improve your life

CHARM DUBBEL

SINGLE SPLIT AIR CONDITIONERS-R32

SERVICE MANUAL

INVERTER

INDOOR UNIT

CHARM DUBBEL 9000 UI

CHARM DUBBEL 12000 UI

OUTDOOR UNIT

CHARM DUBBEL 14000 UE

Please read this manual carefully before installing and using the air conditioner, and retain for future reference.

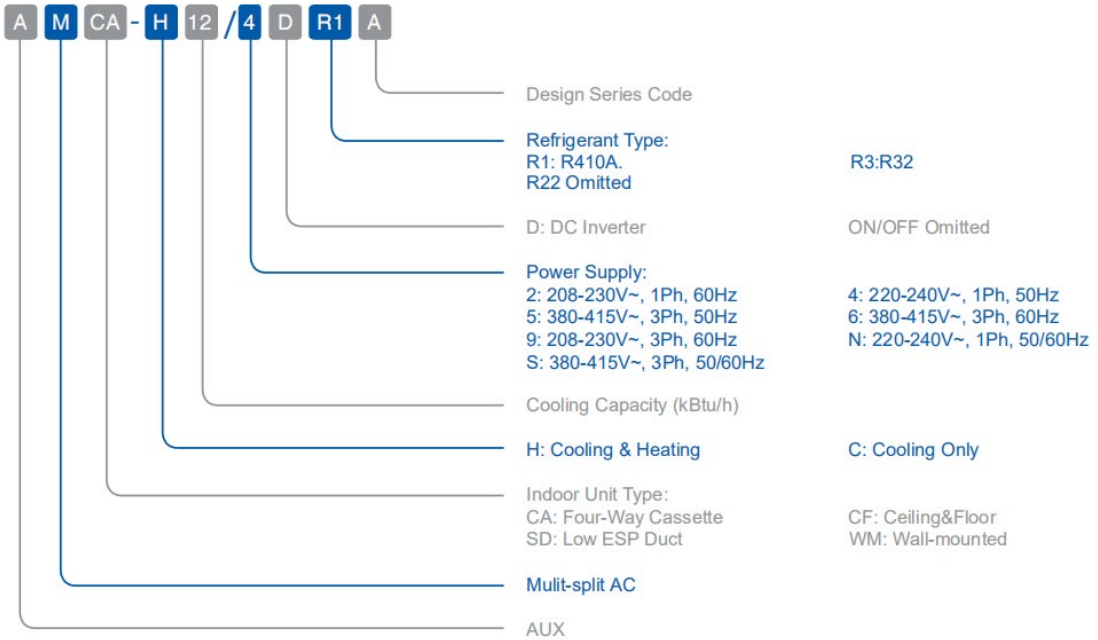
V 09/23

Contents

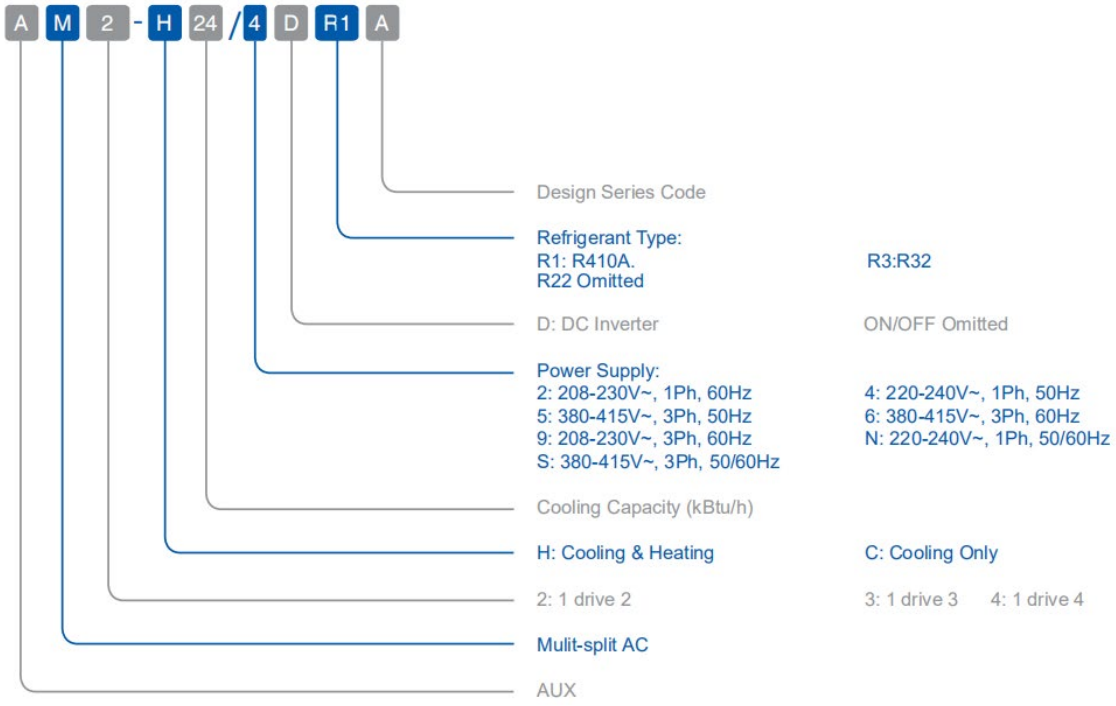
Part1 General Information

1. Nomenclature

Indoor Unit



Outdoor Unit:

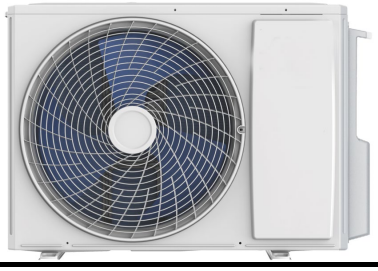


2. Unit appearance

2.1 Wall - Mounted

Picture	Capacity Range / Mode	
		
	09 K Btu/h	
	12 K Btu/h	

2.6 Outdoor Unit

Capacity (Btu/h)	14k	
	14 K Btu/h	
Picture		

3. Accessories Included

3.1 Outdoor Units

N°	Name	QUANTITY					
		14K					
1	Installer manual	1					
2	Drainage connector	1					
3	Pipe adaptor	0					
4	copper nuts	8					

3.2 Indoor Units

N°	Name	QUANTITY				
		Wall Mounted	Duct	Cassette	Ceiling & Floor	Console
1	User manual	1	1	1	1	1
2	Remote control	1	0	1	1	1
3	Batteries for Remote Control	2	0	2	2	2
4	Touch screen wired Control	0	1	0	0	0
5	Panel screw	0	0	4	0	0
6	Drainage tube	0	1	1	1	1
7	Pipe adaptor	0	1	1	1	0
8	Thermal insulation pipe	0	2	2	2	2

Part2 Features

1. Outdoor Units

Environmental-friendly Refrigerant R32

The GWP value of R32 is smaller, so the effect on the greenhouse effect is smaller. The ODP value of R32 is 0, so it's no harm to our planet's ozone layer.

High Efficiency

Equipped with high efficiency DC Inverter compressor, adjustable fan motor and advanced 180° sine wave vector driver, the system can be higher than 6.1 in SEER and 4.0 in SCOP so to meet the European and Australian new energy efficiency standards.

Reliability

Stable cooling under -10°C and heating under -15°C outdoor environment temperature.

180°Sine Wave Control

DC inverter compressor uses 180°sine wave vector control technique, make compressor motor operate smoothly and efficiency increases significantly.

Energy Saving

Cutting-edge DC inverter of sine wave control and active PFC technology realize low noise and economical operation.

Space-Saving Installation

Up to 5 indoor units can be connected to a single outdoor unit, which reduces the number of outdoor units required so to save installation space. Besides, each indoor unit can be controlled individually and they even needn't to be installed at the same time.

EXV Regulation

Each Indoor Unit adjusted by a EXV, whole unit could achieve quick cooling and heating, and decrease throttling noise in indoor units.

Electrical heater（Optional）

Heater code: 11330029000010 220V 50W

The electrical heater is used to melt ice on the chassis, make sure good heat exchange performance for condenser, powerful heating performance in very cold condition and create comfortable environment.

Heating only function（Optional）

Cooling & heating is standard， heating only is optional. Pls refer to Part9 2.2 Parameter

setting.

Note: Wall mounted unit no heating only function.

2. Wall Mounted

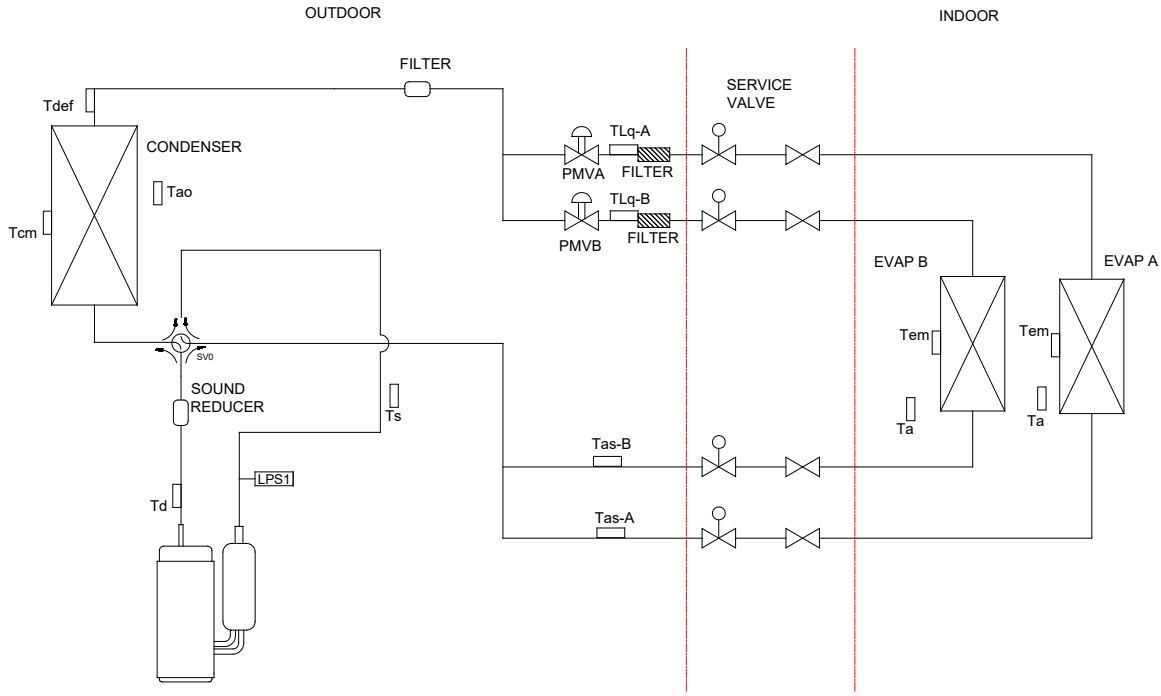
Wall Mounted type A/C is installed by the wall, compared with Floor & Standing type A/C, it has following advantages: Wall mounting installation combining with the decoration, makes the room more elegant; Flexible installation in anywhere in the wall and swing blowing, makes you feel more comfortable.

Two ways Draining Connection

Both left and right sides of unit are possible for drainage pipe connection, easy for installation.

Part3 Piping System

14K

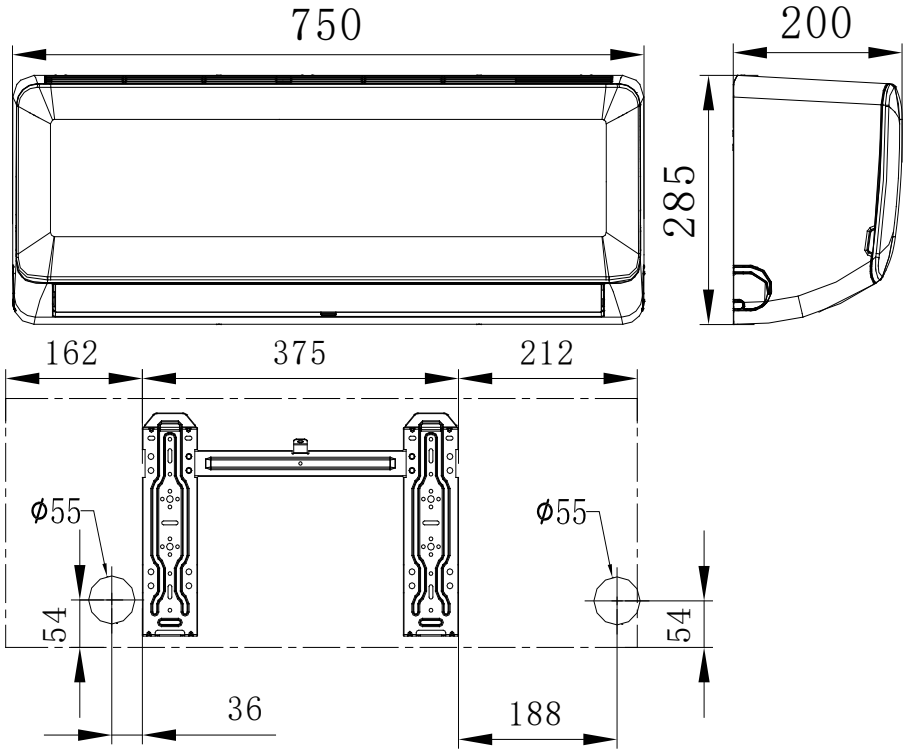


Part4 Dimension

1. Wall Mounted

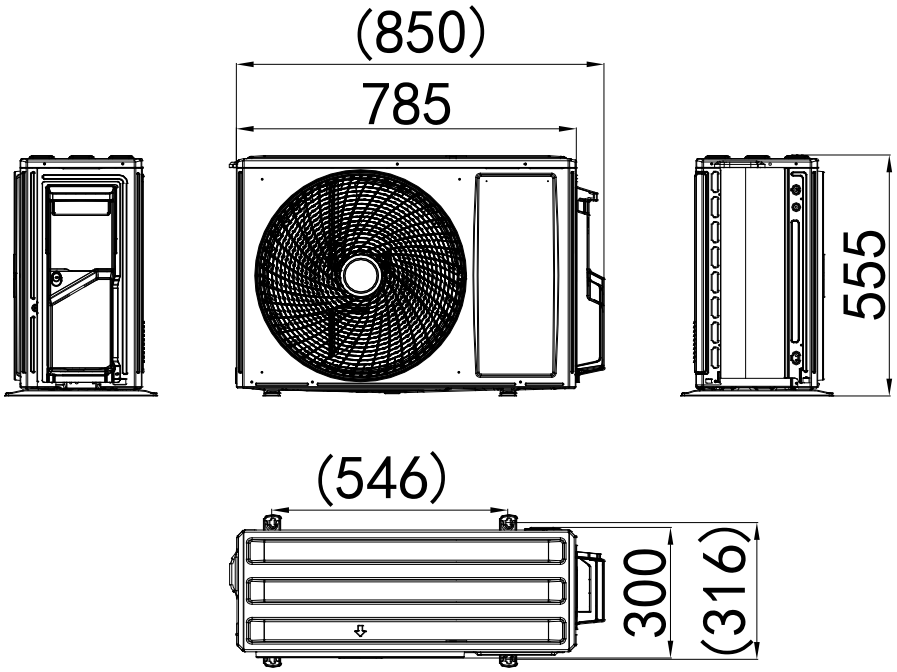
1.1 Indoor unit

09K 12K：



2. Outdoor Unit

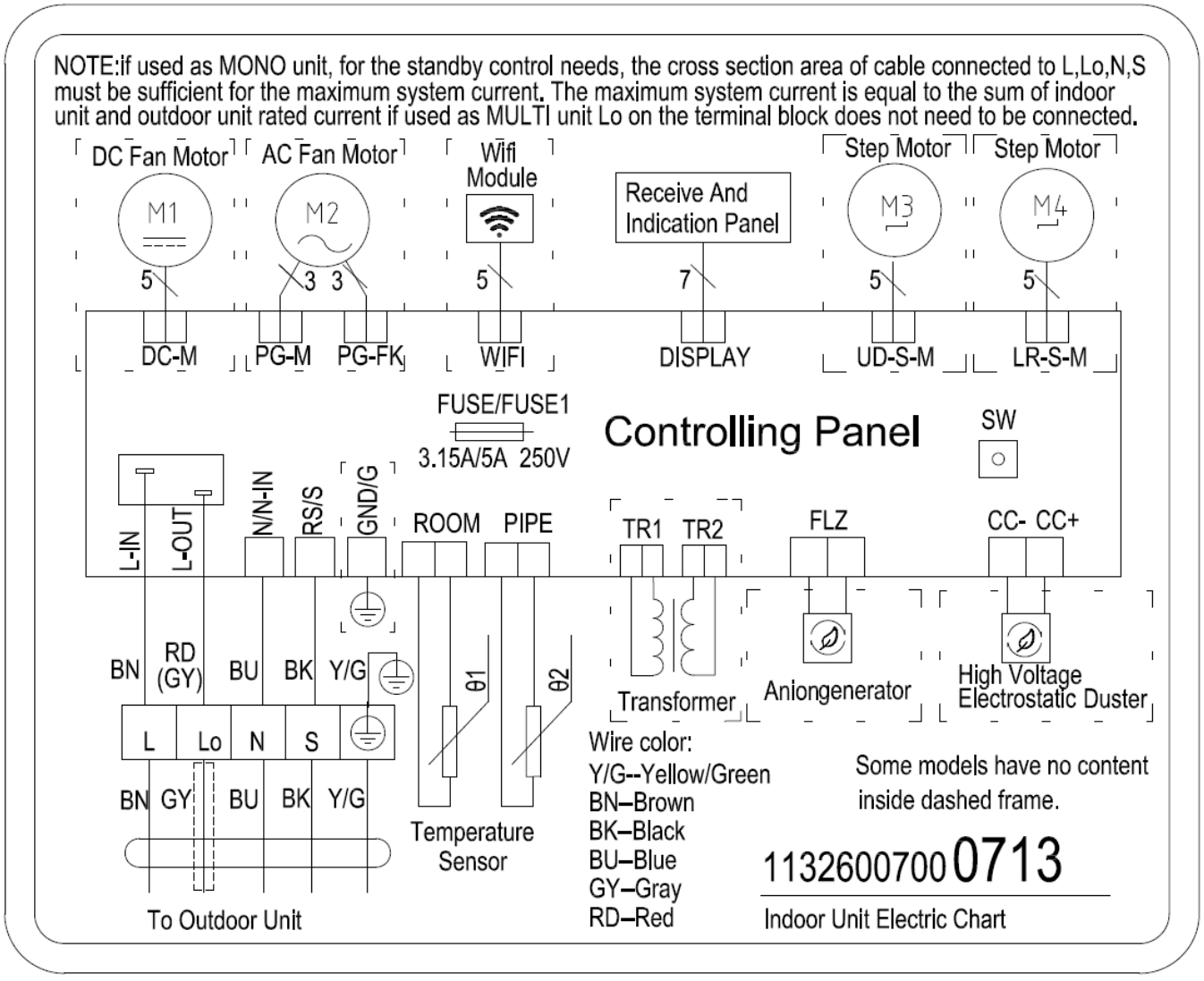
2.1 14K



Part5 Electrical Principle Diagram

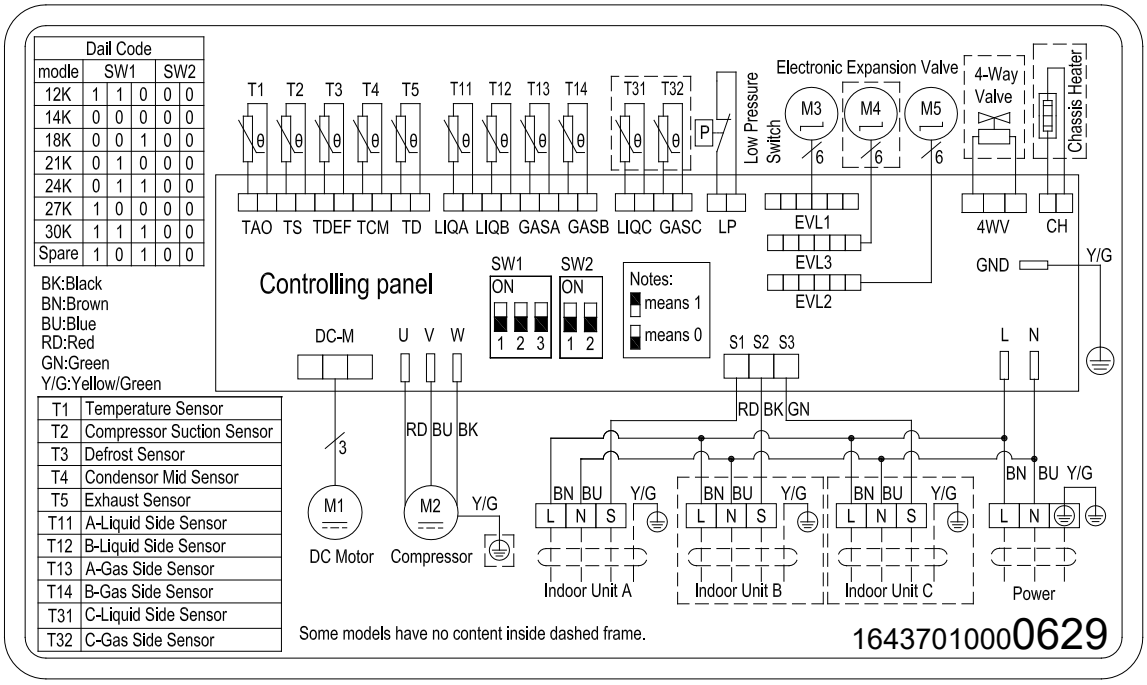
1. Wall Mounted

09K, 12K



2. Outdoor Unit

14K



Part6 Capacity Amendment

1. Operation range

Cooling capacity (KBtu/h)		14K
Power supply		220-240V~/50Hz
Voltage		187~253V
Ambient temperature	Cooling	-10~52℃
	Heating	-15~24℃

2. Capacity amendment of different ambient temperature

2.1 Amendment coefficient of Cooling capacity under different indoor/outdoor DB/WB temperature K1

IDU temp.℃		Outdoor air inlet DB temperature℃											
DB	WB	-15	-10	0	10	16	25	30	35	40	43	48	52
23	16	1.26	1.19	1.12	1.08	1.05	1	0.95	0.90	0.87	0.85	0.82	0.77
25	18	1.28	1.26	1.19	1.12	1.08	1.05	1	0.95	0.90	0.87	0.85	0.82
27	19	1.30	1.28	1.26	1.19	1.12	1.08	1.05	1	0.95	0.90	0.87	0.85
28	20	1.33	1.30	1.28	1.26	1.19	1.12	1.08	1.05	1	0.95	0.90	0.87
30	22	1.5	1.33	1.30	1.28	1.26	1.19	1.12	1.08	1.05	1	0.95	0.90
32	24	1.7	1.5	1.33	1.30	1.28	1.26	1.19	1.12	1.08	1.05	1	0.95

Actual cooling capacity calculation:

Actual cooling capacity=amendment coefficient of cooling capacity × nominal cooling capacity

——Amendment coefficient of cooling capacity could be found from table above.

Amendment coefficient of Heating capacity under different indoor/outdoor DB/WB temperature K2

IDU temp.℃	Outdoor air inlet DB temperature℃								
DB	-15	-10	-5	0	7	10	15	20	24
16	0.93	0.97	1	1.06	1.08	1.1	1.14	1.2	1.25
18	0.87	0.93	0.97	1	1.06	1.08	1.1	1.14	1.2
20	0.8	0.87	0.93	0.97	1	1.06	1.08	1.1	1.14
22	0.71	0.8	0.87	0.93	0.97	1	1.06	1.08	1.1
24	0.62	0.71	0.8	0.87	0.93	0.97	1	1.06	1.08

Actual heating capacity calculation:

Actual heating capacity=amendment coefficient of heating capacity × nominal heating capacity

——amendment coefficient of heating capacity could be found from table above.

3. Long piping length

Cooling capacity (KBtu/h)		14K			
Connection Pipe(mm)	Liquid pipe	Φ6.35*2	Φ6.35*3	Φ6.35*4	Φ6.35*5
	Gas pipe	Φ9.52*2	Φ9.52*3	Φ9.52*4	Φ9.52*5
Max. length for all rooms (m)		40	60	80	
Max. length for one IU (m)		25	30	35	
Max. height difference between IU and OU (m)		15			
Max. height difference between IUs (m)		10			

Caution:

1. The standard Pipe length is 5m, if the pipe length is less than this then no additional charging is necessary. If the pipe length is more than this then you should charge more refrigerant into the system according to the above Charging Data

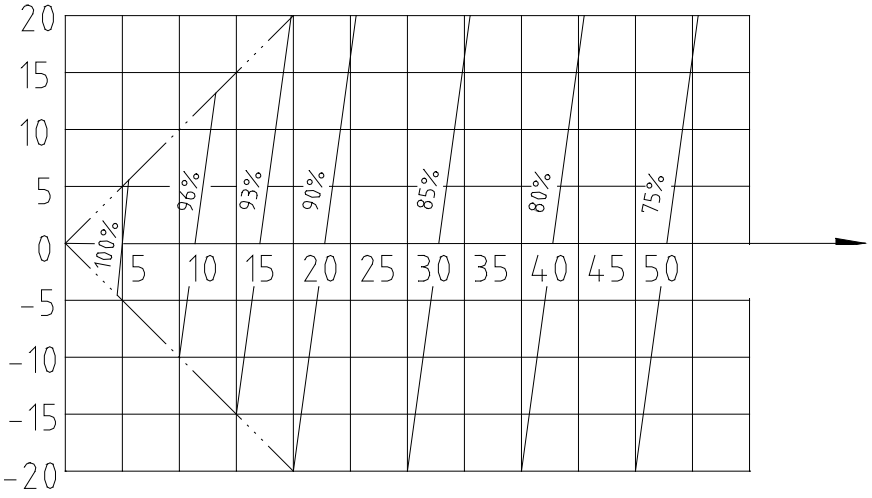
2. The thickness of the pipe is 0.6-1.0, bearing pressure is 4.2MPa;

3. If the connection pipe is too long, the cooling capacity and stability would be decreased. And the more bend quantity, the resistance in the piping system would be bigger, then the cooling and heating capacity would be decreased even lead to compressor broken. We suggest you to use the shortest connection pipe according to the pipe length parameter in this manual. If the height difference between outdoor and indoor unit is more than 5m, an oil trap should be installed in the gas pipe for every 10 meters.

4. Capacity amendment of different piping length

Amendment coefficients of heating and cooling capacity under different height drop K3

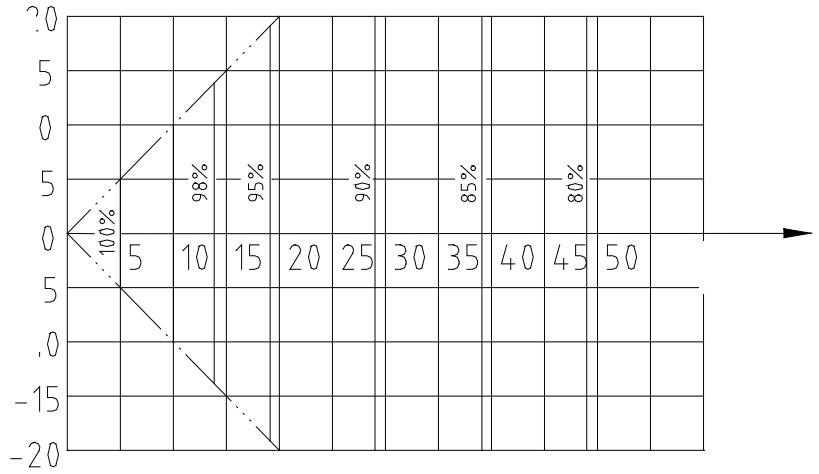
Different Cooling Capacity modified coefficients at different height:



Note:

H = Height of Outdoor Unit — Height of Indoor Unit

Different Heating Capacity modified coefficients at different height:



Note:

H = Height of Outdoor Unit — Height of Indoor Unit

4.2 Correction capability

Cooling capacity = Rated cooling capacity xK1xK3

Heating capacity = Rated heating capacity xK2xK3

5. Equivalent Pipe length conversion

Equivalent pipe length means converting pipe elbow to straight pipe length after considerate the pressure loss.

Bend and Oil Loop Conversion tablet

Type / Pipe Dia.(mm)	Bend（m）	Oil Loop(m)
6.35	0.10	0.7
9.52	0.18	1.3
12.70	0.20	1.5
15.88	0.25	2.0
19.05	0.35	2.4
22.02	0.40	3.0

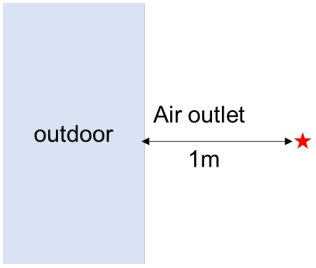
Equivalent Pipe length L＝Actual Pipe length L+ Bend Qty× Equivalent pipe bend length+ Oil Loop Qty × Equivalent Oil Loop length

Note:

If there is relatively level difference of indoor and outdoor unit, S-shaped oil trap must be installed every 8~10m for vertical pipe.

Part7 Sound level

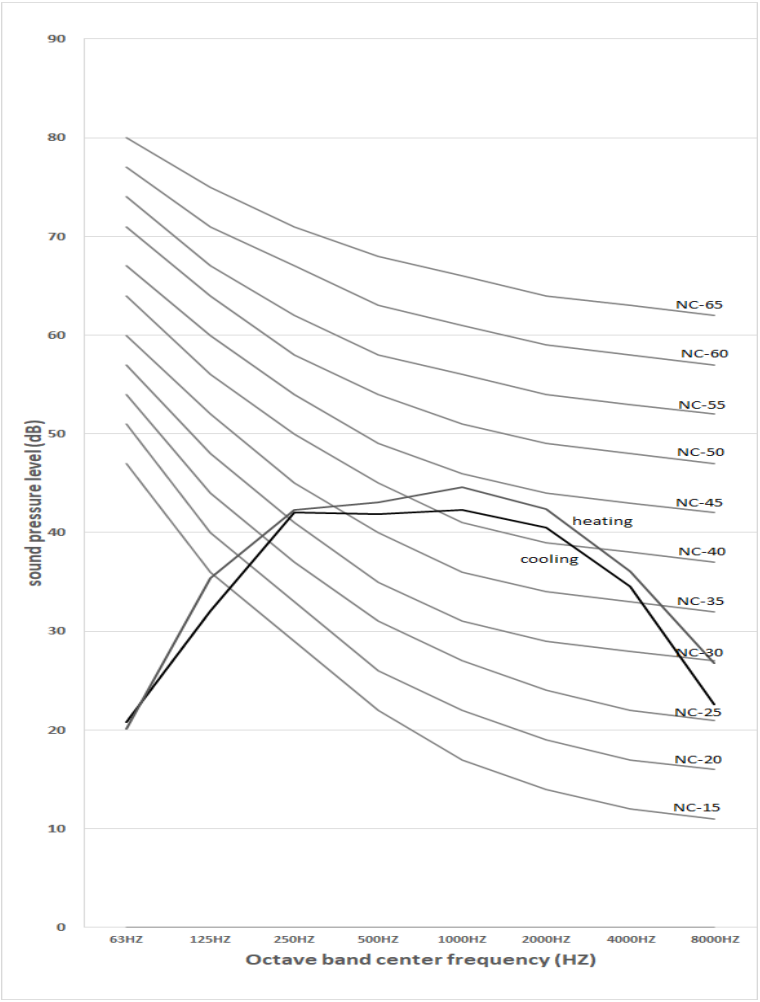
1、Outdoor unit



Test site：1m directly in front of the center of the air outlet

Model	Sound pressure（dB（A））
14K	53

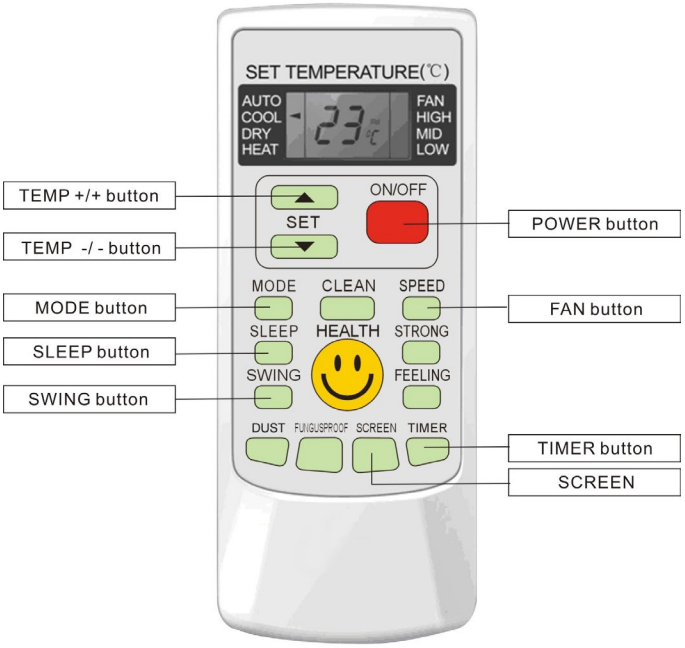
14K



Part8 Controller

1. Controller

IDU type	Controller	
	Standard	
Wall Mounted		



2. Wifi Module

2.1 WiFi Module Configuration

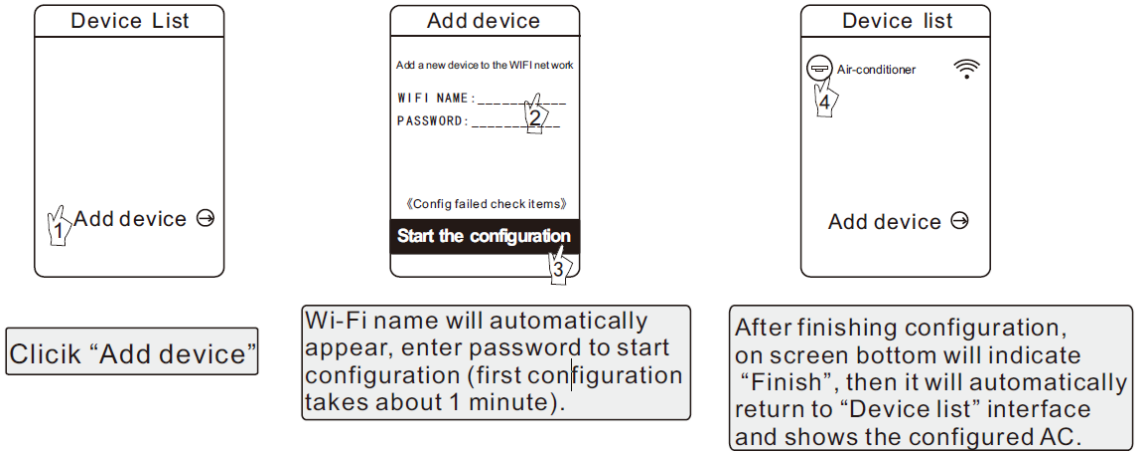
① APP Download

Mobile terminal scan the following dimensional code to download APP, or search “AC Freedom” in APPSTORE and Google store

② Light Commercial WIFI Module Installation

③ APP Configuration

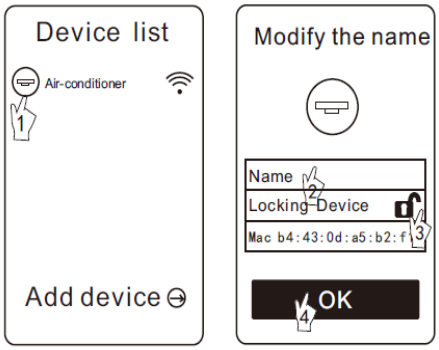
- Press "healthy" button 8 times consecutive, and buzzer even ring two sound then into the configuration
- Connect mobile terminals to WIFI, open APP “AC Freedom”, and then operate following the steps below:



Note: If the configuration fails or you change the password of wireless router, you need to reset the WIFI module to reconnect: Turn on the power of the module, then repeat the steps above for APP configuration.

2.2 AC management

① Modify AC name and locking function



Note:
If you had locked AC equipment, you need to unlock before connecting other mobile terminal. If the mobile terminal locked AC was accidentally lost, you need to reset WIFI module first, and then use the new mobile terminal to connect (Reset step is same with 1.3 APP configuration).

② For other instructions, please refer to "HELP" in APP.

③ Remote-control device

Connect the wireless router to internet, then open the GPRS. It means the remote control device, voice control function only effective after connected to the Internet

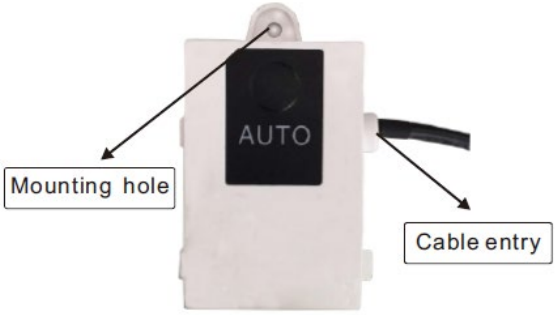
2.3 Trouble Shooting

If unable to properly configured or connect the WIFI box:

- Make sure the WIFI box for wiring is properly connected.
- Long press WIFI box 8 seconds to reconfigure the positive button. If the problem can't be solved, please contact after sales person.

4.4 Technical Parameters

- Working temperature：0~50℃；
- Working environment humidity：20~90%RH；
- Dimensions：78 X 52 X 15.5
- Configuration cable wire length：1500mm



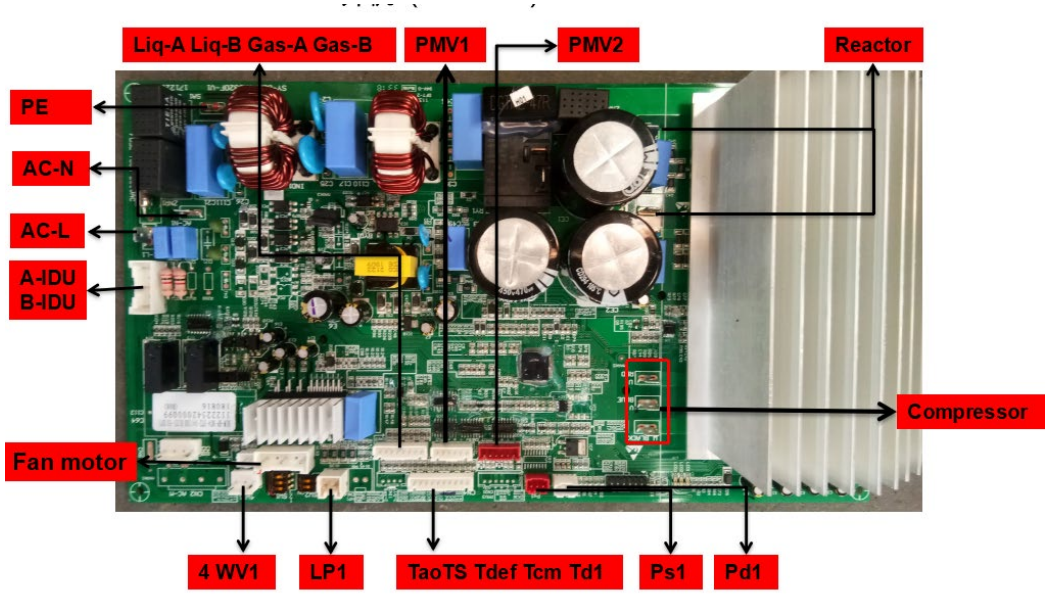
Part9 PCB Instruction

1. Outdoor Unit PCB

1.1 14K

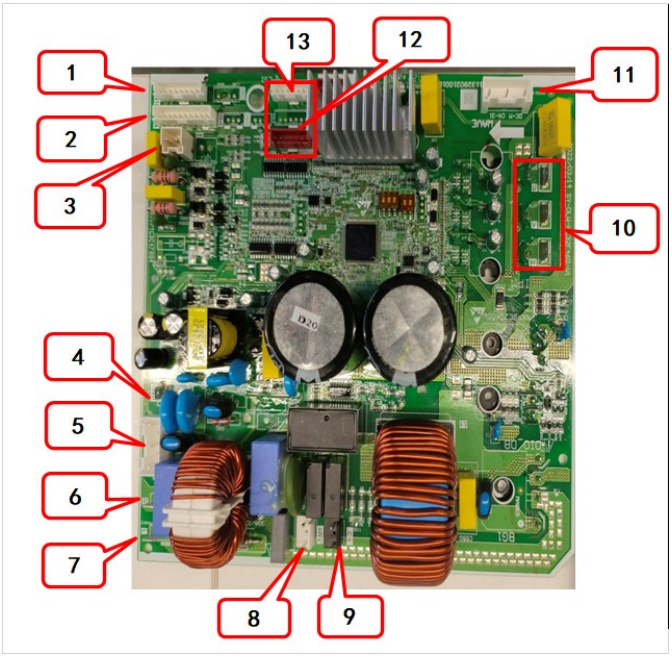
Main PCB and Driver modular

11222542000099 CJ 控制板 DLW-BP-DC4-1T2-14/18K(R32)-E1(SY)



14K

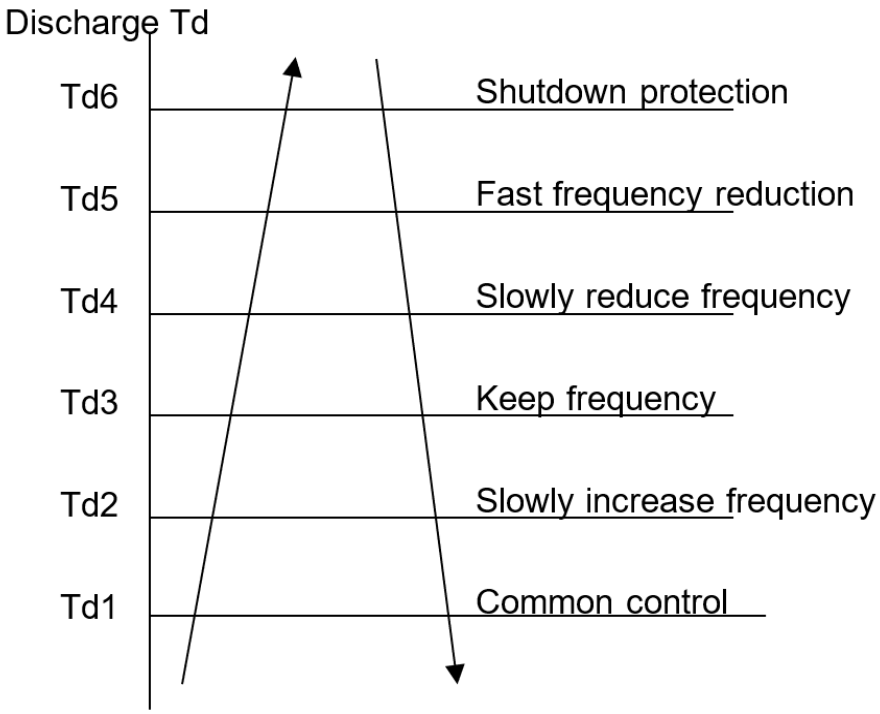
Main PCB and Driver modular: 11222542000153 CJ 控制板 DLW-BP-DC4-1T2-18K(R32)竖-E1(SY)



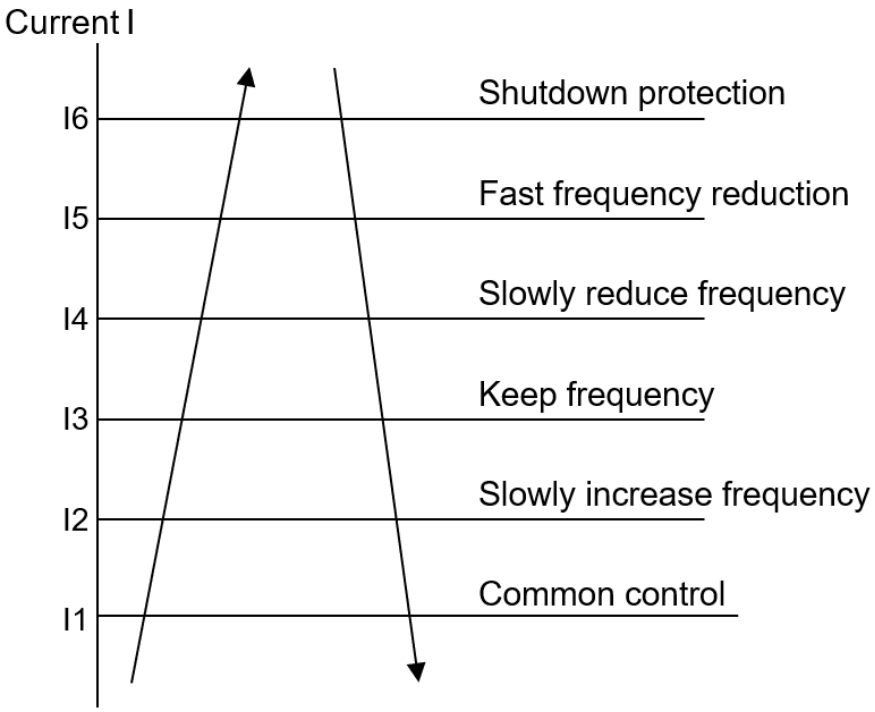
No	Remark	No	Remark
1	Temperature sensor (A/B)	8	Four-way valve (white)
2	Temperature Sensor	9	Electric heating (black)
3	Pressure Switch	10	Compressor cable (U/V/W) (red/l blue, black)
4	Main Controller Ground wire (Yellow/Green)	11	fan
5	Signal line (white)	12	Monitoring
6	Power Neutral Line (Blue)	13	Electronic expansion valve (A/B)
7	Power live wire (brown)		

Part10 Protection

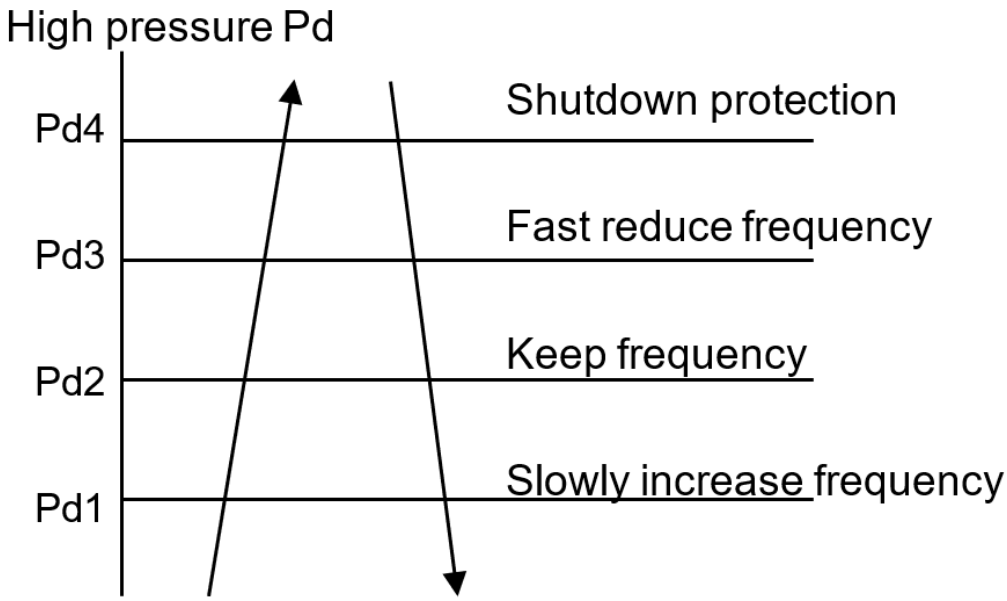
1、High Temperature Protection



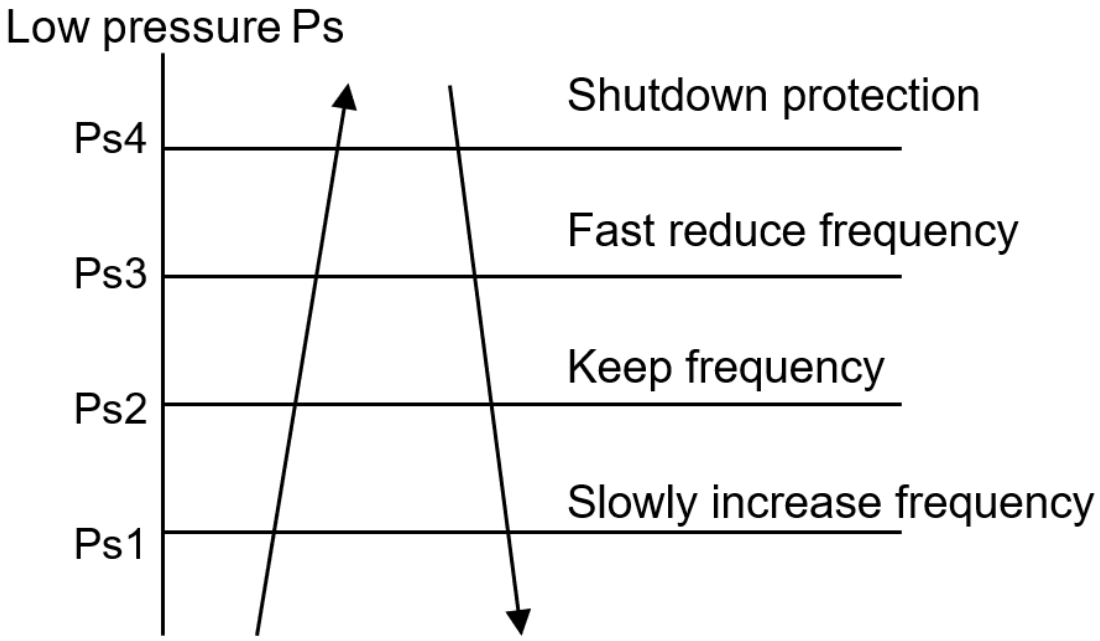
2、Over Current Protection



3、High Pressure Protection



4、Low Pressure Protection



Part11 Electric Characteristic

1、Electric Characteristic

model	power supply		voltage range		running current			ODU fan motor input （kW）
	Hz	voltage	Min	Max	cooling	heating	Max current	
14K	50	220-240	187	253	5.39	5	12	60

Part13 Trouble Shooting

WM: wall mounted unit

1. Fault code list

1.1 Temp. sensor fault (WM NO.8)

Code display in IDU		Fault code description	Possible reason
CA/CF/Duct/Co	WM		
A1	**E1**	Fault with the room temperature sensor on the N # indoor unit	Damage of the room temperature sensor on the indoor unit Poor contact of the room temperature sensor on the indoor unit Damage of wiring of the room temperature sensor on the indoor unit Damage of the main PCB on the indoor unit
A2	**E3**	Fault with the temperature Sensor in the Middle of N # indoor evaporator	Damage of the temperature sensor on the indoor unit Poor contact of the temperature sensor on the indoor unit Damage of wiring of the temperature sensor on the indoor unit Damage of the main PCB on the indoor unit
A3	**H3**	Fault with the liquid pipe temperature sensor on the N# indoor unit	Damage of the liquid pipe temperature sensor on the indoor unit Poor contact of the liquid pipe temperature sensor on the indoor unit Damage of wiring of the liquid pipe temperature sensor on the indoor unit Damage of the main PCB on the indoor unit
A4	**H4**	Fault with the gas pipe temperature sensor on the N# indoor unit	Damage of the gas pipe temperature sensor on the indoor unit Poor contact of the gas pipe temperature sensor on the indoor unit Damage of wiring of the gas pipe temperature sensor on the indoor unit Damage of the main PCB on the indoor unit

Code display in IDU		Fault code description	Possible reason
CA/CF/Duct/Co	WM		
C1	F6	Fault with the environmental temperature sensor on the outdoor unit	Damage of the Environmental temperature sensor on the outdoor unit Poor contact of the Environmental temperature sensor on the outdoor unit Damage of wiring of the Environmental temperature sensor on the outdoor unit Damage of the main PCB on the outdoor unit
C3	F4	Fault with the discharge temperature sensor	Damage of the discharge temperature sensor on the outdoor unit Poor contact of the discharge temperature sensor on the outdoor unit Damage of wiring of the discharge temperature sensor on the outdoor unit Damage of the main PCB on the outdoor unit
C6	FA	Fault with the suction temperature sensor	Damage of the suction temperature sensor on the outdoor unit Poor contact of the suction temperature sensor on the outdoor unit Damage of wiring of the suction temperature sensor on the outdoor unit Damage of the main PCB on the outdoor unit
C8	E2	Fault with the Temperature Sensor in the middle of Outdoor condenser	Damage of the temperature sensor on the outdoor unit Poor contact of the temperature sensor on the outdoor unit Damage of wiring of the temperature sensor on the outdoor unit Damage of the main PCB on the outdoor unit
C2		Fault with the Defrosting Temperature Sensor on Outdoor	

1.2 Communication fault (WM NO.5)

Code display in IDU		Fault code description	Possible reason
CA/CF/Duct/Co	WM		
A9	5E/E5	Communication error between the outdoor unit and the N # indoor unit	Damage of the main PCB on the indoor unit Damage of the main PCB on the outdoor unit poor wiring
AA	E8/H2	Communication error between the wired controller and main PCB of the N# indoor unit	poor wiring Damage of the wired controller Damage of the main PCB on the indoor unit
D3(J3)	F8	Communication error between the driver PCB and main PCB of the outdoor unit	Damage of the driver PCB on the outdoor unit Damage of the main PCB on the outdoor unit poor wiring

1.3 IDU fault (WM NO.3)

Code display in IDU		Fault code description	Possible reason
CA/CF/ Duct/Co	WM		
A5	H1	Fault with the drainage on N# Indoor unit	Float switch disconnected or poor wiring Error setting of model parameters Drain plug Damage of the pump
A6	E4	Fault with the Fan motor of N # indoor unit	Low voltage poor wiring Damage of the main PCB on the indoor unit Damage of the motor
AD	P7	Indoor anti-freezing protection	Dirty Blockage of evaporator Indoor fan abnormal

1.4 Refrigerant circuit fault (WM NO.6)

Code display in IDU		Fault code description	Possible reason
CA/CF/Duct/Co	WM		
E3	P5	High discharge temperature Protection	Lack of the refrigerant Stop valve unopened Damage of the main PCB on the outdoor unit
E8	P4/P6	Cooling: high temperature Protection of outdoor unit Heating: high temperature Protection of indoor unit	Cooling: Poor condenser heat exchange Heating: Poor evaporator heat exchange
F6/H4	H7	Low pressure protection	Lack of the refrigerant Heat exchanger viscera
FH	H5	Lower discharge temperature protection	temperature sensor shedding Damage of the main PCB on the outdoor unit
(B5)H5	P3	Lack of refrigerant	Lack of the refrigerant Stop valve unopened

1.5 ODU components fault (WM NO.12)

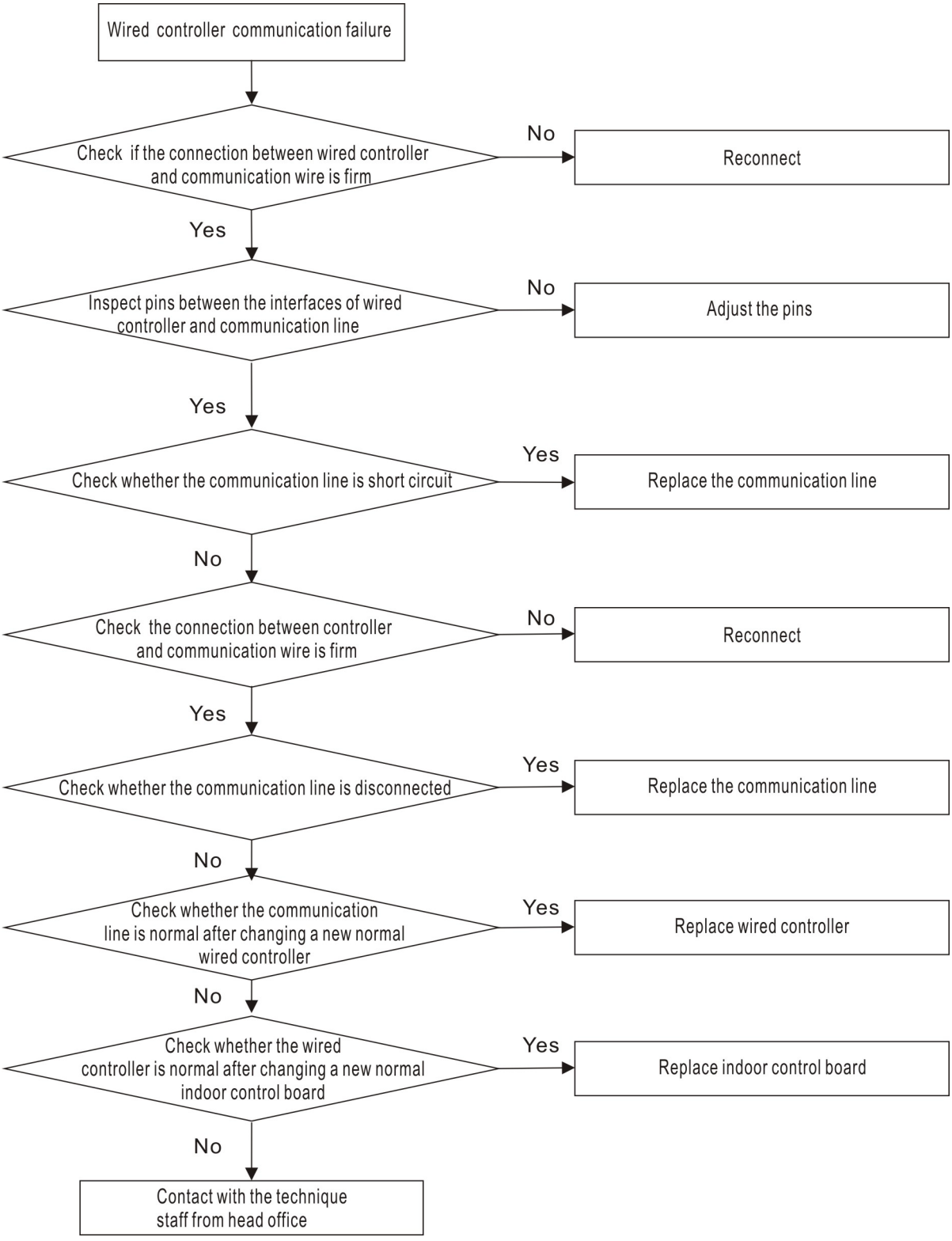
Code display in IDU		Fault code description	Possible reason
CA/CF/Duct/Co	WM		
(B1)H1	P2	High pressure Switch Protection	System dirty blocking Damage of High Voltage Pressure Switch
H4	H6	Low pressure switch protection	Lack of the refrigerant Stop valve unopened damage of low press switch
E1	H8	Fault of four-way valve	Damage of four-way valve Damage to coil of four-way valve
34	F3/LA/L2 /L3	Compressor failed to start	Compressor power line not connected Compressor sequence connection error Damage of compressor
3E			
3B(3H)	F0/LD/LE/LF	Fault with the Fan motor of outdoor unit	Damage of motor
3C	LF	Outdoor DC Fan Out-of-step Protection & over current protection	DC motor failure High Speed of DC Fan System dirty blocking

1.6 ODU electeic control fault (WM NO.20)

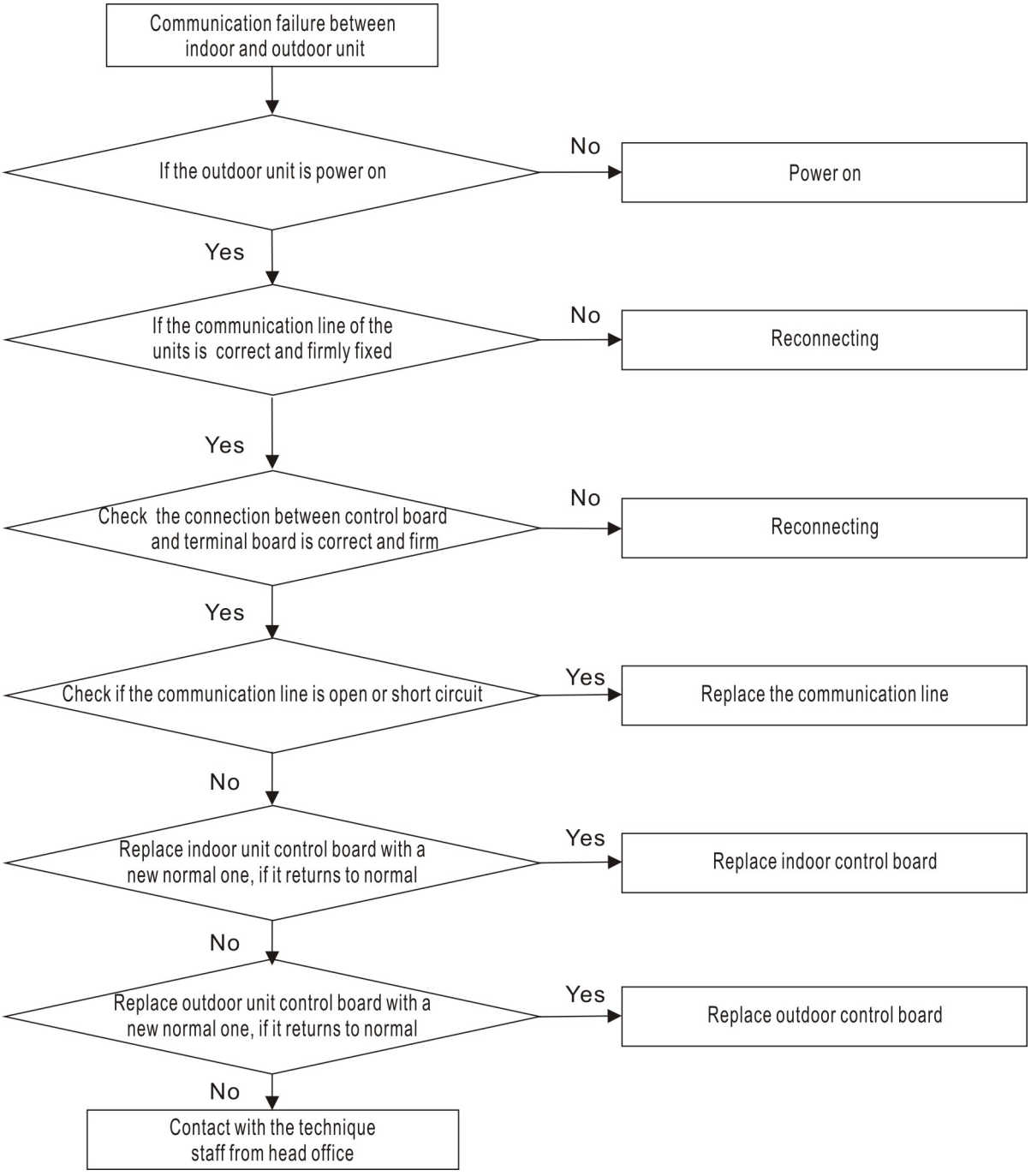
Code display in IDU		Fault code description	Possible reason
CA/CF/Duct/Co	WM		
31	F1/L1/L4 /L7/L8	IPM Module failure protection	compressor damage compressor IPM Module damage system blockage
32	F9	Compressor drive hardware protection & Fault with the outdoor unit EEPROM	chip damage
D7(J7)			
35	P8/J8	Over-current Protection of the compressor drive modular	Excessive running current of the unit Voltage drops abruptly during operation
36	F7/L0	Over-voltage Protection of the compressor drive modular	Excessive input voltage Lower input voltage
37	HE/HF	Abnormal temperature sensor in IPM/PFC module	Driver board IPM/PFC module device is broken
39	L9	Temperature of compressor drive modular too high protection	Compressor IPM Module sensor damage Poor contact between compressor IPM module and radiator
3J	LD	AD Abnormal Protection for Outdoor DC Fan Current Detection	Abnormal component of the fan driver modular
3F	F2/L5/ L6/LC	Compressor drive PFC protection	Damage of the PFC circuit components Reactor damage
41	LH	IPM Protection of Outdoor DC Fan drive modular	The IPM Device of DC Motor is Bad

2. Failure analysis

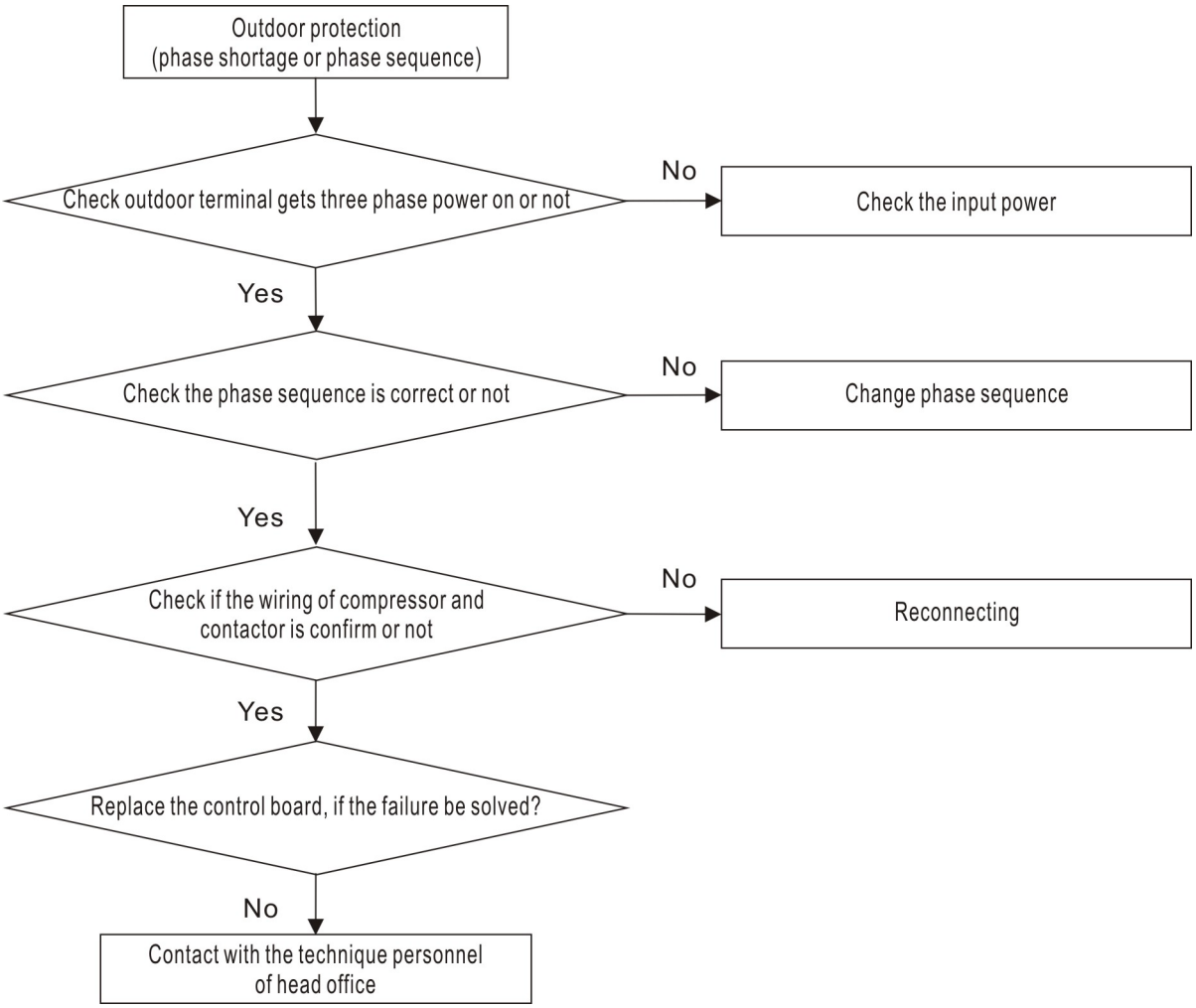
2.1【H2】Wired controller communication failure



2.2【E5】Communication failure between indoor and outdoor unit

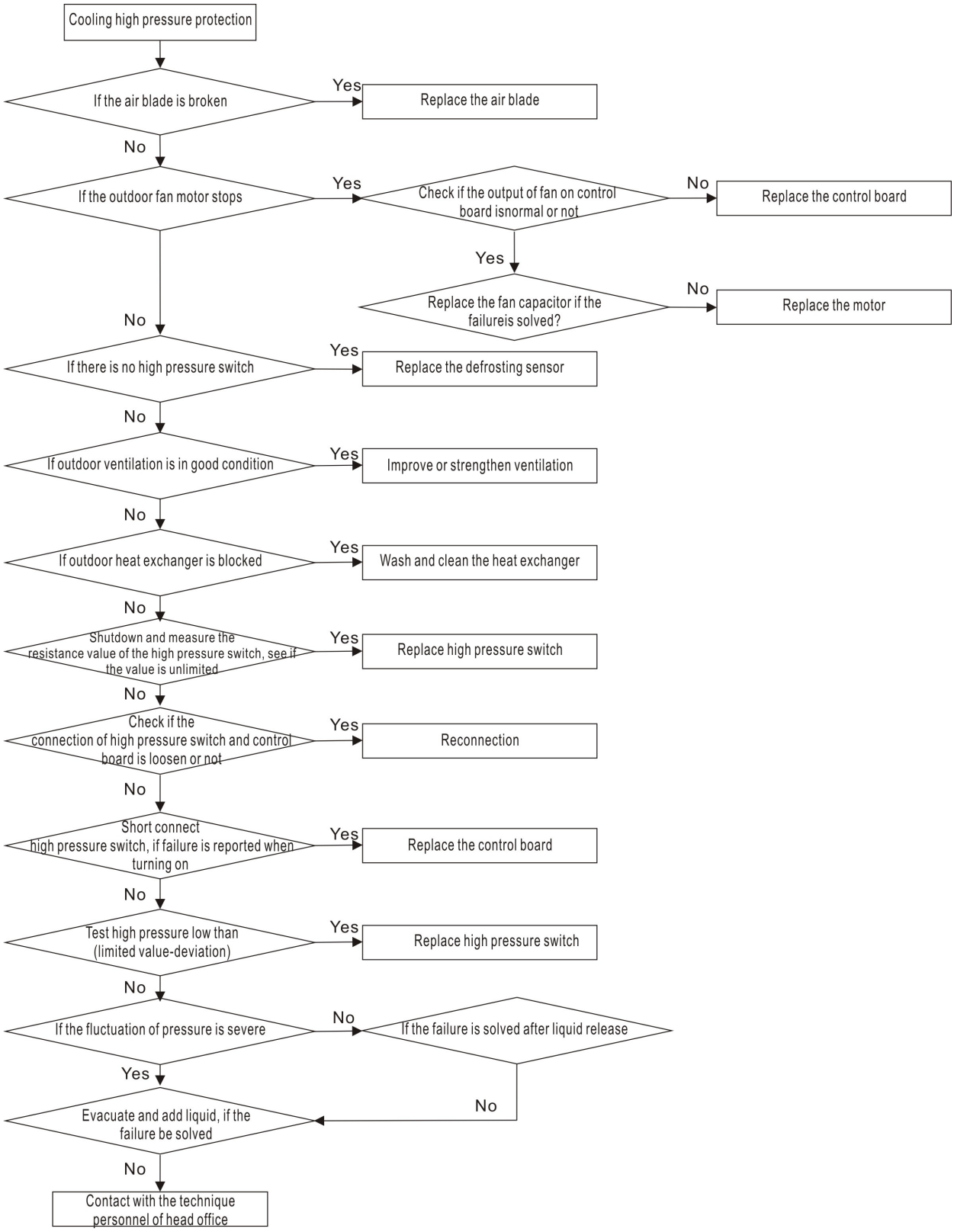


Outdoor protection (phase sequence)

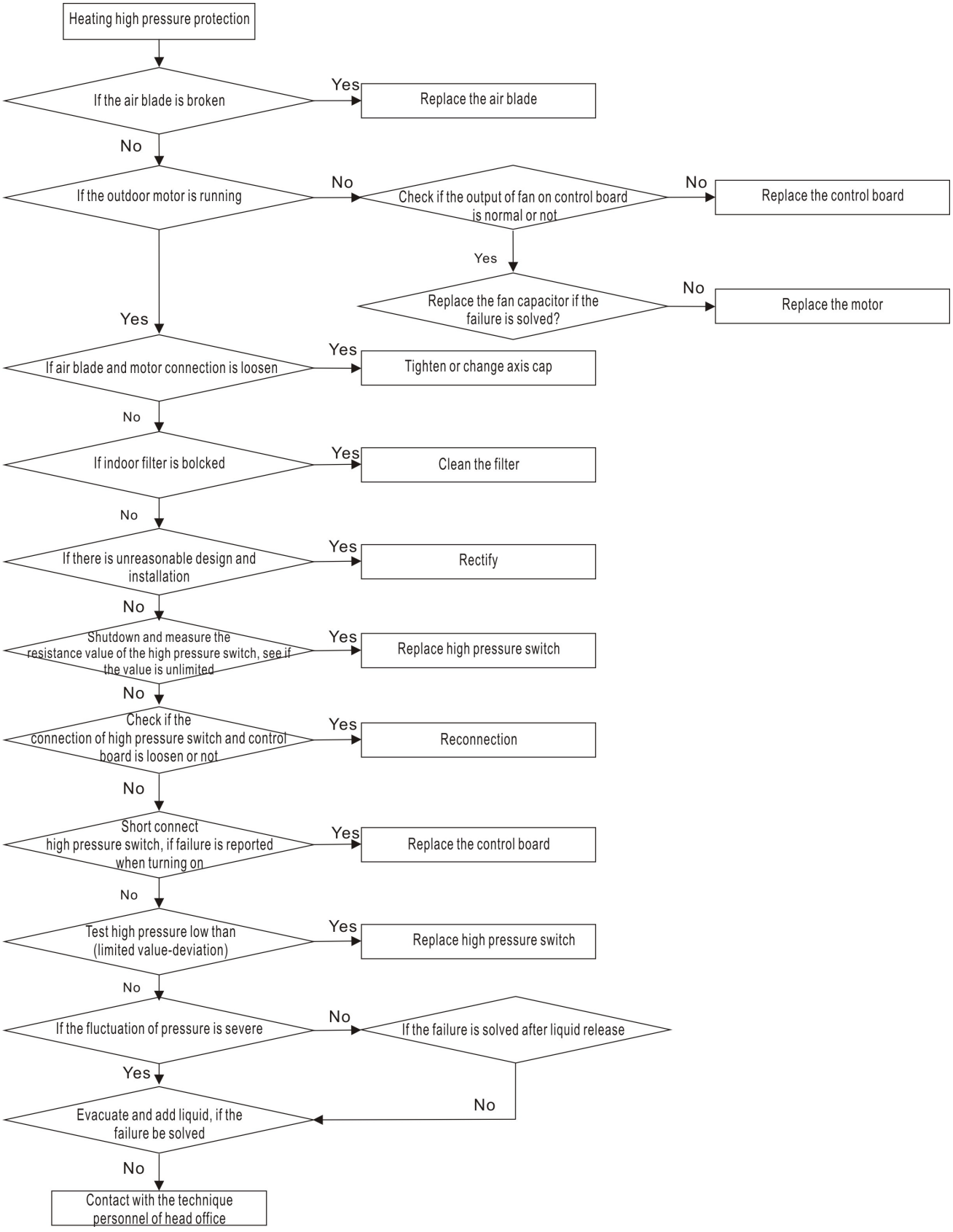


2.3【P2】high pressure protection

Cooling high pressure protection

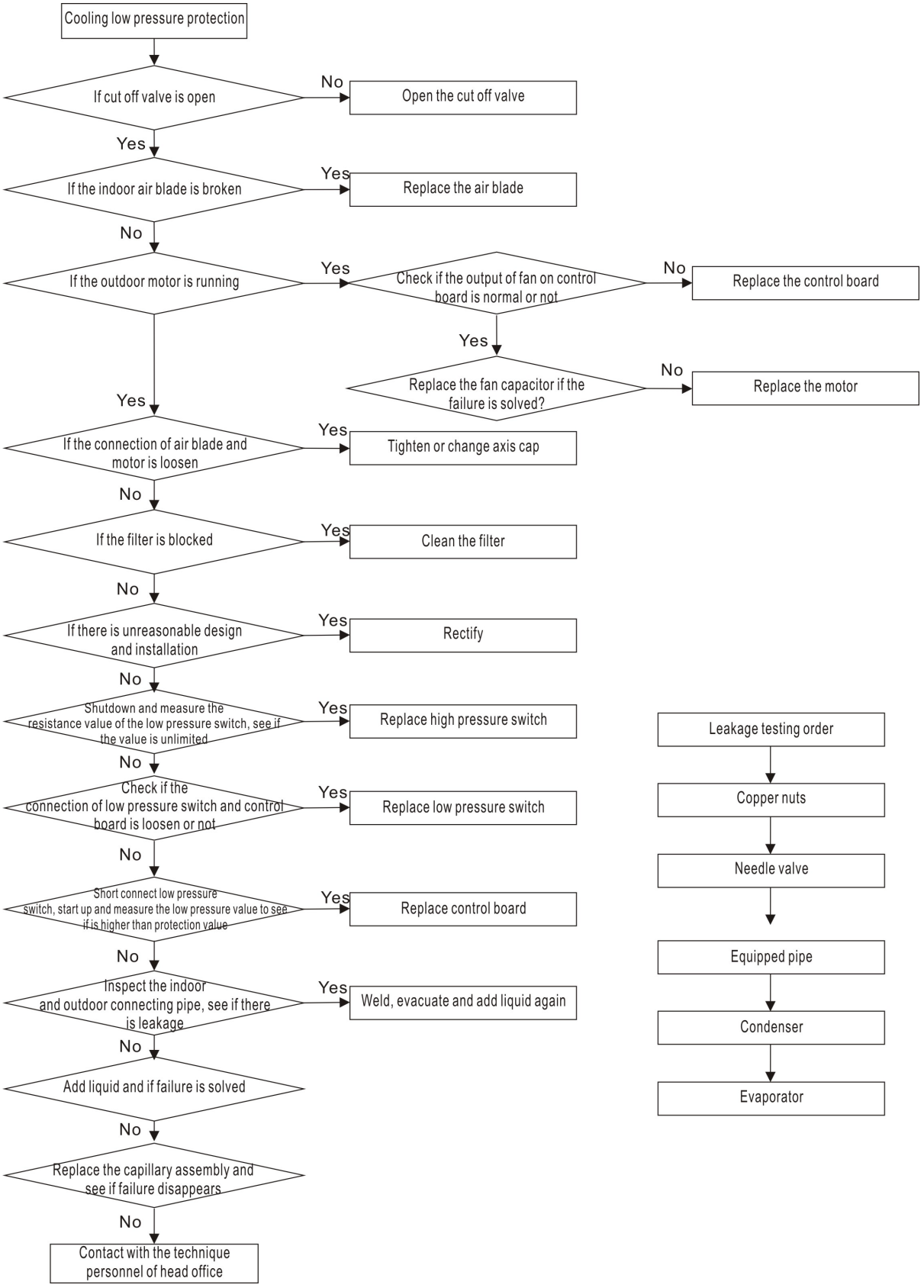


Heating high pressure protection



2.4【H6】low pressure protection

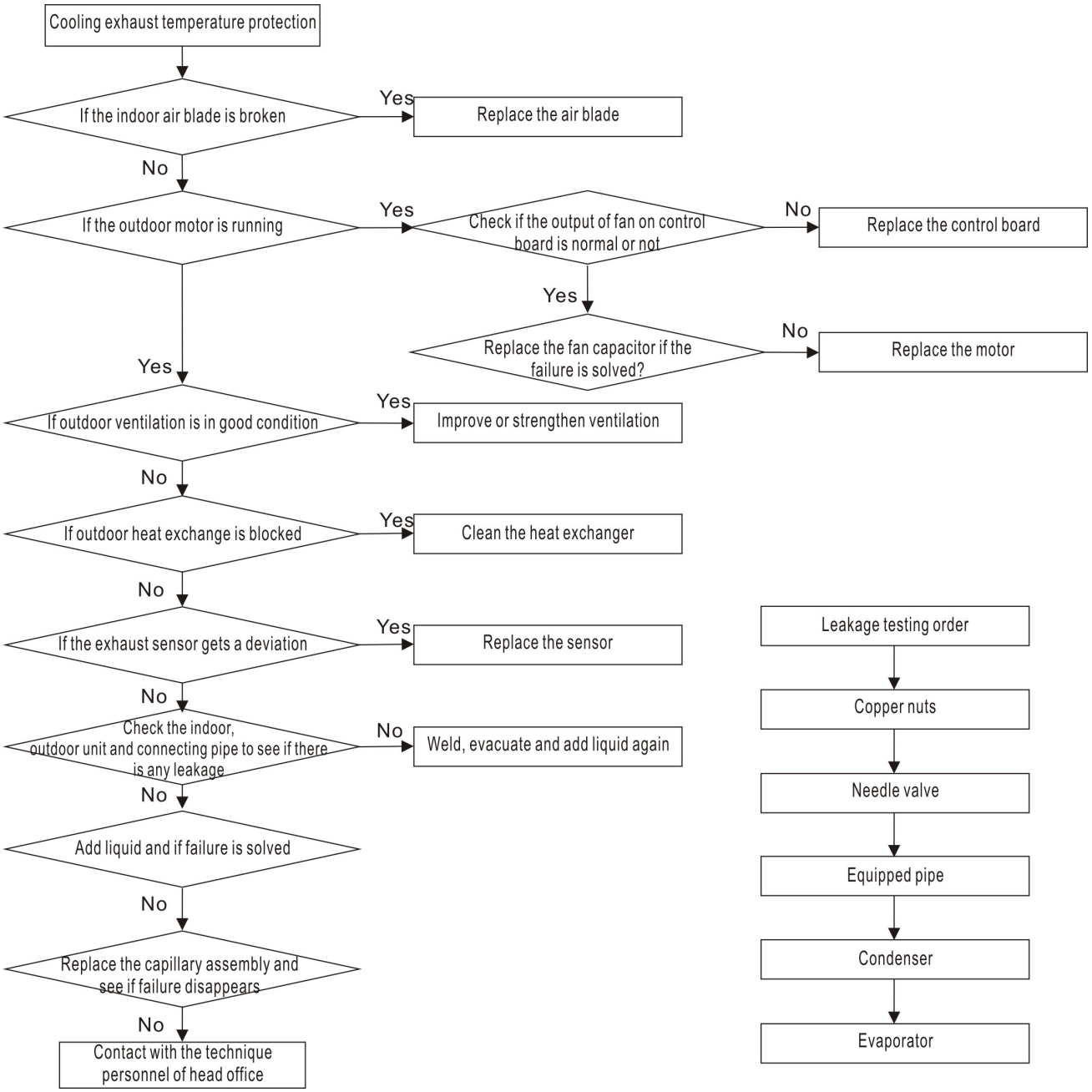
Cooling low pressure protection



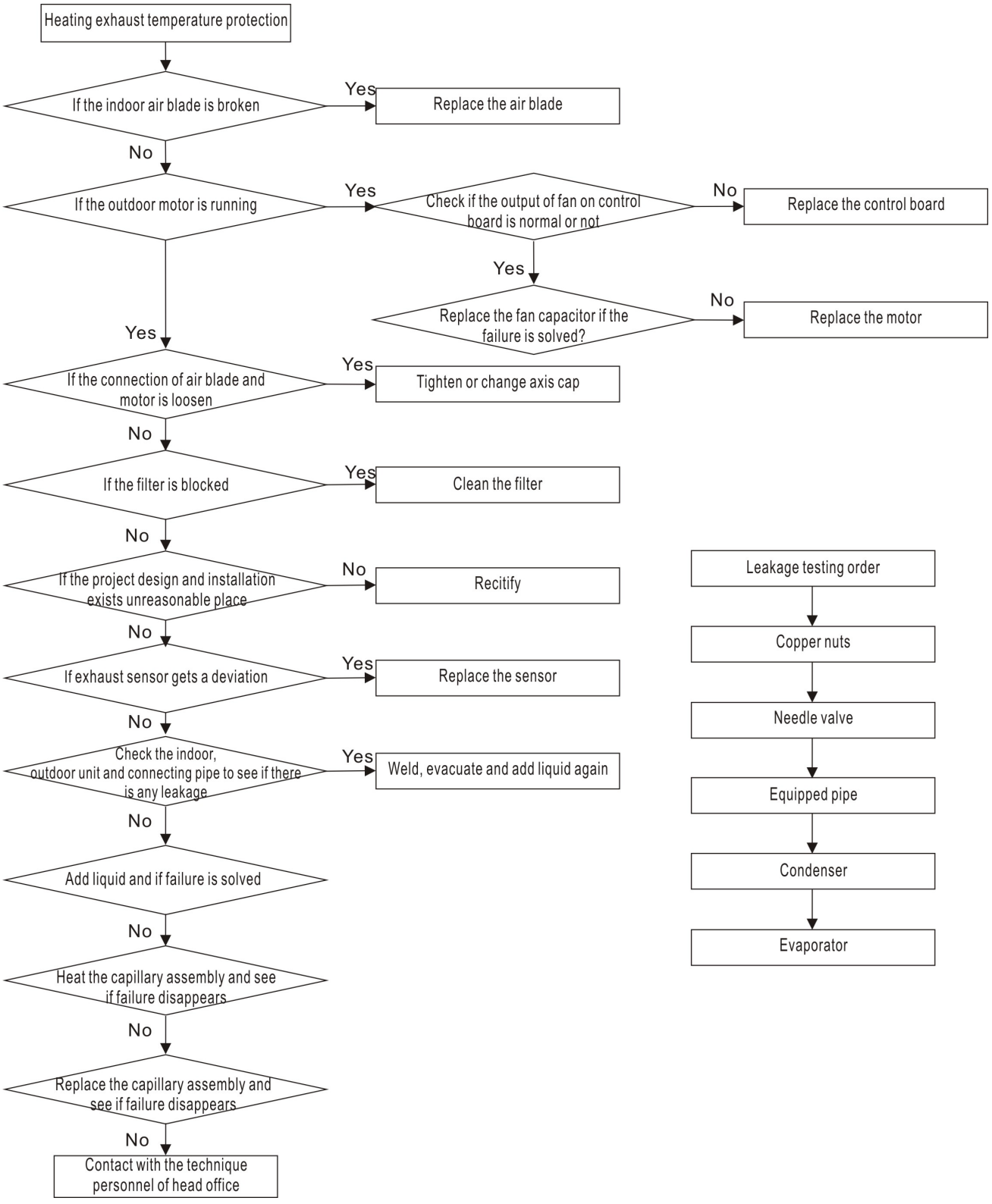
Heating low pressure protection

2.5【P5】High exhaust temperature protection

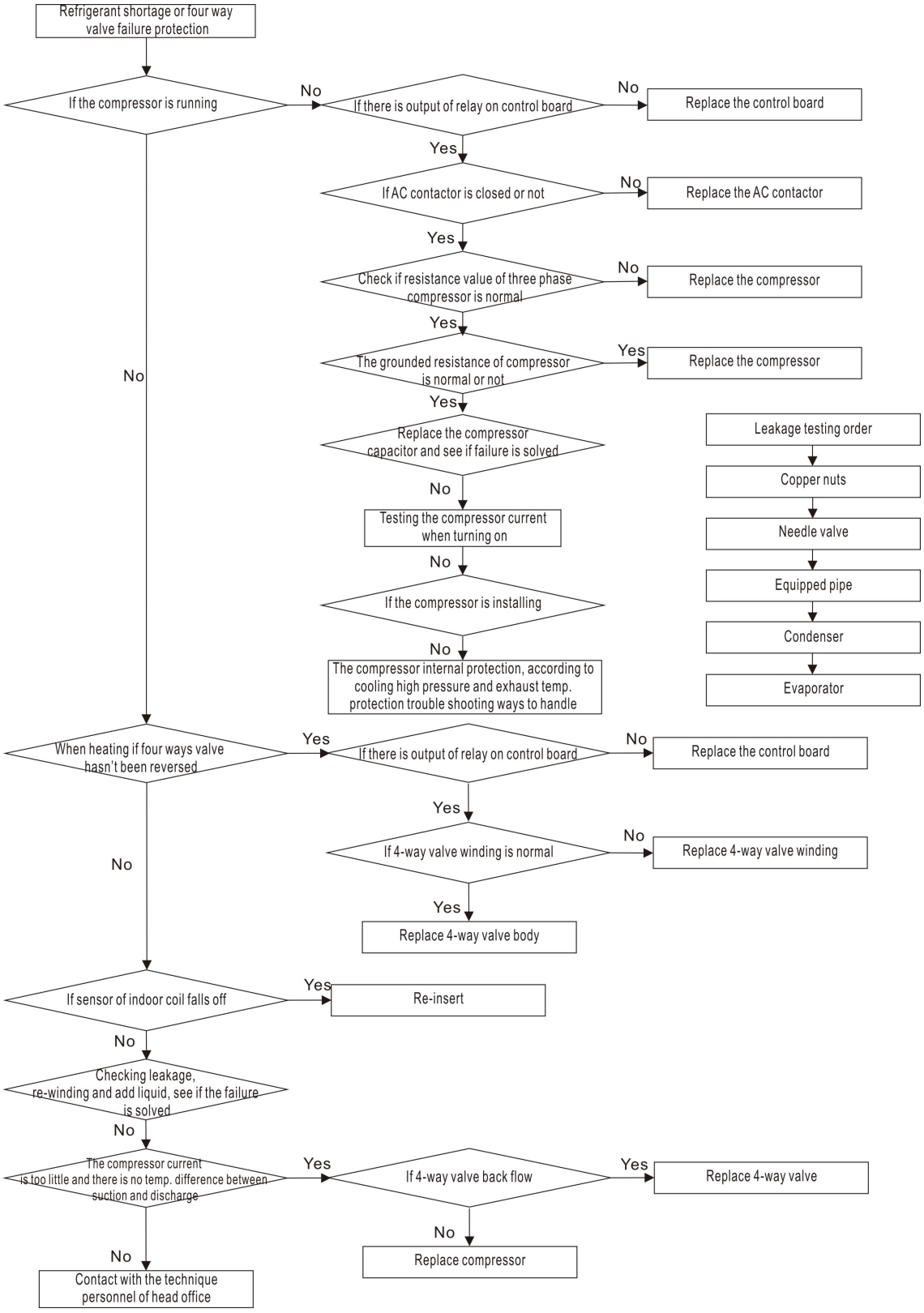
Cooling exhaust temperature protection



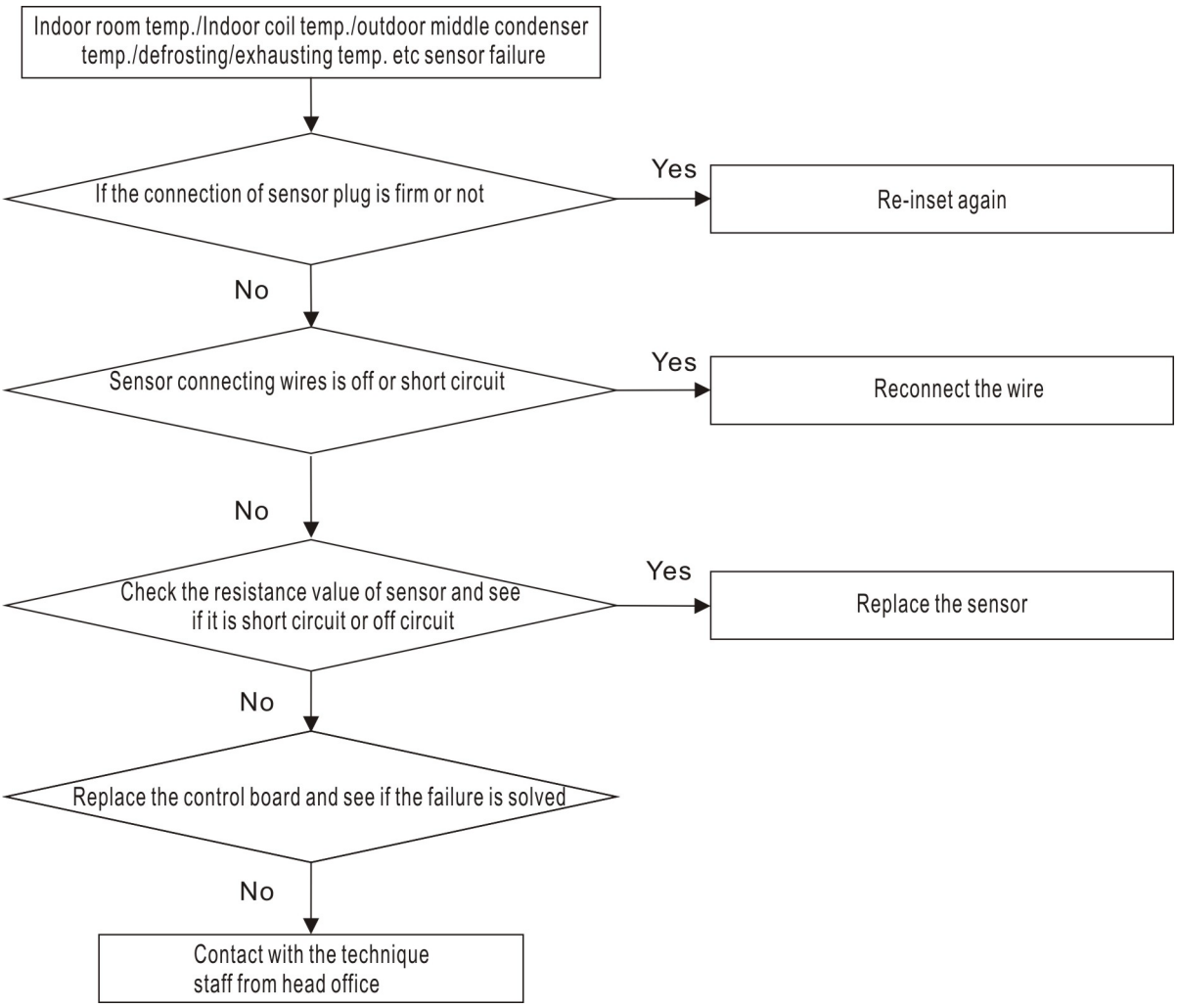
Heating exhaust temperature protection



2.6【H8】four way valve failure protection



2.7 Sensor failure protection

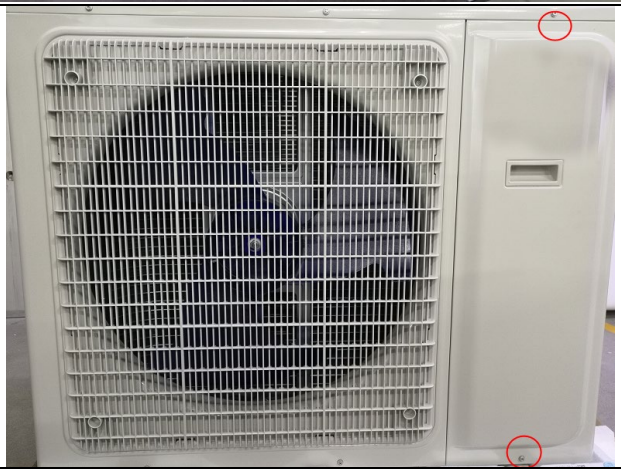


Part14 Installation Information

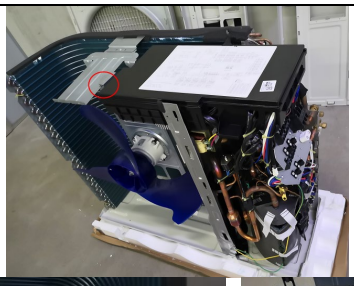
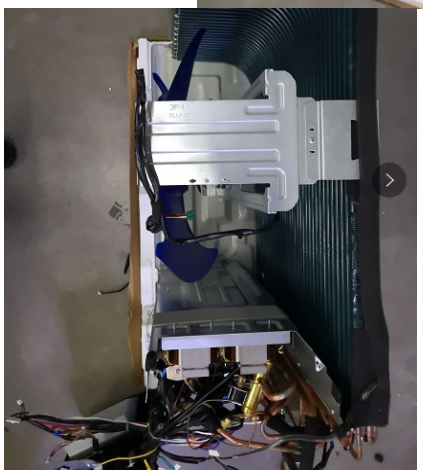
1. Installation Guide（See the installation instruction manual for details）

2.Disassemble

Outdoor unit：

NO	Procedure	Remark
1	Remove 8 screws from the cabinet (Use screw driver)	
2	remove 2 screws from the frontal cabinet to pull down the right small one (Use screw driver)	

3	remove 6 screws from the frontal cabinet to pull down the left bigger cabinet	
NO	**Procedure**	**Remark**
4	remove 3 screws from left cabinet(Use screw driver)	
5	remove 2 screws from the small electrical cover	
6	remove 9 screws from right cabinet to make compressor exposed, 6 screws have been remarked, and 3 ones else are at the edge of condenser	

7	remove 3 screws from electronic box cover and the electronic cord will be exposed.	  
NO	**Procedure**	**Remark**
8	remove the insulation cotton from the periphery of compressor	

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