard, or malfunction. Install proper power supply cables before using the air conditioner.

Select the power cord according to the following specifications sheet:

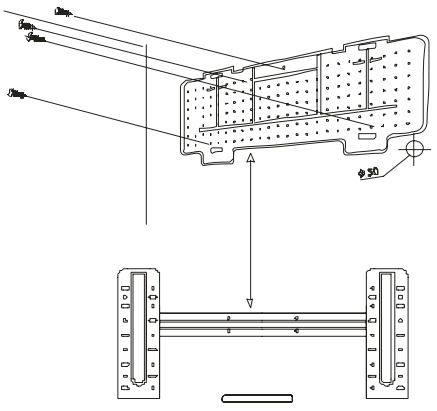
Appliance Amps(A)	Wire Size (mm^2)
5	0.75
10	1.0
13	1.5
18	1.6
25	2.0
30	2.5

2.6 IDU Installation

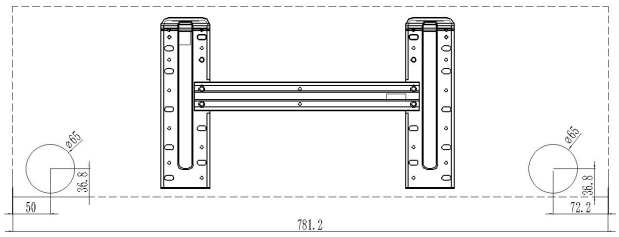
To install, proceed as follows:

2.6.1 Installation of the Mounting Plate

1. Using a level, place the mounting plate in a perfect square position vertically and horizontally.
2. Drill 1.3in deep holes in the wall to fix the plate.
3. Insert the plastic anchors into the hole.
4. Fix the mounting plate by using the provided tapping screws.
5. Ensure the mounting plate is correctly fixed.



12K(770X)



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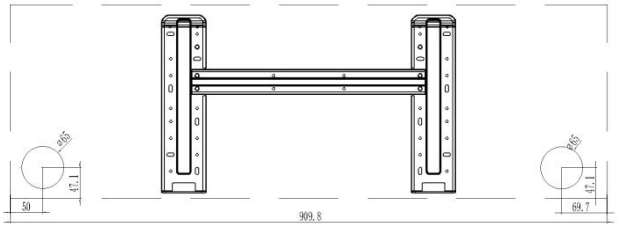

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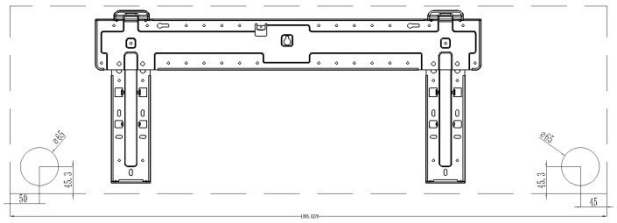

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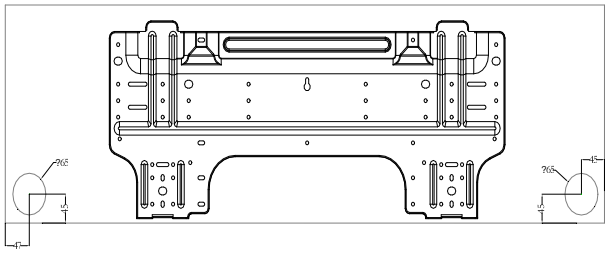
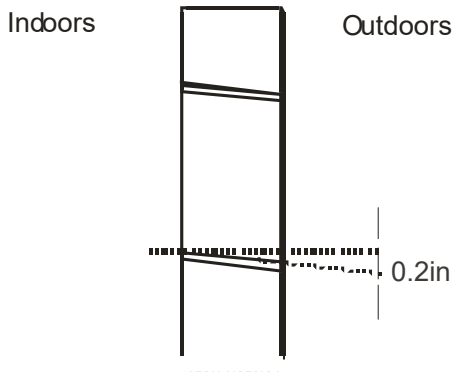


Note: The shape of the mounting plate may be different from the one above. However, the installation method is similar.

2.6.2 Drilling a Hole in the Wall for the Piping

1. Decide where to drill the hole in the wall for the piping (if necessary) according to the position of the mounting plate.
2. Install a flexible flange through the hole in the wall to keep the latter intact and clean.



The hole must slope downwards towards the exterior.

Note: Keep the drain pipe down towards the direction of the wall hole, otherwise leakage may occur.

2.6.3 Electrical Connections - Indoor Unit

1). Lift the front panel.

2). Take off the cover, as indicated in the picture, by removing a screw or breaking the hooks.

3). For the electrical connections, see the circuit diagram on the right part of the unit under the front panel.

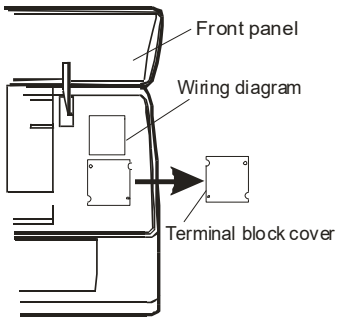
4). Connect the cable wires to the screw terminals by following the numbering. Use wire size suitable to the electric power input (see name plate on the unit) and according to all current national safety code requirements.

5). The cable connecting the outdoor and indoor units must be suitable for outdoor use.

6). The plug must be accessible after the appliance has been installed so that it can be pulled out if necessary.

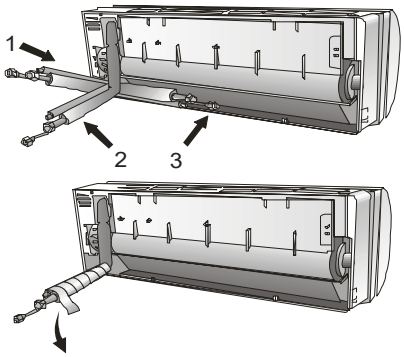
7). Ensure an efficient earth connection.

8). If the power cable is damaged, it must be replaced by an authorized Service Centre.



★ **Refrigerant piping connection**

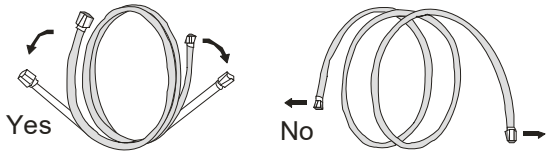
The piping can be run in 3 directions, which are indicated by the numbers in the picture. When the piping is run in direction 1 or 3, cut a notch along the groove on the side of the indoor unit with a cutter. Run the piping in the direction of the wall hole. Then bind the copper pipes, drain pipe, and the power cables together with the tape. The drain pipe should be at the bottom, so water can flow freely.



Shape the connection pipe

2.6.4 Connecting the Pipes

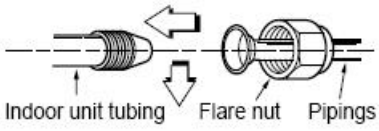
- Do not remove the cap from the pipe until connecting it in order to avoid dampness or dirt from entering.
- If the pipe is bent or pulled too often, it will become stiff. Do not bend the pipe more than 3 times at one point.
- When extending the rolled pipe, straighten the pipe by unwinding it gently as shown in the picture.



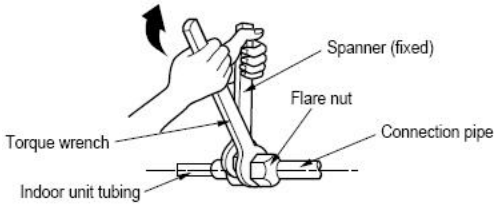
Extending the rolled pipe

2.6.5 Connections to the Indoor Unit

1). Remove the indoor unit pipe cap. Confirm there is no debris inside.
2). Insert the fare nut and create a flange at the extreme end of the connection pipe.



3). Tighten the connections by using two wrenches working in opposite directions.

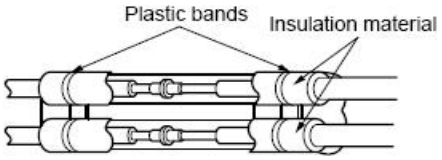


Capacity (Btu/h)	Pipe Size (Torque)	
	Gas	Liquid
7/9/12K	3/8" (31-35N.m)	1/4" (15-20N.m)
18K	3/8" (31-35N.m)	1/4" (15-20N.m)
24K	1/2" (45-50N.m)	1/4" (15-20N.m)

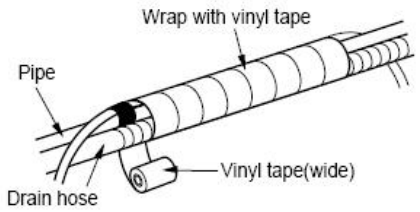
4.) When extending the drain hose at the indoor unit, install the drain pipe.

Wrap the insulation material around the connecting portion.

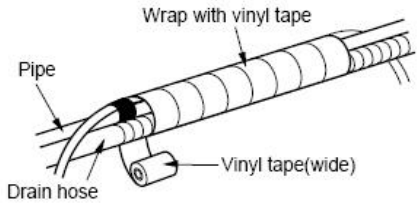
- Overlap the connection pipe insulation material and indoor unit pipe insulation material. Bind them together with vinyl tape so there is no gap.



- Wrap the area that accommodates the rear piping housing section with vinyl tape.



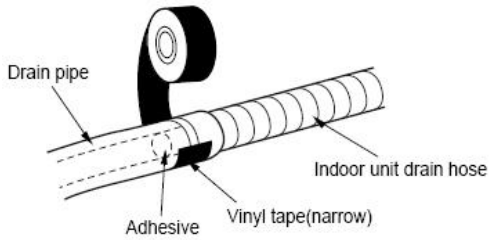
- Bundle the piping and drain hose together by wrapping them with vinyl tape. Ensure the tape covers the entire range within which they fit into the rear piping house section.



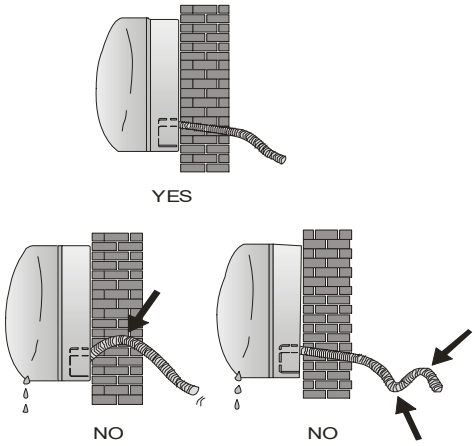
2.6.6 Indoor Unit Condensed Water Drainage

The indoor unit condensed water drainage is fundamental for the success of the installation.
1). Place the drain hose below the piping, while taking care not to create siphons.
2). The drain hose must slant downwards to aid drainage.
3). Do not bend the drain hose or leave it protruding or twisted. Do not put the end of it in water. If an extension is connected to the drain hose, ensure it is lagged when it passes into the indoor unit.

4). If the piping is installed to the right, the pipes, power cable, and drain hose must be lagged and secured onto the rear of the unit with a pipe connection.



5). Insert the pipe connection into the relative slot.
6). Press to join the pipe connection to the base.



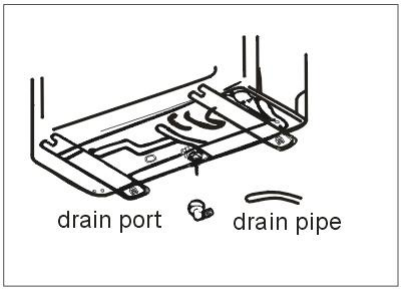
2.7 ODU Installation

- Install the outdoor unit on a solid wall and fastened securely.
- Before connecting the pipes and cables, select the best position on the wall and leave enough space for maintenance.
- Fasten the support to the wall using screw anchors, which are particularly suited for the type of wall.
- To avoid vibration during operation, use a larger quantity of screw anchors than normally required. Keep the anchors fastened in the same position for years without the screws becoming loose.
- The unit must be installed following the national regulations.

Outdoor Unit Condensed Water Drainage (Only for Heat Pump Models)

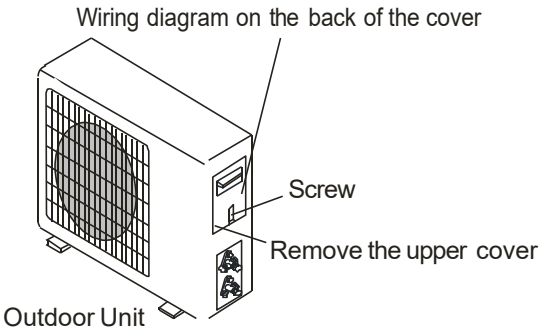
The condensed water and ice formed in the outdoor unit during heating operation can be drained away through the drain pipe.

1). Fasten the drain port in the 1in hole placed in the part of the unit as shown in the picture.
2). Connect the drain port and the drain pipe. Ensure the water is draining in a suitable place.



Electronic Connections

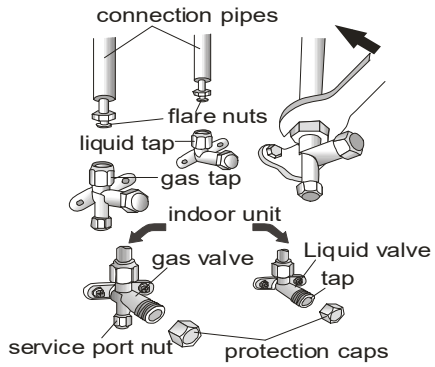
1. Take the cover away.
2. Connect the cable wires to the terminal board using the same numbering as in the indoor unit.
3. For the electrical connections, see the wiring diagram on the back of the cover.
4. Fasten the cables with a cable-clamp.
5. Ensure an efficient earth connection.
6. Replace the covers.



Connecting the Pipe

Screw the flare nuts to the outdoor unit coupling with the same tightening procedures described for the indoor unit.

Note: If the tightening torque is not sufficient, there will probably be some leakage. With excessive tightening torque, there will also be some leakage, as the flange could be damaged. Install the outdoor unit on a solid wall and fasten it securely. Before connecting the pipes and cables, select the best position on the wall and leave enough space for maintenance.



2.8 Vacuum and Gas Leakage Test

1. Use Vacuum Pump

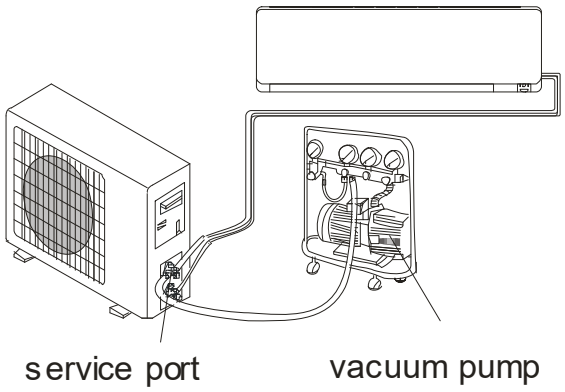
1). After connecting the indoor and outdoor units, bleed the air and humidity from the refrigerant circuit by using a vacuum pump. Air and humidity left inside the refrigerant circuit can cause compressor malfunction.

2). Open the piezometer and conduct the operation for 10-15 min to check if the piezometer's pressure remains in -0.1Mpa.

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

4). Remove the piezometer, then completely open the valve cores of the liquid and gas valves.

5). Tighten the screw caps of the valve and refrigerant charging vent.



2. Leakage Detection

1). Check if there is leakage with leakage detection.

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

2.9 Final Test

1. Preparation of Test Operation

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

2. Method of Test Operation

- Press the On/Off button on the remote controller to start the operation.
- Press the Mode button, then select Auto, Cool, Dry, Fan, and Heat to check whether the operation is normal or not. If the ambient temperature is lower than 16°C, the air conditioner can’t start cooling.

3. Maintenance

3.1 Failure code

Code	Reason	Remark
E0	IDU and ODU communication failure	The IDU and ODU wiring connection correct?
E1	IDU room temperature sensor failure (IDU RT failure)	IDU sensor and PCB
E2	IDU coil temperature sensor failure (IDU IPT failure)	IDU sensor and PCB
E3	ODU coil temperature sensor failure (OPT)	ODU coil sensor and ODU PCB
E4	AC-cooling system abnormal	Gas leakage? 2-way or 3-way valve blocked, etc.
E5	IDU/ODU mismatched failure (specially performance test on the production line)	/
E6	IDU PG fan motor/DC fan motor works abnormal (IDU failure)	Fan motor, fan blade, and PCB
E7	ODU ambient temperature sensor failure	ODU ambient sensor and ODU PCB
E8	ODU discharge temperature sensor failure	ODU discharge sensor and ODU PCB
E9	IPM/Compressor driving control abnormal	ODU PCB, compressor, etc.
EA	ODU current test circuit failure	ODU PCB broken?
Eb	The communication abnormal of main PCB and Display Board (IDU failure)	Display Board and main PCB
EE	ODU EEPROM failure	1. ODU PCB broken? 2. Try to re-power on AC unit
EF	ODU DC fan motor failure	Fan motor and ODU PCB
EU	ODU voltage test circuit abnormal	ODU PCB
P0	IPM module protection	ODU PCB
P1	Over/under-voltage protection	1. ODU PCB broken? 2. Power supply abnormal?
P2	Over-current protection	1. ODU PCB broken? 2. Power supply abnormal?
P4	ODU discharge pipe over-temperature protection	Please check the troubleshooting for detail
P5	Sub-cooling protection on Cooling mode	Please check the troubleshooting for detail
P6	Overheating protection on Cooling mode	Please check the troubleshooting for detail
P7	Overheating protection on Heating mode	Please check the troubleshooting for detail
P8	Outdoor over-temperature/under-temperature protection	Please check the troubleshooting for detail
P9	Compressor driving protection (Load abnormal)	Please check the troubleshooting for detail
PA	Communication failure for TOP flow unit/Preset mode conflict (IDU failure)	Please check the troubleshooting for detail
F0	Infrared customer feeling test sensor failure (IDU failure)	Query by pressing the remote controller
F1	Electric power test module failure (IDU failure)	Query by pressing the remote controller
F2	Discharge temperature sensor failure protection	Please check the troubleshooting for detail
F3	ODU coil temperature failure protection	Please check the troubleshooting for detail
F4	Cooling system gas flow abnormal protection	Please check the troubleshooting for detail

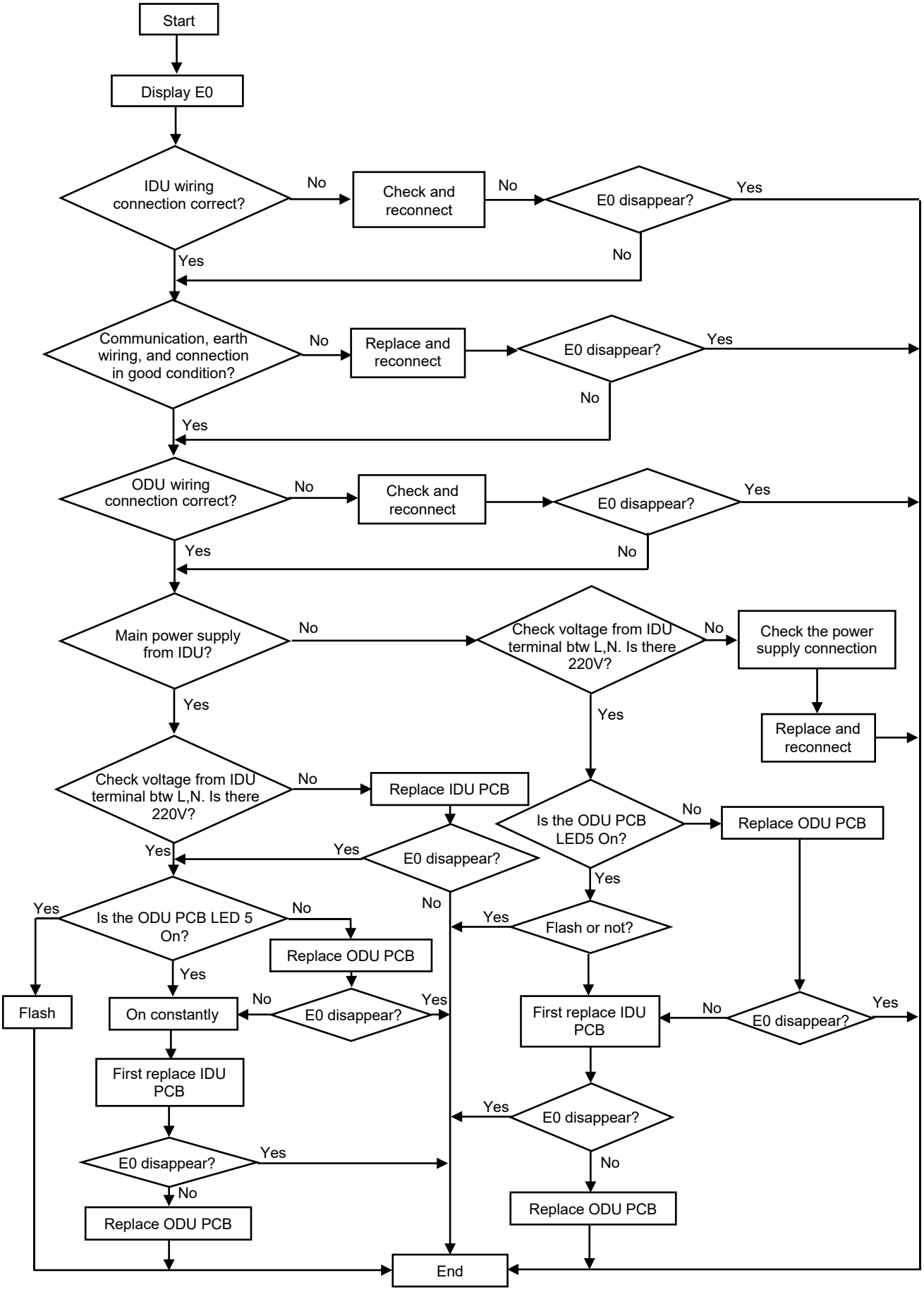
F5	PFC protection	Please check the troubleshooting for detail
F6	The compressor lack of phase/Anti-phase protection	Please check the troubleshooting for detail
F7	IPM module temperature protection	Please check the troubleshooting for detail
F8	4-way value reversing abnormal	Please check the troubleshooting for detail
F9	The module temperature test circuit failure	ODU PCB
FA	The compressor phase-current test circuit failure	ODU PCB
Fb	Limiting/Reducing frequency for overload protection on Cooling/Heating mode	Query by pressing the remote controller
FC	Limiting/Reducing frequency for high-power consumption protection	Query by pressing the remote controller
FE	Limiting/Reducing frequency for module current protection (phase current of compressor)	Query by pressing the remote controller
FF	Limiting/Reducing frequency for module temperature protection	Query by pressing the remote controller
FH	Limiting/Reducing frequency for compressor driving protection	Query by pressing the remote controller
FP	Limiting/Reducing frequency for anti-condensation protection	Query by pressing the remote controller
FU	Limiting/Reducing frequency for anti-frost protection	Query by pressing the remote controller
Fj	Limiting/Reducing frequency for discharge over-temperature protection	Query by pressing the remote controller
Fn	Limiting/Reducing frequency for ODU AC-current protection	Query by pressing the remote controller
Fy	Gas leakage protection	Please check the troubleshooting for detail
bf	TVOC sensor failure (IDU failure, optional)	Query by pressing the remote controller
bc	PM2.5 sensor failure (IDU failure, optional)	Query by pressing the remote controller
bj	Humidity sensor failure (IDU failure)	Query by pressing the remote controller
CL	Filter duty remind	Clean the air filter, and then cut off the power supply again

Note: Remote Controller Failure Code Querying function

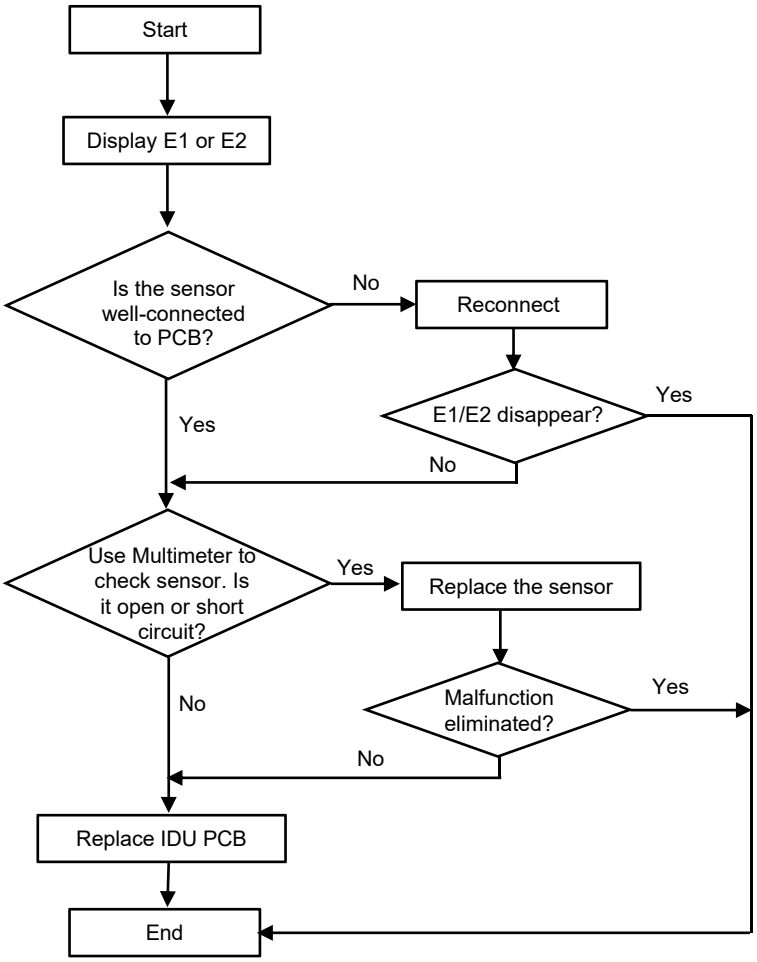
As shown in the failure codes, some of the codes (Fb~bj) require inspection using the remote controller. To inspect the special failure codes, press the Eco button 8 times consecutively in 8s, as well as the buzzer BIBI 2 times.

3.2 Troubleshooting

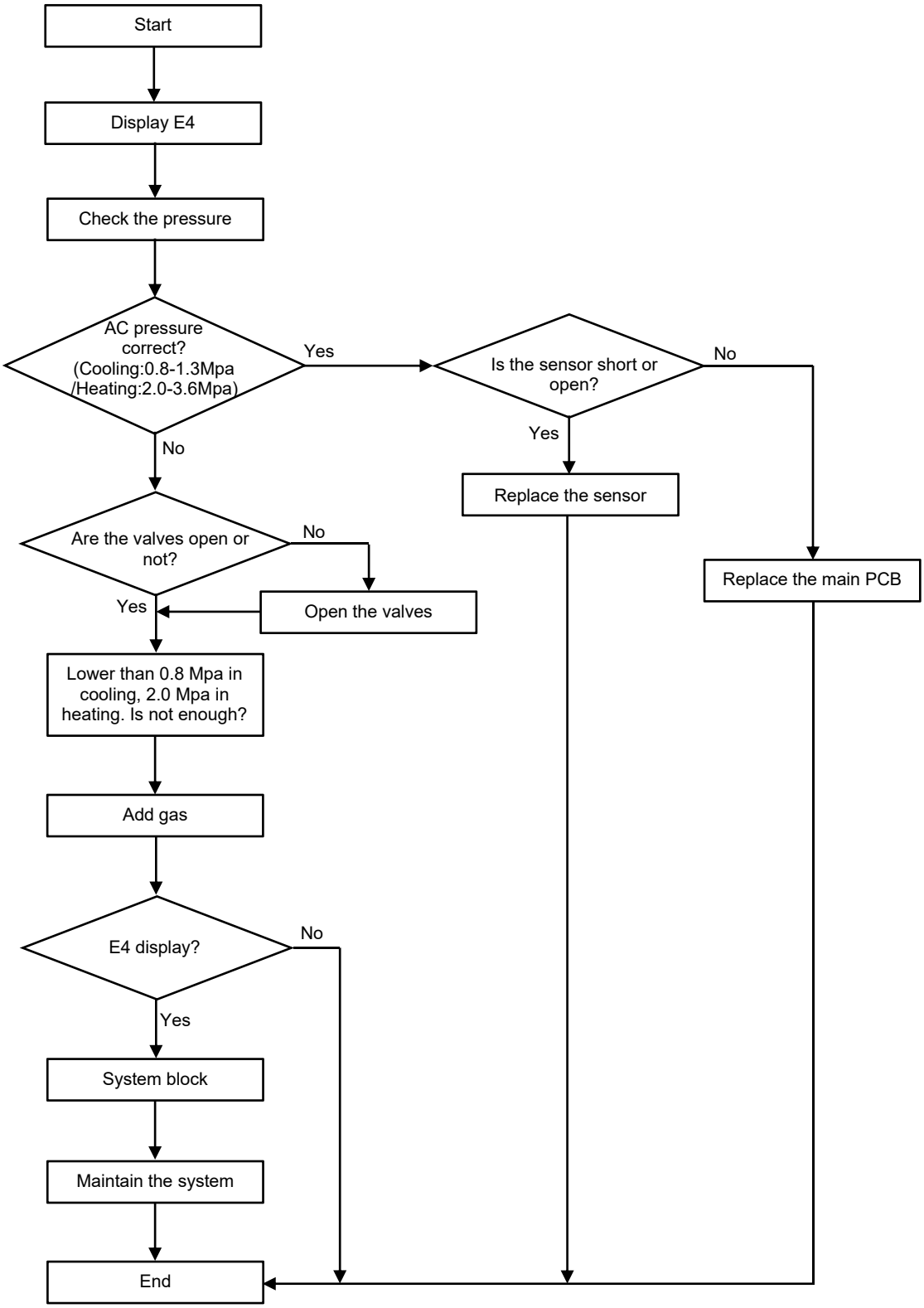
3.2.1 E0 --- IDU and ODU Communication Failure



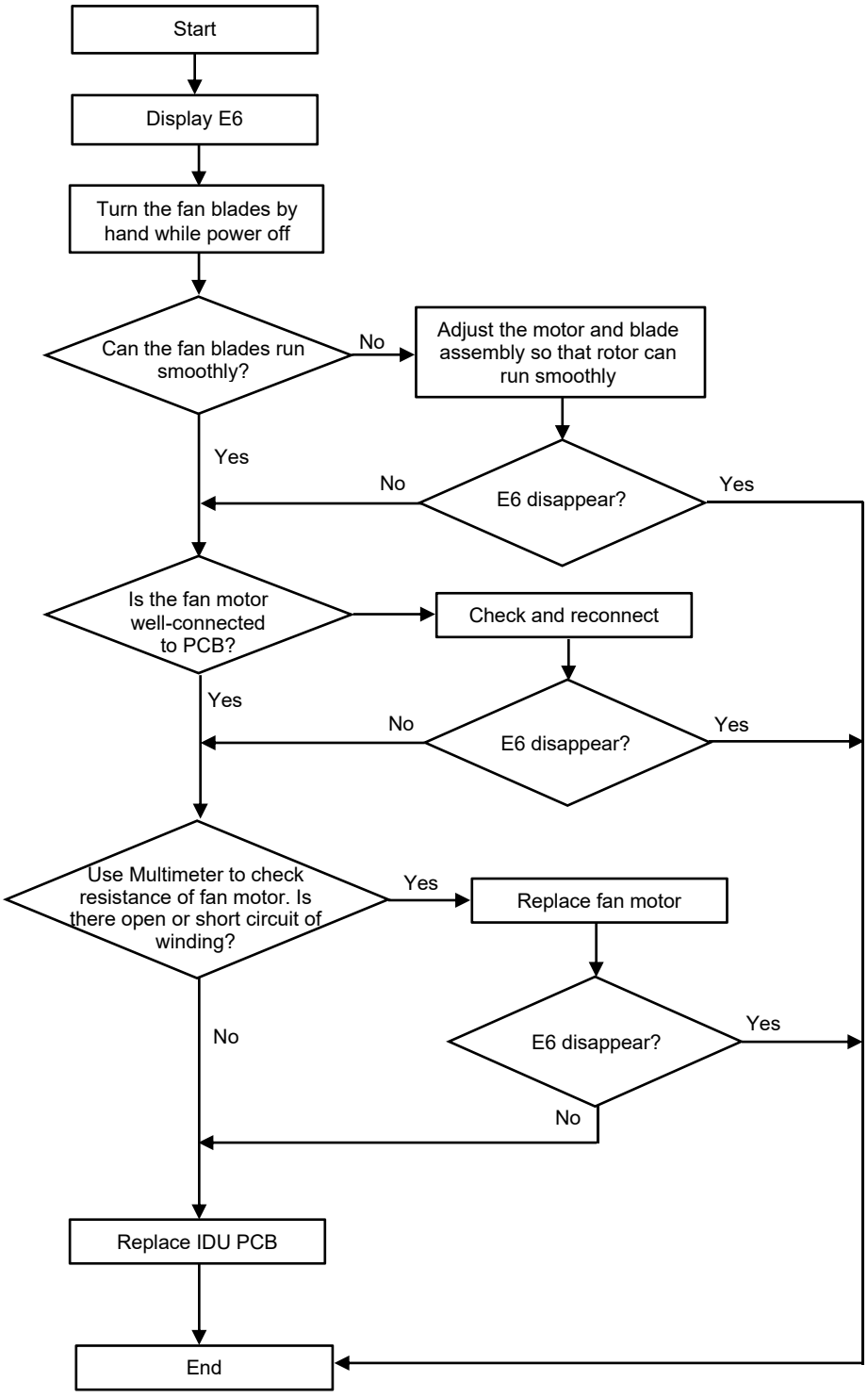
3.2.2 E1, E2 --- IDU Room Temperature Sensor and/or Coil Temperature Sensor Failure



3.2.3 E4 --- AC Cooling System Abnormal (Gas Not Enough)

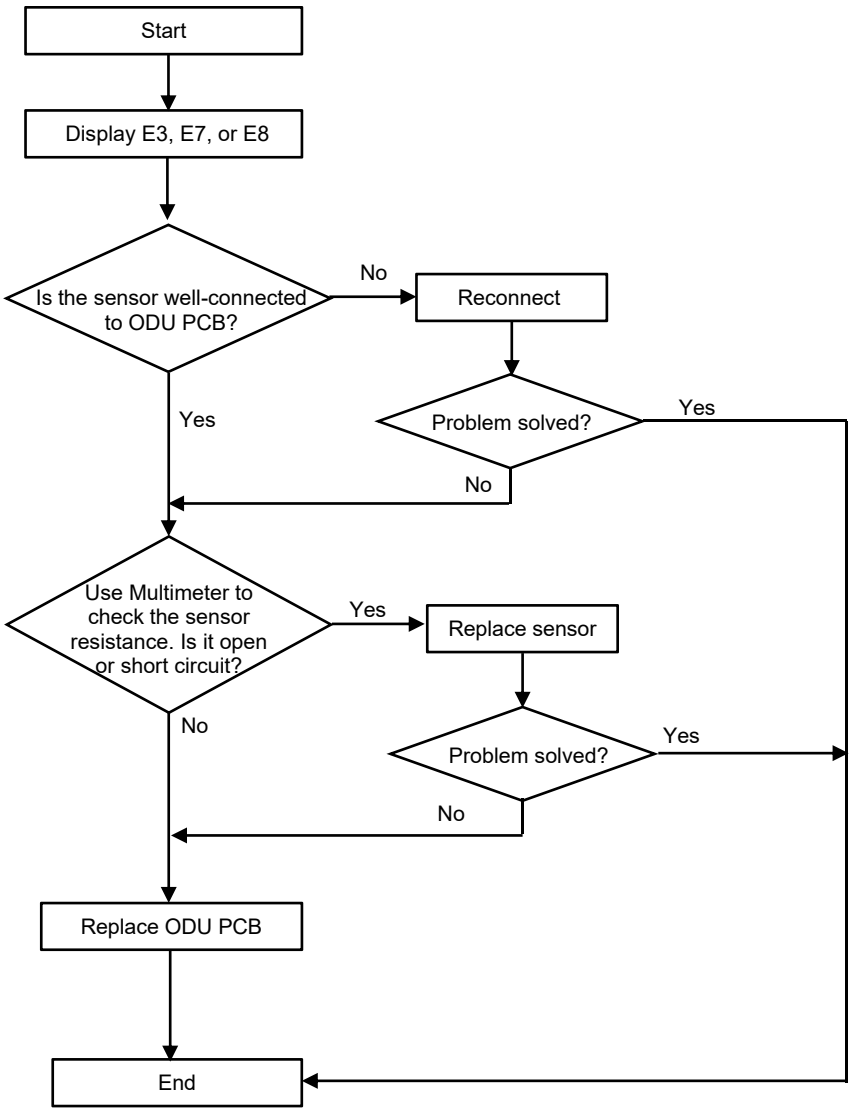


3.2.4 E6 --- IDU Ventilation Failure (PG and DC Fan Motor Only)



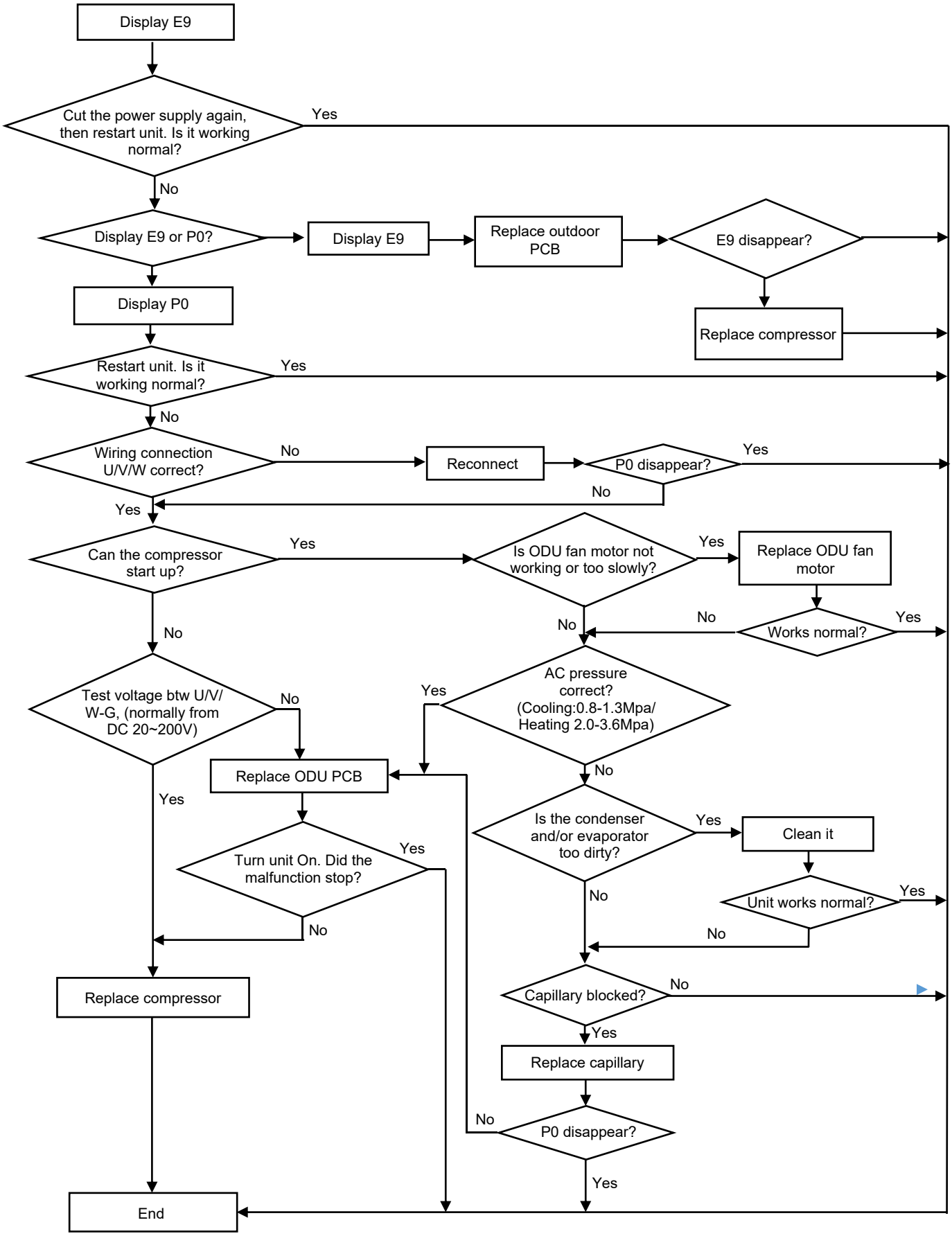
3.2.5 E3, E7 or E8 --- ODU Coil Temperature Sensor, Ambient Temperature Sensor, or Discharge Temperature Sensor Failure

When any of the sensor resistance is open or short circuit , the unit will display the failure code as E3, E7, or E8. The IDU and ODU turns off. When the sensor resistance recovers, the unit reverts to standby. The customer can switch On the unit directly.

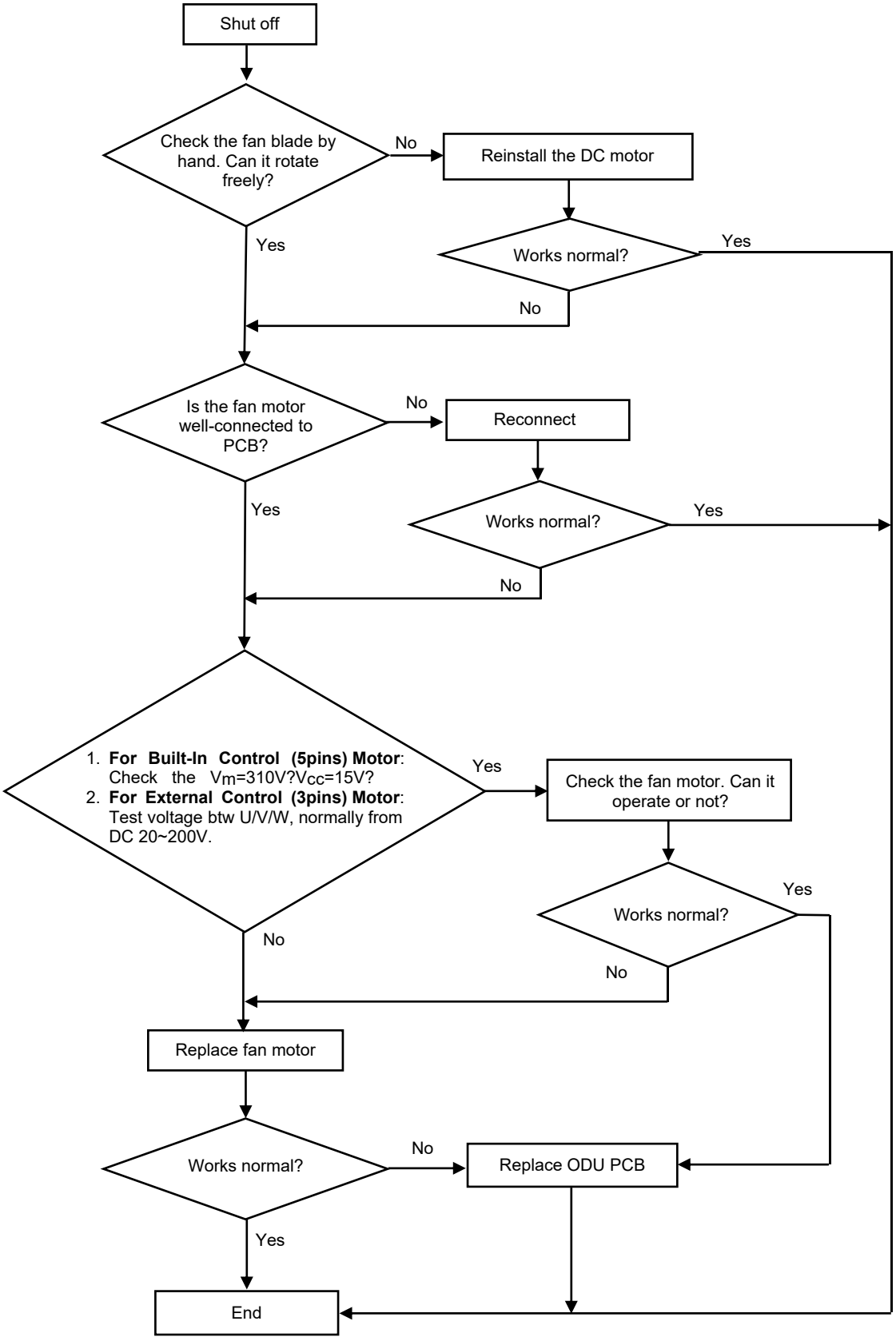


3.2.6 E9 --- ODU IPM /Compressor Drive Fault

If the unit stops working for IPM protection (P0) 6 times consecutively, it will display the E9 error. The unit can't be recovered to operation, except by pressing the On/Off button.

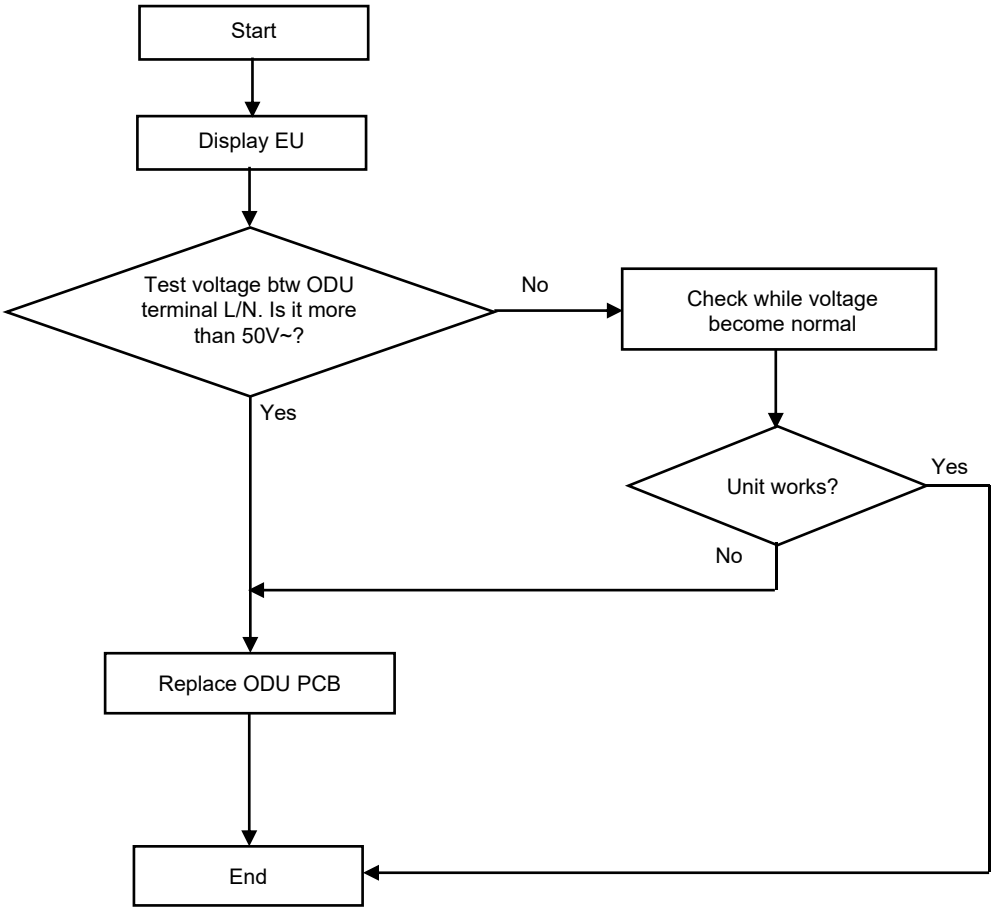


3.2.7 EF --- ODU DC Fan Motor Failure



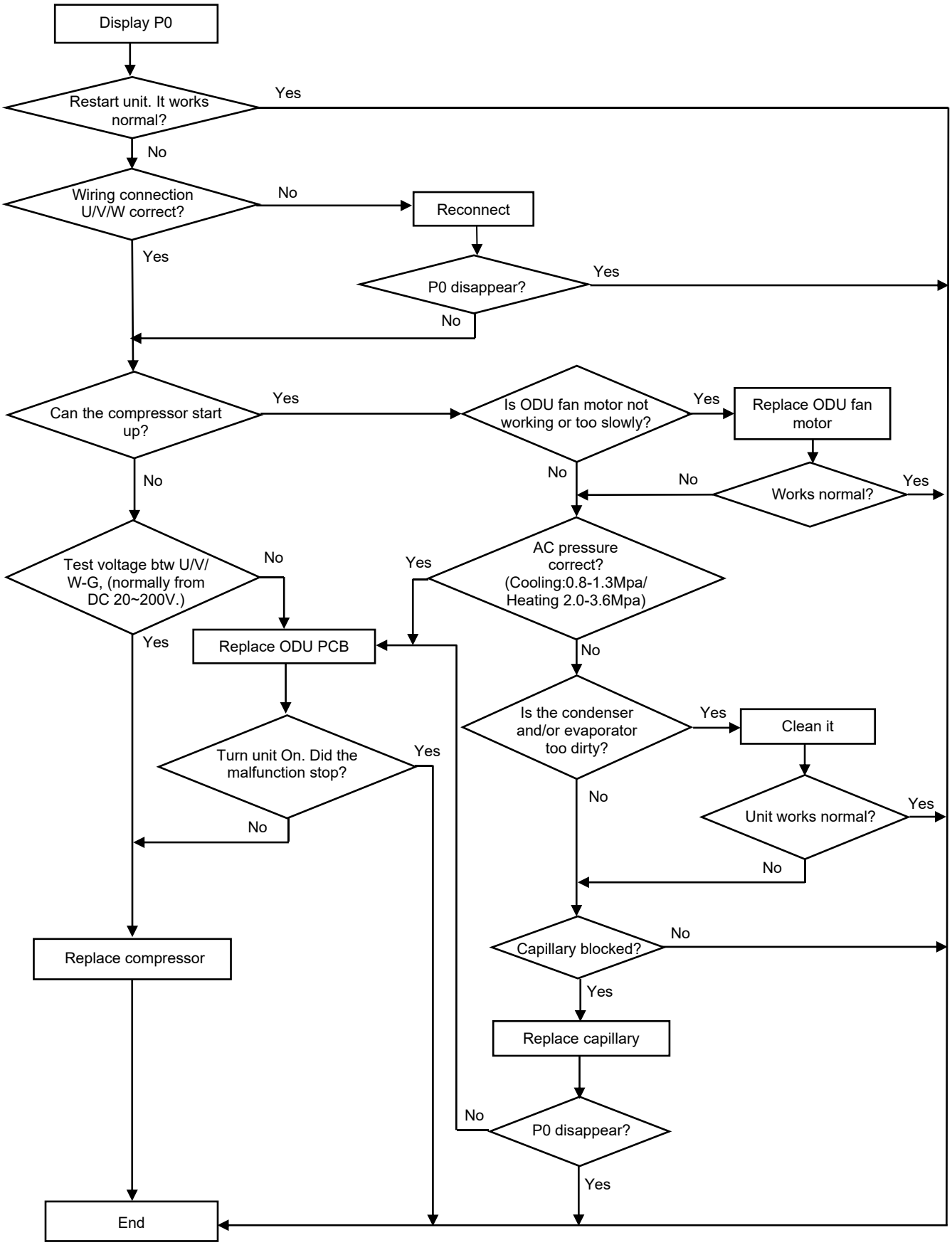
3.2.8 EU --- ODU Voltage Test Sensor Failure

After power relay works and when tested voltage effective value less than 50V for 3s continuously, the unit will display EU.



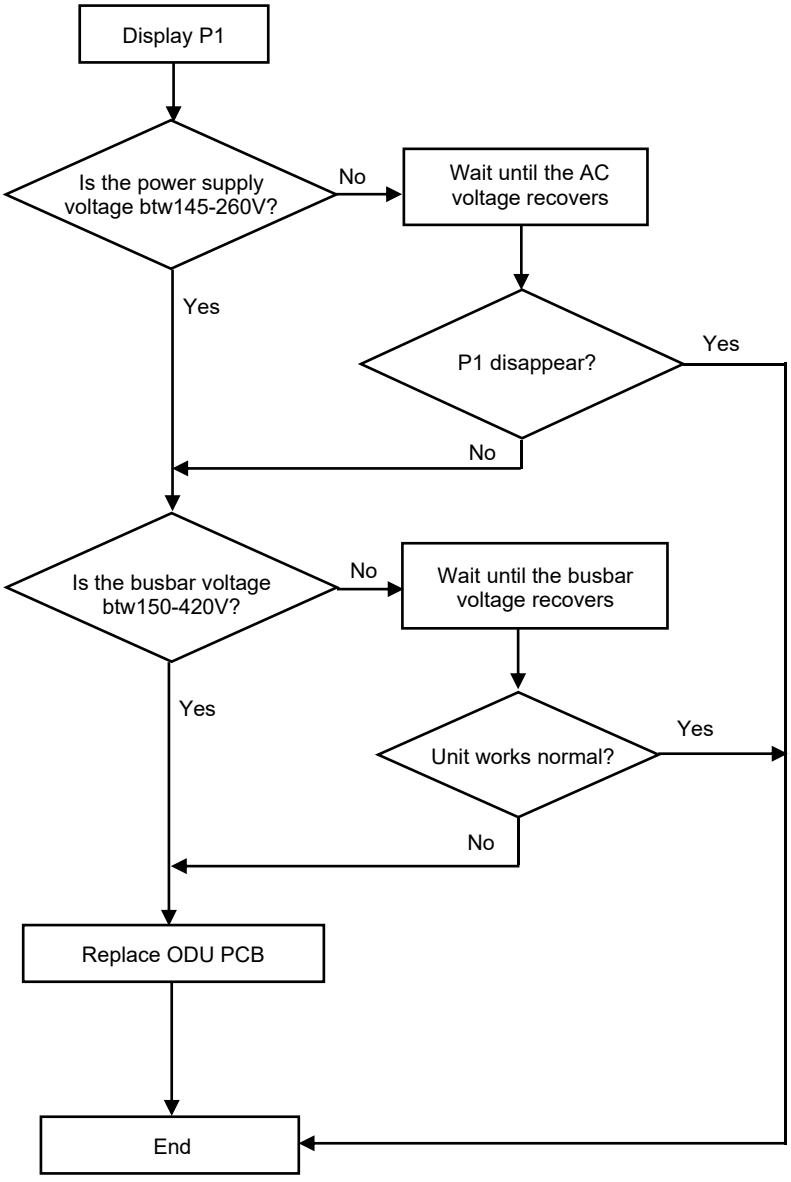
3.2.9 P0 --- IPM Protection

When overheat or over-current for IPM, the AC unit will display P0 protection.



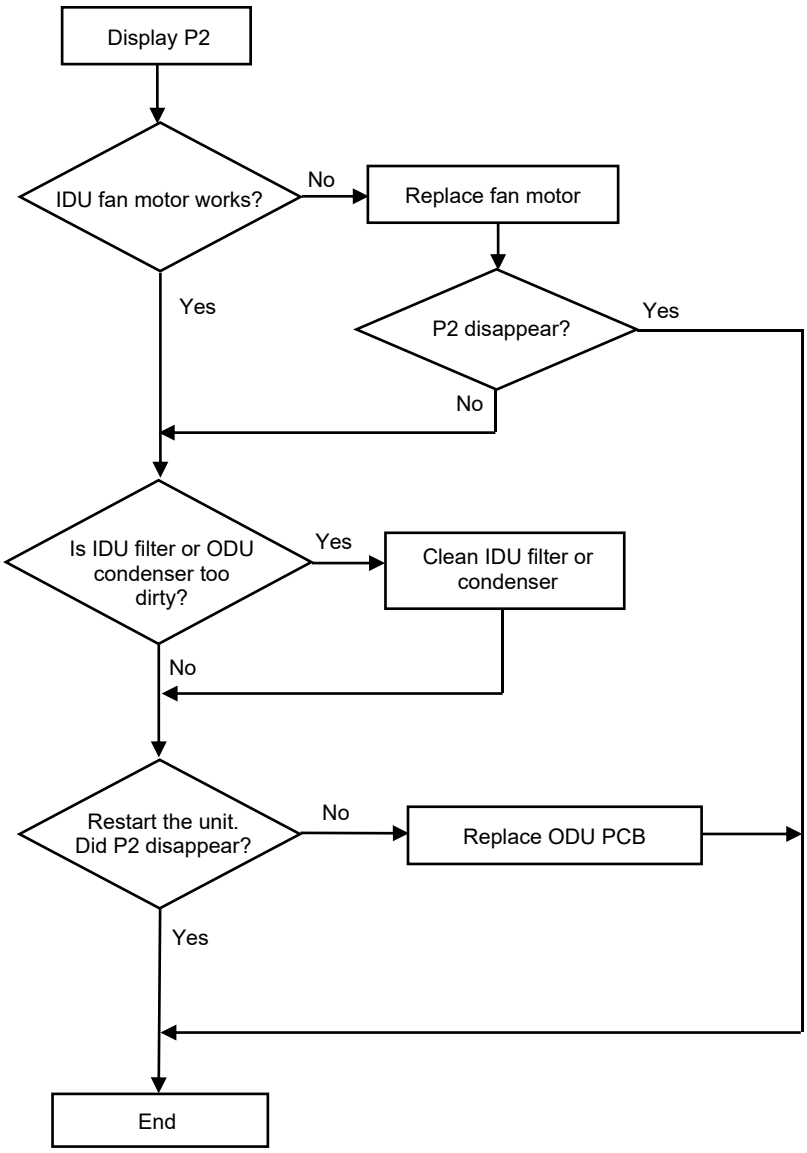
3.2.10 P1 --- Over/Under-Voltage Protection

1. Test voltage between L&N. When the power supply V > AC260V or V < AC150V, the AC will display P1 protection. The unit will recover back to previous status while V > AC155V.
2. Test voltage on the big size electrolytic capacitor of ODU PCB. When DC busbar voltage V > DC420V or V < DC150V, the unit will recover back to previous status while DC190V < V < DC410V

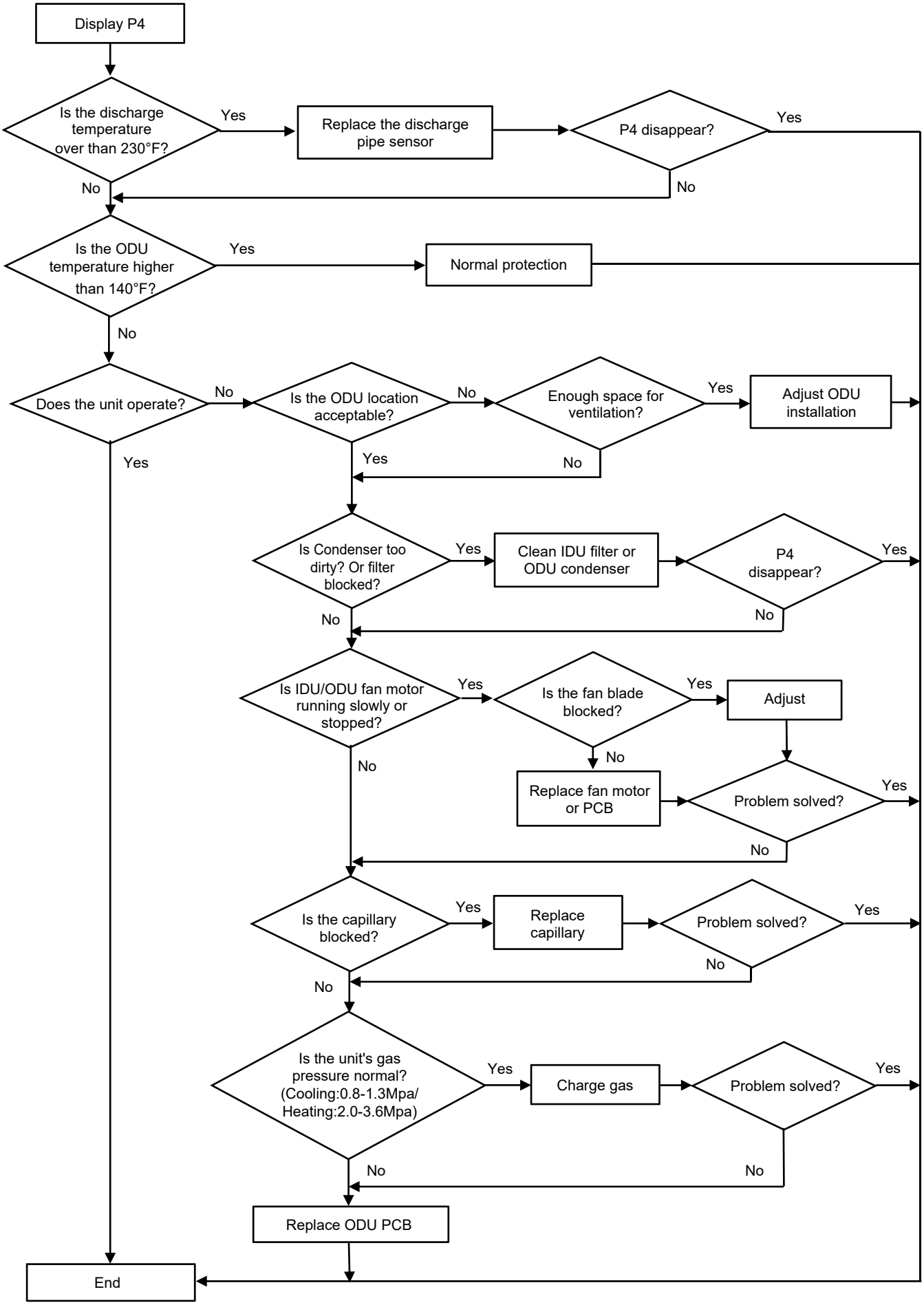


3.2.11 P2 --- Over-Current Protection

When the AC unit running current is more than Imax, it will stop and display P2 protection.
Note: For different AC model, Imax has difference valve.

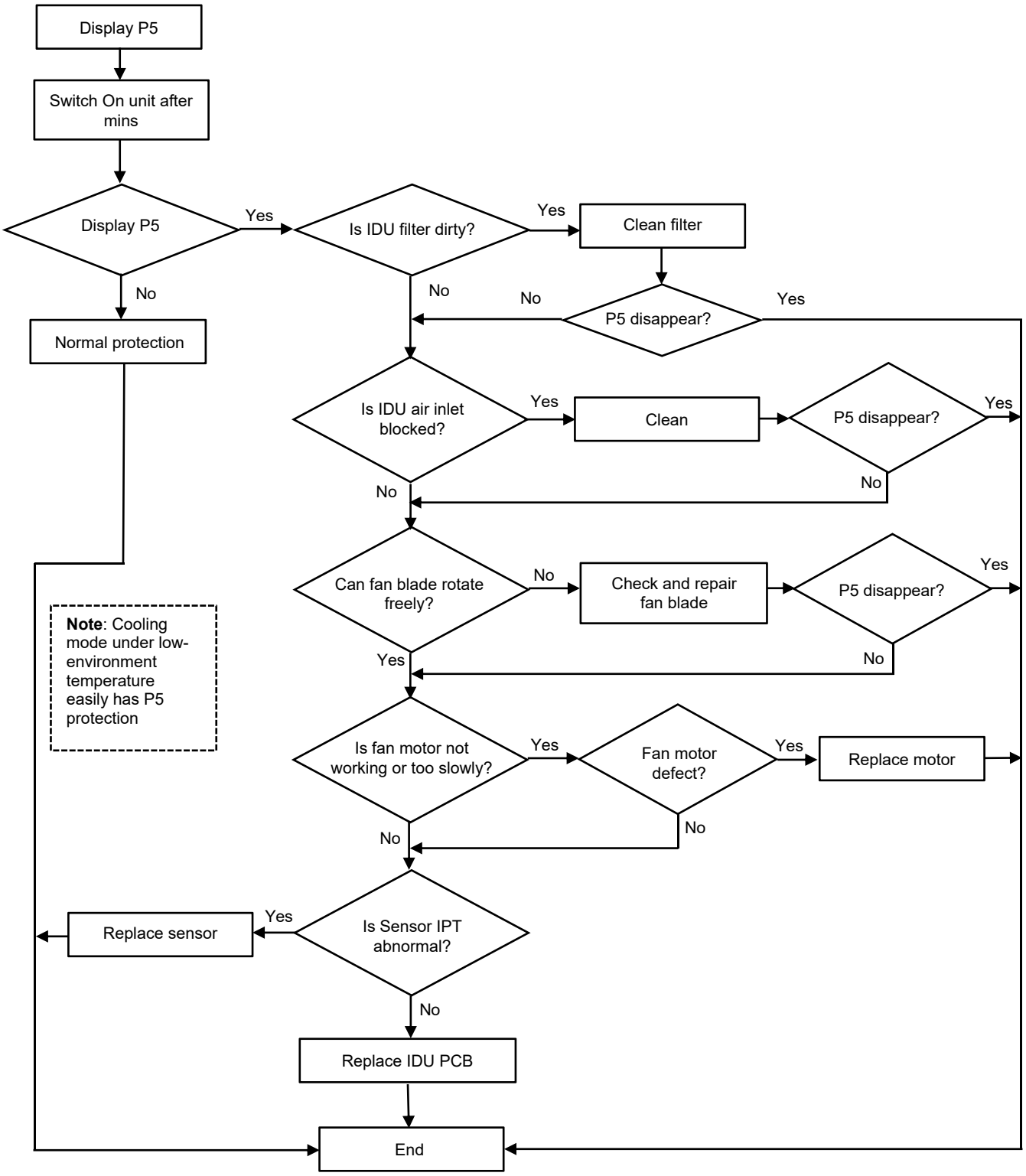


3.2.12 P4 --- ODU Discharge Temperature Overheating Protection



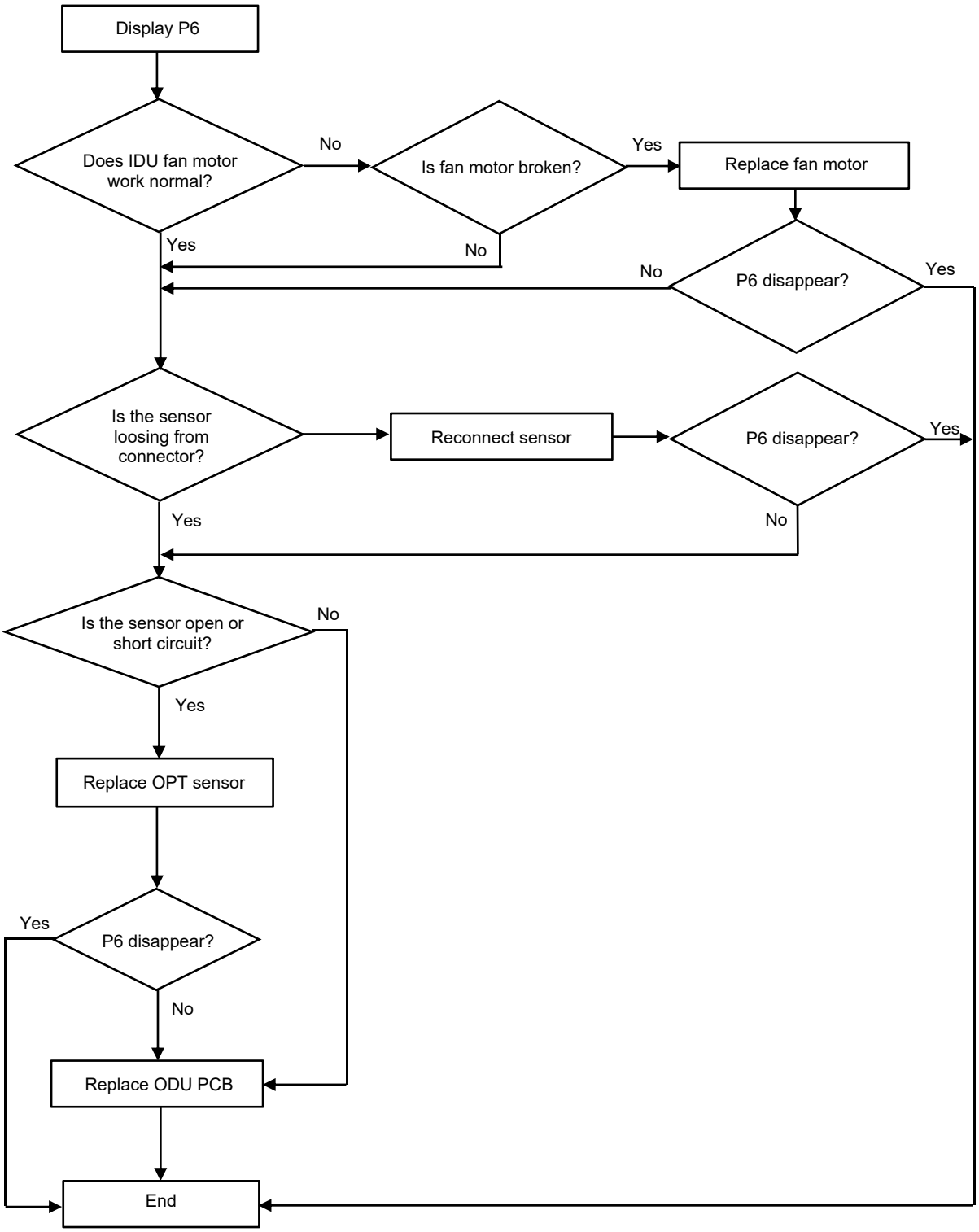
3.2.13 P5 --- Sub-Cooling Protection on Cooling/Dry Mode

In Cooling or Dry mode, when the IDU evaporator coil temperature IPT＜34°F continuously for 3 min after the compressor starts up for 6 min, the CPU will switch Off outdoor unit and show P5 failure code.



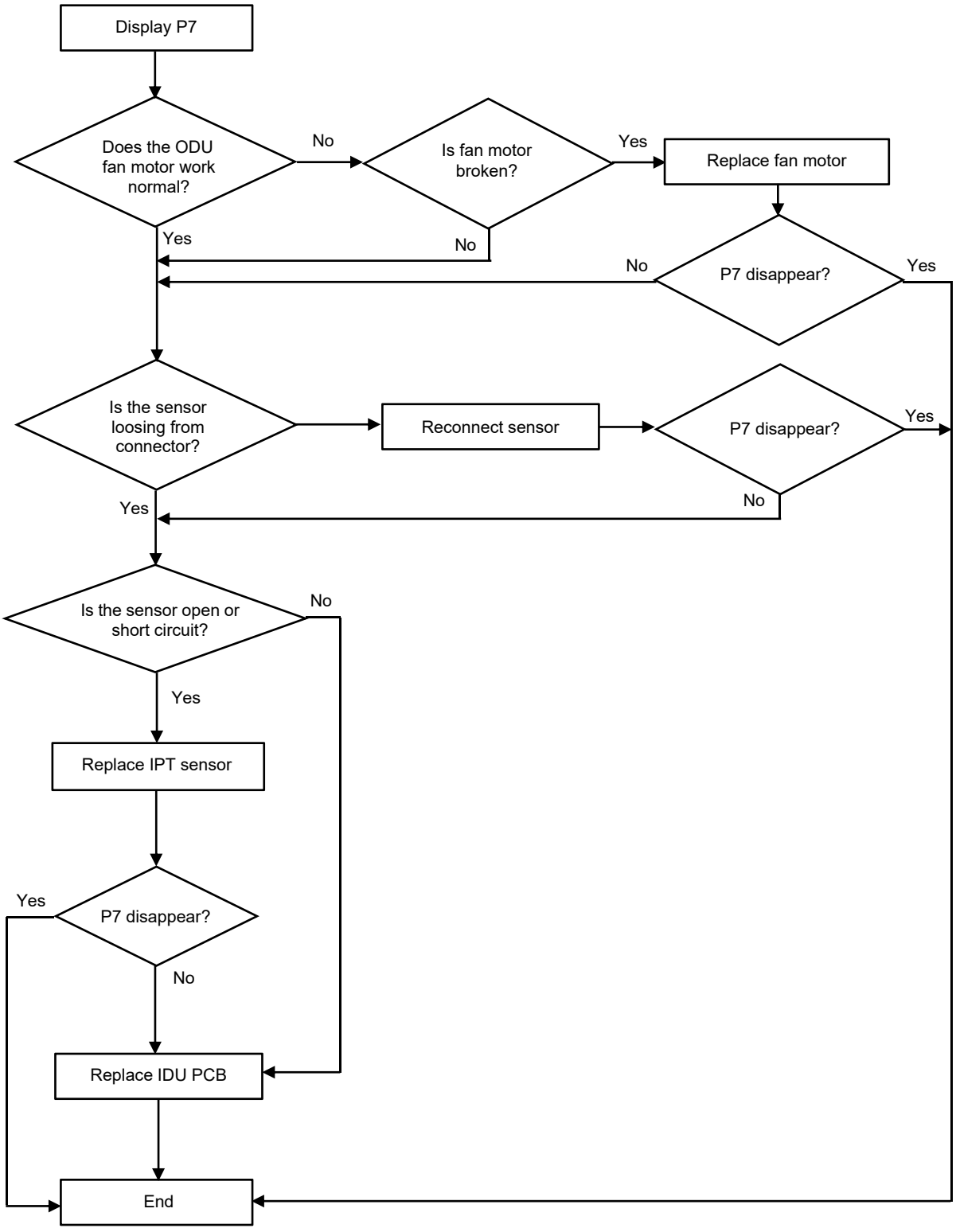
3.2.14 P6 --- Overheating Protection on Cooling Mode

On Cooling or Dry mode, when ODU condenser coil temperature OPT≥144°F, MCU will switch Off outdoor unit and show P6 failure code.



3.2.15 P7 --- Overheating Protection on Heating Mode

On Heating mode, when IDU evaporator coil temperature IPT≥144°F, ODU PCB will switch Off outdoor unit and show P7 failure code.



3.2.16 P8 --- Outdoor Over-Temperature/Under-Temperature Protection

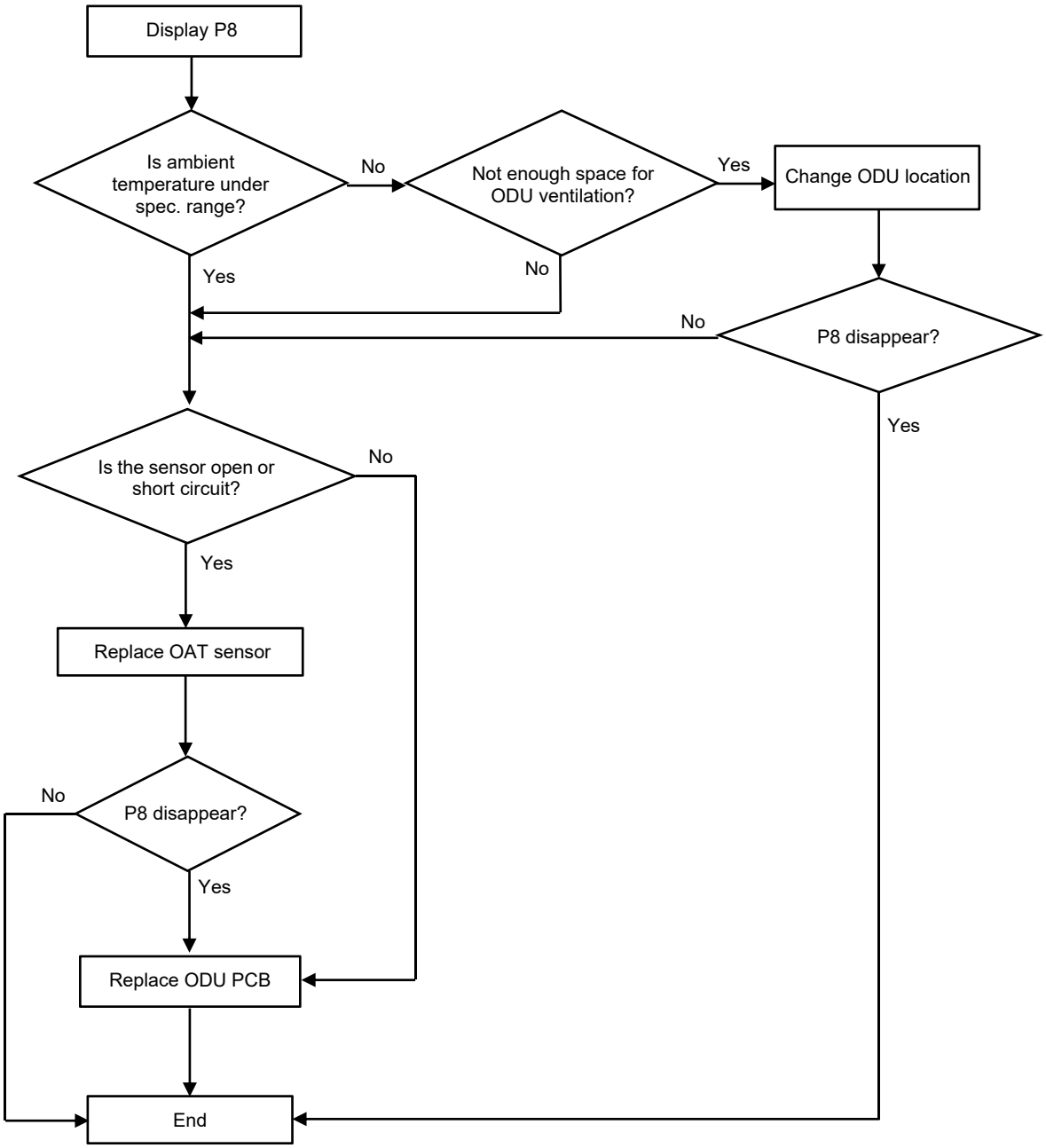
When the environment temperature is the below condition, the compressor will stop working. After 200s delay, the IDU will show P8 failure code.

(1). **On Cooling or Dry mode**: ODU ambient temperature: OAT＜－4°F or OAT＞145°F

(2). **On Heating mode**:

a. OAT≥104°F

b. 86°F＜OAT≤104°F and RT＞95°F



3.2.17 P9 --- The Compressor Driving Protection (The Compressor Load Abnormal)

When compressor starts up or in the process of operation, if:

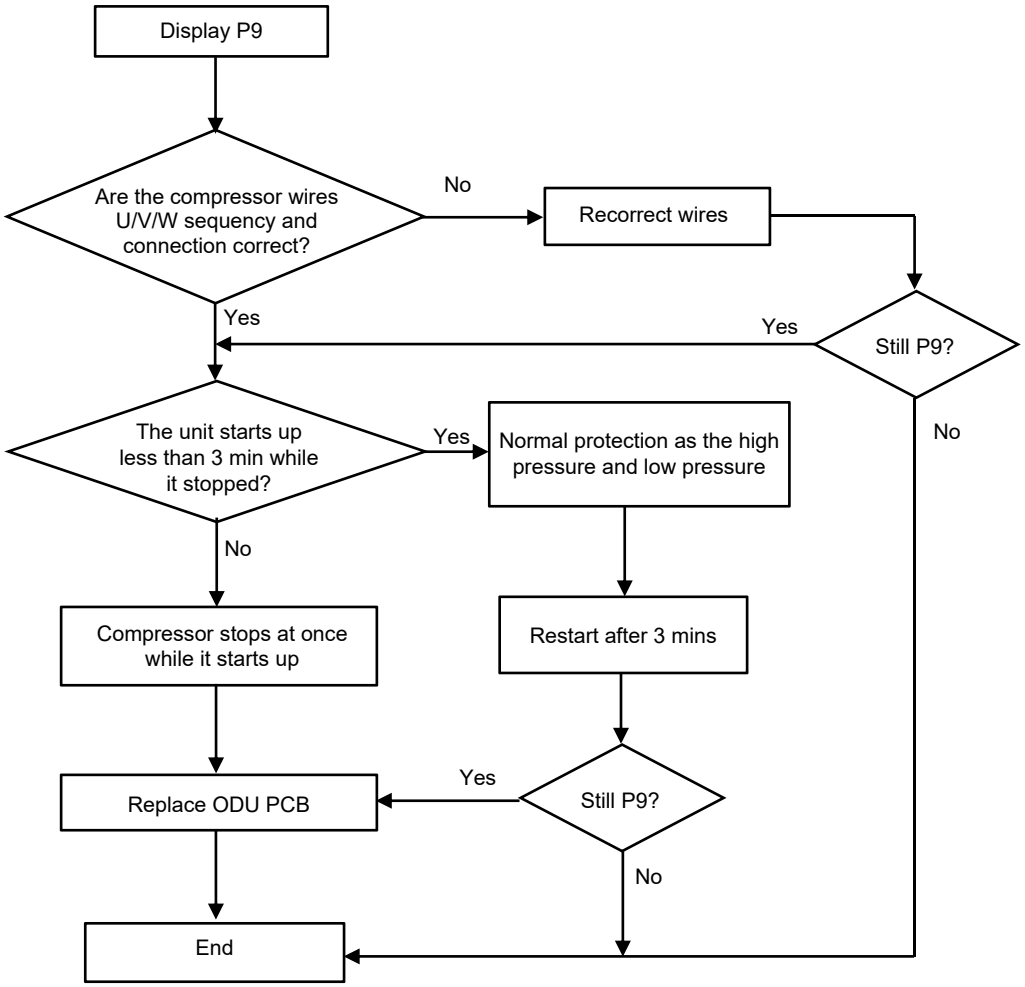
(1). MCU can't test the feedback signal from compressor, or

(2). Tested an abnormal signal from compressor, or

(3). The compressor startup is abnormal.

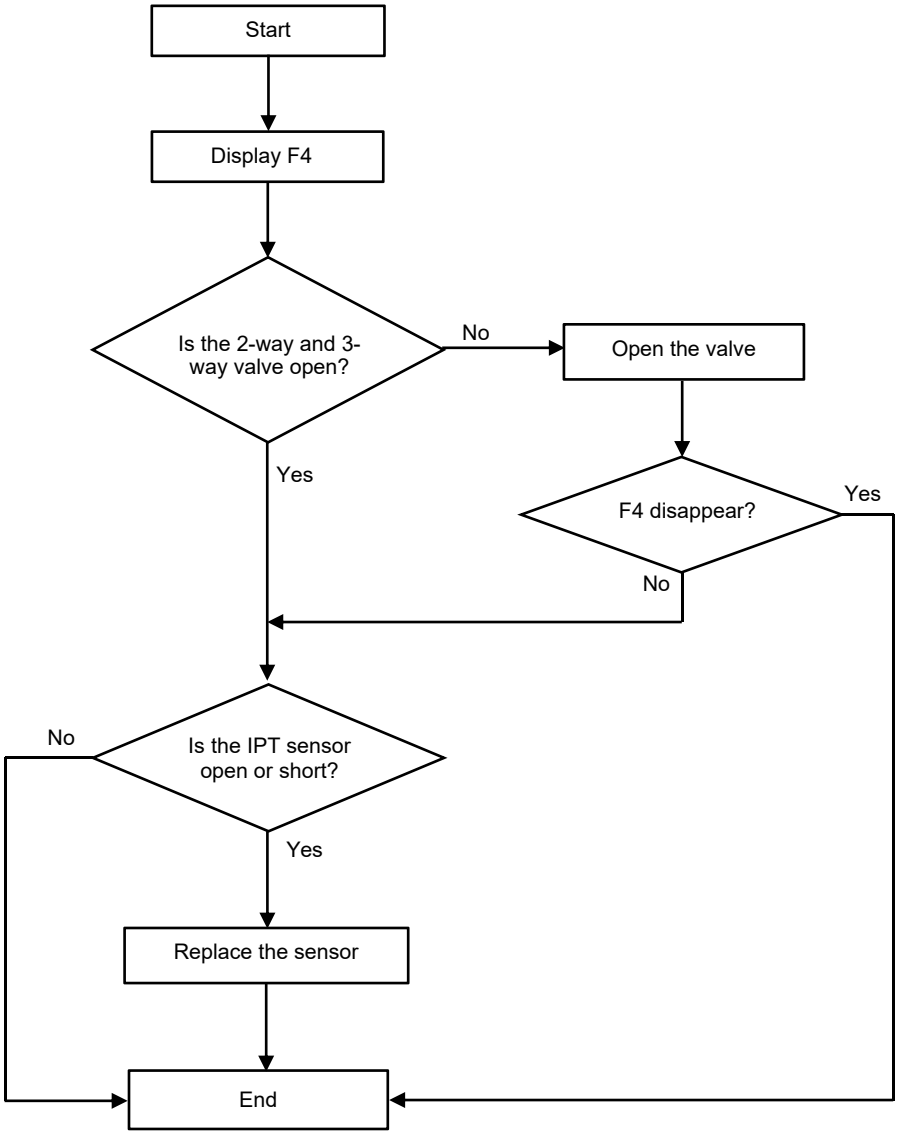
The outdoor unit will shut off and show P9 protection.

The unit will restart 6 times continuously. If it still can't work normal, then the unit will show the P9 code.



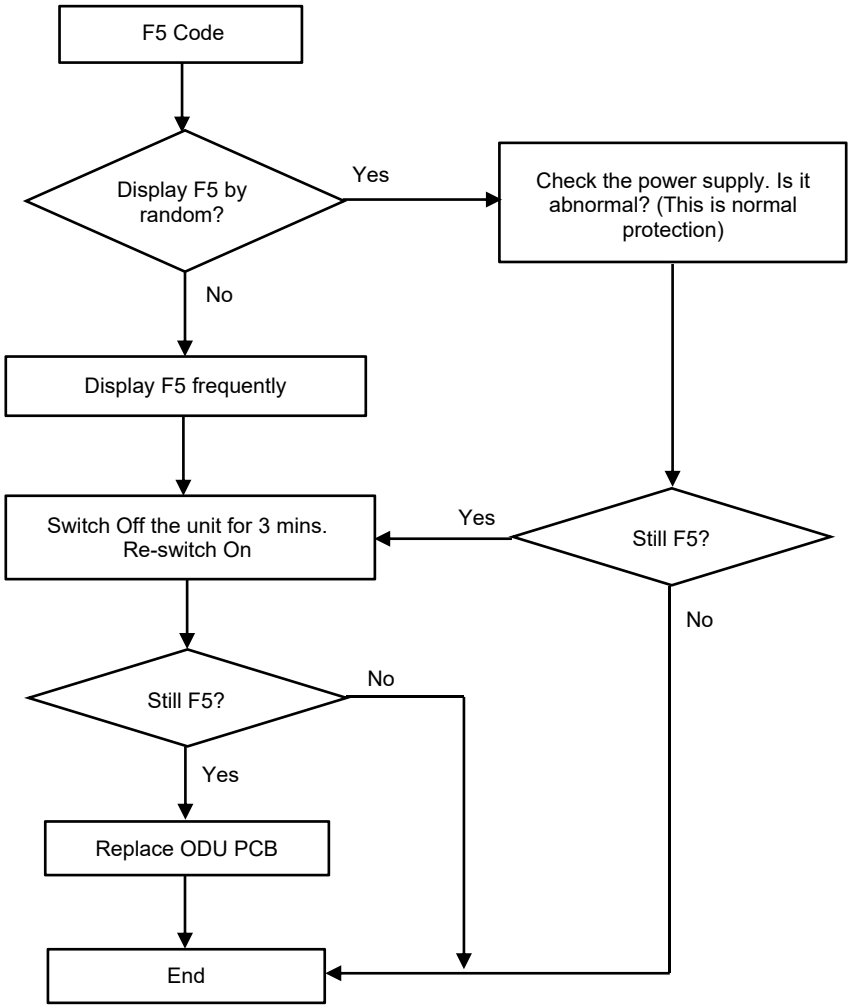
3.2.18 F4 --- Cooling System Gas Flow Abnormal Protection

When the compressor starts up, the unit will check the variation of the IDU coil temperature. If the installer forgets to open the 2-way or 3-way valve on ODU, the gas can't flow in the cooling system. The unit will show F4 protection.



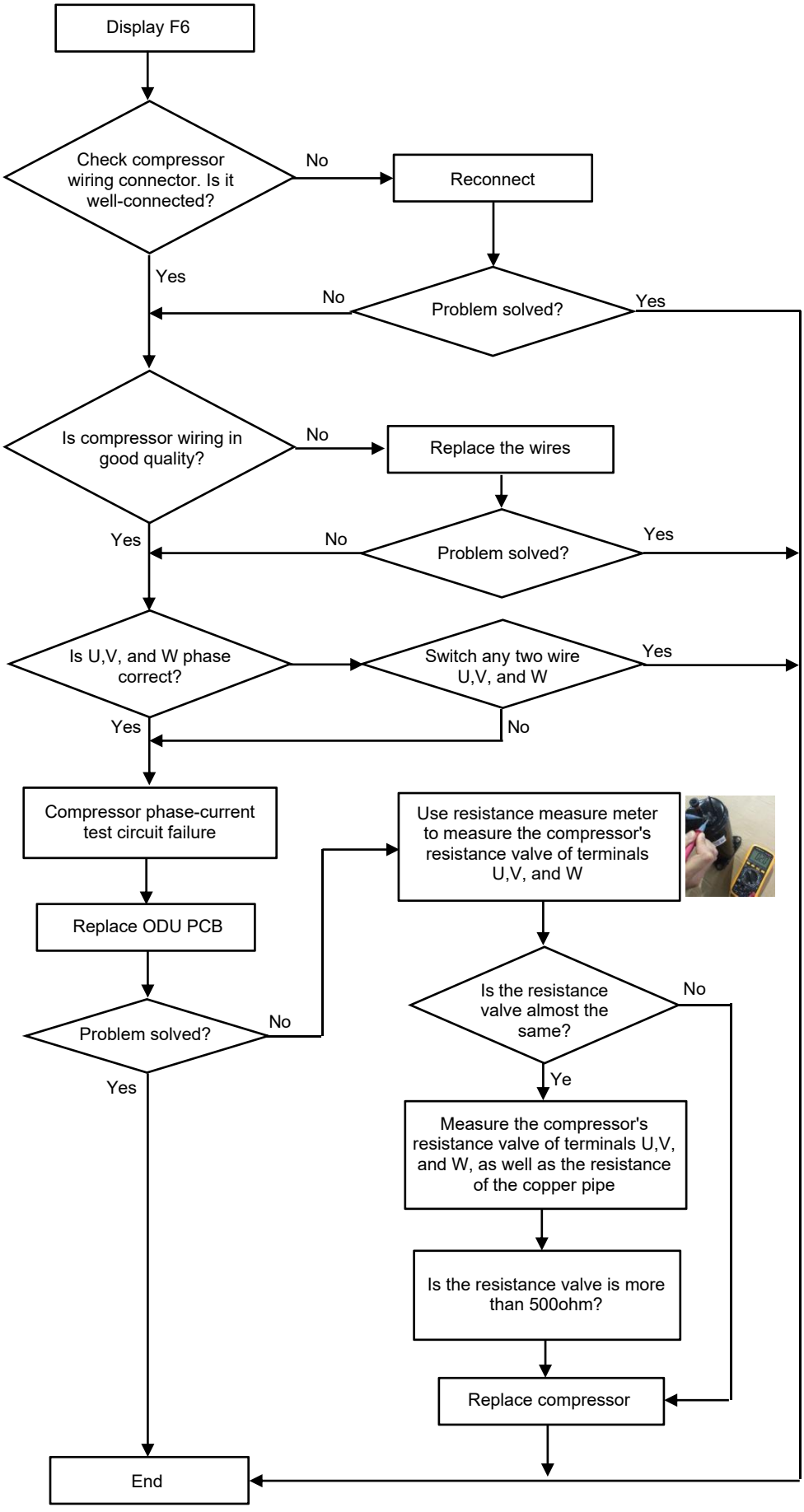
3.2.19 F5 --- PFC Protection

PFC Over-Current Protection



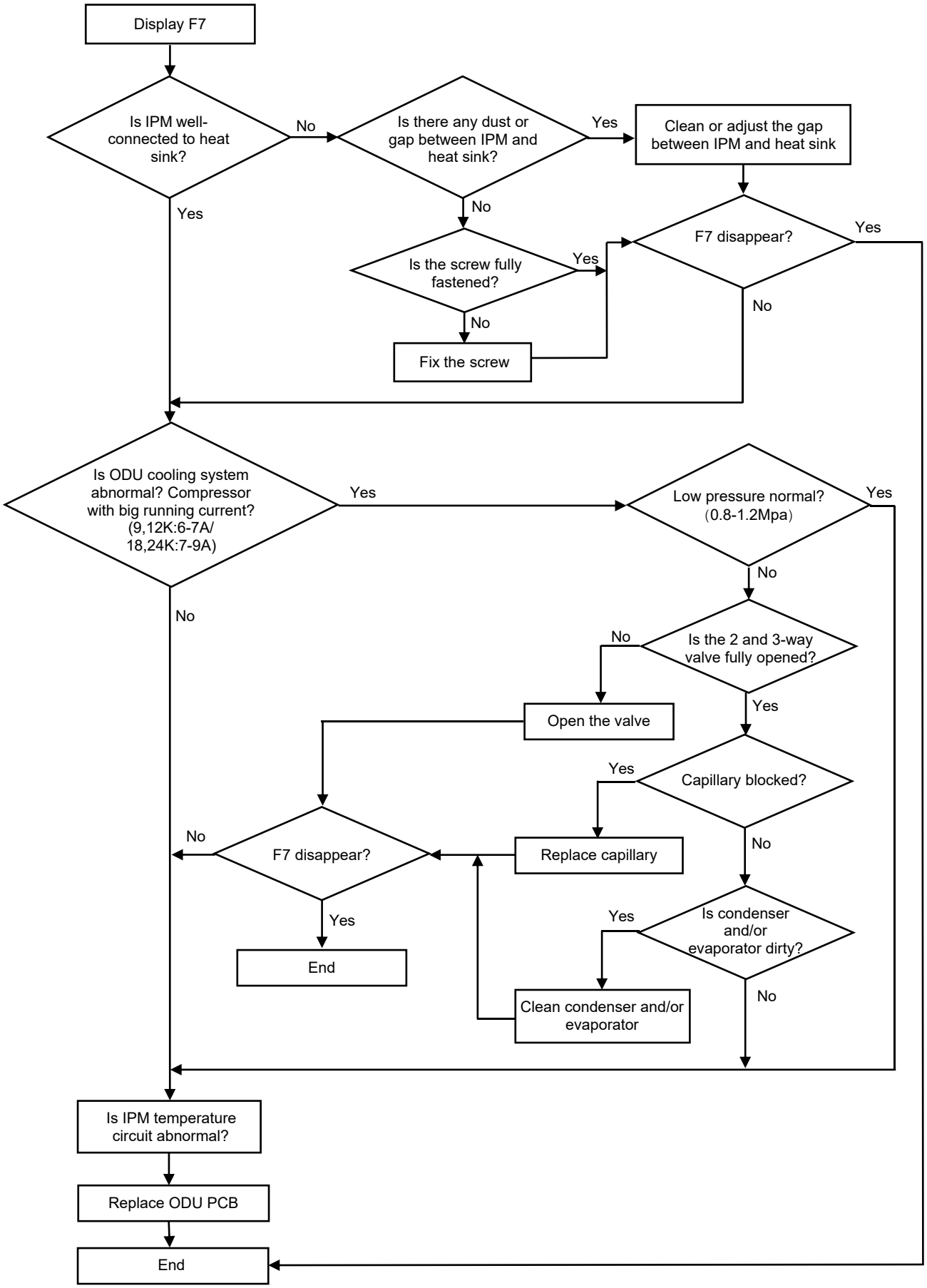
3.2.20 F6 Compressor Lack of Phase / Anti-Phase Protection

If ODU PCB can't test one or even three phase of compressor current, it will show F6 protection.



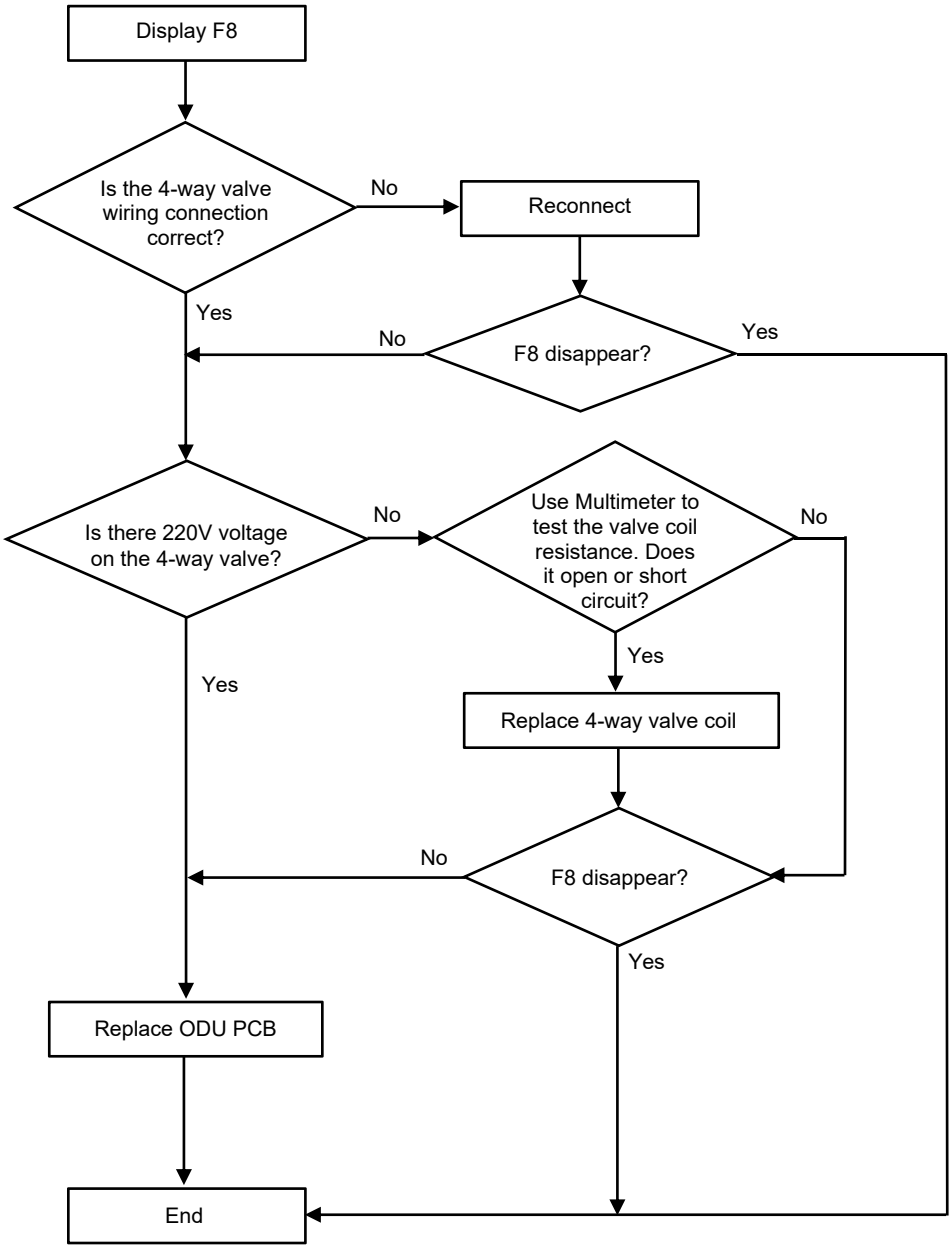
3.2.21 F7 --- Module Temperature Protection

IPM over-temperature protection, when IPM temperature is more than 203°F, the unit will show F7.



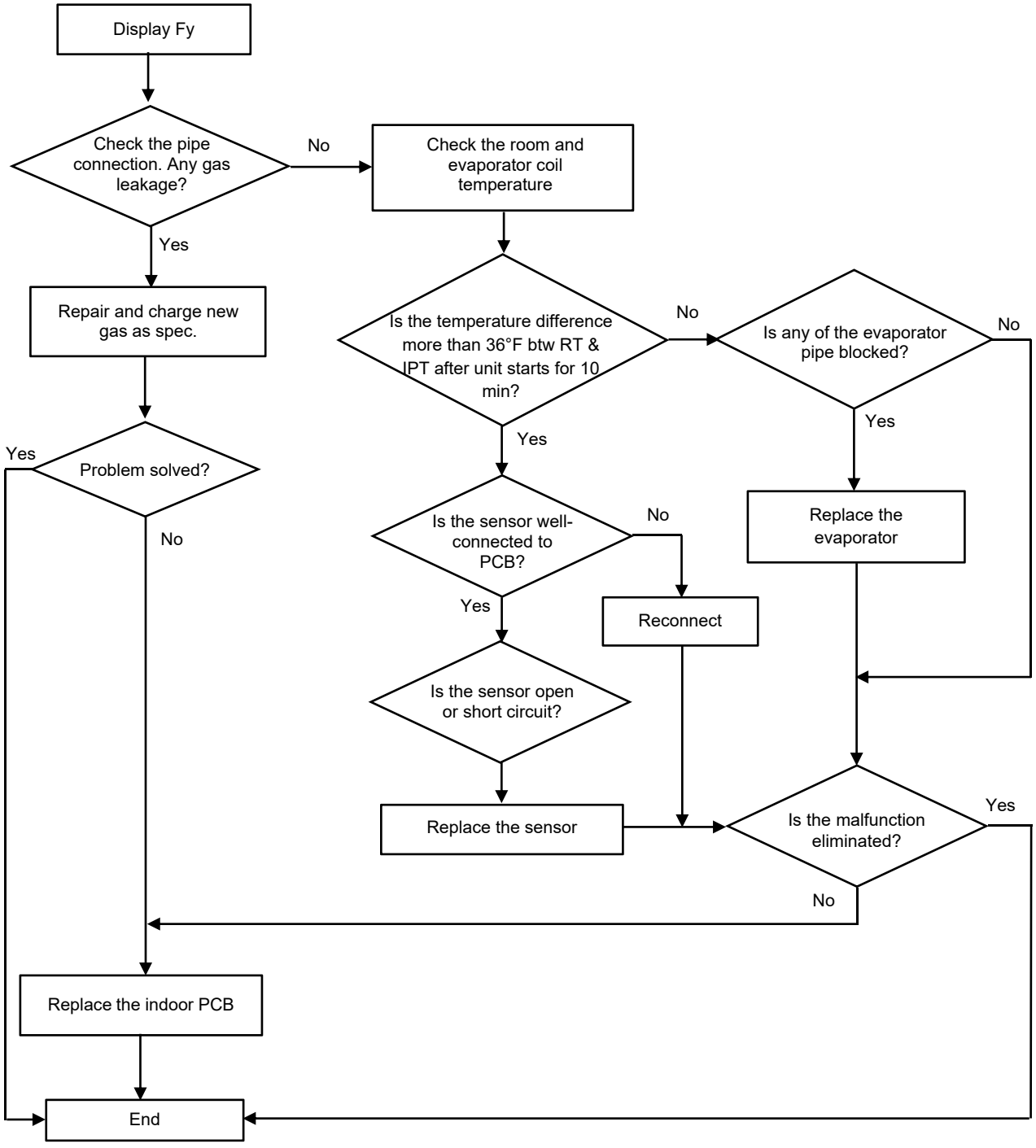
3.2.22 F8 --- 4-Way Value Reversing Abnormal

On Heating mode, if the IDU coil temperature tested lower than Room temperature 41°F or even more after the compressor works for 8 min, the unit will show F8 code.



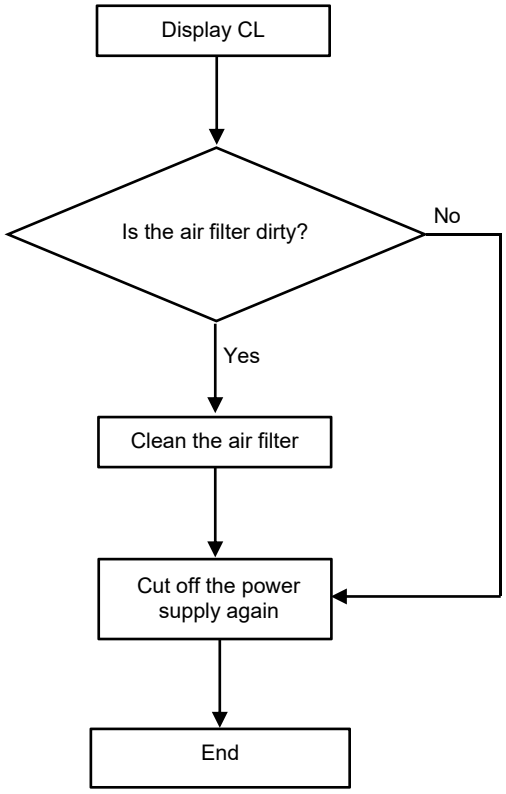
3.2.23 Fy --- Gas Leakage Protection

After the compressor works in high frequency for 9 min, if the temperature on the IDU evaporator and ODU condenser only has a little variation comparing previously, but the compressor discharge temperature is on high level, then the unit will show Fy failure code.



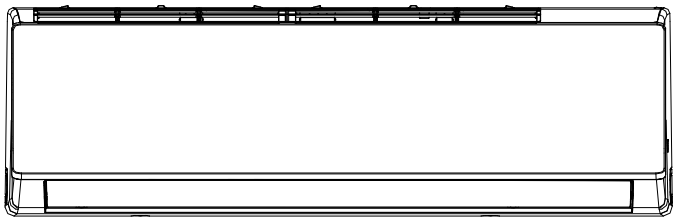
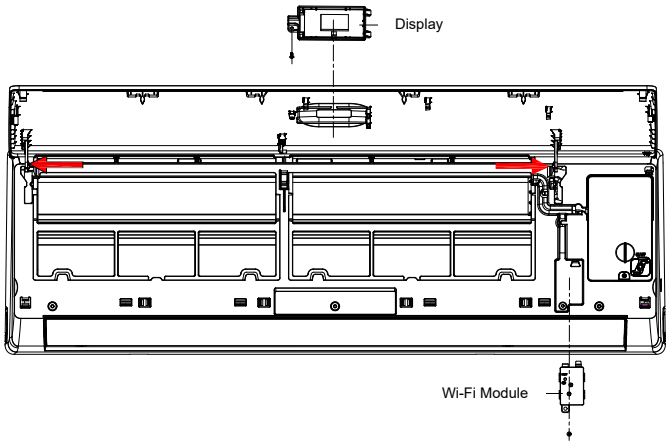
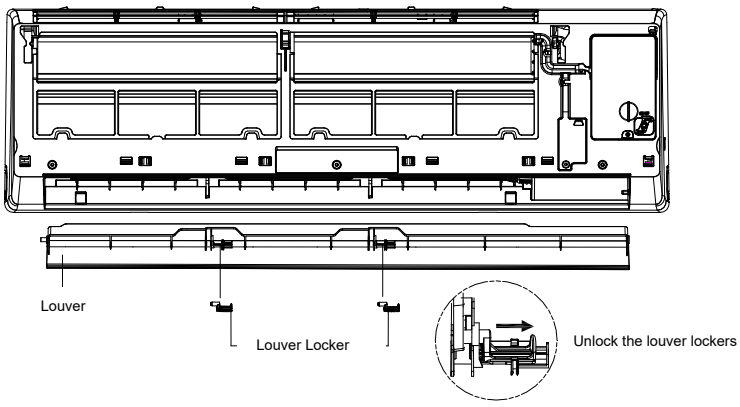
3.2.24 CL --- Duty Caution

Air filter duty, the unit operation cumulative time 500 hours. The controller will confirm the filter is dirty by displaying CL.



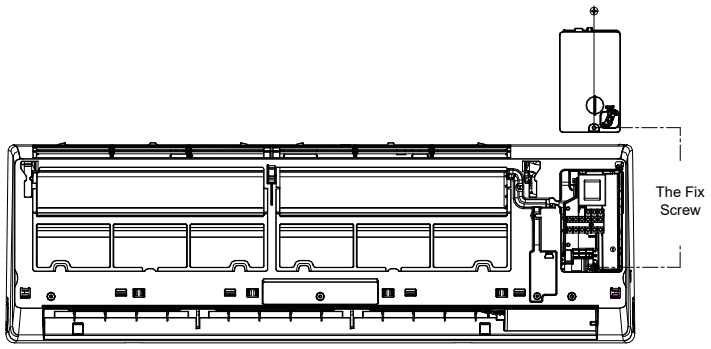
4. Disassembly IDU and ODU

4.1. IDU Disassembly

Steps	Reference Photo
1. Before disassembly	
The original status.	
2. Disassemble front panel, display board, and Wi-Fi module	
A. Open front panel. B. Remove 1 screw, then take the display box out from the panel. C. Release the panel axis, which is shown in red arrows, out from middle frame and take the panel out. D. Unscrew and remove the Wi-Fi module from the middle frame.	
3. Remove the louver	
Unlock the louver lockers (clip). Bend the louver slightly by hand and remove it from the middle frame and stepping motor.	

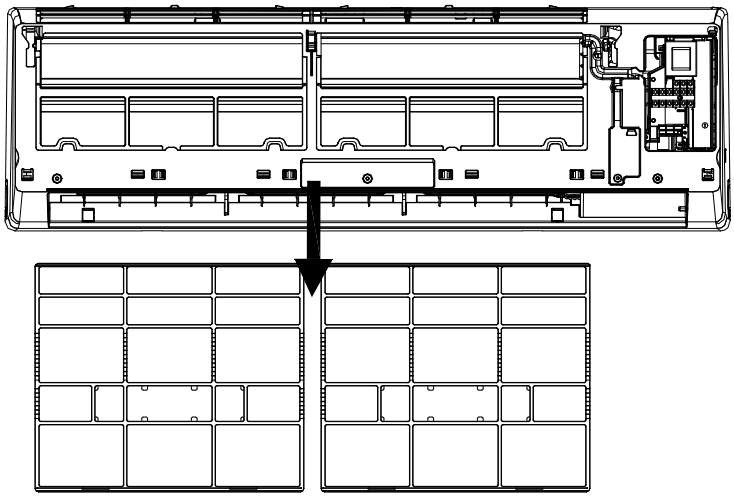
4. Remove the electric control box cover

Unfix 1 screw on the electric box cover, then remove the cover.



5. Remove the filter

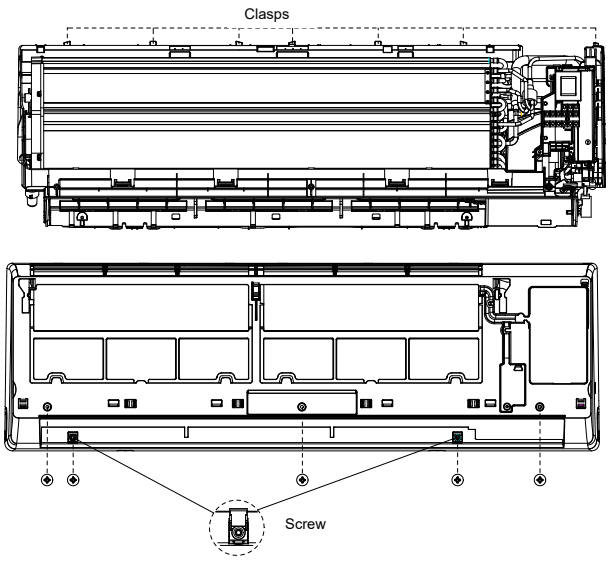
Push the filter upwards a little. You can take it out from the unit.



6. Disassemble the middle frame

A. Open the screw cover and unfix the screw with a cross screwdriver.

B. Remove the middle frame by loosening the clasps of the unit base, as shown in the picture. Take the frame out.



7. Disassemble the electric control box

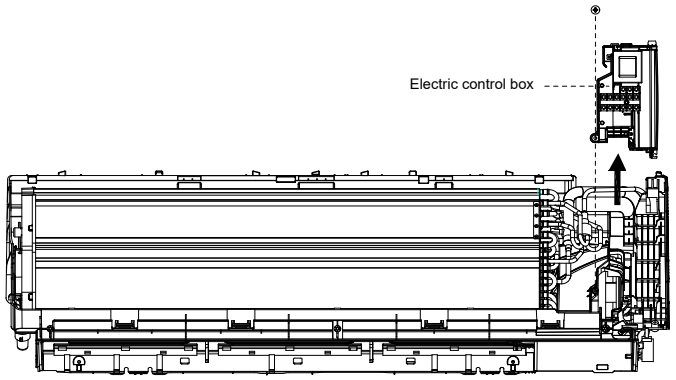
A. Remove the RT and IPT from the evaporator.

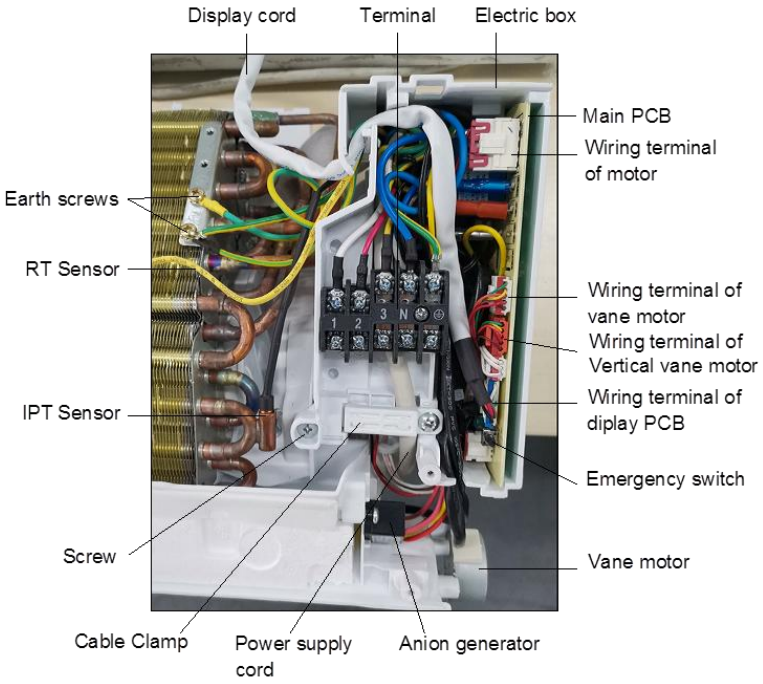
B. Unscrew all the earth ground wirings on the evaporator.

C. Take all the connectors out from the PCB.

D. Unfix 1 screw from the control box of the unit base frame. Remove the control box out from the unit.

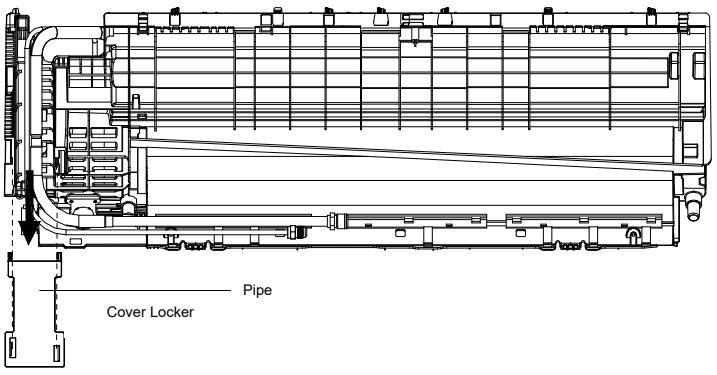
Note: The picture on the right is for your reference only. The wiring connection for the exact model may be slightly different.





8. Remove the pipe cover

Loosen the lower edge of the pipe cover from the base frame, then remove the cover from the unit.

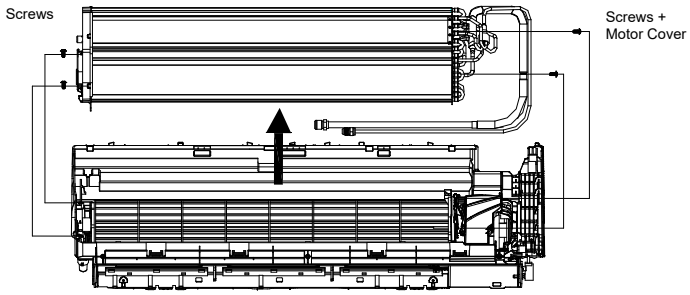


9. Disassemble the evaporator

A. Unfix 2 screws on the left side, as shown as picture.

B. Unfix 2 screws on the right side of the motor cover/right support plate.

C. Take the evaporator out from the unit by uplifting the input/output pipes slightly.



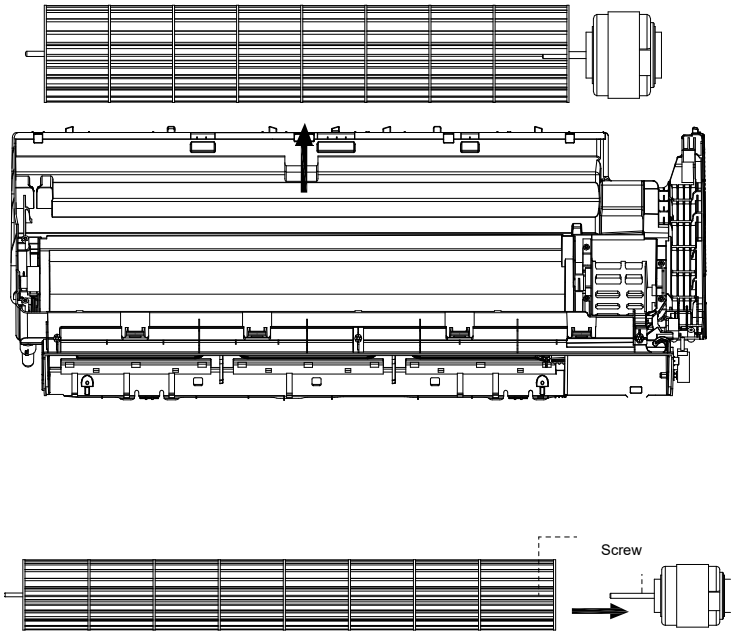
10. Remove the motor cover

Unfix 4 screws on the motor cover of the base frame.

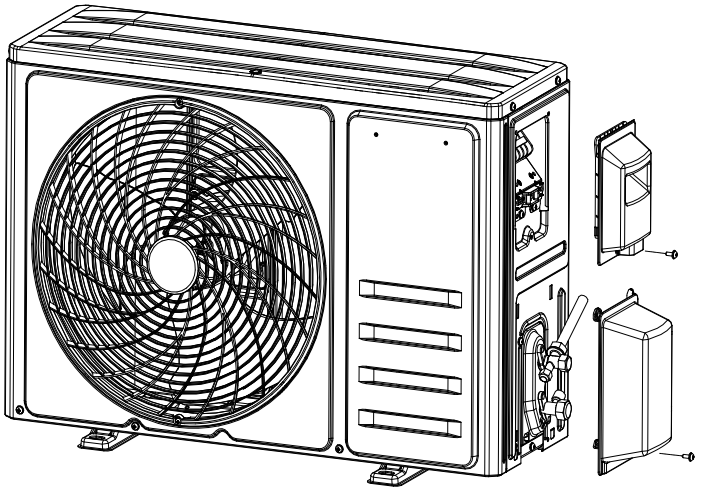
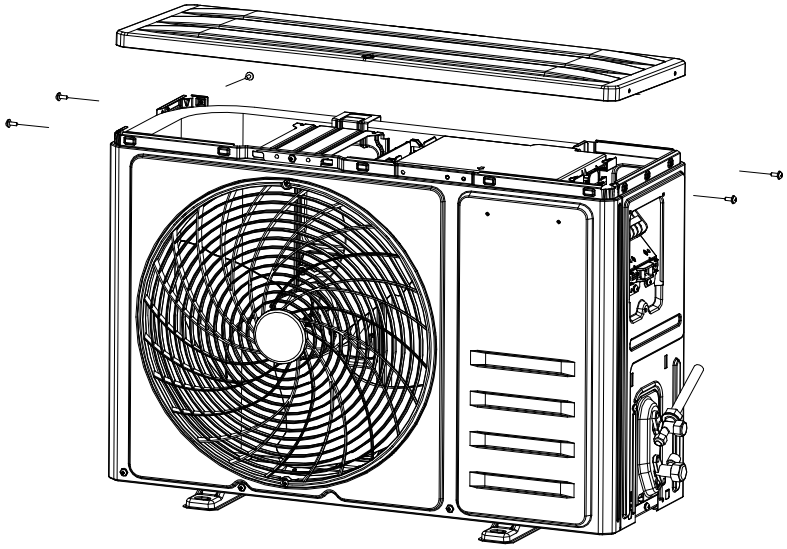
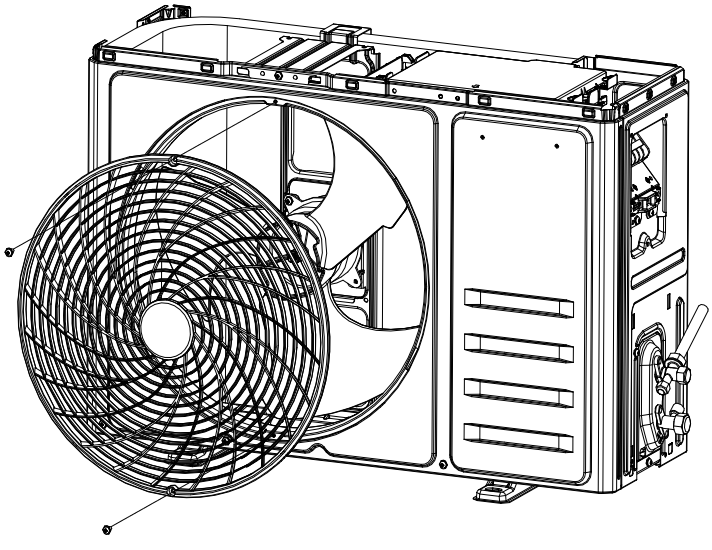
11. Disassemble fan motor and fan blade

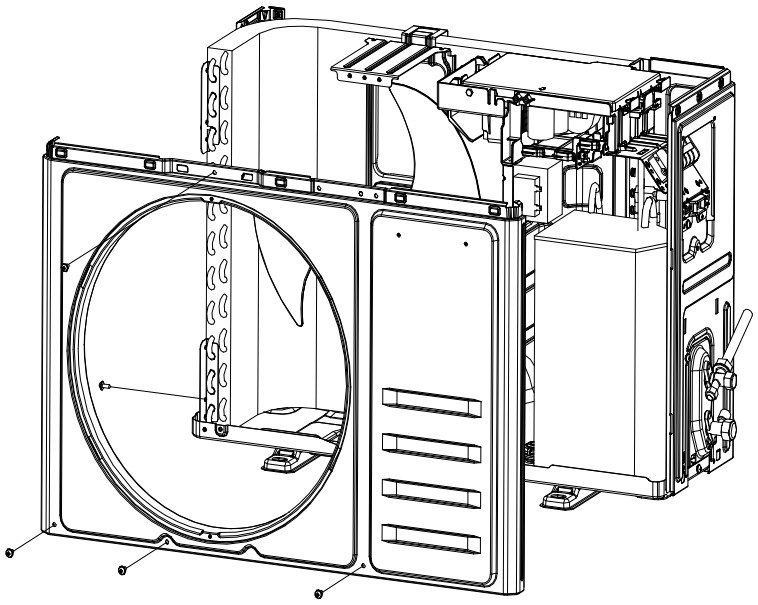
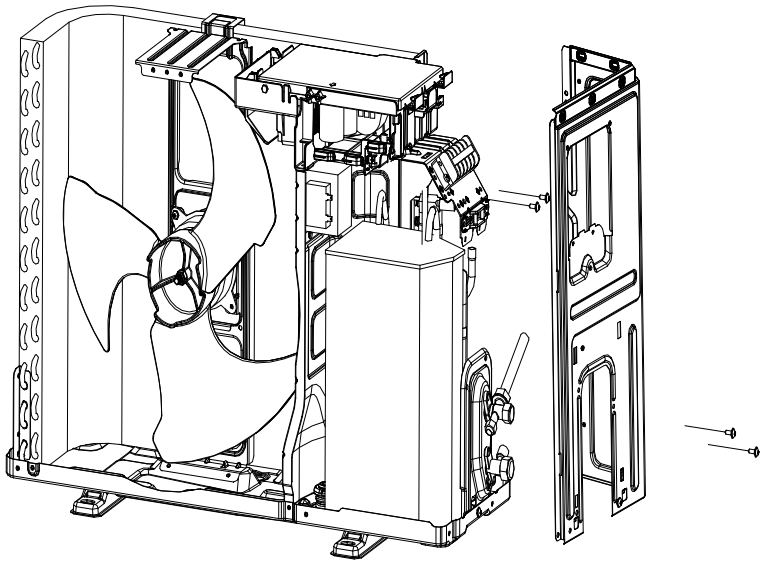
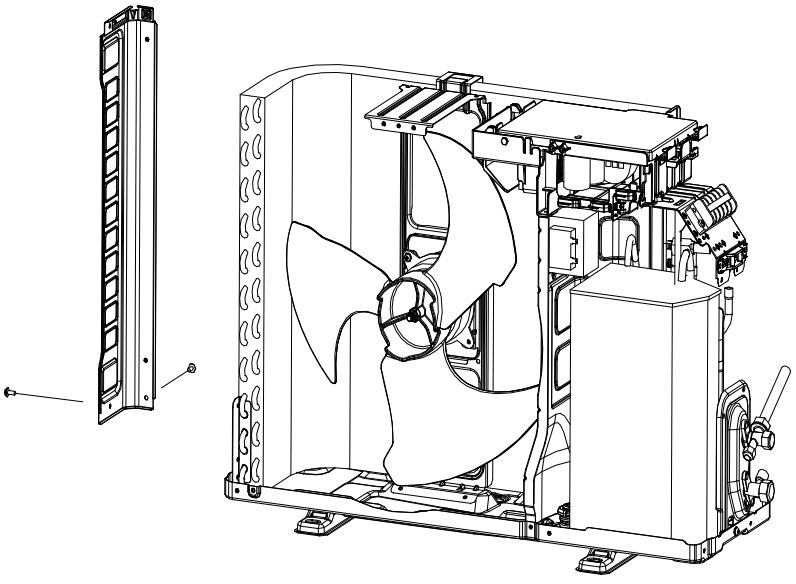
A. Lift the fan blade and fan motor. Take the base frame out.

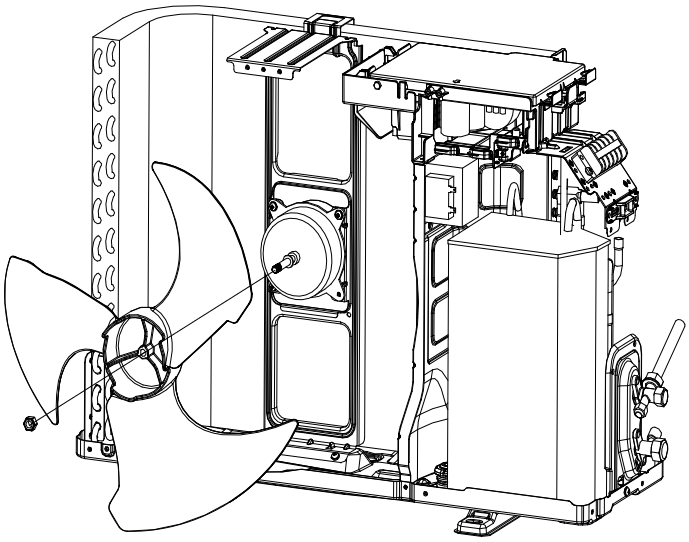
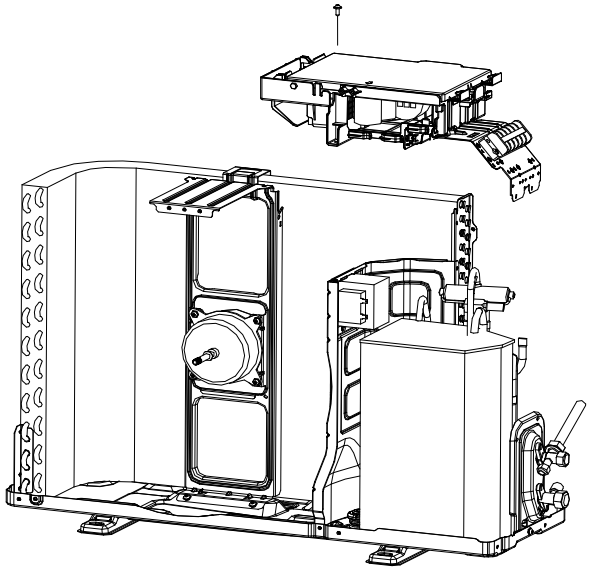
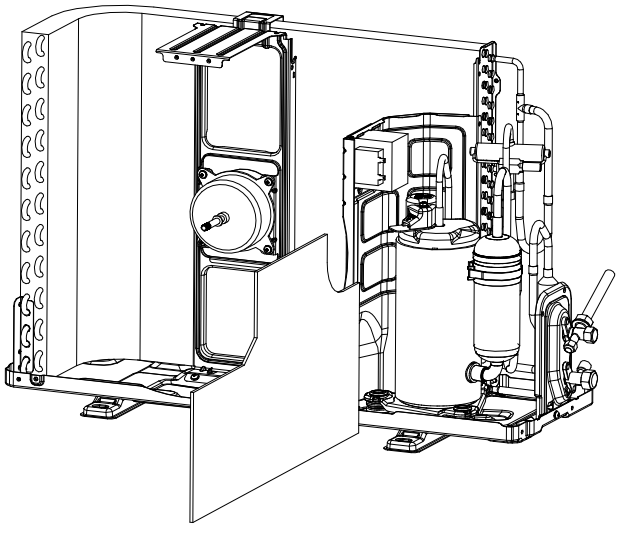
B. Unfix 1 screw on the axis of fan motor, then you can separate the fan blade and fan motor.

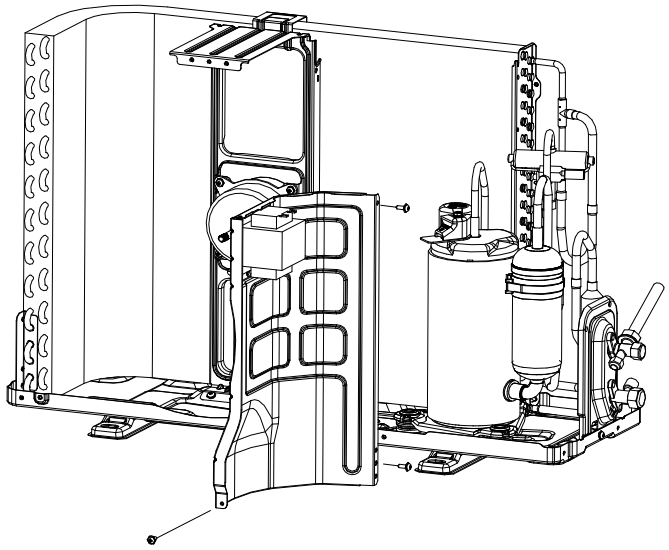
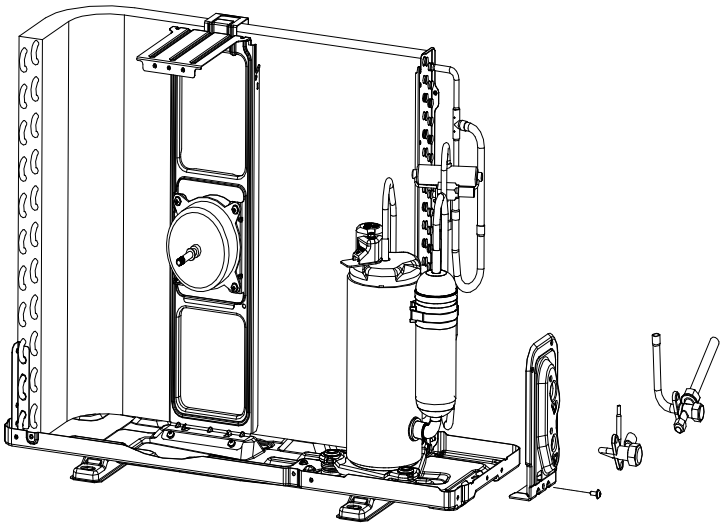
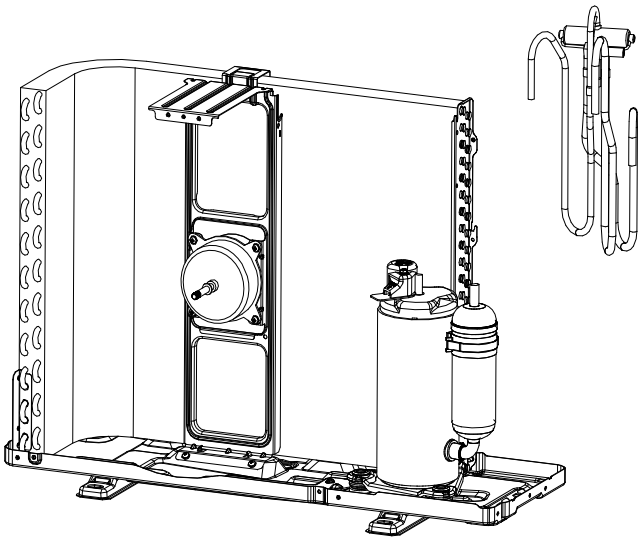


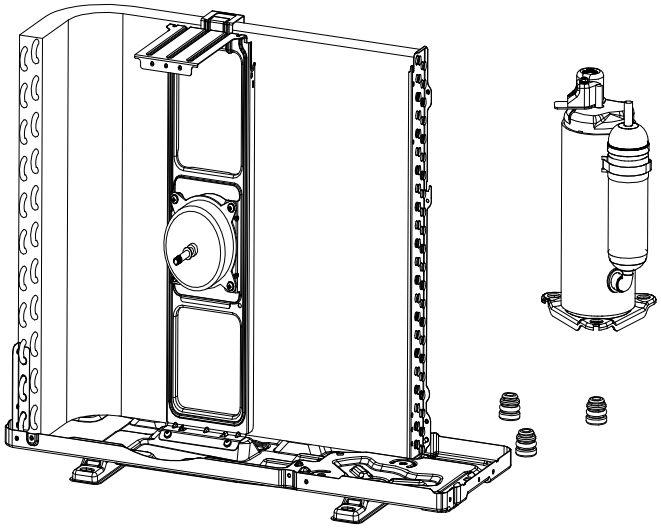
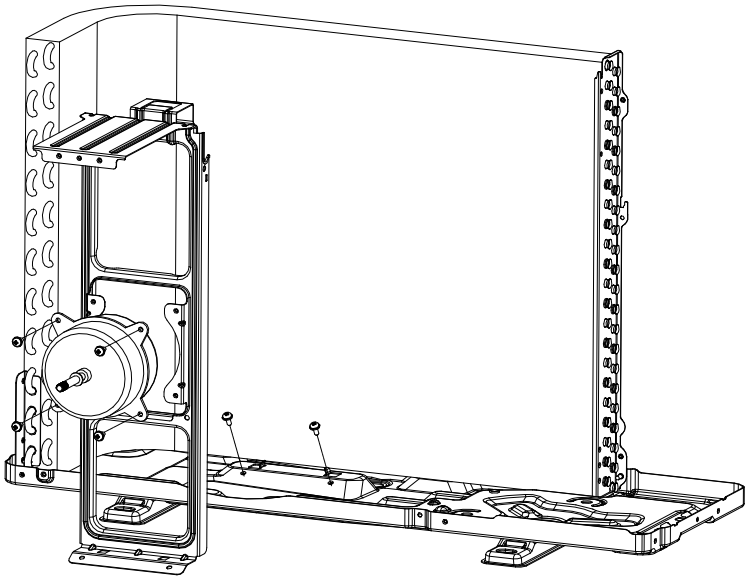
4.2 ODU Assembly

Step		Reference Picture
1. Remove the PCB cover, valve cover, and top cover		
A	1). Unfix 1 screw on the PCB cover, then you can remove the cover from the unit. 2). Unfix 1 screw on the valve cover, and then you can take it out.	
B	Unfix the screws on the top/left/right plates, and then you can take the top cover out.	
2. Disassemble the fan guard and front panel		
A	Unfix the screws on the front panel of the fan guard.	

B	Separate the ODU middle plate and base plate. Lift the front panel so you can take it out from the unit.	
3. Disassemble the left and right plate		
A	Unfix screws btw right plate, electric box assembly, valve plate, and base plate. You can then take the right plate out	
B	Unfix the screws on the left plate, base plate, and condenser plate. You can then take the left plate out.	

4. Disassemble the axis fan blade		
A	Unscrew the fan blade nut. Remove the blade.	
5. Disassemble the electric box		
A	Unfix the screws on the electric box and motor supporter, etc. Loosen the wiring clamp, then you can take the control box out.	
6. Remove the noise cotton		
A	Take the cotton out, as shown in the picture	

7. Disassemble the separate plate		
A	Unfix the screw on the separate plate and unit, then take it out.	
8. Disassemble the 2-way and 3-way valve		
A	Unfix the screws on the valve plate and base. You can take the 2-way and 3-way valve out by welding. **Note**: 1). Welding can only occur while there is no gas in the unit. 2). Pay attention to the fire to prevent any injury.	
9. Disassemble the 4-way valve assembly		
A	Remove the 4-way valve from the system by welding. Ensure there is no damage to the compressor, nameplate, etc.	

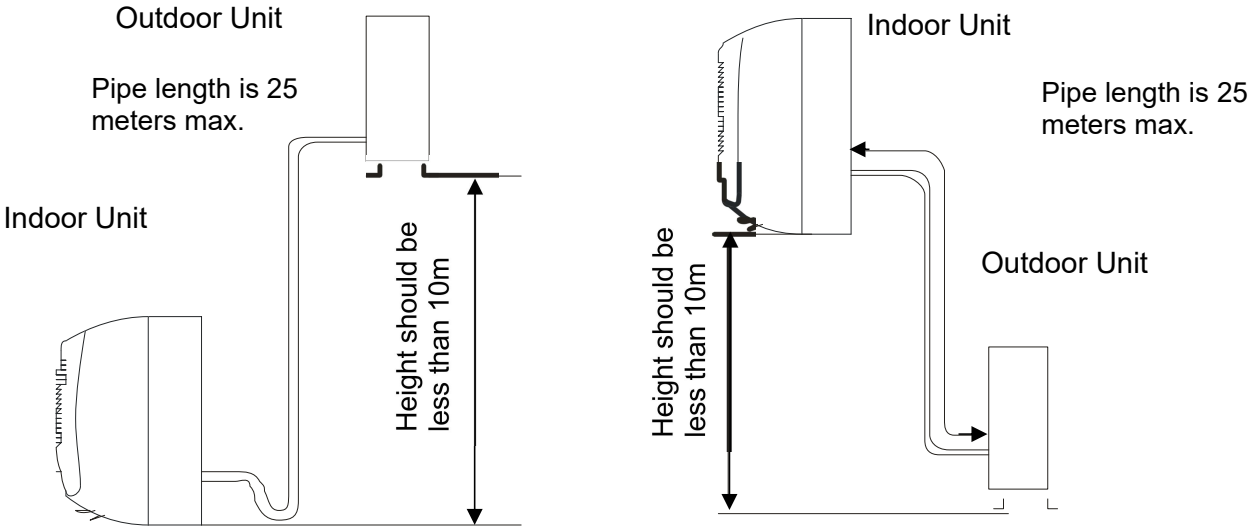
10. Disassemble the compressor		
A	Unscrew the nuts and remove the compressor.	
11. Remove the fan motor and fan supporter		
A	Unfix the screws on the fan motor and supporter, then remove the supporter of the base plate. **Note**: Pay attention to the motor wiring. It can't be taken out by force.	

APPENDIX

Appendix 1 Comparison Table of Celsius-Fahrenheit Temperature

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

Appendix 2 Pipe Length and Gas Charging



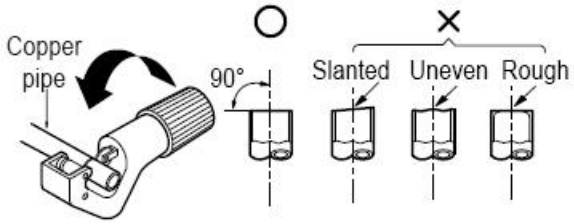
Mode	Standard Length (m)	Refrigerant Piping Max Length (m) A	Additional Refrigerant Charging: Xg= B * (A-5m) B
9K	5.0	25	20g/m
12K	5.0	25	20g/m
18K	5.0	25	30g/m
24K	5.0	25	30g/m
30K	5.0	25	30g/m
36K	5.0	25	30g/m

Appendix 3 Pipes Flaring

Main cause for gas leakage is due to defect in flaring work. Carry out correct flaring work in the following procedure:

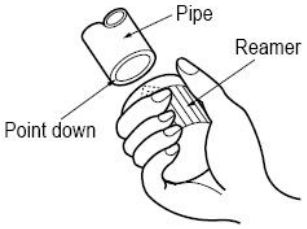
A. Cut the pipes and cable

1) Use the piping kit accessory or pipes purchased locally.
2) Measure the distance between the indoor and outdoor units.
3) Cut the pipes a little longer than the measured distance.
4) Cut the cable 5ft longer than the pipe length.



B. Burrs removal

1) Completely remove all burrs from the cut cross section of pipe/tube.
2) Put the end of the copper tube/pipe in a downward direction while removing the burrs in order to avoid dropping burrs into the tubing.

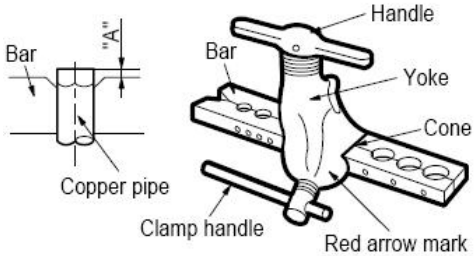


C. Flaring work

1) Carry out flaring work using flaring tool, as shown below.

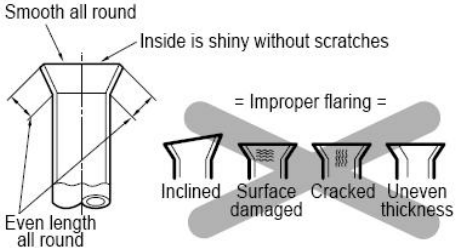
Outside Diameter		A
mm	inch	mm
ø6.35	1/4	1.0~1.3
ø9.52	3/8	0.8~1.0
ø12.7	1/2	0.5~0.8
ø15.88	5/8	0.5~0.8

2) Firmly hold copper pipe in a die in the dimension shown in the table above.



D. Check

1) Compare the flared work with figure below.
2) If the flare is noted to be defective, cut off the flared section and do the flaring work again.



Appendix 4 Thermistor Temperature Characteristics

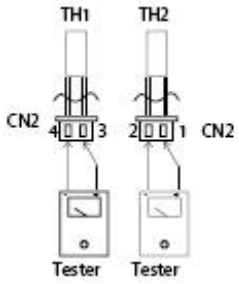
1). Indoor and outdoor units exchange temperature and outside air temperature sensor temperature characteristics

TEMP. (°F)	R min (k Ohm)	R(t) (k Ohm)	R max (k Ohm)	TEMP. (°F)	R min (k Ohm)	R(t) (k Ohm)	R max (k Ohm)	TEMP. (°F)	R min (k Ohm)	R(t) (k Ohm)	R max (k Ohm)
-22	60.343	64.104	68.080	70	5.716	5.846	5.977	162	0.974	1.010	1.047
-20	57.157	60.666	64.375	72	5.498	5.620	5.742	163	0.944	0.980	1.016
-18	54.139	57.413	60.870	73	5.290	5.404	5.518	165	0.917	0.952	0.988
-17	51.301	54.355	57.579	75	5.091	5.198	5.305	167	0.890	0.924	0.959
-15	48.630	51.480	54.487	77	4.900	5.000	5.100	169	0.864	0.897	0.931
-13	46.115	48.776	51.582	79	4.713	4.811	4.909	171	0.839	0.871	0.904
-11	43.748	46.232	48.850	81	4.533	4.630	4.727	172	0.814	0.846	0.879
-9	41.517	43.836	46.279	82	4.362	4.457	4.552	174	0.791	0.822	0.854
-8	39.415	41.581	43.861	84	4.199	4.292	4.386	176	0.769	0.799	0.830
-6	37.432	39.456	41.585	86	4.042	4.133	4.225	178	0.746	0.776	0.807
-4	35.581	37.473	39.462	88	3.892	3.982	4.072	180	0.725	0.754	0.784
-2	33.798	35.565	37.421	90	3.748	3.836	3.925	181	0.705	0.733	0.762
0	32.134	33.785	35.519	91	3.611	3.697	3.784	183	0.685	0.713	0.742
1	30.561	32.105	33.725	93	3.479	3.564	3.649	185	0.666	0.693	0.721
3	29.077	30.520	32.033	95	3.353	3.436	3.520	187	0.647	0.674	0.701
5	27.673	29.023	30.437	97	3.232	3.313	3.395	189	0.629	0.655	0.682
7	26.347	27.609	28.931	99	3.116	3.195	3.275	190	0.613	0.638	0.664
9	25.092	26.273	27.508	100	3.004	3.082	3.161	192	0.595	0.620	0.646
10	23.905	25.010	26.165	102	2.898	2.974	3.051	194	0.580	0.604	0.629
12	22.782	23.816	24.896	104	2.795	2.870	2.946	196	0.563	0.587	0.611
14	21.720	22.687	23.697	106	2.697	2.770	2.844	198	0.549	0.572	0.596
16	20.713	21.618	22.562	108	2.604	2.675	2.748	199	0.534	0.557	0.580
18	19.759	20.607	21.490	109	2.513	2.583	2.654	201	0.520	0.542	0.565
19	18.855	19.649	20.475	111	2.426	2.494	2.564	203	0.506	0.528	0.550
21	17.999	18.742	19.515	113	2.343	2.410	2.478	205	0.493	0.514	0.536
23	17.187	17.883	18.606	115	2.263	2.328	2.395	207	0.480	0.501	0.522
25	16.416	17.068	17.745	117	2.186	2.250	2.315	208	0.468	0.488	0.509
27	15.685	16.296	16.930	118	2.111	2.174	2.238	210	0.456	0.476	0.497
28	14.991	15.563	16.156	120	2.041	2.102	2.164	212	0.444	0.464	0.484
30	14.332	14.868	15.423	122	1.972	2.032	2.093	214	0.433	0.452	0.472
32	13.766	14.270	14.792	124	1.906	1.965	2.025	216	0.422	0.441	0.460
34	13.111	13.582	14.069	126	1.844	1.901	1.959	218	0.412	0.430	0.449
36	12.546	12.987	13.443	127	1.783	1.839	1.896	219	0.401	0.419	0.437
37	12.008	12.422	12.849	129	1.724	1.779	1.835	221	0.391	0.409	0.427
39	11.497	11.885	12.284	131	1.668	1.721	1.776	223	0.381	0.399	0.416
41	11.012	11.375	11.749	133	1.614	1.666	1.719	225	0.372	0.388	0.406
43	10.548	10.889	11.239	135	1.562	1.613	1.665	226	0.362	0.379	0.395
45	10.109	10.428	10.756	136	1.512	1.562	1.613	228	0.353	0.369	0.386
46	9.689	9.988	10.295	138	1.463	1.512	1.562	230	0.344	0.360	0.376
48	9.289	9.570	9.858	140	1.417	1.465	1.514	232	0.335	0.351	0.367
50	8.909	9.172	9.441	142	1.372	1.419	1.467	234	0.327	0.342	0.357

52	8.545	8.792	9.044	144	1.328	1.374	1.421	235	0.319	0.333	0.349
54	8.199	8.431	8.667	145	1.287	1.332	1.378	237	0.311	0.325	0.340
55	7.870	8.087	8.308	147	1.247	1.291	1.336	239	0.303	0.317	0.332
57	7.554	7.758	7.965	149	1.208	1.251	1.295	241	0.296	0.309	0.324
59	7.254	7.445	7.639	151	1.171	1.213	1.256	243	0.288	0.302	0.315
61	6.968	7.147	7.329	153	1.135	1.176	1.218	244	0.281	0.294	0.308
63	6.694	6.862	7.032	154	1.100	1.140	1.181	246	0.274	0.287	0.301
64	6.433	6.590	6.749	156	1.067	1.106	1.146	248	0.268	0.280	0.293
66	6.183	6.331	6.480	158	1.035	1.073	1.112				
68	5.945	6.083	6.223	160	1.004	1.041	1.079				

R—Resistance

Resistance at 25℃:5 kΩ.



TH1: Indoor room temperature sensor and outside air temperature sensor

TH2: Indoor exchange temperature sensor and outside exchange temperature sensor

Before measuring resistance, disconnect connectors as shown above.

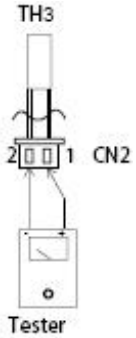
1) Outdoor unit discharge sensor temperature characteristics

TEMP. (°F)	R min (k Ohm)	R(t) (k Ohm)	R max (k Ohm)	TEMP. (°F)	R min (k Ohm)	R(t) (k Ohm)	R max (k Ohm)	TEMP. (°F)	R min (k Ohm)	R(t) (k Ohm)	R max (k Ohm)
-22	288.879	337.780	386.68	73	20.114	21.847	23.579	169	2.733	2.835	2.937
-20	272.641	318.219	263.797	75	19.263	20.900	22.538	171	2.646	2.742	2.839
-18	257.401	299.897	342.392	77	18.453	20.000	21.547	172	2.561	2.653	2.745
-17	243.09*2	282.727	322.363	79	17.681	19.143	20.605	174	2.480	2.567	2.654
-15	299.654	266.633	303.613	81	16.945	18.327	19.710	176	2.401	2.484	2.567
-13	217.028	251.541	286.054	82	16.243	17.551	18.858	178	2.326	2.404	2.483
-11	205.162	237.383	269.604	84	15.575	16.811	18.047	180	2.183	2.253	2.324
-9	194.005	224.097	254.188	86	14.937	16.106	17.275	181	2.183	2.253	2.324
-8	183.513	211.625	239.736	88	14.328	15.434	16.541	183	2.115	2.182	2.249
-6	173.642	199.912	226.181	90	13.748	14.794	15.841	185	2.050	2.113	2.176
-4	164.353	188.909	213.465	91	13.194	14.184	15.175	187	1.984	2.047	2.109
-2	155.608	178.569	201.530	93	12.665	13.602	14.540	189	1.921	1.983	2.045
0	147.373	168.850	190.326	95	12.160	13.048	13.935	190	1.860	1.921	1.982
1	139.616	159.710	179.803	97	11.678	12.518	13.358	192	1.801	1.862	1.922
3	132.307	151.112	169.917	99	11.217	12.013	12.809	194	1.744	1.804	1.864
5	125.417	143.022	160.627	100	10.777	11.531	12.248	196	1.690	1.749	1.808
7	118.921	135.407	151.893	102	10.357	11.071	11.784	198	1.637	1.695	1.754
9	112.794	128.236	143.679	104	9.955	10.631	11.307	199	1.586	1.644	1.701
10	107.014	121.483	135.952	106	9.571	10.211	10.852	201	1.537	1.594	1.651
12	101.559	115.120	128.680	108	9.203	9.810	10.417	203	1.490	1.546	1.602
14	96.410	109.123	121.836	109	8.852	9.427	10.002	205	1.444	1.500	1.555

16	91.548	103.469	115.391	111	8.516	9.061	9.606	207	1.400	1.455	1.509
18	86.956	98.138	109.320	113	8.194	8.711	9.228	208	1.358	1.412	1.465
19	82.617	93.108	103.600	115	7.886	8.376	8.866	210	1.317	1.370	1.423
21	78.516	88.362	98.209	117	7.591	8.056	8.520	212	1.277	1.329	1.382
23	74.640	83.883	93.126	118	7.309	7.750	8.190	214	1.239	1.290	1.342
25	70.974	79.653	88.332	120	7.039	7.750	8.190	216	1.202	1.253	1.303
27	67.507	75.659	83.810	122	6.780	7.176	7.572	217	1.166	1.216	1.266
28	64.227	71.885	79.543	124	6.532	6.908	7.283	219	1.132	1.181	1.230
30	61.123	68.319	75.515	126	6.294	6.650	7.007	221	1.099	1.147	1.195
32	58.184	64.948	71.712	127	6.066	6.404	6.743	223	1.066	1.114	1.162
34	55.402	61.761	68.120	129	5.847	6.168	6.489	225	1.035	1.082	1.129
36	52.766	58.746	64.726	131	5.638	5.942	6.247	226	1.005	1.051	1.098
37	50.269	55.894	61.519	133	5.437	5.726	6.015	228	0.976	1.022	1.067
39	47.903	53.195	58.488	135	5.244	5.518	5.793	230	0.948	0.993	1.038
41	45.661	50.641	55.621	136	5.059	5.319	5.580	232	0.921	0.965	1.009
43	43.543	48.222	52.910	138	4.882	5.129	5.376	234	0.895	0.938	0.981
45	41.517	45.931	50.345	140	4.711	4.946	5.180	235	0.869	0.912	0.955
46	39.604	43.761	47.917	142	4.548	4.770	4.993	237	0.845	0.887	0.929
48	37.789	41.704	45.619	144	4.39	4.602	4.813	239	0.821	0.862	0.904
50	36.066	39.755	43.443	145	4.240	4.440	4.641	241	0.798	0.839	0.879
52	34.431	37.907	41.383	147	4.094	4.285	4.475	243	0.776	0.816	0.856
54	32.787	36.154	39.430	149	3.955	4.136	4.317	244	0.754	0.794	0.833
55	31.403	34.491	37.580	151	3.821	3.993	4.164	246	0.733	0.772	0.811
57	30.001	32.914	35.826	153	3.693	3.855	4.018	248	0.713	0.751	0.789
59	28.670	31.417	34.163	154	3.569	3.723	3.878	250	0.694	0.731	0.769
61	27.404	29.995	32.586	156	3.450	3.596	3.743	252	0.675	0.712	0.749
63	26.200	28.645	31.090	158	3.335	3.475	3.614	253	0.657	0.693	0.729
64	25.056	27.363	29.671	160	3.225	3.357	3.490	255	0.639	0.675	0.710
66	23.967	26.145	28.324	162	3.119	3.245	3.370	257	0.622	0.657	0.692
68	22.931	24.988	27.044	163	3.017	3.136	3.225				
70	21.946	23.888	25.830	165	2.919	3.032	3.145				
72	21.007	22.842	24.676	167	2.824	2.932	3.093				

R—Resistance

Resistance at 77°F:20 kΩ



TH3: Outdoor unit discharge pipe sensor

Before measuring resistance, disconnect connectors as shown above.

The design and specifications of this product are subject to change without prior notice as development continues. Consult with the sales agency or manufacturer for details. Refer to the equipment nameplate for all other applicable specifications.

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