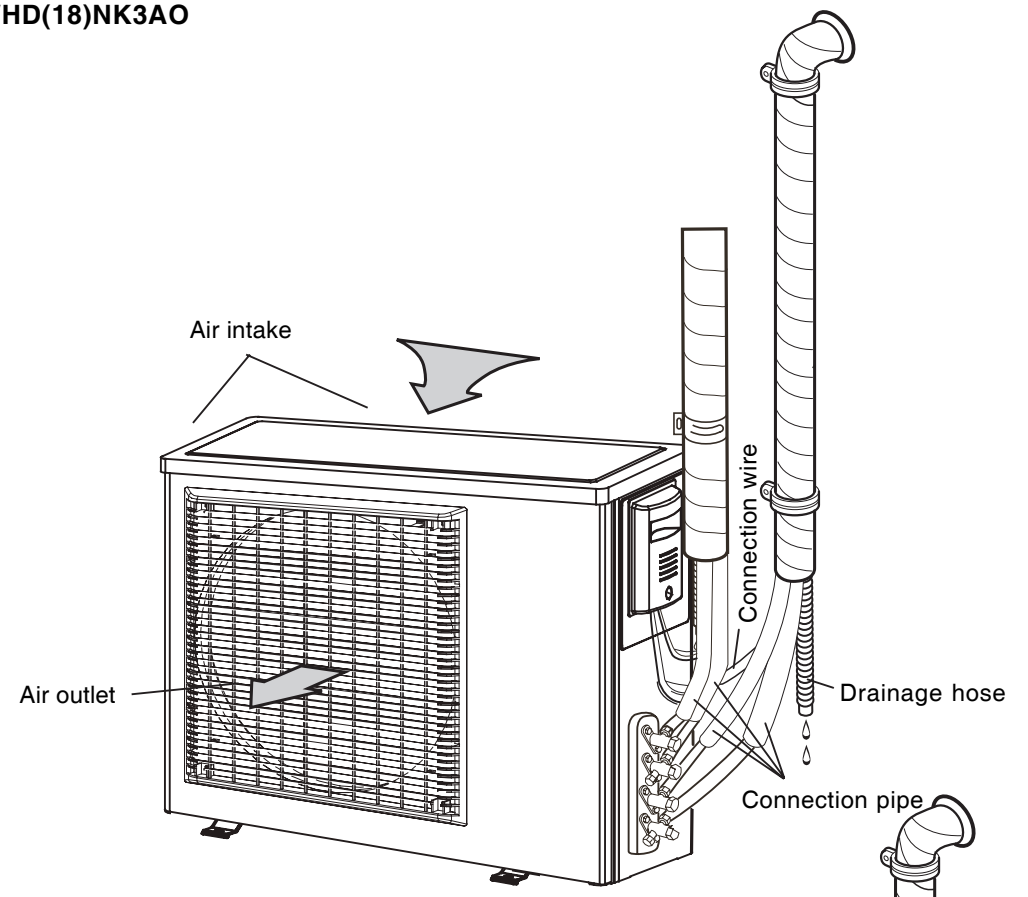
1.Technical specifications

Model			GWHD (18)NK3AO		GWHD(21)NK3AO		GWHD (24)NK3AO	
Function			COOLING	HEATING	COOLING	HEATING	COOLING	HEATING
Rated Voltage			1Ph - 220~240V		1Ph - 220~240V		220-240V～	
Frequency(Hz) (High/Standard *)			50Hz		50Hz		50Hz	
Total Capacity (W) (High/Standard*):			5000	6000	6300	7200	7000	8700
Total Capacity (Btu/h):			17000	19000	21500	24500	24000	28000
Power Input (W) (High/ Standard*)			1500	1740	1960	1990	2180	2550
Rated Input (W) (High/ Standard *)			2400	2650	3000	3200	3650	3650
Rated Current (A) (High/ Standard *)			10.4	11.5	13.2	14.0	15.9	15.9
Compressor Manufacturer/trademark			Shenyang SANYO /SANYO		Shenyang SANYO /SANYO		Shenyang SANYO /SANYO	
Compressor Model			C-6RVN93HOV		C-6RZ146H1B		C-7RZ233H1A	
Compressor Type			Rotary		Rotary		Rotary	
L.R.A. (A)			41		32		34	
Compressor RLA(A)			3.84		7.78		8.2	
Compressor Power Input(W)			1470		1500		1760	
Overload Protector			1NT11L-3979		1NT11L-3979		1NT11L-3979	
Throttling Method			Electronic Expansion Valve					
Starting Method			Transducer starting		Transducer starting		Soft Starting	
Working Temp Range (℃)			-7℃≤T≤43℃		-7℃≤T≤43℃		-7℃≤T≤43℃	
Condenser			Aluminum fin-copper tube					
Pipe Diameter (mm)			Φ7		Φ9.52		Φ9.52	
Rows-Fin Gap(mm)			2-1.4		2-1.4		2-1.4	
Coil length(l) x height(H) x coil width(L)			806×660×22		731X813X44		683X813X44	
Fan Motor Speed (rpm) (H/M/L)			780/600		780/600		780/600	
Output of Fan Motor (W)			60		60		60	
Fan Motor RLA(A)			0.3		0.3		0.3	
Fan Motor Capacitor (uF)			3		3		3	
Air Flow Volume of Outdoor Unit			2700		/		/	
Fan Type-Piece			Axial fan -1		Axial fan -1		Axial fan -1	
Fan Diameter (mm)			460		460		Φ460	
Defrosting Method			Auto defrost		Auto defrost		Auto defrost	
Climate Type			T1		T1		T1	
Isolation			I		I		I	
Moisture Protection			IP24		IP24		IP24	
Permissible Excessive Operating Pressure for the Discharge Side(MPa)			3.8		3.8		3.8	
Permissible Excessive Operating Pressure for the Suction Side(MPa)			1.2		1.2		1.2	
Sound Pressure Level dB (A) (H/M/L)			56/54		58/55		59/58	
Sound Power Level dB (A) (H/M/L)			66/64		68/65		69/68	
Dimension (W/H/D) (mm)			846/300/685		950X840X420		950X840X420	
Dimension of Package (L/W/H)(mm)			994/428/750		1100X450X905		1100X450X905	
Net Weight /Gross Weight (kg)			52/57		72/77		68/73	
Refrigerant Charge (kg)			R410A/1.60Kg		R410a/2.4		R410a/2.5	
Connection Pipe	Length (m)		5		5		5	
	Gas additional charge(g/m)		0		0		15	
	Outer Diameter	Liquid Pipe	Φ6(1/4”)		Φ6(1/4")		Φ6(1/4")	
		Gas Pipe	Φ9.52(3/8”)		Φ9.52(3/8")、Φ12(1/2")		Φ12(1/2")	
	Max Distance	Height (m)	5		5		5	
		Length (m)	10		15		15	

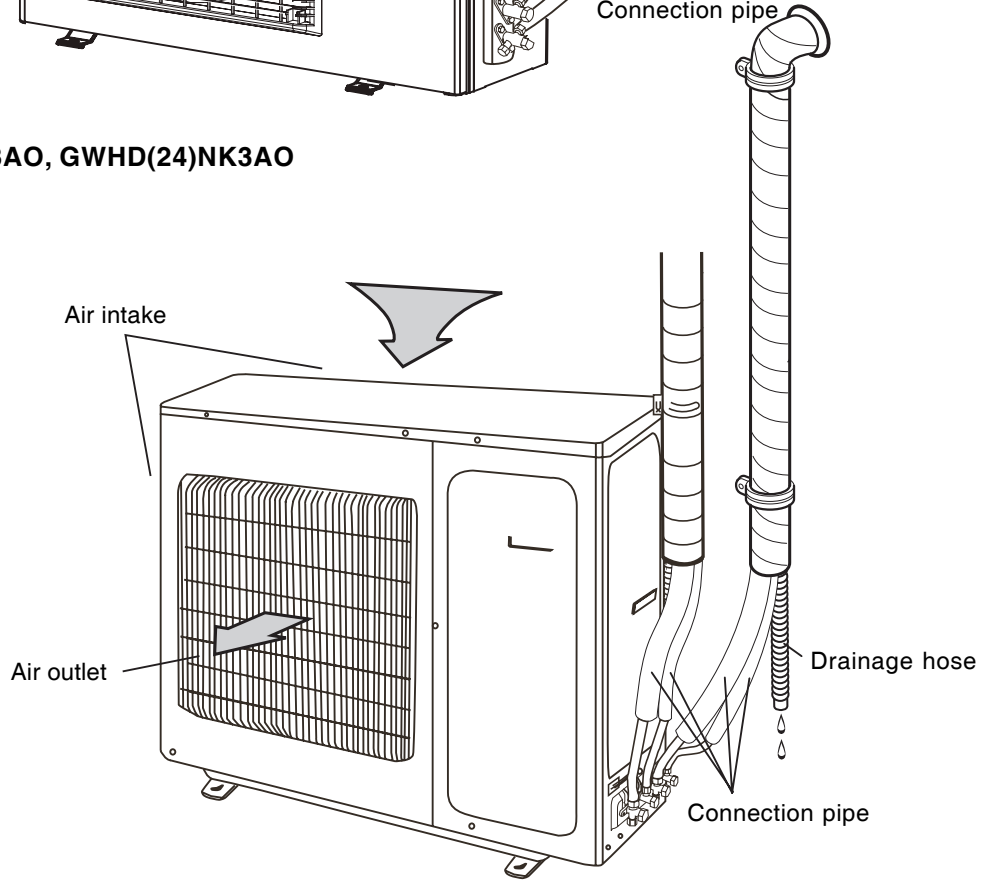
Note: The above data is subject to change without notice. Please refer to the nameplate of the unit.

2.Part name

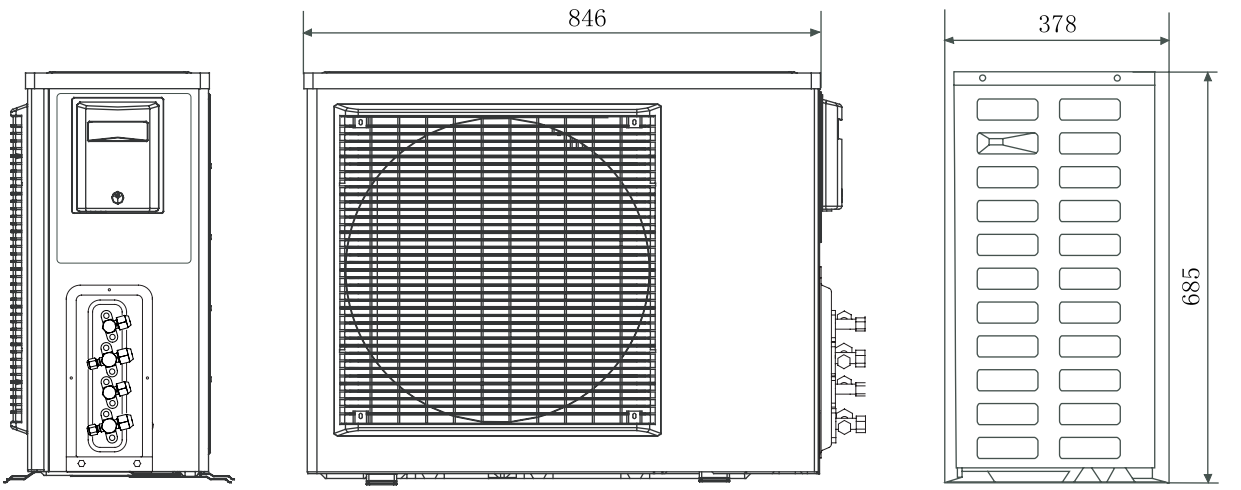
Model: GWHD(18)NK3AO

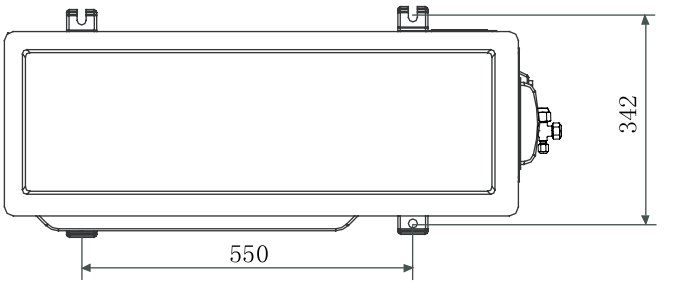


Model: GWHD(21)NK3AO, GWHD(24)NK3AO

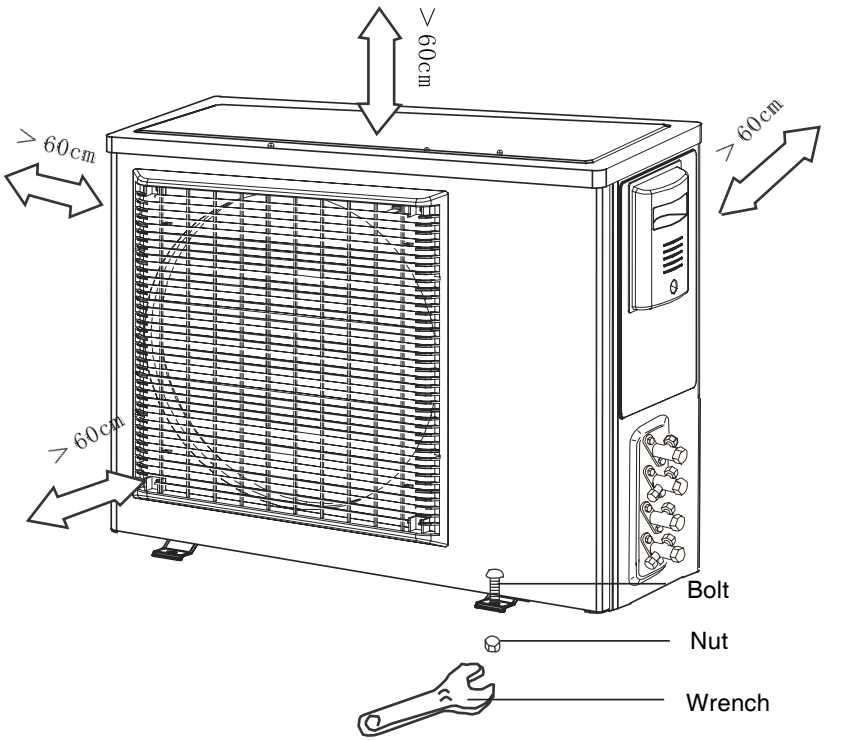


1. GWHD(18)NK3AO

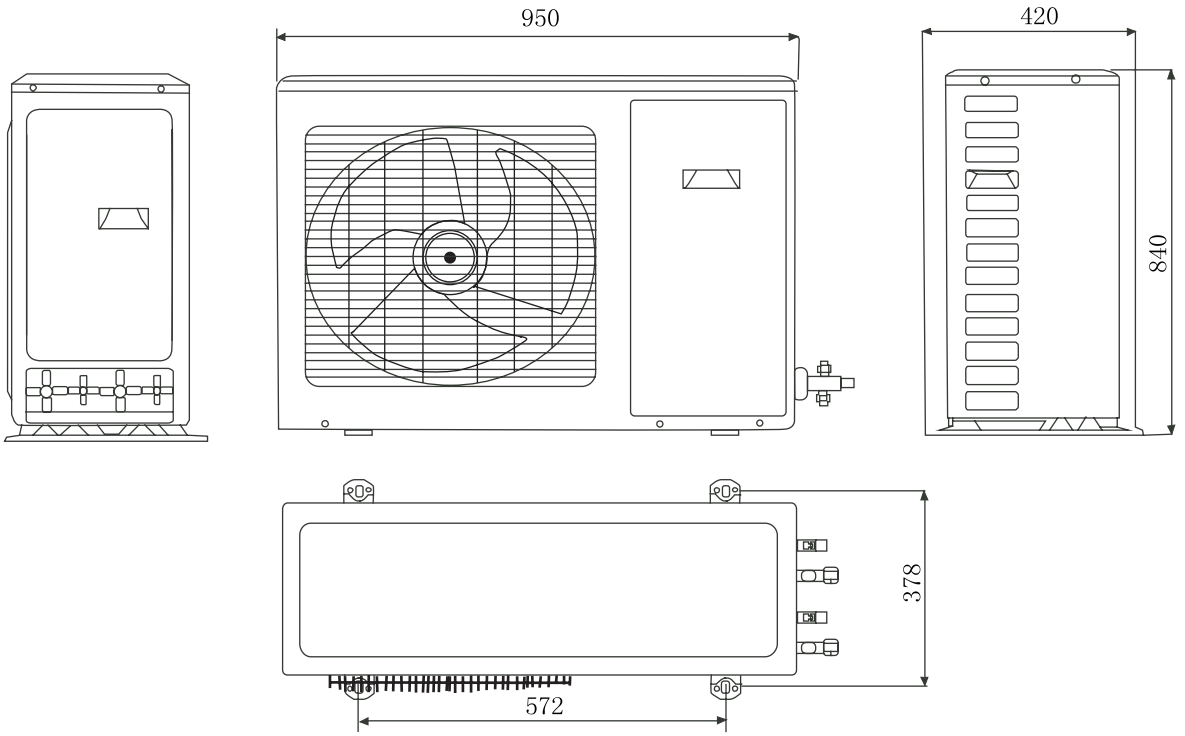




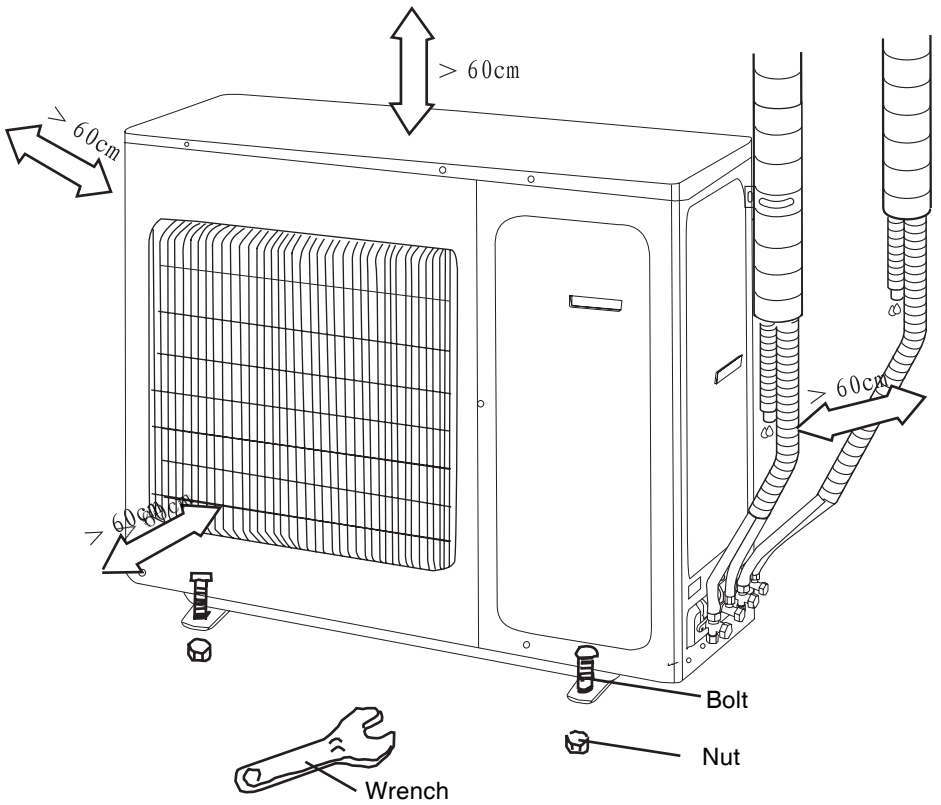
Unit: mm



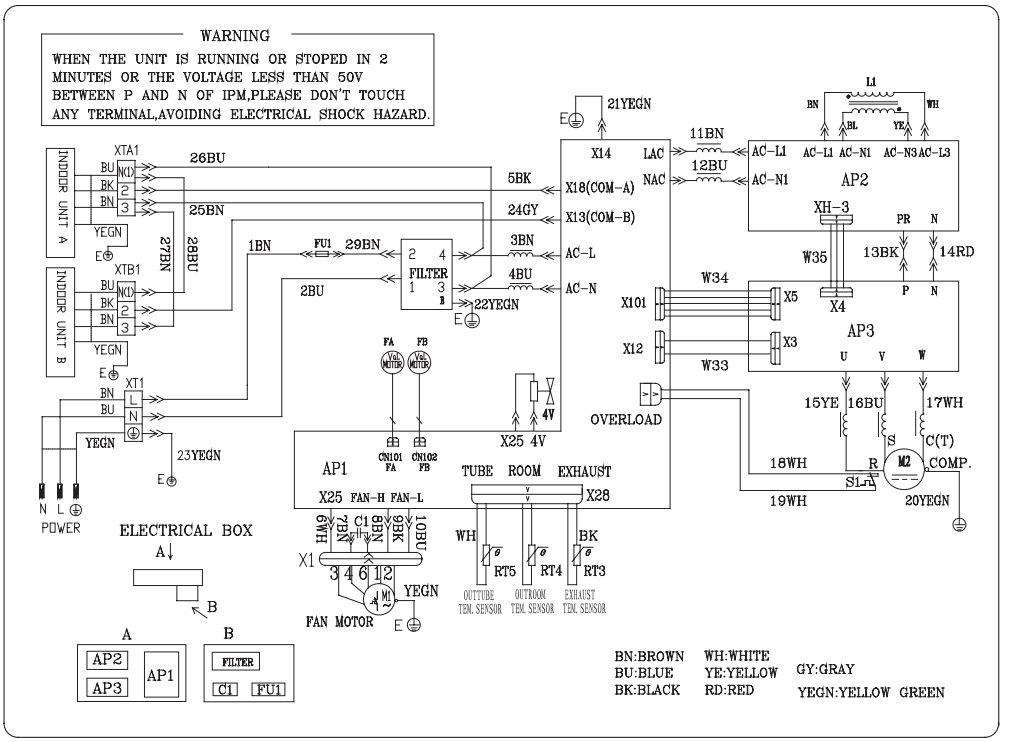
2. GWHD(21)NK3AO, GWHD(24)NK3AO



Unit: mm



Model: GWHD(18)NK3AO



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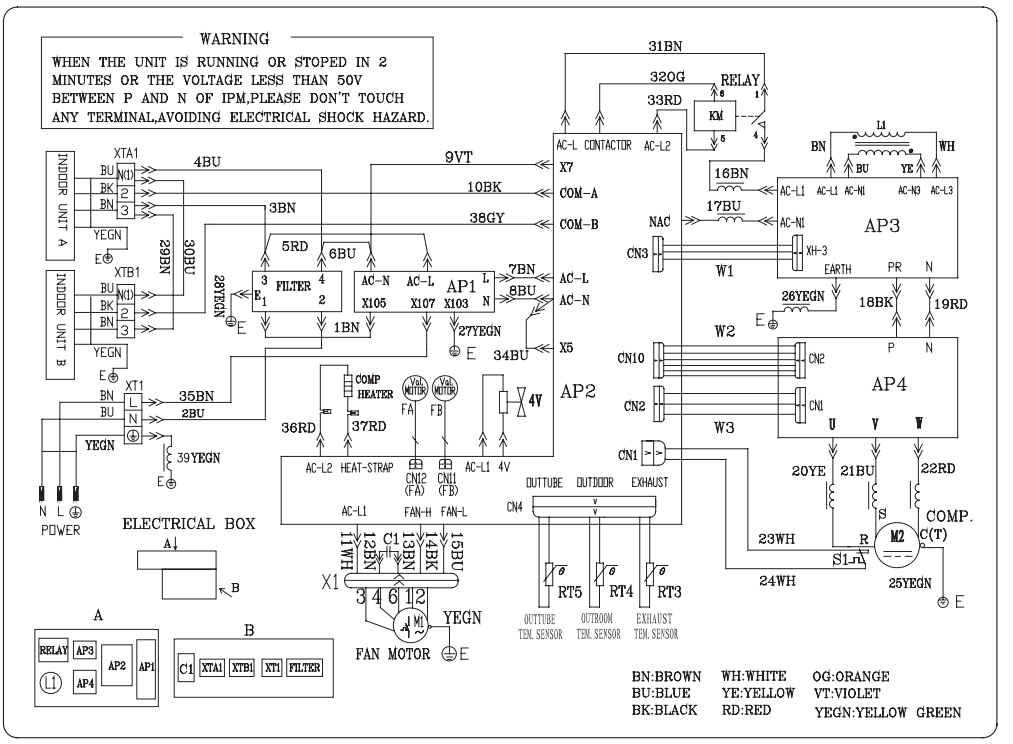
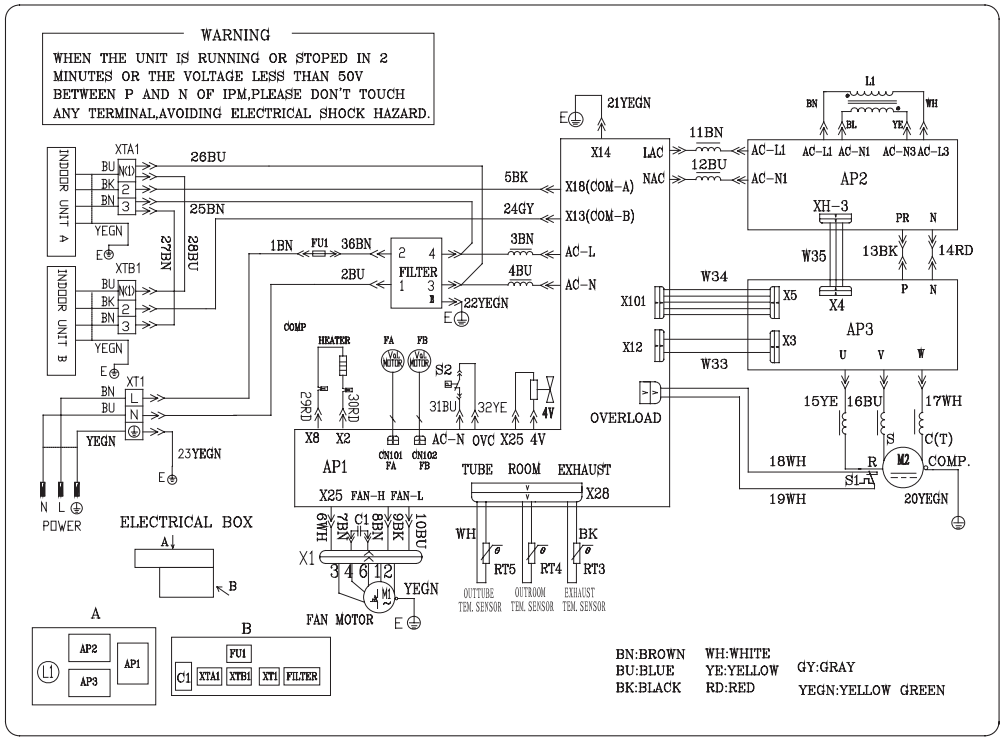


Model: GWHD(24)NK3AO



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

Model:GWHD(18)NK3AO, GWHD(24)NK3AO

1.Temperature parameters

◆ Outdoor ambient sensor temperature(Tout amb.)

◆ Outdoor heat exchanger tube sensor temperature(Tout tube)

2.System basic function

2.1 Cool mode

2.1.1 Heat mode transfers to Cool mode

(1) Compressor stops;

(2) Four-way valve delayed 2mins power off.

2.12 Cool operation and stop running condition

(1) When indoor ambient temperature – presetting temperature ≥ 0.5℃, cooling operation will run (Cool mode starts up and arrive at the temperature of unit on).

(2) When the capacity requirement is 0 (Cool and unit stops).

Note: Unit off, fan is the same as Cool and unit will stop.

2．1．3 Outdoor fan motor control

Outdoor fan unit start up (stop-turn on), firstly run at high speed for 3mins, then according to control logic adjust, when compressor stop, outdoor fan will stop after 1min delay.

（1）To turn on one indoor unit: when Toutamb＜25℃,outdoor fan will run at low fan speed;
when Toutamb ≥25℃, outdoor unit will run at high speed.

（2）To turn on two indoor unit: when Toutamb.＜18℃, outdoor fan will run at low speed;
when Toutamb.≥18℃ , outdoor fan run at high speed.

Note: When only one unit is turned on, to increase turn on one indoor unit dual unit, outdoor fan will run at high speed for 3min, then according to control logic adjust.

2．1．4 Four-way valve control

In this mode, four-way valve off (cannot electrify)

2．1．5 Control logic in detail

According to the difference of indoor unit evaporator inlet and outlet temperature (called “actual overheat degree”) and goal overheat degree to confirm indoor unit expansion valve open degree.

2．1．6 Anti-freezing protection under Cool mode

If satisfied with the anti-freezing protection condition, system will enter into anti-freezing protection status, if only single unit anti-freezing protection act, the indoor unit capacity preset as 0; if both of the unit start anti-freezing protection, the compressor will stop, outdoor fan will stop after 60s delay. If arrive at anti-freeze condition, finish anti-freezing.

2．2 Dehumidifying mode

Under this mode, outdoor fan, compressor start up is the same with control condition and Cool modes.

2．3 Heat mode

2．3．1 Cool mode transfers to Heat mode

(1) Compressor stops running;

(2) Four-way valve delays 2mins will electrified; same disposal procedure under each protection.

2．3．2 Heat operation and stop running condition

(1) When indoor ambient temperature ≤(presetting temperature＋3) 0.5℃, heating operation will run (Heat mode starts up and arrive at the temperature of unit on).

(2) In Heat mode unit will stop

2．3．3 Fan motor control

Outdoor unit start up (Stop-- Turn on) firstly will run at high speed for 3mins, it will accord to control logic to adjust, if compressor stop running, outdoor fan will stop after 1min delay. Outdoor fan control logic: There will be at least 80s for each modes switch.

2．3．4 Four-way valve control

In this mode, four-way valve electrify

Note: in each mode, after protection and unit stop, modes switch or unit off, 4-way valve will power off after 2mins delay.

2．3．5 Defrosting under Heat mode

Under Heat mode, there is intelligent defrosting

2．3．6 Heating Turbo function

When outdoor unit received heating mode Turbo function from the indoor unit, at this time, outdoor unit add a certain frequency running.

2．4 Fan mode

When outdoor unit main mode transfer from Cool (Dehumidify) or Heat mode to Fan mode, compressor stop running, outdoor fan will stop running after 1min. delay.

2．5 Electric heat control target

2．5．1 Compressor electric heat belt control

After powered on, if Tout amb.≤－5℃and compressor hasn't start up, electric heat belt will start to work.
After compressor started up or Tout amb.＞－3℃, the electric heat belt will stop to work;
If －5℃＜Tout amb≤－3℃, compressor electric heat belt will keep original status.

2．5．2 Chassis electric heating cord control

From entering into Defrosting to Defrosting finish, within compressor started up 3mins., if ambient temp. is very low, chassis electric heating belt work; if ambient temp. is very high, it will not work.

2．6 System protection function

2．6．1 Indoor unit modes confliction protection

If indoor unit presetting is different, will accord to the following condition for running: will accord to the first entering indoor unit mode for the fiducial mode, to compare with other indoor unit modes to judge whether confliction happen or not.

Cool (Dehumidify) conflict with Heat mode: some indoor unit received the outdoor unit mode confliction signal later, this indoor unit will turn off, memorize unit off status. Fan and Heat confliction: some indoor unit received outdoor unit mode confliction signal later, this indoor unit will turn off, memorize unit off status.
Note: When one indoor unit firstly turn on fan mode, at this time, the other indoor unit is heating, to judge the indoor unit with fan mode has mode confliction, this indoor unit will turn off and memorize off status.

2．6．2 Air exhaust temperature protection

If continuously 6 times, air exhaust temperature protection happened, the compressor cannot resume to run. If need to power off and repower on can resume. (if compressor running time exceed 7mins, the protection time will clear 0.)

2．6．3 Communication malfunction

If continuously 3mins hasn't received the correct signal of indoor unit and within 10s, cannot receive the correct signal from the drive board that is the communication malfunction, outdoor unit will stop running, auto heating or heating mode, blow surplus heat, in other modes, indoor unit will run at presetting fan speed.

2．6．4 Power module protection and module overheat protection

Mode protection acts, compressor stop running, after compressor stopped 3mins, will automatically resume to running status, if protection times continuously happened 6 times (if compressor running time exceed 7mins, the protection times will clear 0), unit turned off and sent wrong signal to indoor unit, cannot resume running status; It is need to repower on can resume to run.

2．6．5 Compressor overcurrent protection

If detected the whole unit current value exceeded the determinative value, the unit will stop running according to indoor temp. arrive at setting temperature, compressor stopped 3mins later, it will automatically resume to running status, protection times exceeds 6 times (if compressor running time is more than 7min, that the protection times will clear to 0), unit will turn off and sent wrong signal to indoor unit, cannot automatically resume to run. At this time, it is need to power off and repower on can resume.

2．6．6 Sensor malfunction detection

Outdoor: at unit standby, do not test outdoor each sensor malfunction, unit turned on and compressor continuously run for 3mins later, start to detect air exhaust sensor malfunction; Defrosting (or heating oil return) finished, within 10mins, do not detect outdoor tube sensor malfunction; Other outdoor sensors after unit turned on start to detect malfunction, outdoor each sensor continuously 30s does no in the temperature upper limit or down limit will alarm.
Indoor: Under any status to test indoor each sensor malfunction, continuously 30s does not during the temperature upper and down limit, will alarm.

Indoor ambient sensor (15K sensor, 15K voltage divide)	≤-40℃	≥142℃
Indoor inlet tube sensor (20K sensor, 20K voltage divide)	≤-40℃	≥136℃
Indoor tube inside sensor (20K sensor, 20K voltage divide)	≤-40℃	≥136℃
Indoor outlet tube sensor (20K sensor, 20K voltage divide)	≤-40℃	≥136℃
Outdoor ambient sensor (15K sensor, 15K voltage divide)	≤-40℃	≥142℃
Outdoor tube temperature sensor (20K sensor, 20K voltage divide)	≤-40℃	≥136℃
Outdoor air exhaust sensor (50K sensor, 15K voltage divide)	≤-26℃	≥140℃

2．6．7 Anti-high temp. protection under Heat mode

If detected some indoor unit tube temperature is very high, that the indoor unit will stop running after arrived at preset temperature, if tube temp. resumed, the compressor will resume to run.

2．6．8 Compressor delay protection

Due to each protection, malfunction arrived at the temperature, after compressor stopped running, when restart up, there will be 3mins delay , power off exception.

2．6．9 Compressor high-pressure protection（GWHD(18)NK3A0 preserved）

After high-pressure protection malfunction happened, if continuously detected compressor high-pressure switch closed, it need to power off, then repower on, the whole unit will resume to run.

2．6．10 Compressor overload protection

If detected the compressor overload switch act, it will run at indoor temp. arrive at presetting temp. condition, the unit will stop and display corresponding malfunction, compressor stopped for 3mins above and compressor overload switch reset, the whole unit will automatically resume to running status. Protection times exceeds 6 times (if compressor continuously running time exceed 7min, that the protection times will clear 0) without automatically response, it need to power off and repower on for resume.

2．6．11 Demagnetization current protection

When detected demagnetization current value is larger than regulative value, compressor will stop running.

2．6．12 Compressor start up

Compressor start up at 30Hz frequency, after start up, according to whole unit capacity requirement rise frequency running. During raise up to the target frequency, each protection condition (including frequency raise condition and current protection condition) will act.

2．6．13 PFC act

After outdoor unit sent turn on order to drive board, PFC will turn on at once, after 3s the compressor will start up. after compressor stop running, PFC will stop working at once.

2．6．14 Compressor phase current protection

When the current of whole unit DC generatrix exceed regulated value, it will run at arrived at the temperature unit will stop, and display generatrix over current protection malfunction, compressor stopped 3mins, it will automatically resume to run.

2．6．15 Power module and electroanalysis capacity power off protection

Under the whole unit off with remote control, outdoor unit power module and electroanalysis capacity with remote control to turn off unit after 3mins later, the unit will off.

2.7 indicators display

D101	Definition
1Blink	Compressor runs
2Blinks	Unit stop for compressor high pressure protection
3Blinks	Unit stop for air exhaust protection
4Blinks	Unit stop for communication malfucntion (including indoor unit and drive board)
5Blinks	Unit stop for module protection
6Blinks	Unit stop for over current protection
7Blinks	Unit stop for refrigerant overload
8Blinks	Unit stop for heating anti-high temp.
9Blinks	Unit stop for refrigerant anti-freezing
10Blinks	Unit stop for emp. sensor malfunction
11Blinks	Unit stop for compressor overload protection
12Blinks	Unit stop for compressor low pressure protection
13Blinks	Unit stop for DC generatrix over current protection
14Blinks	EEPROM fault
15Blinks	DC power supply short circuit
LED1	Red Drive
Dark	Normal, reset unit stop
1Blink	Compressor normally runs
2Blinks	Unit stop for abnormal
3Blinks	IPM protection
4Blinks	Demagnetization protection
5Blinks	PFC protection
6Blinks	Continuously 10times startup failure
7Blinks	Startup failure
8Blinks	Startup failure
9Blinks	Startup failure
10Blinks	Pressure lack
11Blinks	Over pressure
LED2	LED2 Green-Drive
Bright	Communication malfunction (no data receiving by10s)
Blink	Communication normal

D102	Definition
1Blink	A unit communication malfunction (cannot receive correct data within 3mins)
2Blinks	A unit indoor unit sensor malfunction
3Blinks	A unit indoor unit outlet sensor malfunction
4Blinks	A unit indoor unit inlet sensor malfunction
5Blinks	A unit indoor unit ambient sensor malfunction
6Blinks	A unit modes confliction (V1.6)
7Blinks	A unit anti-freezing protection
8Blinks	A unit anti-high temperature protection
D104	Definition
1Blink	Air exhaust protection drop frequency
2Blinks	Over current protection drop frequency
3Blinks	Refrigerant over load drop frequency
4Blinks	Heating A unit anti-high temp. drop frequency
5Blinks	Heating B unit anti-high temp. drop frequency
6Blinks	phase-current protection drop frequency
7Blinks	A anti-freezing protection drop frequency
8Blinks	B anti-freezing protection drop frequency
9Blinks	Defrosting
D106	Definition
1Blink	Outdoor ambient sensor malfunction
2Blinks	Outdoor tube sensor malfunction
3Blinks	Outdoor air exhaust sensor malfunction
4Blinks	
5Blinks	Drive board communication malfunction (cannot receive correct data within 10s)
6Blinks	
7Blinks	
8Blinks	
9Blinks	

D103	Definition
1Blink	B unit communication malfunction (cannot receive correct data within 3mins)
2Blinks	B unit indoor unit sensor malfunction
3Blinks	B unit indoor unit outlet sensor malfunction
4Blinks	B unit indoor unit inlet sensor malfunction
5Blinks	B unit indoor unit ambient sensor malfunction
6Blinks	B unit modes confliction (V1.6)
7Blinks	B unit anti-freezing protection
8Blinks	B unit anti-high temperature protection
D105	Definition
1Blink	Air exhaust protection limit frequency
2Blinks	Over current protection limit frequency
3Blinks	Refrigerant over load limit frequency
4Blinks	Heating A unit anti-high temp. limit frequency
5Blinks	Heating B unit anti-high temp. limit frequency
6Blinks	Oil return
7Blinks	A anti-freezing protection limit frequency
8Blinks	B anti-freezing protection limit frequency
9Blinks	
D107	Definition (SIPM information)
1Blink	Reset and stop
2Blinks	Instantaneous overcurrent or 17V voltage is too low
3Blinks	Abnormal low speed
4Blinks	Shift failure
5Blinks	Overload stop
6Blinks	OH over temperature
7Blinks	OH or FIN sensor abnormal
D108	Definition
1Blink	Received verified correct indoor data

Model: GWHD(21)NK3AO

1.Temperature parameters

◆Indoor ambient temp. (Tin amb.) ◆Indoor heat exchanger tube temp. (Tin tube)

◆Outdoor ambient temp. (Tout amb.) ◆Outdoor heat exchanger tube temp. (Tout tube)

2.System basic function

2.1 Cool mode

2.1.1 Heat mode transfers to Cool mode

(1) Compressor stops;

(2) Four-way valve delayed 2mins power off.

2．1．2 Cool operation and stop running condition

(1) When indoor ambient temperature ≥ presetting temperature＋0.5℃, cooling operation will run
(Cool mode starts up and arrive at the temperature of unit on).
(2) When the capacity requirement is 0 (Cool and unit stops).

Note: Unit off, fan is the same as Cool and unit will stop.

2．1．3 Outdoor fan motor control

Outdoor fan unit start up (stop-turn on), firstly run at high speed for 3mins, then according to control logic adjust, when compressor stop, outdoor fan will stop after 1min delay.

Note: there should be at least 3.30mins of interval for each fan speed switch.

2．1．4 Four-way valve control

In this mode, four-way valve off (cannot electrify)

2．1．5 Anti-freezing protection

Under Cool, Dehumidify mode, after compressor started up and continuously run 6mins later;

(1) When single indoor unit is running: system will accord to Tin tube automatically adjust compressor frequency, if continuously 3mins detected Tin tube is very low, the compressor will stop running, if Tin tube is normal and compressor has stopped 3mins, the whole unit will enter into original running status.

(2) When two indoor units are running: only one indoor unit arrive at the anti-freezing protection condition, the unit will turn off, if detected Tin tube resume to normal, the indoor unit resume to run.

Two indoor units all start anti-freezing protection: compressor stop running, if detected any one indoor unit Tin tube is very high and compressor stopped3mins, it will resume to run, compressor frequency will accord to capacity requirement to calculate.

2．2 Dehumidifying mode

Under this mode, outdoor fan, compressor start up is the same with control condition and Cool modes.

2．3 Heat mode

2．3．1 Cool mode transfers to Heat mode

(1) Compressor stops running;

(2) Four-way valve delays 2mins will electrified; same disposal procedure under each protection.

2．3．2 Heat operation and stop running condition

(1) When indoor ambient temperature ≤(presetting temperature ＋3) 0.5℃, heating operation will run
(Heat mode starts up and arrive at the temperature of unit on).
(2) In Heat mode unit will stop

2．3．3 Fan motor control

Outdoor unit start up (Stop-- Turn on) firstly will run at high speed for 3mins, it will accord to control logic to adjust, if compressor stop running, outdoor fan will stop after 1min delay. Outdoor fan control logic: There will be at least 3.30mins. for each modes switch.

2．3．4 Four-way valve control

When modes shift or unit off, 4-way valve will turn off after 2mins delay.

2．3．5 Defrosting under Heat mode

Under Heat mode, there is intelligent defrosting

2．4 Fan mode

When Cool(Dehumidify)mode or Heat transform to this mode, compressor will stop running, if prior Cool (Dehumidify) mode, the outdoor fan will delay 1min and will stop running, if prior mode is Heat mode that the outdoor fan will stop running.

2．5 Basic function under each modes

Under each mode, once the compressor start up, at least 6mins the unit will stop (do not including malfunction protection, modes transform needs to stop the compressor); Once compressor stop, start up after 3mins delay (including modes transform, due to temperature arrive unit stop etc). Outdoor fan start up 5mins later, compressor start up.

2．6 System protection function

2．6．1 Indoor unit modes confliction protection

If the preset of indoor unit is different, according to the following for running:

a. Consider the first running indoor unit mode as the standard mode, other indoor units modes compared to this mode and judge whether there is conflict happened. Cool mode (Dehumidifying) conflicts with Heat mode.

b. Fan mode conflicts with Heat mode, consider heating as the basic mode, no matter the sequence of units turns on, indoor units conflict, will run in heating mode.

2．6．2 Overload protection

Under Cool, Dehumidify mode, if detected Tout tube is high, the compressor will stop to run; if Tout tube is normal, it will resume to according to capacity requirement to calculate frequency. Under Heat mode, two indoor units' Tin tube are normal, resume to according to capacity requirement to calculate frequency. Single unit opend or two indoor units' Tin tube is high, the compressor stop to run.

If continuous 6 times tube temperature acts overload protection that the compressor cannot resume to run, it must be powered off and repowered on can resume. During the running procedure, if compressor running time exceed 7mins, the overload protection times will clear to 0.

2．6．3 Air exhaust temperature protection

If continuous 6 times air exhaust temperature protection happened, the compressor can not resume to run, it should be powered off and repower on can resume to work. During the running procedure, if the compressor running time more than 7mins, the compressor air exhaust protection time will clear to 0.

2．6．4 Communication malfunction

If continuously 3mins haven't received the correct signal from indoor unit and within 60s cannot receive correct signal from drive board, that is communication malfunction, compressor stop running.

2．6．5 Modes protection

When module protection act, compressor will stop at once, the unit will stop running when indoor temperature arrive at presetting temperature, and display the corresponding malfunction. After compressor stopped 3mins. later, it will automatically resume to run.

If continuous module protection times arrive at 6 times, the compressor cannot resume to run, it must be powered off and repowered on for resume. If compressor continuous running time exceeds 7min, the module protection time will clear to 0.

2．6．6 Overcurrent protection

Once detected whole unit current exceed limited value 16A, the unit will stop to run according to the indoor temperature arrive at the presetting, after compressor stopped 3mins later, it will automatically resume to running status, the protection times exceed 6 times (if compressor running time exceed 7mins, the protection times will clear to 0), the unit will be turned off and sent the wrong signal to indoor unit, can not automatically resume to running status and it must be powered off and repowered on for resume/

2．6．7 Module overheat protection

If within 1hour, continuously 3 times, IPM temperature protection unit will stop, the compressor cannot resume running, it must be power off and repower on can resume.

2．6．8 Compressor overload protection

If detected compressor overload switch turn on, the unit will stop running accord to the indoor temperature arrive at the setting temperature; If compressor stopped 3mins and overload switch reset, to turn the whole unit on can start to run.

2．6．9 PFC protection

PFC has malfunction after 3mins later can resume to normal. If continuous protection times has 6 times, the compressor cannot resume to run, and send the wrong signal to indoor unit, cannot automatically resume to running status, at this time, it must be powered off andrepowered on for resume. If compressor continuously run for 7mins, the PFC protection times will clear 0.

2．6．10 Turbo function

Under Cool, Heat modes, to preset Turbo function can quickly improve Cool, Heat efficient.

2．6．11 Compressor electric heat belt control

When outdoor ambient temperature is low and compressor hasn't start up, the compressor electric heat belt will start to work. If outdoor ambient temperature is high, the electric heat belt will stop to work. Once electric heat belt stop, after 2mins stop running, shall be allowed to put into run. Outdoor ambient temperature malfunction happened, the electric heat belt will stop to work.

2．6．12 Sensor, IPM overheat detect sensor malfunction detection

Under standby status, don't detect outdoor tube sensor, ambient sensor and IPM overheat detect sensor malfunction;
Unit turned on and compressor continuously run 3mins, start to detect air exhaust sensor malfunction and IPM overheat detect sensor malfunction;
In heat mode and start unit, within compressor start up 10mins, defrosting, heating oil return finished 10mins later, do not detect outdoor tube sensor malfunction;
Other outdoor sensor startup, to detect malfunction at once, IPM overheat detect sensor and outdoor each sensor continuously detect 30s;
Detected IPM overheat test sensor and temp. sensor malfunction, unit will stop at once.

2．7 Outdoor Indicator

D11	Meaning	D12	Meaning	D13	Meaning
flash 1 time	compressor starts to run	**flash 1 time**	A communication malfunction	**flash 1 time**	**B communication malfunction**
flash 2 times	high voltage protection	**flash 2 times**	A indoor pipe-mid temp. sensor malfunction	**flash 2 times**	**B indoor pipe-mid temp. sensor malfunction**
flash 3 times	Exhaust protection	**flash 3 times**	A indoor pipe-out temp. sensor malfunction	**flash 3 times**	**B indoor pipe-out temp. sensor malfunction**
flash 4 times	Communication Malfunction	**flash 4 times**	A indoor pipe-in **temp. sensor malfunction**	**flash 4 times**	**B indoor pipe-in temp. sensor malfunction**
flash 5 times	Drive module protection unit stop	**flash 5 times**	A indoor room temp. sensor malfunction	**flash 5 times**	**B indoor room temp. sensor malfunction**
flash 6 times	overcurrent protection	**flash 6 times**	communication malfunction signal sent by A	**flash 6 times**	**communication malfunction signal sent by B**
flash 7 times	cooling overload protection	**flash 7 times**	A antifreeze Protection unit will stop running	**flash 7 times**	**B antifreeze Protection**
flash 8 times	heating high temp. protection	**flash 8 times**	A anit-high temp. protection	**flash 8 times**	**B anti-high temp. protection**
flash 9 times	Antifreeze Protection	**flash 9 times**	Some problem of parameters which was sent to drive side, unit will stop		
flash 10 times	sensor malfunction	**flash 10 times**	IPM sensor malfunction		
flash 11 times	PFC protection unit stop				
flash 12 times	Compressor overload protection				
flash 13 times	IPM overheat protection unit stop				

D16	Meaning	D17	Meaning(module protection information)	D18		Meaning
flash 1 time	outdoor ambient temp. sensor malfunction	flash 1 time	DC input power over low 150V	Computer monitor no short connection	Light	Receiving or sending indoor data
flash 2 times	**outdoor pipe temp.** sensor malfunction	flash 2 times	DC voltage over high 500V		Dark	Received or sent indoor data
flash 3 times	**outdoor discharge temp. sensor malfunction**	**flash 3 times**	AC current protection 32A	Computer monitor short connection	Blink	Mainboard and drive board communication normal
flash 4 times	Compressor overload sensor malfunction(preserved)	flash 4 times	IPM abnormal		Doesn't blink	Mainboard and drive board communication abnormal
flash 5 times	Communication malfunction with drive board, unit will stop	flash 5 times	Preserved self-PFC protection			
flash 6 times	Defrosting	flash 6 times	Start up failure			
		flash 7 times	Lack phase or striped off			
		flash 8 times	PFC first protection, then module protection			

6.Dissassembly

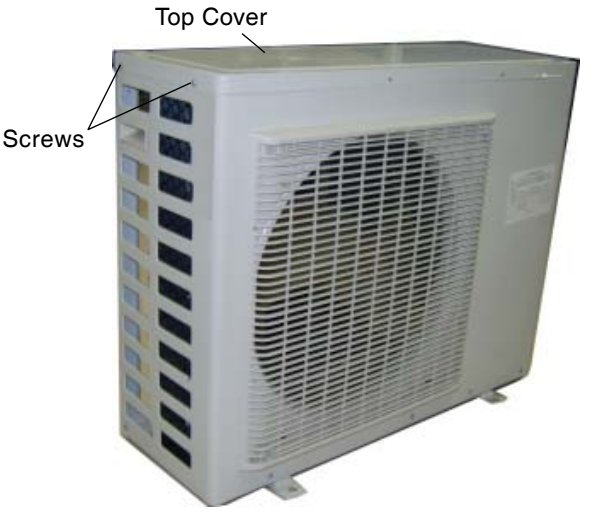
1.GWHD(18)NK3AO

Operating Procedures / Photos

1. Disassemble Top Cover and Handle

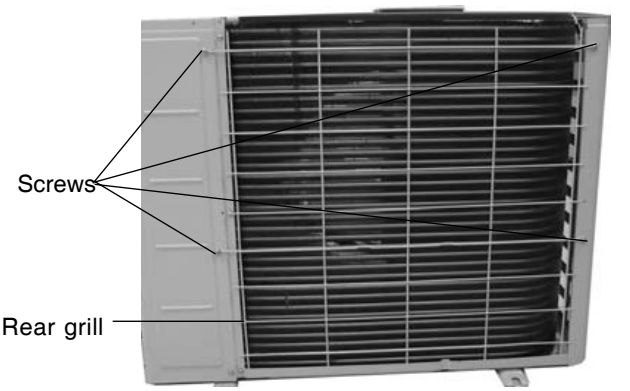
Unscrew the screws fixing the top cover, and then lift the top cover to remove it.

Unscrew the screw fixing the handle,and then push it downwards to take it out.



2. Disassemble the rear grill

Screw off 4pcs tapping screw of rear grill, then take down the rear grill.



3. Disassemble the front grill

Unscrew the screws fixing the front grill ,and then lift it upwards to remove it.

4. Disassemble the front panel

Screw off the tapping screws of front panel, motor suppoter, chassis condenser side plate, then can take down the front panel.

5. Disassemble the right side plate

Screw off the tapping screws of the right side plate, then take down the right side plate.

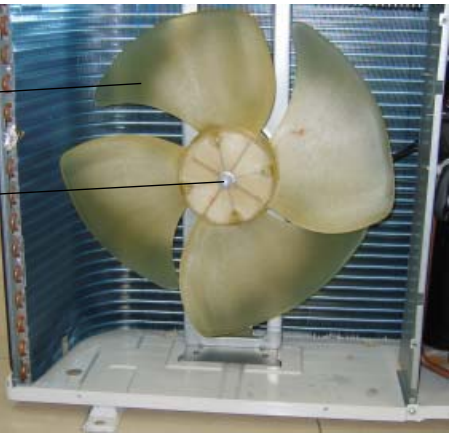
6. Disassemble the electric box

Screw off 2pcs screw of electric box cover, then take down the electric box cover.

Screw off 2pcs screw of electric box cover, pull out the lead out insert of Compressor, Reactor, Electronic Expansion Valve, Four-way valve and fan motor, then take down the electric box.

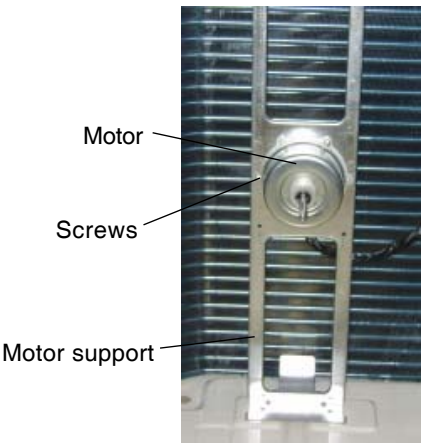
7. Disassemble Axial Flow Fan

Unscrew the nut fixing the fan with a spanner to take out the fan.



8. Disassemble the motor

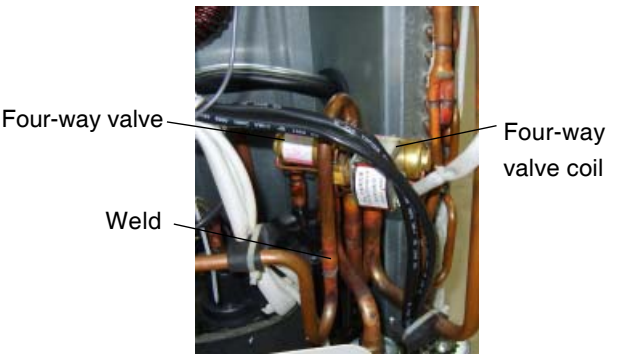
Unscrew the screws fixing the motor support , and then lift it upwards to remove it. Unscrew the screws fixing the motor to remove it.



9. Disassemble Four-way Valve

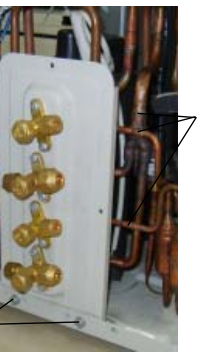
Unscrew the fastening nut of the four-way valve coil and remove the coil. Wrap the four-way valve with wet cotton and unsolder the 4 weld connecting the four-way valve to take it out. (Note:Refrigerant should be discharged firstly.)

Welding process should be as quick as possible and keep wrapping cotton wet all the time. Be sure not to burn out the lead-out wire of compressor.



10. Disassemble valve support assembly

Unsoldered each soldered dots, which connected with connection pipe sub-assy, cut-off valve sub-assy and pipeline connection, screw off the screws which fixed the valve support, take off the valve support sub-assy.



11. Disassemble Electronic Expansion Valve

Unsoldered the soldered dots which connected with electric expansion valve and air collective pipe, take down the electric expansion valve.

12. Disassemble the compressor

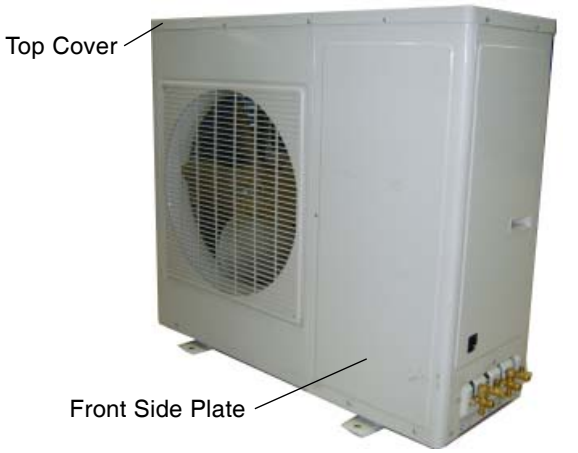
Unsolder the pipeline connecting the compressor, and then unscrew the 3 foot-nuts fixing conpressor to remove it.

2. GWHD(21)NK3AO, GWHD(24)NK3AO

Operating Procedures / Photos

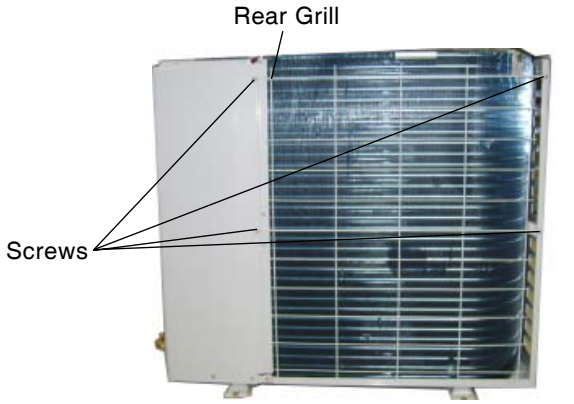
1.Disassemble Top Cover, Front Side Plate

Unscrew the screws fixing the top cover, and then lift the top cover to remove it.
Unscrew the screws fixing the front side plate to remove it.



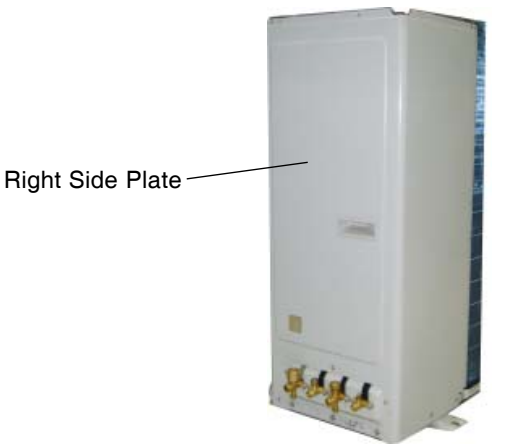
2.Disassemble Rear Grill

Unscrew the 4 screws fixing the rear grill to remove it.



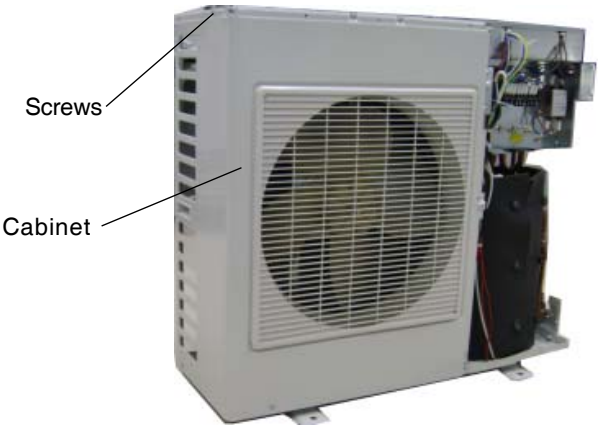
3. Disassemble Right Side Plate

Unscrew the screws at the right side plate, the valve support and the side plate of the condenser to remove the right Side Plate.



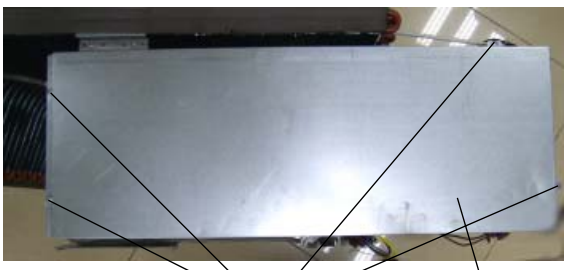
4.Disassemble Cabinet

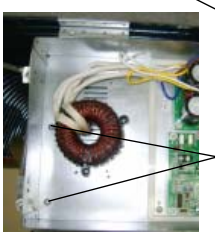
Unscrew the screws fixing the cabinet to remove it.

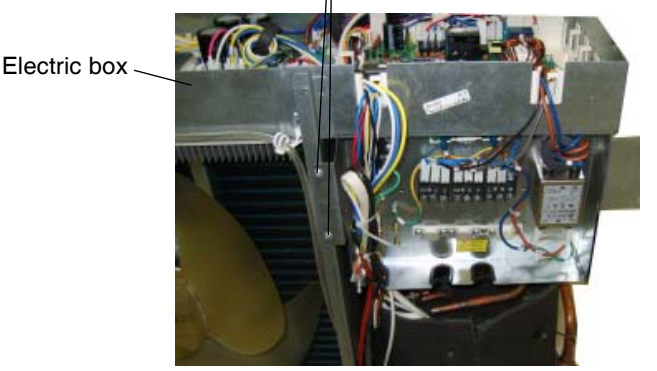


5. Disassemble the electric box

Unscrew the 4 screws fixing the electric box cover to remove the electric box cover. And then unscrew the 4 screws fixing the electric box,
Take out each lead wire from electric box.
remove the electric box.

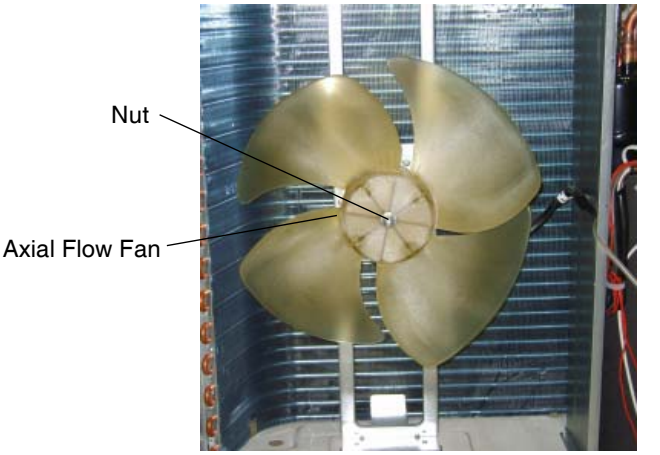






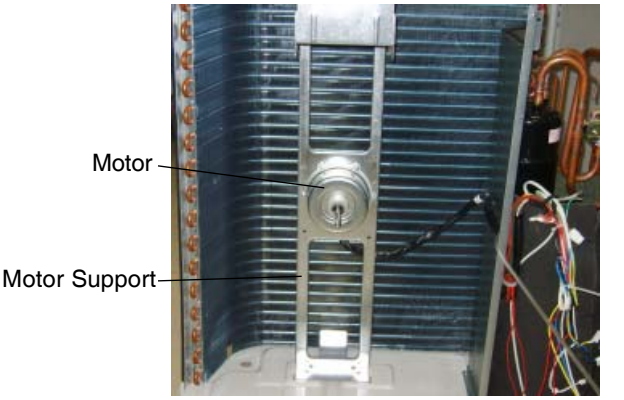
6. Disassemble the axial flow fan

Unscrew the nut fixing the fan with a spanner to take out the fan.



7. Disassemble Motor

Unscrew the screws fixing the motor support , and then lift it upwards to remove it. Unscrew the screws fixing the motor to remove it.

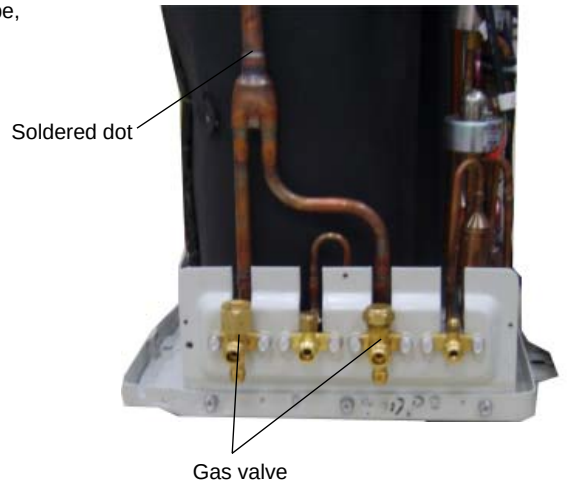


8 . Disassemble connection pipe sub-assy

(The connection pipe sub-assy include gas valve, connection pipe, diffluent meter)

Unscrew the bolts which fixed the gas valve, unsoldered the soldered dots on the diffluent meter, take down the connection pipe sub-assy.

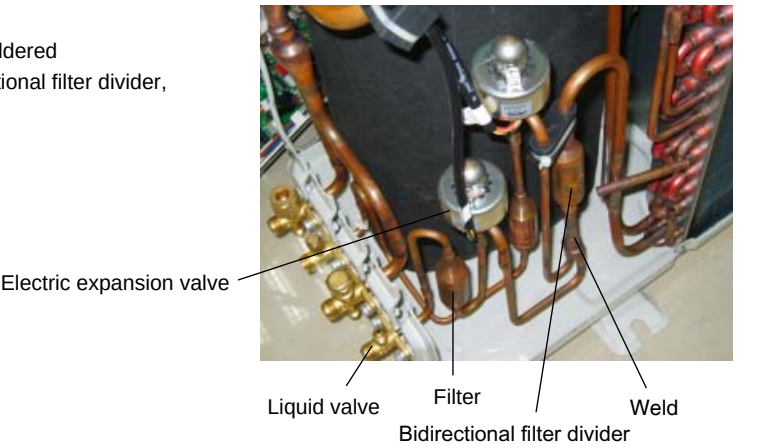
(Note:Refrigerant should be discharged firstly.)



9.Disassemble electric expansion valve sub-assy

(The electric expansion valve sub-assy should include liquid valve, filter, diffluent meter)

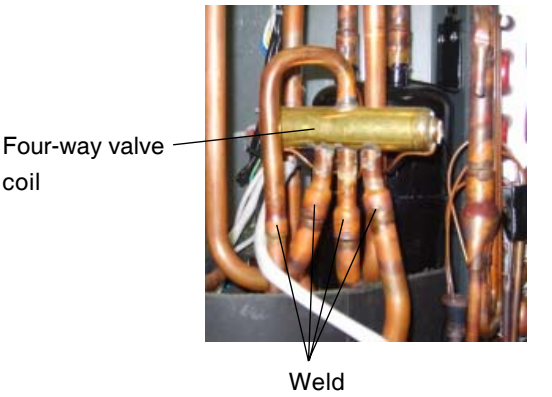
Screw off the bolts which fixed the liquid valve, unsoldered the soldered dot between diffluent meter and bidirectional filter divider, take off the electric expansion valve sub-assy.



10.Disassemble Four-way Valve

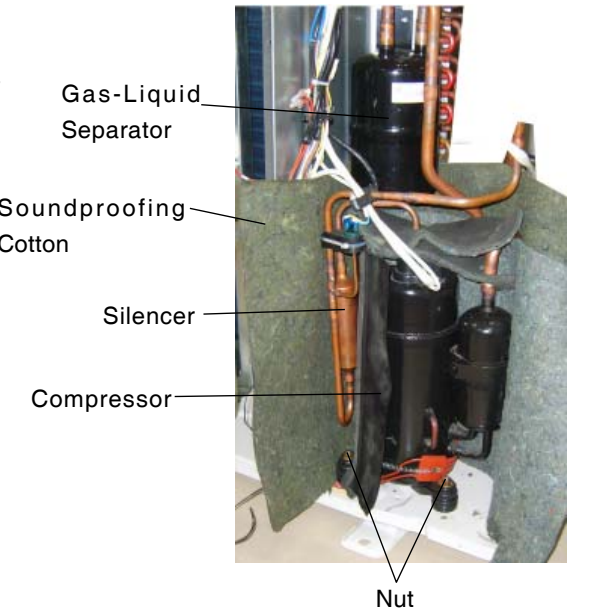
Wrap the four-way valve with wet cotton and unsolder the 4 weld connecting the four-way valve to take it out.

Note: Welding process should be as quick as possible and keep wrapping cotton wet all the time. Be sure not to burn out the lead-out wire of compressor.



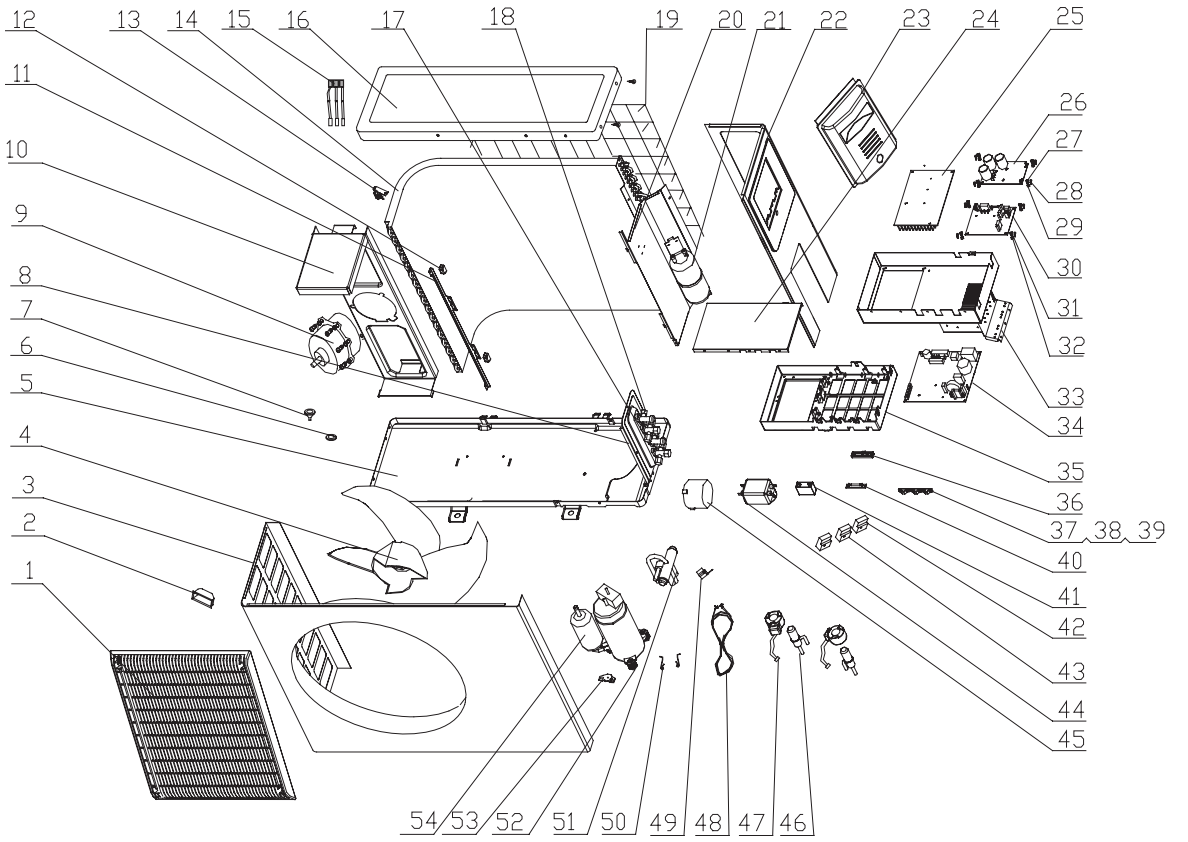
11.Disassemble Compressor

Open the soundproofing cotton, Unsolder the pipe-line connecting the compressor, and then unscrew the 3 foot-nuts fixing conpressor to remove it.



7.Exploded View and Replacement Parts List

1. GWHD(18)NK3AO

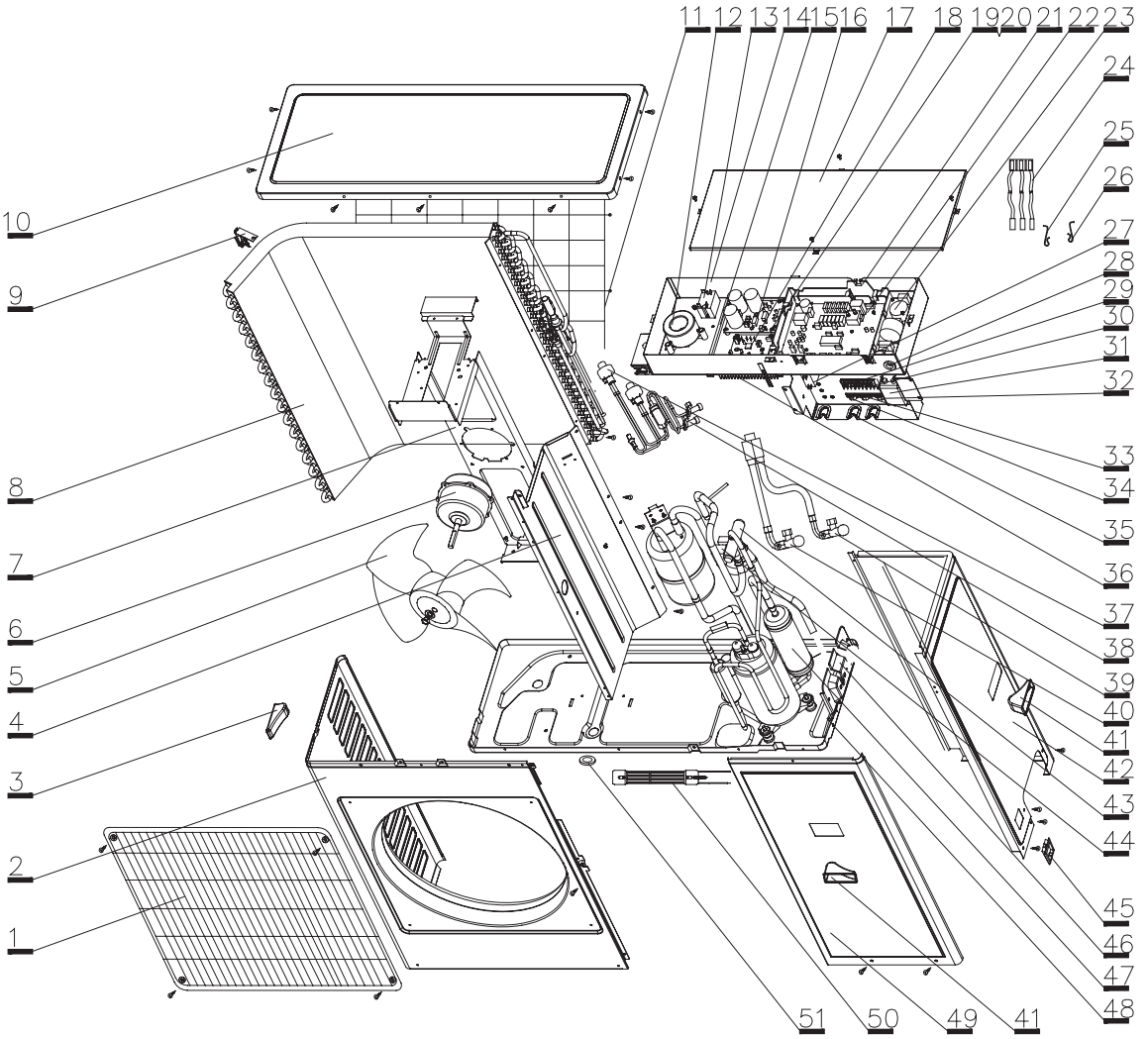


Parts List

No	Description	Part Code	Qty
1	Front Grill	22415001	1
2	Handle	26235401	1
3	Front Plate Assy	01305017	1
4	Axial Flow Fan	10335253	1
5	Metal Base	01203594P	1
6	Drainage Choke	06813401	3
7	Drainage Pluge	06123401	1
8	Valve Support	01713067	1
9	Motor FW60T	15013703	1
10	Motor Support	01705003	1
11	Condenser Support	01793004	1
12	Pipe Protection Devices	76512406	2
13	Temp Sensor Support	24213502	1
14	Condenser Assy	01133461	1
15	Sensor	3900028001	1
16	Top Cover	01255001	1
17	Valve 1/4"	07133014	2
18	Valve 3/8"	071302391	2
19	Rear Grill	01473006	1
20	Isolation Sheet	01233054	1
21	Liquid-gas Separator	07225001	1
22	Rear Side Plate	01303015	1
23	Handle Assy	26235255	1
24	Electric Box Cover	01413102	1
25	Radiator	49013008	1
26	PFC Module	30111018	1
27	Module Support Base	24213029	4
28	Screw M4X20	70110274	8
29	Module Support Cap	24213010	4
30	Power Module	32210055	1
31	Module Support Base	26153031	4
32	Module Support Cap	26113002	4
33	Electric Box Assy	01403791	1
34	Main PCB WB8235B	30038213	1
35	Electric Box 4	20112036	1
36	Fuse Support	24213032	1
37	Wire Clamp	71010003	2
38	Isolation Washer	70410524	1
39	Wire Clamp	71010102	1
40	Fuse Assy	46010056	1
41	Capacitor CBB61 3uF/450V	33010027	1
42	Wiring Terminal RS9413	420111041	2
43	Wiring Terminal RS9413G	42010178	1
44	Filter 30SS4-1BC2-R-Q	43130012	1
45	Reactor(PFC)	43120011	1
46	Electronic Expansion Valve SPF-16D32	07130358	2
47	Electronic Expansion Valve Coil	43000109	2
48	Power Cord	40020318	1
49	4－Way Valve Coil	430004002	1
50	Sensor Insert	42020063	2
51	4－Way Valve	430004032	1
52	Rubber foot of compressor	NONE	
53	OH Thermistor	NONE	1
54	Compressor C-6RVN93HOV	103041	1

Note: The above data are subject to be changed without notice.

2. GWHD(21)NK3AO

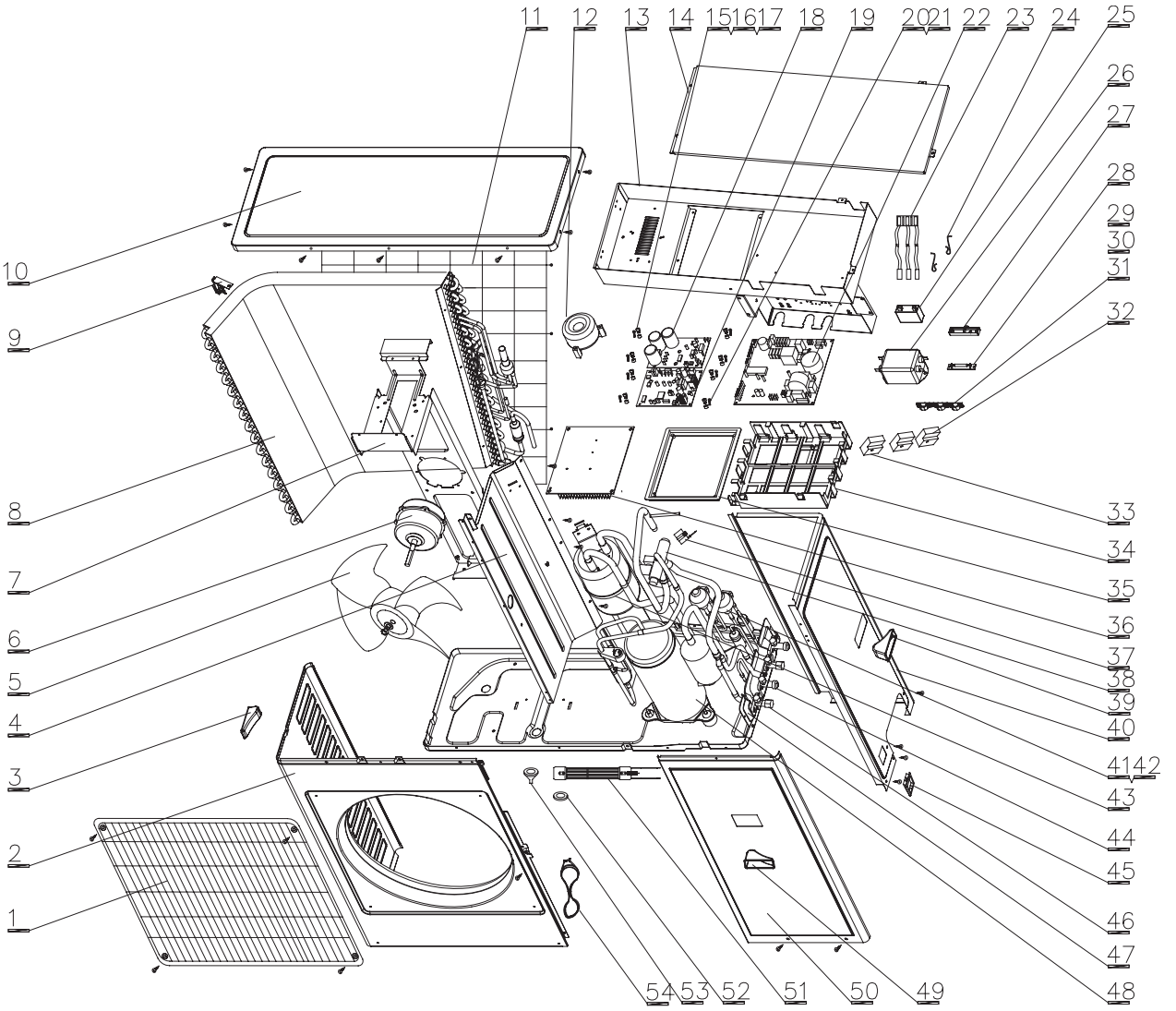


Parts List

No	Description	Part Code	Qty
1	Front Grill	22265251	1
2	Housing	01435254	1
3	Small Handle	26235401	1
4	Clapboard Assy	01233039	1
5	Axial Flow Fan	10335253	1
6	Fan Motor FW60T	15013703	1
7	Motor Support Sub-Assy	01703087	1
8	Condenser Assy	01103927	1
9	Temp Sensor Support	24213005	1
10	Top Cover	01255262	1
11	Rear Grill	01475252	1
12	Reactor(PFC) 300uH+300uH/40A	43120011	1
13	Relay 841-S-1A-D 200/240V TUV	44020334	1
14	Electric Box Assy	01403592	1
15	Module Support	24213008	1
16	PCB JGP011	30111018	1
17	Electric Box Cover Sub-Assy	01403629	1
18	Main PCB 2 W9W2	30039165	1
19	PCB Support（up）	24213029	8
20	PCB Support（down）	24213010	8
21	PCB Support	24213009	1
22	Main PCB W9W1A	30039170	1
23	Filtering Board W9W2	30039163	1
24	Temperature Sensor	3900028001	1
25	Sensor Insert B	42020063	1
26	Sensor Insert E	42020066	1
27	Capacitor CBB61 3uF/450V	33010027	1
28	Cable-Cross Loop	76510021	1
29	Terminal Board RS9413	420111041	2
30	Terminal Board RS9413G	42010178	1
31	Filter 250VAC/20A	43130008	1
32	Wire Clamp	71010102	1
33	Isolation Washer	70410524	1
34	Wire Clamp	71010003	2
35	Cable-Cross Loop	76514004	5
36	Radiator	49013011	1
37	Electronic Expansion Valve	07130358	2
38	Cut-off Valve 1/4"	07130208	2
39	Cut-off Valve 1/2"	07130210	1
40	Cut-off Valve 3/8"	07130209	1
41	Handle	26235253	2
42	Rear Side Plate Assy	01303117	1
43	4-way Valve	43000411	1
44	4-way Valve Fittings	430004002	1
45	Cable-Cross Loop	76513011	1
46	Valve Support Assy	01713027	1
47	Compressor C-6RZ146H1B	00103051	1
48	Underpan Assy	01203560	1
49	Front Side Plate	01305247	1
50	Electric Heater Band	32003001	1
51	Choke Plug	06813401	3

Note: The above data are subject to be changed without notice.

3. GWHD(24)NK3AO



Parts List

No	Description	Part Code	Qty
1	Front Grill	01473001	1
2	Housing	01433011	1
3	Small Handle	26235401	1
4	Clapboard Assy	01233039	1
5	Axial Flow Fan	10335253	1
6	Fan Motor FW60T	15013703	1
7	Motor Support Sub-Assy	01703087	1
8	Condenser Assy	01103910	1
9	Temp Sensor Support	24213005	1
10	Top Cover	01255262	1
11	Rear Grill	01475252	1
12	Reactor	43120011	1
13	Electric Box Assy	01403807	1
14	Electric Box Cover	01413108	1
15	Module Support Base	24213029	4
16	Module Support Cap	24213010	4
17	ScrewM4X20	70110274	8
18	PFC Module	30111018	1
19	Power Module	32210054	1
20	Module Support Base	26153031	4
21	Module Support Cap	26113002	4
22	Main PCB WB8235C	30038215	1
23	Sensor	3900028001	1
24	Sensor Insert	42020063	2
25	Capacitor CBB61 3uF/450V	33010027	1
26	Filter 30SS4-1BC2-R-Q	43130012	1
27	Fuse Support	24213032	1
28	Fuse Assy	46010056	1
29	Wire Clamp	71010003	2
30	Isolation Washer	70410524	1
31	Wire Clamp	71010102	1
32	Wiring Terminal RS9413	420111041	2
33	Wiring Terminal RS9413G	42010178	1
34	Electric Box 3	20112036	1
35	Electric Box 4	20123026	1
36	Radiator	49013013	1
37	4－Way Valve Coil	430004002	1
38	4－Way Valve	43000411	1
39	Handle	26235253	1
40	Rear Side Plate Assy	01303117	1
41	Electronic Expansion Valve SPF-16D32	07130358	2
42	Electronic Expansion Valve Coil	43000109	2
43	Liquid-gas Separator	07255251	1
44	Valve 1/4"	07130208	2
45	Cable-Cross Loop	76513011	1
46	Valve 1/2"	07130210	2
47	Valve Support	01713027	1
48	Compressor C-7RZ233H1A	00105204	1
49	Handle	26235253	1
50	Front Side Plate	01305247	1
51	Electric Heater Band	32003001	1
52	Drainage Choke	06813401	3
53	Drainage Pluge	06123401	1
54	Power Cord	40020318	1

Note: The above data are subject to be changed without notice.

1.General use part

Notice

1. Preparations before Repair

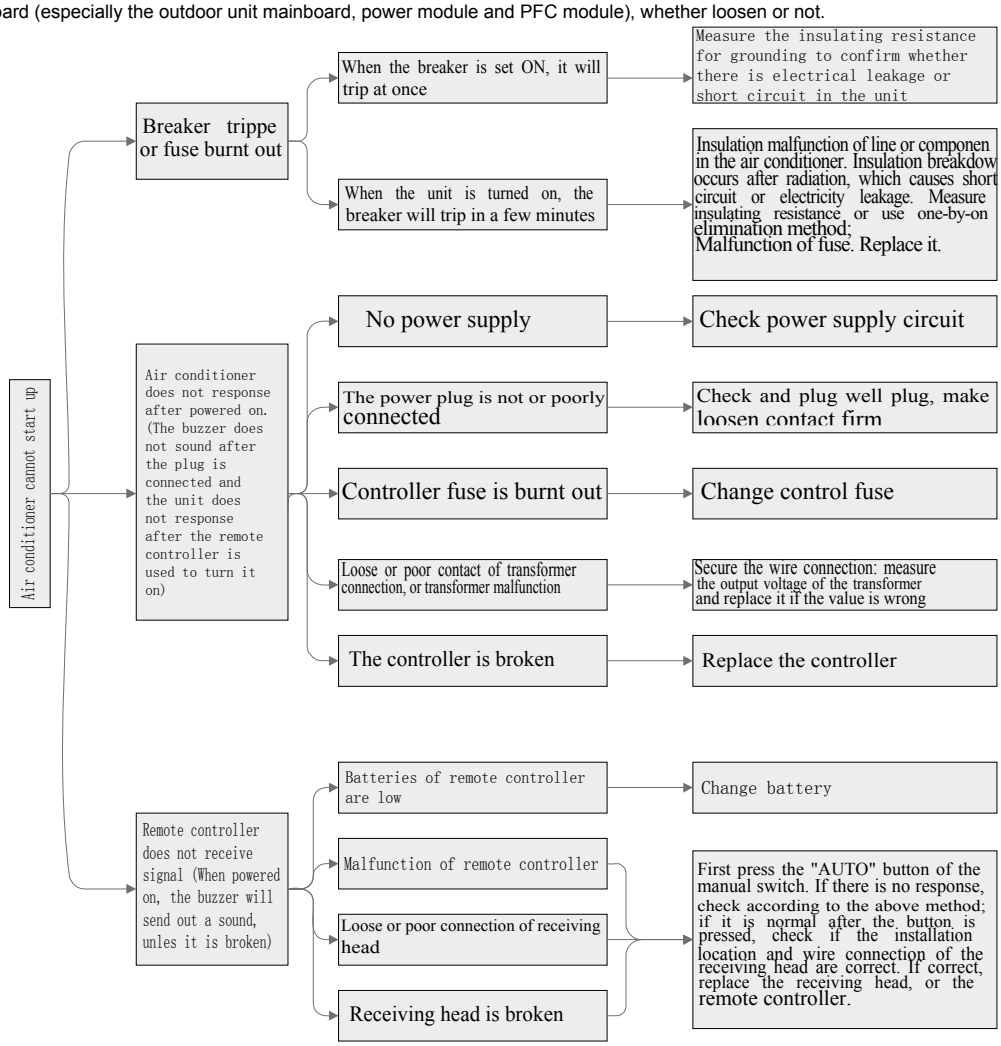
Step 1: Firstly, determine the model of unit to be repaired and find out the model and material code of the main damageable components, particularly the outdoor controller.

Step 2: According to the fault described by the user, make a preliminary judgment on the possible components that might be repl Bring them with you for repair.

Step 3: To repair the VF unit, you need to bring with you the multimeter and clamp-on ammeter except the usual tools as screwdriver and spanner.

2.To avoid electric shock during repair, do not touch any terminal before it is measured that the voltage between module P and N is less than 50V.

3.Before or after the maintenance, should examine the the user power socket, wiring board of indoor or outdoor unit, there are all insert pieces on the mainboard (especially the outdoor unit mainboard, power module and PFC module), whether loosen or not.

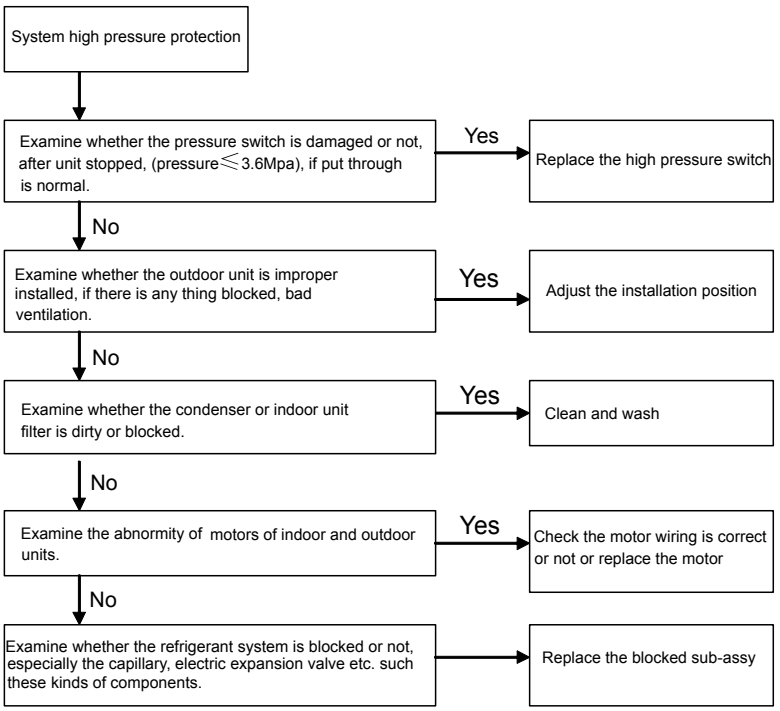


2. Malfunction display part

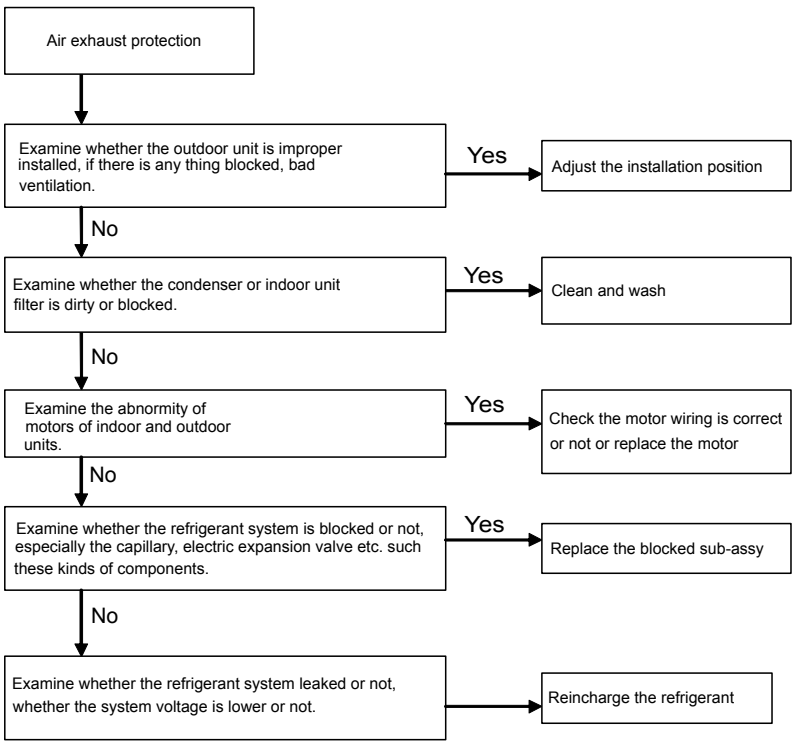
When AC having malfunction or protection, indoor unit displayer or indicator will display the corresponding codes, indicator on outdoor unit mainboard also display, the detailed contents has been discribed pls refer to the prior function part for more information, when protection or malfunction removed and display resume to normal. Partly display malfunction analysis or processing:

Model:GWHD(18)NK3AO, GWHD(24)NK3AO

Partly display malfunction analysis of processing:
System high pressure protection E1 or running indicator extinguish 3s and blinks one time

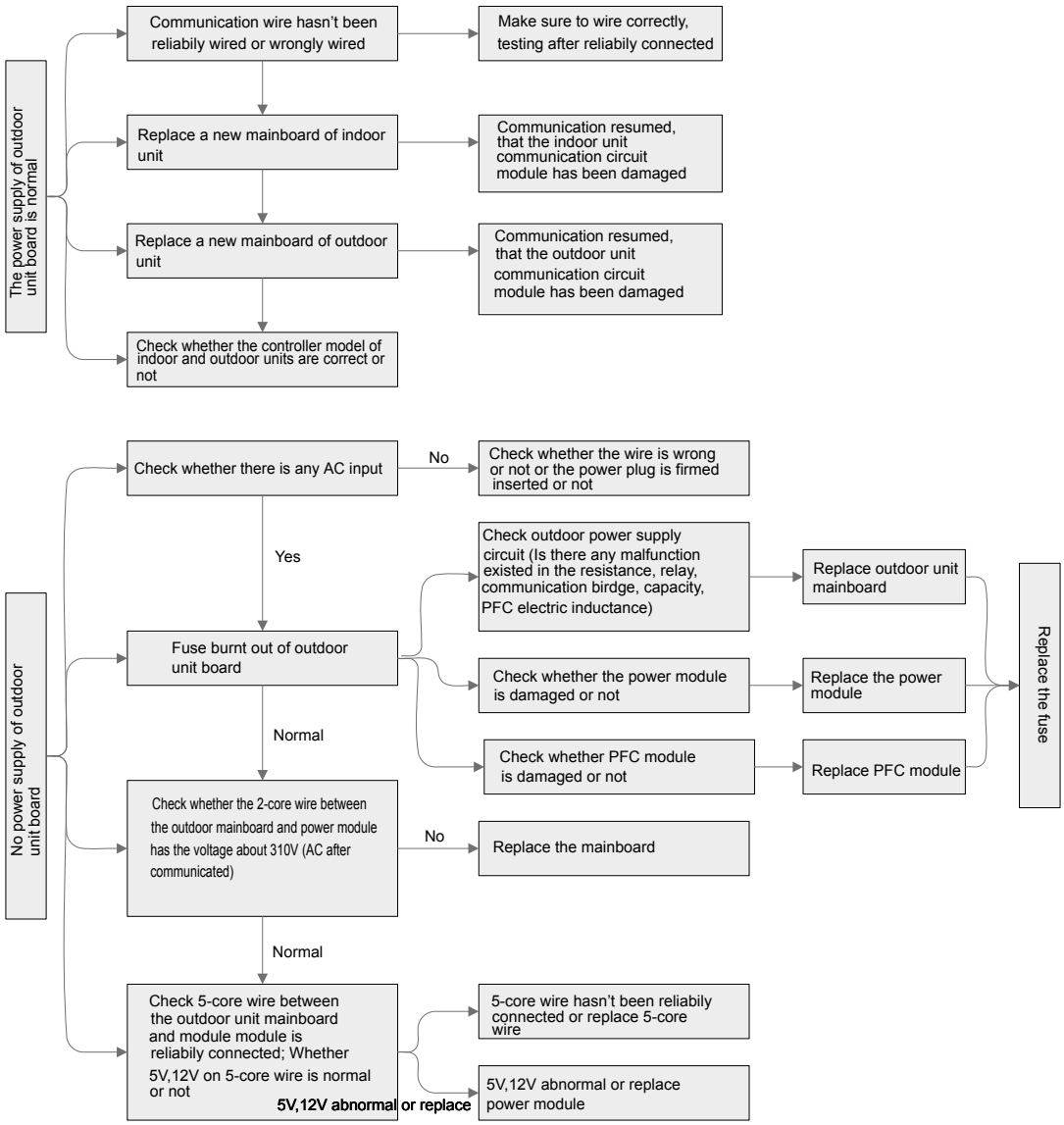


Compressor air exhaust protection E4 or running indicator extinguish 3s blinks 4 times



Communication malfunction E6 or running indicator extinguish 3s and blinks 6 times

- Cause: communication wire hasn't been reliabily wired or wrongly wired; Indoor unit mainboard communication circuit module malfunction; Outdoor unit communication circuit module malfunction; abnormal power supply of outdoor unit or outdoor unit mainboard hasn't AC current input due to fuse burnt out.
- Processing method:



Compressor overload protection H3 or heating indicator extinguish 3s and blinks 3s

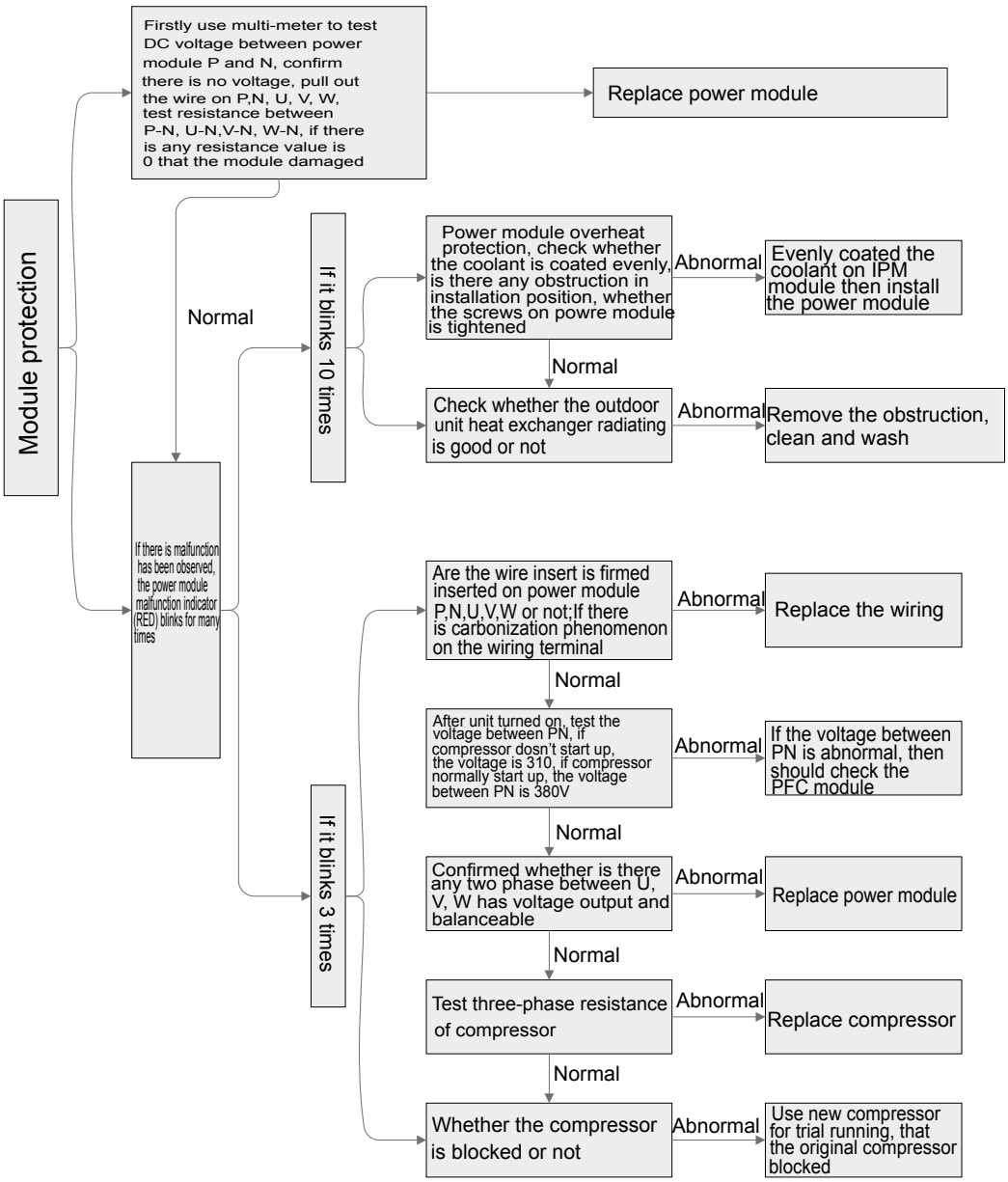
- Cause: Refirgerant is shortage or overfull; poor running of compressor, axes clasp or blocked, air exhaust valve damaged; protector malfunction.
- Processing method: Adjust coolant volume; Replace compressor; Use multi-meter check whether the contact of protector dredge, if not, replace the protector.

System abnormal H4 or heating indicator extinguish 3s blinks 4 times

- Overload protection, the protection when tube temperature (in Cool mode, test outdoor heat exchanger temperature, in Heat mode, test indoor heat exchanger temperature) is very high.
- Cause: In Cool mode, outdoor temperature is too high; Shortage of outdoor air volume; Refrigerant flow problem.
- Processing method: Pls refer to the Troubleshooting of prior part.

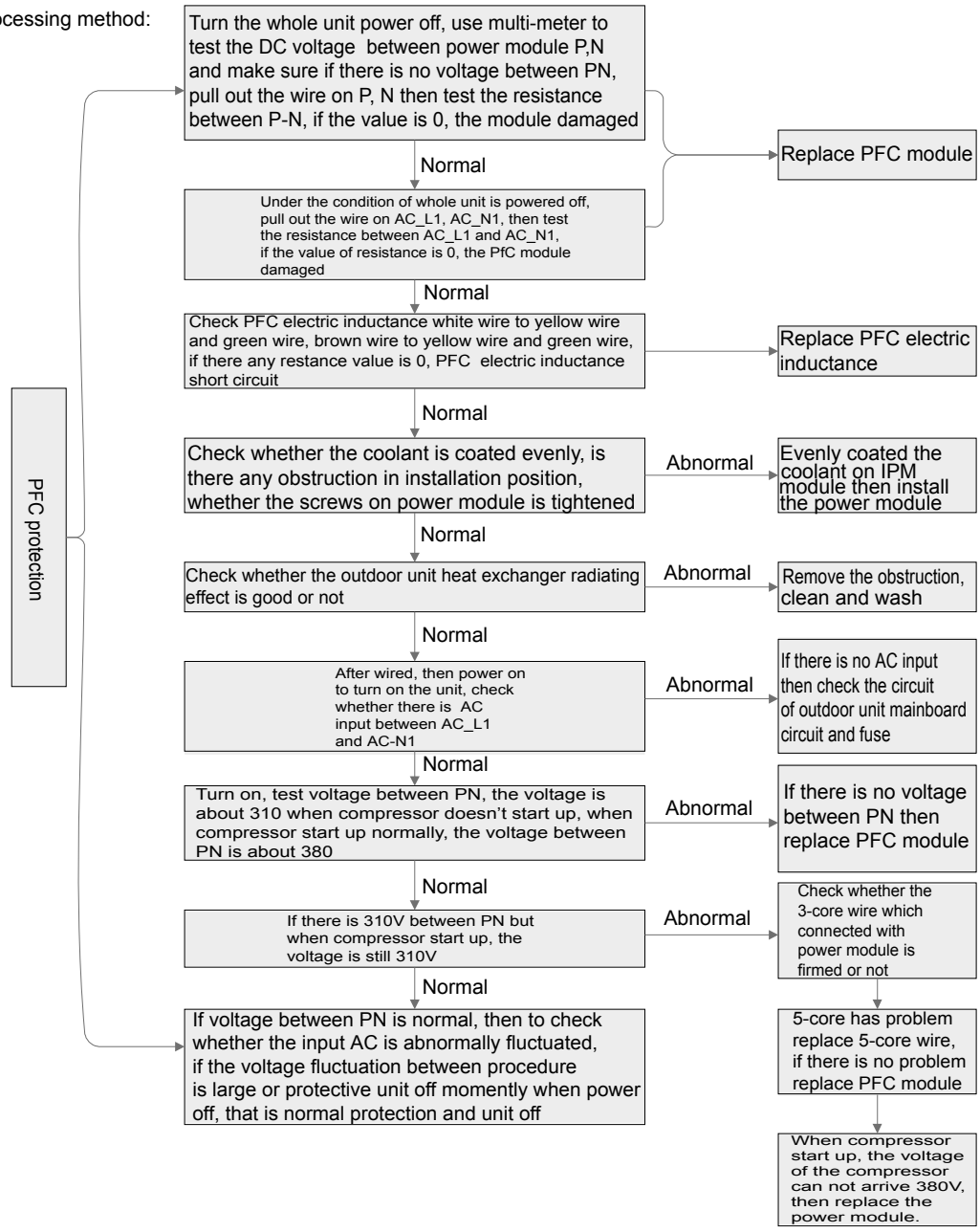
Module protection H5 or Heating indicator extinguish 3s blinks 5 times

- Processing method:



PFC protection HC or Heating indicator extinguish 3s blinks 6 times

- Cause: Voltage change suddenly, poor radiating of PfC module, connection wire (PFC control wire) between power module and PFC module is poor connected, over current ect.
- Processing method:



Temperature sensor F1, F2, F3,F4,F5 or cooling indicator extinguish 3s blink once, extinguish 3s blink twice, extinguish 3s and blink three times, extinguish 3s and blink four times, extinguish 3s and blink five times.

- Processing method: Pls check whether the resistance value of corresponding sensor is normal or not; Reliabily inserted or not; Lead wire damaged or not; Otherwise the sensor electric circuit or controller have malfunction
- Some of indoor unit haven't display the troubleshooting or processing of malfunction;

Start up failure

- Malfunction and phenomenon: After unit is turned on, indoor and outdoor units normally run, but there is no cooling or heating, observe module of outdoor unit and discover the malfunction indicator firstly blinks 7 times, after start up for many times later, the malfunction indicator blinks 6 times.
- Processing method:

A. Examine whether the compressor wiring is firmed or not;
B. Check whether the compressor has malfunction or not, refer to the prior testing method of module protection;
C. Replace a new drive board, if it normally starts up, that is the power module electric circuit malfuntion.

Communication malfunction of outdoor unit main board and power module

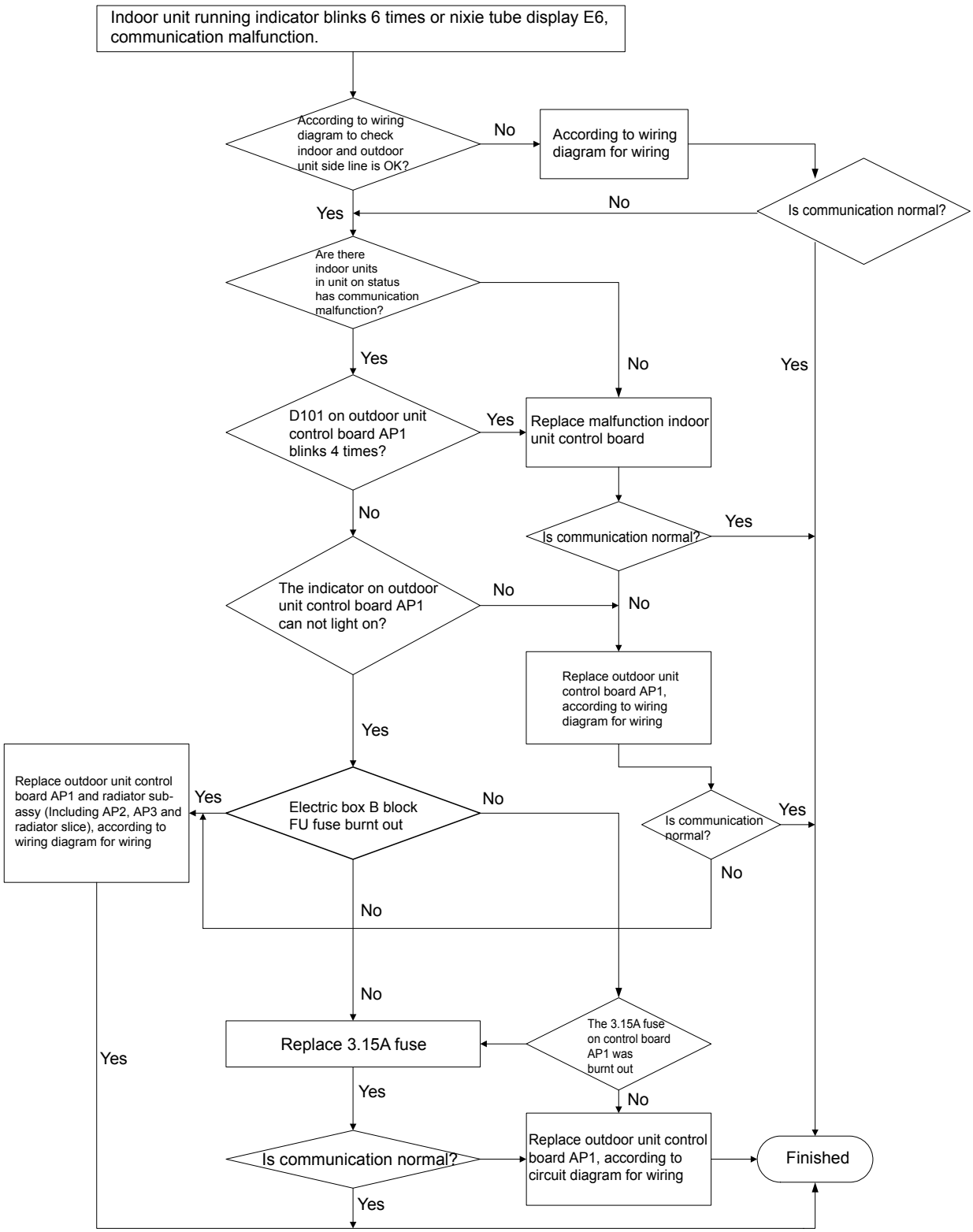
- Malfunction phenomenon: outdoor unit main board D104 indicator blinks 4 times or power module malfunction indicator (Green) ever light on.
- Processing method:

A. Check whether is there any problem between outdoor main board and 5-core wire of power module;
B. Replace one new power module and outdoor mainboard communication, malfunction resumes that is the power module problem; Otherwise it is the outdoor mainboard problem, replace error controller.

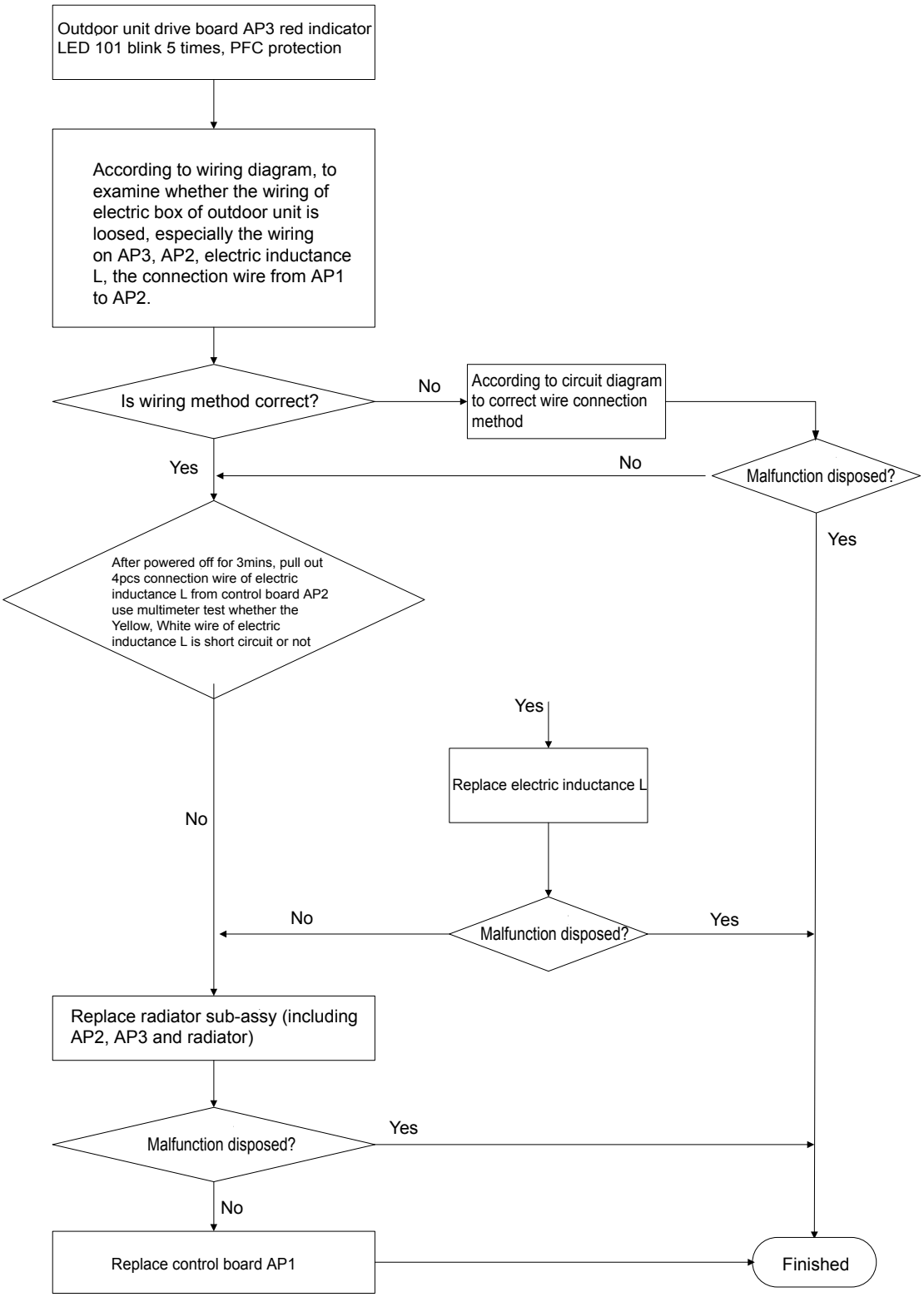
DC current power short circuit

- Malfunction phenomenon: Outdoor unit main board malfunction indicator D101 blinks 15 times.
- Malfunction reason: PFC module (IPM module) short circuit in PN or the PFC electric inductance short circuit cause the unsuccessful of capacity charge when starting.
- Processing method: Check whether the ciruit is normal or not on the outdoor unit mainboard, (mostly the concrete resistance and main relay), examine the PFC module, IPM module or the short circuit caused by PFC electric inductance, (pls refer to the checking method of prior module protection and PFC protection), replace the corresponding controller or PFC electric inductance.

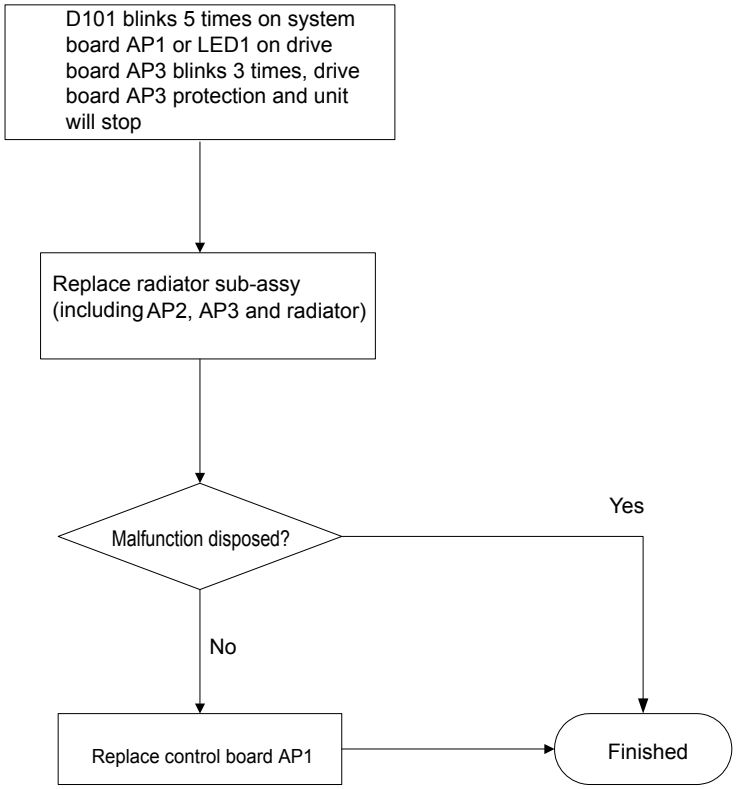
1.Indoor unit red indicator blinks 6 times, communication malfunction analysis



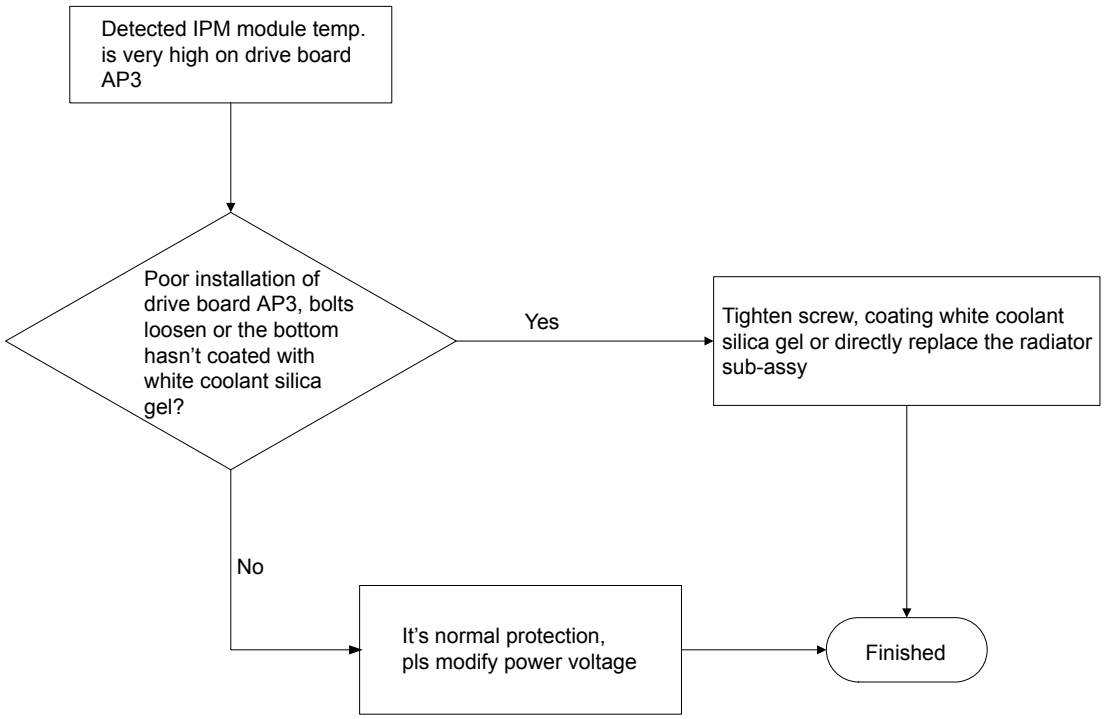
2. The red indicator LED101 blinks 5 times on the outdoor unit drive board AP3, PFC protection analysis



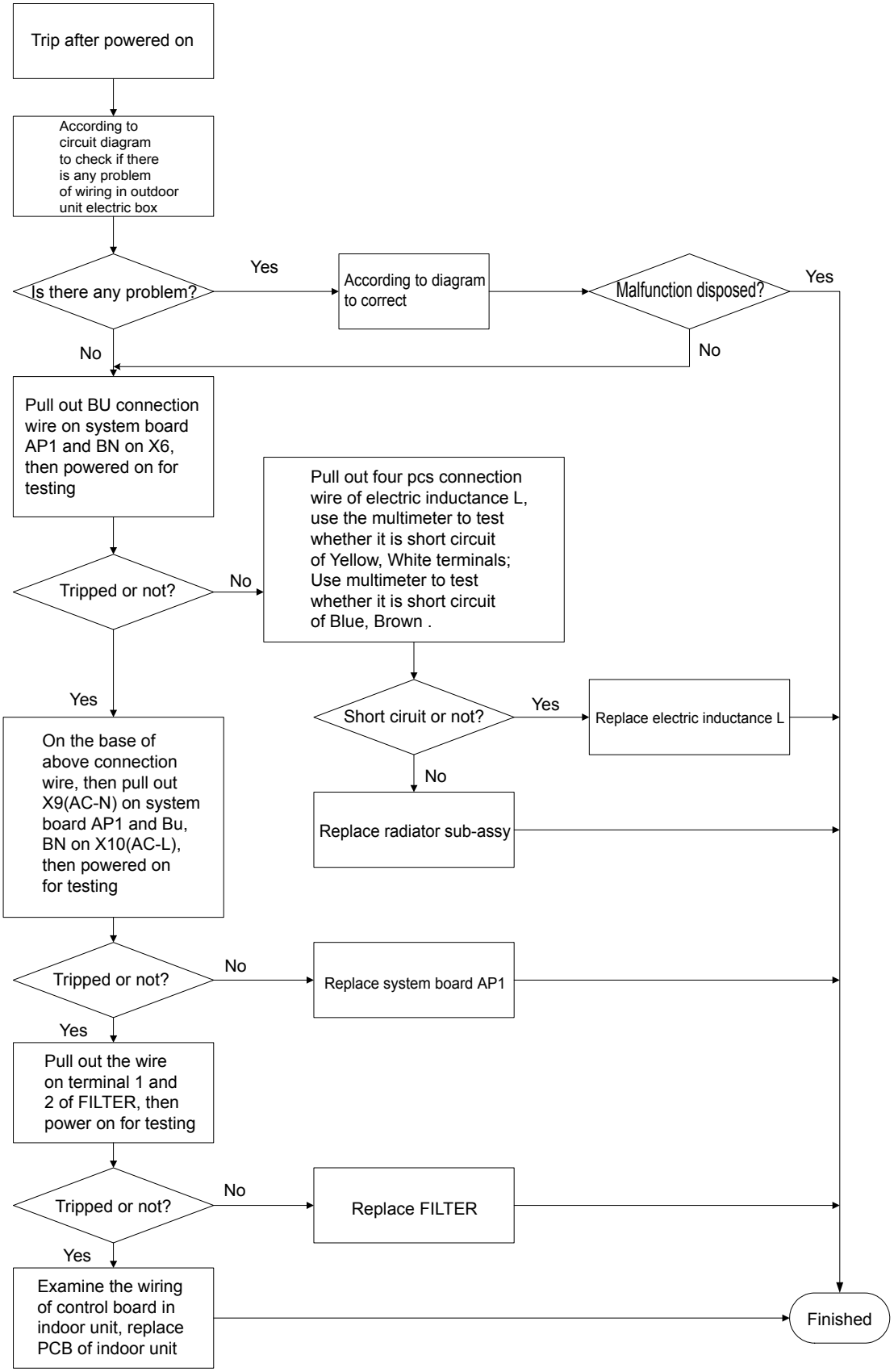
3. D101 blinks 5 times on the system board AP! or LED1 on drive board AP3 blinks 3 times, T1 drive module protection analysis



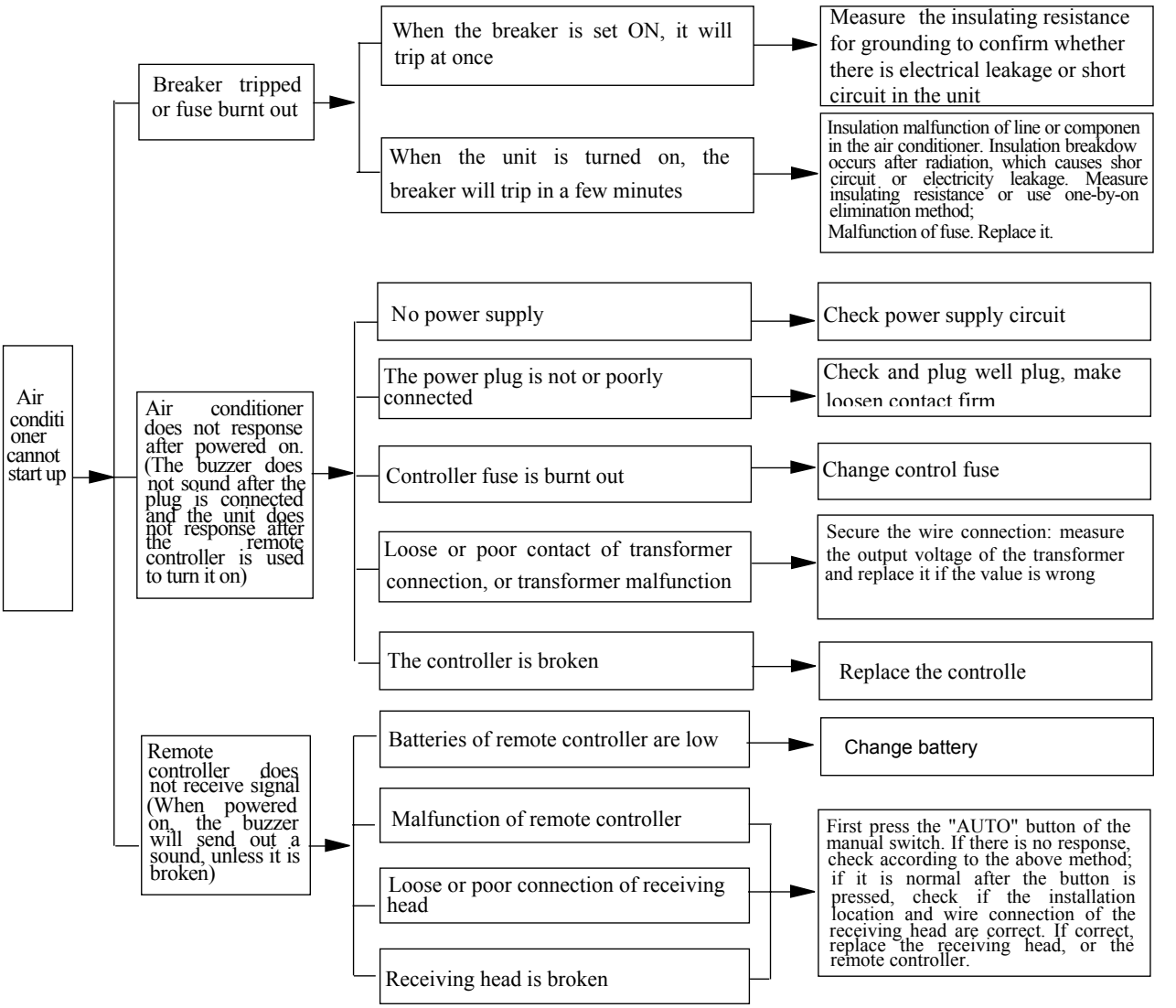
4. LED1 on drive board AP3 blinks 10 times, detected IPM module temp. is very high on APS, the unit will stop

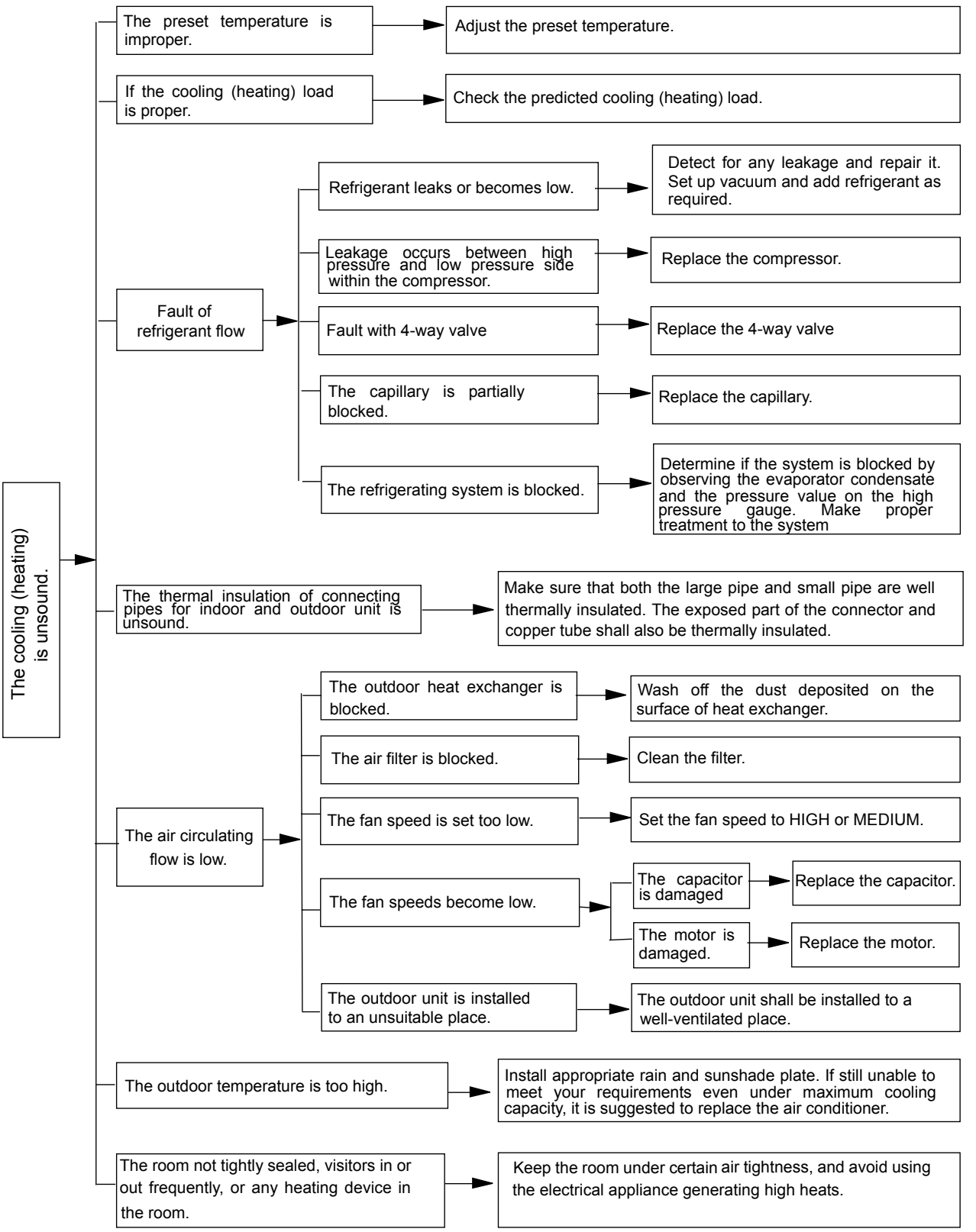


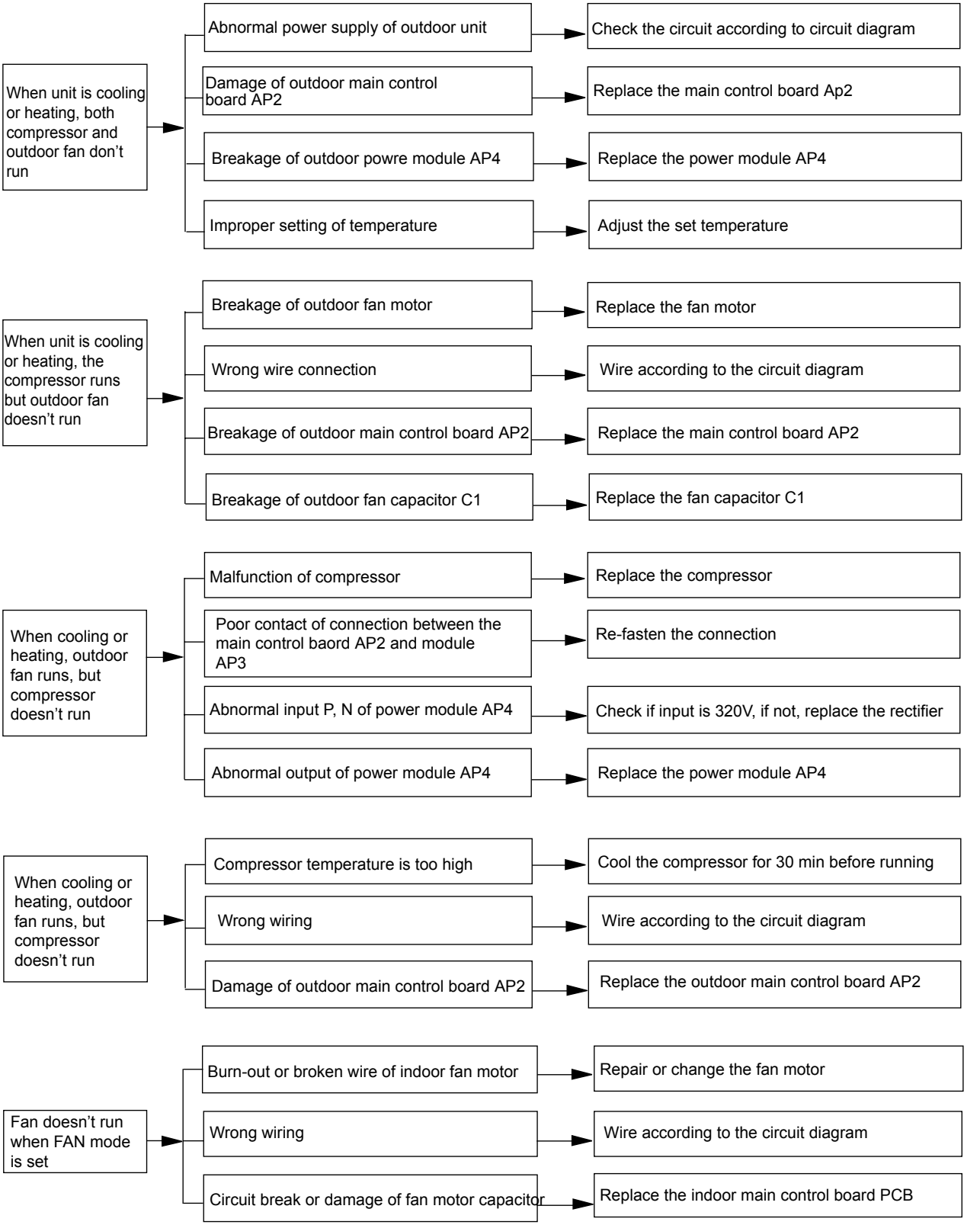
5. Troubleshooting for trip after powered on

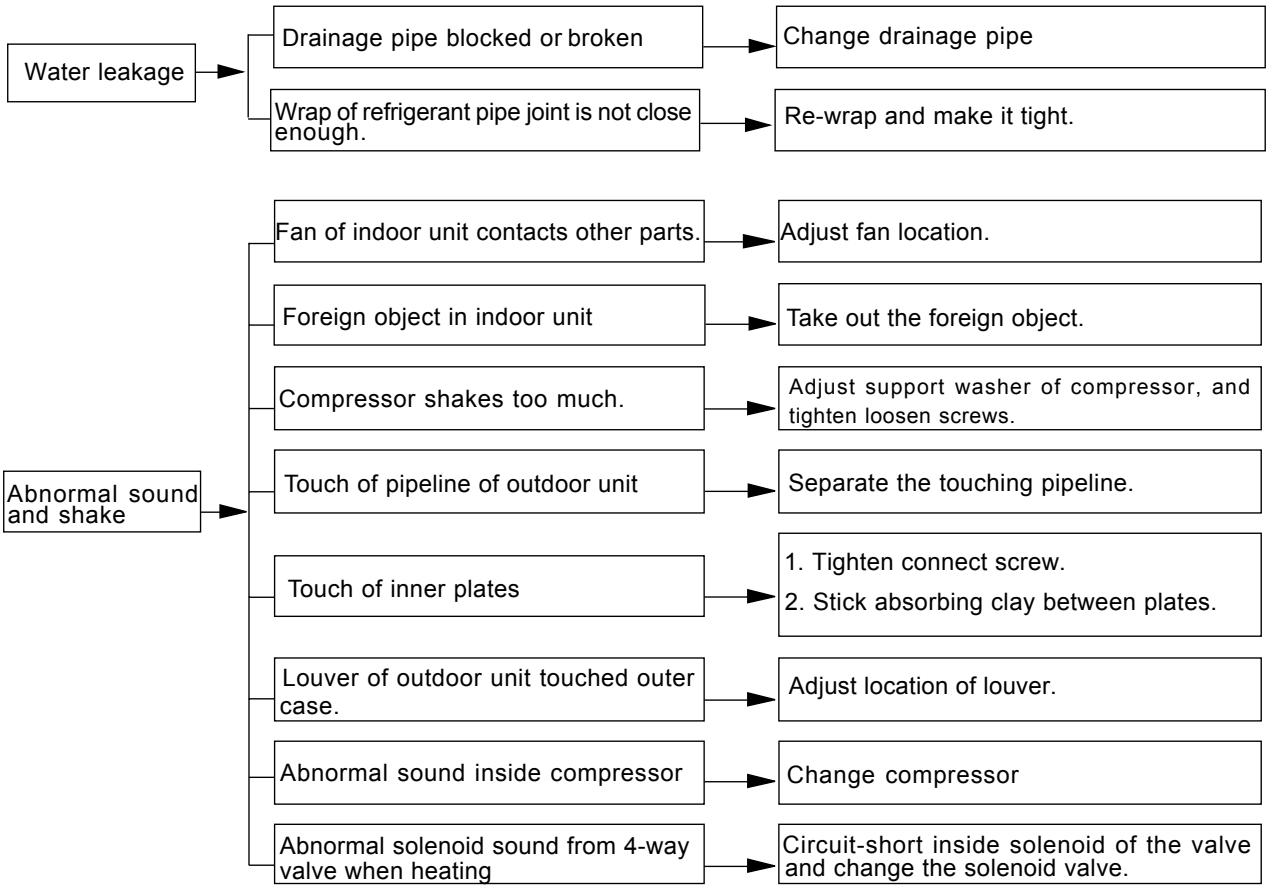


Model:GWHD(21)NK3A0




The cooling (heating) is unsound.
The preset temperature is improper.
Adjust the preset temperature.
If the cooling (heating) load is proper.
Check the predicted cooling (heating) load.
Fault of refrigerant flow
Refrigerant leaks or becomes low.
Detect for any leakage and repair it. Set up vacuum and add refrigerant as required.
Leakage occurs between high pressure and low pressure side within the compressor.
Replace the compressor.
Fault with 4-way valve
Replace the 4-way valve
The capillary is partially blocked.
Replace the capillary.
The refrigerating system is blocked.
Determine if the system is blocked by observing the evaporator condensate and the pressure value on the high pressure gauge. Make proper treatment to the system
The thermal insulation of connecting pipes for indoor and outdoor unit is unsound.
Make sure that both the large pipe and small pipe are well thermally insulated. The exposed part of the connector and copper tube shall also be thermally insulated.
The air circulating flow is low.
The outdoor heat exchanger is blocked.
Wash off the dust deposited on the surface of heat exchanger.
The air filter is blocked.
Clean the filter.
The fan speed is set too low.
Set the fan speed to HIGH or MEDIUM.
The fan speeds become low.
The capacitor is damaged
Replace the capacitor.
The motor is damaged.
Replace the motor.
The outdoor unit is installed to an unsuitable place.
The outdoor unit shall be installed to a well-ventilated place.
The outdoor temperature is too high.
Install appropriate rain and sunshade plate. If still unable to meet your requirements even under maximum cooling capacity, it is suggested to replace the air conditioner.
The room not tightly sealed, visitors in or out frequently, or any heating device in the room.
Keep the room under certain air tightness, and avoid using the electrical appliance generating high heats.


When unit is cooling or heating, both compressor and outdoor fan don't run
Abnormal power supply of outdoor unit
Check the circuit according to circuit diagram
Damage of outdoor main control board AP2
Replace the main control board Ap2
Breakage of outdoor powre module AP4
Replace the power module AP4
Improper setting of temperature
Adjust the set temperature
When unit is cooling or heating, the compressor runs but outdoor fan doesn't run
Breakage of outdoor fan motor
Replace the fan motor
Wrong wire connection
Wire according to the circuit diagram
Breakage of outdoor main control board AP2
Replace the main control board AP2
Breakage of outdoor fan capacitor C1
Replace the fan capacitor C1
When cooling or heating, outdoor fan runs, but compressor doesn't run
Malfunction of compressor
Replace the compressor
Poor contact of connection between the main control baord AP2 and module AP3
Re-fasten the connection
Abnormal input P, N of power module AP4
Check if input is 320V, if not, replace the rectifier
Abnormal output of power module AP4
Replace the power module AP4
When cooling or heating, outdoor fan runs, but compressor doesn't run
Compressor temperature is too high
Cool the compressor for 30 min before running
Wrong wiring
Wire according to the circuit diagram
Damage of outdoor main control board AP2
Replace the outdoor main control board AP2
Fan doesn't run when FAN mode is set
Burn-out or broken wire of indoor fan motor
Repair or change the fan motor
Wrong wiring
Wire according to the circuit diagram
Circuit break or damage of fan motor capacitor
Replace the indoor main control board PCB



Note:

1. When maintaining, before detecting the voltage between the modular PN is less than 50V, please never touch any of the terminals, in order to avoid electric shock.
2. When replacing the batteries, commutating bridge, both of them should be coated with the coolant.

Analysis or processing of some of the malfunction display:

1. Compressor discharge protection

Possible reasons: shortage of refrigerant; blockage of air filter; poor ventilation or air flow short pass for condenser; The system has noncondensing gas (such as air, water etc.); blockage of capillary assy (including filter); leakage inside four-way valve causes incorrect operation; malfunction of compressor; malfunction of protection relay; malfunction of discharge sensor; outdoor temperature too high.

Processing method: refer to the malfunction analysis in the above section.

2. Low voltage overcurrent protection

Possible reason: Sudden drop of supply voltage.

3. Communication malfunction (please refer to the frontale one)

4. Sensor open or short circuit

Processing method: Check whether sensor is normal, connected with the corresponding position on the controller and if damaged of lead wire is found.

5. Compressor overload protection

Possible reasons: insufficient or too much refrigerant; blockage of capillary and increase of suction temp.; improper running of compressor, burning in or stuck of bearing, damage of discharge valve;

Processing method: adjust refrigerant amount; replace the capillary; replace the compressor; use universal meter to check if the contactor of compressor is fine when it is not overheated, if not replace the protector.

6. System malfunction

i.e. overload protection. When tube temperature (Check the temperature of outdoor heat exchanger when cooling and check the temperature of indoor heat exchanger when heating) is too high, protection will be activated.

7. IPM module protection

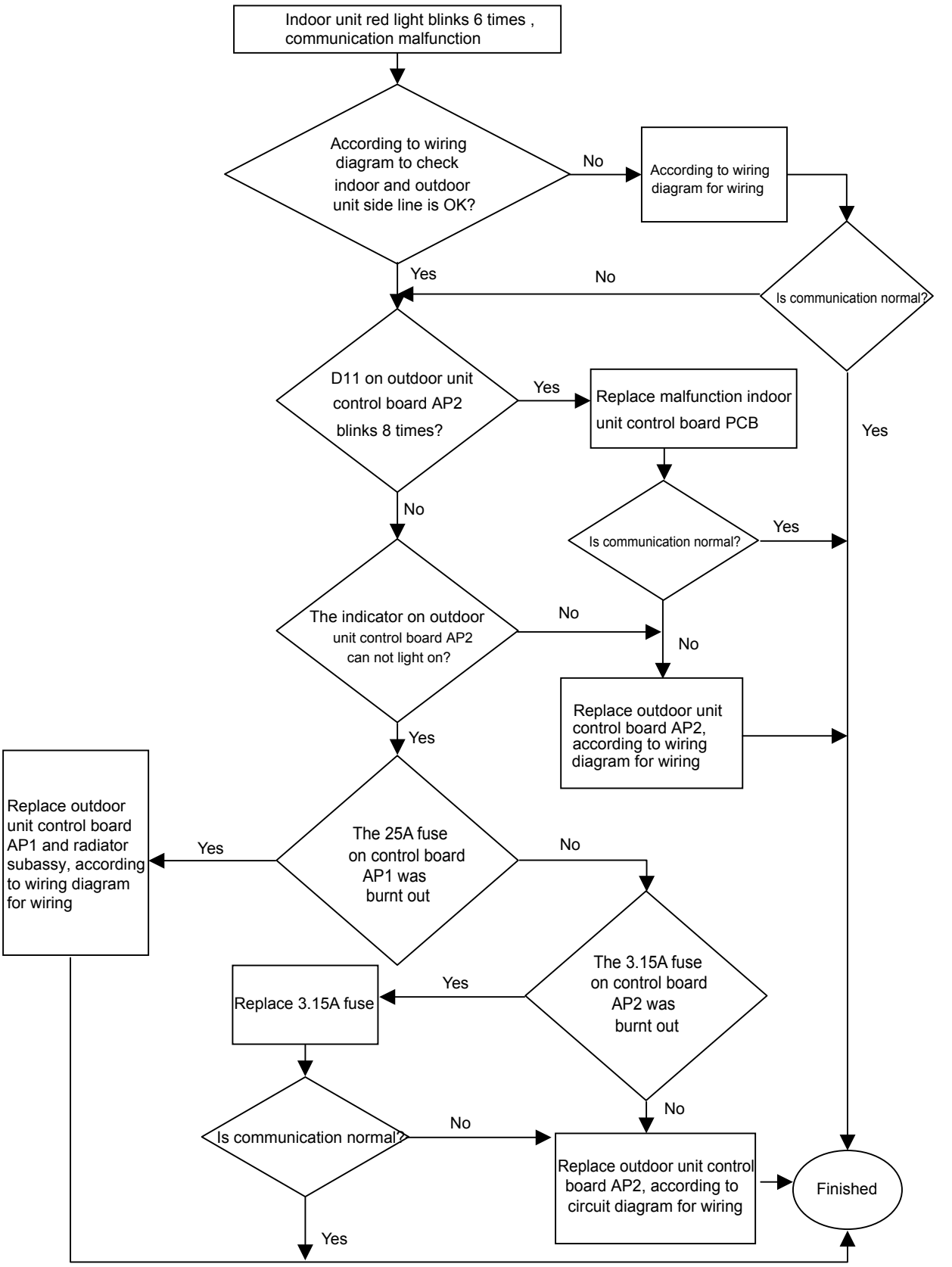
Processing method: Once the module malfunction happens, if it persists for a long time and can not be self-cancled, cut off the power and turn off the unit, and then re-energize the unit again after about 10 min. After repeating the procedure for several times, if the malfunction still exists, replace the module. (refer to the next page)

8. PTC protection

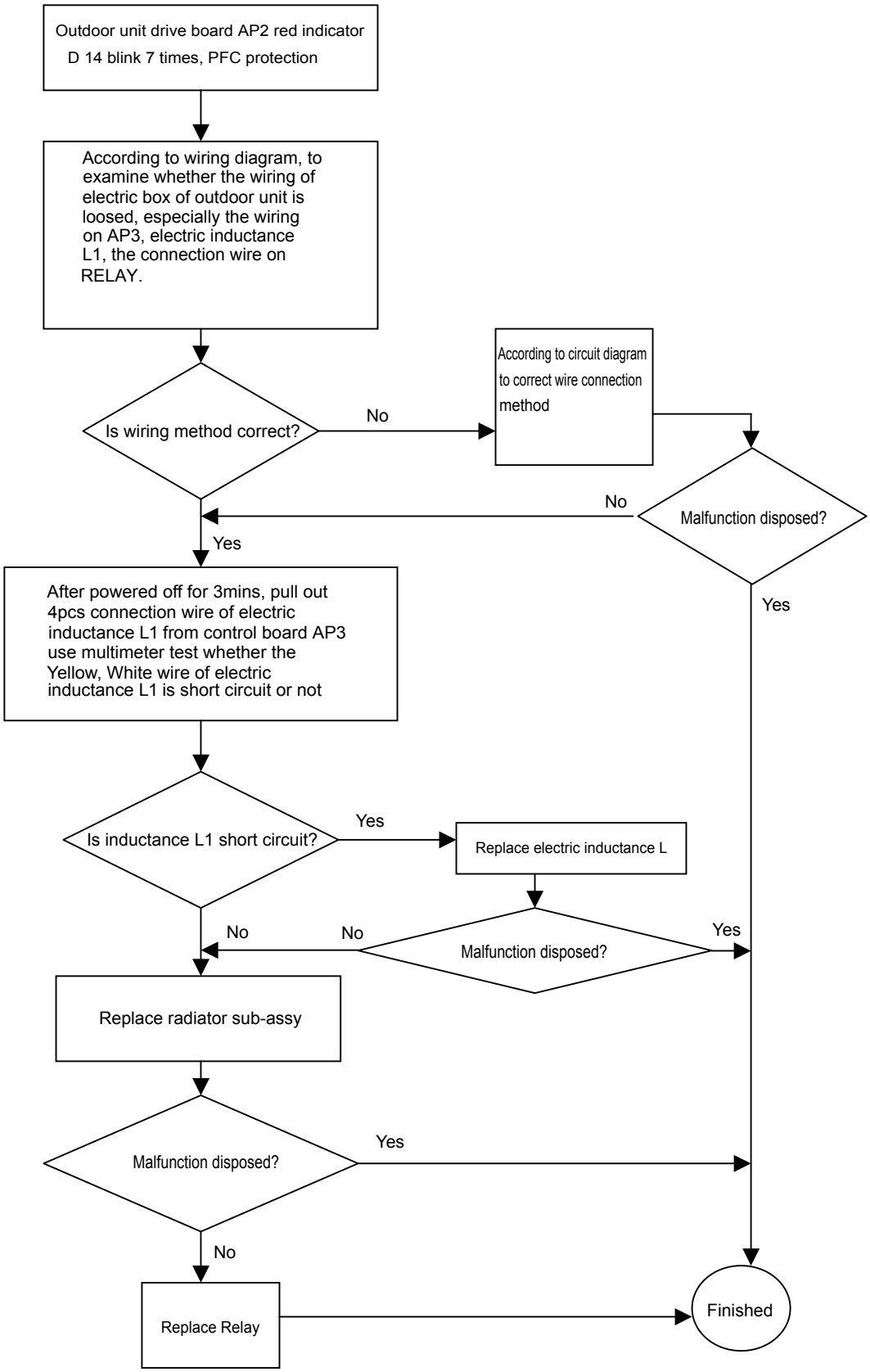
Possible reasons: ambient temp. is too high. or PFC module is too heat, the power orcurrent of complete unit is too high or PFC voltage is too low; connecting wire of PFC control plate is in poor contact.

Processing method: Once protection happens, first check connecting wire of PFC control plate, and if the unit is still abnormal with continuous protection, replace PFC controller.

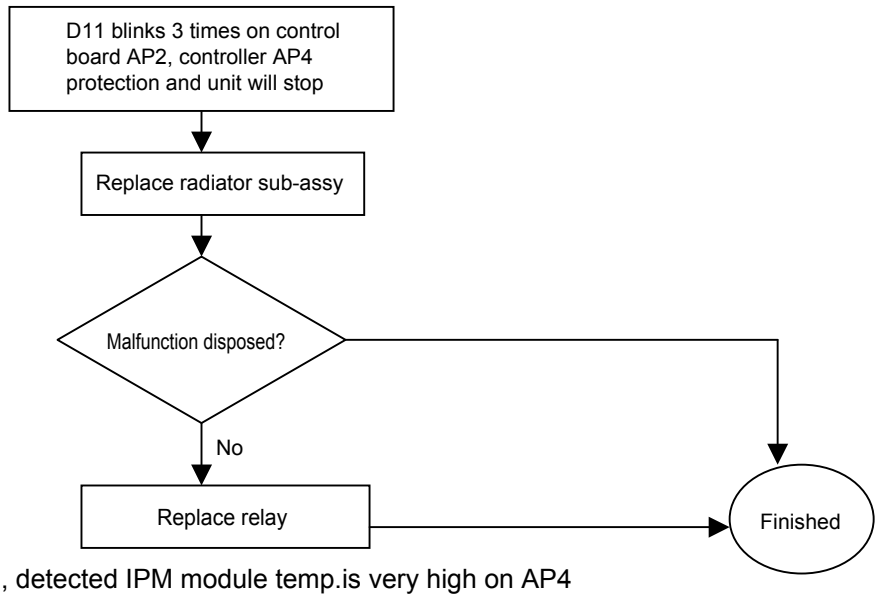
1.Indoor unit displays E6, running indicator blinks 6 times, communication malfunction analysis



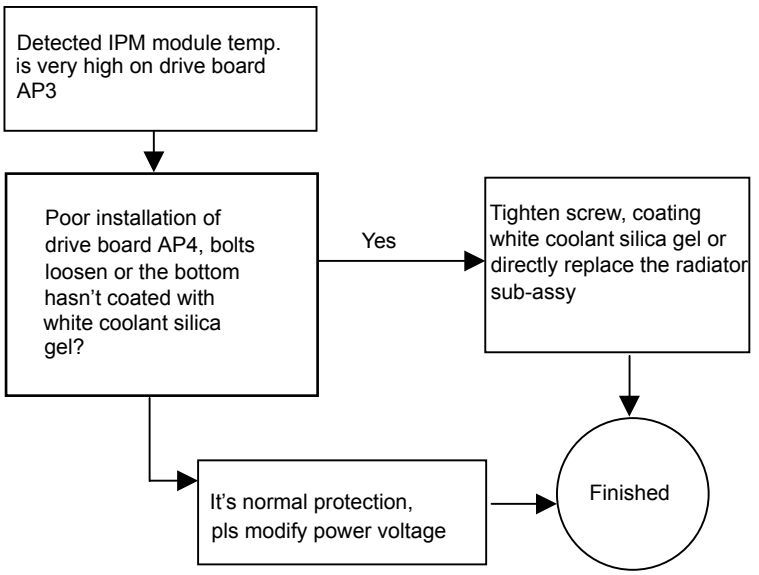
2. The indicator D14 blinks 7 times on the outdoor unit drive board AP2, PFC protection analysis



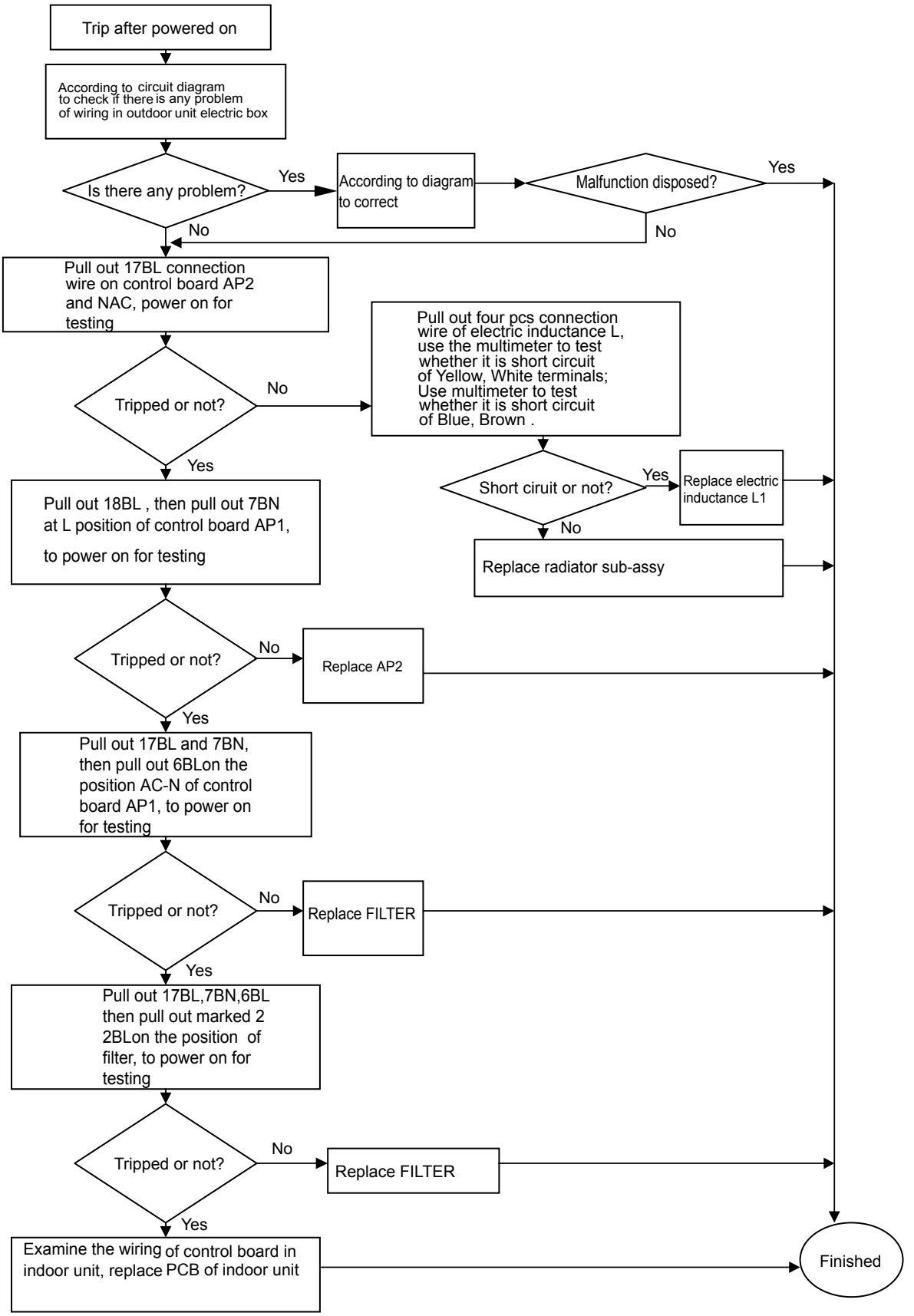
3. D11 blinks 3 times on the system board AP2, NEC drive board module protection analysis



4. D11 blinks 12 times, detected IPM module temp.is very high on AP4



5.Analysis and processing of power on trip off


Trip after powered on
According to circuit diagram to check if there is any problem of wiring in outdoor unit electric box
Is there any problem?
Yes
According to diagram to correct
Malfunction disposed?
Yes
No
No
Pull out 17BL connection wire on control board AP2 and NAC, power on for testing
Tripped or not?
No
Pull out four pcs connection wire of electric inductance L, use the multimeter to test whether it is short circuit of Yellow, White terminals; Use multimeter to test whether it is short circuit of Blue, Brown .
Yes
Short ciruit or not?
Yes
Replace electric inductance L1
No
Replace radiator sub-assy
Pull out 18BL , then pull out 7BN at L position of control board AP1, to power on for testing
Tripped or not?
No
Replace AP2
Yes
Pull out 17BL and 7BN, then pull out 6BLon the position AC-N of control board AP1, to power on for testing
Tripped or not?
No
Replace FILTER
Yes
Pull out 17BL,7BN,6BL then pull out marked 2 2BLon the position of filter, to power on for testing
Tripped or not?
No
Replace FILTER
Yes
Examine the wiring of control board in indoor unit, replace PCB of indoor unit
Finished