AIR CONDITIONING SYSTEMS

MODELS:
V1RFI-30 / V1RFO-30
V1RFI-50 / V1RFO-50

Service Manual

Service Manual

inventor

Your-conditions

2 Technical specifications

Model		V1RFI-30/V1RFO-30	
Function		COOLING	HEATING
Rated Voltage		220-240V~	
Frequency(Hz) (High/Standard/Low)		78/60/12	100/62/12
Total Capacity (W) (High/Standard/Low)		8300/7030//2500	9400/7800/1600
Total Capacity (Btu/h) (High/ Standard/Low)		28500/24000/8500	32000/26500/5500
Power Input (W) (High/ Standard/Low)		3600/2191/800	3600/2151/550
Rated Input (W) (High/ Standard)		3600/2191	3600/2180
Rated Current (A) (High/ Standard)		16.5/10	16.5/10
Air Flow Volume (m^3/h) (S/H/M/L)		1000/820/750/650	
Dehumidifying Volume (l/h)		2	
EER / C.O.P (W/W)		3.21/3.61	
Energy Class		A/A	
Indoor unit	Model of Indoor Unit	V1RFI-30	
	Fan Motor Speed (r/min) (S/H/M/L)	540/460/420/370	
	Output of Fan Motor (w)	90	
	Input Power of Heater (w)	/	
	Fan Motor Capacitor (uF)	4uF	
	Fan Motor RLA(A)	0.68	
	Fan Type-Piece	Cross flow fan – 1	
	Diameter-Length (mm)	ϕ108 X954	
	Evaporator	Aluminum fin-copper tube	
	Pipe Diameter (mm)	Φ7	
	Row-Fin Gap(mm)	3-1.4	
	Coil length (l) x height (H) x coil width (L)	762×42×410	
	Swing Motor Model	Stepping motor SM060A、Stepping motor MP35CB	
	Output of Swing Motor (W)	60、35	
	Fuse (A)	PCB 3.15A Transformer 0.2A	
	Sound Pressure Level dB (A) (H/M/L)	48/45/43/40	
	Sound Power Level dB (A) (H/M/L)	58/55/53/50	
	Dimension (W/H/D) (mm)	540/1790/320	
	Dimension of Package (L/W/H)(mm)	682/2005/475	

Outdoor unit	Model of Outdoor Unit		V1RFO-30
	Compressor Manufacturer/trademark		SANYO
	Compressor Model		C-7RZ233H1A
	Compressor Type		rotary compressor
	L.R.A. (A)		34
	Compressor RLA(A)		8.2
	Compressor Power Input(W)		1760
	Overload Protector		INTIIL-3979
	Throttling Method		Electronic Expansion Valve
	Starting Method		Transducer starting
	Working Temp Range (℃)		-7℃≤T≤48℃
	Condenser		Aluminum fin-copper tube
	Pipe Diameter (mm)		Φ7
	Rows-Fin Gap(mm)		2-1.4
	Coil length (l) x height (H) x coil width		942×748×42
	Fan Motor Speed (rpm) (H/M/L)		780
	Output of Fan Motor (W)		90
	Fan Motor RLA(A)		0.85
	Fan Motor Capacitor (uF)		7
	Air Flow Volume of Outdoor Unit		-
	Fan Type-Piece		Axial fan –1
	Fan Diameter (mm)		Φ552
	Defrosting Method		Auto defrost
	Climate Type		T1
	Isolation		I
	Moisture Protection		IP24
	Permissible Excessive Operating Pressure for the Discharge Side(MPa)		3.8
	Permissible Excessive Operating Pressure for the Suction Side(MPa)		1.2
	Sound Pressure Level dB (A) (H/M/L)		56
	Sound Power Level dB (A) (H/M/L)		66
	Dimension (W/H/D) (mm)		980x790x440
	Dimension of Package (L/W/H)(mm)		1065x840x485
	Net Weight /Gross Weight (kg)		65/71
	Refrigerant and Charge (kg)		R410A/1.950
Connection Pipe	Length (m)		5
	Gas additional charge(g/m)		30g/m
	Outer Diameter	Liquid Pipe (mm)	Φ6
		Gas Pipe (mm)	Φ16
	Max Distance	Height (m)	10
		Length (m)	20

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

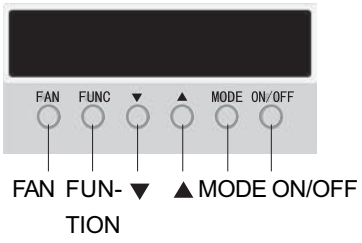
Model		V1RFI-50/V1RFO-50	
Function		COOLING	HEATING
Rated Voltage		380-415V~	
Frequency(Hz) (High/Standard/Low)		75/53/30	70/58/30
Total Capacity (W) (High/Standard/Low)		13500/12300/6200	15200/14000/6400
Total Capacity (Btu/h) (High/ Standard/Low)		46000/42000/21000	52000/48000/22000
Power Input (W) (High/ Standard/Low)		5500/3950/1800	5500/3900/1700
Rated Input (W) (High/ Standard)		5500/3950	5500/3900
Rated Current (A) (High/ Standard)		8.9/6.8	8.9/7.3
Air Flow Volume (m^3/h) (S/H/M/L)		1750/1680/1600/1500	
Dehumidifying Volume (l/h)		4	
EER / C.O.P (W/W)		3.21/3.61	
Energy Class		A/A	
Indoor unit	Model of Indoor Unit	V1RFI-50	
	Fan Motor Speed (r/min) (S/H/M/L)	550/490/440/390	
	Output of Fan Motor (w)	150	
	Input Power of Heater (w)	/	
	Fan Motor Capacitor (uF)	6uF	
	Fan Motor RLA(A)	0.68	
	Fan Type-Piece	Cross flow fan – 1	
	Diameter-Length (mm)	ϕ369X180	
	Evaporator	Aluminum fin-copper tube	
	Pipe Diameter (mm)	Φ7	
	Row-Fin Gap(mm)	3-1.4	
	Coil length (l) x height (H) x coil width (L)	520X25.4X876	
	Swing Motor Model	Stepping motor SM060A、Stepping motor MP35CB	
	Output of Swing Motor (W)	60、35	
	Fuse (A)	PCB 3.15A Transformer 0.2A	
	Sound Pressure Level dB (A) (H/M/L)	50/47/44/42	
	Sound Power Level dB (A) (H/M/L)	53/50/47/45	
	Dimension (W/H/D) (mm)	580/1865/400	
	Dimension of Package (L/W/H)(mm)	735/2105/545	

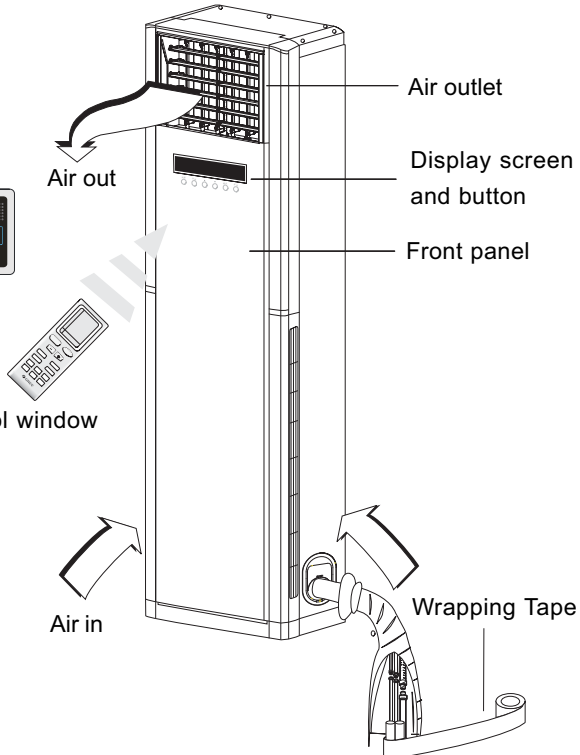
Outdoor unit	Model of Outdoor Unit		V1RFO-50
	Compressor Manufacturer/trademark		SANYO
	Compressor Model		C-9RVN273H0R
	Compressor Type		rotary compressor
	L.R.A. (A)		37.5
	Compressor RLA(A)		7.69
	Compressor Power Input(W)		4380
	Overload Protector		/
	Throttling Method		Capillary
	Starting Method		Transducer starting
	Working Temp Range (℃)		-7℃≤T≤48℃
	Condenser		Aluminum fin-copper tube
	Pipe Diameter (mm)		Φ9.52
	Rows-Fin Gap(mm)		2-1.4
	Coil length (l) x height (H) x coil width		750X44X1218
	Fan Motor Speed (rpm) (H/M/L)		840
	Output of Fan Motor (W)		68
	Fan Motor RLA(A)		0.309
	Fan Motor Capacitor (uF)		6 uF
	Air Flow Volume of Outdoor Unit		/
	Fan Type-Piece		Axial fan –2
	Fan Diameter (mm)		φ472X165
	Defrosting Method		Auto defrost
	Climate Type		T1
	Isolation		I
	Moisture Protection		IP24
	Permissible Excessive Operating Pressure for the Discharge Side(MPa)		3.8
	Permissible Excessive Operating Pressure for the Suction Side(MPa)		1.2
	Sound Pressure Level dB (A) (H/M/L)		58
	Sound Power Level dB (A) (H/M/L)		61
	Dimension (W/H/D) (mm)		950/1250/412
	Dimension of Package (L/W/H)(mm)		1110/1280/450
	Net Weight /Gross Weight (kg)		112/123
	Refrigerant and Charge (kg)		R410A/4.0Kg
Connection Pipe	Length (m)		5
	Gas additional charge(g/m)		30g/m
	Outer Diameter	Liquid Pipe (mm)	Φ12
		Gas Pipe (mm)	Φ19
	Max Distance	Height (m)	10
		Length (m)	20

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

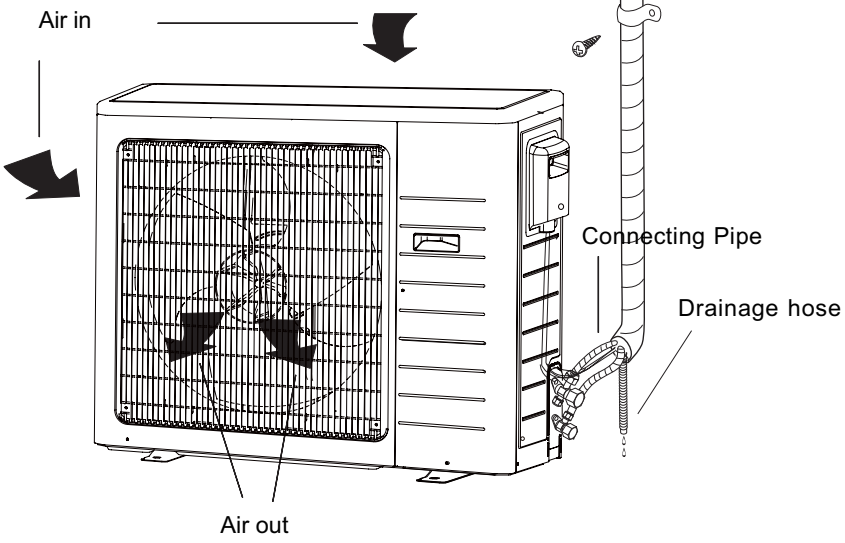
3 Part name

Indoor unit





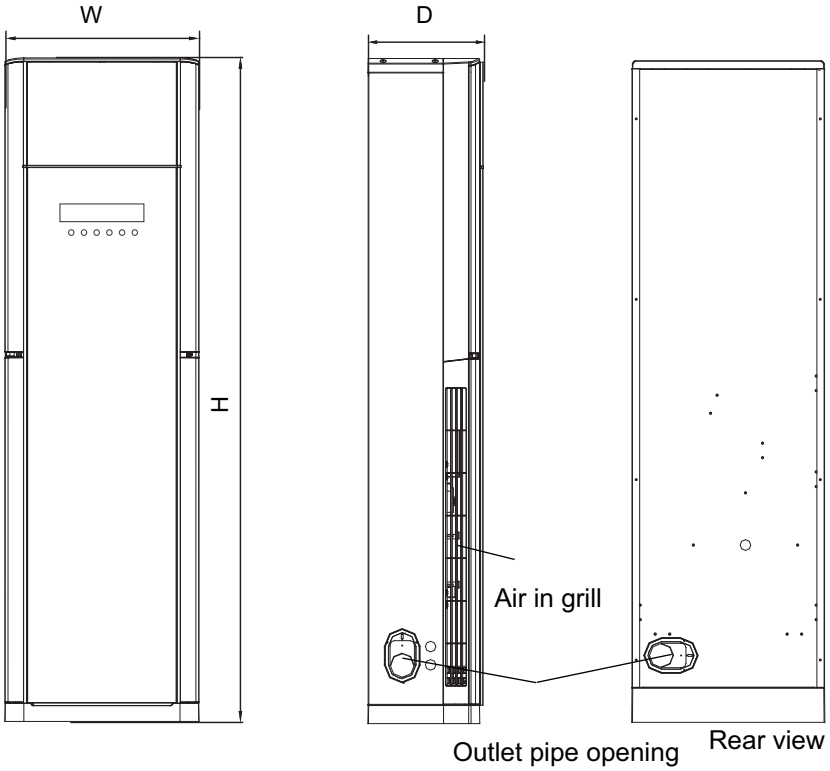
Outdoor unit



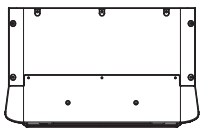
Note: This photo is about the models of 24K, the appearance of model of 48K are a little different from this picture.

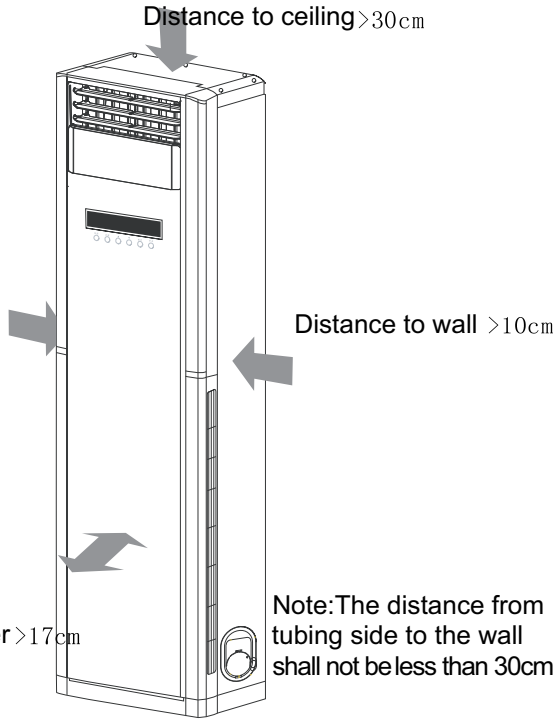
4 Outline and installation dimension

4.1 Outline and installation dimensions of indoor unit



Top view



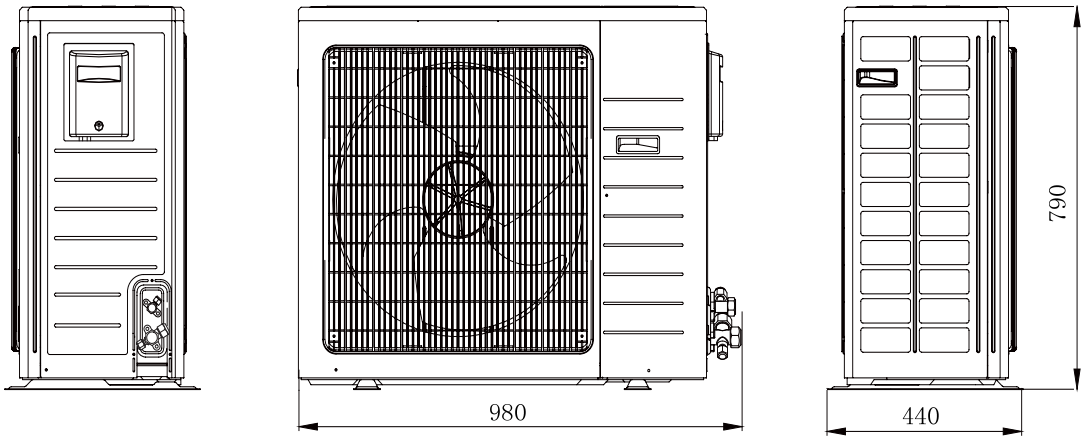


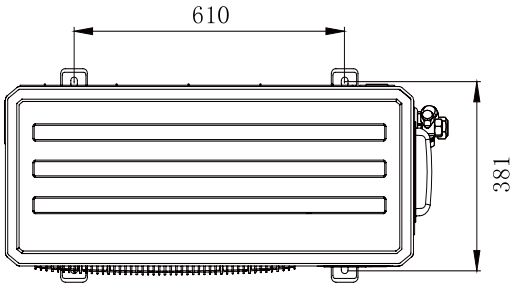
Unit:mm

Dimension			Applicable models
W	H	D	
580	1865	400	24K
540	1790	320	48K

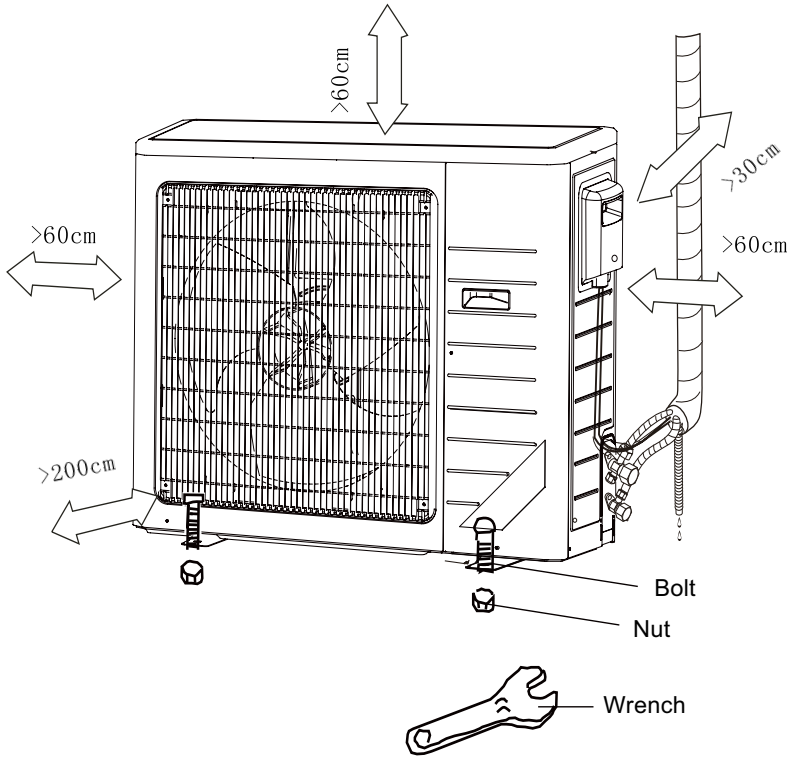
4. 2 Outline and installation dimensions of outdoor unit

V1RF0-30

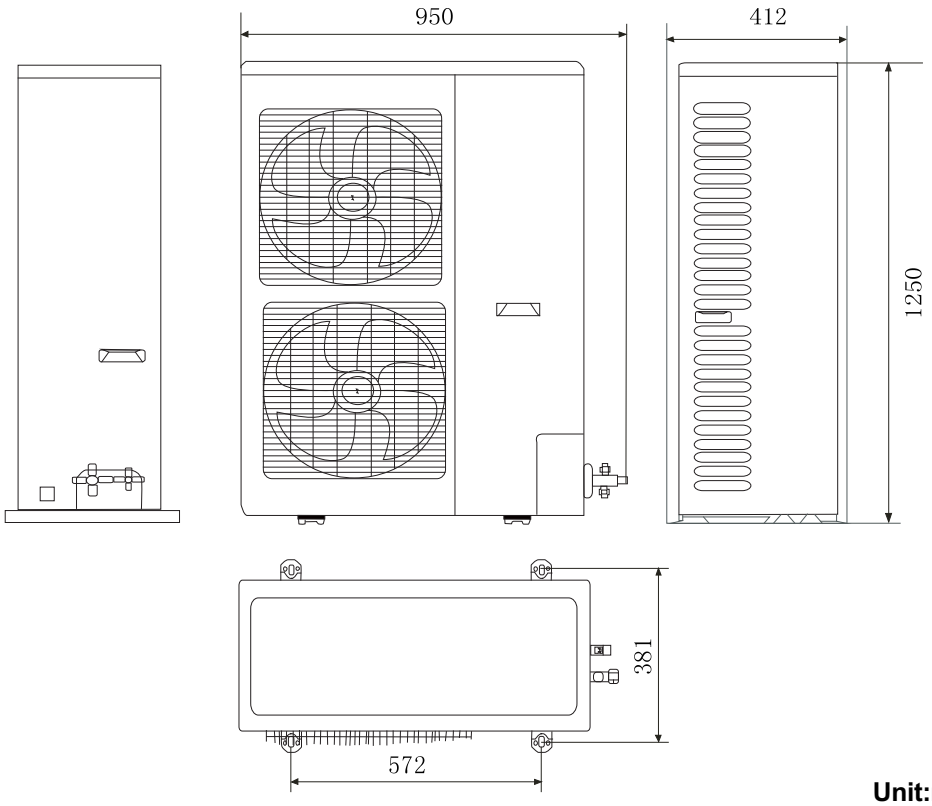




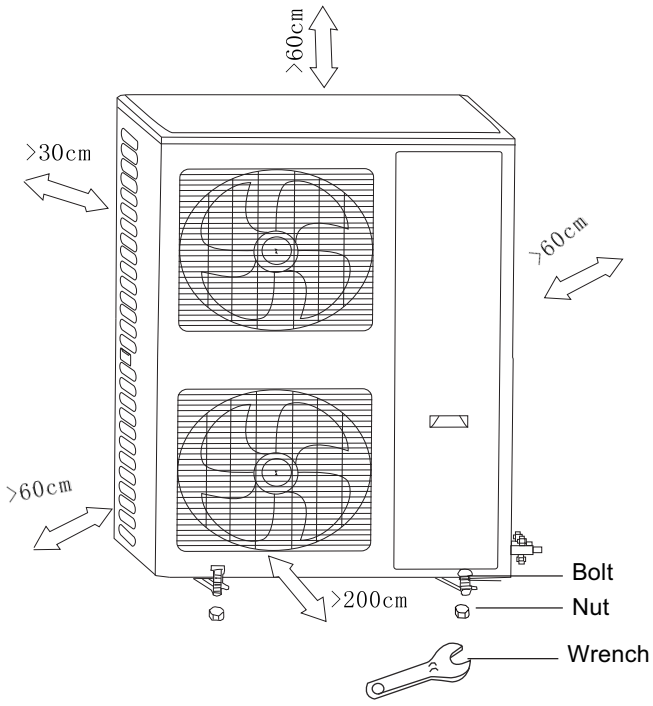
Unit:mm



V1RF0-50

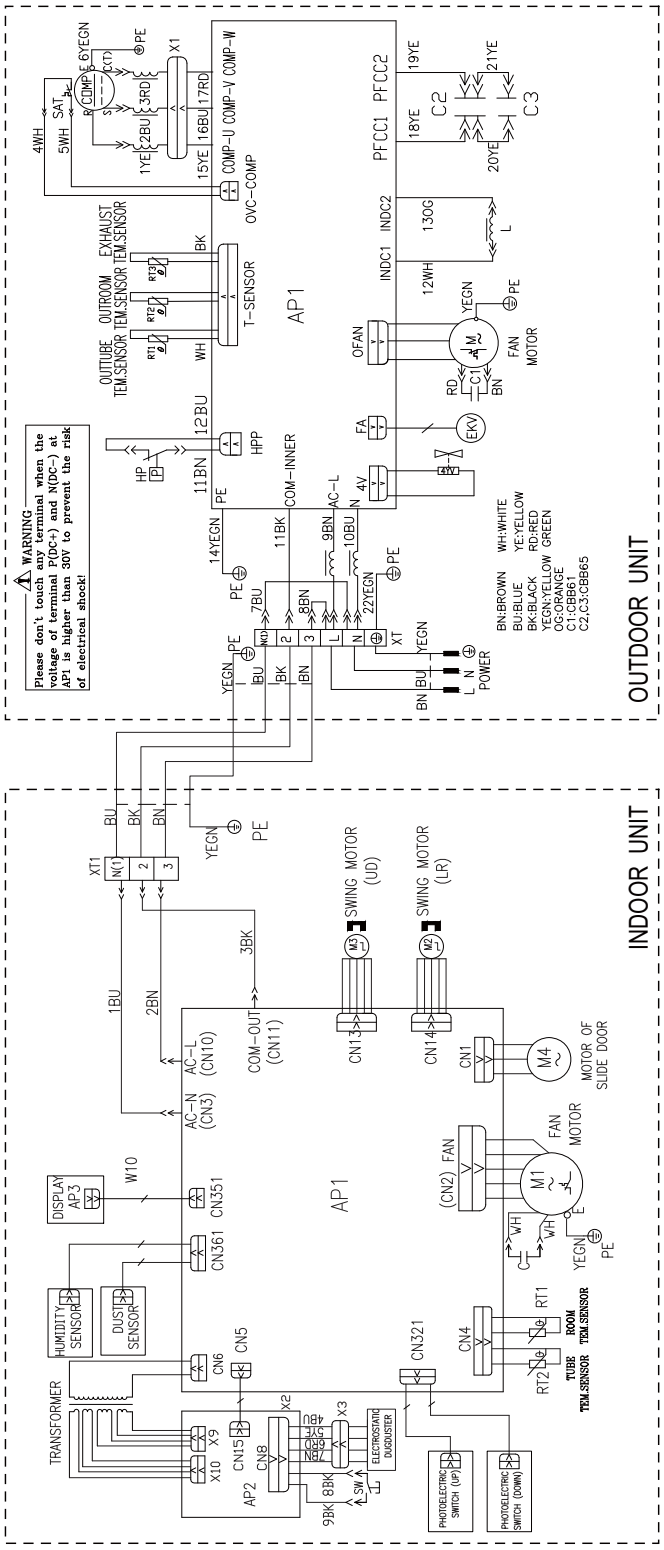


Unit:mm



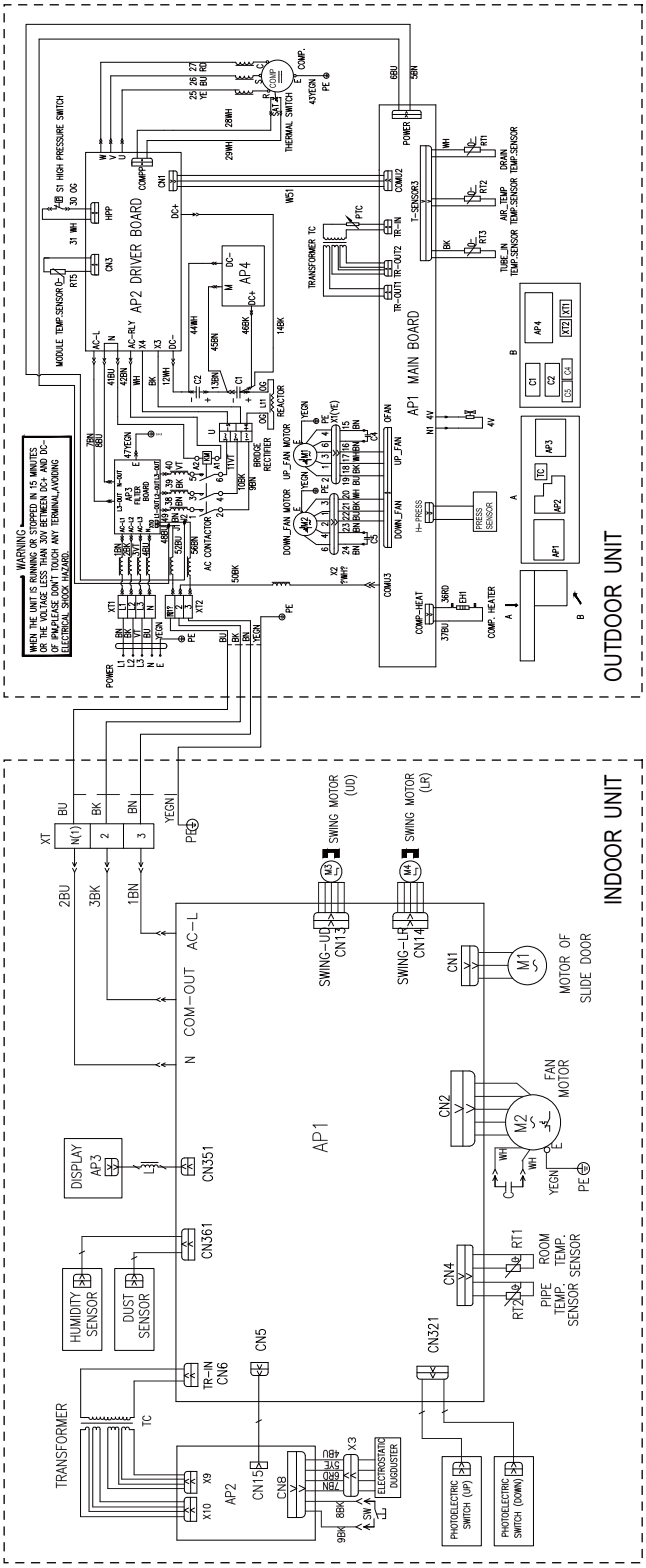
5 Electrical circuit diagram

V1RFI-30/V1RF0-30



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

V1RFI-50/V1RF0-50



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

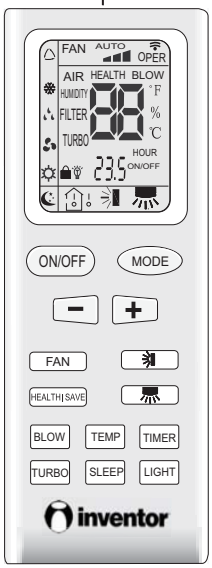
6.1 Names and Functions of Remote Control Buttons

Names and functions of remote control buttons

Note: Be sure that there are no obstructions between receiver and remote control; Don't drop or throw the remote control; Don't let any liquid in the remote control and put the remote control directly under the sunlight or any place where is very hot.

Signal transmitter

Remote controller



ON/OFF

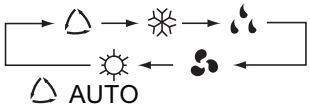
ON/OFF button

- Press this button to start or stop the unit.It will clear timer or sleeping function of last time.

MODE

Mode button

- Press this button, the running mode will change as below:



AUTO

COOL

DRY

FAN

HEAT (Note:not for coolling only unit)

(+/−)

TEMP. (+/−) button

- Pressing +button , the setting temp will be increased by 1℃.Pressing -button,the setting temp. will be decreased by 1 ℃ The temp. will be changed quickly by pressing the button continuously .Setting temp. range is 16~30

FAN

FAN speed button

- Press this button once,then fan speed will change as below:

Auto → → → →

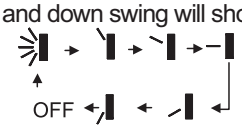
Low speed Middle speed

High speed

Note:In Dry mode, the fan speed is unadjustable and the low fan speed is imperative,but when operating this button, the wireless remote control will send this signal.

Swing up and down button

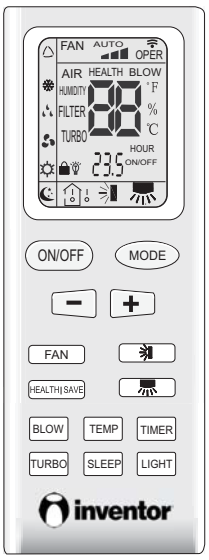
- Simpleness swing mode is defaulted for wireless remote control.In this mode, pressing this button, can turn on or turn off the Up and down swing function.
- When unit is turned off, synchronously pressing "+" and Up and down swing buttons can make it switch between the simpleness swing mode and stationary swing mode. At this time the mark blinks 2 seconds.
- In Stationary swing mode, pressing this button,the angle for Up and down swing will show as below:



- When up and down swing louver is working, turning off the unit, the siwng louver will immediately stop at current position. shows and up and down swing louver swings back and forth as shown in the above figure.

Names and functions of remote control buttons

NOTE: This Remote control is universal and it could be used for many models of units. Some buttons are not available to this unit will not be described below.



Remote control

HEALTH | SAVE

HEALTH | SAVE button

- HEALTH function:there is no this function for this unit. If pressing it, the main unit will click, but it also runs under original status.
- Save energy function: this unit has not this function.If pressing it, the mian unit will click, "SE" will be displayed on the LCD of wireless remote control, fan speed will auto-acts. If repressing it, the fan speed will run at previous setting fan speed.

TURBO

Turbo button

- Set turbo on or off(the characters of turbo will appear or disappear) by pressing this button under cooling or heating mode.Once energized, the unit will be defaulted to be turbo off. This function can not be set under auto, dry or fan mode, and characters of turbo won't appear.

TIMER

Timer button

- On the status of the unit on, press this button to set timer off. On the status of the unit off, press this button to set timer off. Pressing it once, words Hour on(off) will appear and flicker. In this case, press +/- button to adjust time (press+/- button continuously to change timing value quickly. The setting time range is from 0.5 to 24 hr.; press it once again to fix the time,and then the remote controller will send out the signal immediately and hour on/off will stop flickering. If the time that do not press timer button under flickering status is above 5s,the timer setting will quit. If the timer has been set, press this button once again to quit.

TEMP

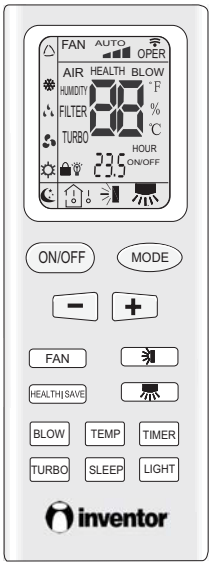
Temp. display button

- After powered on, displaying presetting temperature is defaulted.(Cccording to customer requirements to display;if there are no requirements,the presetting temp-erature displaying is defaulted.There is no signal display on the remote control). Press this button, (display ⌂), displaying the presetting temperature; (display ⌂), displaying indoor ambient temperature; will not change current display status. If current display status is indoor ambient temp. receive other remote control sginals, the unit will display presetting temp.. 5s later it will return to ambient temp. display. Other models haven't this function. But pressing this button, the main unit will click and keep the original status.

Names and functions of remote control buttons

NOTE: This Remote control is universal and it could be used for many models of units.
Some buttons are not available to this unit will not be described below.

Remote control



SLEEP — Sleep button

- Press this button into SLEEP state.If repressing it, SLEEP will quit. Sleep function will be canceled with the stop of the unit. There is not SLEEP function under AUTO and FAN mode. is the icon for sleep function.
- In COOL mode: the SLEEP mode runs after 1hour and the setting temp. will be increased by 1℃. 2 hour later, setting temp. will be increased by 2℃ and thenthe unit will run at this setting temperature.
- In HEAT mode: the SLEEP mode runs after 1hour, and the setting temp will be decreased by 1℃ . 2 hours later setting temp. will be decreased by 2℃ ,and then the unit will run at setting temperature.

BLOW — Blow button

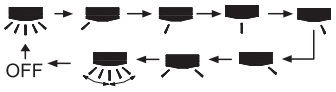
- Set Blow on (the characters of Blow will appear)or off (the characters of Blow disappears) by pressing this button under cool or dry mode. Once energized,the unit will be defaulted to be Blow off.This function can not be set under auto, fan or heat mode, and the characters of Blow won't appear.

LIGHT — Light button

- Press this button to select LIGHT on or off in the displayer. When the LIGHT on is set,the icon will be displayed and the indicator light in the displayer will be on. When the LIGHT off is set, the icon will be displayed and the indicator light in the displayer will be off.

Left and right swing button

- Simpleness swing mode is defaulted for wireless remote control.In this mode, pressing this button could turn on or turn off the Left and right swing function
- When unit is turned off, synchronously pressing "+" and Left and right swing buttons, to make it switch between the simpleness swing mode and stationary swing mode.At this time, blinks 2 seconds.
- In Stationary swing mode, pressing this button,the angle for Left and right swing is shown as below:



- When left and right swing louver is working, turning off the unit, the siwing louver will immediately stop at current position. shows and left and right swing louver swings back and forth as shown in the above figure.

6.2 Operation of Remote Controller

Guide for operation-general operation

1.Press ON/OFF button to start the unit after powering the main unit on.(Note: Power the unit on every time, the big -guide louver and small-guide louver will be closed firstly.)

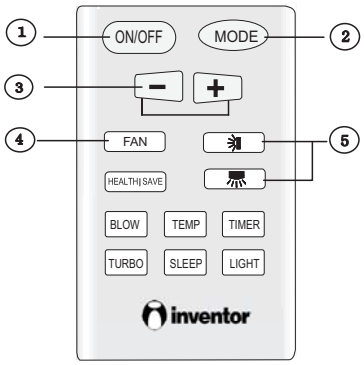
2.Press MODE button to select desired running mode.

3.Press +/ - button to set the desired temperature.

(It is unnecessary to set the temperature at AUTO mode)

4. Press FAN button to set fan speed, the AUTO FAN, LOW, MID or HIGH could be selected.

5. Press button and button to set swing mode.



Guide for operation-optional operation

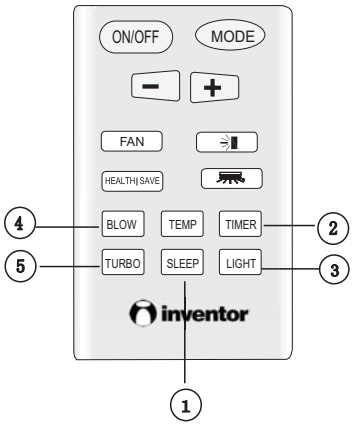
1.Press SLEEP button, set the sleep mode.

2.Press TIMER button, then press +/- button, to set the cheduled timer on or timer off.

3. Press light button to control displayer light on or off.

4. Press Blow button to set Blow function on or off.

5. Press turbo button to set this function on or off.



Introduction for special function

★ **About blow function**

This function indicates that moisture on evaporator of indoor unit will be blowed after the unit is stopped to avoid mould.

1. Having set blow function on: After turning off the unit by pressing ON/OFF button indoor fan will continue running for about 10 min. at low speed. In this period, press blow button to stop indoor fan directly.
2. Having set blow function off: After turning off the unit by pressing ON/OFF button, the complete unit will be off directly.

★ About AUTO RUN

When AUTO RUN mode is selected, the setting temperature will not be displayed on the LCD, the unit will be in accordance with the room temp. automatically to select the suitable running method and to make ambient comfortable.

★ About turbo function

If start this function, the unit will run at super-high fan speed to cool or heat quickly so that the ambient temp. approachs the preset temp. as soon as possible.

★ About lock

Press +and - buttons simultaneously to lock or unlock the keyboard. If the remote controller is locked, the icon will be displayed on it, in which case, press any button, the mark will flicker for three times. If the keyboard is unlocked, the mark will disappear.

★ About switch between Fahrenheit and Centigrade

Under status of unit off, press MODE and - buttons simultaneously to switch ℃ and ℉.

★ About new function of defrosting

It indicates: after starting this function by remote controller and the unit has been under defrost status, If turn off the unit by remote controller, the unit will not stop defrosting until it is finished; if change setting mode by remote controller, the function ,which is set last time, won't be carried out until defrosting finished.

Operation of this function on or off: If remote controller is under off status, press mode button and blow button simultaneously in order to enter or cancel this new function. If the unit is under defrost mode, dual eight position on remote controller will display H1.If switch to heat mode, the position will display H1, which flickers for 5s, in which case, press +/- button, H1 will disappear and setting temp. be displayed.

After remote controller is powered on the new defrost function will be defaulted to be closed.

6.3 Changing Batteries and Notices

Changing batteries notices

1.Slightly to press the place with OPEN along the arrowhead direction to push the back cover of remote controller. (As show in Fig 1.)

2.Take out the old batteries, insert two AAA alkaline cells. (As show in Fig 2.)

3.Attach the back cover of remote control.

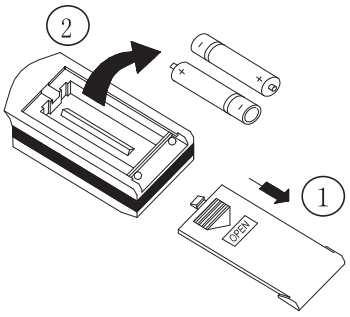


Fig.1

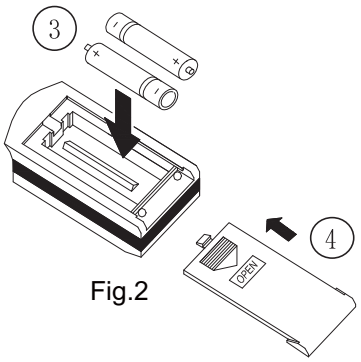


Fig.2

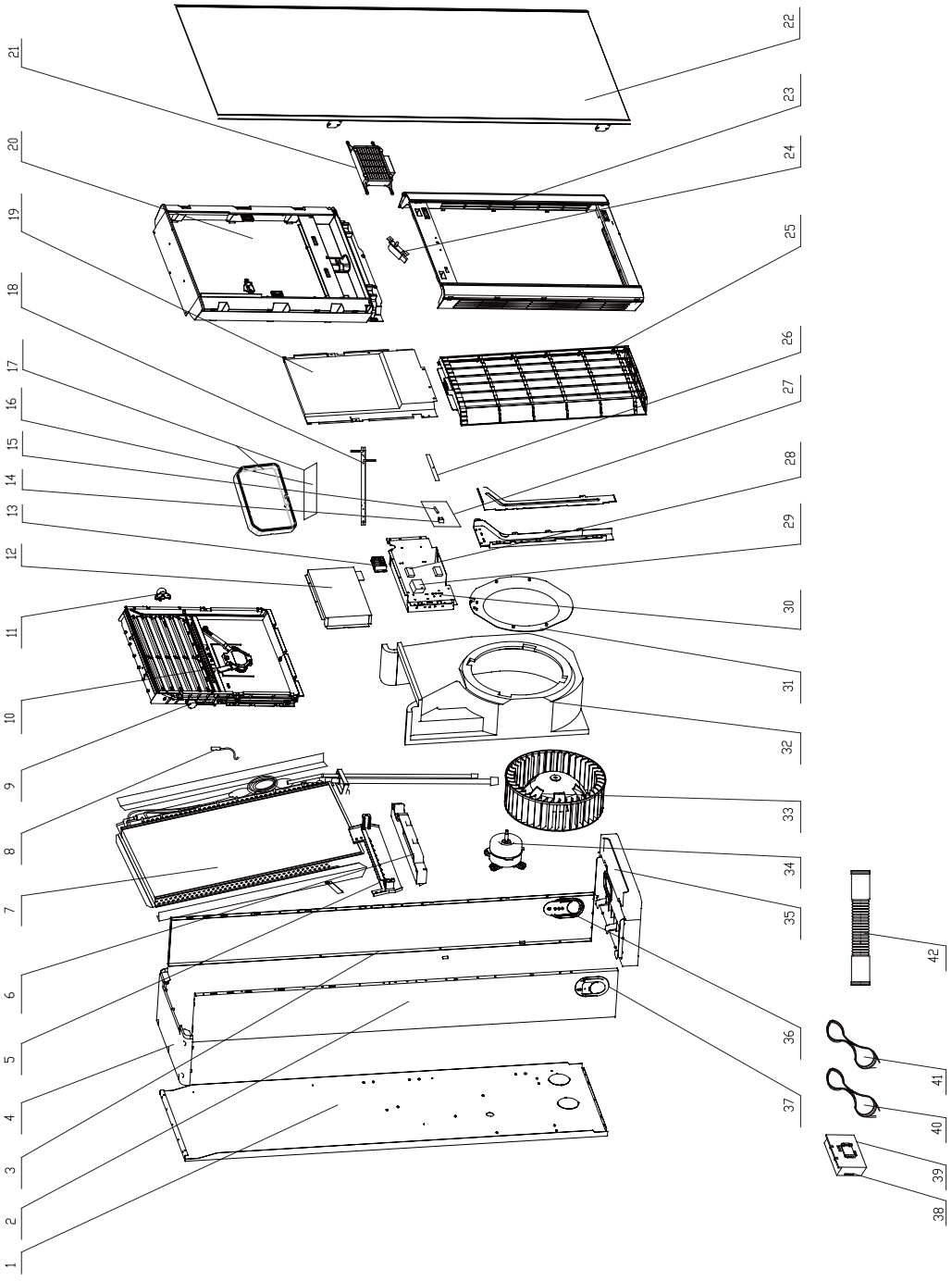
NOTE:

- When changing the batteries, do not use the old or different batteries, otherwise, it can cause the malf-unction of the wireless remote control.
- If the wireless remote control will not be used for a long time, please take them out, and don't let the leakage liquid damage the wireless remote control.
- The operation should be in its receiving range.
- It should be placed where is 1m away from the TV set or stereo sound sets.
- If the remote control cannot operate normally, please take the batteries out, and then reinsert it 30s later; if it is also abnormal ,please replace the batteries.
- If the main unit needs to be remote controlled, please aim remote controller at the receiver of main unit in order to improve the receiving sensitivity of the main unit.
- When the remote controller sends out signal, a mark will flicker for about 1s. The bell will ring if the main unit receives effective signal.

7 Explosive view and spare parts list

7. 1 Exploded View of Components and Parts of Indoor unit

V1RFI-30

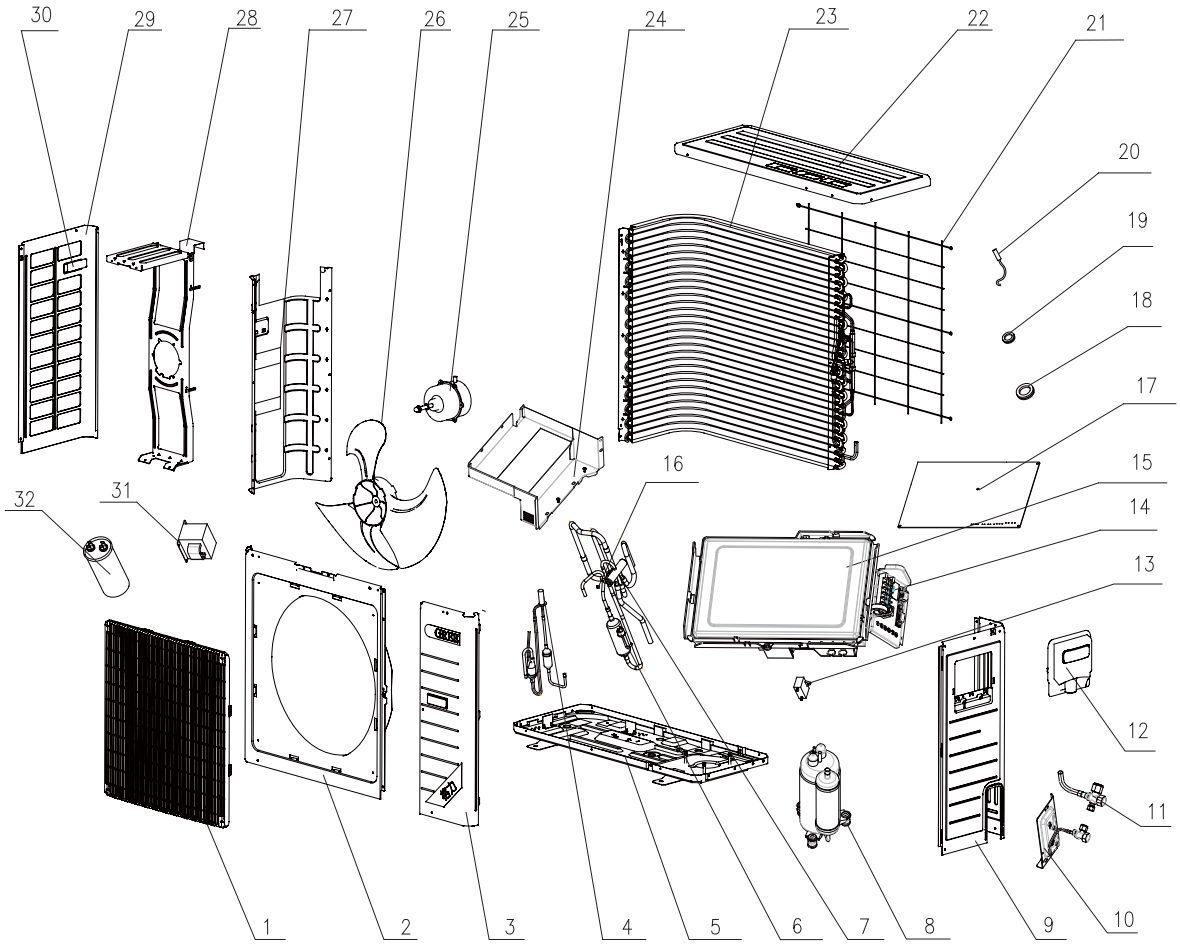


No	Description	Part Code	Qty
		V1RFI-30	
1	Rear Plate Sub-Assy	01304126	1
2	Left Side Plate Sub-Assy	01304130	1
3	Right Side Plate Sub-Assy	01304131	1
4	Top Cover Sub-Assy	22244089	1
5	Breakwater Sub-Assy	01364108D	1
6	Water Tray Sub-Assy	12414072	1
7	Evaporator Assy	01004473	1
8	Ambient Temperature Sensor	390001375	1
9	Stepping Motor	1521240302	1
10	Stepping Motor	15214002	1
11	Stepping Motor	1521240201	1
12	Electric Box Cover Sub-Assy	01404454	1
13	Terminal Board	420111041	1
14	Relay	44020331	2
15	Fuse	46010013	1
16	Display Board	30568016	1
17	Display Sub-Assy	20104063	1
18	Propeller housing press plate sub-assy	01384050	1
19	Air Guard Assy	01364113	1
20	Upper Front Panel Assy	2000419603	1
21	Electrostatic duster	1101420302	1
22	Front door plate sub-assy	26114127	1
23	Front panel sub-assy	20004199	1
24	Female Clip	45017002	1
25	Filter (upper)	11124223	1
26	Receiver Board	30042027	1
27	Main Board	30038011	1
28	Capacitor CBB61	33010013	1
29	Transformer	43110292	1
30	Electric Box Assy	01404837	1
31	Diversion Circle	10374003	1
32	Propeller Housing Sub-assy	12104054	1
33	Centrifugal fan	10314001	1
34	Fan Motor	1501421803	1
35	Chassis	22224052P	1
36	Baffle Plate	26114088	3
37	Rear Cover	22244220	3
38	Humidity sensor	30116072	1
39	Sensor Sub-Assy	20104005	1
40	Connecting Cable	400205402	1
41	Connecting Cable	400204056	1
42	Drainage hose	05230013	1

The above data are subject to be changed without notice.

7. 2 Exploded View of Components and Parts of outdoor unit

V1RF0-30

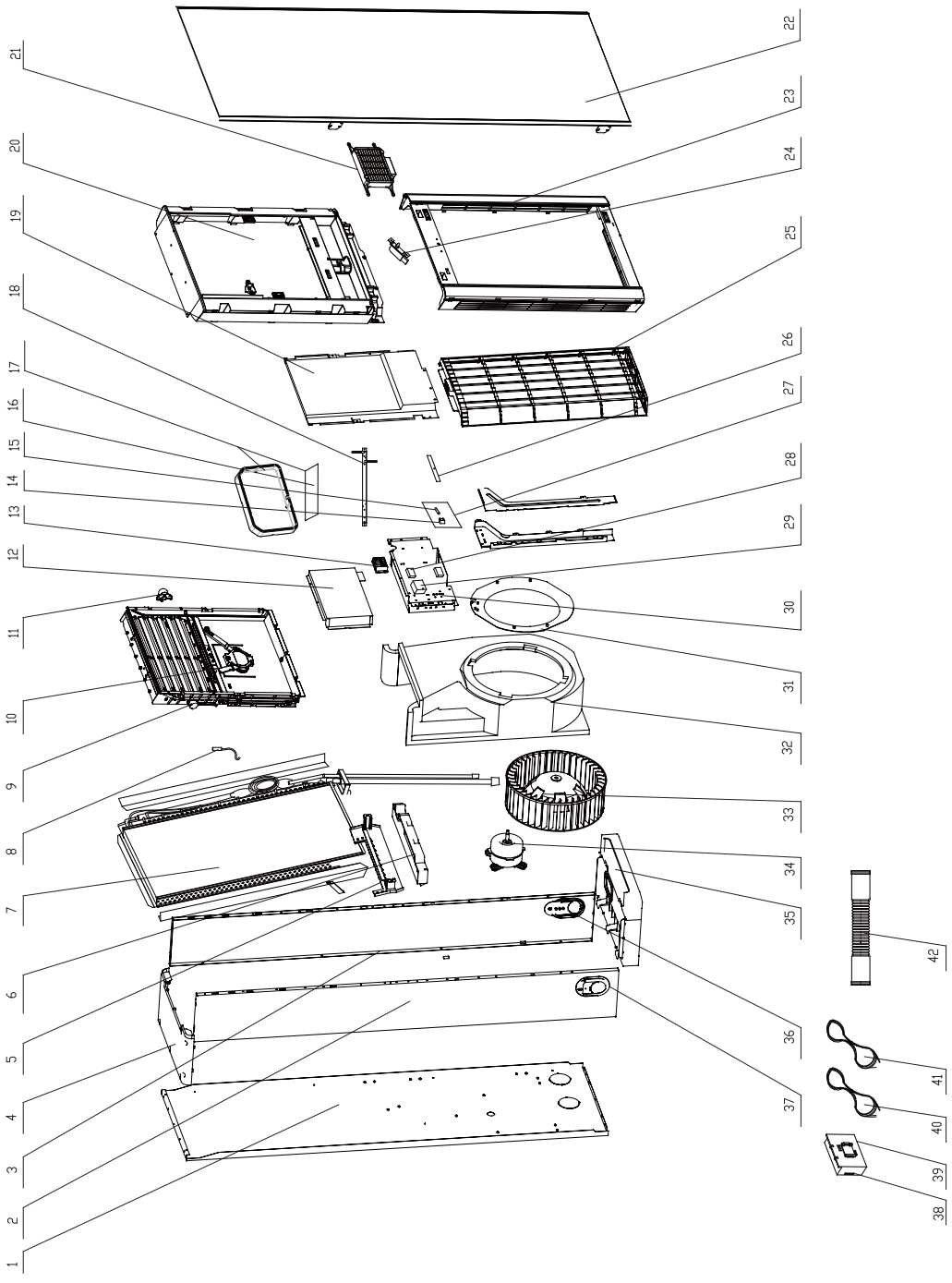


No	Description	Part Code	Qty
		V1RFO-30	
1	Front Grill	22415003	1
2	Cabinet	01435004P	1
3	Front Side Plate	01305045P	1
4	Electronic Expansion Valve	43005008	1
5	Chassis Sub-assy	01205137P	1
6	Pressure Protect Switch	46020006	1
7	4-way Valve Assy	03025166	1
8	Compressor and fittings	00105204	1
9	Right Side Plate	01305044P	1
10	Valve Support Sub-Assy	01715012P	1
11	Cut-off Valve	07133157	1
12	Big Handle	26235001	1
13	Capacitor CBB61	33010009	1
14	Terminal Board	42010255	1
15	Electric Box Assy	0260306613	1
16	Magnet Coil	4300040033	1
17	Main Board	30138171	1
18	Drainage Plug	06813401	2
19	Drainage Connecter	06123401	1
20	Temperature Sensor	3900028014	1
21	Rear Grill	01475013	1
22	Top Cover Sub-Assy	01255007	1
23	Condenser Assy	01105328	1
24	Electric box (fireproofing)	01413426	1
25	Fan Motor	1501506204	1
26	Axial Flow Fan	10335005	1
27	Clapboard Sub-Assy	01235034	1
28	Motor Support Sub-Assy	01705025	1
29	Left Side Plate	01305043P	1
30	left handle	26235401	2
31	reactor	43130183	1
32	Capacitor CBB65	33000065	2

The above data are subject to be changed without notice.

7. 3 Exploded View of Components and Parts of Indoor unit

V1RFI-50

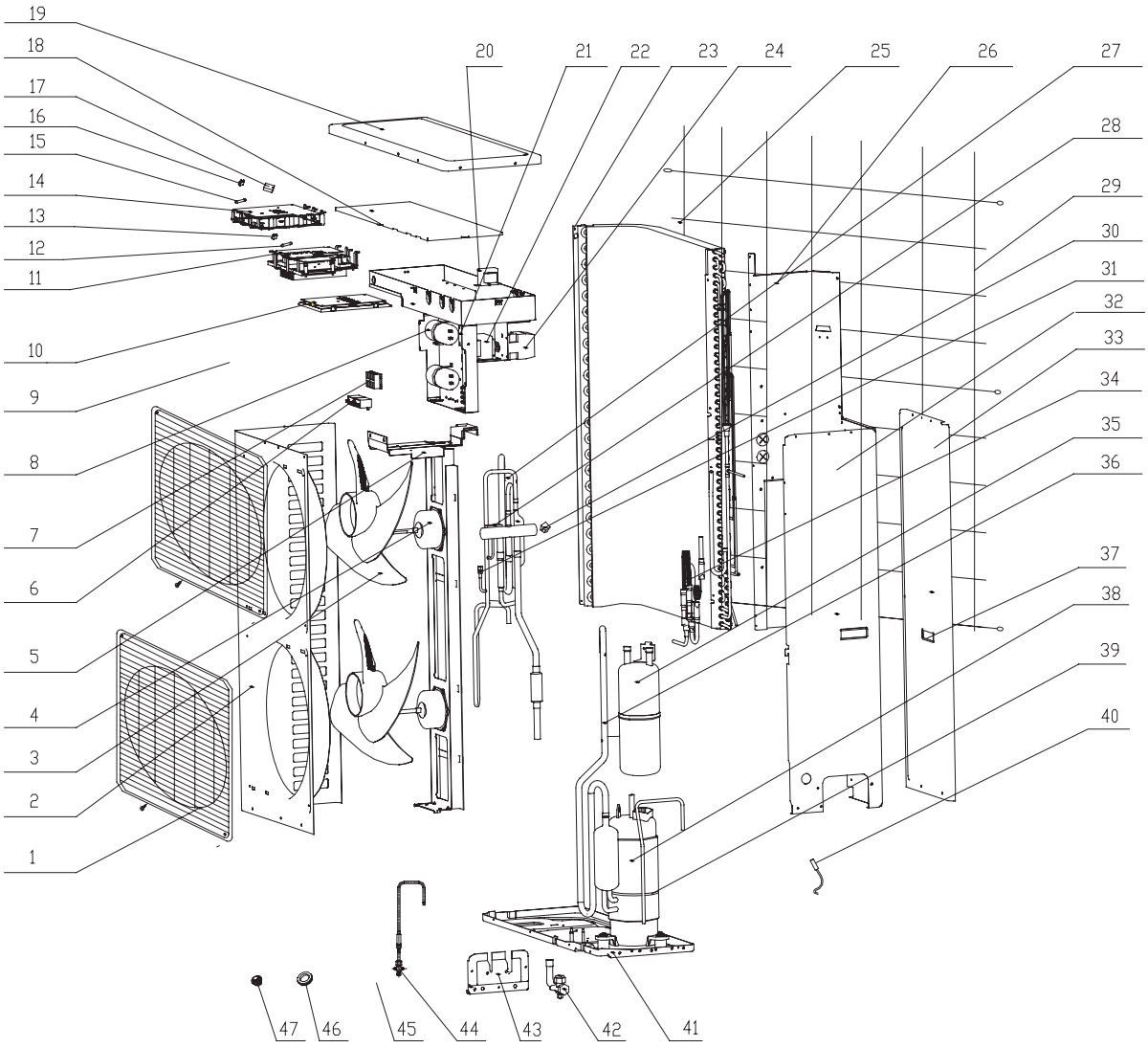


No	Description	Part Code	Qty
		V1RFI-50	
1	Rear Plate Assy	01304290	1
2	Left Side Plate Sub-Assy	01304304	1
3	Right Side Plate Sub-Assy	01304303	1
4	Top Cover Sub-Assy	22244105	1
5	Breakwater Sub-Assy	01364154D	1
6	Water Tray Sub-Assy	12414009	1
7	Evaporator Assy	01004178	1
8	Capillary Sub-Assy	03004027	1
9	Ambient Temperature Sensor	390001375	1
10	Pipe Closure Sub-assy	06640112	1
11	Stepping Motor	1521240302	1
12	Stepping Motor	15214002	1
13	Stepping Motor	1521240201	1
14	Electric Box Cover Sub-Assy	01404354	1
15	Terminal Board	420111041	1
16	Relay	44020331	2
17	Display Board	30568016	1
18	Propeller housing press plate sub-assy	01384063	1
19	Air Guard Assy	01364169	1
20	Air Outlet Panel assy	2000451204	1
21	Electrostatic duster	1101420302	1
22	Front door plate sub-assy	26114055	1
23	Front panel sub-assy	20004511	1
24	Female Clip	45017002	1
25	Filter Sub-Assy	11124019	1
26	Receiver Board	30042027	1
27	Main Board	30138216	1
28	Capacitor CBB61	33010037	1
29	Transformer	43110275	1
30	Electric Box Assy	01404839	1
31	Diversion Circle	10374435	1
32	Propeller Housing Sub-assy	12104058	1
33	Centrifugal fan	10314401	1
34	Fan Motor	1501443307	1
35	Chassis	22224016P	1
36	Baffle Plate	26114088	3
37	Rear Cover	22244220	3
38	Humidity sensor	30116072	1
39	Sensor Sub-Assy	20104005	1
40	Connecting Cable	40020539	1
41	Connecting Cable	400204056	1
42	Drain Pipe	05230022	1

The above data are subject to be changed without notice.

7. 4 Exploded View of Components and Parts of outdoor unit

V1RFI-50

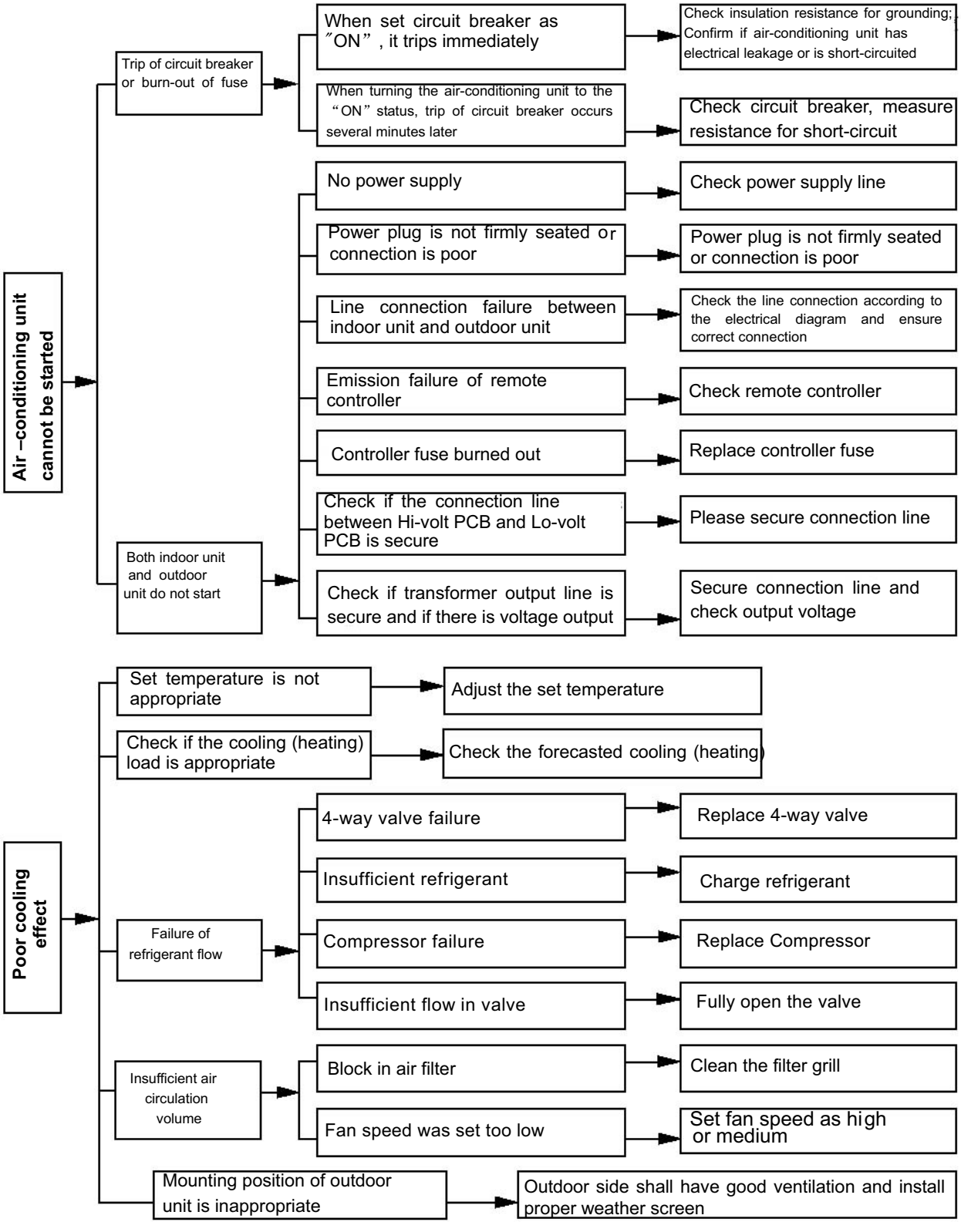


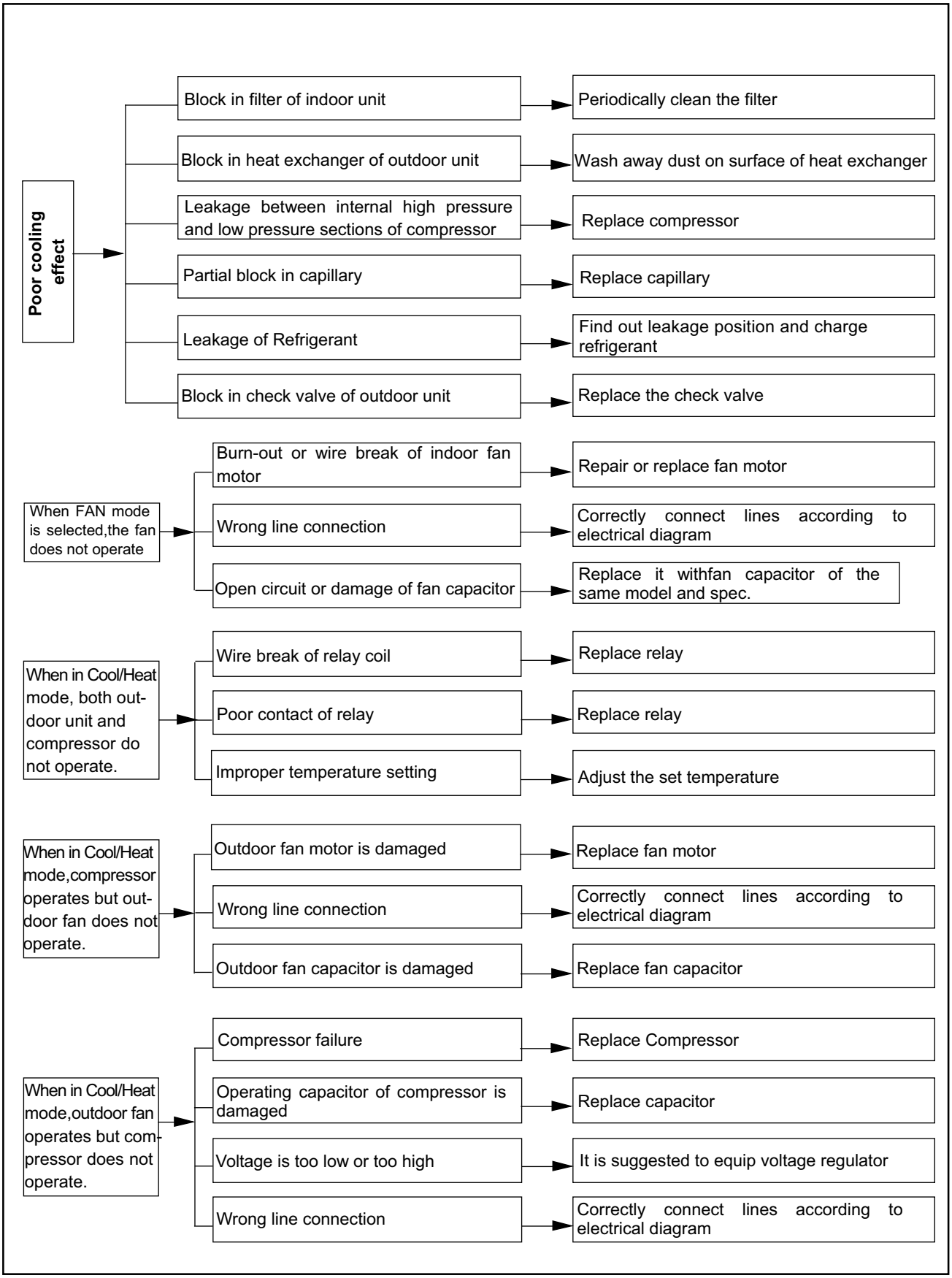
No	Description	Part Code	Qty
		V1RFO-50	
1	Panel Grille	22414102	2
2	Cabinet	01435436	1
3	Axial Flow Fan	10338731	2
4	Fan Motor	15013711	2
5	Motor Support Sub-Assy	01703095	1
6	Capacitor CBB61	33010010	2
7	Terminal Board	420111041	1
8	Electrolytic Capacitor	33310274	2
9	Electric Box Assy	01405669	1
10	Filter Board	30030801	1
11	Main board 2	30039185	1
12	Fuse	46010013	1
13	Relay	44020345	6
14	Main board 1	30139024	1
15	Fuse	46010013	1
16	Relay	44020345	1
17	Rectifier	46010604	1
18	Electric Box Cover Sub-Assy	01264151	1
19	Top Cover	01255262	1
20	Transformer	43110285	1
21	Pressure balancing board	30070101	1
22	Reactor	43130179	1
23	Condenser support sub-assy	01175473	1
24	AC Contactor	44010213	1
25	Condenser Assy	01105199	1
26	Mid-clapboard sub-assy	01233062	1
27	4-way Valve Assy	03025135	1
28	Pressure Protect Switch	460200061	1
29	Rear Grill	01475432	1
30	Magnet Coil	430004008	1
31	Sensor (High pressure)	322101032	1
32	Rear Side Plate Sub-Assy	01305062P	1
33	Front Side Plate Sub-Assy	01305430	1
34	Capillary Sub-Assy	03005156	1
35	Gas-liquid Separator Sub-Assy	07225018	1
36	Inhalation Tube Sub-Assy	03533467	1
37	Handle	26235253	3
38	Compressor and fittings	00103073	1
39	Heating Tape for Compressor	76518731	1
40	Temperature Sensor	3900028002	1
41	Chassis Sub-assy	01203602P	1
42	Cut-off Valve 3/4	07130212	1
43	Valve Support Sub-Assy	01715001	1
44	Cut-off Valve 1/2	07130210	1
45	Cut-off valve Sub-Assy	07135046	1
46	Drainage Plug	06813401	3
47	Drainage Connecter	06123401	1

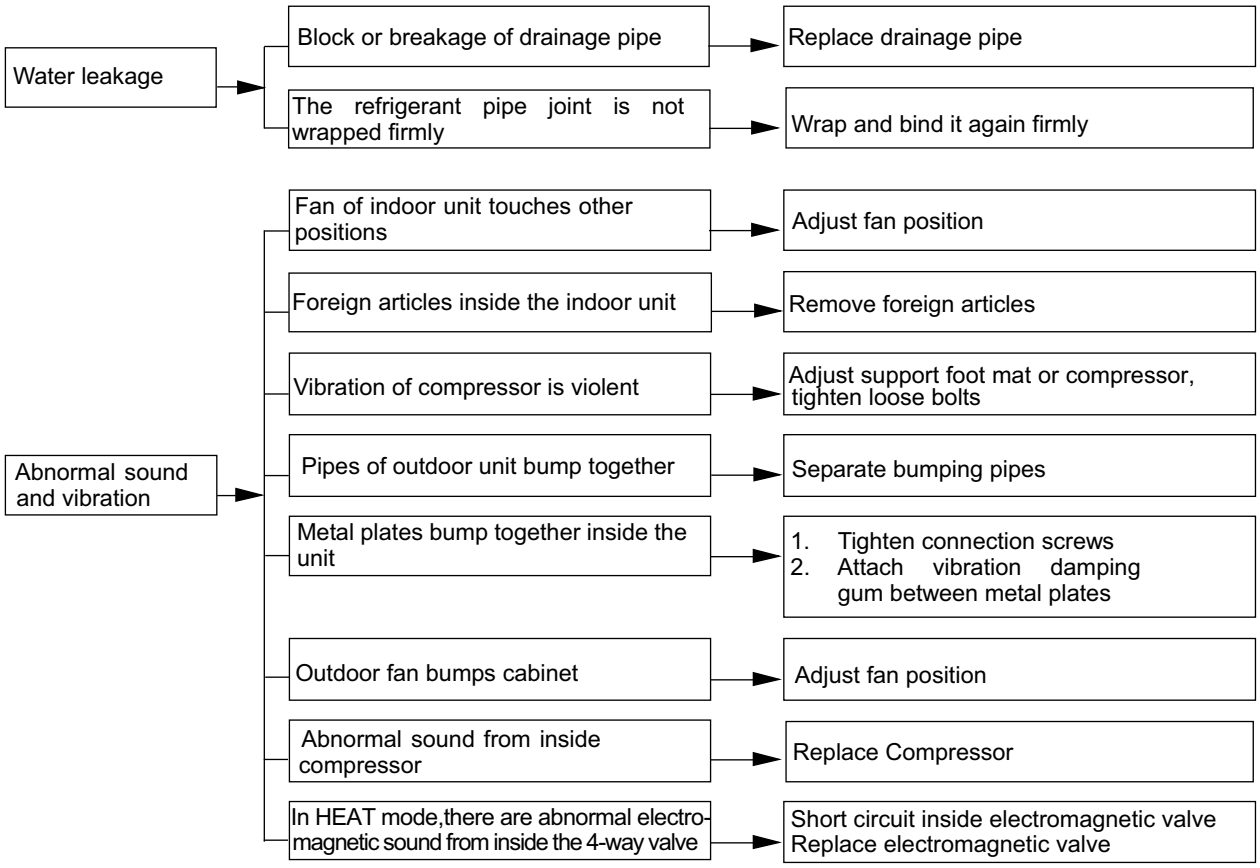
The above data are subject to be changed without notice.

8 Trouble-Shooting

8.1 Universal Part




Poor cooling effect
Block in filter of indoor unit
Periodically clean the filter
Block in heat exchanger of outdoor unit
Wash away dust on surface of heat exchanger
Leakage between internal high pressure and low pressure sections of compressor
Replace compressor
Partial block in capillary
Replace capillary
Leakage of Refrigerant
Find out leakage position and charge refrigerant
Block in check valve of outdoor unit
Replace the check valve
When FAN mode is selected,the fan does not operate
Burn-out or wire break of indoor fan motor
Repair or replace fan motor
Wrong line connection
Correctly connect lines according to electrical diagram
Open circuit or damage of fan capacitor
Replace it withfan capacitor of the same model and spec.
When in Cool/Heat mode, both out-door unit and compressor do not operate.
Wire break of relay coil
Replace relay
Poor contact of relay
Replace relay
Improper temperature setting
Adjust the set temperature
When in Cool/Heat mode,compressor operates but out-door fan does not operate.
Outdoor fan motor is damaged
Replace fan motor
Wrong line connection
Correctly connect lines according to electrical diagram
Outdoor fan capacitor is damaged
Replace fan capacitor
When in Cool/Heat mode,outdoor fan operates but com-pressor does not operate.
Compressor failure
Replace Compressor
Operating capacitor of compressor is damaged
Replace capacitor
Voltage is too low or too high
It is suggested to equip voltage regulator
Wrong line connection
Correctly connect lines according to electrical diagram



Notice:

1. During repair,any terminal can not be touched if the voltage between P and N of module is below 50V, to avoid electric shock.
2. After repair, plese sort the wires of the unit according to wiring method.

8.2 Maintenance Guidelines

1. Matters Need Attention

1) Preparation before Repair

Step 1: Confirm the unit model which needs repair and check the model and material code of the part which is easy to damage, especially the controller of outdoor unit.

Step 2: Preliminarily determine the part which should be replaced according to malfunction description from the customer. Take the determined parts for repair at site.

Step 3: In addition to screwdriver, spanner etc. for daily maintenance which shall be taken, multimeter and amperemeter are also needed.

2) During repair, never touch any terminal if voltage between P and N of power module is lower than 36V, to avoid electric shock.

3) After repair, check power socket, terminal boards of indoor unit and outdoor unit, plug-in parts (especially on outdoor unit mainboard, power module and PFC module) for loosening.

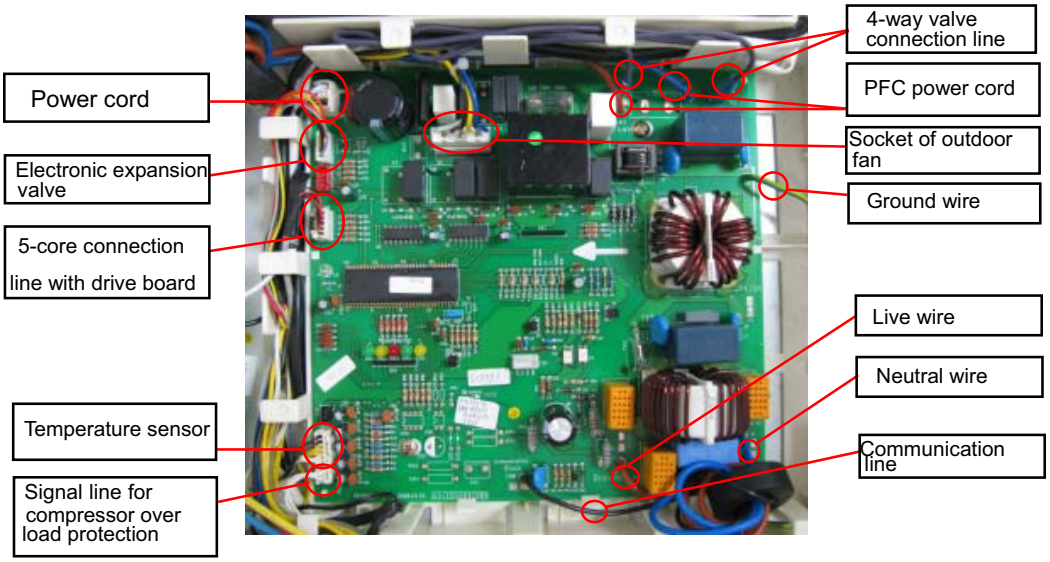
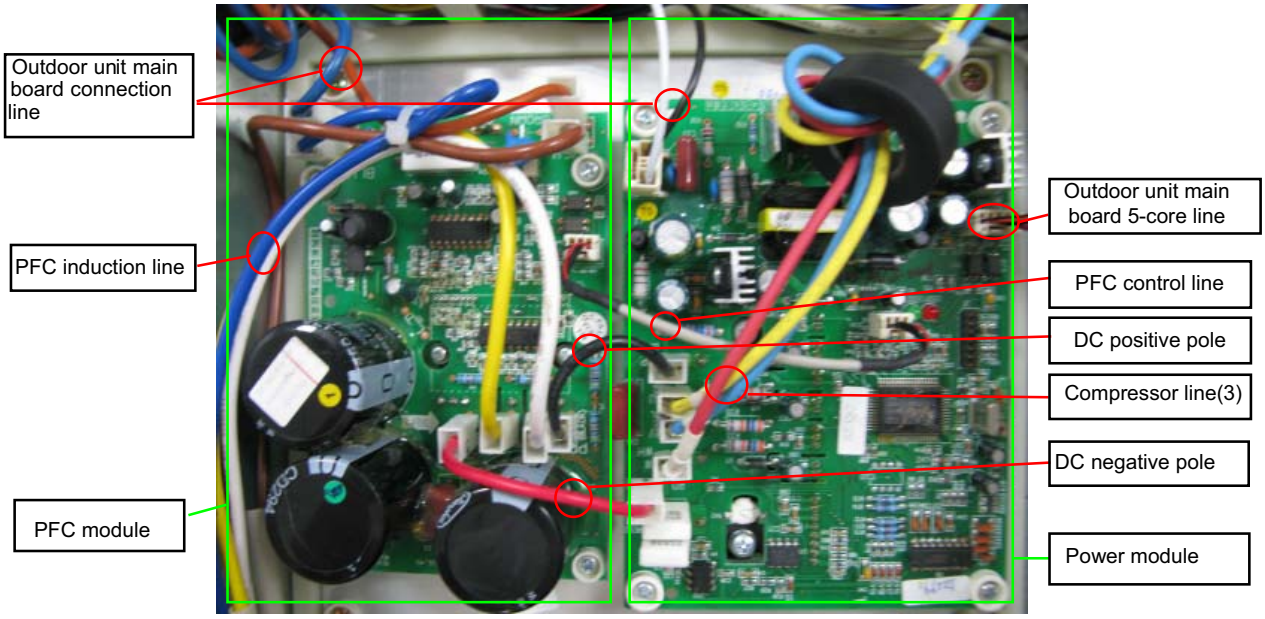


Fig.1 Outdoor Unit Mainboard

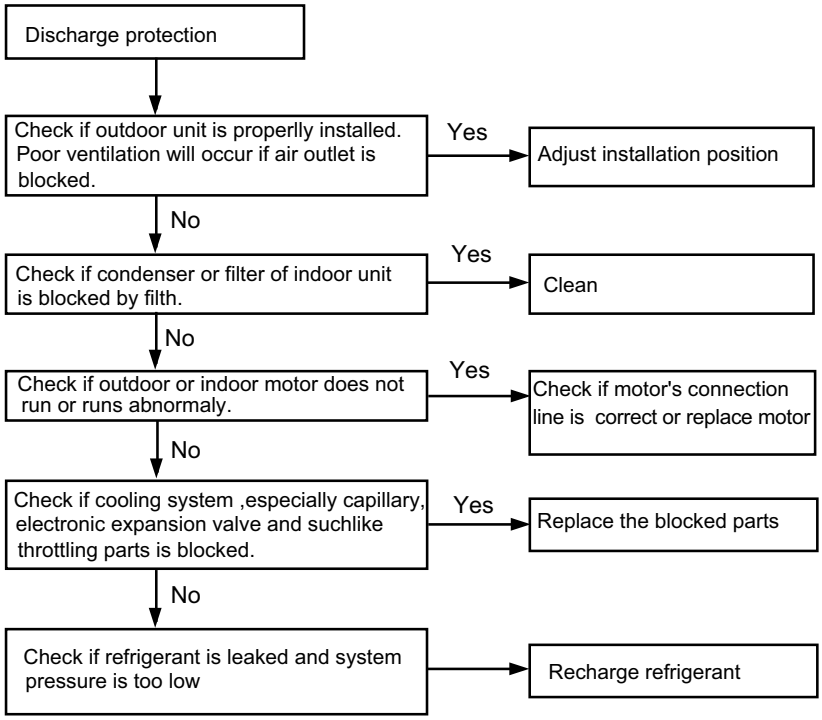


8.3 Common Malfunctions Analysis

If malfunction or protection occurs to the unit, indoor unit will display relative code, so you can eliminate the malfunction according to the display.

1. Display malfunction ------E4 is displayed on indoor unit

Checking flowchart



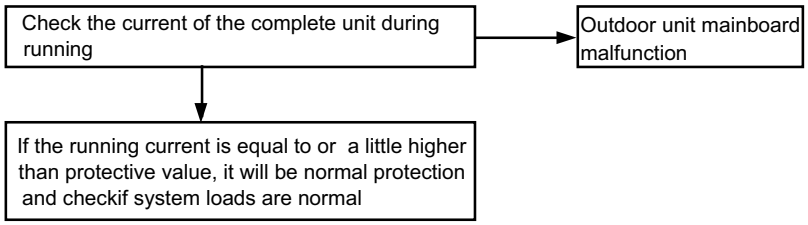
2. Overcurrent protection ------E5 is displayed on indoor unit

Checking Points

1. Check if system's loads are normal;
2. Check the current during running of unit;
3. Check if discharge temperature sensor is inserted properly in the system;
4. Check electronic expansion valve(or capillary) is blocked or runs normally;
5. Check if the cement resistors (RES1 and RES 2) on power module is short circuited or broken circuited.

Checking flowchart

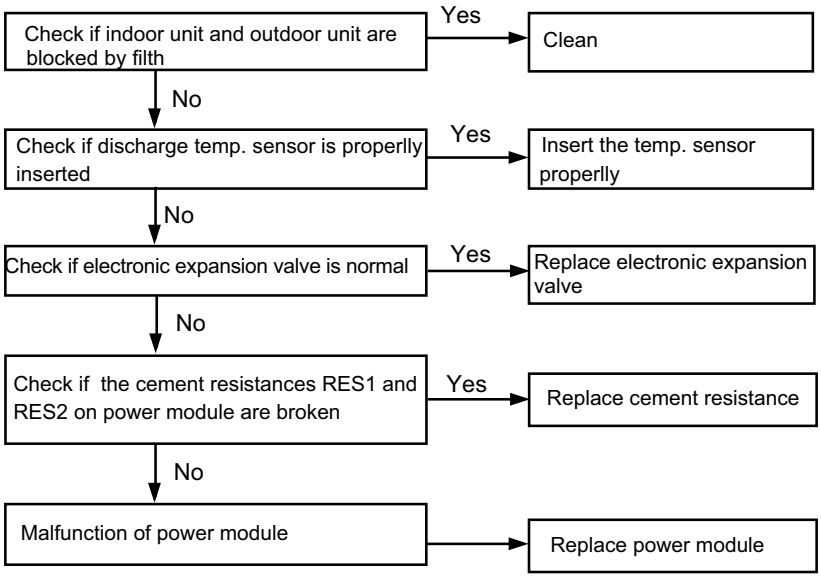
State 1: D101 LED on outdoor unit mainboard blinks 6 times



Relative current protection value

Model	Limited Frequency ampere	Reduced Frequency ampere	Ampere upon stop of unit
50	12A	13A	14A
72	16A	17A	18A

State 2: D101 LED on outdoor unit mainboard blinks 13 times



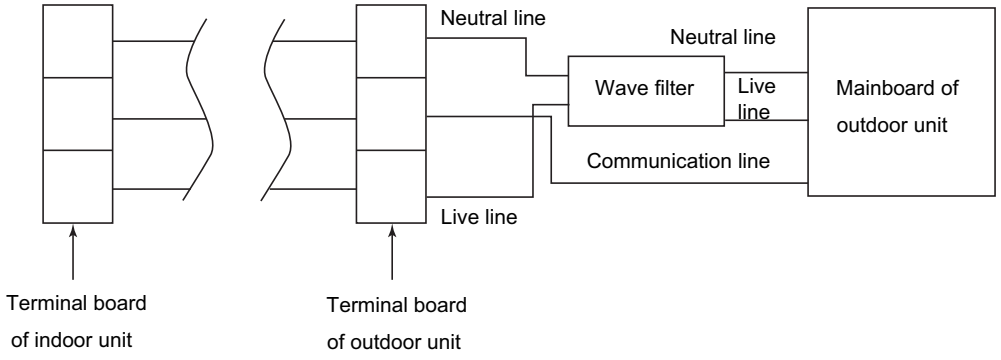
3. Communication malfunction------E6 is displayed on indoor unit

Checking points

(1). Check if connection lines between indoor and outdoor units are proper;

(2). Check if power supply of outdoor unit is normal;

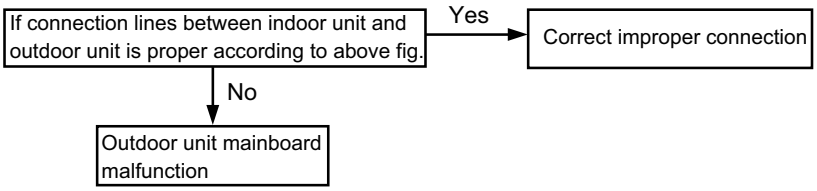
(3.) Check if there is communication malfunction between outdoor unit mainboard and power module.



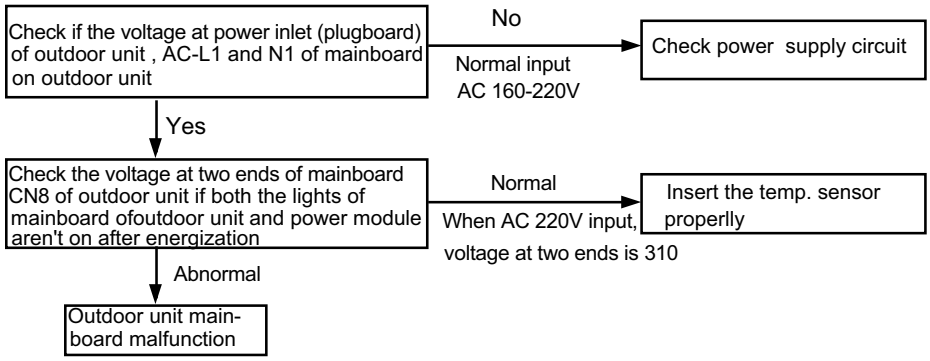
Checking methods:

Judge malfunction types according to blinking states of outdoor unit mainboard LEDs D101 and D104 and power module LED2 (green).

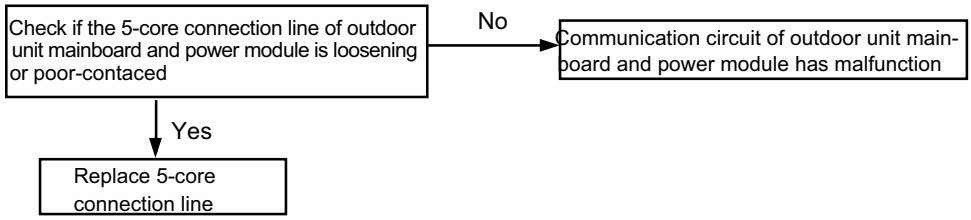
State 1------ Improper lines connection (only D101 blinks 4 times)



State 2----- Abnormal power supply (outdoor unit mainboard LEDs and power module LED are all black)



State 3----- Communication malfunction between outdoor unit mainboard and power module (both D101 and D104 blink 4 times and LED2 is normally on)



4. Outdoor unit temperature sensor malfunction------F3, F4 and F5 are displayed on indoor unit

Checking method:

(1) Check if temperature sensor terminal is plugged stably;
(2) Check if temperature sensor is damaged;
(3) If malfunction still exists after replacement of temperature sensor, replace mainboard.

5. Overload protection of compressor ------H3 is displayed on indoor unit

(1) Possible causes: Poor or excess refrigerant; higher suction temperature resulted from blockage of capillary; unsmooth operation of compressor, with burning-in of bearing, seizure, or damage of discharge valve; or protector malfunction

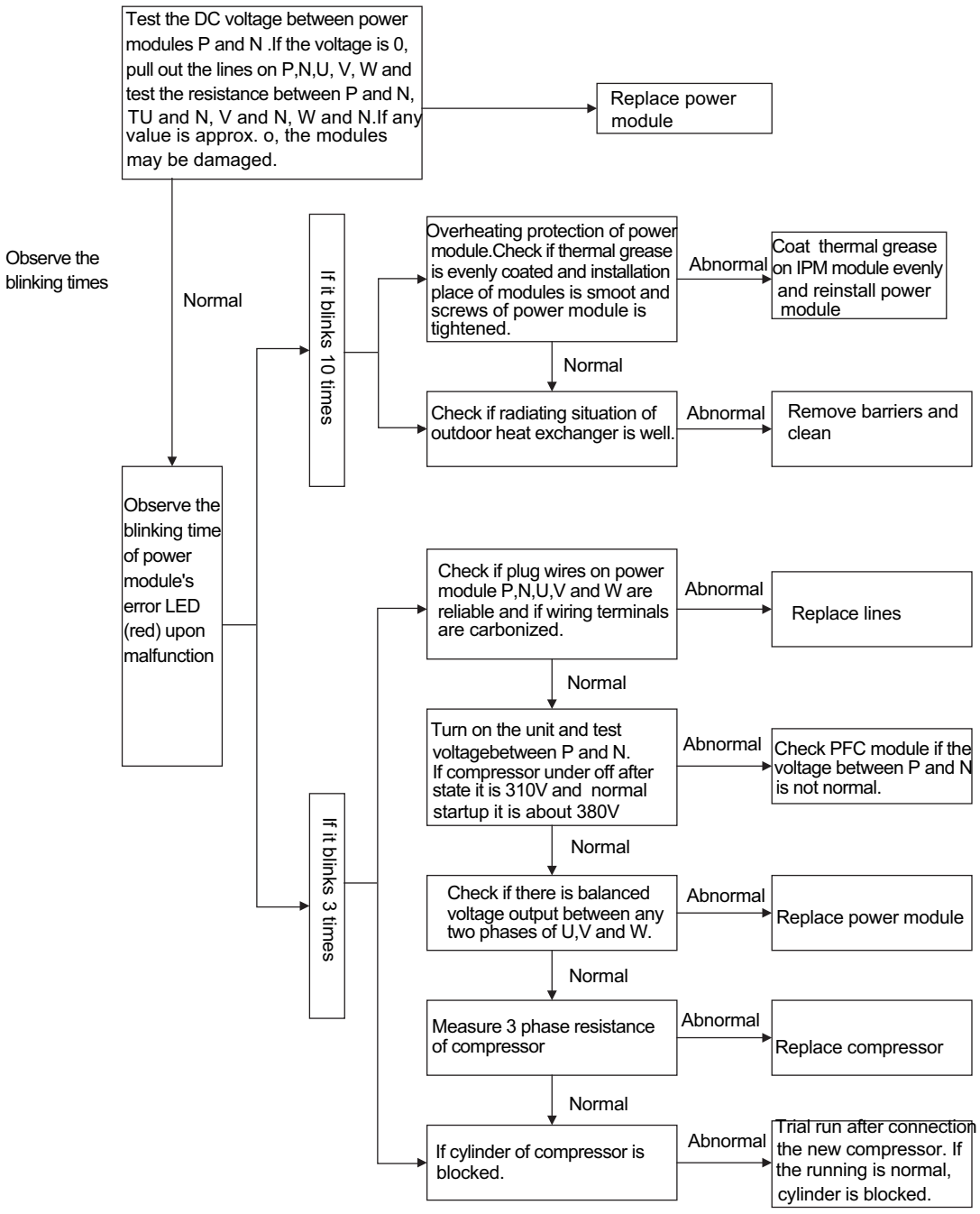
(2) Troubleshooting: Check if the contact of compressor without overheating (top temperature is lower than 90 ℃ is conducting with the multimeter; If not, replace the protector; Replace the compressor; Adjust refrigerant volume; replace capillary.

6. System abnormality ------H4 is displayed on indoor unit

It is overload protection when tube temperature (detect heat exchanger temperature of outdoor unit during cooling or that of indoor unit during heating) is overhigh.

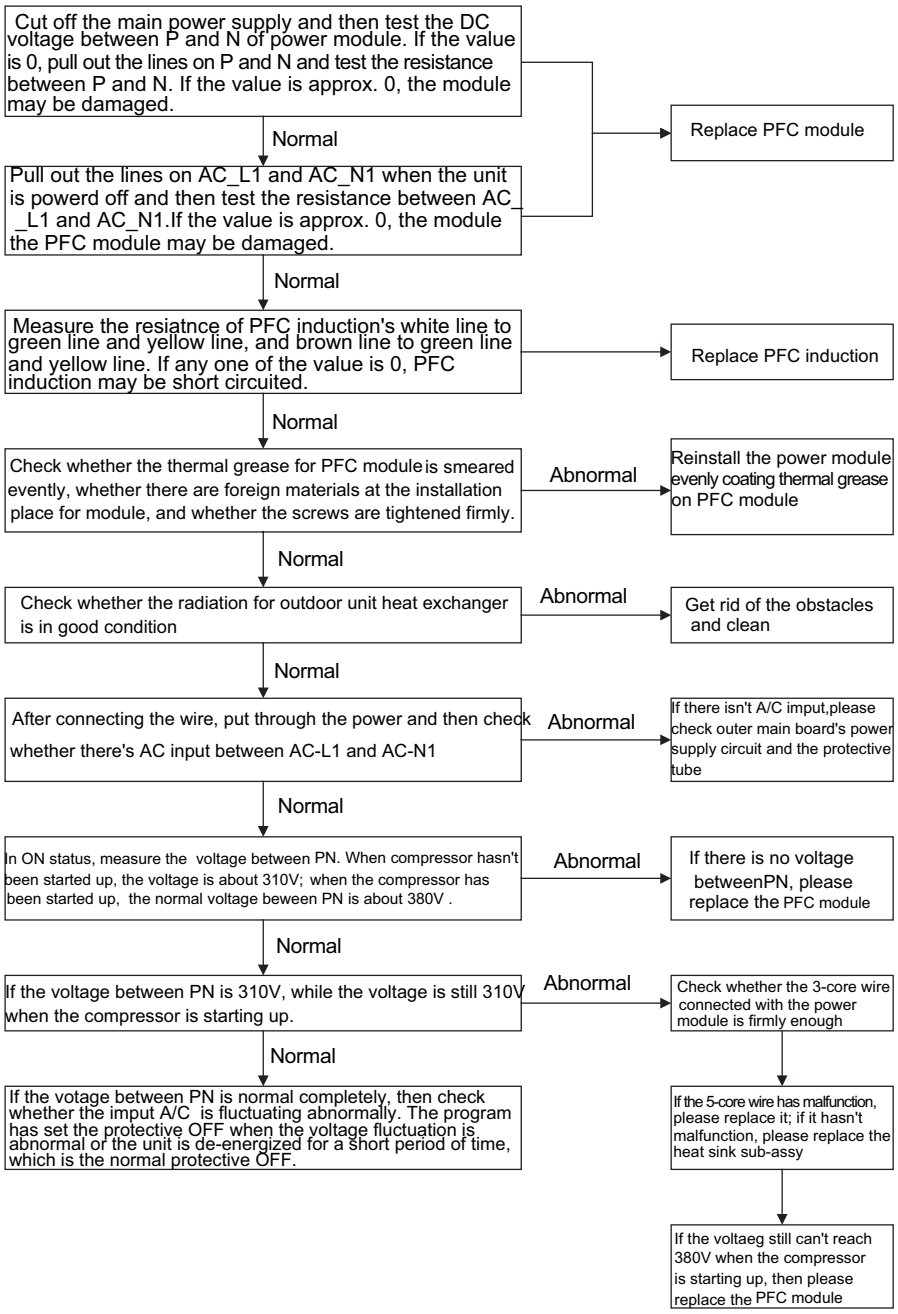
7. IPM (intelligent power module) protection------H5 is displayed on indoor unit

Checking flowchart



8. PFC (power factor correction) protection ------HC is displayed on indoor unit

Checking flowchart



9. Synchronism failure ------H7 is displayed on indoor unit

(1) Possible causes: power module is damaged and startup and operation malfunction for compressor

(2) Troubleshooting:

A. If the compressor normally starts after 3 min of malfunction, it won't be malfunction. It is just for power fluctuation or system perturbation.

B. If the malfunction frequently occurs or the compressor can't restart after protection, check if connection lines of compressor are too tight. Pull out the 3 pcs compressor lines and check the resistance between U and V, U and W and V and W. If the resistance values are greatly different, replace the compressor. Or else, replace the power module.

10. Door malfunction -------FC is displayed on indoor unit

Checking method: The COM with silk print CN321 is for test of connection of door. When each COM is normal, the voltage is that if the door is completely closed: UP is 0V and DOWN IS 5V; if the door is in the middle: UP is 5V and DOWN is 5V; if the door is open: UP is 5V and DOWN is 0V. If malfunction occurs, pull out the line connecting with this COM and then re-insert it (may be poor contact for loosening). If it still can't be eliminated, test the voltage of terminal .If it is different from the above value, the photoelectric switch is damaged, which should be replaced.

11. Indoor ambient temperature sensor open-circuited or short-circuited------**F1**
    Indoor evaporator temperature sensor open-circuited or short-circuited-------**F2**

Checking method: The COM with silk print CN361 is for indoor tube temperature and indoor ambient temperature. If malfunction occurs, pull out the line connecting with this COM and then re-insert it. . If it still can't be eliminated replace the temperature sensor.

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Your-conditions