GREE
Change for Life

Service Manual

Models:GWH09TB-S3DNA1D
GWH09TB-S3DNA1E
GWH09TB-S3DNA2D
GWH09TB-S3DNA3D
GWH12TB-S3DNA1D
GWH12TB-S3DNA2D
GWH12TB-S3DNA3D
(Refrigerant R410A)

GREE ELECTRIC APPLIANCES,INC.OF ZHUHAI

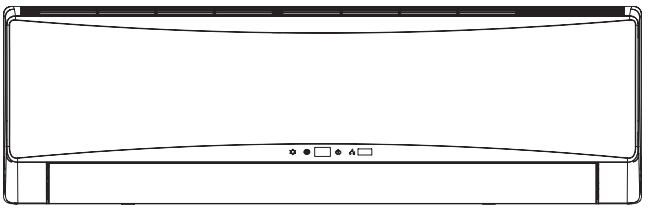
Table of Contents

Part Ⅰ : Technical Information

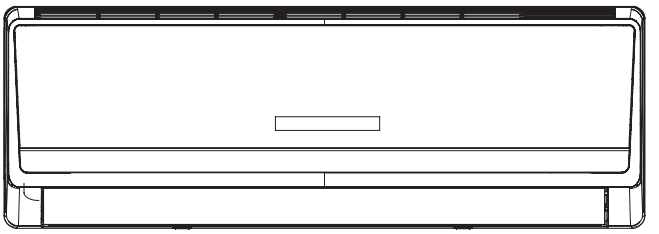
1. Summary

Indoor Unit:

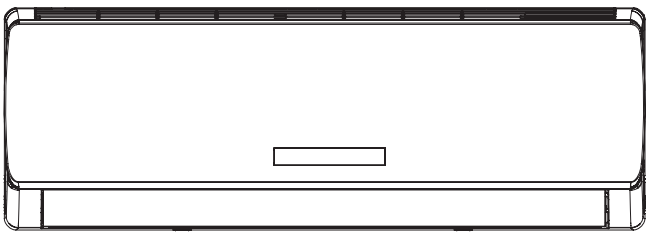
GWH09TB-S3DNA1D/I
GWH09TB-S3DNA1E/I
GWH12TB-S3DNA1D/I



GWH09TB-S3DNA2D/I
GWH12TB-S3DNA2D/I

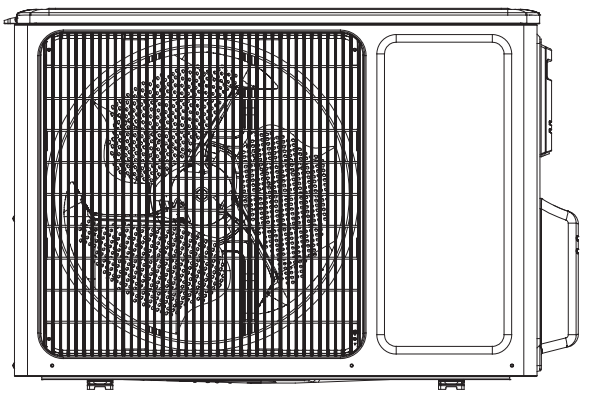


GWH09TB-S3DNA3D/I
GWH12TB-S3DNA3D/I



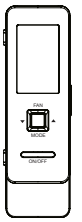
Outdoor Unit:

GWH09TB-S3DNA1D/O
GWH12TB-S3DNA1D/O
GWH09TB-S3DNA1E/O



Remote Controller:

YAG1FB



Model List

NO.	Model	Product code	Indoor model	Indoor product code	Outdoor model	Outdoor product code
1	GWH09TB-S3DNA1D	CB148008400	GWH09TB-S3DNA1D/I	CB148N08400	GWH09TB-S3DNA1D/O	CB148W08400
2	GWH09TB-S3DNA2D	CB411002902	GWH09TB-S3DNA2D/I	CB411N02902		
3	GWH09TB-S3DNA3D	CB412003300	GWH09TB-S3DNA3D/I	CB412N03300		
4	GWH09TB-S3DNA1D	CB148008401	GWH09TB-S3DNA1D/I	CB148N08400		CB148W08401
5	GWH09TB-S3DNA1D	CB148008407	GWH09TB-S3DNA1D/I	CB148N08402		
6	GWH12TB-S3DNA1D	CB148008300	GWH12TB-S3DNA1D/I	CB148N08300	GWH12TB-S3DNA1D/O	CB148W08300
7	GWH12TB-S3DNA2D	CB411003002	GWH12TB-S3DNA2D/I	CB411N03002		
8	GWH12TB-S3DNA3D	CB412003500	GWH12TB-S3DNA3D/I	CB412N03500		
9	GWH12TB-S3DNA1D	CB148008301	GWH12TB-S3DNA1D/I	CB148N08300		CB148W08301
10	GWH12TB-S3DNA1D	CB148008307	GWH12TB-S3DNA1D/I	CB148N08302		
11	GWH09TB-S3DNA1E	CB148009300	GWH09TB-S3DNA1E/I	CB148N09300	GWH09TB-S3DNA1E/O	CB148W09300
12	GWH09TB-S3DNA1E	CB148009301				CB148W09301

2. Specifications

2.1 Specification Sheet

Model			1.GWH09TB-S3DNA1D 2.GWH09TB-S3DNA2D 3.GWH09TB-S3DNA3D	GWH09TB-S3DNA1D
Product Code			1.CB148008400 2.CB411002902 3.CB412003300	CB148008401 CB148008407
Power Supply	Rated Voltage	V~	220-240	220-240
	Rated Frequency	Hz	50/60	50/60
	Phases		1	1
Power Supply Mode			Outdoor	Outdoor
Cooling Capacity		W	2600	2600
Heating Capacity		W	3000	3000
Cooling Power Input		W	600	600
Heating Power Input		W	650	650
Cooling Current Input		A	2.7	2.7
Heating Current Input		A	3.2	3.2
Rated Input		W	1600	1600
Rated Current		A	7.1	7.1
Air Flow Volume(SH/H/MH/M/ML/L/SL)		m^3/h	650/600/550/500/450/400/350	650/600/550/500/450/400/350
Dehumidifying Volume		L/h	0.8	0.8
EER		W/W	4.33	4.33
COP		W/W	4.62	4.62
SEER			8.5	8.5
HSPF			/	/
Application Area		m^2	12-18	12-18
Indoor Unit	Indoor Unit Model		1.GWH09TB-S3DNA1D/I 2.GWH09TB-S3DNA2D/I 3.GWH09TB-S3DNA3D/I	GWH09TB-S3DNA1D/I
	Indoor Unit Product Code		1.CB148N08400 2.CB411N02902 3.CB412N03300	CB148N08400 CB148N08402
	Fan Type		Cross-flow	Cross-flow
	Fan Diameter Length(DXL)	mm	Φ98X662	Φ98X662
	Cooling Speed(SH/H/MH/M/ML/L/SL)	r/min	1300/1050/1000/900/800/700/500	1300/1050/1000/900/800/700/500
	Heating Speed(SH/H/MH/M/ML/L/SL)	r/min	1300/1150/1080/1030/980/900/850	1300/1150/1080/1030/980/900/850
	Fan Motor Power Output	W	15	15
	Fan Motor RLA	A	0.07	0.07
	Fan Motor Capacitor	μF	/	/
	Evaporator Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Evaporator Pipe Diameter	mm	Φ7	Φ7
	Evaporator Row-fin Gap	mm	2-1.5	2-1.5
	Evaporator Coil Length (LXDXW)	mm	662X25.4X305	662X25.4X305
	Swing Motor Model		MP24HA/MP24HB/MP24HC	MP24HA/MP24HB/MP24HC
	Swing Motor Power Output	W	2	2
	Fuse Current	A	3.15	3.15
	Sound Pressure Level (SH/H/MH/M/ML/L/SL)	dB (A)	43/36/34/32/30/28/26	43/36/34/32/30/28/26
	Sound Power Level (SH/H/MH/M/ML/L/SL)	dB (A)	55/48/46/44/42/40/38	55/48/46/44/42/40/38
	Dimension (WXHXD)	mm	866X292X209	866X292X209
	Dimension of Carton Box (LXWXH)	mm	942X374X282	942X374X282
	Dimension of Package (LXWXH)	mm	945X377X297	945X377X297
	Net Weight	kg	11	11
	Gross Weight	kg	13	13

Outdoor Unit	Outdoor Unit Model		GWH09TB-S3DNA1D/O	GWH09TB-S3DNA1D/O
	Outdoor Unit Product Code		CB148W08400	CB148W08401
	Compressor Manufacturer		ZHUHAI GREE DAIKIN DEVICE CO., LTD	ZHUHAI GREE DAIKIN DEVICE CO., LTD
	Compressor Model		1GDY23AXD	1GDY23AXD
	Compressor Oil		FVC50K	FVC50K
	Compressor Type		Rotary	Rotary
	Compressor LRA.	A	16.5	16.5
	Compressor RLA	A	4	4
	Compressor Power Input	W	845	845
	Compressor Overload Protector		HPC 115/95	HPC 115/95
	Throttling Method		Electron expansion valve	Electron expansion valve
	Set Temperature Range	°C	16~30	16~30
	Cooling Operation Ambient Temperature Range	°C	-15~48	-15~48
	Heating Operation Ambient Temperature Range	°C	-20~24	-7~24
	Condenser Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Condenser Pipe Diameter	mm	Φ7.94	Φ7.94
	Condenser Rows-fin Gap	mm	2.5-1.5	2.5-1.5
	Condenser Coil Length (LXDXW)	mm	733X57X550	733X57X550
	Fan Motor Speed	rpm	900/600	900/600
	Fan Motor Power Output	W	30	30
	Fan Motor RLA	A	0.15	0.15
	Fan Motor Capacitor	μF	/	/
	Outdoor Unit Air Flow Volume	m^3/h	2400	2400
	Fan Type		Axial-flow	Axial-flow
	Fan Diameter	mm	Φ438	Φ438
	Defrosting Method		Automatic Defrosting	Automatic Defrosting
	Climate Type		T1	T1
	Isolation		I	I
	Moisture Protection		IP24	IP24
	Permissible Excessive Operating Pressure for the Discharge Side	MPa	4.3	4.3
	Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5	2.5
	Sound Pressure Level (H/M/L)	dB (A)	54/-/-	54/-/-
	Sound Power Level (H/M/L)	dB (A)	63/-/-	63/-/-
	Dimension (WXHXD)	mm	899X596X378	899X596X378
	Dimension of Carton Box (LXWXH)	mm	945X417X630	945X417X630
	Dimension of Package (LXWXH)	mm	948X420X645	948X420X645
	Net Weight	kg	41	41
	Gross Weight	kg	44	44
	Refrigerant		R410A	R410A
	Refrigerant Charge	kg	1.2	1.2
Connection Pipe	Connection Pipe Length	m	5	5
	Connection Pipe Gas Additional Charge	g/m	20	20
	Outer Diameter Liquid Pipe	mm	Φ6	Φ6
	Outer Diameter Gas Pipe	mm	Φ9.52	Φ9.52
	Max Distance Height	m	10	10
	Max Distance Length	m	15	15
	Note: The connection pipe applies metric diameter.			

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

Model			1.GWH12TB-S3DNA1D 2.GWH12TB-S3DNA2D 3.GWH12TB-S3DNA3D	GWH12TB-S3DNA1D
Product Code			1.CB148008300 2.CB411003002 3.CB412003500	CB148008301 CB148008407
Power Supply	Rated Voltage	V~	220-240	220-240
	Rated Frequency	Hz	50/60	50/60
	Phases		1	1
Power Supply Mode			Outdoor	Outdoor
Cooling Capacity		W	3500	3500
Heating Capacity		W	4000	4000
Cooling Power Input		W	900	900
Heating Power Input		W	1000	1000
Cooling Current Input		A	4.0	4.0
Heating Current Input		A	4.5	4.5
Rated Input		W	1700	1700
Rated Current		A	8.0	8.0
Air Flow Volume(SH/H/MH/M/ML/L/SL)		m^3/h	750/650/580/520/470/420/350	750/650/580/520/470/420/350
Dehumidifying Volume		L/h	1.4	1.4
EER		W/W	3.89	3.89
COP		W/W	4.00	4.00
SEER			8	8
HSPF			/	/
Application Area		m^2	16-24	16-24
Indoor Unit	Indoor Unit Model		1.GWH12TB-S3DNA1D/I 2.GWH12TB-S3DNA2D/I 3.GWH12TB-S3DNA3D/I	GWH12TB-S3DNA1D/I
	Indoor Unit Product Code		1.CB148N08300 2.CB411N03002 3.CB412N03500	CB148N08300 CB148N08402
	Fan Type		Cross-flow	Cross-flow
	Fan Diameter Length(DXL)	mm	Φ98X662	Φ98X662
	Cooling Speed(SH/H/MH/M/ML/L/SL)	r/min	1350/1070/1000/900/800/700/500	1350/1070/1000/900/800/700/500
	Heating Speed(SH/H/MH/M/ML/L/SL)	r/min	1350/1150/1080/1030/980/900/850	1350/1150/1080/1030/980/900/850
	Fan Motor Power Output	W	15	15
	Fan Motor RLA	A	0.07	0.07
	Fan Motor Capacitor	μF	/	/
	Evaporator Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Evaporator Pipe Diameter	mm	Φ7	Φ7
	Evaporator Row-fin Gap	mm	2-1.5	2-1.5
	Evaporator Coil Length (LXDXW)	mm	662X25.4X305	662X25.4X305
	Swing Motor Model		MP24HA/MP24HB/MP24HC	MP24HA/MP24HB/MP24HC
	Swing Motor Power Output	W	2	2
	Fuse Current	A	3.15	3.15
	Sound Pressure Level (SH/H/MH/M/ML/L/SL)	dB (A)	43/36/34/32/30/28/26	43/36/34/31/28/26/22
	Sound Power Level (SH/H/MH/M/ML/L/SL)	dB (A)	55/48/46/44/42/40/38	54/48/46/43/40/38/34
	Dimension (WXHXD)	mm	866X292X209	866X292X209
	Dimension of Carton Box (LXWXH)	mm	942X374X282	942X374X282
	Dimension of Package (LXWXH)	mm	945X377X297	945X377X297
	Net Weight	kg	11	11
	Gross Weight	kg	13	13

Outdoor Unit	Outdoor Unit Model		GWH12TB-S3DNA1D/O	GWH12TB-S3DNA1D/O
	Outdoor Unit Product Code		CB148W08300	CB148W08301
	Compressor Manufacturer		CHINA RESOURCES SANYO COMPRESSOR CO. LTD.	CHINA RESOURCES SANYO COMPRESSOR CO. LTD.
	Compressor Model		C-6RZ110H1A	C-6RZ110H1A
	Compressor Oil		FV50S	FV50S
	Compressor Type		Rotary	Rotary
	Compressor LRA.	A	33	33
	Compressor RLA	A	4.59	4.59
	Compressor Power Input	W	800	800
	Compressor Overload Protector		1NT11L-3979	1NT11L-3979
	Throttling Method		Electron expansion valve	Electron expansion valve
	Set Temperature Range	°C	16~30	16~30
	Cooling Operation Ambient Temperature Range	°C	-15~48	-15~48
	Heating Operation Ambient Temperature Range	°C	-20~24	-7~24
	Condenser Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Condenser Pipe Diameter	mm	Φ9.52	Φ9.52
	Condenser Rows-fin Gap	mm	2-1.4	2-1.4
	Condenser Coil Length (LXDXW)	mm	803X44X559	803X44X559
	Fan Motor Speed	rpm	850/750/600	850/750/600
	Fan Motor Power Output	W	40	40
	Fan Motor RLA	A	0.2	0.2
	Fan Motor Capacitor	μF	/	/
	Outdoor Unit Air Flow Volume	m^3/h	2400	2400
	Fan Type		Axial-flow	Axial-flow
	Fan Diameter	mm	Φ445	Φ445
	Defrosting Method		Automatic Defrosting	Automatic Defrosting
	Climate Type		T1	T1
	Isolation		I	I
	Moisture Protection		IP24	IP24
	Permissible Excessive Operating Pressure for the Discharge Side	MPa	4.3	4.3
	Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5	2.5
	Sound Pressure Level (H/M/L)	dB (A)	54/-/-	54/-/-
	Sound Power Level (H/M/L)	dB (A)	63/-/-	63/-/-
	Dimension (WXHXD)	mm	899X596X378	899X596X378
	Dimension of Carton Box (LXWXH)	mm	945X417X630	945X417X630
	Dimension of Package (LXWXH)	mm	948X420X645	948X420X645
	Net Weight	kg	43	43
	Gross Weight	kg	46	46
	Refrigerant		R410A	R410A
	Refrigerant Charge	kg	1.3	1.3
Connection Pipe	Connection Pipe Length	m	5	5
	Connection Pipe Gas Additional Charge	g/m	20	20
	Outer Diameter Liquid Pipe	mm	Φ6	Φ6
	Outer Diameter Gas Pipe	mm	Φ12	Φ12
	Max Distance Height	m	10	10
	Max Distance Length	m	20	20
	Note: The connection pipe applies metric diameter.			

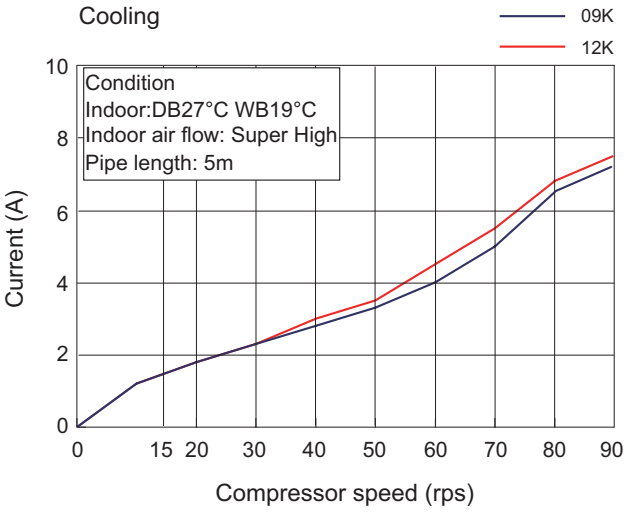
The above data is subject to change without notice; please refer to the nameplate of the unit.

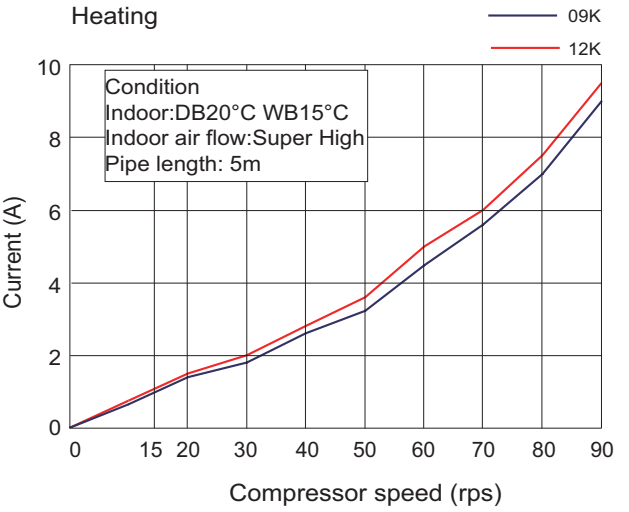
Model			GWH09TB-S3DNA1E	
Product Code			CB148009300	CB148009301
Power Supply	Rated Voltage	V~	220-240	220-240
	Rated Frequency	Hz	50/60	50/60
	Phases		1	1
Power Supply Mode			Outdoor	Outdoor
Cooling Capacity		W	2600	2600
Heating Capacity		W	3000	3000
Cooling Power Input		W	600	600
Heating Power Input		W	650	650
Cooling Current Input		A	2.7	2.7
Heating Current Input		A	3.2	3.2
Rated Input		W	1600	1600
Rated Current		A	/	/
Air Flow Volume(SH/H/MH/M/ML/L/SL)		m^3/h	650/600/500/400/350	650/600/500/400/235.4
Dehumidifying Volume		L/h	0.8	0.8
EER		W/W	4.33	4.33
COP		W/W	4.62	4.62
SEER			8.5	8.5
HSPF			/	/
Application Area		m^2	12-18	12-18
Indoor Unit	Indoor Unit Model		GWH09TB-S3DNA1E/I	GWH09TB-S3DNA1E/I
	Indoor Unit Product Code		CB148N09300	CB148N09300
	Fan Type		Cross-flow	Cross-flow
	Fan Diameter Length(DXL)	mm	Φ98X662	Φ98×662
	Cooling Speed(SH/H/MH/M/ML/L/SL)	r/min	1300/1050/1000/900/800/700/500	1300/1050/1000/900/800/700/500
	Heating Speed(SH/H/MH/M/ML/L/SL)	r/min	1300/1150/1080/1030/980/900/850	1300/1150/1080/1030/980/900/850
	Fan Motor Power Output	W	15	15
	Fan Motor RLA	A	0.07	0.07
	Fan Motor Capacitor	μF	/	/
	Evaporator Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Evaporator Pipe Diameter	mm	Φ7	Φ7
	Evaporator Row-fin Gap	mm	2-1.5	2-1.5
	Evaporator Coil Length (LXDXW)	mm	662X25.4X305	662×25.4×305
	Swing Motor Model		MP24HA/MP24HB/MP24HC	MP24HA/MP24HB/MP24HC
	Swing Motor Power Output	W	2	2
	Fuse Current	A	3.15	3.15
	Sound Pressure Level (SH/H/MH/M/ML/L/SL)	dB (A)	43/36/32/28/26	43/36/32/28/26
	Sound Power Level (SH/H/MH/M/ML/L/SL)	dB (A)	55/48/44/40	55/48/44/40
	Dimension (WXHXD)	mm	866X292X209	866X292X209
	Dimension of Carton Box (LXWXH)	mm	942X374X282	942X374X282
	Dimension of Package (LXWXH)	mm	945X377X297	945X377X297
	Net Weight	kg	11	11
	Gross Weight	kg	13	13

Outdoor Unit	Outdoor Unit Model		GWH09TB-S3DNA1E/O	
	Outdoor Unit Product Code		CB148W09300	CB148W09301
	Compressor Manufacturer		ZHUHAILINDACOMPRESSOR CO.,LTD DAIKIN DEVICE CO., LTD	ZHUHAILINDACOMPRESSOR CO.,LTD DAIKIN DEVICE CO., LTD
	Compressor Model		QXA-B102zE190	QXA-B102zE190
	Compressor Oil		RB68EP	RB68EP
	Compressor Type		Rotary	Rotary
	Compressor LRA.	A	35	35
	Compressor RLA	A	4.8	4.8
	Compressor Power Input	W	1020	1020
	Compressor Overload Protector		/	/
	Throttling Method		Electron expansion valve	Electron expansion valve
	Set Temperature Range	°C	16~30	16~30
	Cooling Operation Ambient Temperature Range	°C	-15~48	-15~48
	Heating Operation Ambient Temperature Range	°C	-20~24	-20~24
	Condenser Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Condenser Pipe Diameter	mm	Φ7.94	Φ7.94
	Condenser Rows-fin Gap	mm	2.5-1.5	2.5-1.5
	Condenser Coil Length (LXDXW)	mm	733X57X550	733X57X550
	Fan Motor Speed	rpm	900/600	900/600
	Fan Motor Power Output	W	30	30
	Fan Motor RLA	A	0.15	0.15
	Fan Motor Capacitor	μF	/	/
	Outdoor Unit Air Flow Volume	m^3/h	2400	2400
	Fan Type		Axial-flow	Axial-flow
	Fan Diameter	mm	Φ438	438
	Defrosting Method		Automatic Defrosting	Automatic Defrosting
	Climate Type		T1	T1
	Isolation		I	I
	Moisture Protection		IPX4	IPX4
	Permissible Excessive Operating Pressure for the Discharge Side	MPa	4.3	4.3
	Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5	2.5
	Sound Pressure Level (H/M/L)	dB (A)	54/-/-/-	54/-/-/-
	Sound Power Level (H/M/L)	dB (A)	63/-/-/-	63/-/-/-
	Dimension (WXHXD)	mm	899X596X378	899X596X378
	Dimension of Carton Box (LXWXH)	mm	945X417X630	945X417X630
	Dimension of Package (LXWXH)	mm	948X420X645	948X420X645
	Net Weight	kg	40.5	40.5
	Gross Weight	kg	43.5	43.5
	Refrigerant		R410A	R410A
	Refrigerant Charge	kg	1.2	1.2
Connection Pipe	Connection Pipe Length	m	5	5
	Connection Pipe Gas Additional Charge	g/m	20	20
	Outer Diameter Liquid Pipe	mm	Φ6	Φ6
	Outer Diameter Gas Pipe	mm	Φ9.52	Φ9.52
	Max Distance Height	m	10	10
	Max Distance Length	m	15	15
	Note: The connection pipe applies metric diameter.			

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

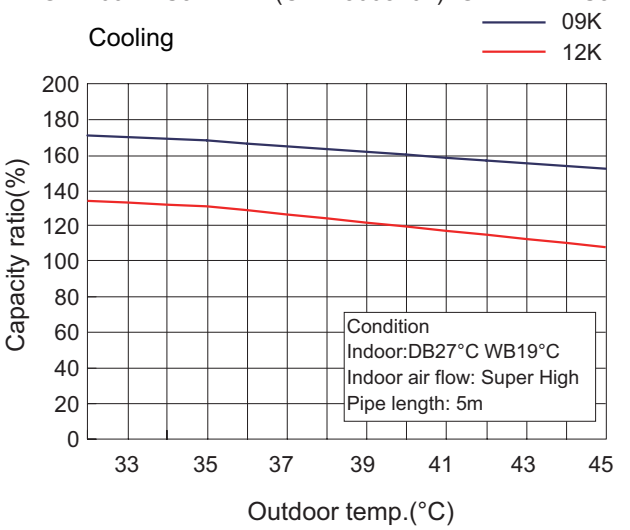
2.2 Operation Characteristic Curve

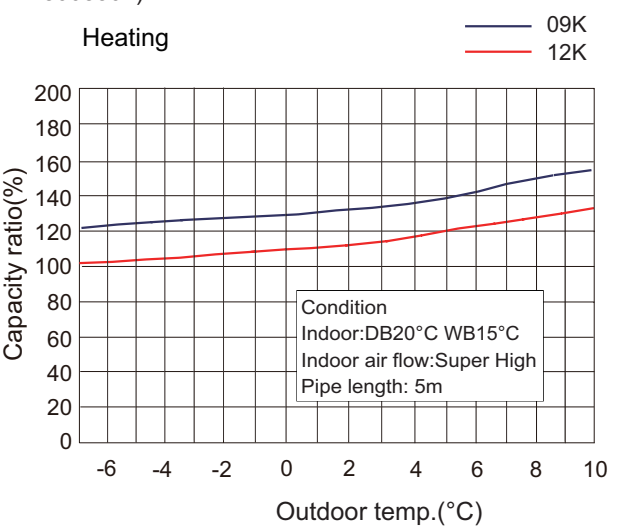




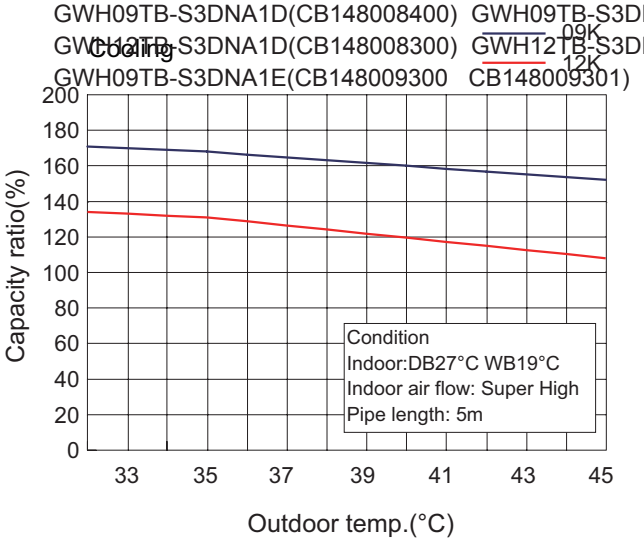
2.3 Capacity Variation Ratio According to Temperature

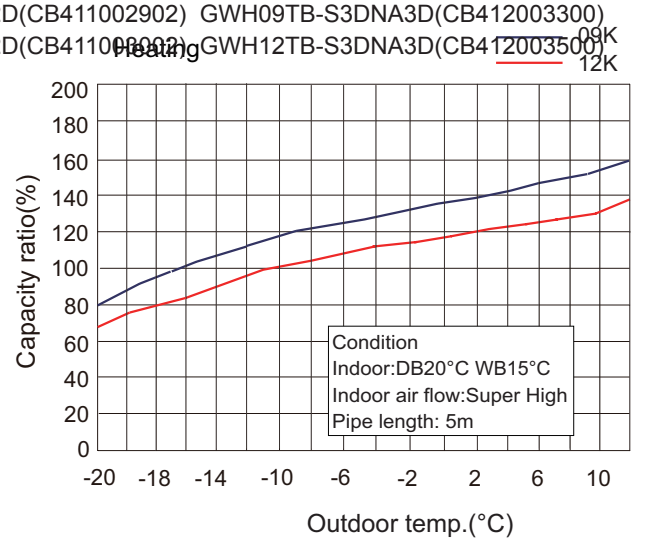
GWH09TB-S3DNA1D(CB148008401) GWH12TB-S3DNA1D(CB148008301)





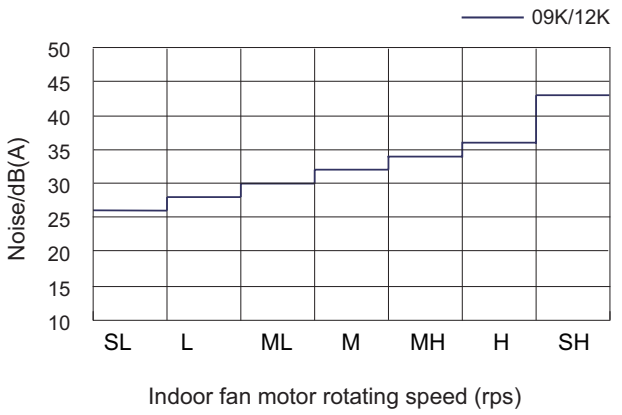
GWH09TB-S3DNA1D(CB148008400) GWH09TB-S3DNA2D(CB411002902) GWH09TB-S3DNA3D(CB412003300)
GWH12TB-S3DNA1D(CB148008300) GWH12TB-S3DNA2D(CB411002802) GWH12TB-S3DNA3D(CB412003500)
GWH09TB-S3DNA1E(CB148009300 CB148009301)



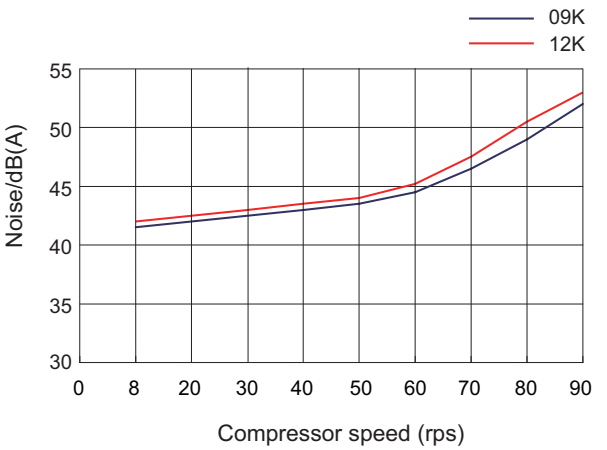


2.4 Noise Curve

Indoor side noise



Outdoor side noise



2.5 Cooling and Heating Data Sheet in Rated Frequency

Cooling:

Rated cooling condition(°C) (DB/WB)		Model	Pressure of gas pipe connecting indoor and outdoor unit	Inlet and outlet pipe temperature of heat exchanger		Fan speed of indoor unit	Fan speed of outdoor unit	Compressor revolution (rps)
Indoor	Outdoor		P (MPa)	T1 (°C)	T2 (°C)			
27/19	35/–	09K	0.9~1.2	12 to 14	41 to 43	Super High	High	34
		12K		10 to 12	43 to 45			55

Heating:

Rated heating condition(°C) (DB/WB)		Model	Pressure of gas pipe connecting indoor and outdoor unit	Inlet and outlet pipe temperature of heat exchanger		Fan speed of indoor unit	Fan speed of outdoor unit	Compressor revolution (rps)
Indoor	Outdoor		P (MPa)	T1 (°C)	T2 (°C)			
20/15	7/6	09K	2.0~2.6	33 to 35	3 to 5	Super High	High	41
		12K		42 to 44	3 to 5			55

Instruction:

T1: Inlet and outlet pipe temperature of evaporator

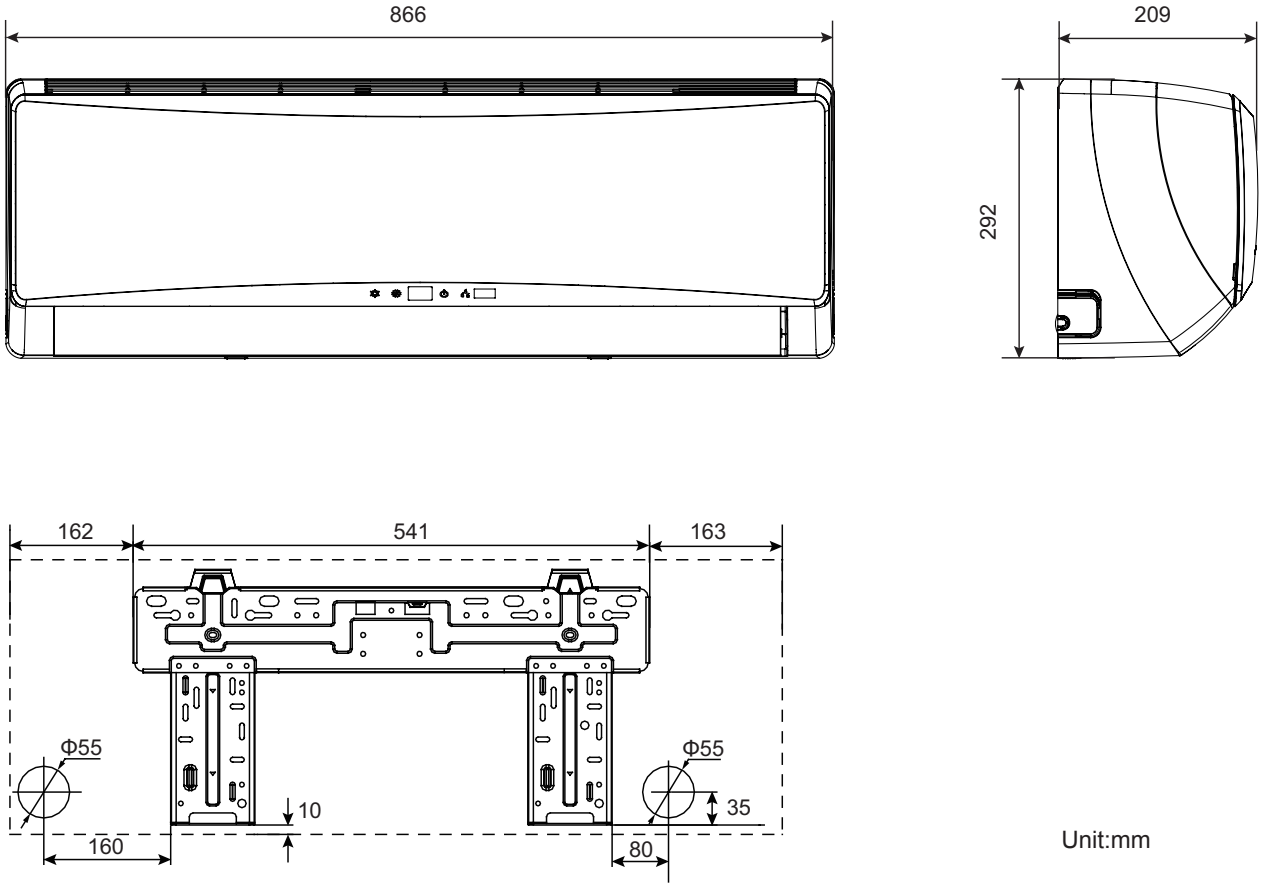
T2: Inlet and outlet pipe temperature of condenser

P: Pressure at the side of big valve

Connection pipe length: 5 m.

3. Outline Dimension Diagram

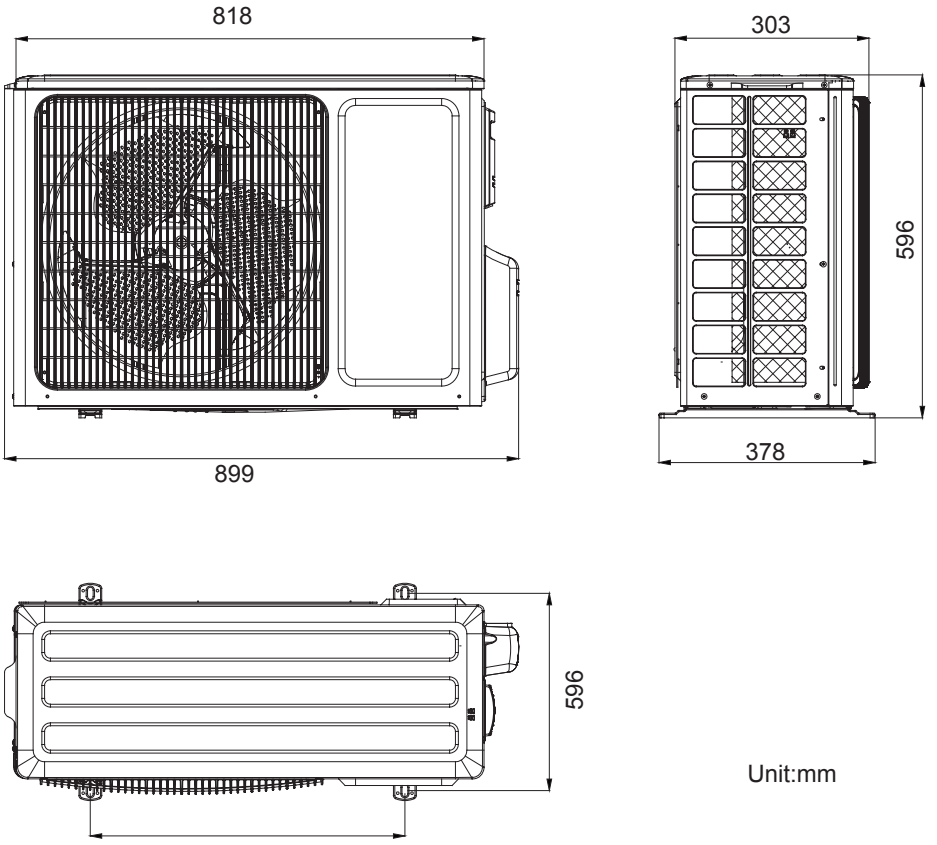
3.1 Indoor Unit



Unit:mm

3.2 Outdoor Unit

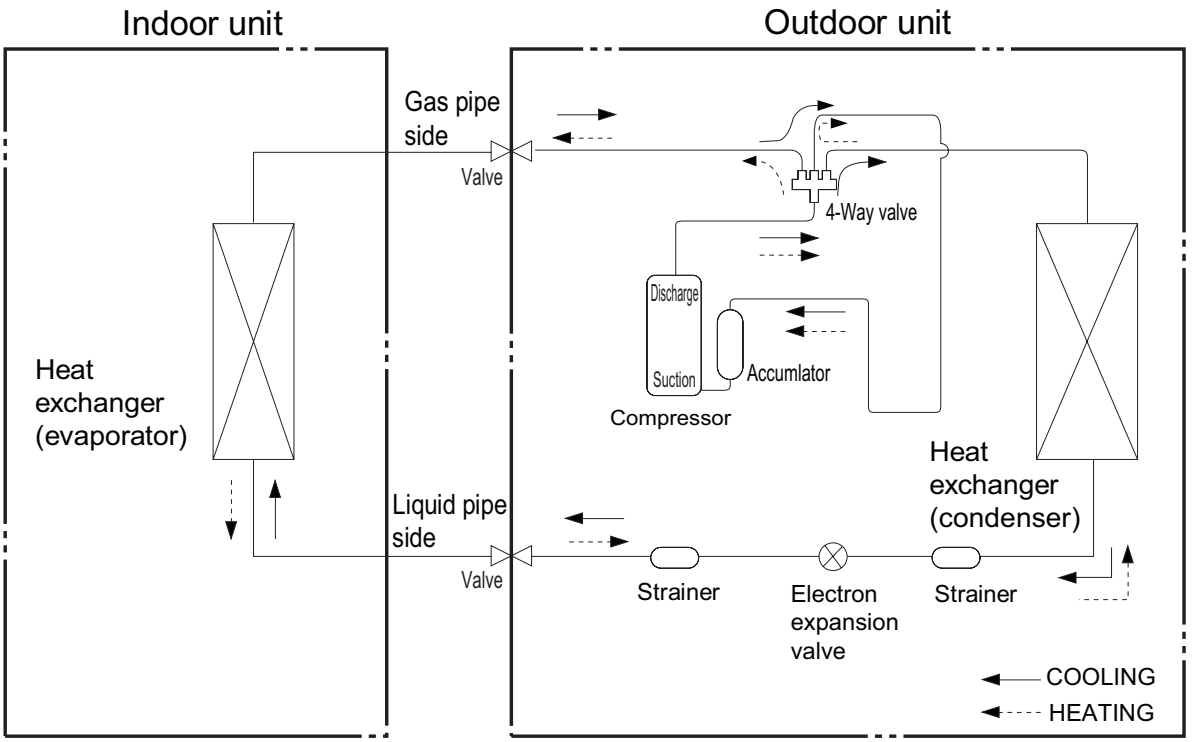
GWH09TB-S3DNA1D/O GWH12TB-S3DNA1D/O GWH09TB-S3DNA1E/O



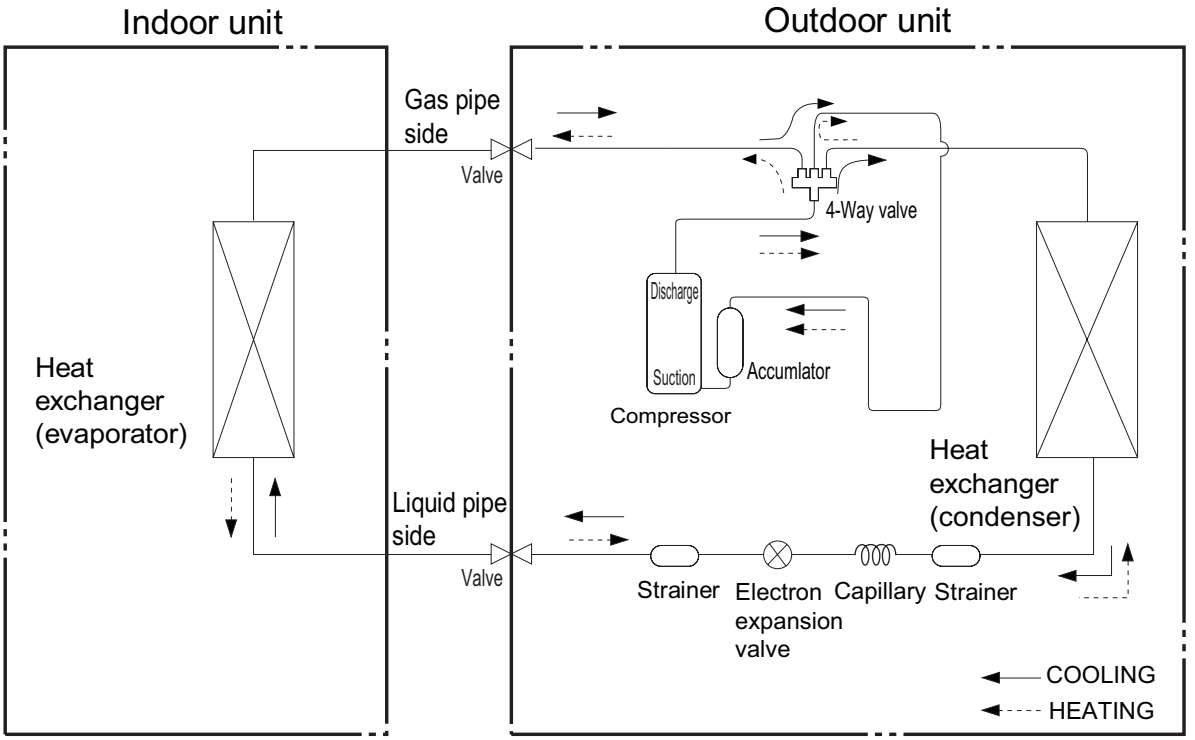
Unit:mm

4. Refrigerant System Diagram

09K



12K



Connection pipe specification:
Liquid : 1/4" (6 mm)
Gas : 3/8" (9.52mm) (09K)
Gas : 1/2" (12mm) (12K)

5. Electrical Part

5.1 Wiring Diagram

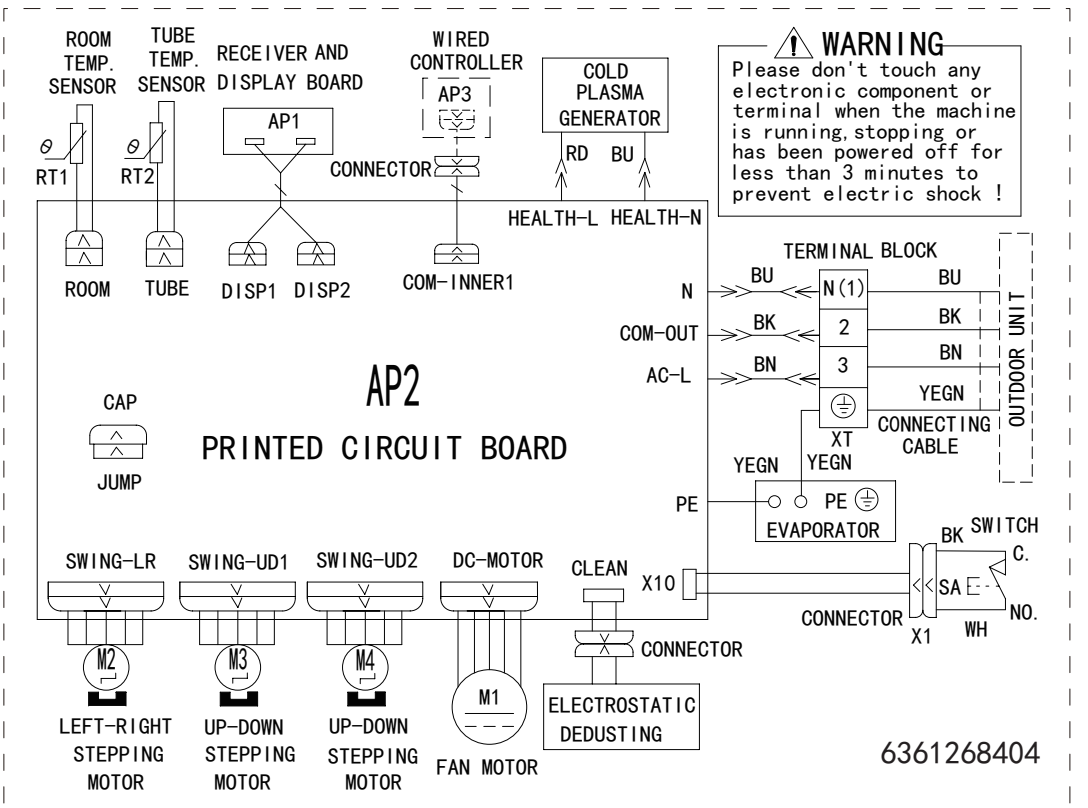
●Instruction

Symbol	Symbol Color	Symbol	Symbol Color	Symbol	Name
WH	White	GN	Green	CAP	Jumper cap
YE	Yellow	BN	Brown	COMP	Compressor
RD	Red	BU	Blue	⏚	Grounding wire
YEGN	Yellow/Green	BK	Black	/	/
VT	Violet	OG	Orange	/	/

Note: Jumper cap is used to determine fan speed and the swing angle of horizontal lover for this model.

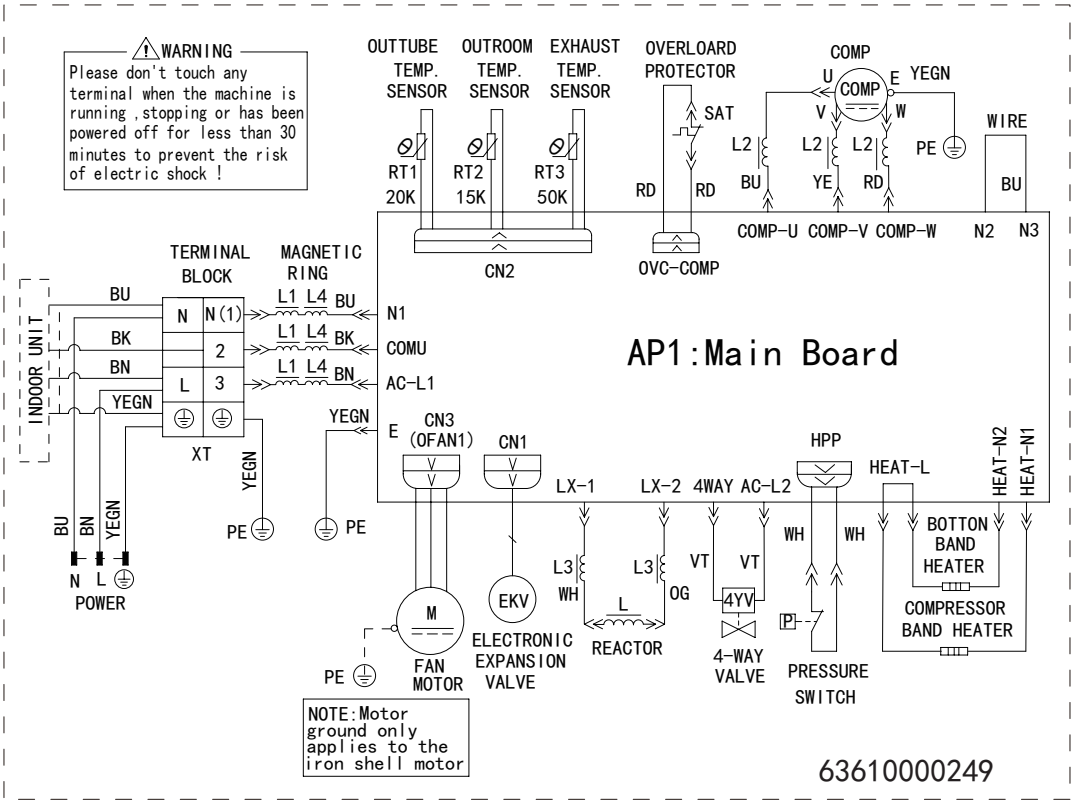
● Indoor Unit

GWH09TB-S3DNA1D/I GWH12TB-S3DNA1D/I GWH09TB-S3DNA2D/I GWH12TB-S3DNA2D/I
GWH09TB-S3DNA3D/I GWH12TB-S3DNA3D/I

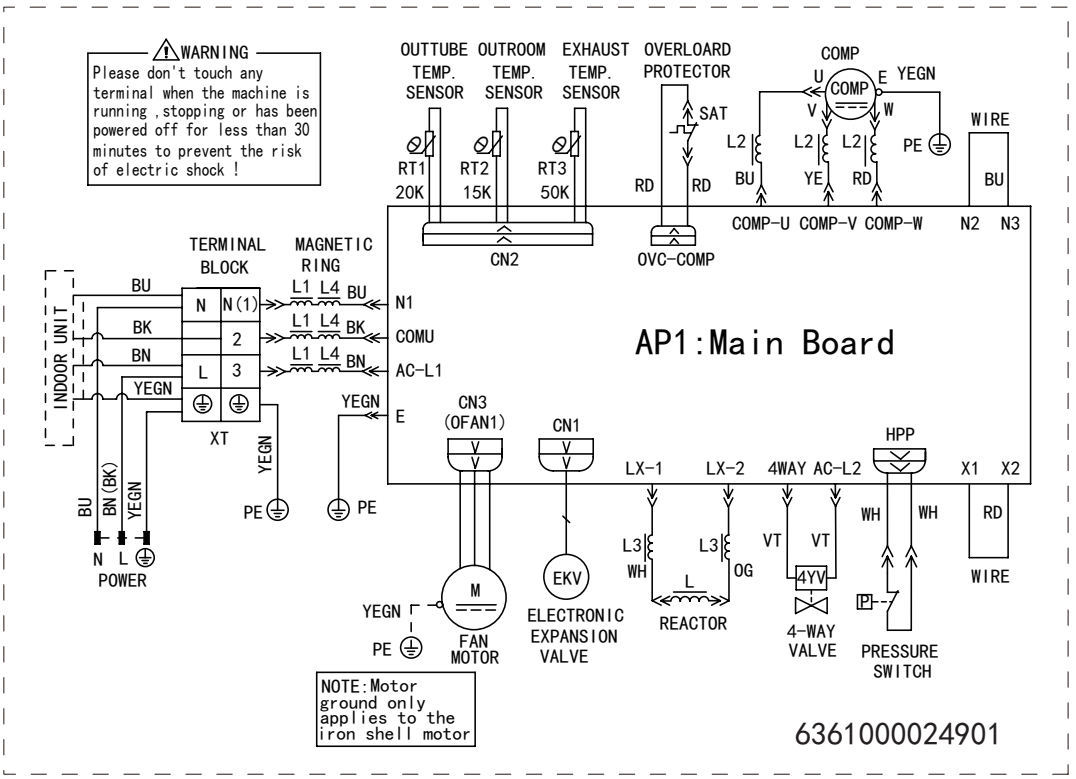


● Outdoor Unit

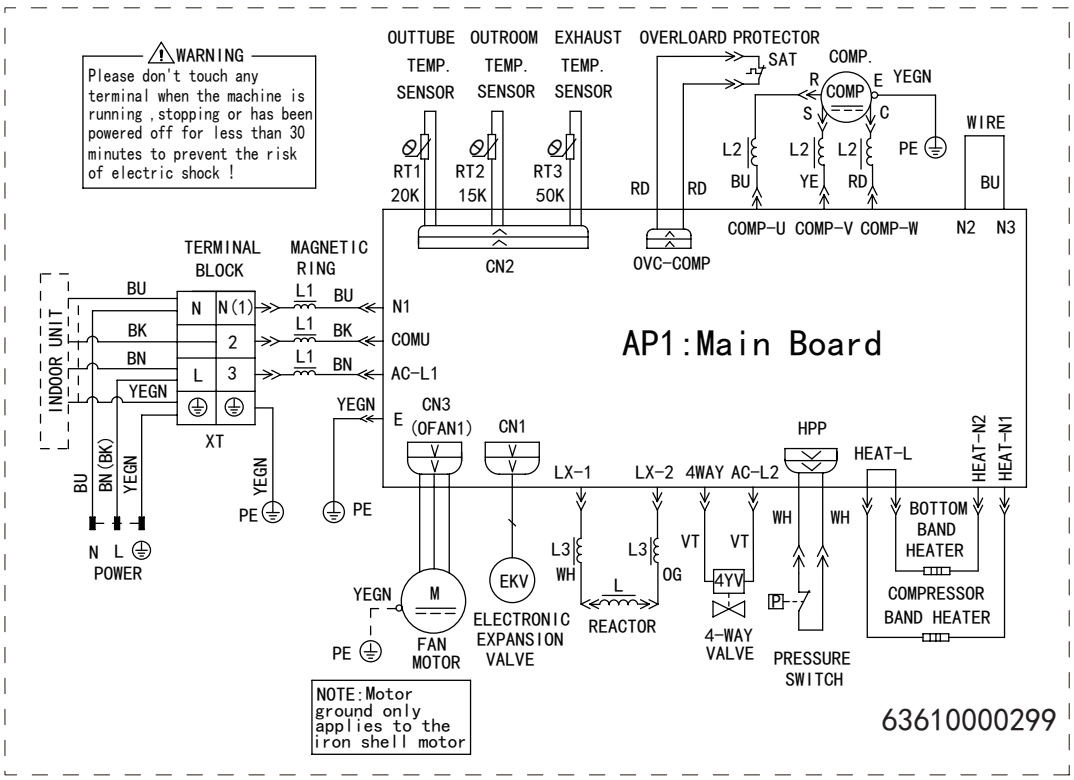
(1)GWH09TB-S3DNA1D/O(CB148W08400)



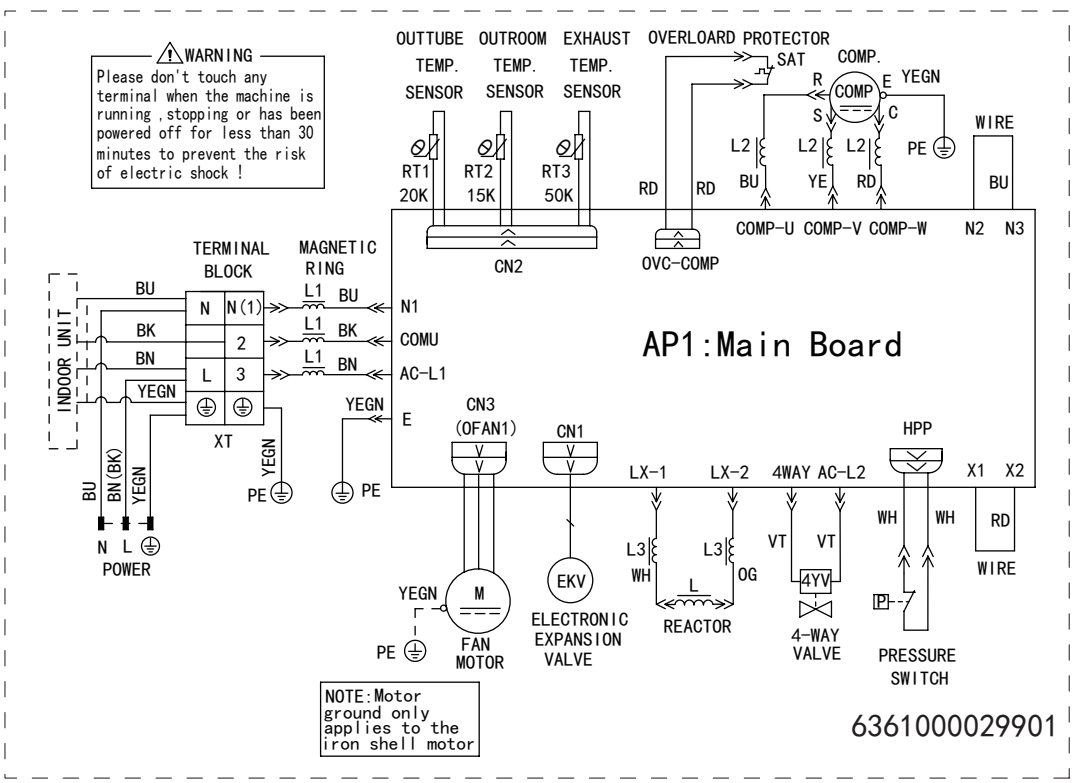
(2) GWH09TB-S3DNA1D/O(CB148W08401)



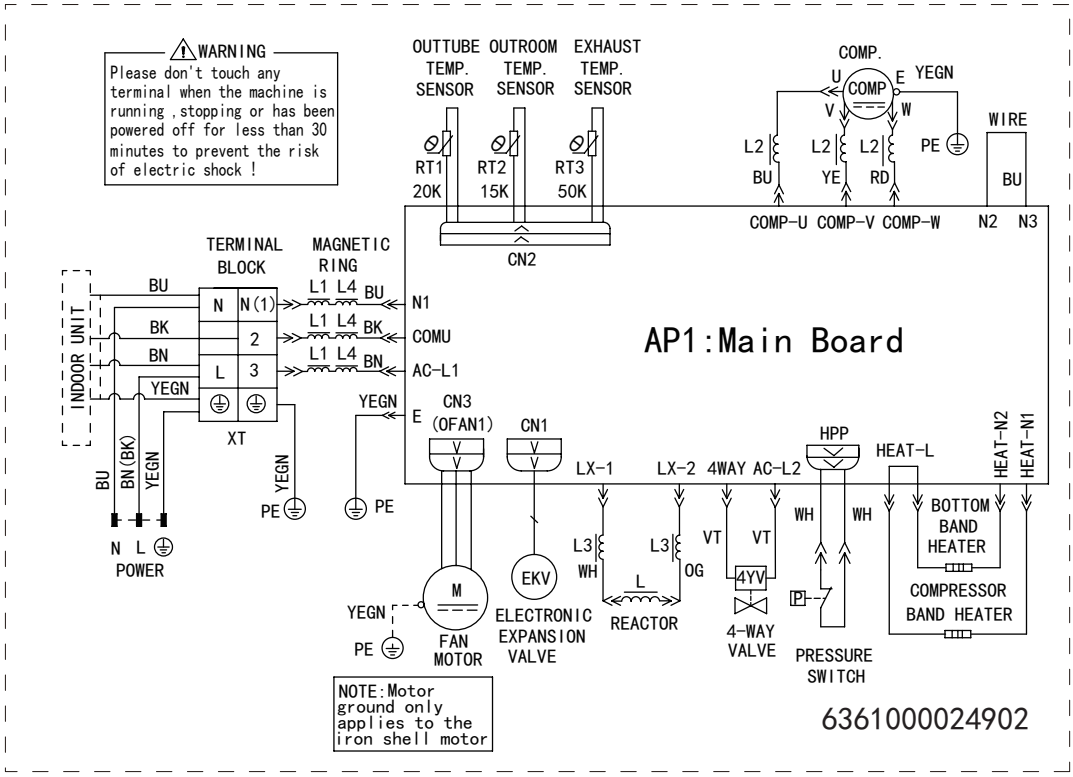
(3) GWH12TB-S3DNA1D/O(CB148W08300)



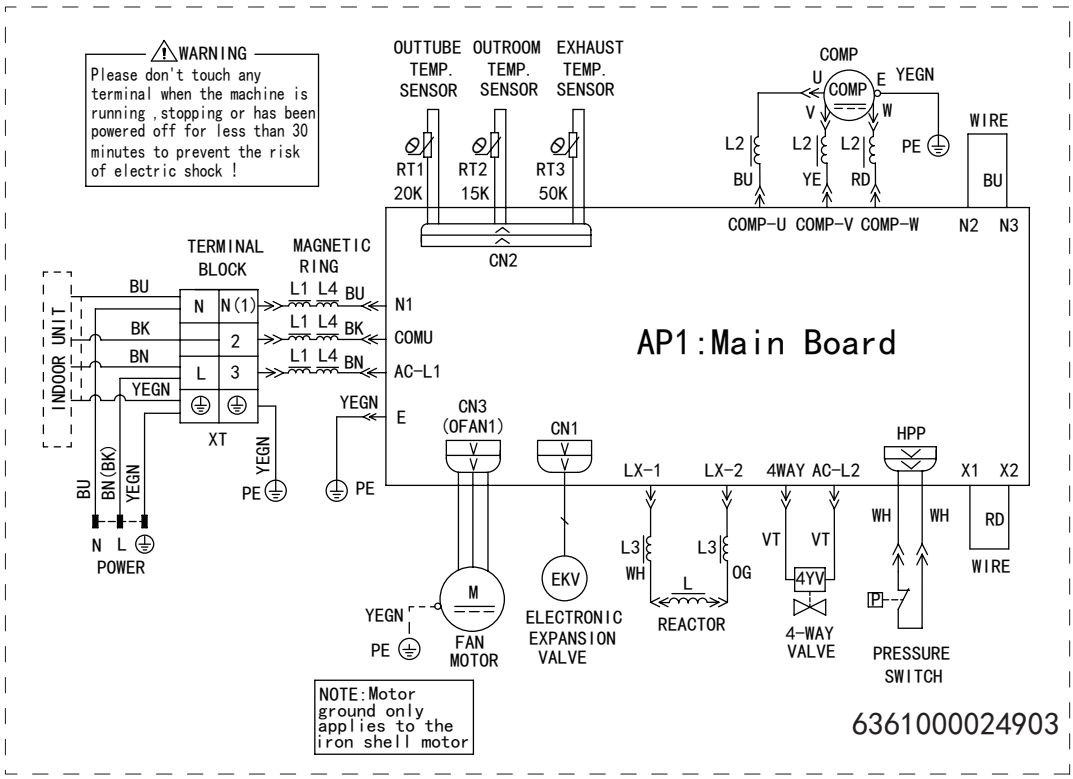
(4) GWH12TB-S3DNA1D/O(CB148W08301)



(5) GWH09TB-S3DNA1E/O (CB148W09300)



(6) GWH09TB-S3DNA1E/O (CB148W09301)

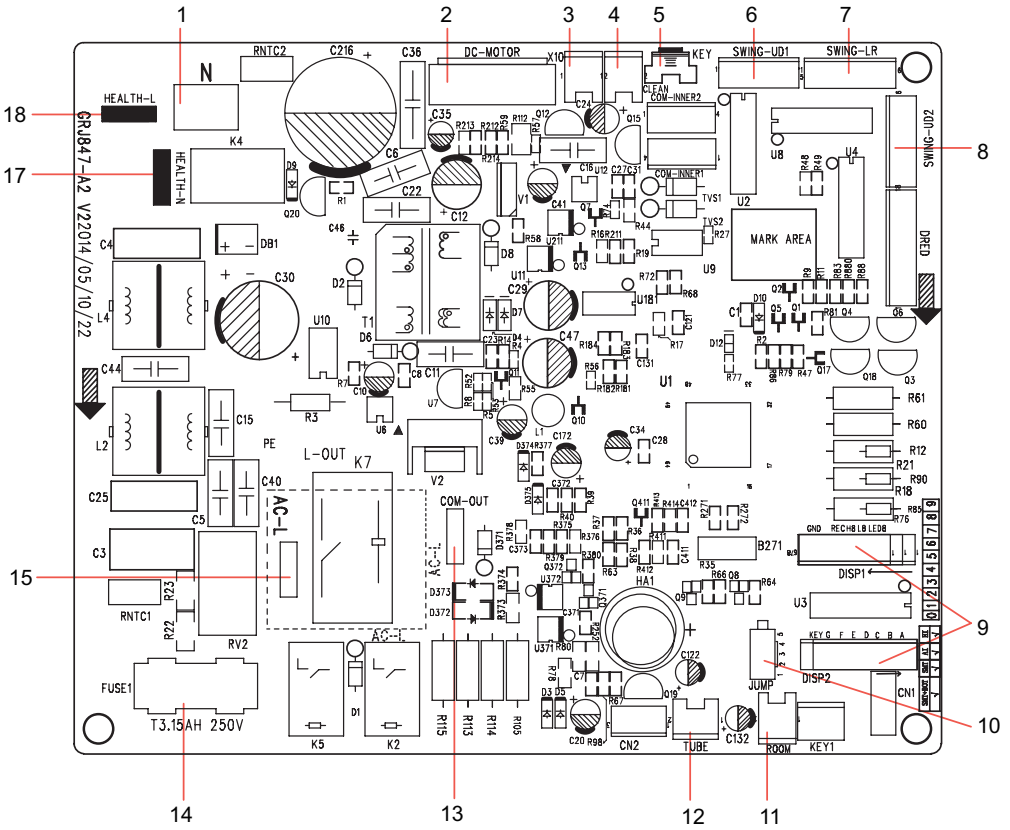


The above data is subject to change without notice. Please refer to the nameplate of the unit.

5.2 PCB Printed Diagram

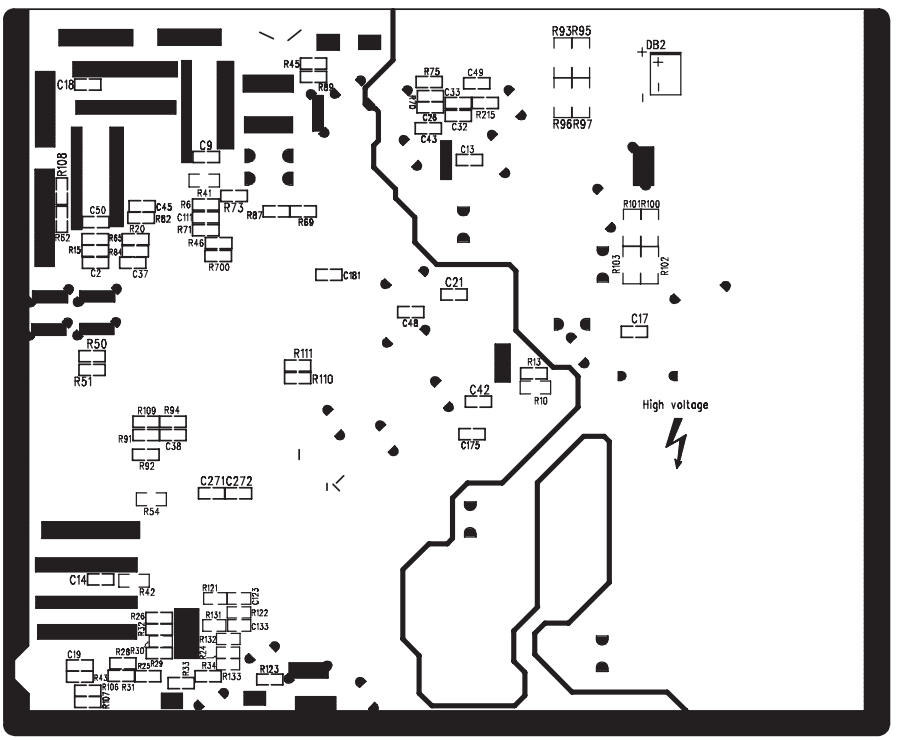
Indoor Unit

• Top view



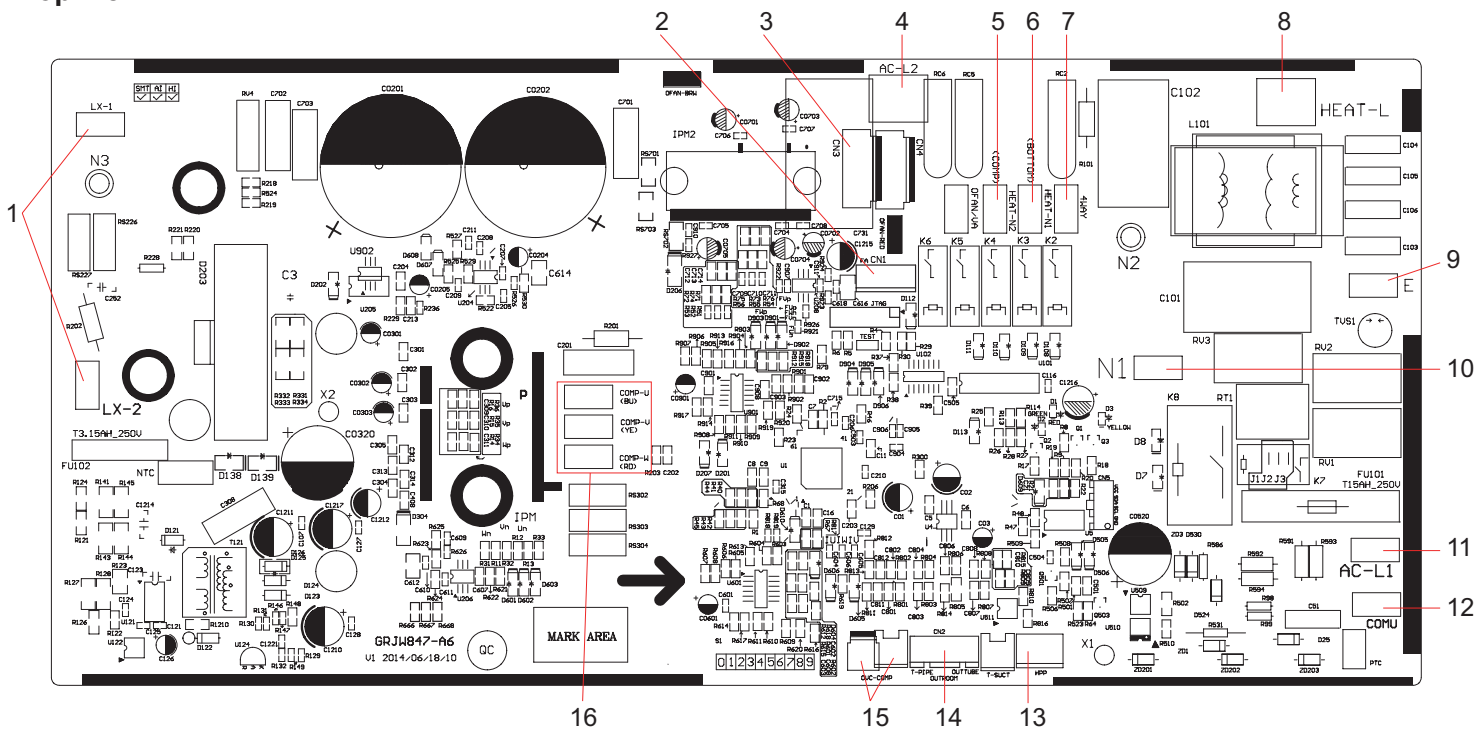
1	Neutral wire
2	DC fan
3	Interface of inching switch
4	Interface of electrostatuc dedusting
5	Auto button
6	Small up&down swing
7	Left&right swing
8	Big up&down swing
9	Display interface
10	Jumper interface
11	Ambient temperature sensor
12	Tube temperature sensor
13	Communication interface between indoor unit and outdoor unit
14	Fuse
15	Interface of live wire for indoor unit
16	Power suppy interface of outdoor unit
17	Healthy neutral wire
18	Healthy live wire

• Bottom view



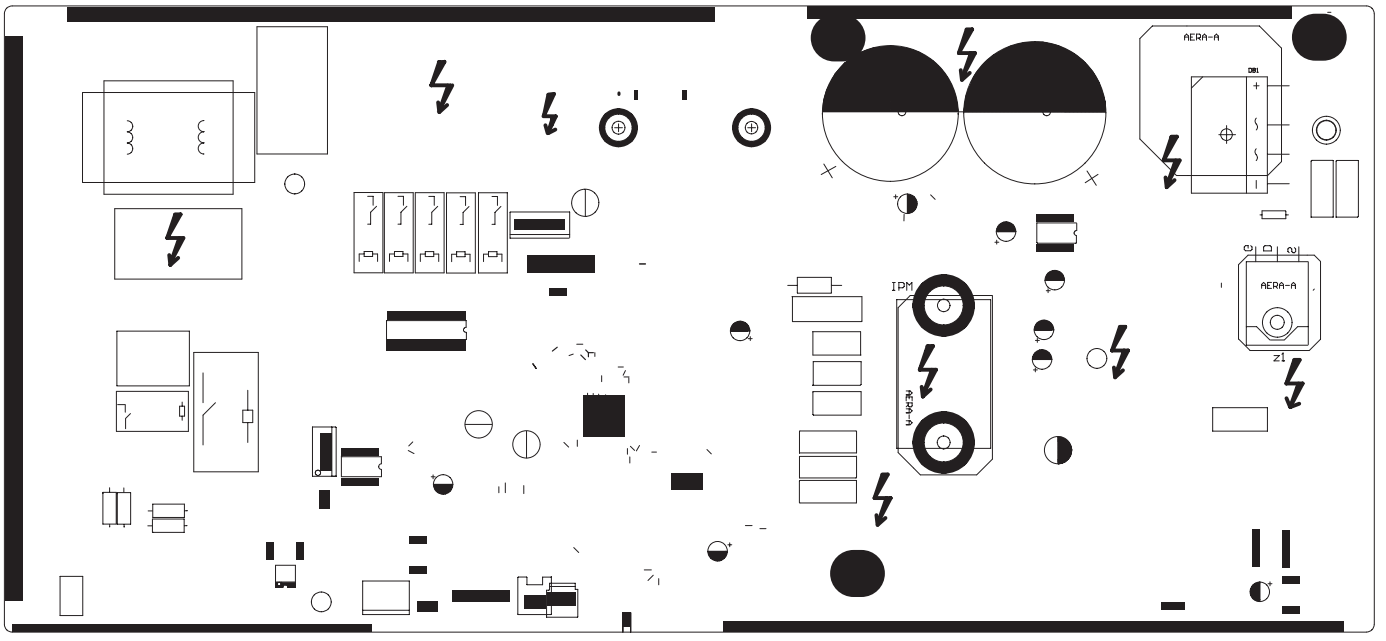
Outdoor Unit

• Top view



1	Terminal of reactor wire	5	Neutral wire interface for electric heating of compressor	9	Earthing wire terminal	13	High-pressure switch terminal
2	Terminal of electronic expansion valve	6	Neutral wire interface of electric heating belt for chassis	10	Neutral wire terminal	14	Terminal of temperature sensor wire
3	Fan terminal	7	Neutral wire terminal of 4-way valve	11	Live wire terminal	15	Terminal of overload wire
4	Terminal of live wire for 4-way valve	8	Live wire terminal of electric heating	12	Communication wire terminal for indoor unit and outdoor unit	16	Terminal of compressor wire

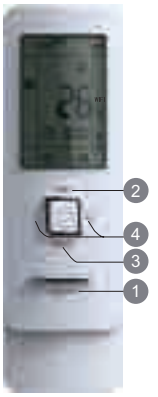
• Bottom view



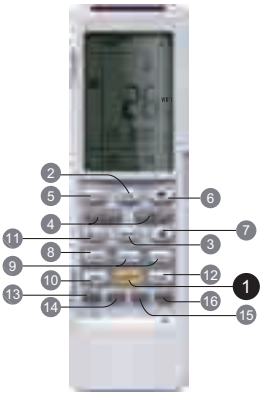
6. Function and Control

6.1 Remote Controller Introduction

Buttons on Remote Controller



(before opening cover)

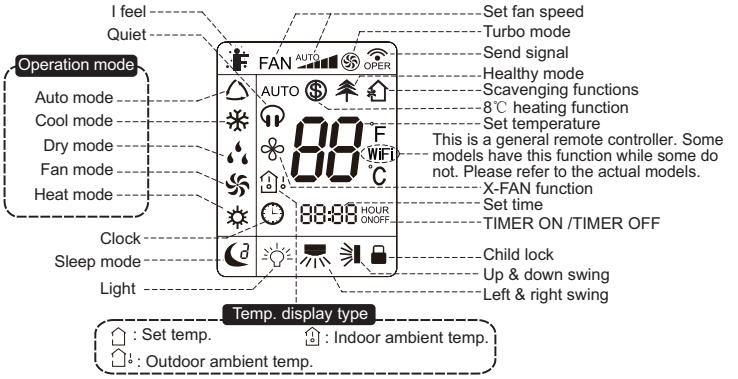


(after opening cover)

1 ON/OFF button
2 FAN button
3 MODE button
4 +/- button

1 ON/OFF button
2 FAN button
3 MODE button
4 +/- button
5 TURBO button
6 button
7 button
8 CLOCK button
9 TIMER ON/ TIMER OFF button
10 TEMP button
11 / button
12 I FEEL button
13 LIGHT button
14 X-FAN button
15 QUIET button
16 SLEEP button

Introduction for Icons on Display Screen



Introduction for Buttons on Remote Controller

Note:

● This is a general use remote controller, it could be used for the air conditioners with multifunction; For some function, which the model dont have, if press the corresponding button on the remote controller that the unit will keep the original running status.

● After putting through the power, the air conditioner will give out a sound.Operation indictor " " is ON (red indicator). After that, you can operate the air conditioner by using remote controller.

● Under on status, pressing the button on the remote controller, the signal icon " " on the display of remote controller will blink once and the air conditioner will give out a “de” sound, which means the signal has been sent to the air conditioner.

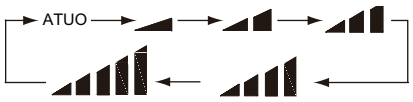
● Under off status, set temperature and clock icon will be displayed on the display of remote controller (If timer on, timer off and light functions are set, the corresponding icons will be displayed on the display of remote controller at the same time); Under on status, the display will show the corresponding set function icons.

1. ON/OFF button

Press this button, the unit will be turned on, press it once more, the unit will be turned off. Sleep function will be canceled, while unit off.

2. FAN button

Press this button, Auto, Low, Medium-low, Medium, Medium-high, High speed can be circularly selected. After powered on, Auto fan speed is default. Under DRY mode, Low fan speed only can be set up.

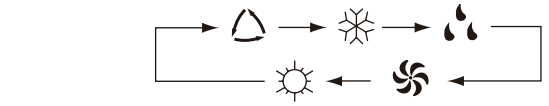


Note: Its Low fan speed under Dry mode.

Low fan Medium-low fan Medium fan Medium-high fan High fan

3. MODE button

Press this button, Auto, Cool, Dry, Fan, Heat mode can be selected circularly. Auto mode is default while power on. Under Auto mode, the temperature will not be displayed;Under Heat mode, the initial value is 28°C(82°F);Under other modes, the initial value is 25°C(77°F).



AUTO COOL DRY FAN HEAT

(only for cooling and heating unit. As for cooling only unit, it wont have any action when it receives the signal of heating operation.)

4. +/- button

● Presetting temperature can be increased.

Press this button,the temperature can be set up, continuously press this button and hold for two seconds, the relative contents can quickly change,until unhold this button and send the order that the °C(°F) signal will be displayed all the time.The temperature adjustment is unavilable under the Auto mode, but the order can be sent by if pressing this button.Temperature of Celsius degree setting:16-30;for Fahrenheit degree setting:61-86.

● Presetting temperature can be decreased.

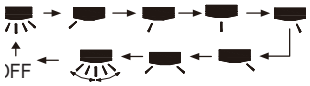
Press this button, the temperature can be set up, continuously press this button and hold for two seconds, the relative contents can quickly change,until unhold this button and send the order that the°C(°F) signal will be displayed all the time.The temperature adjustment is unavailable under the Auto mode,but the order can be sent by if pressing this button.

5. TURBO button

Under Cool or Heat mode,press this button can turn on or turn off the Turbo function.After the Turbo function turned on, the signal of Turbo will display. The signal will be automatically cancelled if changing the mode or fan speed.

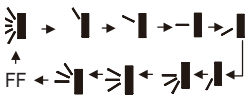
6. button

Press this button to set left & right swing angle cycling as below:



7. button

Press this button to set swing angle,which circularly changes as below:



This remote controller is universal. If it receives threes kinds of following status,the swing angle will remain origial.

If guide louver is stopped when it is swinging up and down,it will remain its present position.

indicates guide louver swings back and forth in the five places,as shown in the figure.

8. CLOCK button

Press this button, the clock can be set up,signal blink and display.Within 5 seconds, the value can be adjusted by pressing + or - button, if continuously press this button for 2 seconds above,in every 0.5 seconds, the value on ten place of Minute will be increased 1.During blinking,repress the Clock button or Confirm button,signal will be constantly displayed and it denotes the setting succeeded. After powered on, 12:00 is defaulted to display and signal will be displayed. If there is signal be displayed that denotes the current time value is Clock value, otherwise is Timer value.

9. TIMER ON/TIMER OFF button

● Timer On setting: Signal “ON”will blink and display,signal will conceal,the numerical section will become the timer on setting status. During 5 seconds blink,by pressing + or - button to adjust the time value of numerical section,every press of that button,the value will be increased or decreased 1 minute.Hold pressing + or - button,2 seconds later,it quickly change,the way of change is: During the initial 2.5 seconds,ten numbers change in the one place of minute,then the one place is constant,ten numbers change in the ten splace of minute at 2.5 seconds speed and carry. During 5s blink,press the Timer button,the timer setting succeeds.The Timer On has been set up,repress the timer button,theTimer On will be canceled. Before setting theTimer,please adjust the Clock to the current actual time.

● One press this key to enter into TIMER OFF setup, in which case the TIMER OFF icon will blink. The method of setting is the sameas for TIMER ON.

10. TEMP button

Press this button, you can see indoor set temperature, indoor ambient temperature or outdoor ambient temperature on indoor units display. The setting on remote controller is selected circularly as below:

When selecting " " with remote controller or no display, temperature indicator on indoor unit displays set temperature; When selecting " " with remote controller,temperature indicator on indoor unit displays indoor ambient temperature; When selecting " " with remote controller, temperature indicator on indoor unit displays outdoor ambient temperature. 3s later it will return to the setting temprature or it depends on the other received signal within 3s.

Attention: When displaying the outdoor ambient, the displaying range is 32-99°F and 0-60°C.When it goes beyond the range, it keeps the threshold data (the smallest—0°C or 32°F and the largest 99°F or 60°C).

Warm tips: When operating buttons on the cover please make sure the cover is closed completely.

11. / button(This function is only available for some models)

Press this button to achieve the on and off of healthy and scavenging functions in operation status.Press this button for the first time to start scavenging function;LCD displays" ".Press the button for the second time to start healthy and scavenging functions simultaneously;LCD displays" "and " " .Press this button for the third time to quit healthy and scavenging functions simultaneously. Press the button for the fourth time to start healthy function; LCD display" " .Press this button again to repeat the operation above.

12. I FEEL button

Press this button once, to turn on the I FEEL function, then the figure of "I FEEL" will be displayed, after every press of other function button, every 200ms to send I FEEL once, after this function started,the remote control will send temperature to the main un it in every 10 minutes.When repress this button, this function will be turned off.

13. LIGHT button

Press this button at unit On or Off status,Light On and Light Off can be set up.After powered on, Light On is defaulted.

14. X-FAN button

Pressing X-FAN button in COOL or DRY mode,the icon is displayed and the indoor fan will continue operation for 2 minutes in order to dry the indoor unit even though you have turned off the unit.After energization, X-FAN OFF is defaulted.X-FAN is not available in AUTO,FAN or HEAT mode.

15. QUIET button

Press this button,the Quiet status is under the Auto Quiet mode (display" " and "Auto"signal) and Quiet mode(display " " singal) and Quiet OFF(there is no signal of " " displayed),after powered on,the Quiet OFF is defaulted. Under the Quiet mode (Display " "signal), the fan speed is not available.

16. SLEEP button

●Press this button, can select Sleep 1 (1), Sleep 2 (2),Sleep 3 (3) and cancel the Sleep, circulate between these, after electrified, Sleep Cancel is defaulted.

●Sleep 1 is Sleep mode 1, in Cool, Dehumidify modes: sleep status after run for one hour, the main unit setting temperature will increase 1°C(1ºF~2ºF), 2 hours,setting temperature increased 2°C(3ºF~4ºF), the unit will run at this setting temperature; In Heat mode: sleep status after run for one hour, the setting temperature will decrease 1°C(1ºF~2ºF), 2 hours, setting temperature will decrease 2°C(3ºF~4ºF), then the unit will run at this setting temperature.

●Sleep 2 is sleep mode 2, that is air conditioner will run according to the presetting a group of sleep temperature curve.

In Cool mode:

(1) When setting the initial temperature 16~23°C(61ºF~74ºF), after turned on Sleep function, the temperature will be increased 1°C(1ºF~2ºF) in every hour,after 3°C(5ºF~6ºF) the temperature will be maintained, after 7hours,the temperature will be decreased 1°C(1ºF~2ºF), after that the unit will keep on running under this temperature;

(2) When setting the initial temperature 24~27°C(75ºF~81ºF), after turned on Sleep function, the temperature will be increased 1°C(1ºF~2ºF) in every hour,after 2°C(3ºF~4ºF) the temperature will be maintained, after 7hours,the temperature will be decreased 1°C(1ºF~2ºF) , after that the unit will keep on running under this temperature;

(3) When setting the initial temperature 28~29°C(82ºF~85ºF), after turned on Sleep function, the temperature will be increased 1°C(1ºF~2ºF) in every hour, after 1°C(1ºF~2ºF) the temperature will be maintained, after 7hours,the temperature will be decreased 1°C(1ºF~2ºF) , after that the unit will keep on running under this temperature;

(4) When setting the initial temperature 30°C(86ºF), under this temperature setting, after 7hours, the temperature will be decreased 1°C(1ºF~2ºF), after that the unit will keep on running under this temperature;

In Heat mode:

(1) Under the initial presetting temperature 16°C(61ºF), it will run under this setting temperature all along.

(2) Under the initial presetting temperature17~20°C(62ºF~68ºF), after Sleep function started up, the temperature will decrease 1°C(1ºF~2ºF) in every hour, after 1°C(1ºF~2ºF) decreased, this temperature will be maintained.

(3) Under the initial presetting temperature 21~27°C(69ºF~81ºF), after Sleep function started up, the temperature will decrease 1°C(1ºF~2ºF) in every hour,after 2°C(3ºF~4ºF) decreased, this temperature will be maintained.

(4) Under the initial presetting temperature 28~30°C(82ºF~86ºF), after Sleep function started up, the temperature will decrease 1°C(1ºF~2ºF) in every hour, after 3°C(5ºF~6ºF) decreased, this temperature will be maintained.

●Sleep 3- the sleep curve setting under Sleep mode by DIY:
(1) Under Sleep 3 mode, press "Turbo" button for a long time, remote control enters into user individuation sleep setting status, at this time, the time of remote control will display "1hour ", the setting temperature "88" will display the corresponding temperature of last setting sleep curve and blink (The first entering will display according to the initial curve setting value of original factory);
(2) Adjust "+" and "-" button, could change the corresponding setting temperature, after adjusted, press "Trubo "button for confirmation;
(3) At this time, 1hour will be automatically increased at the timer postion on the remote control, (that are "2hours" or "3hours" or "8hours "), the place of setting temperature "88" will display the corresponding temperature of last setting sleep curve and blink;
(4) Repeat the above step (2)~(3) operation, until 8hours temperature setting finished, sleep curve setting finished, at this time, the remote control will resume the original timer display;temperature display will resume to original setting temperature.
●Sleep3- the sleep curve setting under Sleep mode by DIY could be inquired:
The user could accord to sleep curve setting method to inquire the presetting sleep curve, enter into user individuation sleep setting status, but do not change the temperature, press "Turbo" button directly for confirmation.
Note: In the above presetting or enquiry procedure, if continuously within10s, there is no button pressed, the sleep curve setting status will be automatically quit and resume to display the original displaying. In the presetting or enquiry procedure, press "ON/OFF" button, "Mode" button, "Timer" button or "Sleep" button, the sleep curve setting or enquiry status will quit similarly.

17. About X-FAN 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 X-FAN function on: After turning off the unit by pressing ON/OFF button indoor fan will continue running for about 2 min. at low speed. In this period, press X-FAN button to stop indoor fan directly.
(2)Having set X-FAN function off: After turning off the unit by pressing ON/OFF button, the complete unit will be off directly.

18. 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.

19. 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.

20. About lock

Press + and - buttons simultaneously to lock or unlock the keyboard. If the remote controlleris 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.

21. About swing up and down

(1)Press swing up and down button continuously more than 2s,the main unit will swing back and forth from up to down, and then loosen the button, the unit will stop swinging and present position of guide louver will be kept immediately.
(2)Under swing up and down mode, when the status is switched from off to , if press this button again 2s later, status will switch to off status directly; if press this button again within 2s,the change of swing status will also depend on the circulation sequence stated above.

22. About swing left and right

(1)Press swing left and right button continuously more than 2s,the main unit will swing back and forth from left to right, and then loosen the button, the unit will stop swinging and present position of guide louver will be kept immediately.
(2)Under swing left and right mode, when the status is switched from off to , if press this button again 2s later, status will switch to off status directly; if press this button again within 2s,the change of swing status will also depend on the circulation sequence stated above.

23. About switch between Fahrenheit and Centigrade

Under status of unit off, press MODE and - buttons simultaneously to switch °C and °F.

24. Combination of " TEMP" and "CLOCK" buttons : About Energy-saving Function

Press “TEMP” and “CLOCK” simultaneously in COOL mode to start energy-saving function.Nixie tube on the remote controller displays “SE”. Repeat the operation to quit the function.

25. Combination of " TEMP" and "CLOCK" buttons : About 8°C(46ºF) Heating Function

Press “TEMP” and “CLOCK” simultaneously in HEAT mode to start 8°C(46ºF) Heating Function.Nixie tube on the remote controller displays" "and a selected temperature of “8°C” (46°F if Fahrenheit is adopted). Repeat the operation to quit the function.

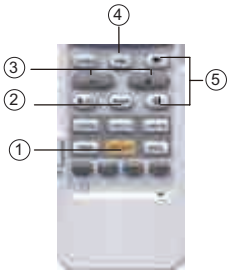
26. About Auto Quiet function

When auto quiet function is selected:
(1)Under cooling mode: indoor fan operates at notch 4 speed. 10 minutes later or when indoor ambient temperature≤28°C(82ºF), indoor fan will operate at notch 2 speed or quiet mode according to the comparison between indoor ambinet temperature and set temperature.
(2)Under heating mode: indoor fan operates at notch 3 speed or quiet mode according to the comparison between indoor ambient temperature and set temperature.
(3)Under dry, fan mode: indoor fan operates at quiet mode.
(4)Under auto mode: the indoor fan operates at the auto quiet mode according to actual cooling, heating or fan mode.

27. About Sleep function

Under the Fan and Auto mode, the Sleep function cannot be set up, under Dehumidify mode, only Sleep 1 can be selected.Select and enter into any kind of Sleep mode, the Quiet function will be attached and stared, different Quiet status could be optional and turned off.

Operation Guide



1. General operation

(1)After powered on, press ON/OFF button, the unit will start to run. (Note: When it is powered on, the guide louver of main unit will close automatically.)

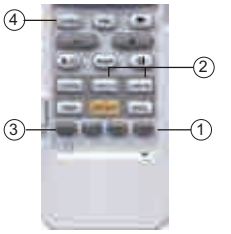
(2)Press MODE button, select desired running mode.

(3)Pressing + or - button, to set the desired temperature (It is unnecessary to set the temp. at AUTO mode.)

(4)Pressing FAN button, set fan speed, can select AUTO FAN, LOW, MEDIUM-LOW, MEDIUM, MEDIUM-HIGH and HIGH.

(5)Pressing and button, to select the swing.

2. Optional operation



(1)Press SLEEP button, to set sleep.

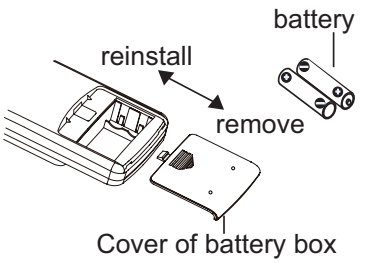
(2)Press TIMER ON and TIMER OFF button, can set the scheduled timer on or timer off.

(3)Press LIGHT button, to control the on and off of the displaying part of the unit (This function may be not available for some units).

(4)Press TURBO button, can realize the ON and OFF of TURBO function.

Replacement of Batteries in Remote Controller

1. Press the back side of remote controller marked with " ",as shown in the fig,and then push out the cover of battery box along the arrow direction.
2. Replace two 7# (AAA 1.5V) dry batteries, and make sure the position of "+" polar and "-" polar are correct.
3. Reinstall the cover of battery box.



Note:

● During operation, point the remote control signal sender at the receiving window on indoor unit.

● The distance between signal sender and receiving window should be no more than 8m, and there should be no obstacles between them.

● Signal may be interfered easily in the room where there is fluorescent lamp or wireless telephone; remote controller should be close to indoor unit during operation.

● Replace new batteries of the same model when replacement is required.

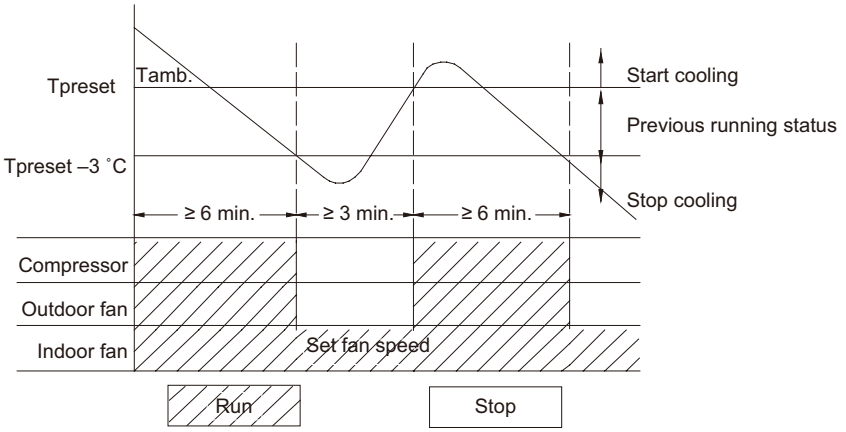
● When you dont use remote controller for a long time, please take out the batteries.

● If the display on remote controller is fuzzy or theres no display, please replace batteries.

6.2 Brief Description of Modes and Functions

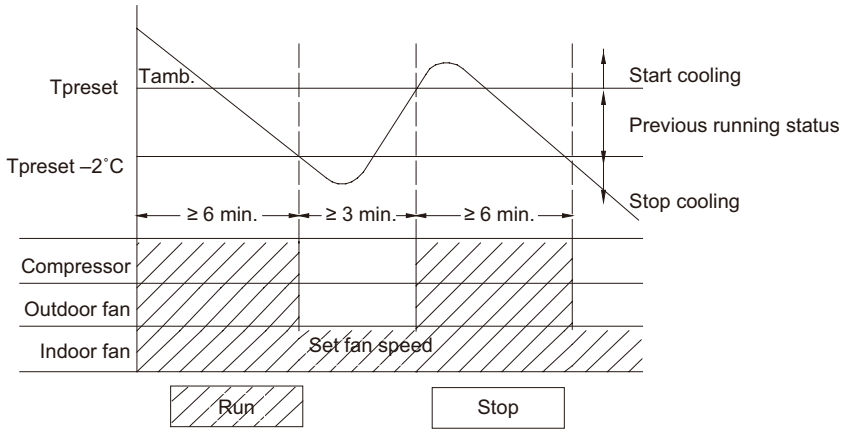
● Indoor Unit

1Temperature Parameters
◆Indoor preset temperature (Tpreset)
◆Indoor ambient temperature (Tamb.)
2 Basic functions (The temperature in this manual is expressed by Centigrade. If Fahrenheit is used, the switchover between them is Tf=TcX1.8+32.)
Once the compressor is energized, there should be a minimum interval of 3 minutes between two start-ups. But if the unit is de-energized and then energized, the compressor can restart within 3 minutes.
2.1 Cooling mode
2.1.1 Cooling conditions and process
When Tamb. ≥Tpreset, the unit starts cooling operation. In this case, the compressor and the outdoor fan operate and the indoor fan operates at set speed.
When Tamb. ≤Tpreset-3℃, the compressor and the outdoor fan stop while the indoor fan runs at set speed.
When Tpreset-3℃＜Tamb. ＜Tpreset, the unit will maintain its previous running status.
In cooling mode, temperature setting range is 16～30℃; the indoor unit displays operation icon, cooling icon and set temperature.

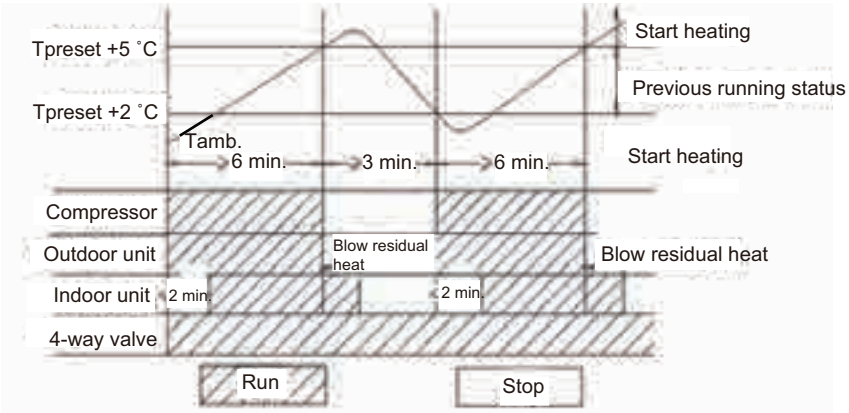


2.1.2 When outdoor unit has malfunction or stops for protection, indoor unit will keep previous operation status and display malfunction code.
2.1.3 The protection status is as the same as the cooling mode.
2.2 Dry Mode
2.2.1 Dry Conditions and Process

When Tamb.>Tpreset, the unit operates in cooling mode. Meanwhile, compressor and outdoor fan operate, and indoor fan operates at set fan speed (low fan speed, quiet fan speed or auto quiet fan speed).When Tpreset-2℃＜Tamb. ≤Tpreset, the unit keeps previous operation status.When Tamb. ≤Tpreset-2℃, compressor, outdoor fan and indoor fan operate at set fan speed (low fan speed, quiet fan speed or auto quiet fan speed).Under this mode, the temperature setting range is 16～30℃. Display displays operation icon, drying icon and set temperature.



2.3 Heating mode (not available for cooling only type)
2.3.1 Heating conditions and process
When Tamb. ≤Tpreset+2℃, the unit starts heating operation. In this case, compressor and outdoor fan operate simultaneously; the indoor fan operates at cold-air prevention mode.
When Tamb≥Tpreset+5℃, the compressor and outdoor fan stop operation; the indoor fan blows residual heat.
When T_{preset} +2℃＜$T_{amb.}$ ＜ T_{preset} +5℃, the unit will maintain its previous running status.
Under this mode, temperature setting range is 16～30℃; the indoor unit displays operation icon, heating icon and set temperature.



2.3.2 Defrosting and Oil Return

When receiving the signal of defrosting and oil return, the horizontal louver(big one) will rotate to the position where the angle is minimum and the other horizontal louver(small one) will close. In 10 seconds later, indoor fan will stop operation. During defrosting, oil return and 5 minutes after quit, all indoor pipe temperature sensors will not be detected. When receiving oil return signal or defrosting signal sent by outdoor unit, “dual 8” nixie tube will display “H1”. (H1 is not malfunction code.)

2.3.3 Blow residual heat

In heating mode, when temperature reaches the set temperature, the compressor and outdoor fan will stop.

The horizontal louver (big one) will rotate to the default position for cooling and the other one (small one) will close. Indoor unit will operate at set speed for 60s and then stop operation.

When the unit is in heating mode or auto heating mode, and also the compressor and indoor fan are operating, if turning off the unit, compressor and outdoor fan will stop. Horizontal louver (big one) will rotate to the position where gentle wind is blown out (default position for cooling) and the other horizontal louver (small one) will close. Indoor unit will operate at low speed for 10 seconds and then the unit will be turned off.

2.4 Fan Mode

In this mode, indoor fan operates at set speed while compressor and outdoor fan stop operation. The set temperature range is 16~30℃. Operation icon and set temperature are displayed.

2.5 Auto Mode

In this mode, operation mode (Cool, Heat, Fan) will be automatically selected according to change of ambient temperature. Operation icon, actual operation icon and set temperature will be displayed. There is 30s delay for protection when changing mode. The protection function is as the same as that under each mode.

2.5.1 When Tamb.≥26℃，the unit will operate at cooling mode, the default set temperature is 25℃.

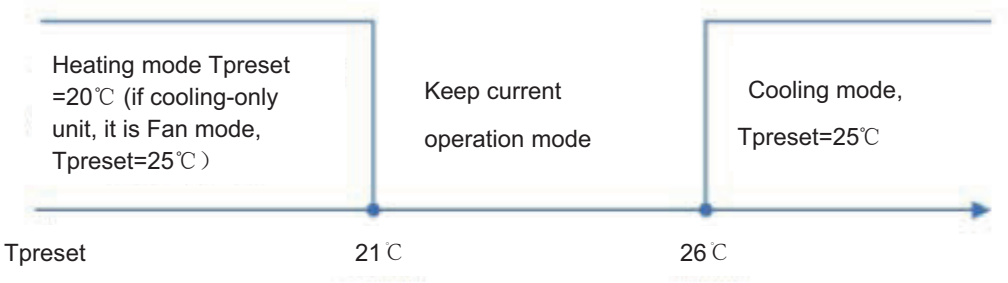
2.5.2 When Tamb. ≤21℃，the unit will operate at heating mode, the default set temperature is 20℃（if the cooling only unit operates at fan mode, the default set temperature is 25℃.）;

2.5.3 When 22 ℃ ≤Tamb. ≤25℃，and the unit is turned on for the first time, if it changes to auto mode from other mode, the previous operation mode will be maintained; If it changes to auto mode from dry mode, the unit will operate at fan mode.

2.5.4 When the unit operates at auto mode, the frequency of compressor is as the same as that under cooling mode, while it is as the same as that under heating mode.

Protection function

A. Under cooling mode, the protection function is as the same as that under cooling mode.
B. Under heating mode, the protection function is as the same as that under heating mode.



2.6. “8℃” Heating

Under heating mode, press buttons “Temp” and “Clock” simultaneously, the 8℃ heating function will be activated and “cold air prevention” will be shielded.

2.6.1 8 ℃ heating can’t co-exist with sleep function. If 8℃heating function is set, it can be cancelled by pressing sleep button, In that case, the set temperature will be that before entering 8 ℃ heating; If sleep function is set, press buttons “Temp” and “Clock” simultaneously to activate 8℃ function and cancel sleep function at the same time.

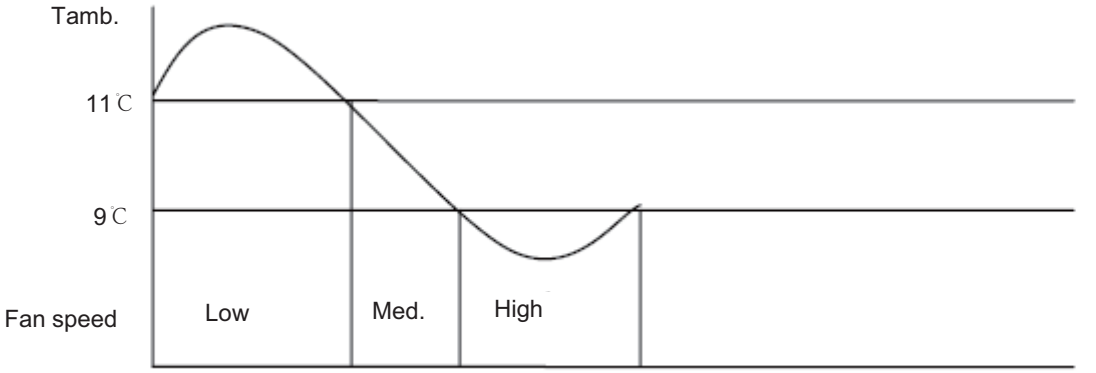
2.6.2 Set temperature is 8 ℃，and it is displayed on the indoor display panel.

2.6.3 In this mode, TURBO can’t be set and fan speed can’t be adjusted.

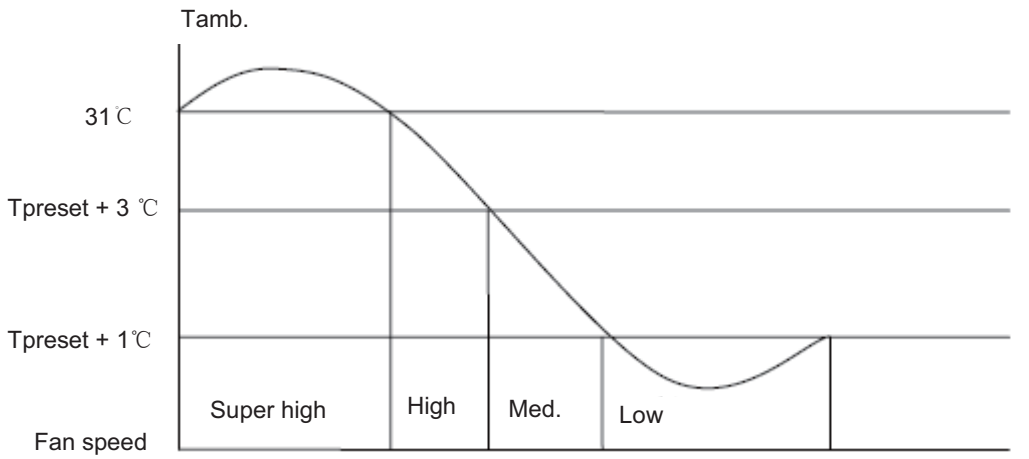
2.6.4 In this mode, when compressor operates, fan speed will be adjusted as follows; when compressor stops operation, indoor unit will operate at blowing residual heat.

When Tindoor amb. ≤9℃, indoor unit will operate at high speed;

When 9℃ ＜Tindoor amb.＜11℃, indoor unit will operate at medium speed;
When Tindoor amb.≥11℃， indoor fan will operate at low speed;
When changing among low high, medium, and low speeds, the minimum operation time is 210 seconds.
2.6.5 If the unit has memory function, 8℃heating function will be memorized.

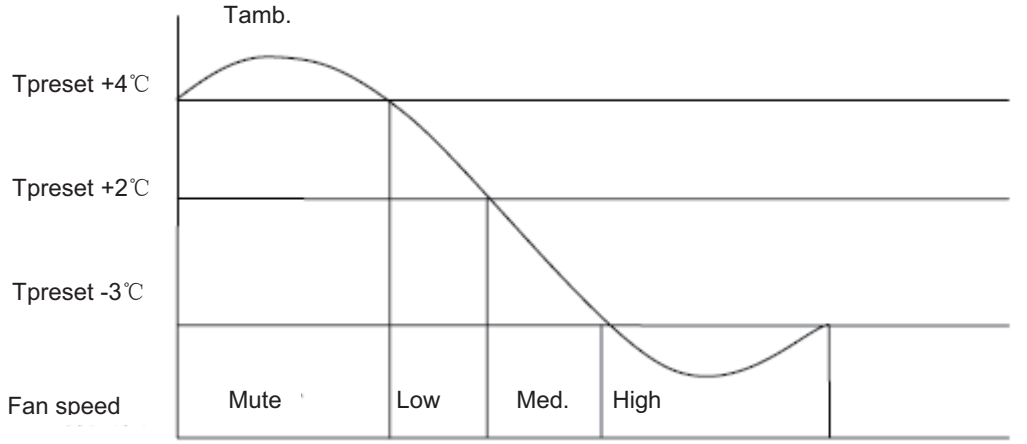


2.7 Energy-saving Function
2.7.1 In cooling mode, when receiving command of energy-saving sent by remote control, the controller enters energy-saving mode; If the unit is under energy-saving mode already, such command will not be executed.
2.7.2 When remote control is set to display set temperature, “dual 8”nixie tube displays “SE”.
2.7.3 In this mode, when compressor operates, fan speed will be adjusted according to auto fan mode under energy-saving operation; when compressor stops operation, indoor fan will operate at low speed.
a. When Tamb.≥31℃, indoor fan will operate at super high speed;
b. When 31℃＞Tamb.≥Tpreset + 3℃, indoor fan will operate at high speed;
c. When Tpreset+1℃＜Tamb.＜Tpreset + 3℃， indoor fan will operate at medium speed;
d. When Tamb.≤Tpreset + 1℃， indoor fan will operate at low speed;
Note: The switchover among superhigh speed, high speed, medium speed and low speed requires minimum 210seconds of operation.

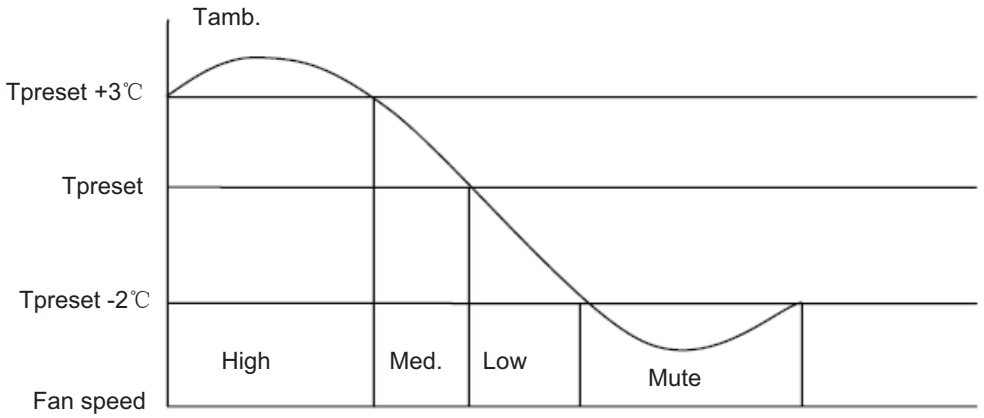


2.7.4 In this mode, set temperature will be automatically adjusted according to actual operation conditions.
3 Other Control
3.1 Timer function
General timer and clock timer functions are compatible by equipping remote controller with different functions.
3.1.1 General Timer
Timer ON can be set at unit OFF. If selected ON time is reached, the unit will start to operate according to previous setting status. Time setting range is 0.5-24hr in 30-minute increments.
Timer OFF can be set at unit ON. If selected OFF time is reached, the unit will stop operation. Time setting range is 0.5-24hr in 30-minute increments.
3.1.2 Clock Timer
Timer ON
If timer ON is set during operation of the unit, the unit will continue to operate. If timer ON is set at unit OFF, upon ON time reaches the unit will start to operate according to previous setting status.
Timer OFF
If timer OFF is set at unit OFF, the system will keep standby status. If timer OFF is set at unit ON, upon OFF time reaches the unit will stop operation.

Timer Change
Although timer has been set, the unit still can be turned on/off by pressing ON/OFF button of the remote controller. You can also set the timer once again, and then the unit will operate according to the last setting.
If timer ON and timer OFF are set at the same time during operation of the unit, the unit will keep operating at current status till OFF time reaches.
If timer ON and timer OFF are set at the same time at unit OFF, the unit will keep off status till ON time reaches.
Each day in future, the system will operate according to preset mode till OFF time reaches and stop operation till ON time reaches. If ON time and OFF time are the same, OFF command will prevail.
3.2 Auto Button
If this button is pressed, the unit will operate in AUTO mode and indoor fan will operate at auto speed; meanwhile, the swing motor operates. Press this button again to turn off the unit.
3.3 Buzzer
Upon energization or availably operating the unit or remote controller, the buzzer will give out a beep.
3.4 Sleep Function
In SLEEP mode, the unit will automatically select appropriate sleep curve to operate according to different temperature setting.
3.5 Turbo Function
This function can be set in cooling or heating mode to quickly cool or heat the room.
3.6 X-FAN Function
3.6.1 When the unit is operating at COOL or DRY mode(it is not available under AUTO, HEAT, FAN modes), the X-FAN function can be turned on/off. When it is turned on,once pressing ON/OFF button to turn off the unit, indoor fan will continue operation at low speed for 10 minutes. Within the 10 minutes, horizontal louver will keep its previous status while cold plasma and static dedusting will be forced to be turned on and other loads will be turned off. Then the complete unit will be turned off; When X-FAN function is set to be off, once pressing ON./OFF button, the complete unit will be turned on immediately.
3.6.2 During X-FAN operation, press X-FAN button, the indoor fan, horizontal louver, cold plasma and static-dedusting will be turned off immediately.
3.7 Control of Indoor Fan
Indoor fan can be set by remote control within the range of Mute, Fan speed 1, Fan speed 2, Fan speed 3, Fan speed 4, Fan speed 5 and Turbo and Fan will operate at low, med. high or super high speed accordingly. And also, auto fan speed can be set. Under auto fan speed mode, indoor fan will automatically select high, med., low or mute speed according to change of ambient temperature.
3.7.1 Under Auto Heat mode or regular Heat mode, auto fan speed will be as follows:
When Tamb.＜Tpreset-3℃, indoor fan will operate at high speed;
When Tpreset-3℃≤Tamb.＜Tpreset + 2℃， indoor fan will operate at med. speed;
When Tpreset + 2℃≤Tamb.＜Tpreset + 4℃, indoor fan will operate at low fan speed;
When Tamb≥Tpreset + 4℃， indoor fan will operate at mute.
Control Diagram of Auto Fan Speed under HEAT Mode



3.7.2 Under FAN or COOL mode: if it is auto cooling mode or regular cooling mode, auto fan speed will be as follows:
When Tamb. ≥ Tpreset + 3 ℃, indoor fan will operate at high speed;
When Tpreset ＜Tamb.＜Tpreset + 3℃，indoor fan will operate at med. speed;
When Tpreset-2℃＜Tamb.≤Tpreset, indoor fan will operate at low speed;
When Tamb.≤Tpreset-2 ℃， indoor fan will operate at mute;
3.7.3 There is no auto fan speed under DRY mode
Note: Fan speed “High”, “Med.” and “Low” are respectively corresponding to “Fan speed 5”, “Fan speed 3” and “Fan speed 1”. There is 210 seconds delay for fan speed switchover of auto fan.



3.8 Vertical Swing

3.8.1 Small Horizontal Louver

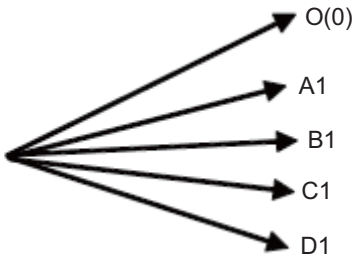
After energization, vertical swing motor will firstly have the horizontal louver rotate anticlockwise to position O to close air outlet. If swing function has not been set after startup of the unit, horizontal louver will turn clockwise to position D1 in HEAT mode. If swing function is set when starting up the unit, the horizontal louver will swing between O and D1.There are 7 swing status of horizontal louver: Positions O, A1, B1, C1 and D1, swing between O and D1 and stop at any position between L and D (angles between O and D1 are equiangular). Upon turning off the unit, the horizontal louver will close at position O. Swing function is available only when swing function is set and indoor fan is operating.

Note:

a. If the position is set between O and D1, A 1and C1 or B1 and D1 by remote controller, the horizontal louver will swing between O and D1.

b. For model 9K/12K, only when big horizontal louver rotates to the second position for heating(62°of corresponding angle), this louver will be activated.

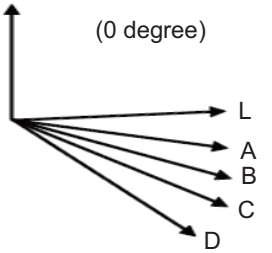
c. Under cooling mode, this horizontal louver will be always in the position O.



3.8.2 Big Horizontal Louver

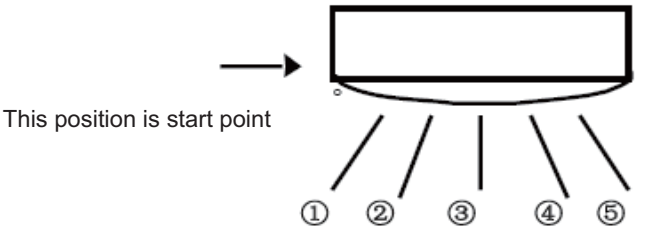
After energization, up & down swing motor will firstly have the horizontal louver rotate anticlockwise to position O to close air outlet. If swing function has not been set after startup of the unit, horizontal louver will turn clockwise to position D in HEAT mode, or turn clockwise to level position L in other modes. If swing function is set when starting up the unit, the horizontal louver will swing between L and D.There are 7 swing status of horizontal louver: Positions L, A, B, C and D, swing between L and D and stop at any position between L and D (angles between L and D are equiangular). Upon turning off the unit, the horizontal louver will close at position O.

Note: If the position is set between L and B, A and C or B and D by remote controller, the horizontal louver will swing between L and D.



3.9 Horizontal Swing

Upon energization, the vertical louver will be reset to the start position firstly and then stop in the middle position. When setting horizontal swing, there are 7 status: Position ①, Position ②, Position ③, Positon ④, Position ⑤, swing between ① and ⑤ and stop at any position between ①and ⑤. If setting horizontal swing during operation of the unit, the horizontal swing motor will drive the louver to swing horizontally. When cancelling horizontal swing or it is not set when turning on the unit, the louver will stop in the current position and it will not move when turning off the unit. Only when swing is set and indoor fan is operating, the vertical louver can horizontally swing.



3.10 Display

3.10.1 Operation and Mode Icons

Upon energization, the unit will display all icons within 3 seconds. Under standby state, LED lamp of standby is on. If the unit is turned on by remote controller, LED lamp of operation is on; meanwhile, the mark of current running mode will be displayed. If the light button is turned off, no mark will be displayed.

3.10.2 Display of Nixie Tube on Indoor Unit

When energized & started for the first time, the indoor unit defaults to displaying current set temperature (16～30℃). When set temperature display is set by remote controller, it will display set temperature; when room temperature display is set, it will display room or outdoor temperature. After that, when operating the remote controller for other settings, the temperature display method will keep original.

When operating the remote controller during room temperature display, the set temperature will be displayed for 5 seconds firstly and then room temperature display returns. If there is malfunction, corresponding malfunction code will be displayed. For example, if ambient temperature sensor has malfunction, “F1” will be displayed; if indoor pipe temperature has malfunction, “F2” will be displayed; if jumper cap has malfunction, “C5” will be displayed.

3.11 Memory Function

Memorized items: mode, up & down swing, light, set temperature and set fan speed.

When power is recovered after power failure, the unit will automatically start operation according to memorized status. After power recovery, the unit without timer setting before power failure will operate according to the last setting; the unit with general timer setting which has not been fulfilled before power failure will memorize the timer setting and re-calculate the time after.

3.12 I FEEL function

When I FEEL command is received by controller, and also the ambient temperature is received from remote control, the controller will operate according to the ambient temperature sent by the remote controller (For cold blow prevention, the unit operates according to the ambient temperature sensed by the air conditioner). The remote controller will send ambient temperature data to the controller for every 10 minutes. When the data has not been received for 11 minutes, the unit will operate according to the temperature sensed by the air conditioner. If I FEEL function is not selected, the ambient temperature will be that sensed by the air conditioner. Ambient temperature of I FEEL displayed by controller is 1℃~59℃.

3.13 Health and Cold Plasma Function

When the unit is operating, turn health or cold plasma to be ON/OFF by health button in remote control (if there is no such button in remote control, the health is on as default). Only when health or cold plasma is turned on and indoor fan is operation, such function can be activated.

3.14 Static Dedusting Function

When the unit is operating, turn static dedusting ON/OFF by health button in remote control (if there is no such button in remote control, the health is on as default). Only when static dedusting is turned on and indoor fan is operation, such function can be activated.

3.15. Fahrenheit Display

Nixie tube displays current set temperature. If remote signal is Fahrenheit, the temperature will be displayed in Fahrenheit. The set temperature range is 16~30℃（61~86℉）. Under Auto mode, in COOL operation and FAN operation, 25℃(77℉) will be displayed, while in HEAT operation and FAN operation, 20℃(68℉) will be displayed. For cooling-only controller, only 25℃(77℉) will be displayed.

3.16 Locked protection to Indoor Fan Motor

If the indoor fan motor keeps low rotation speed for a continuous period of time after startup, the unit will stop operation and display “H6”.

3.17 Mute Mode

3.17.1 Auto Mute: When selecting fan speed of auto mute, the fan speed will be adjusted according to change of ambient temperature; when temperature meets the requirement of the setting, the unit will operate at lowest speed.

3.17.2 Mute mode: When selecting fan speed of mute, the unit will directly operate at lowest fan speed.

3.18 Compulsory defrosting function

When indoor unit operates in formidable environment, for example, temperature is too low, humidity is very high or there’s too much frost on outdoor unit, which affects the heating efficiency of outdoor unit, user can select the compulsory defrosting function to improve outdoor unit’s heating efficiency.

Entry method of compulsory defrosting function:

When the unit is turned on in heating by remote controller and the set temperature is 16℃, press “+,-,+,-,+,-”continuously within 5s, the indoor unit turns to compulsory defrosting setting and it will send compulsory defrosting mode to outdoor unit. The outdoor fan will operates in compulsory defrosting mode.

● Outdoor Unit

1. Compensation function of input parameters
According to the structure of wall-mounting unit, considering the comfortability for operation, indoor ambient temperature when the compressor is at OFF status is higher than set temperature under heating mode.
2. Control of detecting the availability of parameters
For ensuring the safety and reliability of operation, please insert the outdoor discharge temperature sensor into the corresponding temperature sensor bushing to make sure that the control system can detect system discharge temperature accurately. Otherwise, the unit will stop operation and it displays malfunction of discharge temperature sensor (discharge temperature sensor hasn't been inserted well), which can only be resumed by pressing ON/OFF button on remote controller. Basic functions:
3. Cooling mode
3.1 Working condition and process for cooling
3.1.1 If compressor is at OFF status, and $〔T_{preset}-(T_{indoor\ amb.}-\Delta T_{indoor\ amb.\ compensation\ of\ cooling})〕 \le 0℃$, the unit operates in cooling mode;
3.1.2 During cooling operation, if $0℃ \le 〔T_{preset}-(T_{indoor\ amb.}-\Delta T_{indoor\ amb.\ compensation\ of\ cooling})〕 < 3℃$, the unit still operates in cooling mode;
3.1.3 During cooling operation, if $3℃ \le 〔T_{preset}-(T_{indoor\ amb.}-\Delta T_{indoor\ amb.\ compensation\ of\ cooling})〕$, the unit stops operation when reaching the temperature point in cooling.
3.2 Temperature setting range:
3.2.1 If $T_{outdoor\ amb.} \ge T_{cooling\ temperature(low\ temperature)}$, the temperature setting range is 16-30℃ (cooling in room temperature);
3.2.2 If $T_{outdoor\ amb.} < T_{cooling\ temperature(low\ temperature)}$, the temperature setting range is 25-30℃. That is: the lower limit of set temperature for outdoor unit is 25℃.
4. Dry mode
4.1 Working conditioner and process for drying is same as that for cooling mode;
4.2 Temperature setting range is 16-30℃;
5. Fan mode
5.1 Compressor, outdoor fan and 4-way valve are all turned off;
5.2 Temperature setting range is 16-30℃.
6. Heating ode
6.1 Working conditioner and process of heating: ($T_{indoor\ amb.}$ is the actual temperature detected by indoor ambient temperature sensor; $\Delta T_{indoor\ amb.\ compensation\ of\ heating}$ is indoor ambient temperature compensation during heating operation).
6.1.1 If compressor is at OFF status, and $〔T_{indoor\ amb.}-\Delta T_{indoor\ amb.\ compensation\ of\ heating}〕-T_{preset}〕 \le -1℃$, the unit operates in heating mode.
6.1.2 During heating operation, if $0℃ \le 〔(T_{indoor\ amb.}-\Delta T_{indoor\ amb.\ compensation\ of\ heating})-T_{preset}〕 < 2℃$, the unit still operates in heating mode.
6.1.3 During heating mode, if $2℃ \le 〔(T_{indoor\ amb.}-\Delta T_{indoor\ amb.\ compensation\ of\ heating})-T_{preset}〕$, the unit stops operation when reaching the temperature point in heating.
6.2 Under this mode, the temperature setting range is 16-30℃.
7. Defrosting control （heating mode）
7.1 If it turns to defrosting time and it detected that the defrosting temperature is satisfied for 3mins successively, the unit turns into defrosting process.
7.2 Defrosting-starting: compressor stops operation and restart it up after 55s delayed,
7.3 Defrosting-ending: Compressor stops operation and it starts up after 55s delayed.
7.4 When any one of below defrosting-ending conditions is satisfied, the unit will quit from defrosting operation:
7.4.1 $T_{outdoor\ tube} \ge T_{quit\ temperature\ 1}$ for defrosting;
7.4.2 Defrosting operation time is reached $T_{max.defrosting\ time.}$
8. Control of compressor
8.1Frequecny of compressor intangibly controls the frequency according to the relation between ambient temperature and set temperature, and the change speed of ambient temperature;
8.2 Under cooling, heating or drying mode, compressor will be started up after outdoor fan is started for 5s.
8.3 At the OFF status, stop operation because of protection and switchover to fan mode, the compressor stops operation immediately.
8.4 Under each mode: Once the compressor is started up, it can be stopped only after operation.
8.5 Under each mode, one the compressor is stopped, it can be restarted up only after 3min delayed
9. Control of outdoor fan
9.1 When turn off the unit by remote controller, stop operation because of protection or stop operation after reaching the temperature point, outdoor can stop operation only after the compressor is stopped for 1min;
9.2 Under fan mode: outdoor fan stops operation.
9.3 defrosting-starting: enter into defrosting. Outdoor fan stops operation after compressor stops for 50s.
9.4 Defrosting-ending: quit defrosting. When the compressor stops operation, the outdoor fan operates.
10. Control of 4-way valve
10.1 4-way valve status under cooling, drying and fan modes: OFF;
10.2 When the unit turned on and operated in heating mode, the 4-way valve is energized immediately.
10.3 If turn off unit or switch to other mode in heating mode, the 4-way valve is de-energized after the compressor stops for 2min;
10.4 When the unit is turned off because of each protection, the 4-way valve is de-energized after 4 mins delayed.
10.5 Defrosting-starting: enter into defrosting. After the compressor stops for 50s, the 4-way valve will be de-energized.
10.6 Defrosting-ending: quit defrosting. After the compressor stops for 50s, the 4-way valve is energized.
11. Freeze protection
11.1 Under cooling or drying mode, if it's detected that $T_{inner\ tube} < 0$ for 3min successively, the unit will stop operation due to freeze protection. If $T_{limit\ temperature\ of\ freeze\ protection} < T_{inner\ tube}$, and compressor stops for 3min, the complete can resume operation;

11.2 Under cooling or drying mode, if $T_{inner\ tube}$ <6, the operation frequency of compressor may increase or decrease;
11.2.1 If the unit is stopped because of freeze protection for 6 times successively, it can't resume operation automatically and the malfunction will be displayed continuously, which can only be resumed by pressing ON/OFF button. During operation, if operation time of compressor is over, the times of stop operation because of freeze protection will be cleared. If turn off the unit or switch to fan/heating mode, malfunction and times of malfunction is eliminated immediately.
12. Overload protection
12.1 Overload protection under cooling or drying mode: If $T_{overload\ stop\ operation\ temp.\ in\ cooling} \leq T_{outdoor\ tube}$, the unit stops operation because of overload in cooling; if $T_{outdoor\ tube} < T_{overload\ limit\text{-}frequecny\ temp\ in\ cooling}$ and the compressor has stopped for 3min, the complete unit can resume operation.
12.2 Under cooling or drying mode, if $T_{overload\ limit\text{-}frequecny\ temp.\ in\ cooling} \leq T_{outdoor\ tube}$, the frequency of compressor may increase or decrease;
12.3 Overload protection under heating mode: If $T_{overload\ stop\ operation\ temp.\ in\ heating} \leq T_{indoor\ tube}$, the unit stops operation because of overload in heating; if $T_{indoor\ tube} < T_{overload\ limit\text{-}frequecny\ temp.\ in\ heating}$ and the compressor has stopped for 3min, the complete unit can resume operation.
12.4 Under heating mode. If $T_{overload\ limit\text{-}frequecny\ temp.\ in\ heating} \leq T_{indoor\ tube}$, operation frequency of compressor may increase or decrease;
12.5 If the unit is stopped because of overload protection for 6 times successively, it can't resume operation automatically and the malfunction will be displayed continuously, which can only be resumed by pressing ON/OFF button. During operation, if operation time of compressor is over, the times of stop operation because of overload protection will be cleared. If turn off the unit, fan or switch to fan/heating mode, malfunction and times of malfunction is eliminated immediately.
13. Discharge temperature protection of compressor
13.1 If $T_{stop\ operation\ temperature\ for\ discharge} \leq T_{discharge}$, the unit stops operation because of discharge protection; If $T_{discharge} < T_{limit\text{-}frequecny\ temperature\ for\ discharge}$ and compressor has stopped for 3min, the complete unit can resume operation;
13.2 If $T_{normal\ speed\ decrease\text{-}frequency\ for\ discharge} \leq T_{discharge}$, operation frequency of compressor may decrease or increase;
13.3 If the unit is stopped because of discharge protection of compressor for 6 times successively, it can't resume operation automatically, which can only be resumed by pressing ON/OFF button. During operation, if operation time of compressor is over, the times of stop operation because of discharge protection will be cleared. If turn off the unit, or switch to fan/heating mode, malfunction and times of malfunction is eliminated immediately.
14. Current protection function
14.1 If $13A \leq I_{AC\ current,}$ operation frequency of compressor may decrease or increase;
14.2 If $17A \leq I_{AC\ current,}$ the system will stop operation because of overcurrent; the complete unit can resume operation only after the compressor stops for 3min;
14.3 If the unit is stopped because of overcurrent for 6 times successively, it can't resume operation automatically, which can only be resumed by pressing ON/OFF button. During operation, if operation time of compressor is over, the times of stop operation because of overcurrent protection will be cleared.
15. Voltage drop protection
During operation of compressor, if the voltage is decreasing quickly, the system may stop operation and voltage drop malfunction is caused. 3min later, the system will be restarted up automatically.
16. Communication malfunction
When it hasn't received the correct signal from indoor unit for 3min, the unit will stop operation because if communication malfunction; If communication malfunction is eliminated and compressor has stopped for 3in, the complete unit can resume operation.
17. OPM module protection
After compressor is turned on, if the overcurrent happens for IPM module, or control voltage is too low because of abnormal causes, IPM will detect module protection signal immediately. Once it detected the module protection signal, the unit will stop operation because of module protection. If module protection is resumed and compressor has stopped for 3min, the complete unit will resume operation.
If the unit is stopped because of module protection for 3 times successively, the unit can resume operation automatically unless press ON/OFF button. If the operation time for compressor is over, the times of stop operation because of module protection will be cleared.
18. Overheat protection of module
18.1 If $T_{normal\ speed\ frequency\text{-}decreasing\ temp.\ of\ module} \leq T_{module}$, the operation frequency of compressor may decrease or increase;
18.2 If $T_{stop\ operation\ temperature\ of\ module} \leq T_{module}$, the syste will stop operation for protection. If $T_{module} < T_{frequency\text{-}limiting\ temperature\ of\ module}$ and compressor has stopped for 3min, the complete unit will resume operation;
18.3 If the unit is stopped because of overheating of compressor module for 6 times successively, it can't resume operation automatically, which can only be resumed by pressing ON/OFF button. During operation, if operation time of compressor is over, the times of stop operation because of compressor overheating protection will be cleared. If turn off the unit, or switch to fan mode, times of malfunction is eliminated immediately.
19. Overload protection of compressor
19.1 If it detected that the overload switch for compressor is open for 3min successively, the complete unit will stop operation for protection;
19.2 If overload protection is resumed and compressor has stopped for 3min, the complete unit can resume operation;
19.3 If the unit stops operation because of overload protection for compressor for 3times successively, it can't resume operation automatically, which can only be resumed by pressing ON/OFF button. After compressor has operated for 30min, overload protection times for compressor will be eliminated.

Part Ⅱ : Installation and Maintenance

7. Notes for Installation and Maintenance

Safety Precautions: Important!

Please read the safety precautions carefully before installation and maintenance.
The following contents are very important for installation and maintenance.

Please follow the instructions below.

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

Warnings

Electrical Safety Precautions:

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

Installation Safety Precautions:

1. Select the installation location according to the requirement of this manual.(See the requirements in installation part)
2. Handle unit transportation with care; the unit should not be carried by only one person if it is more than 20kg.
3. When installing the indoor unit and outdoor unit, a sufficient fixing bolt must be installed; make sure the installation support is firm.
4. Ware safety belt if the height of working is above 2m.
5. Use equipped components or appointed components during installation.
6. Make sure no foreign objects are left in the unit after finishing installation.

Refrigerant Safety Precautions:

1. Avoid contact between refrigerant and fire as it generates poisonous gas; Prohibit prolong the connection pipe by welding.
2. Apply specified refrigerant only. Never have it mixed with any other refrigerant. Never have air remain in the refrigerant line as it may lead to rupture or other hazards.
3. Make sure no refrigerant gas is leaking out when installation is completed.
4. If there is refrigerant leakage, please take sufficient measure to minimize the density of refrigerant.
5. Never touch the refrigerant piping or compressor without wearing glove to avoid scald or frostbite.

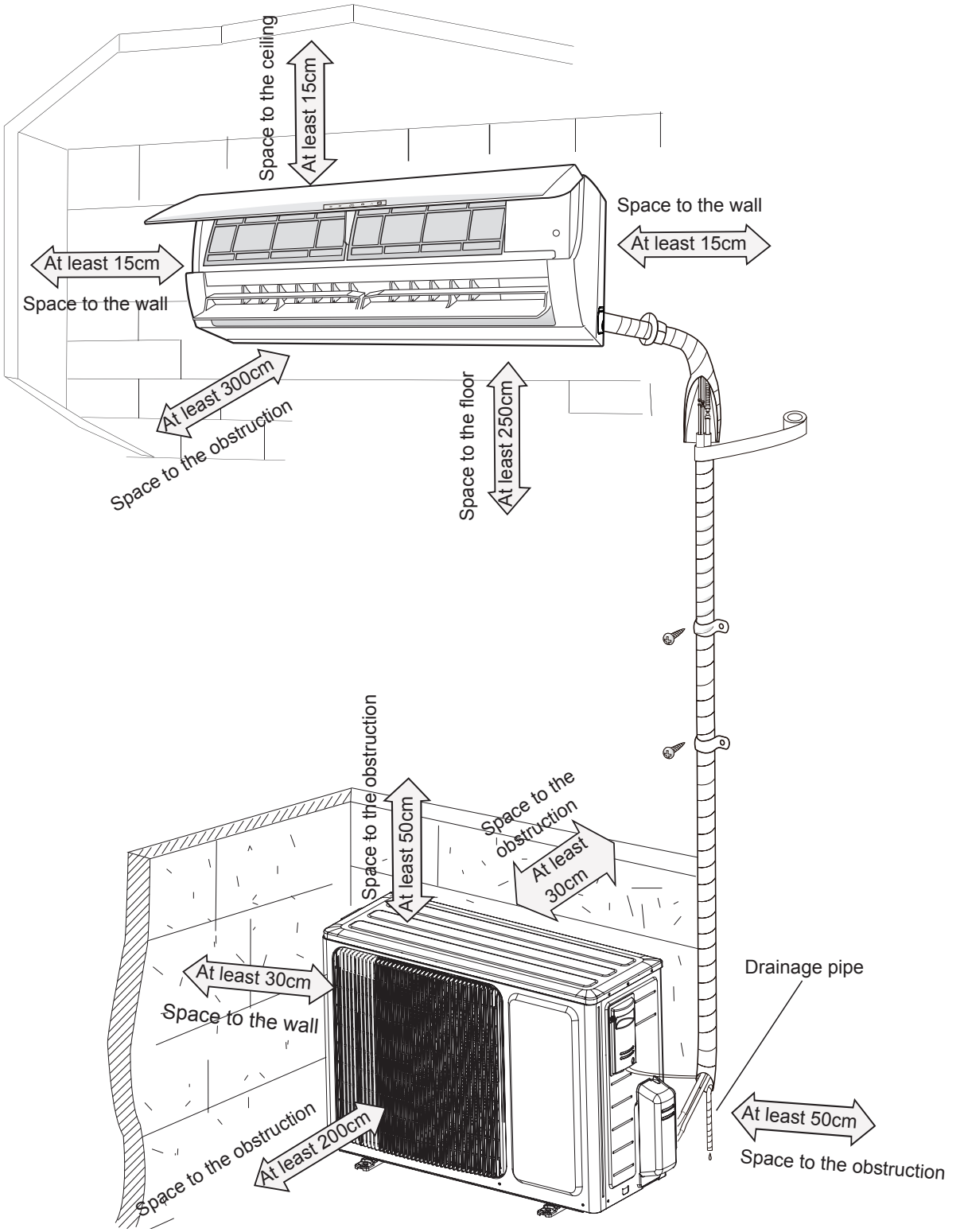
Improper installation may lead to fire hazard, explosion, electric shock or injury.

Main Tools for Installation and Maintenance

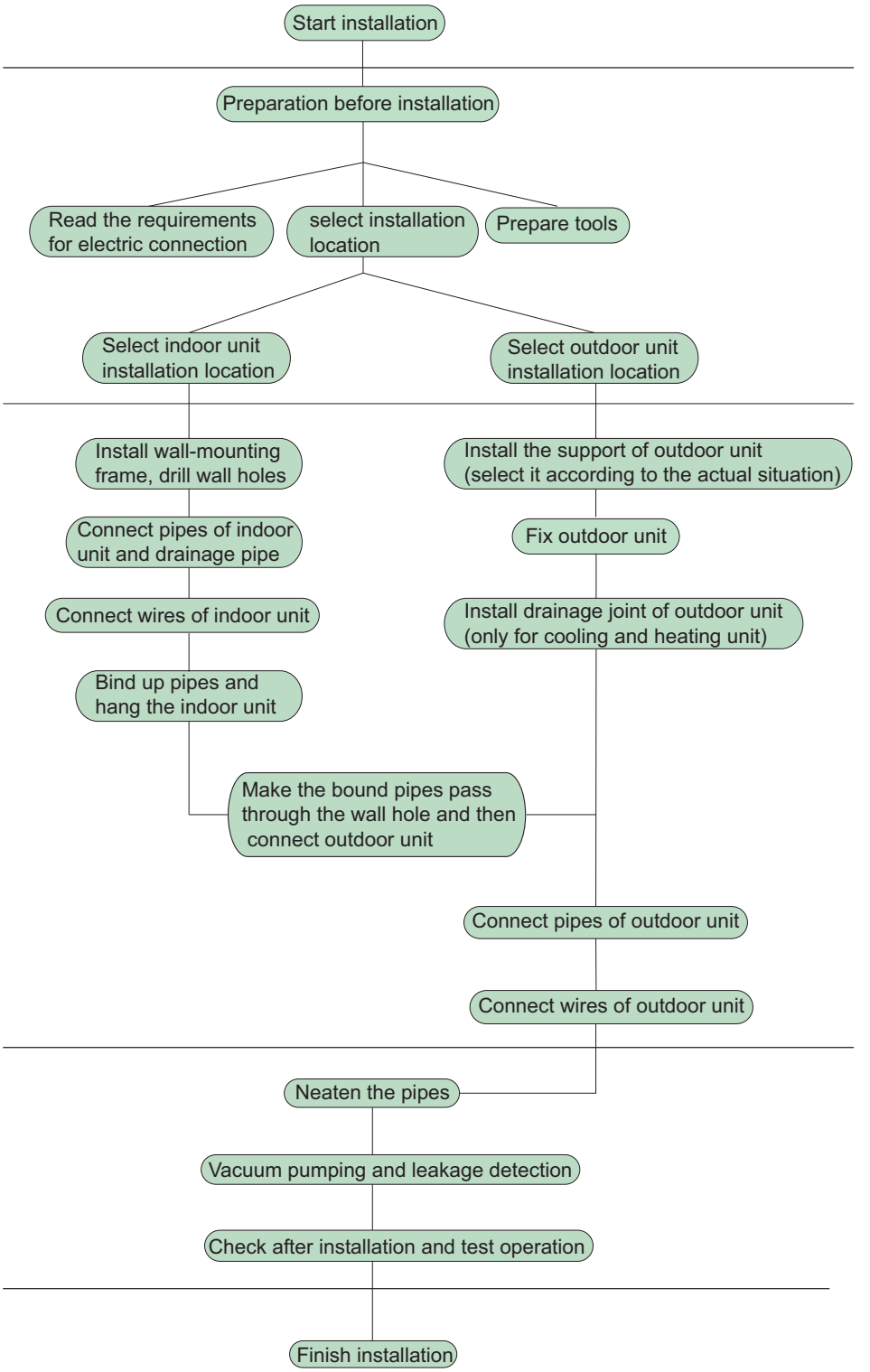
1. Level meter, measuring tape 	2. Screw driver 	3. Impact drill, drill head, electric drill 
4. Electroprobe 	5. Universal meter 	6. Torque wrench, open-end wrench, inner hexagon spanner 
7. Electronic leakage detector 	8. Vacuum pump 	9. Pressure meter 
10. Pipe pliers, pipe cutter   	11. Pipe expander, pipe bender  	12. Soldering appliance, refrigerant container  

8. Installation

8.1 Installation Dimension Diagram



Installation procedures



Note: this flow is only for reference; please find the more detailed installation steps in this section.

8.2 Installation Parts-checking

No.	Name	No.	Name
1	Indoor unit	8	Sealing gum
2	Outdoor unit	9	Wrapping tape
3	Connection pipe	10	Support of outdoor unit
4	Drainage pipe	11	Fixing screw
5	Wall-mounting frame	12	Drainage plug(cooling and heating unit)
6	Connecting cable(power cord)	13	Owners manual, remote controller
7	Wall pipe		

⚠ **Note:**
1.Please contact the local agent for installation.
2.Dont use unqualified power cord.

8.3 Selection of Installation Location

1. Basic Requirement:
Installing the unit in the following places may cause malfunction. If it is unavoidable, please consult the local dealer:
(1) The place with strong heat sources, vapors, flammable or explosive gas, or volatile objects spread in the air.
(2) The place with high-frequency devices (such as welding machine, medical equipment).
(3) The place near coast area.
(4) The place with oil or fumes in the air.
(5) The place with sulfureted gas.
(6) Other places with special circumstances.

2. Indoor Unit:
(1) There should be no obstruction near air inlet and air outlet.
(2) Select a location where the condensation water can be dispersed easily and wont affect other people.
(3) Select a location which is convenient to connect the outdoor unit and near the power socket.
(4) Select a location which is out of reach for children.
(5) The location should be able to withstand the weight of indoor unit and wont increase noise and vibration.
(6) The appliance must be installed 2.5m above floor.
(7) Dont install the indoor unit right above the electric appliance.
(8) The appliance shall not be installed in the laundry.

3. Outdoor Unit:
(1) Select a location where the noise and outflow air emitted by the outdoor unit will not affect neighborhood.
(2) The location should be well ventilated and dry, in which the outdoor unit wont be exposed directly to sunlight or strong wind.
(3) The location should be able to withstand the weight of outdoor unit.
(4) Make sure that the installation follows the requirement of installation dimension diagram.
(5) Select a location which is out of reach for children and far away from animals or plants.If it is unavoidable, please add fence for safety purpose.

8.4 Electric Connection Requirement

1. Safety Precaution
(1) Must follow the electric safety regulations when installing the unit.
(2) According to the local safety regulations, use qualified power supply circuit and air switch.
(3) Make sure the power supply matches with the requirement of air conditioner. Unstable power supply or incorrect wiring may result in electric shock,fire hazard or malfunction. Please install proper power supply cables before using the air conditioner.

Air-conditioner	Air switch capacity
09K/12K	16A

(4) Properly connect the live wire, neutral wire and grounding wire of power socket.
(5) Be sure to cut off the power supply before proceeding any work related to electricity and safety.
(6) Do not put through the power before finishing installation.
(7) For appliances with type Y attachment,the instructions shall contain the substance of thefollowing.If the supply cord is damaged,it must be replaced by the manufacturer,its service agent or similarly qualified persons in order to avoid a hazard.
(8) The temperature of refrigerant circuit will be high, please keep the interconnection cable away from the copper tube.

2. Grounding Requirement:
(1) The air conditioner is first class electric appliance. It must be properly grounding with specialized grounding device by a professional. Please make sure it is always grounded effectively, otherwise it may cause electric shock.
(2) The yellow-green wire in air conditioner is grounding wire, which cant be used for other purposes.
(3) The grounding resistance should comply with national electric safety regulations.
(4) The appliance must be positioned so that the plug is accessible.
(5) An all-pole disconnection switch having a contact separation of at least 3mm in all poles should be connected in fixed wiring.
(6) Including an air switch with suitable capacity, please note the following table. Air switch should be included magnet buckle and heating buckle function, it can protect the circuit-short and overload. (Caution: please do not use the fuse only for protect the circuit)

8.5 Installation of Indoor Unit

1. Choosing Installation location
Recommend the installation location to the client and then confirm it with the client.

2. Install Wall-mounting Frame
(1) Hang the wall-mounting frame on the wall; adjust it in horizontal position with the level meter and then point out the screw fixing holes on the wall.
(2) Drill the screw fixing holes on the wall with impact drill (the specification of drill head should be the same as the plastic expansion particle) and then fill the plastic expansion particles

in the holes.
(3) Fix the wall-mounting frame on the wall with tapping screws (ST4.2X25TA) and then check if the frame is firmly installed by pulling the frame. If the plastic expansion particle is loose, please drill another fixing hole nearby.

3. Install Wall-mounting Frame
(1) Choose the position of piping hole according to the direction of outlet pipe. The position of piping hole should be a little lower than the wall-mounted frame.(As show in Fig.1)

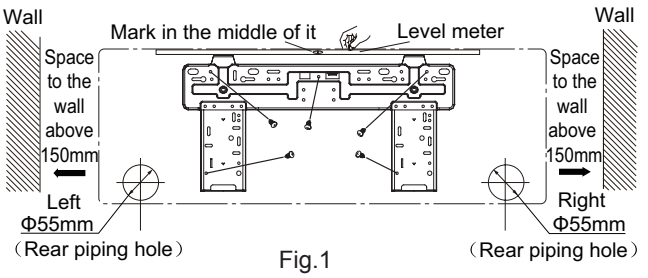


Fig.1

(2) Open a piping hole with the diameter Φ55mm on the selected outlet pipe position.In order to drain smoothly, slant the piping hole on the wall slightly downward to the outdoor side with the gradient of 5-10°.(As show in Fig.2)

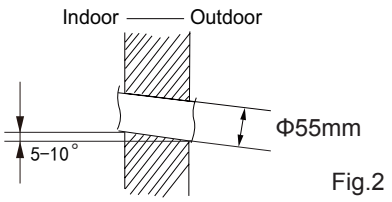


Fig.2

⚠ **Note:**

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

4. Outlet Pipe
(1) The pipe can be led out in the direction of right, rear right, left or rear left.(As show in Fig.3)
(2) When selecting leading out the pipe from left or right, please cut off the corresponding hole on the bottom case.(As show in Fig.4)

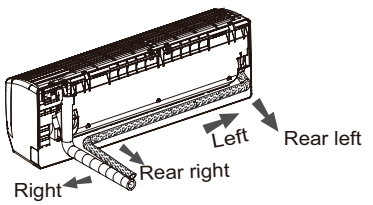


Fig.3

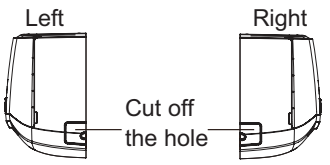


Fig.4

5. Connect the Pipe of Indoor Unit
(1) Aim the pipe joint at the corresponding bellmouth.(As show in Fig.5)
(2) Pretightening the union nut with hand.
(3) Adjust the torque force by referring to the following sheet. Place the open-end wrench on the pipe joint and place the torque wrench on the union nut. Tighten the union nut with torque wrench.(As show in Fig.6)
(4) Wrap the indoor pipe and joint of connection pipe with insulating pipe, and then wrap it with tape.(As show in Fig.7)

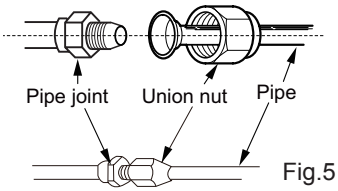


Fig.5

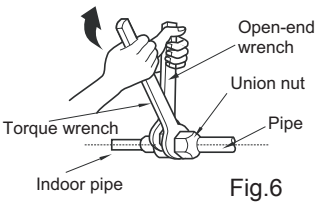


Fig.6

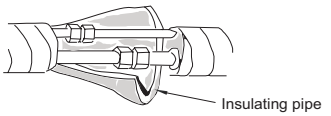


Fig.7

Refer to the following table for wrench moment of force:

Hex nut diameter(mm)	Tightening torque(N·m)
Φ6	15~20
Φ9.52	30~40
Φ12	45~55
Φ16	60~65
Φ19	70~75

6. Install Drain Hose
(1) Connect the drain hose to the outlet pipe of indoor unit.(As show in Fig.8)
(2) Bind the joint with tape.(As show in Fig.9)

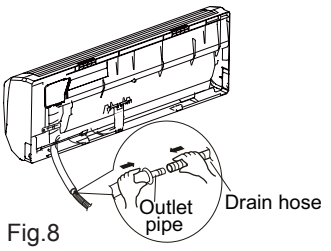


Fig.8

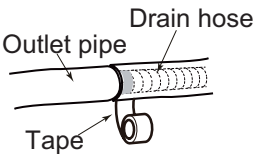


Fig.9

⚠ **Note:**

(1) Add insulating pipe in the indoor drain hose in order to prevent condensation.
(2) The plastic expansion particles are not provided.(As show in Fig.10)

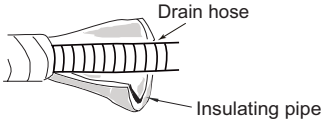


Fig.10

7. Connect Wire of Indoor Unit

(1) Open the panel, remove the screw on the wiring cover and then take down the cover.(As show in Fig.11)

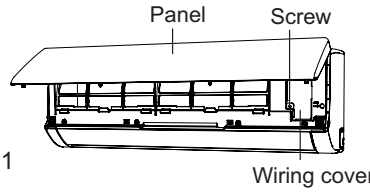


Fig.11

(2) Make the power connection wire go through the cable-cross hole at the back of indoor unit and then pull it out from the front side.(As show in Fig.12)

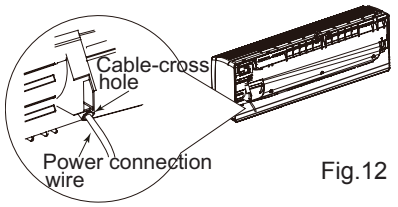
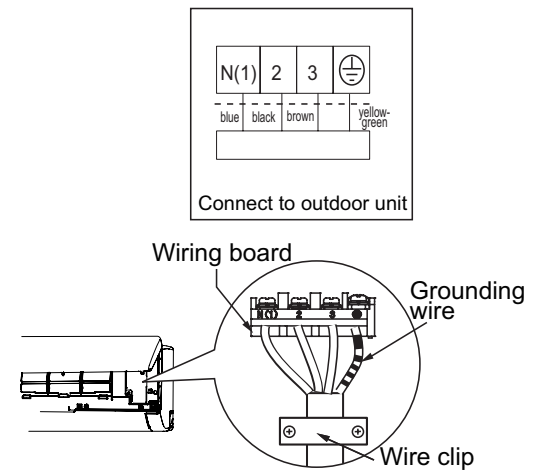


Fig.12

(3) Remove the wire clip; connect the power connection wire to the wiring terminal according to the color; tighten the screw and then fix the power connection wire with wire clip.(As show in Fig.13)



Note: The wiring connect is for reference only, please refer to the actual one.

Fig.13

(4) Put wiring cover back and then tighten the screw.
(5) Close the panel.

⚠ **Note:**

(1) All wires of indoor unit and outdoor unit should be connected by a professional.
(2) If the length of power connection wire is insufficient, please contact the supplier for a new one. Avoid extending the wire by yourself.
(3) For the air conditioner with plug, the plug should be reachable after finishing installation.
(4) For the air conditioner without plug, an air switch must be installed in the line. The air switch should be all-pole parting and the contact parting distance should be more than 3mm.

8. Bind up Pipe

(1) Bind up the connection pipe, power cord and drain hose with the band.(As show in Fig.14)
(2) Reserve a certain length of drain hose and power cord for installation when binding them. When binding to a certain degree, separate the indoor power and then separate the drain hose.(As show in Fig.15)
(3) Bind them evenly.
(4) The liquid pipe and gas pipe should be bound separately at the end.

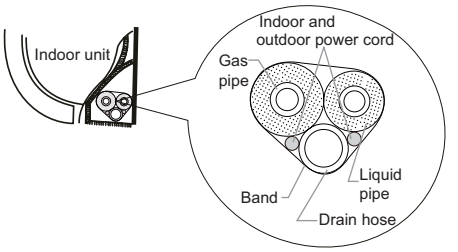


Fig.14

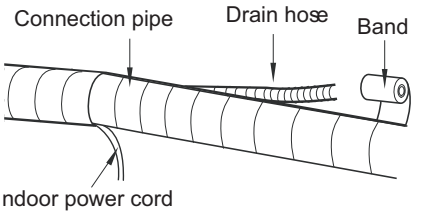


Fig.15

⚠ **Note:**

(1) The power cord and control wire cant be crossed or winding.
(2) The drain hose should be bound at the bottom.

9. Hang the Indoor Unit

(1) Put the bound pipes in the wall pipe and then make them pass through the wall hole.
(2) Hang the indoor unit on the wall-mounting frame.
(3) Stuff the gap between pipes and wall hole with sealing gum.
(4) Fix the wall pipe.(As show in Fig.16)
(5) Check if the indoor unit is installed firmly and closed to the wall.(As show in Fig.17)

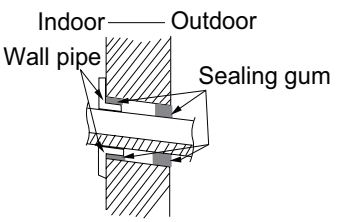
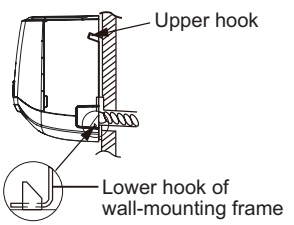


Fig.16

Fig.17



⚠ **Note:**

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

8.6 Installation of Outdoor Unit

1. Fix the Support of Outdoor Unit(Select it according to the actual installation situation)

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

⚠ **Note:**

(1) Take sufficient protective measures when installing the outdoor unit.
(2) Make sure the support can withstand at least four times the unit weight.
(3) The outdoor unit should be installed at least 3cm above the floor in order to install drain joint.(As show in Fig.18)
(4) For the unit with cooling capacity of 2300W~5000W, 6 expansion screws are needed; for the unit with cooling capacity of 6000W~8000W, 8 expansion screws are needed; for the unit with cooling capacity of 10000W~16000W, 10 expansion screws are needed.

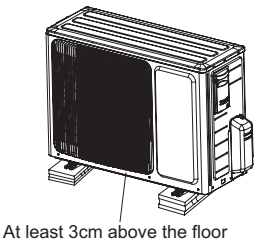


Fig.18

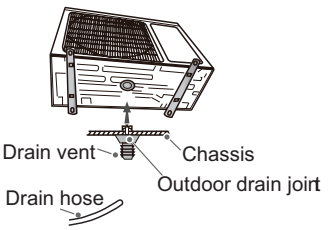


Fig.19

2. Install Drain Joint(Only for cooling and heating unit)

(1) Connect the outdoor drain joint into the hole on the chassis.
(2) Connect the drain hose into the drain vent.(As show in Fig.19)

3. Fix Outdoor Unit

(1) Place the outdoor unit on the support.
(2) Fix the foot holes of outdoor unit with bolts.
(As show in Fig.20)

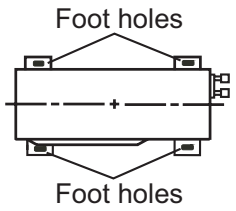


Fig.20

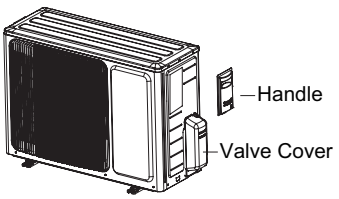


Fig.21

4. Connect Indoor and Outdoor Pipes

(1) Remove the screw on the right handle and valve cover of outdoor unit and then remove the handle and valve cover.(As show in Fig.21)
(2) Remove the screw cap of valve and aim the pipe joint at the bellmouth of pipe.(As show in Fig.22)

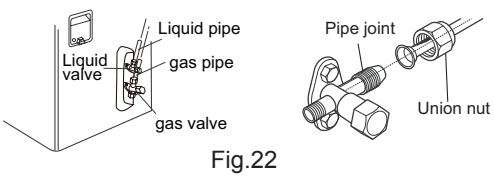


Fig.22

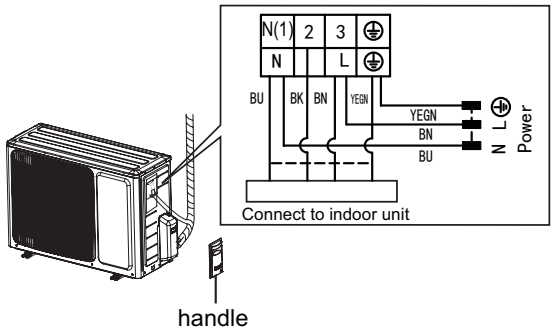
(3) Pretightening the union nut with hand.
(4) Tighten the union nut with torque wrench .

Refer to the following table for wrench moment of force:

Hex nut diameter(mm)	Tightening torque(N·m)
Φ6	15~20
Φ9.52	30~40
Φ12	45~55
Φ16	60~65
Φ19	70~75

5. Connect Outdoor Electric Wire

(1) Remove the wire clip; connect the power connection wire and power cord to the wiring terminal according to the color; fix the power connection wire and power cord with screws.(As show in Fig.23)



Note: the wiring board is for reference only, please refer to the actual one.

Fig.23

(2) Fix the power connection wire and power cord with wire clip.

⚠ **Note:**

(1) After tightening the screw, pull the power cord slightly to check if it is firm.
(2) Never cut the power connection wire to prolong or shorten the distance.

6. Neaten the Pipes

(1) The pipes should be placed along the wall, bent reasonably and hidden possibly. Min. semidiameter of bending the pipe is 10cm.
(2) If the outdoor unit is higher than the wall hole, you must set a U-shaped curve in the pipe before pipe goes into the room, in order to prevent rain from getting into the room.(As show in Fig.24)

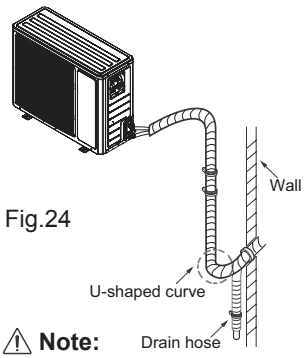


Fig.24

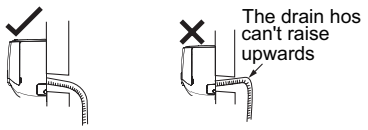


Fig.25

⚠ **Note:**

(1) The through-wall height of drain hose shouldnt be higher than the outlet pipe hole of indoor unit.(As show in Fig.25)
(2) Slant the drain hose slightly downwards. The drain hose cant be curved, raised and fluctuant, etc.(As show in Fig.26)

(3) The water outlet cant be placed in water in order to drain smoothly.(As show in Fig.27)

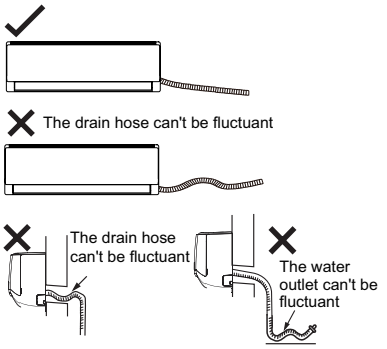


Fig.26

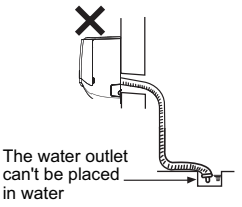


Fig.27

8.7 Vacuum Pumping and Leak Detection

1. Use Vacuum Pump

(1) Remove the valve caps on the liquid valve and gas valve and the nut of refrigerant charging vent.

(2) Connect the charging hose of piezometer to the refrigerant charging vent of gas valve and then connect the other charging hose to the vacuum pump.

(3) Open the piezometer completely and operate for 10-15min to check if the pressure of piezometer remains in -0.1MPa.

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

(5) Remove the piezometer, open the valve core of liquid valve and gas valve completely with inner hexagon spanner.

(6) Tighten the screw caps of valves and refrigerant charging vent.(As show in Fig.28)

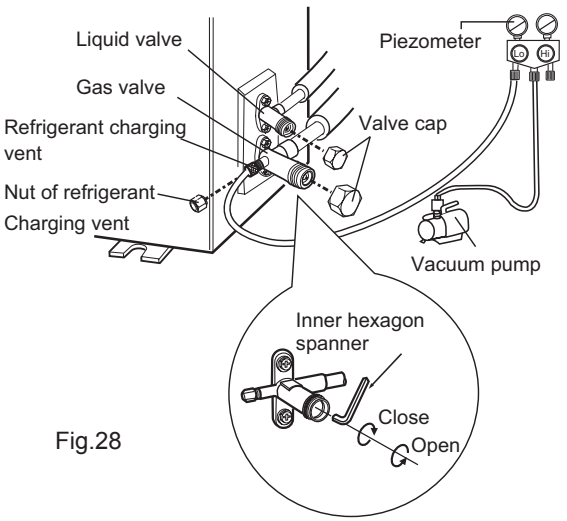


Fig.28

2. Leakage Detection

(1) With leakage detector:

Check if there is leakage with leakage detector.

(2) With soap water:

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

8.8 Check after Installation and Test Operation

1. Check after Installation

Check according to the following requirement after finishing installation.

NO.	Items to be checked	Possible malfunction
1	Has the unit been installed firmly?	The unit may drop, shake or emit noise.
2	Have you done the refrigerant leakage test?	It may cause insufficient cooling (heating) capacity.
3	Is heat insulation of pipeline sufficient?	It may cause condensation and water dripping.
4	Is water drained well?	It may cause condensation and water dripping.
5	Is the voltage of power supply according to the voltage marked on the nameplate?	It may cause malfunction or damage the parts.
6	Is electric wiring and pipeline installed correctly?	It may cause malfunction or damage the parts.
7	Is the unit grounded securely?	It may cause electric leakage.
8	Does the power cord follow the specification?	It may cause malfunction or damage the parts.
9	Is there any obstruction in air inlet and air outlet?	It may cause insufficient cooling (heating).
10	The dust and sundries caused during installation are removed?	It may cause malfunction or damaging the parts.
11	The gas valve and liquid valve of connection pipe are open completely?	It may cause insufficient cooling (heating) capacity.

2. Test Operation

(1) Preparation of test operation

● The client approves the air conditioner installation.

● Specify the important notes for air conditioner to the client.

(2) Method of test operation

● Put through the power, press ON/OFF button on the remote controller to start operation.

● Press MODE button to select AUTO, COOL, DRY, FAN and HEAT to check whether the operation is normal or not.

● If the ambient temperature is lower than 16℃ , the air conditioner cant start cooling.

9. Maintenance

9.1 Judgement by Flashing LED of Indoor/Outdoor Unit

NO.	Malfunction Name	Display Method of Indoor Unit				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Operation Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
1	High pressure protection of system	E1	OFF 3s and blink once						During cooling and drying operation, except indoor fan operates, all loads stop operation. During heating operation, the complete unit stops.	Possible reasons: 1. Refrigerant was superabundant; 2. Poor heat exchange (including filth blockage of heat exchanger and bad radiating environment); Ambient temperature is too high.
2	Antifreezing protection	E2	OFF 3S and blink twice			OFF 3S and blink 3 times			During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates.	1. Poor air-return in indoor unit; 2. Fan speed is abnormal; 3. Evaporator is dirty.
3	System block or refrigerant leakage	E3	OFF 3S and blink 3 times				OFF 3S and blink 9 times		The Dual-8 Code Display will show E3 until the low pressure switch stop operation.	1.Low-pressure protection 2.Low-pressure protection of system 3.Low-pressure protection of compressor
4	High discharge temperature protection of compressor	E4	OFF 3S and blink 4 times			OFF 3S and blink 7 times			During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	Please refer to the malfunction analysis (discharge protection, overload).
5	Overcurrent protection	E5	OFF 3S and blink 5 times			OFF 3S and blink 5 times			During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	1. Supply voltage is unstable; 2. Supply voltage is too low and load is too high; 3. Evaporator is dirty.
6	Communi-cation Malfunction	E6	OFF 3S and blink 6 times					OFF	During cooling operation, compressor stops while indoor fan motor operates. During heating operation, the complete unit stops.	Refer to the corresponding malfunction analysis.
7	High temperature resistant protection	E8	OFF 3S and blink 8 times			OFF 3S and blink 6 times			During cooling operation: compressor will stop while indoor fan will operate. During heating operation, the complete unit stops.	Refer to the malfunction analysis (overload, high temperature resistant).
8	EEPROM malfunction	EE			OFF 3S and blink 15 times	OFF 3S and blink 11 times			During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	Replace outdoor control panel AP1
9	Limit/ decrease frequency due to high temperature of module	EU		OFF 3S and blink 6 times	OFF 3S and blink 6 times				All loads operate normally, while operation frequency for compressor is decreased	Discharging after the complete unit is de-energized for 20mins, check whether the thermal grease on IPM Module of outdoor control panel AP1 is sufficient and whether the radiator is inserted tightly. If its no use, please replace control panel AP1.
10	Malfunction protection of jumper cap	C5	OFF 3S and blink 15 times						Wireless remote receiver and button are effective, but can not dispose the related command	1. No jumper cap insert on mainboard. 2. Incorrect insert of jumper cap. 3. Jumper cap damaged. 4. Abnormal detecting circuit of mainboard.

NO.	Malfunction Name	Display Method of Indoor Unit				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Operation Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
11	Gathering refrigerant	Fo	OFF 3S and blink 1 times	OFF 3S and blink 1 times					When the outdoor unit receive signal of Gathering refrigerant ,the system will be forced to run under cooling mode for gathering refrigerant	Nominal cooling mode
12	Indoor ambient temperature sensor is open/short circuited	F1		OFF 3S and blink once					During cooling and drying operation, indoor unit operates while other loads will stop; during heating operation, the complete unit will stop operation.	1. Loosening or bad contact of indoor ambient temp. sensor and mainboard terminal. 2. Components in mainboard fell down leads short circuit. 3. Indoor ambient temp. sensor damaged.(check with sensor resistance value chart) 4. Mainboard damaged.
13	Indoor evaporator temperature sensor is open/short circuited	F2		OFF 3S and blink twice					AC stops operation once reaches the setting temperature. Cooling, drying: internal fan motor stops operation while other loads stop operation; heating: AC stop operation	1. Loosening or bad contact of Indoor evaporator temp. sensor and mainboard terminal. 2. Components on the mainboard fall down leads short circuit. 3. Indoor evaporator temp. sensor damaged.(check temp. sensor value chart for testing) 4. Mainboard damaged.
14	Outdoor ambient temperature sensor is open/short circuited	F3		OFF 3S and blink 3 times			OFF 3S and blink 6 times		During cooling and drying operating, compressor stops while indoor fan operates; During heating operation, the complete unit will stop operation	Outdoor temperature sensor hasnt been connected well or is damaged. Please check it by referring to the resistance table for temperature sensor)
15	Outdoor condenser temperature sensor is open/short circuited	F4		OFF 3S and blink 4 times			OFF 3S and blink 5 times		During cooling and drying operation, compressor stops while indoor fan will operate; During heating operation, the complete unit will stop operation.	Outdoor temperature sensor hasnt been connected well or is damaged. Please check it by referring to the resistance table for temperature sensor)
16	Outdoor discharge temperature sensor is open/short circuited	F5		OFF 3S and blink 5 times			OFF 3S and blink 7 times		During cooling and drying operation, compressor will sop after operating for about 3 mins, while indoor fan will operate; During heating operation, the complete unit will stop after operating for about 3 mins.	1.Outdoor temperature sensor hasnt been connected well or is damaged. Please check it by referring to the resistance table for temperature sensor) 2.The head of temperature sensor hasnt been inserted into the copper tube
17	Limit/ decrease frequency due to overload	F6		OFF 3S and blink for 6 times			OFF 3S and blink 3 times		All loads operate normally, while operation frequency for compressor is decreased	Refer to the malfunction analysis (overload, high temperature resistant)
18	Decrease frequency due to overcurrent	F8		OFF 3S and blink 8 times			OFF 3S and blink once		All loads operate normally, while operation frequency for compressor is decreased	The input supply voltage is too low; System pressure is too high and overload

NO.	Malfunction Name	Display Method of Indoor Unit				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Operation Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
19	Decrease frequency due to high air discharge	F9		OFF 3S and blink 9 times			OFF 3S and blink twice		All loads operate normally, while operation frequency for compressor is decreased	Overload or temperature is too high; Refrigerant is insufficient; Malfunction of electric expansion valve (EKV)
20	Limit/ decrease frequency due to antifreezing	FH		OFF 3S and blink 2 times	OFF 3S and blink 2 times		OFF 3S and blink 4 times		All loads operate normally, while operation frequency for compressor is decreased	Poor air-return in indoor unit or fan speed is too low
21	Voltage for DC bus-bar is too high	PH		OFF 3S and blink 11 times		OFF 3S and blink 13 times			During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	1. Measure the voltage of position L and N on wiring board (XT), if the voltage is higher than 265VAC, turn on the unit after the supply voltage is increased to the normal range. 2.If the AC input is normal, measure the voltage of electrolytic capacitor C on control panel (AP1), if its normal, theres malfunction for the circuit, please replace the control panel (AP1)
22	Voltage of DC bus-bar is too low	PL			OFF 3S and blink 21 times	OFF 3S and blink 12 times			During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	1. Measure the voltage of position L and N on wiring board (XT), if the voltage is higher than 150VAC, turn on the unit after the supply voltage is increased to the normal range. 2.If the AC input is normal, measure the voltage of electrolytic capacitor C on control panel (AP1), if its normal, theres malfunction for the circuit, please replace the control panel (AP1)
23	Compressor Min frequence in test state	P0		(during blinking, ON 0.25s and OFF 0.25s)	(during blinking, ON 0.25s and OFF 0.25s)					Showing during min. cooling or min. heating test
24	Compressor rated frequence in test state	P1		(during blinking, ON 0.25s and OFF 0.25s)	(during blinking, ON 0.25s and OFF 0.25s)					Showing during nominal cooling or nominal heating test
25	Compressor maximum frequence in test state	P2		(during blinking, ON 0.25s and OFF 0.25s)	(during blinking, ON 0.25s and OFF 0.25s)					Showing during max. cooling or max. heating test

NO.	Malfunction Name	Display Method of Indoor Unit				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Operation Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
26	Compressor intermediate frequence in test state	P3		(during blinking, ON 0.25s and OFF 0.25s)	(during blinking, ON 0.25s and OFF 0.25s)					Showing during middle cooling or middle heating test
27	Overcurrent protection of phase current for compressor	P5		OFF 3S and blink 15 times					During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	Refer to the malfunction analysis (IPM protection, loss of synchronism protection and overcurrent protection of phase current for compressor.
28	Charging malfunction of capacitor	PU			OFF 3S and blink 17 times				During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	Refer to the part three—charging malfunction analysis of capacitor
29	Malfunction of module temperature sensor circuit	P7			OFF 3S and blink 18 times				During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	Replace outdoor control panel AP1
30	Module high temperature protection	P8			OFF 3S and blink 19 times				During cooling operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	After the complete unit is de-energized for 20mins, check whether the thermal grease on IPM Module of outdoor control panel AP1 is sufficient and whether the radiator is inserted tightly. If its no use, please replace control panel AP1.
31	Decrease frequency due to high temperature resistant during heating operation	H0			OFF 3S and blink 10 times				All loads operate normally, while operation frequency for compressor is decreased	Refer to the malfunction analysis (overload, high temperature resistant)
32	Static dedusting protection	H2			OFF 3S and blink twice					
33	Overload protection for compressor	H3			OFF 3S and blink 3 times	OFF 3S and blink 8 times			During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	1. Wiring terminal OVC-COMP is loosened. In normal state, the resistance for this terminal should be less than 1ohm. 2.Refer to the malfunction analysis (discharge protection, overload)

NO.	Malfunction Name	Display Method of Indoor Unit				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Operation Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
34	System is abnormal	H4			OFF 3S and blink 4 times	OFF 3S and blink 6 times			During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	Refer to the malfunction analysis (overload, high temperature resistant)
35	IPM protection	H5			OFF 3S and blink 5 times	OFF 3S and blink 4 times			During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	Refer to the malfunction analysis (IPM protection, loss of synchronism protection and overcurrent protection of phase current for compressor.
36	Module temperature is too high	H5			OFF 3S and blink 5 times	OFF 3S and blink 10 times				
37	Internal motor (fan motor) do not operate	H6	OFF 3S and blink 11 times						Internal fan motor, external fan motor, compressor and electric heater stop operation,guide louver stops at present location.	1. Bad contact of DC motor feedback terminal. 2. Bad contact of DC motor control end. 3. Fan motor is stalling. 4. Motor malfunction. 5. Malfunction of mainboard rev detecting circuit.
38	Desynchro-nizing of compressor	H7			OFF 3S and blink 7 times				During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	Refer to the malfunction analysis (IPM protection, loss of synchronism protection and overcurrent protection of phase current for compressor.
39	PFC protection	HC			OFF 3S and blink 6 times	OFF 3S and blink 14 times			During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	Refer to the malfunction analysis
40	Outdoor DC fan motor malfunction	L3	OFF 3S and blink 23 times				OFF 3S and blink 14 times		Outdoor DC fan motor malfunction lead to compressor stop operation,	DC fan motor malfunction or system blocked or the connector loosed
41	power protection	L9	OFF 3S and blink 20 times			OFF 3S and blink 9 times			compressor stop operation and Outdoor fan motor will stop 30s latter , 3 minutes latter fan motor and compressor will restart	To protect the electronical components when detect high power
42	Indoor unit and outdoor unit doesnt match	LP	OFF 3S and blink 19 times			OFF 3S and blink 16 times			compressor and Outdoor fan motor cant work	Indoor unit and outdoor unit doesnt match
43	Failure start-up	LC			OFF 3S and blink 11 times				During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	Refer to the malfunction analysis

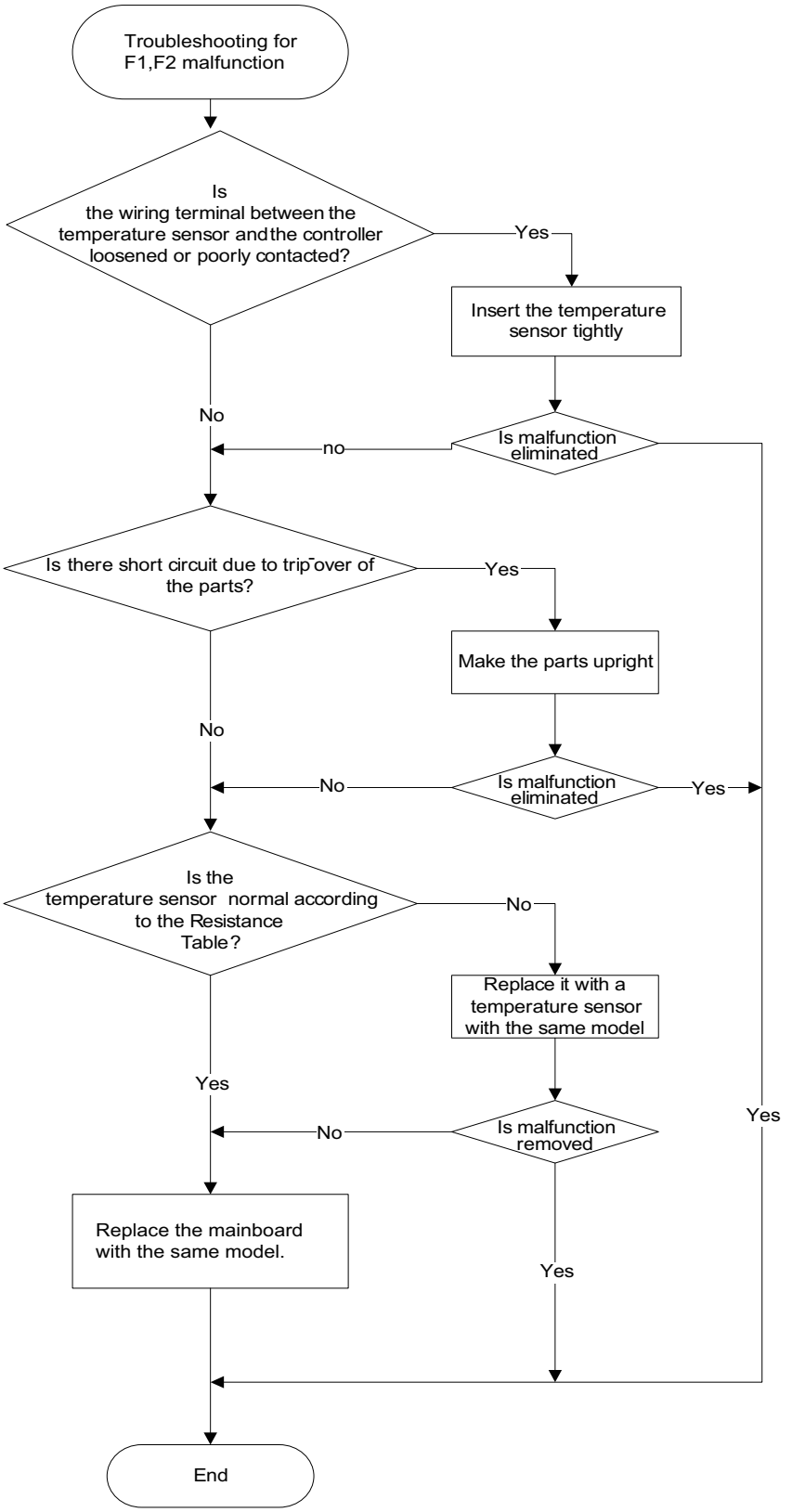
NO.	Malfunction Name	Display Method of Indoor Unit				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Operation Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
44	Malfunction of phase current detection circuit for compressor	U1			OFF 3S and blink 13 times				During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	Replace outdoor control panel AP1
45	Malfunction of voltage dropping for DC bus-bar	U3			OFF 3S and blink 20 times				During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	Supply voltage is unstable
46	Malfunction of complete units current detection	U5		OFF 3S and blink 13 times					During cooling and drying operation, the compressor will stop while indoor fan will operate; During heating operating, the complete unit will stop operation.	Theres circuit malfunction on outdoor units control panel AP1, please replace the outdoor units control panel AP1.
47	The four-way valve is abnormal	U7		OFF 3S and blink 20 times					If this malfunction occurs during heating operation, the complete unit will stop operation.	1.Supply voltage is lower than AC175V; 2.Wiring terminal 4V is loosened or broken; 3.4V is damaged, please replace 4V.
48	Zero-crossing malfunction of outdoor unit	U9	OFF 3S and blink 18 times						During cooling operation, compressor will stop while indoor fan will operate; during heating,the complete unit will stop operation.	Replace outdoor control panel AP1
49	Frequency limiting (power)						OFF 3S and blink 13 times			
50	Compressor is open-circuited					OFF 3S and blink once				
51	The temperature for turning on the unit is reached						OFF 3S and blink 8 times			
52	Frequency limiting (module temperature)						OFF 3S and blink 11 times			

NO.	Malfunction Name	Display Method of Indoor Unit				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Operation Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
53	Normal communica-tion							continously		
54	Defrosting				OFF 3S and blink once (during blinking, ON 10s and OFF 0.5s)	OFF 3S and blink twice			Defrosting will occur in heating mode. Compressor will operate while indoor fan will stop operation.	Its the normal state
55	Refrigerant leakage protection	F0					OFF 1s and blink 9 times		The Dual-8 Code Display will show F0 and the complete unit stops.	1.Refrigerant leakage; 2.Indoor evaporator temperature sensor works abnormally; 3.The unit has been plugged up somewhere.

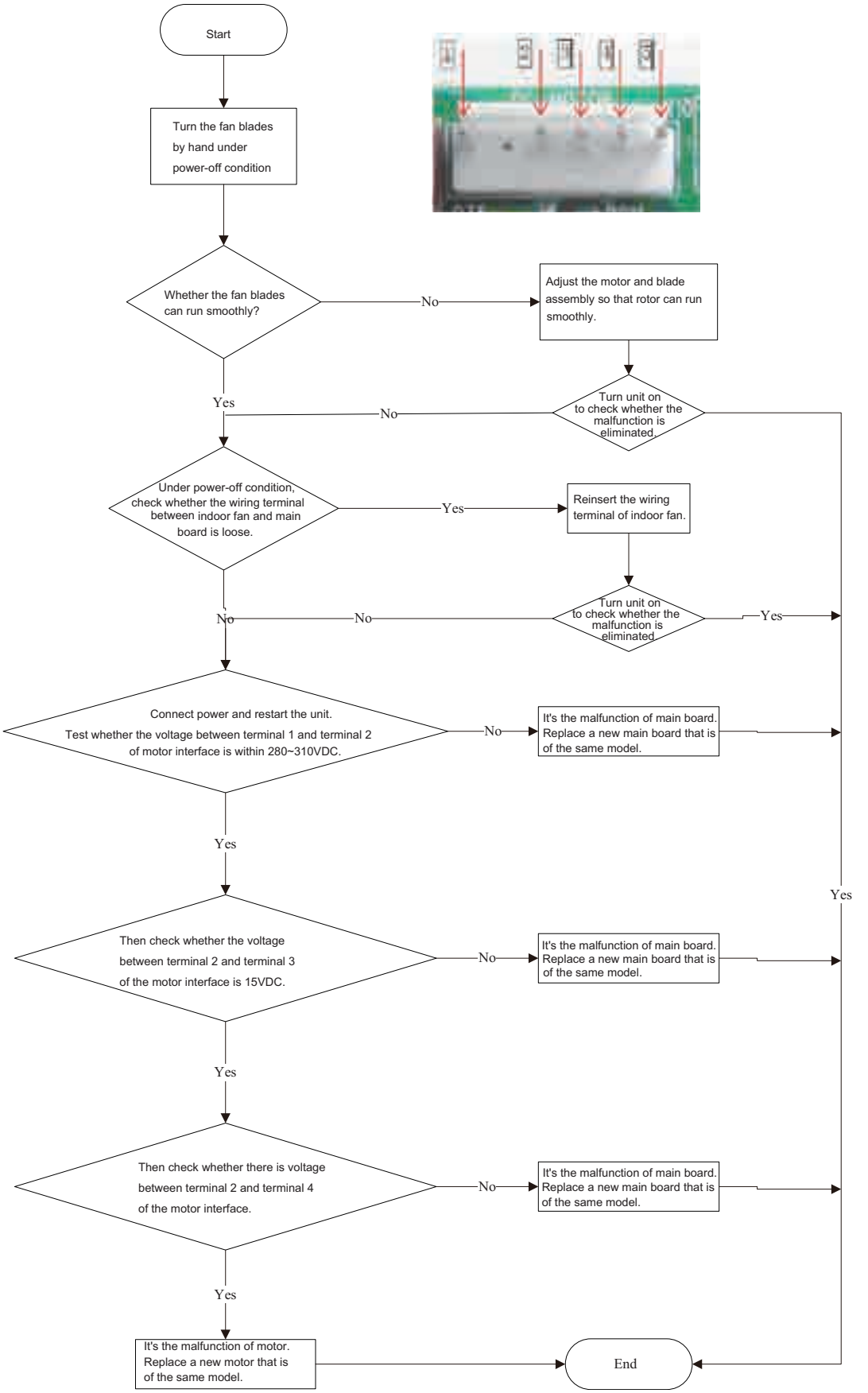
9.2 Procedure of Troubleshooting

●Indoor unit:

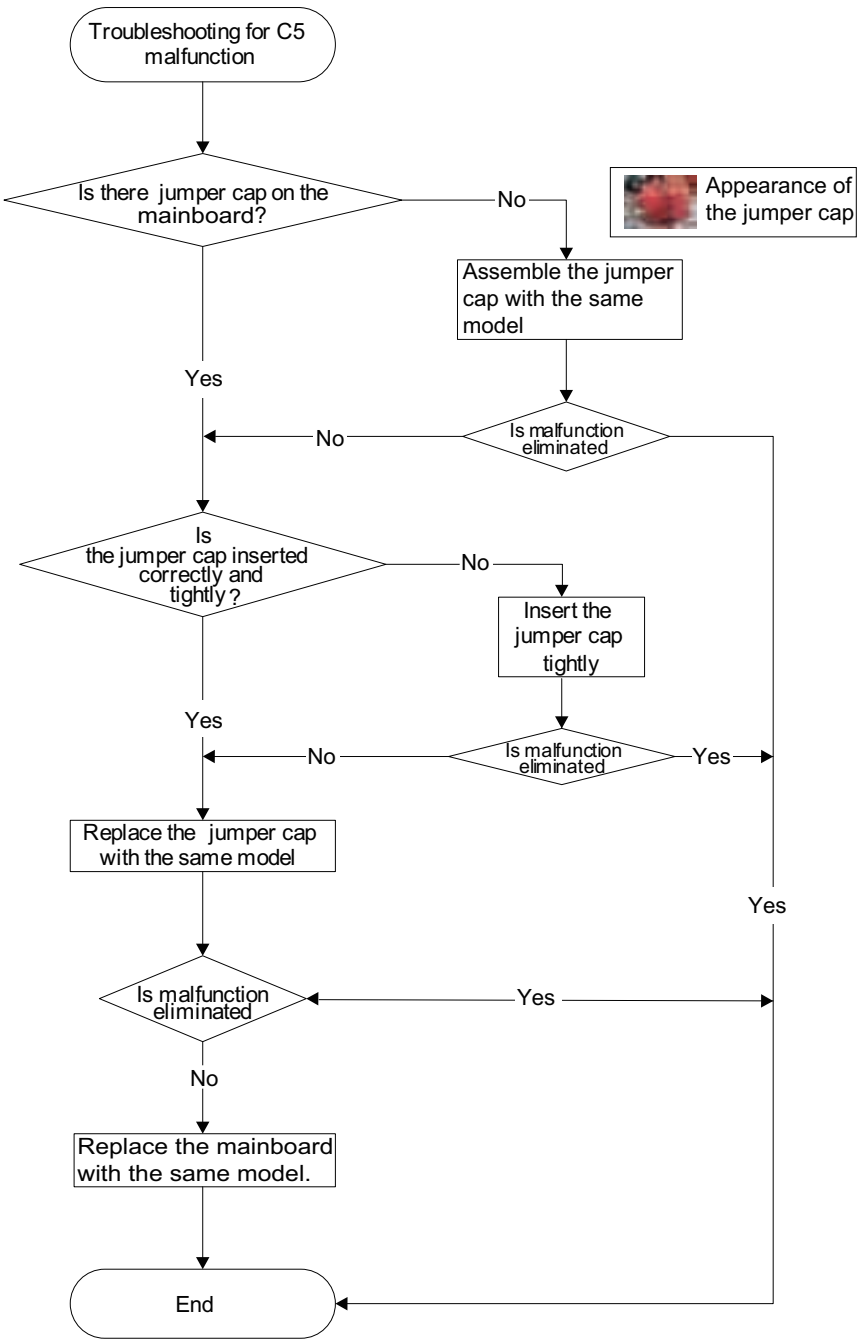
1. Malfunction of Temperature Sensor F1, F2



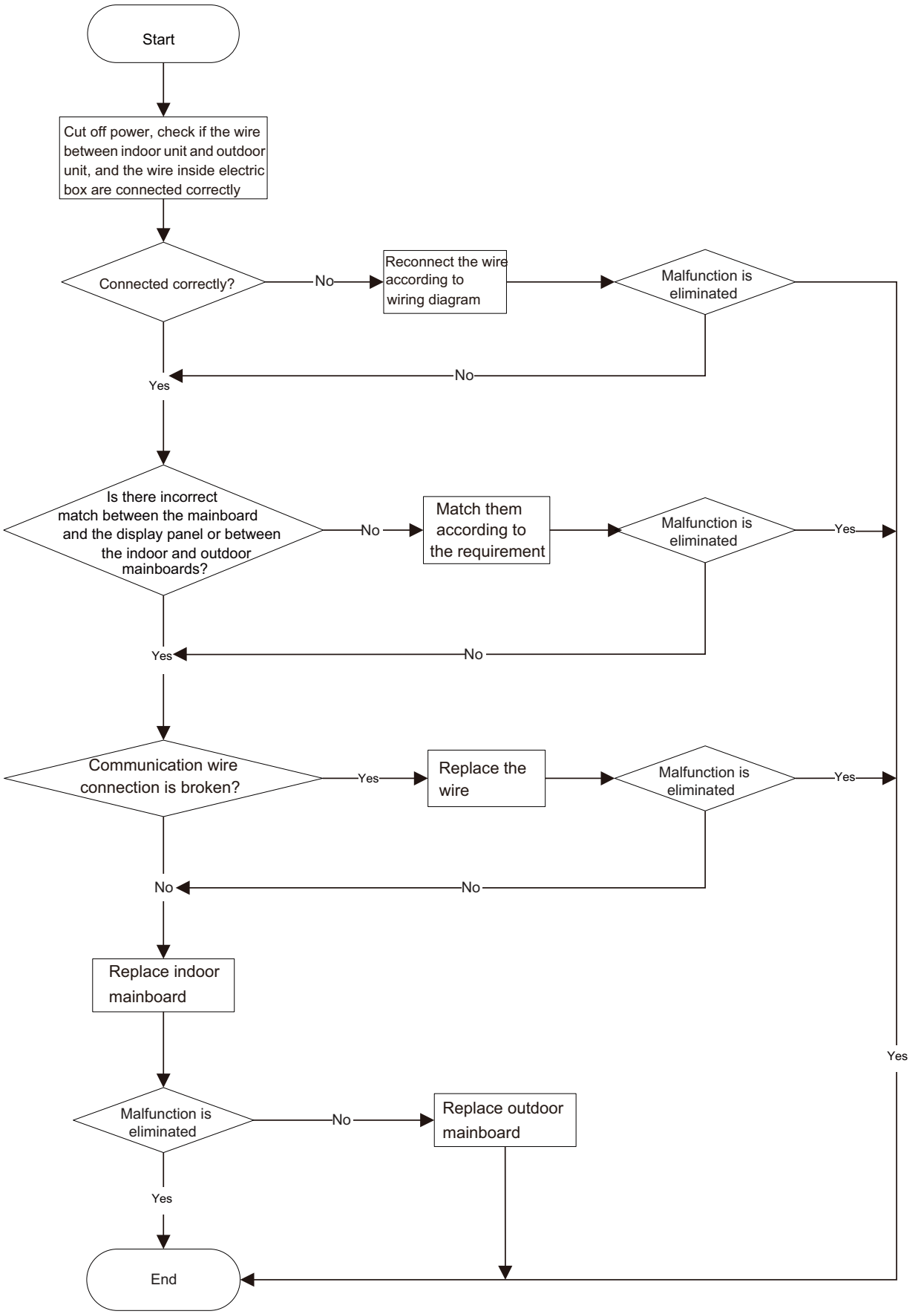
2. Malfunction of Blocked Protection of IDU Fan Motor H6



3. Malfunction of Protection of Jumper Cap C5

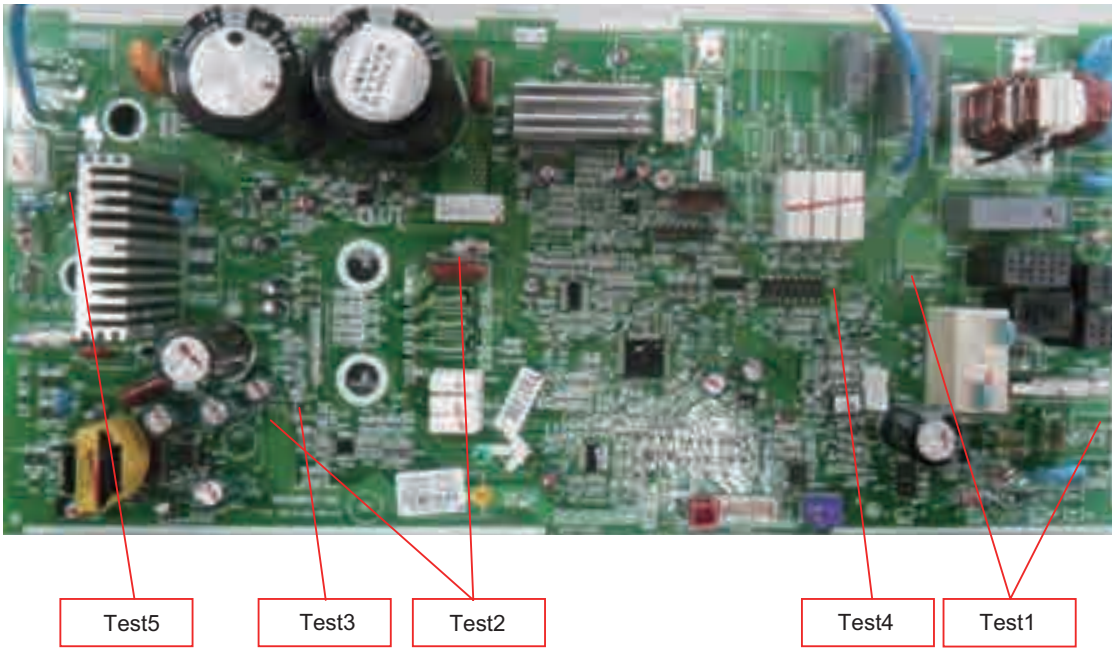


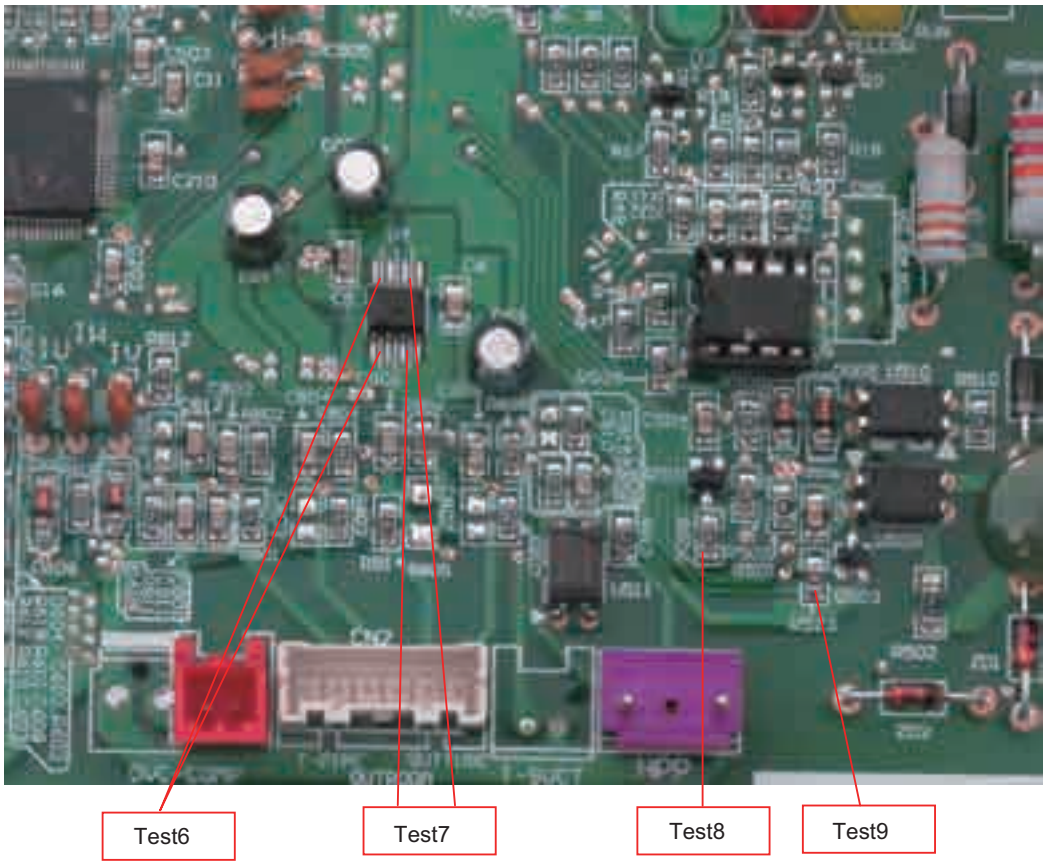
4. Communication malfunction E6



●Outdoor unit:

1.Key detection point





Test Point SN	Test Point	Related Specification	Test Value in normal condition
1	Between AC-L1 and N1	Neutral and live wire	165 V ~ 253 V
2	Left side of R201, radiator U404	DC bus bar	230 V ~ 380 V
3	Top of D304, Bottom of D304	IPM drive voltage +15V	13.5 V ~15.5 V
4	Top of C116, bottom of C116	Relay drive voltage +12V	11 V ~13 V
5	Right side of R228, left side of R228	PFC drive voltage +15V	13.5 V ~15.5 V
6	Left and top ends of U4, bottom of U4	Chip +3.3V	3.1 V ~3.3 V
7	Right and top ends of U4, bottom of U4	+5V	4.8 V ~5.1 V
8	Bottom of R506, bottom of U4	Outdoor unit receiving signal	Fluctuate between 0 and 3.3V
9	Bottom of R523, bottom of U4	Outdoor unit sending signal	Fluctuate between 0 and 3.3V

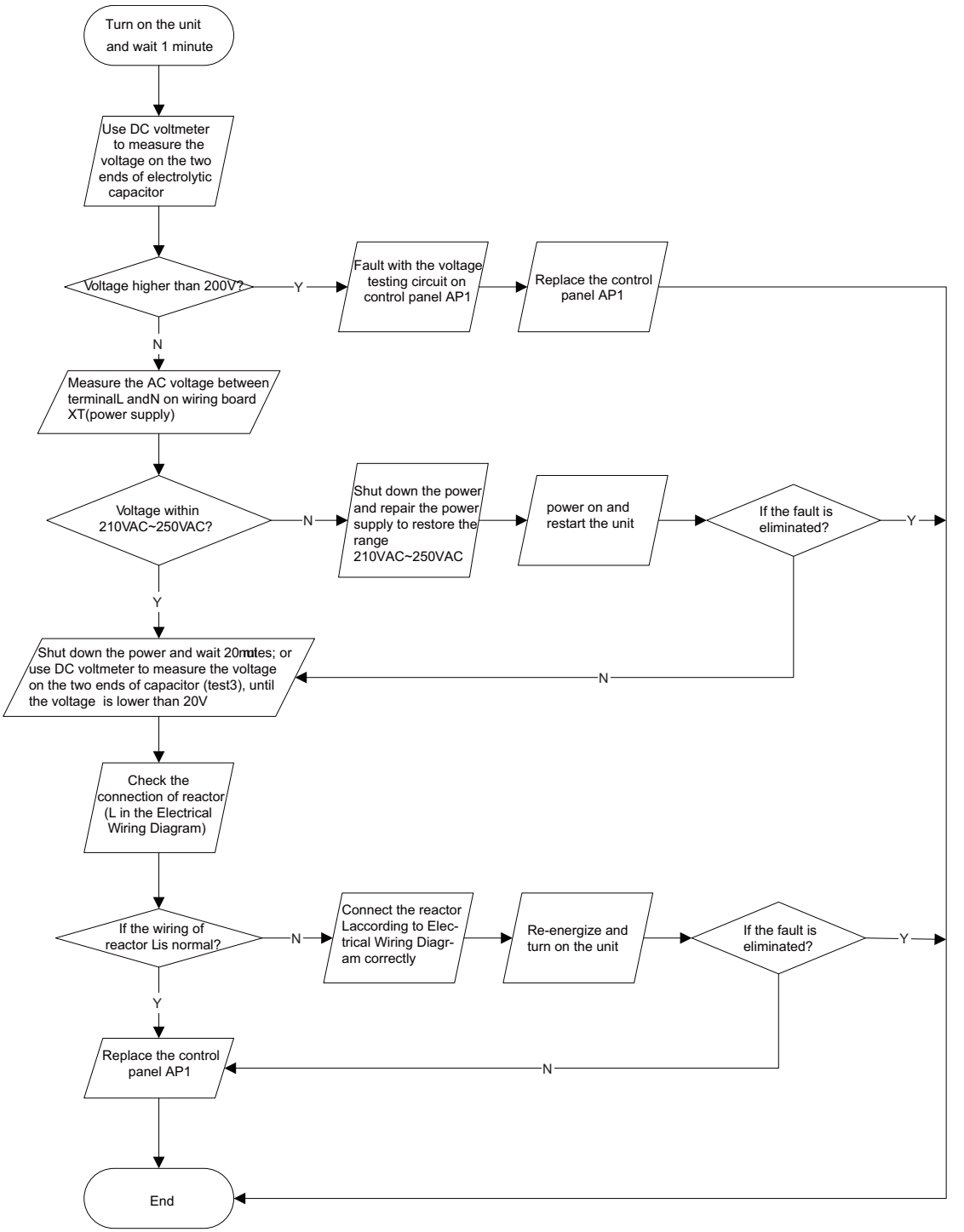
2. Capacity charging malfunction (outdoor unit malfunction) (AP1 below is control board of outdoor unit)

Main detection point:

● Detect if the voltage of L and N terminal of wiring board is between 210AC-240AC by alternating voltage meter;

● Is reactor (L) well connected? Is connection wire loosened or pull-out? Is reactor (L) damaged?

Malfunction diagnosis process:



3. IPM protection, desynchronizing malfunction, phase current of compressor is overcurrent (AP1 below is control board of outdoor unit)

Main detection point:

If control board AP1 and compressor COMP is well connected? If they are loosened? If the connection sequence is correct?

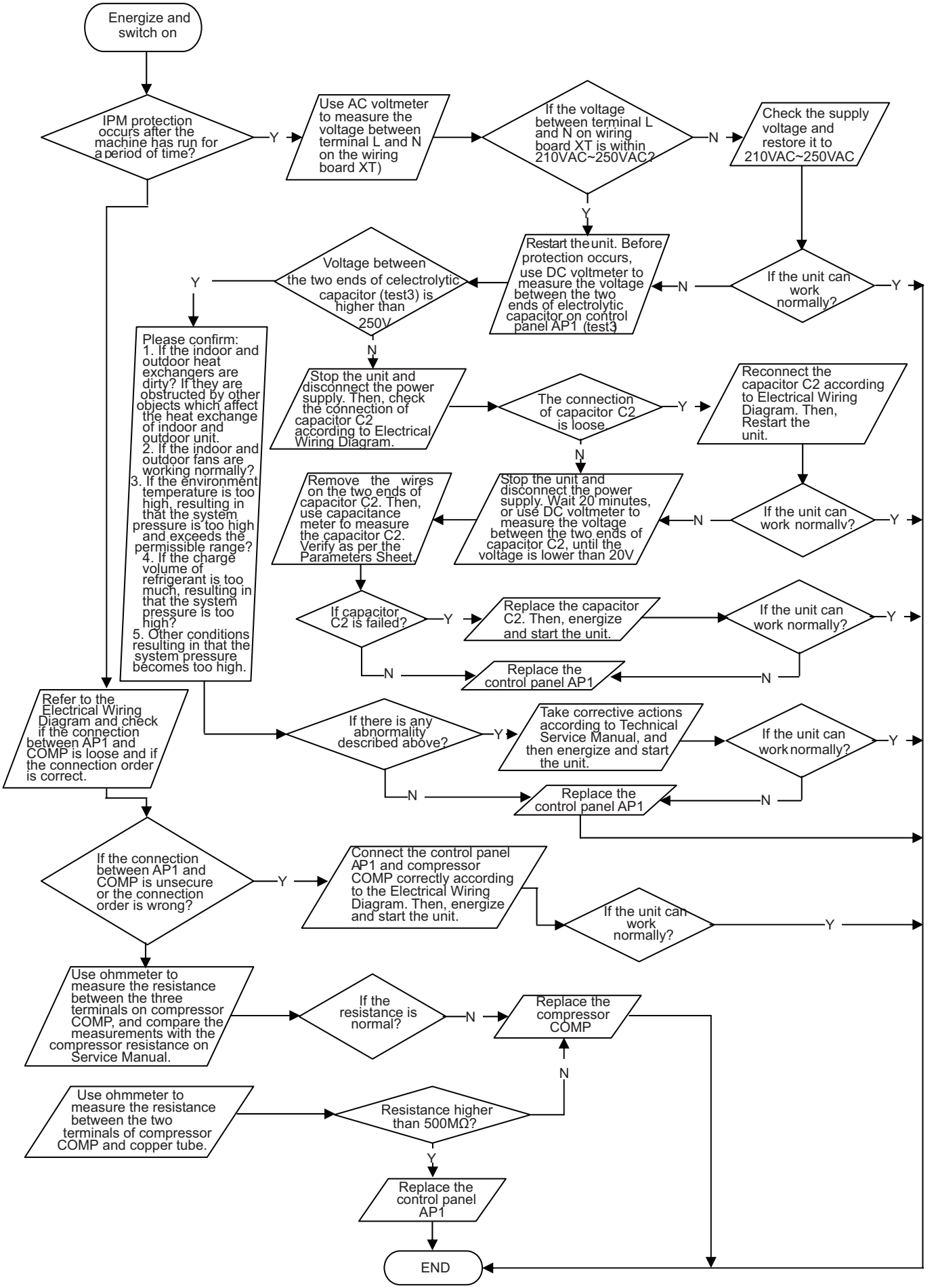
Is voltage input in the normal range (Test the voltage between L, N of wiring board XT by DC voltage meter)?

If coil resistance of compressor is normal? Is compressor coil insulating to copper pipe well?

If the work load of unit is heavy? If radiating of unit is well?

If the refrigerant charging is appropriate?

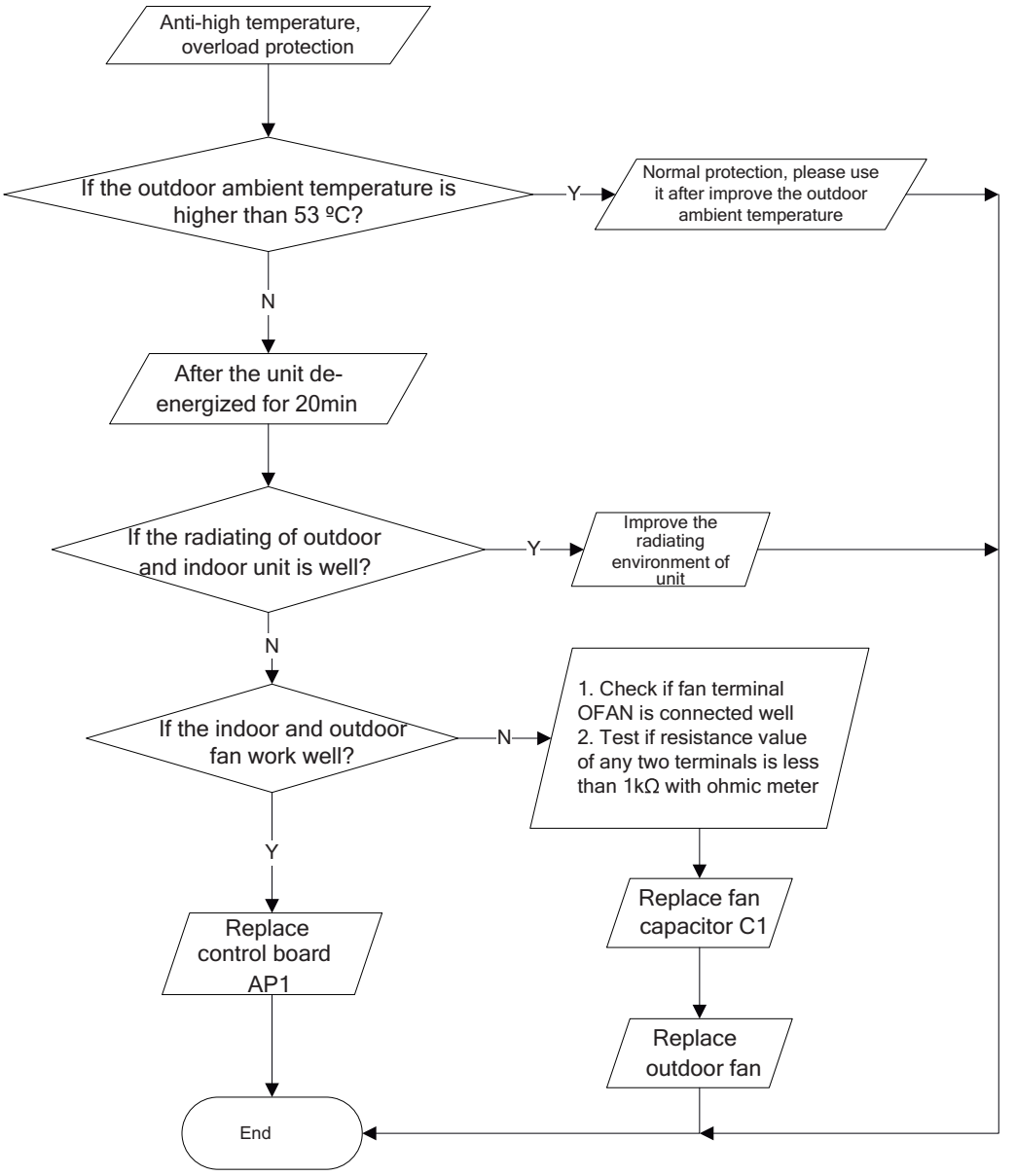
Malfunction diagnosis process:


Energize and switch on
IPM protection occurs after the machine has run for a period of time?
Y
Use AC voltmeter to measure the voltage between terminal L and N on the wiring board XT)
If the voltage between terminal L and N on wiring board XT is within 210VAC~250VAC?
N
Check the supply voltage and restore it to 210VAC~250VAC
Y
Restart the unit. Before protection occurs, use DC voltmeter to measure the voltage between the two ends of electrolytic capacitor on control panel AP1 (test3)
N
If the unit can work normally?
Y
Voltage between the two ends of celectrolytic capacitor (test3) is higher than 250V
Y
N
Please confirm:
1. If the indoor and outdoor heat exchangers are dirty? If they are obstructed by other objects which affect the heat exchange of indoor and outdoor unit.
2. If the indoor and outdoor fans are working normally?
3. If the environment temperature is too high, resulting in that the system pressure is too high and exceeds the permissible range?
4. If the charge volume of refrigerant is too much, resulting in that the system pressure is too high?
5. Other conditions resulting in that the system pressure becomes too high.
Stop the unit and disconnect the power supply. Then, check the connection of capacitor C2 according to Electrical Wiring Diagram.
The connection of capacitor C2 is loose.
Y
Reconnect the capacitor C2 according to Electrical Wiring Diagram. Then, Restart the unit.
N
Stop the unit and disconnect the power supply. Wait 20 minutes, or use DC voltmeter to measure the voltage between the two ends of capacitor C2, until the voltage is lower than 20V
N
If the unit can work normally?
Y
Remove the wires on the two ends of capacitor C2. Then, use capacitance meter to measure the capacitor C2. Verify as per the Parameters Sheet.
If capacitor C2 is failed?
Y
Replace the capacitor C2. Then, energize and start the unit.
If the unit can work normally?
Y
N
Replace the control panel AP1
N
Refer to the Electrical Wiring Diagram and check if the connection between AP1 and COMP is loose and if the connection order is correct.
If there is any abnormality described above?
Y
Take corrective actions according to Technical Service Manual, and then energize and start the unit.
If the unit can work normally?
Y
N
Replace the control panel AP1
N
If the connection between AP1 and COMP is unsecure or the connection order is wrong?
Y
Connect the control panel AP1 and compressor COMP correctly according to the Electrical Wiring Diagram. Then, energize and start the unit.
If the unit can work normally?
Y
Use ohmmeter to measure the resistance between the three terminals on compressor COMP, and compare the measurements with the compressor resistance on Service Manual.
If the resistance is normal?
N
Replace the compressor COMP
N
Use ohmmeter to measure the resistance between the two terminals of compressor COMP and copper tube.
Resistance higher than 500MΩ?
Y
Replace the control panel AP1
END

4. Diagnosis for anti-high temperature, overload protection (AP1 below is control board of outdoor unit)
Main detection point:

- If the outdoor ambient temperature is in normal range;
- If the indoor and outdoor fan is running normal;
- If the radiating environment of indoor and outdoor unit is well.

Malfunction diagnosis process:

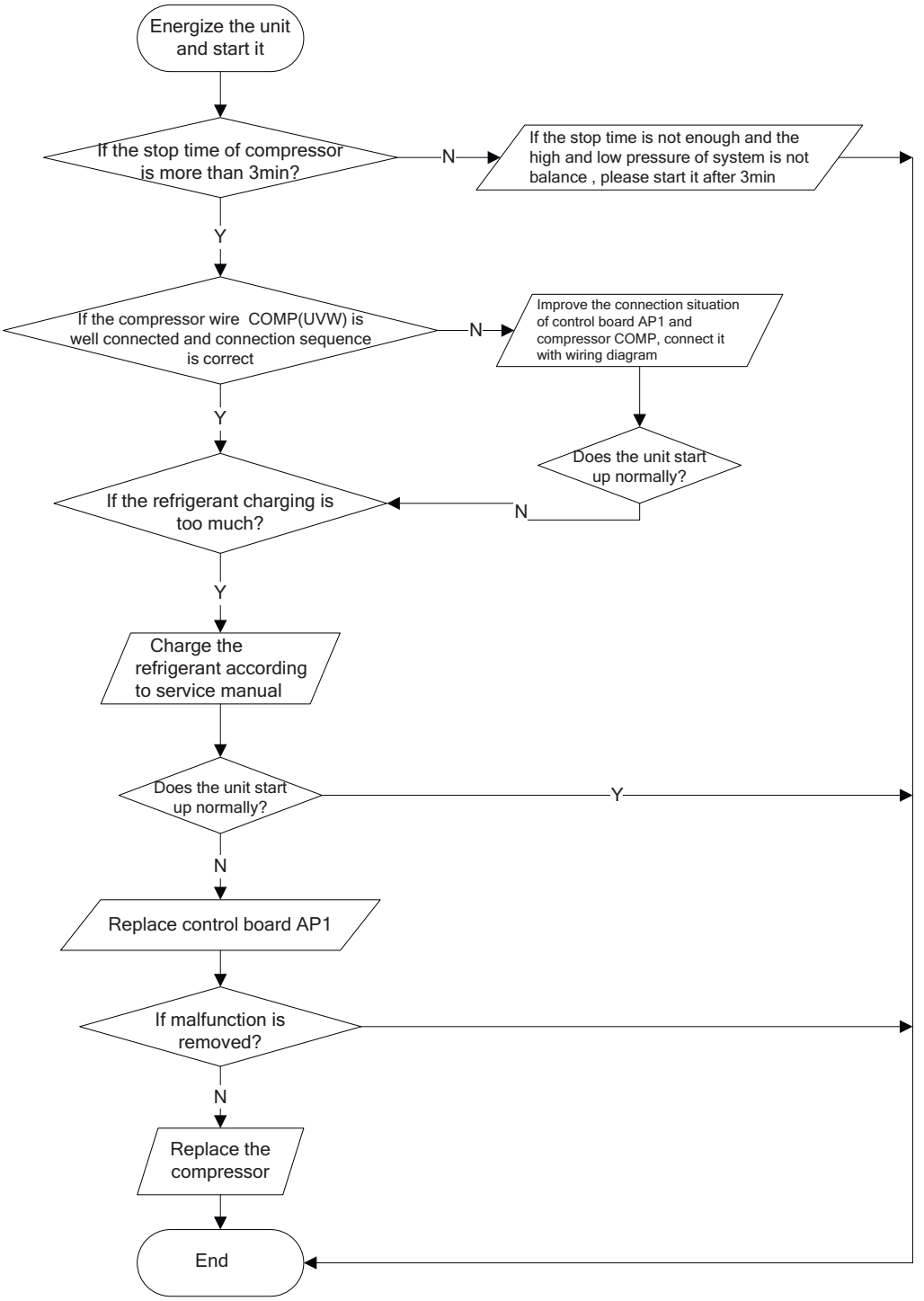


5. Diagnosis for failure start up malfunction (AP1 below is control board of outdoor unit)

Main detection point:

- If the compressor wiring is correct?
- If the stop time of compressor is enough?
- If the compressor is damaged?
- If the refrigerant charging is too much?

Malfunction diagnosis process:

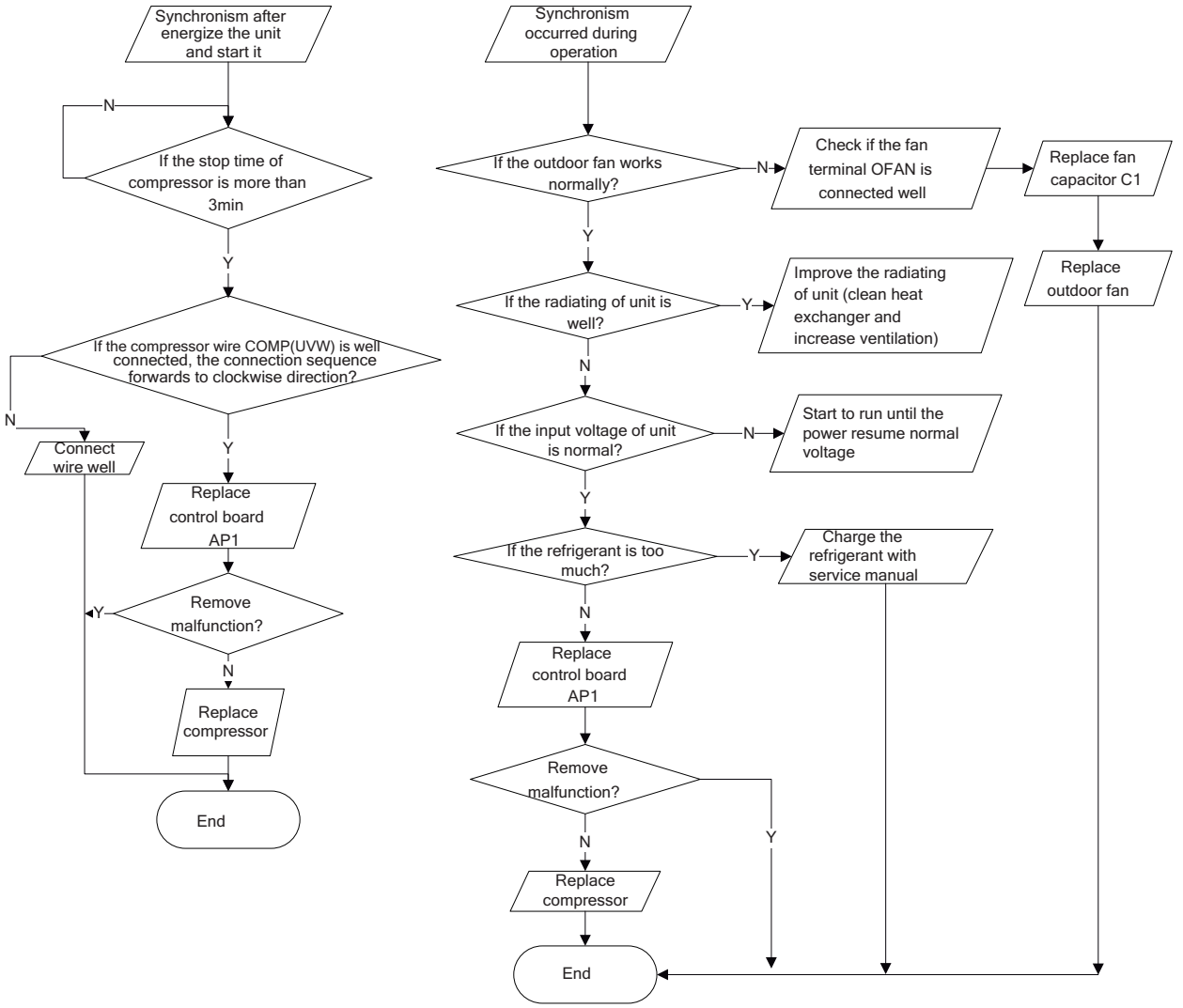


6. Diagnosis for compressor synchronism (AP1 below is control board of outdoor unit)

Main detection point:

- If the system pressure is over-high?
- If the work voltage is over-low?

Malfunction diagnosis process:

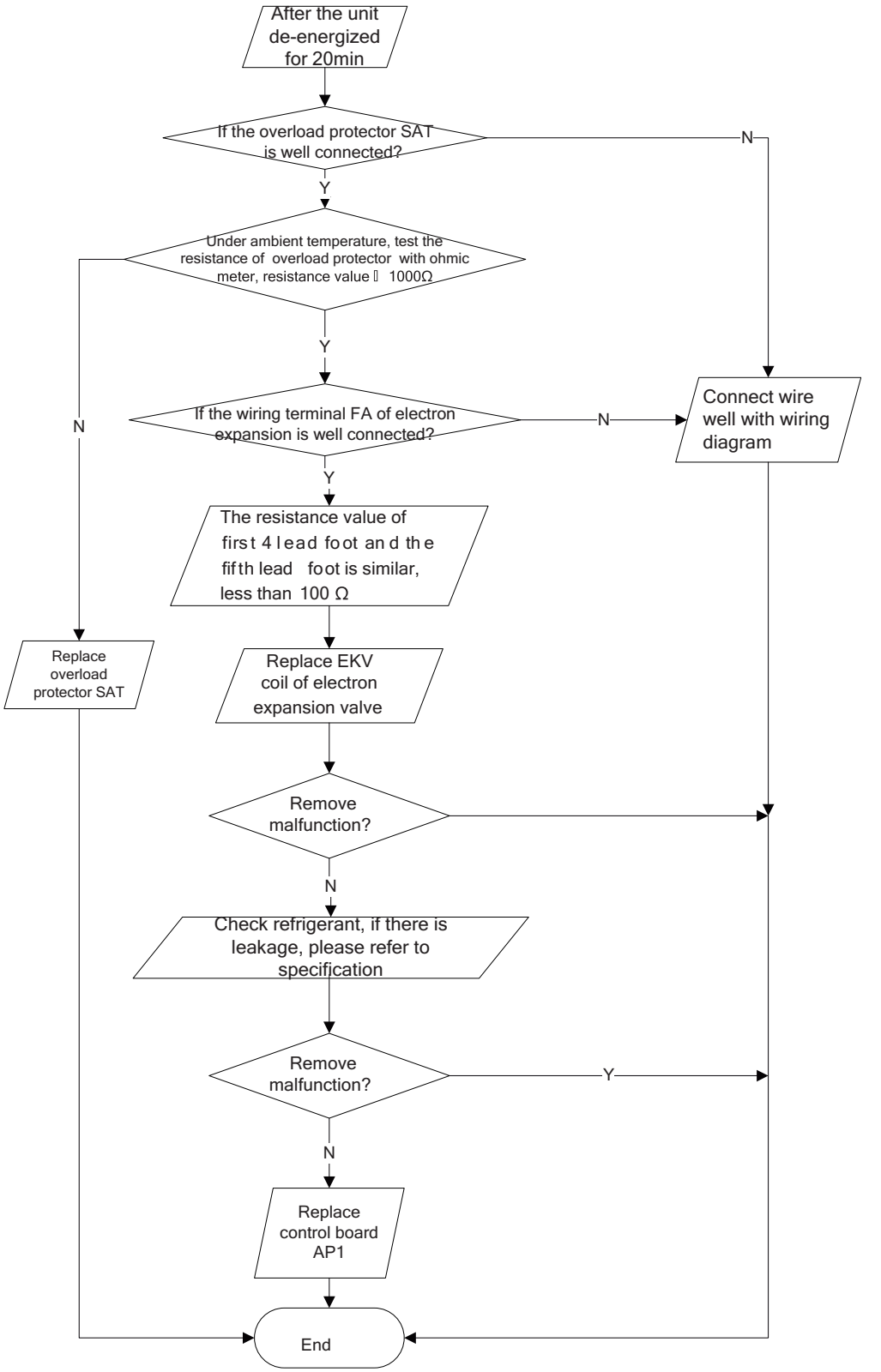


7. Diagnosis for overload and discharge malfunction (AP1 below is control board of outdoor unit)

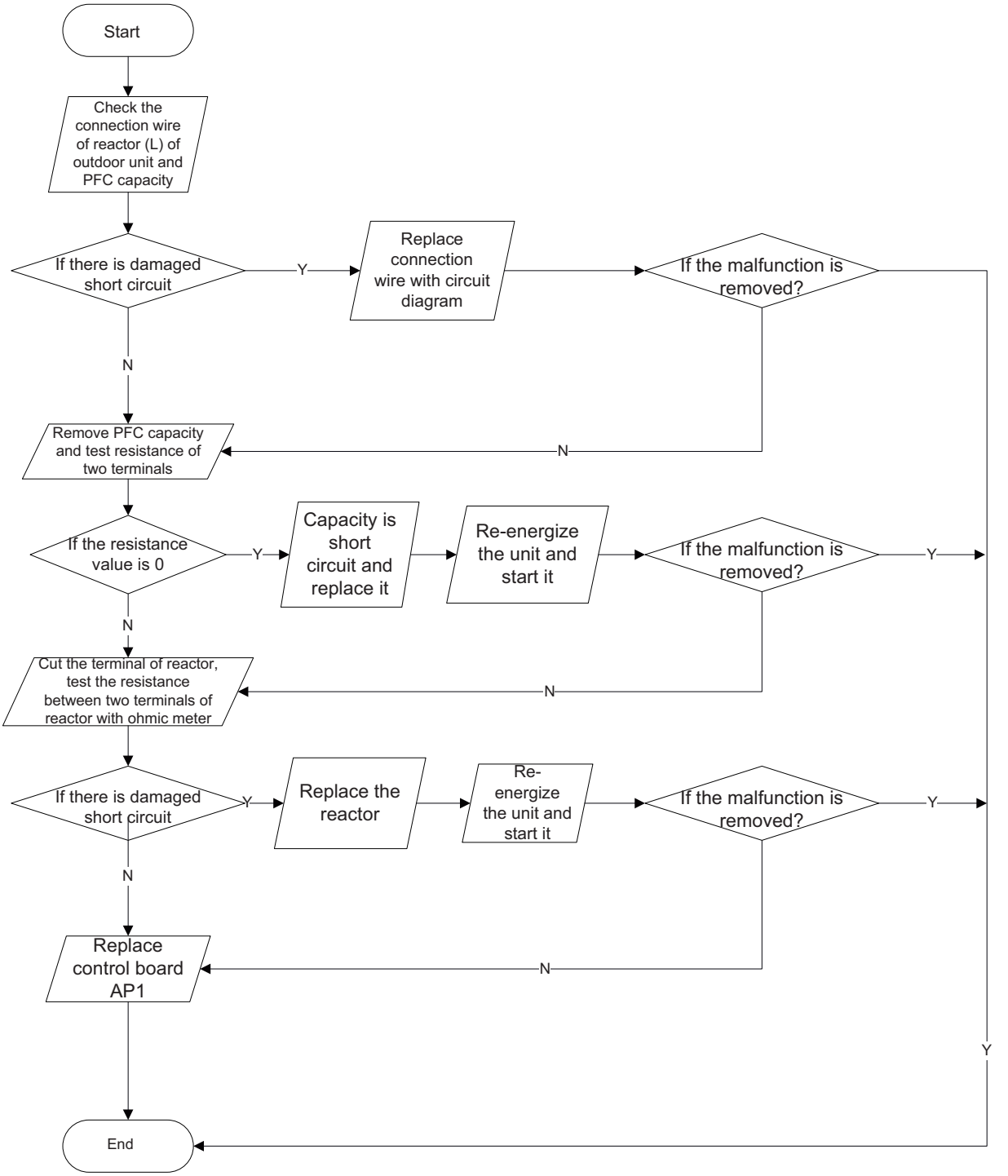
Main detection point:

- If the electron expansion valve is connected well? Is the expansion valve damaged?
- If the refrigerant is leakage?
- If the overload protector is damaged?

Malfunction diagnosis process:



8. PFC (correction for power factor) malfunction (outdoor unit malfunction) (AP1 below is control board of outdoor unit)
Main detection point:
● Check if reactor (L) of outdoor unit and PFC capacity are damaged.
Malfunction diagnosis process:



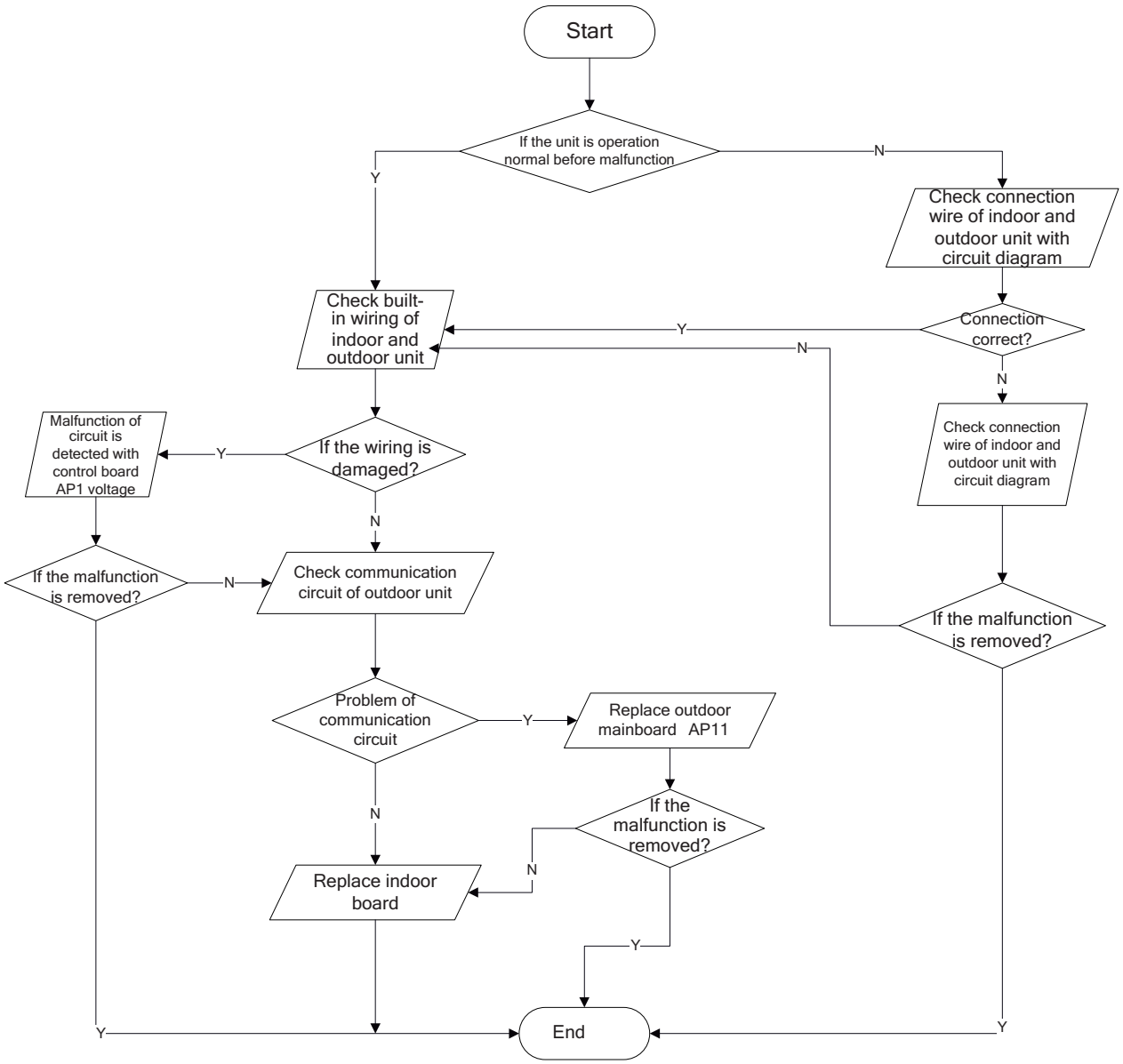
9. Communication malfunction (AP1 below is control board of outdoor unit)

Main detection point:

● Check if the connection wire and the built-in wiring of indoor and outdoor unit is connected well and no damaged;

● If the communication circuit of indoor mainboard is damaged? If the communication circuit of outdoor mainboard (AP1) is damaged

Malfunction diagnosis process:



9.3 Troubleshooting for Normal Malfunction

1. Air Conditioner Cant be Started Up

Possible Causes	Discriminating Method (Air conditioner Status)	Troubleshooting
No power supply, or poor connection for power plug	After energization, operation indicator isnt bright and the buzzer cant give out sound	Confirm whether its due to power failure. If yes, wait for power recovery. If not, check power supply circuit and make sure the power plug is connected well.
Wrong wire connection between indoor unit and outdoor unit, or poor connection for wiring terminals	Under normal power supply circumstances, operation indicator isnt bright after energization	Check the circuit according to circuit diagram and connect wires correctly. Make sure all wiring terminals are connected firmly
Electric leakage for air conditioner	After energization, room circuit breaker trips off at once	Make sure the air conditioner is grounded reliably Make sure wires of air conditioner is connected correctly Check the wiring inside air conditioner. Check whether the insulation layer of power cord is damaged; if yes, place the power cord.
Model selection for air switch is improper	After energization, air switch trips off	Select proper air switch
Malfunction of remote controller	After energization, operation indicator is bright, while no display on remote controller or buttons have no action.	Replace batteries for remote controller Repair or replace remote controller

2. Poor Cooling (Heating) for Air Conditioner

Possible Causes	Discriminating Method (Air conditioner Status)	Troubleshooting
Set temperature is improper	Observe the set temperature on remote controller	Adjust the set temperature
Rotation speed of the IDU fan motor is set too low	Small wind blow	Set the fan speed at high or medium
Filter of indoor unit is blocked	Check the filter to see its blocked	Clean the filter
Installation position for indoor unit and outdoor unit is improper	Check whether the installation postion is proper according to installation requirement for air conditioner	Adjust the installation position, and install the rainproof and sunproof for outdoor unit
Refrigerant is leaking	Discharged air temperature during cooling is higher than normal discharged wind temperature; Discharged air temperature during heating is lower than normal discharged wind temperature; Units pressure is much lower than regulated range	Find out the leakage causes and deal with it. Add refrigerant.
Malfunction of 4-way valve	Blow cold wind during heating	Replace the 4-way valve
Malfunction of capillary	Discharged air temperature during cooling is higher than normal discharged wind temperature; Discharged air temperature during heating is lower than normal discharged wind temperature; Unitt pressure is much lower than regulated range. If refrigerant isnt leaking, part of capillary is blocked	Replace the capillary
Flow volume of valve is insufficient	The pressure of valves is much lower than that stated in the specification	Open the valve completely
Malfunction of horizontal louver	Horizontal louver cant swing	Refer to point 3 of maintenance method for details
Malfunction of the IDU fan motor	The IDU fan motor cant operate	Refer to troubleshooting for H6 for maintenance method in details
Malfunction of the ODU fan motor	The ODU fan motor cant operate	Refer to point 4 of maintenance method for details
Malfunction of compressor	Compressor cant operate	Refer to point 5 of maintenance method for details

3. Horizontal Louver Cant Swing

Possible Causes	Discriminating Method (Air conditioner Status)	Troubleshooting
Wrong wire connection, or poor connection	Check the wiring status according to circuit diagram	Connect wires according to wiring diagram to make sure all wiring terminals are connected firmly
Stepping motor is damaged	Stepping motor cant operate	Repair or replace stepping motor
Main board is damaged	Others are all normal, while horizontal louver cant operate	Replace the main board with the same model

4. ODU Fan Motor Cant Operate

Possible causes	Discriminating method (air conditioner status)	Troubleshooting
Wrong wire connection, or poor connection	Check the wiring status according to circuit diagram	Connect wires according to wiring diagram to make sure all wiring terminals are connected firmly
Capacity of the ODU fan motor is damaged	Measure the capacity of fan capacitor with an universal meter and find that the capacity is out of the deviation range indicated on the nameplate of fan capacitor.	Replace the capacity of fan
Power voltage is a little low or high	Use universal meter to measure the power supply voltage. The voltage is a little high or low	Suggest to equip with voltage regulator
Motor of outdoor unit is damaged	When unit is on, cooling/heating performance is bad and ODU compressor generates a lot of noise and heat.	Change compressor oil and refrigerant. If no better, replace the compressor with a new one

5. Compressor Cant Operate

Possible causes	Discriminating method (air conditioner status)	Troubleshooting
Wrong wire connection, or poor connection	Check the wiring status according to circuit diagram	Connect wires according to wiring diagram to make sure all wiring terminals are connected firmly
Capacity of compressor is damaged	Measure the capacity of fan capacitor with an universal meter and find that the capacity is out of the deviation range indicated on the nameplate of fan capacitor.	Replace the compressor capacitor
Power voltage is a little low or high	Use universal meter to measure the power supply voltage. The voltage is a little high or low	Suggest to equip with voltage regulator
Coil of compressor is burnt out	Use universal meter to measure the resistance between compressor terminals and its 0	Repair or replace compressor
Cylinder of compressor is blocked	Compressor cant operate	Repair or replace compressor

6. Air Conditioner is Leaking

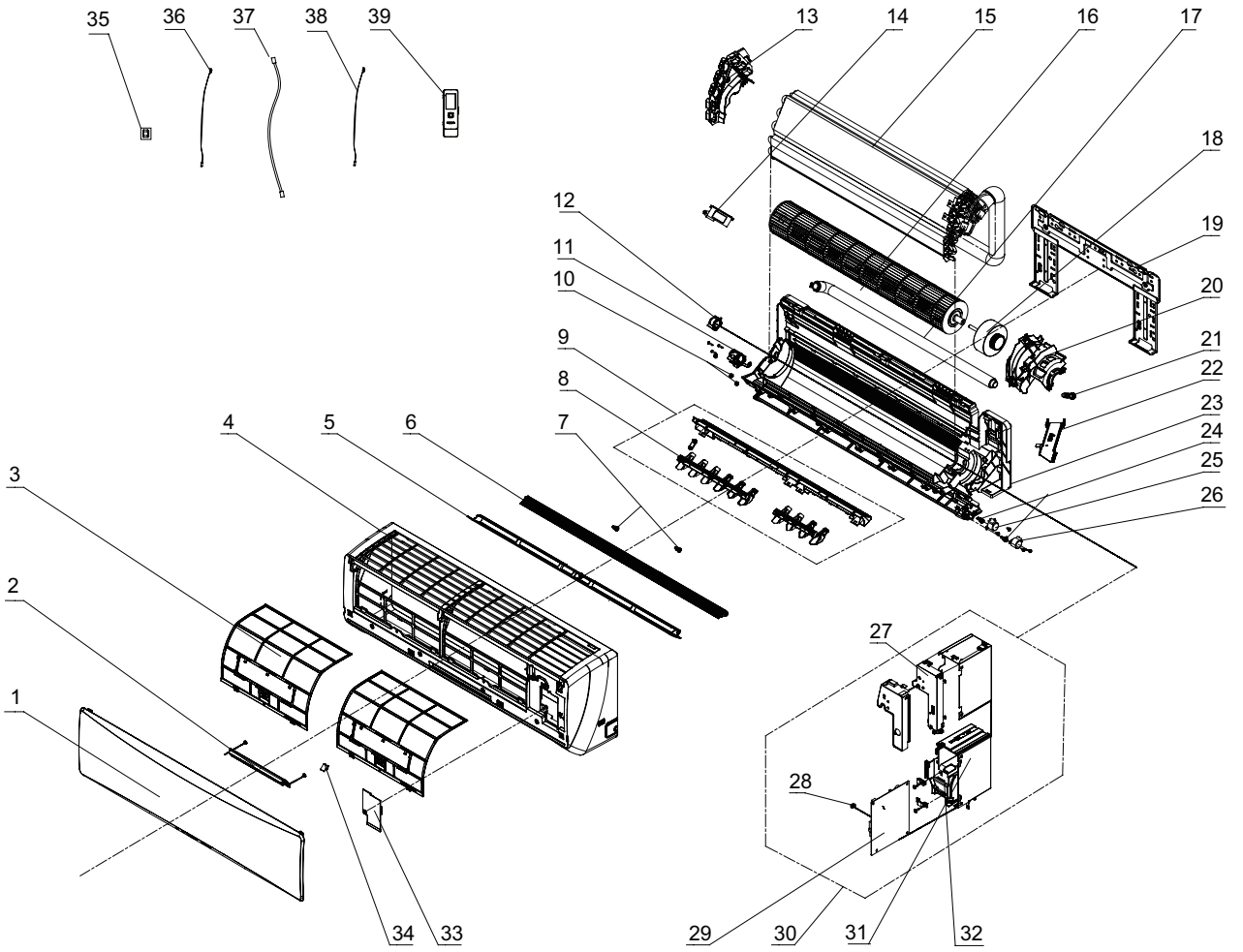
Possible causes	Discriminating method (air conditioner status)	Troubleshooting
Drain pipe is blocked	Water leaking from indoor unit	Eliminate the foreign objects inside the drain pipe
Drain pipe is broken	Water leaking from drain pipe	Replace drain pipe
Wrapping is not tight	Water leaking from the pipe connection place of indoor unit	Wrap it again and bundle it tightly

7. Abnormal Sound and Vibration

Possible causes	Discriminating method (air conditioner status)	Troubleshooting
When turn on or turn off the unit, the panel and other parts will expand and theres abnormal sound	Theres the sound of "PAPA"	Normal phenomenon. Abnormal sound will disappear after a few minutes.
When turn on or turn off the unit, theres abnormal sound due to flow of refrigerant inside air conditioner	Water-running sound can be heard	Normal phenomenon. Abnormal sound will disappear after a few minutes.
Foreign objects inside the indoor unit or therere parts touching together inside the indoor unit	Theres abnormal sound fro indoor unit	Remove foreign objects. Adjust all parts position of indoor unit, tighten screws and stick damping plaster between connected parts
Foreign objects inside the outdoor unit or therere parts touching together inside the outdoor unit	Theres abnormal sound fro outdoor unit	Remove foreign objects. Adjust all parts position of outdoor unit, tighten screws and stick damping plaster between connected parts
Short circuit inside the magnetic coil	During heating, the way valve has abnormal electromagnetic sound	Replace magnetic coil
Abnormal shake of compressor	Outdoor unit gives out abnormal sound	Adjust the support foot mat of compressor, tighten the bolts
Abnormal sound inside the compressor	Abnormal sound inside the compressor	If add too much refrigerant during maintenance, please reduce refrigerant properly. Replace compressor for other circumstances.

10. Exploded View and Parts List

10.1 Indoor Unit



The component picture is only for reference; please refer to the actual product.

No.	Description	Part Code		Qty
		GWH09TB-S3DNA1D/I	GWH09TB-S3DNA2D/I	
	Product Code	CB148N08400	CB411N02902	
1	Front Panel	20012850T	20022266	1
2	Display Board	30565140	30565145	1
3	Filter Sub-Assy	1112211602	1112211602	2
4	Front Case Sub-assy	2001288901	00000200088	1
5	Guide Louver	10512147	1051214702	1
6	Guide Louver (small)	10512127	10512127	1
7	Crank	10582070	10582070	2
8	Air Louver (left)	10512232	10512232	1
9	Helicoid Tongue sub-assy	2611224401	2611224401	1
10	Left Axile Bush	10512037	10512037	2
11	Step Motor	15212123	15212123	1
12	Propeller Axile Bush	1054202101	1054202101	1
13	Evaporator Support	24212114	24212114	1
14	Cold Plasma Generator	1114001601	1114001601	1
15	Evaporator Assy	0100294511	0100294511	1
16	Cross Flow Fan	10352033	10352033	1
17	Drainage Hose	05230014	05230014	1
18	Fan Motor	15012510	15012510	1
19	Wall Mounting Frame	01252484	01252484	1
20	Motor Press Plate	26112209	26112209	1
21	Rubber Plug (Water Tray)	76712012	76712012	1
22	Pipe Clamp	2611216402	2611216402	1
23	Rear Case assy	2220216104	2220216104	1
24	Axile Bush	10542036	10542036	3
25	Step Motor	15212125	15212125	1
26	Step Motor	15212126	15212126	1
27	Electric Box	20112181	20112181	1
28	Electric Box Cover	2012240901	2012240901	1
29	Jumper	4202300102	4202300102	1
30	Main Board	30138000636	30138000636	1
31	Electric Box Assy	10000201684	10000202927	1
32	Terminal Board	42011233	42011233	1
33	Electric Box Cover2	20122075	2012207507	1
34	Screw Cover	24252016	242520179	1
35	Pipe Connection Nut accessories	06320020	06320020	1
36	Temperature Sensor	390000598	390000598	1
37	Connecting Cable	4002052317	4002052317	0
38	Temperature Sensor	390000451	390000451	1
39	Remote Controller	30510137	30510137	1

Above data is subject to change without notice.

No.	Description	Part Code		Qty
		GWH09TB-S3DNA3D/I	GWH12TB-S3DNA1D/I	
	Product Code	CB412N03300	CB148N08300	
1	Front Panel	20022240	20012850T	1
2	Display Board	30565203	30565140	1
3	Filter Sub-Assy	1112211602	1112211602	2
4	Front Case Sub-assy	00000200088	2001288901	1
5	Guide Louver	1051214702	10512147	1
6	Guide Louver (small)	10512127	10512127	1
7	Crank	10582070	10582070	2
8	Air Louver (left)	10512232	10512232	1
9	Helicoid Tongue sub-assy	2611224401	2611224401	1
10	Left Axile Bush	10512037	10512037	2
11	Step Motor	15212123	15212123	1
12	Propeller Axile Bush	1054202101	1054202101	1
13	Evaporator Support	24212114	24212114	1
14	Cold Plasma Generator	1114001601	1114001601	1
15	Evaporator Assy	0100294511	01002641	1
16	Cross Flow Fan	10352033	10352033	1
17	Drainage Hose	05230014	05230014	1
18	Fan Motor	15012510	15012510	1
19	Wall Mounting Frame	01252484	01252484	1
20	Motor Press Plate	26112209	26112209	1
21	Rubber Plug (Water Tray)	76712012	76712012	1
22	Pipe Clamp	2611216402	2611216402	1
23	Rear Case assy	2220216104	2220216104	1
24	Axile Bush	10542036	10542036	3
25	Step Motor	15212125	15212125	1
26	Step Motor	15212126	15212126	1
27	Electric Box	20112181	20112181	1
28	Electric Box Cover	2012240901	2012240901	1
29	Jumper	4202300102	4202300103	1
30	Main Board	30138000636	30138000636	1
31	Electric Box Assy	10000202502	10000201696	1
32	Terminal Board	42011233	42011233	1
33	Electric Box Cover2	2012207507	20122075	1
34	Screw Cover	242520179	24252016	1
35	Pipe Connection Nut accessories	06320020	06320020	1
36	Temperature Sensor	390000598	390000598	1
37	Connecting Cable	4002052317	4002052317	0
38	Temperature Sensor	390000451	390000451	1
39	Remote Controller	30510137	30510137	1

Above data is subject to change without notice.

No.	Description	Part Code		Qty
		GWH12TB-S3DNA2D/I	GWH12TB-S3DNA3D/I	
	Product Code	CB411N03002	CB412N03500	
1	Front Panel	20022266	20022240	1
2	Display Board	30565145	30565203	1
3	Filter Sub-Assy	1112211602	1112211602	2
4	Front Case Sub-assy	20022266	20022256	1
5	Guide Louver	1051214702	1051214702	1
6	Guide Louver (small)	10512127	10512127	1
7	Crank	10582070	10582070	2
8	Air Louver (left)	10512232	10512232	1
9	Helicoid Tongue sub-assy	2611224401	2611224401	1
10	Left Axile Bush	10512037	10512037	2
11	Step Motor	15212123	15212123	1
12	Propeller Axile Bush	1054202101	1054202101	1
13	Evaporator Support	24212114	24212114	1
14	Cold Plasma Generator	1114001601	1114001601	1
15	Evaporator Assy	01002641	01002641	1
16	Cross Flow Fan	10352033	10352033	1
17	Drainage Hose	05230014	05230014	1
18	Fan Motor	15012510	15012510	1
19	Wall Mounting Frame	01252484	01252484	1
20	Motor Press Plate	26112209	26112209	1
21	Rubber Plug (Water Tray)	76712012	76712012	1
22	Pipe Clamp	2611216402	2611216402	1
23	Rear Case assy	2220216104	2220216104	1
24	Axile Bush	10542036	10542036	3
25	Step Motor	15212125	15212125	1
26	Step Motor	15212126	15212126	1
27	Electric Box	20112181	20112181	1
28	Electric Box Cover	2012240901	2012240901	1
29	Jumper	4202300103	4202300103	1
30	Main Board	30138000636	30138000636	1
31	Electric Box Assy	10000202736	10000202558	1
32	Terminal Board	42011233	42011233	1
33	Electric Box Cover2	2012207507	2012207507	1
34	Screw Cover	242520179	242520179	1
35	Pipe Connection Nut accessories	06320020	06320020	1
36	Temperature Sensor	390000598	390000598	1
37	Connecting Cable	4002052317	4002052317	0
38	Temperature Sensor	390000451	390000451	1
39	Remote Controller	30510137	30510137	1

Above data is subject to change without notice.

No.	Description	Part Code		Qty
		GWH12TB-S3DNA1D/I	GWH09TB-S3DNA1D/I	
	Product Code	CB148N08302	CB148N08402	
1	Front Panel	20012850T	20012850T	1
2	Display Board	30565140	30565140	1
3	Filter Sub-Assy	1112211602	1112211602	2
4	Front Case Sub-assy	20012889	20012889	1
5	Guide Louver	10512147	10512147	1
6	Guide Louver (small)	10512127	10512127	1
7	Crank	10582070	10582070	2
8	Air Louver (left)	10512232	10512232	1
9	Helicoid Tongue sub-assy	2611224401	2611224401	1
10	Left Axile Bush	10512037	10512037	2
11	Step Motor	15212123	15212123	1
12	Propeller Axile Bush	1054202101	1054202101	1
13	Evaporator Support	24212114	24212114	1
14	Cold Plasma Generator	/	/	/
15	Evaporator Assy	01002641	0100294511	1
16	Cross Flow Fan	10352033	10352033	1
17	Drainage Hose	05230014	05230014	1
18	Fan Motor	15012510	15012510	1
19	Wall Mounting Frame	01252484	01252484	1
20	Motor Press Plate	26112209	26112209	1
21	Rubber Plug (Water Tray)	76712012	76712012	1
22	Pipe Clamp	2611216402	2611216402	1
23	Rear Case assy	2220216104	2220216104	1
24	Axile Bush	10542036	10542036	3
25	Step Motor	15212125	15212125	1
26	Step Motor	15212126	15212126	1
27	Electric Box	20112181	20112181	1
28	Electric Box Cover	2012240901	2012240901	1
29	Jumper	4202300103	4202300102	1
30	Main Board	30138000957	30138000957	1
31	Electric Box Assy	10000203249	10000203248	1
32	Terminal Board	42011233	42011233	1
33	Electric Box Cover2	20122075	20122075	1
34	Screw Cover	24252016	24252016	1
35	Pipe Connection Nut accessories	06320020	06320020	1
36	Temperature Sensor	390000598	390000598	1
37	Connecting Cable	4002052317	4002052317	0
38	Temperature Sensor	390000451	390000451	1
39	Remote Controller	30510137	30510137	1

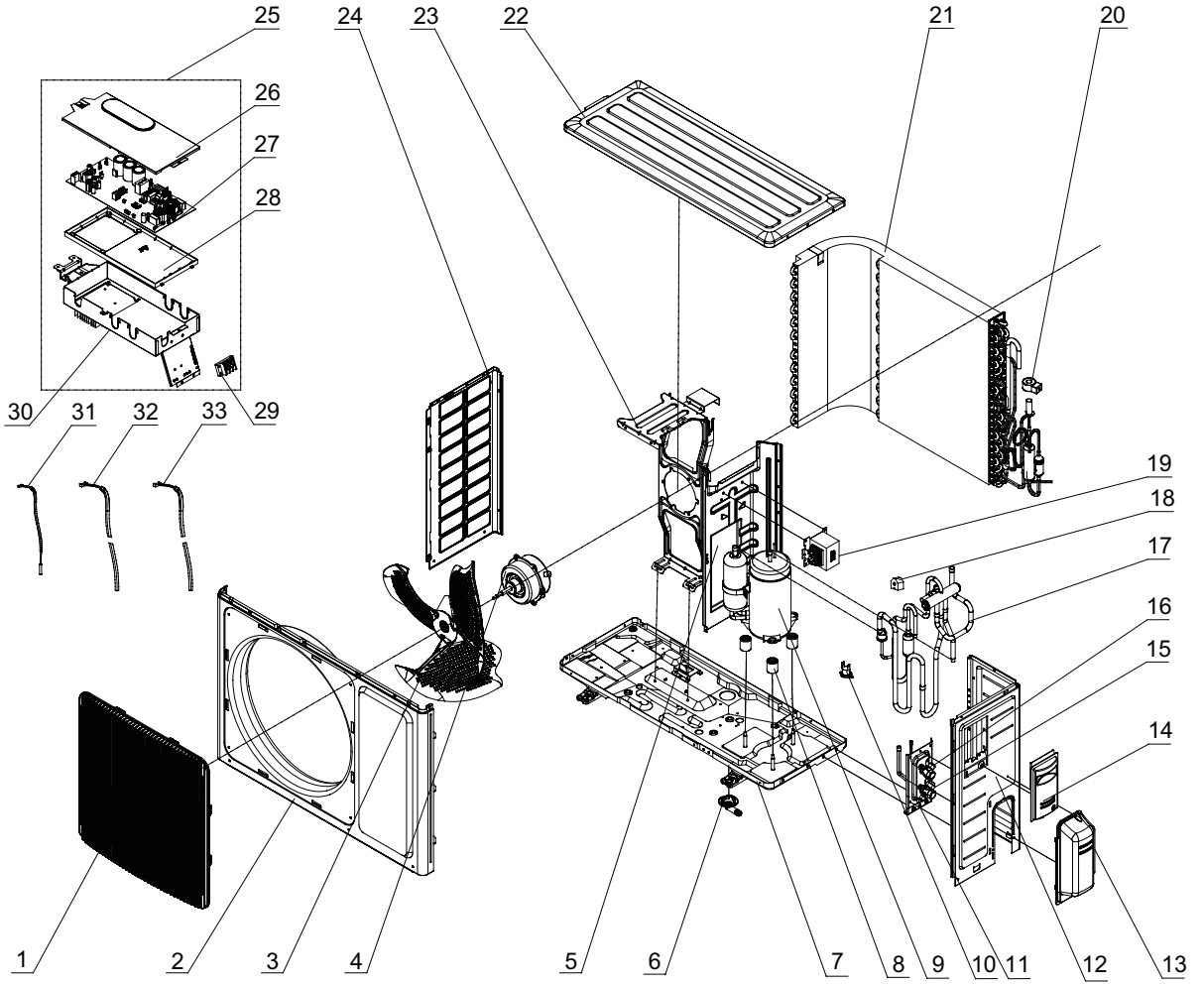
Above data is subject to change without notice.

No.	Description	Part Code	Qty
		GWH09TB-S3DNA1E/I	
	Product Code	CB148N09300	
1	Front Panel	20012850T	1
2	Display Board	30565140	1
3	Filter Sub-Assy	1112211602	2
4	Front Case Sub-assy	2001288901	1
5	Guide Louver	10512147	1
6	Guide Louver (small)	10512127	1
7	Crank	10582070	2
8	Air Louver (left)	10512232	1
9	Helicoid Tongue sub-assy	2611224401	1
10	Left Axile Bush	10512037	2
11	Step Motor	15212123	1
12	Propeller Axile Bush	1054202101	1
13	Evaporator Support	24212114	1
14	Cold Plasma Generator	1114001601	1
15	Evaporator Assy	0100294511	1
16	Cross Flow Fan	10352033	1
17	Drainage Hose	05230014	1
18	Fan Motor	15012510	1
19	Wall Mounting Frame	01252484	1
20	Motor Press Plate	26112209	1
21	Rubber Plug (Water Tray)	76712012	1
22	Pipe Clamp	2611216402	1
23	Rear Case assy	2220216104	1
24	Axile Bush	10542036	3
25	Step Motor	15212121	1
26	Step Motor	15212126	1
27	Electric Box	20112181	1
28	Electric Box Cover	2012240901	1
29	Jumper	4202300102	1
30	Main Board	30138000636	1
31	Electric Box Assy	10000201684	1
32	Terminal Board	42011233	1
33	Electric Box Cover2	20122075	1
34	Screw Cover	24252016	1
35	Pipe Connection Nut accessories	06320020	1
36	Temperature Sensor	390000598	1
37	Connecting Cable	4002052317	0
38	Temperature Sensor	390000451	1
39	Remote Controller	30510137	1

Above data is subject to change without notice.

10.2 Outdoor Unit

(1)GWH09TB-S3DNA1D/O(CB148W08400) GWH12TB-S3DNA1D/O(CB148W08300)

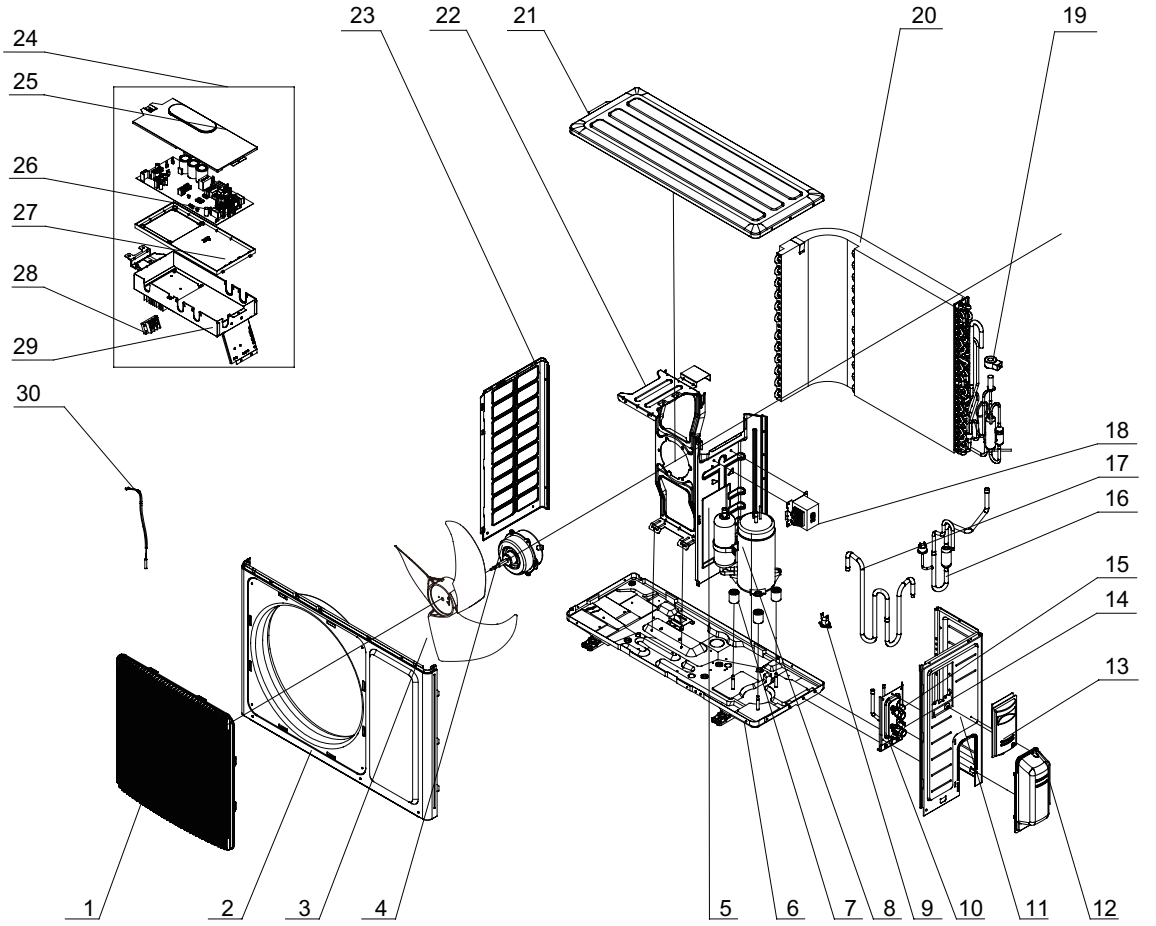


The component picture is only for reference; please refer to the actual product.

No.	Description	Part Code		Qty
		GWH09TB-S3DNA1D/O	GWH12TB-S3DNA1D/O	
	Product Code	CB148W08400	CB148W08300	
1	Front Grill	22413015	22413015	1
2	Cabinet	01433034P	01433034P	1
3	Axial Flow Fan	10333011	10333417	1
4	Brushless DC Motor	1501308507	15013717	1
5	Clapboard	01233125	01233125	1
6	Drainage Joint	26113009	26113009	1
7	Chassis Sub-assy	02803345P	01700000060P	1
8	Compressor Gasket	76713027	76710236	3
9	Compressor and fittings	00103892	00205212	1
10	Compressor Overload Proctector(External)	00183111	00180002	1
		00183114	/	1
11	Valve Support Sub-Assy	01703242P	01703242P	1
12	Right Side Plate	0130324403P	0130324403P	1
13	Valve cover	22243005	22243005	1
14	Big Handle	2623343106	2623343106	1
15	Cut off Valve Sub-Assy	03005700089	03005700088	1
16	Cut off Valve Sub-Assy	03005700082	03005700082	1
17	4-Way Valve Assy	03073291	03073351	1
18	Magnet Coil	4300040022	4300040022	1
19	Reactor	43130178	43130184	1
20	Electric Expand Valve Fitting	4300034401	4300876717	1
21	Condenser Assy	01103000204	01100200254	1
22	Top Cover	01253034P	01253034P	1
23	Motor Support Sub-Assy	01703180	01703398	1
24	Left Side Plate	01303169P	01303169P	1
25	Electric Box Assy	10000100299	10000100298	1
26	Electric Box Cover Sub-Assy	0260309601	0260309601	1
27	Main Board	30138000639	30138000645	1
28	Electric Box 1	20113005	20113005	1
29	Terminal Board	42010313	42010313	1
30	Electric Box Sub-Assy	0140300022701A	02603616A	1
31	Temperature Sensor	3900030903G	3900030903G	1
32	Electric Heater(Compressor)	76513004	76513004	1
33	Electrical Heater (Chassis)	76510004	76510004	1

Above data is subject to change without notice.

(2)GWH09TB-S3DNA1D/O(CB148W08401) GWH12TB-S3DNA1D/O(CB148W08301) GWH09TB-S3DNA1E/O(CB148W09300) GWH09TB-S3DNA1E/O(CB148W09301)



The component picture is only for reference; please refer to the actual product.

NO	Description	PartCode		Qty
		GWH09TB-S3DNA1D/O	GWH12TB-S3DNA1D/O	
	Product Code	CB148W08401	CB148W08301	
1	Front Grill	22413015	22413015	1
2	Cabinet	01433034P	01433034P	1
3	Axial Flow Fan	10333011	10333417	1
4	Fan Motor	1501308507	15013717	1
5	Clapboard	01233125	01233125	1
6	Chassis Sub-assy	0280334501P	01700000060P	1
7	Compressor Gasket	76713027	76710236	3
8	Compressor and fittings	00103892	00205212	1
9	Compressor Overload Proctector(External)	00183111	00180002	1
		00183114	/	1
10	Valve Support Sub-Assy	01703242P	01703242P	1
11	Right Side Plate	0130324403P	0130324403P	1
12	Valve cover	22243005	22243005	1
13	Big Handle	2623343106	2623343106	1
14	Cut off Valve Sub-Assy	03005700082	03005700082	1
15	Cut off Valve Sub-Assy	03005700089	03005700088	1
16	Discharge Tube Sub-assy	03833881	03833979	1
17	Inhalation Tube Sub-assy	03833878	03733434	1
18	Reactor	43130178	43130184	1
19	Magnet Coil	4300040022	4300040022	1
20	Condenser Assy	01103000204	01100200254	1
21	Top Cover	01253034P	01253034P	1
22	Motor Support Sub-Assy	01703180	01703398	1
23	Left Side Plate	01303169P	01303169P	1
24	Electric Box Assy	10000100323	10000100322	1
25	Electric Box Cover Sub-Assy	0260309601	0260309601	1
26	Main Board	30138000709	30138000710	1
27	Electric Box 1	20113005	20113005	1
28	Terminal Board	42010313	42010313	1
29	Electric Box Sub-Assy	0140300022701	02603616	1
30	Temperature Sensor	3900030903G	3900030903G	1

Above data is subject to change without notice.

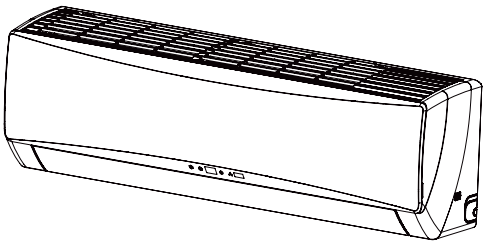
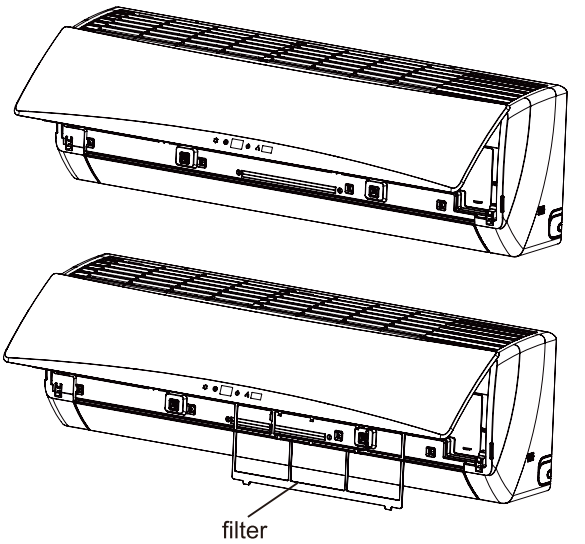
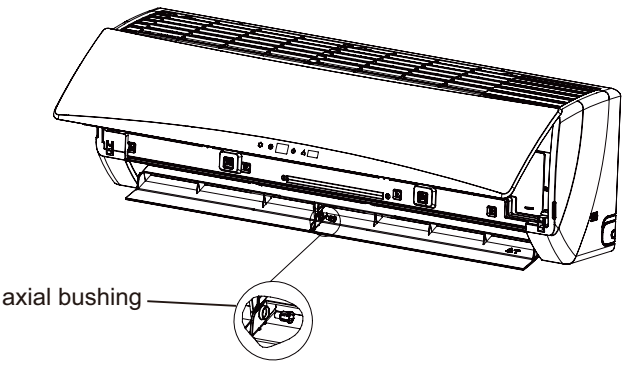
NO	Description	PartCode		Qty
		GWH09TB-S3DNA1E/O		
	Product Code	CB148W09300	CB148W09301	
1	Front Grill	22413046	22413046	1
2	Cabinet	01433034P	01433034P	1
3	Axial Flow Fan	10333011	10333011	1
4	Fan Motor	1501308511	1501308511	1
5	Clapboard	01233125	01233125	1
6	Chassis Sub-assy	017000000077P	01700000007701P	1
7	Compressor Gasket	70210142	70210142	3
8	Compressor and fittings	00103364	00103364	1
9	Compressor Overload Proctector(External)	/	/	/
10	Valve Support Sub-Assy	01703242P	01703242P	1
11	Right Side Plate	0130324403P	0130324403P	1
12	Valve cover	22243005	22243005	1
13	Big Handle	2623343106	2623343106	1
14	Cut off Valve Sub-Assy	03005700082	03005700082	1
15	Cut off Valve Sub-Assy	03005700082	03005700082	1
16	Discharge Tube Sub-assy	030013000175	030013000175	1
17	Inhalation Tube Sub-assy	030010000222	030010000222	1
18	Reactor	43130178	43130178	1
19	Magnet Coil	4300040022	4300040022	1
20	Condenser Assy	01103000204	01103000204	1
21	Top Cover	01253034P	01253034P	1
22	Motor Support Sub-Assy	01703180	01703180	1
23	Left Side Plate	01303169P	01303169P	1
24	Electric Box Assy	10000100893	10000100894	1
25	Electric Box Cover Sub-Assy	0260309601	0260309601	1
26	Main Board	300027000028	300027000027	1
27	Electric Box 1	20113005	20113005	1
28	Terminal Board	42010313	42010313	1
29	Electric Box Sub-Assy	0140300022701	0140300022701	1
30	Temperature Sensor	3900030903	3900030903	1

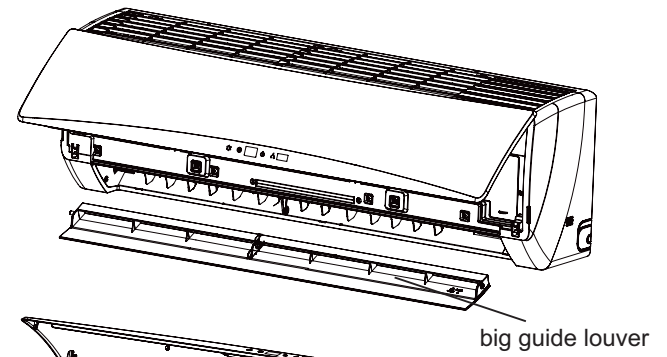
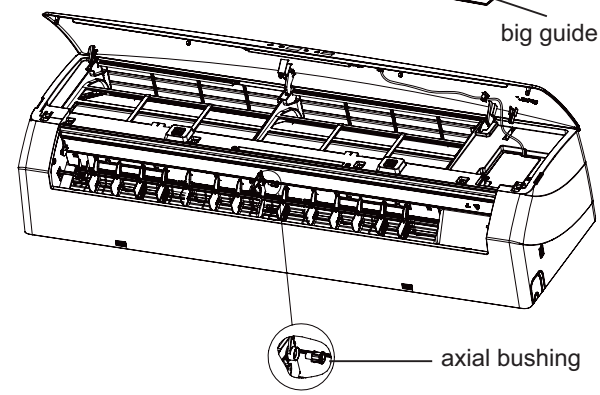
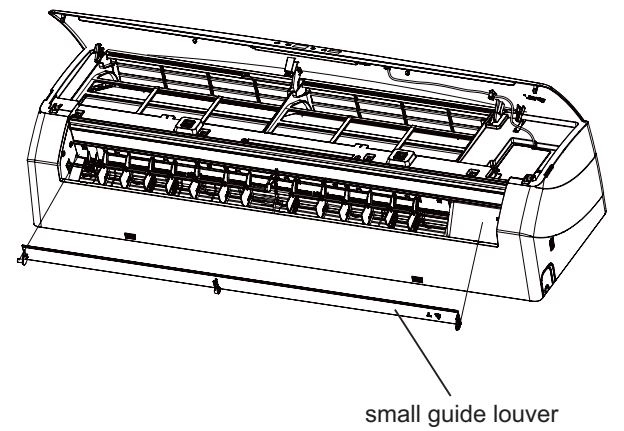
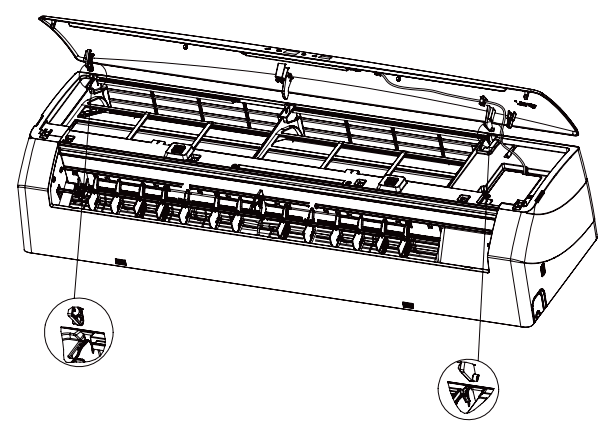
Above data is subject to change without notice.

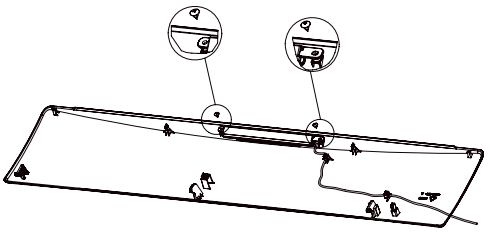
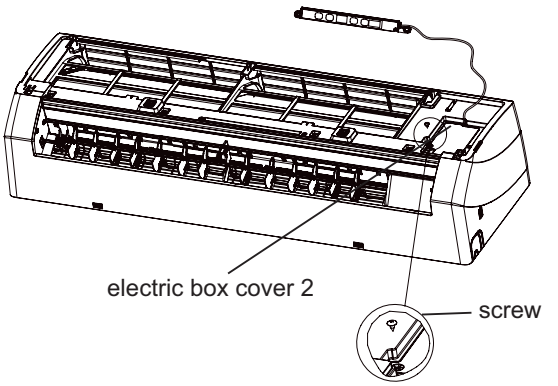
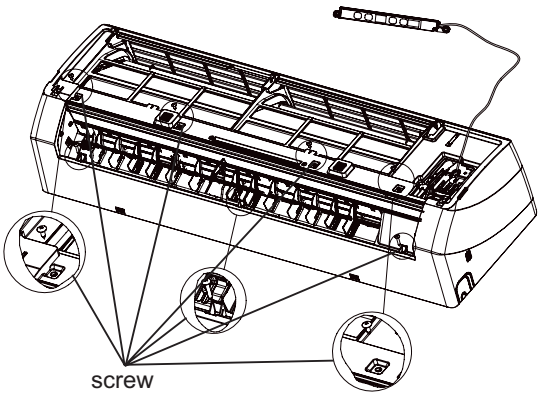
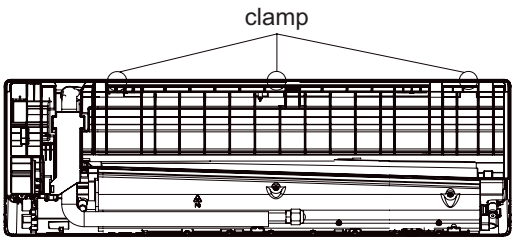
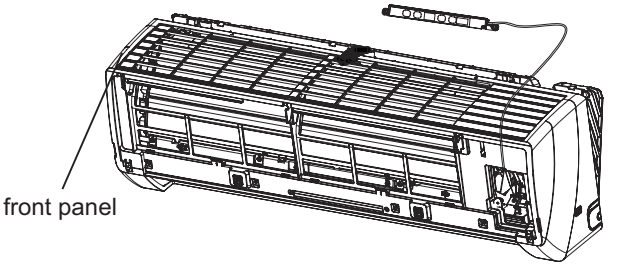
11. Removal Procedure

Warning: Be sure to wait for a minimum of 20 minutes after turning off all power supplies and discharge the refrigerant completely before removal.

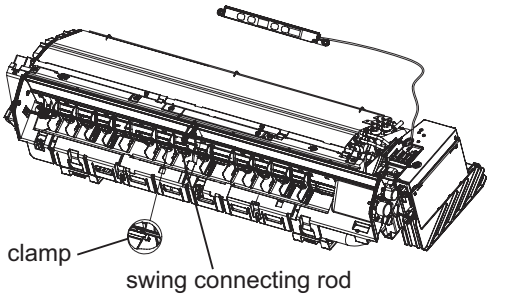
11.1 Removal Procedure of Indoor Unit

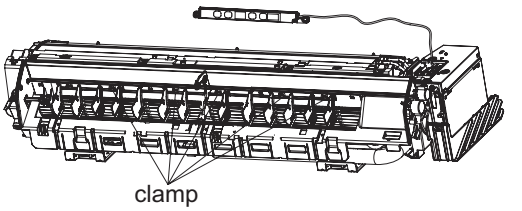
Steps	Procedure
1. Before disassembling the unit	
Before disassembling the unit.	
2. Remove filter	
a Open the panel.	
b Loosen the clasps on filter, push the filter inward and then pull it upward, then the filter can be removed.	
3.Remove guide louver	
a Remove the axial bushing of big guidelouver.	

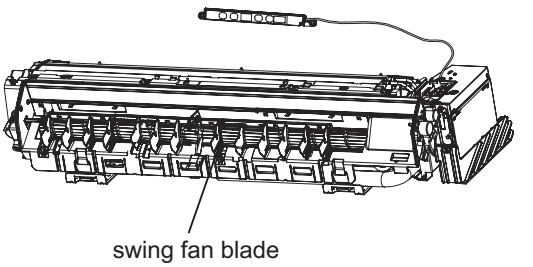
Steps	Procedure	
b	Remove the rotating shaft of big guidelouver from the groove, slightly bend thebig guide louver to remove it.	
c	Remove the axial bushing of small guidelouver.	
d	Remove the rotating shaft of small guide louver from the groove, slightly bend the small guide louver to remove it.	
4.Remove panel		
a	Loosen the clamps of the panel to remove the panel.	

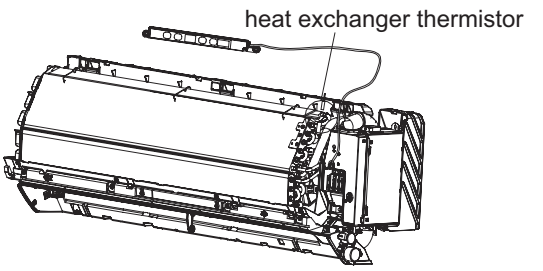
Steps	Procedure	
b	Remove the screws fixing display on the panel, to remove the display.	
5.Remove front case		
a	Remove the screws fixing electric box cover 2, to remove the electric box cover 2.	
		
b	Remove the screws fixing front panel, loosen the clamps, to remove the front panel.	
		

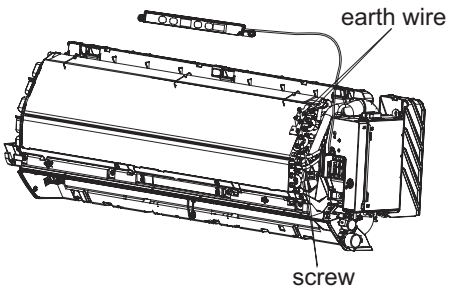
Steps	Procedure
6.Remove swing fan blade	
a	Loosen the clamps fixing swing connecting rod, to remove the swing connecting rod.
b	Remove the clamps fixing swing fan blade, to remove the swing fan blade.
7.Remove electric box sub-assy	
a	Remove the indoor tube temp. sensor.
b	Remove the screws fixing earth wire, to remove the earthwire.

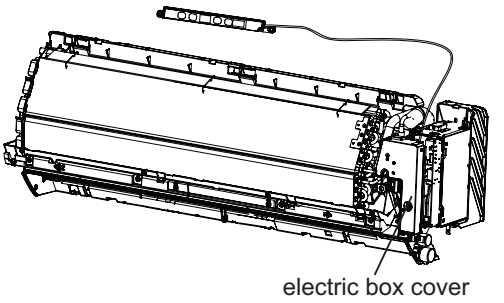
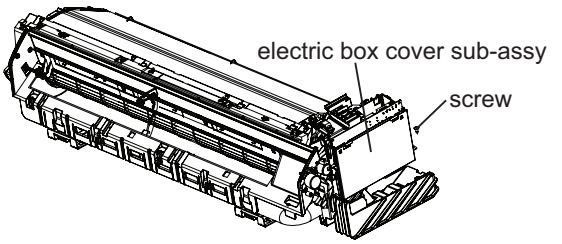
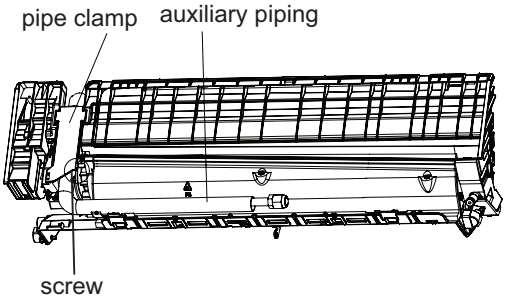
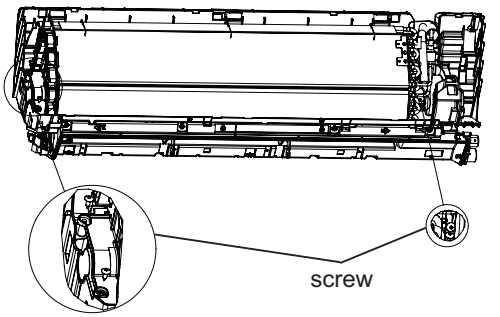


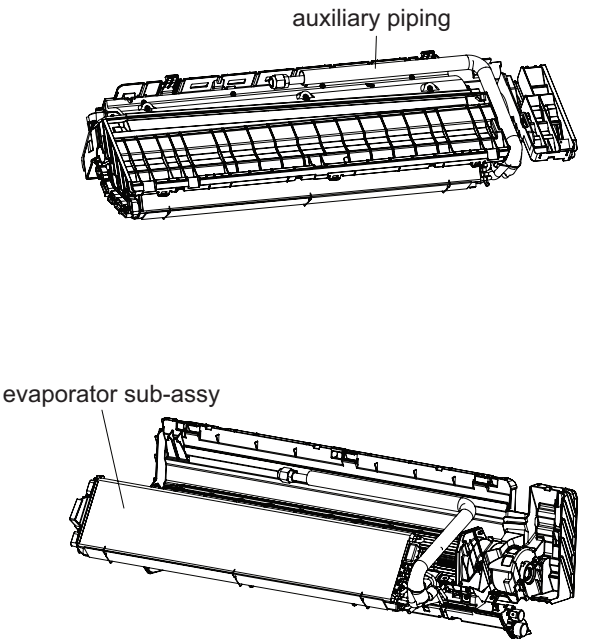
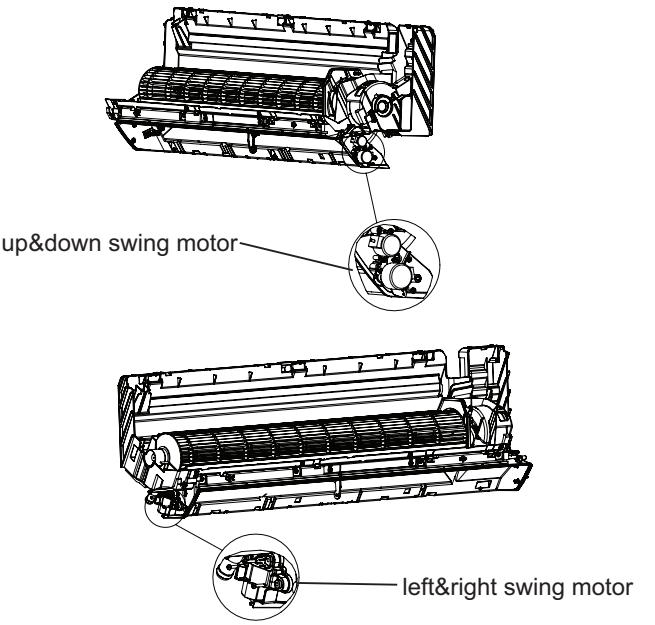


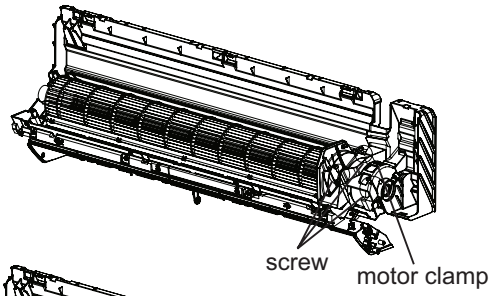
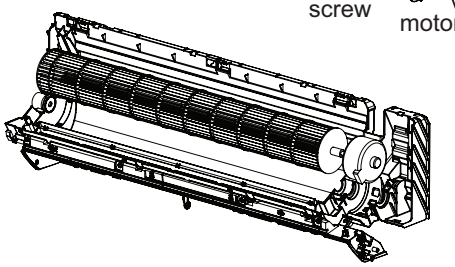
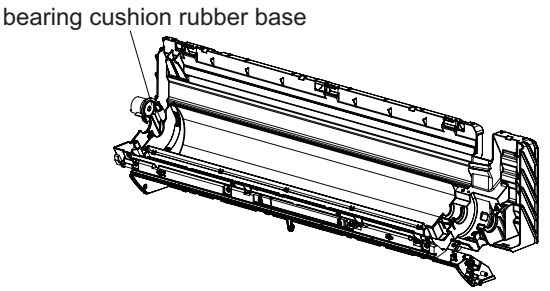
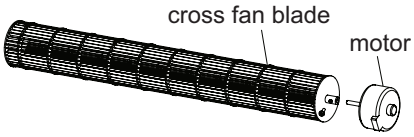




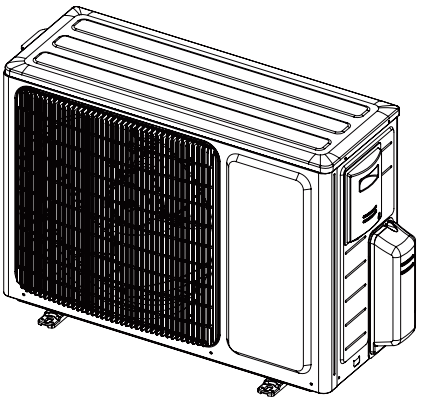
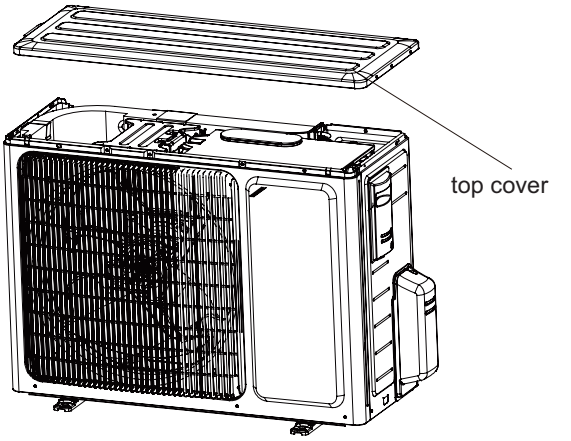
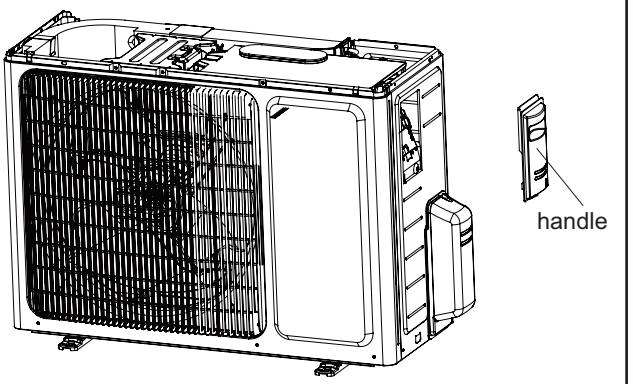


Steps	Procedure	
c	Remove the clamps fixing electric boxcover, to remove the cover.	
d	Remove every wiring terminals, and remove the screws fixing electric box cover, to remove the electric box cover sub-assy.	
8.Remove evaporator sub-assy		
a	Remove the screws fixing connection pipe clamp, to remove the connection pipeclamp.	 

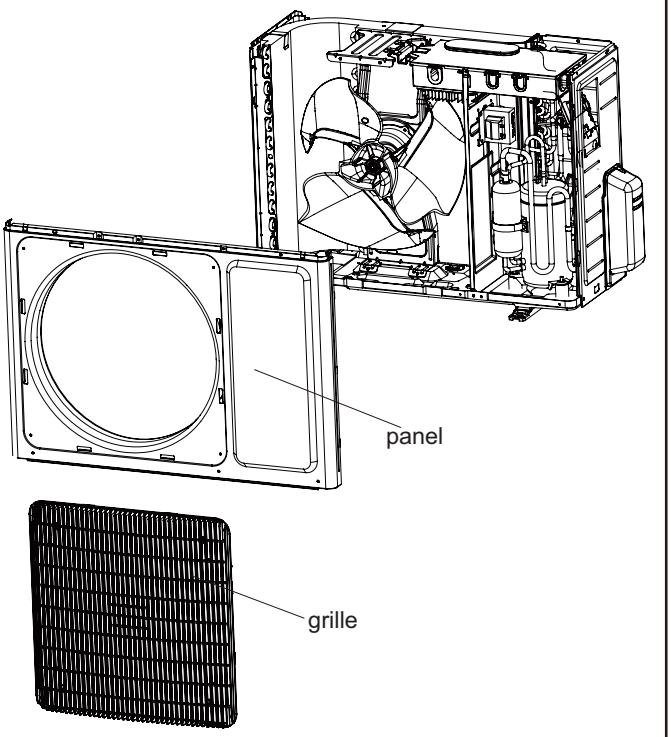
Steps	Procedure	
b	Remove the screws fixing evaporator sub-assy, slightly regulate the tube, to remove the evaporator sub-assy.	
9.Remove cross fan blade and motor		
a	Remove the screws fixing up&down swing motor, to remove the motor.	
b	Remove the screws fixing left&right swingmotor, to remove the motor.	

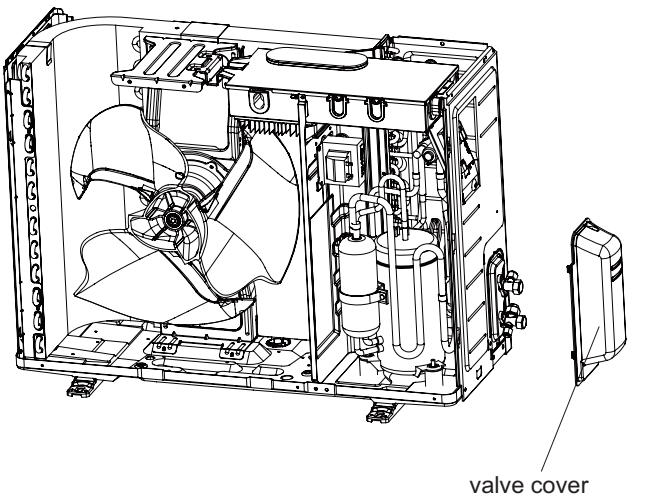
Steps	Procedure	
c	Remove the screws fixing motor clamp, to remove the motor clamp.	
d	Remove the cross fan blade and motor.	
e	Remove the shafting bearing cushionrubber base	
f	Remove the screws fixing cross fan bladeandmotor, and then remove the motor.	

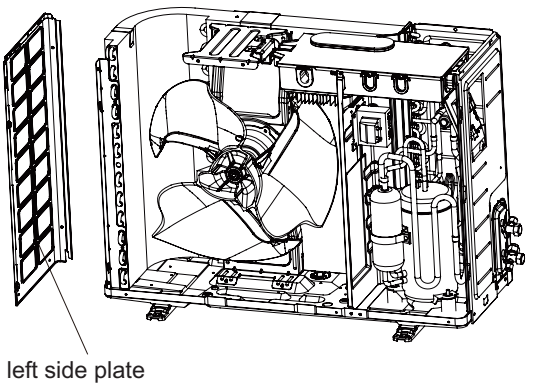
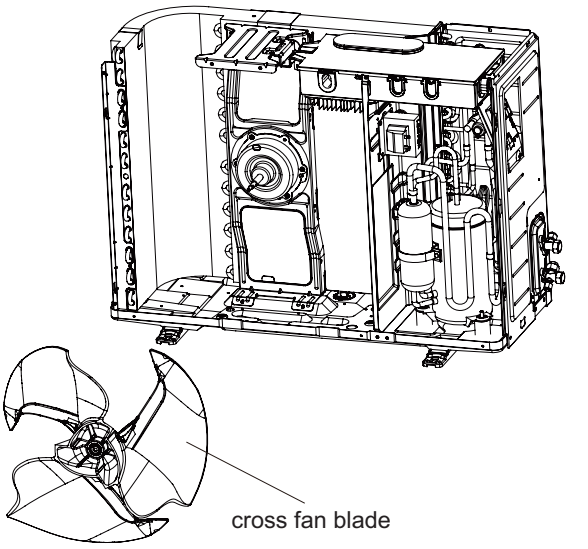
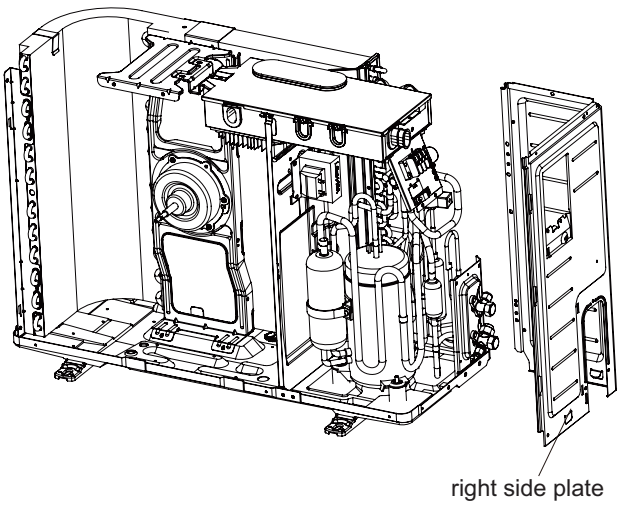
11.2 Removal Procedure of Outdoor Unit

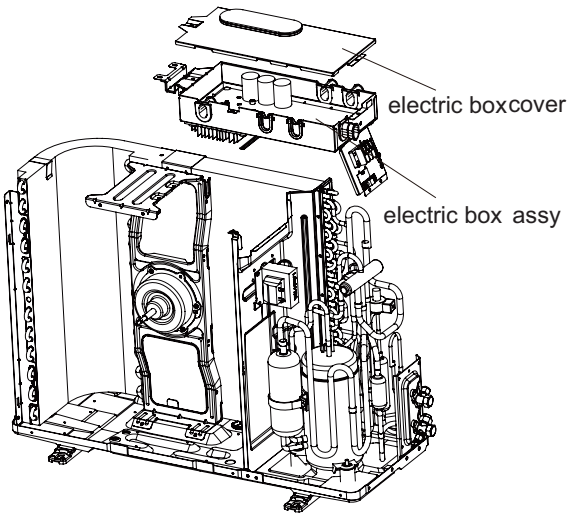
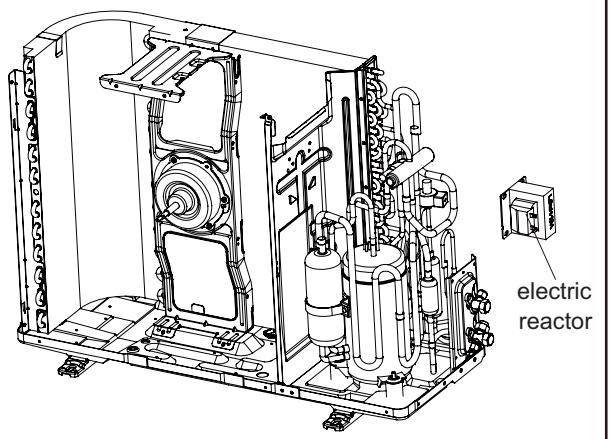
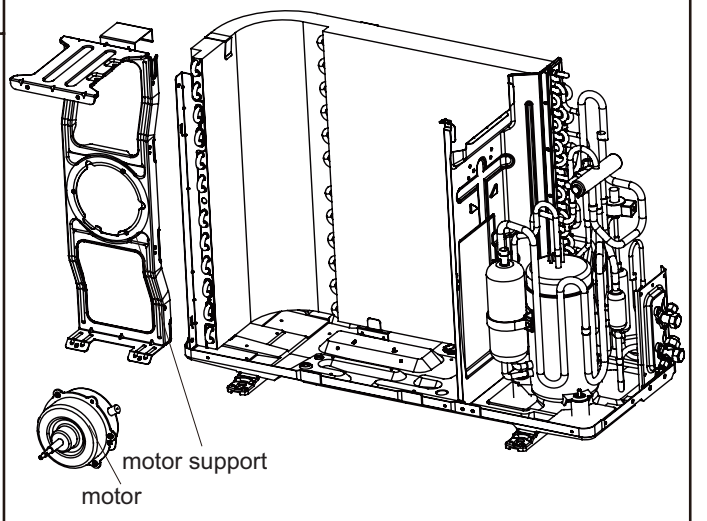
Steps	Procedure
1. Before disassembly	
2. Remove top cover Remove the screws connecting top cover, left and right side plate, as well as panel, to remove the top cover.	
3. Remove handle Remove the screws connecting handle and right side plate, to remove the handle.	

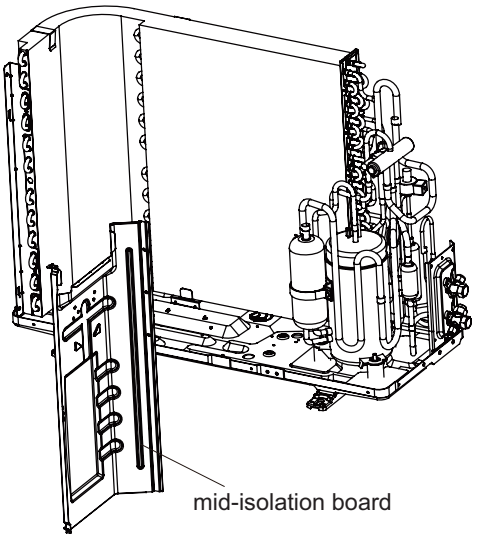
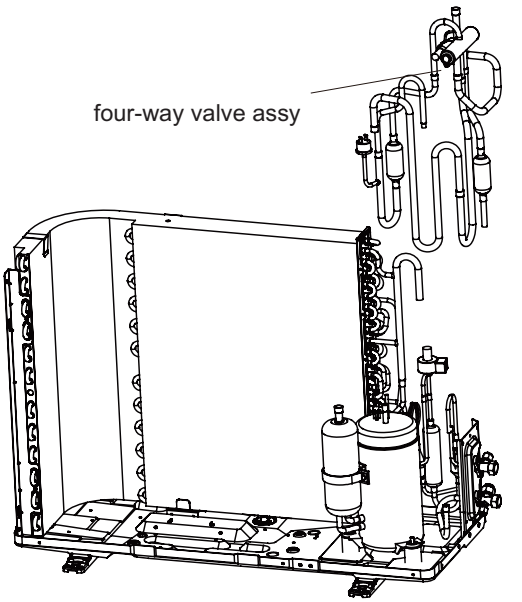
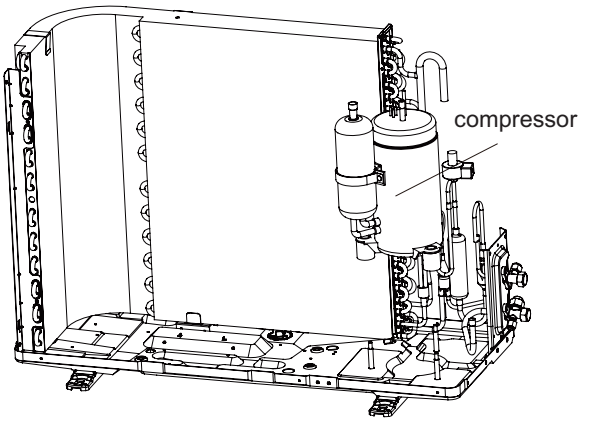
Steps	Procedure
4. Remove panel and grille	
	Remove the screws fixing panel, to remove the panel. Remove the screws connecting panel grille and panel, loosen the clamp, to remove the panel grille.
5. Remove valve cover	
	Remove the screw fixing valve cover, to remove the cover.



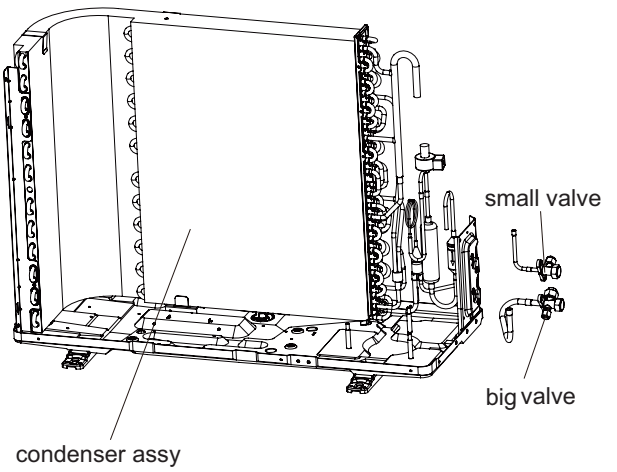


Steps	Procedure
6. Remove left side plate	
Remove the screws fixing left side plate and condenser support board, to remove the left side plate.	
7. Remove cross fan blade	
Remove the screw nut fixing cross fan blade, remove the gasket and spring cushion, to remove the cross fan blade.	
8. Remove right side plate	
Remove the screws fixing right side plate and valve support, to remove the right side plate.	

Steps	Procedure
9. Remove electric box assy	
Remove screws fixing electric box assy and mid-isolation board, loosen the bonding tie, pull off the wiring terminal, lift to remove the electric box assy.	
10. Remove electric reactor	
Remove the screws fixing electric reactor, to remove the electric reactor.	
11. Remove motor and motor support	
Remove the four tapping screws fixing motor, pull out the contact tag of motor wiring, to remove the motor. Remove the two tapping screws fixing motor support and chassis, lift to remove the motor support.	

Steps	Procedure
12. Remove mid-isolation board	
Remove the screws connecting mid-isolation board, chassis and condenser assy, to remove the mid-isolation.	
13. Remove four-way valve assy	
Welding cut the spot weld of four-way valve assy, compressor air suction/discharging valve and condenser pipe outlet, lift to remove the four-way valve assy. (Note: release the refrigerant before welding cutting.)	
14. Remove compressor	
Remove the three feet screw nuts fixing compressor, to remove the compressor.	

Steps	Procedure
15. Remove big and small valve assy	
	Remove screws connecting condenser assy and chassis, to remove the condenser assy. Remove the screws fixing big and small valve, to remove the valves.



Appendix:

Appendix 1: Reference Sheet of Celsius and Fahrenheit

Conversion formula for Fahrenheit degree and Celsius degree: Tf=Tcx1.8+32

Set temperature

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

Ambient temperature

Fahrenheit display temperature (℉)	Fahrenheit (℉)	Celsius (℃)		Fahrenheit display temperature (℉)	Fahrenheit (℉)	Celsius (℃)		Fahrenheit display temperature (℉)	Fahrenheit (℉)	Celsius (℃)
32/33	32	0		55/56	55.4	13		79/80	78.8	26
34/35	33.8	1		57/58	57.2	14		81	80.6	27
36	35.6	2		59/60	59	15		82/83	82.4	28
37/38	37.4	3		61/62	60.8	16		84/85	84.2	29
39/40	39.2	4		63	62.6	17		86/87	86	30
41/42	41	5		64/65	64.4	18		88/89	87.8	31
43/44	42.8	6		66/67	66.2	19		90	89.6	32
45	44.6	7		68/69	68	20		91/92	91.4	33
46/47	46.4	8		70/71	69.8	21		93/94	93.2	34
48/49	48.2	9		72	71.6	22		95/96	95	35
50/51	50	10		73/74	73.4	23		97/98	96.8	36
52/53	51.8	11		75/76	75.2	24		99	98.6	37
54	53.6	12		77/78	77	25				

Appendix 2: Configuration of Connection Pipe

1.Standard length of connection pipe

● 5m, 7.5m, 8m.

2.Min. length of connection pipe is 3m.

3.Max. length of connection pipe and max. high difference.

4.The additional refrigerant oil and refrigerant charging required after prolonging connection pipe

● After the length of connection pipe is prolonged for 10m at the basis of standard length, you should add 5ml of refrigerant oil for each additional 5m of connection pipe.

● The calculation method of additional refrigerant charging amount (on the basis of liquid pipe):

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

● When the length of connection pipe is above 5m, add refrigerant according to the prolonged length of liquid pipe. The additional refrigerant charging amount per meter is different according to the diameter of liquid pipe. See the following sheet.

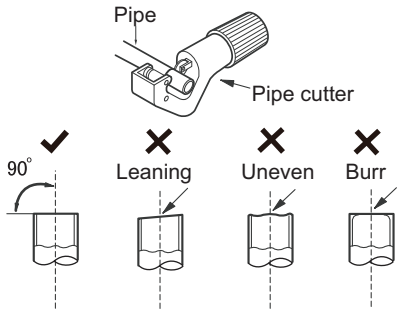
● Additional refrigerant charging amount = prolonged length of liquid pipe X additional refrigerant charging amount per meter

Additional refrigerant charging amount for R22, R407C, R410A and R134a			
Diameter of connection pipe		Outdoor unit throttle	
Liquid pipe(mm)	Gas pipe(mm)	Cooling only(g/m)	Cooling and heating(g/m)
Φ6	Φ9.5 or Φ12	15	20
Φ6 or Φ9.5	Φ16 or Φ19	15	20
Φ12	Φ19 or Φ22.2	30	120
Φ16	Φ25.4 or Φ31.8	60	120
Φ19	/	250	250
Φ22.2	/	350	350

Appendix 3: Pipe Expanding Method

⚠ **Note:**

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

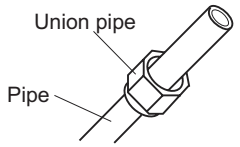


A:Cut the pip
- Confirm the pipe length according to the distance of indoor unit and outdoor unit.
- Cut the required pipe with pipe cutter.

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

C:Put on suitable insulating pipe

D:Put on the union nut
- Remove the union nut on the indoor connection pipe and outdoor valve; install the union nut on the pipe.

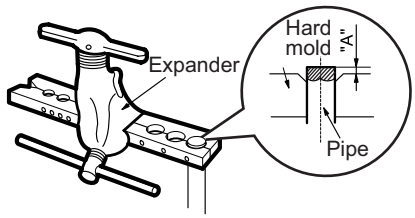


E:Expand the port
- Expand the port with expander.

⚠ **Note:**

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

Outer diameter(mm)	A(mm)	
	Max	Min
Φ6 - 6.35 (1/4")	1.3	0.7
Φ9.52 (3/8")	1.6	1.0
Φ12 - 12.70 (1/2")	1.8	1.0
Φ16 - 15.88 (5/8")	2.4	2.2



F:Inspection
- Check the quality of expanding port. If there is any blemish, expand the port again according to the steps above.