Table of Contents

Part I : Technical Information	1
1. Summary	1
2 Specifications	
2.1 Specification Sheet	3
2.2 Operation Characteristic Curve	
2.3 Capacity Variation Ratio According to Temperature	
2.4 Noise Curve	
2.5 Cooling and Heating Data Sheet in Rated Frequency	
3. Outline Dimension Diagram	
3.1 Indoor Unit	13
3.2 Outdoor Unit	
4. Refrigerant System Diagram	
5. Electrical Part	
5.1 Wiring Diagram	17
5.2 PCB Printed Diagram	
6. Function and Control	
6.1 Remote Controller Introduction	
6.2 Brief Description of Modes and Functions	
Part II : Installation and Maintenance	
7. Notes for Installation and Maintenance	
8. Installation	40
8.1 Installation Dimension Diagram	
8.2 Installation Parts-checking	
8.3 Selection of Installation Location	
8.4 Electric Connection Requirement	
8.5 Installation of Indoor Unit	
8.6 Installation of Outdoor Unit	
8.7 Vacuum Pumping and Leak Detection	
8.8 Check after Installation and Test Operation	

9. Maintenance	47
9.1 Precautions before Maintenance	47
9.2 Error Code List	48
9.3 Troubleshooting for Main Malfunction	51
9.4 Troubleshooting for Normal Malfunction	66
10. Exploded View and Parts List	68
10.1 Indoor Unit	68
10.2 Outdoor Unit	75
11. Removal Procedure	83
11.1 Removal Procedure of Indoor Unit	83
11.2 Removal Procedure of Outdoor Unit	97

Appendix:	108
Appendix 1: Reference Sheet of Celsius and Fahrenheit	108
Appendix 2: Configuration of Connection Pipe	108
Appendix 3: Pipe Expanding Method	109
Appendix 4: List of Resistance for Ambient Temperature Sensor	110

Part I : **Technical Information**

1. Summary

Indoor Unit:

WGH 18E - GH 18E (CB148N07300) (CB148N07301)

0 0 0 A⊡

WHG 24E - GH 24E (CB148N07200) (CB148N07201)

Remote Controller:

YAG1FB



Technical Information

Outdoor Unit:









2. Specifications

2.1 Specification Sheet

Model			WGH 18E - GV 18E	
Product Co	ode		CB412002400	
	Rated Voltage	V ~	220-240	
Power Supply	Rated Frequency	Hz	50/60	
	Phases		1	
Power Supply	y Mode		Indoor	
Cooling Capa	acity	W	5300	
Heating Capa	acity	W	5600	
Cooling Powe	er Input	W	1514	
Heating Powe	er Input	W	1600	
Cooling Powe	er Current	A	7.0	
Heating Powe	er Current	A	7.1	
Rated Input		VV	1514	
Rated Curren	it	A	7.0	
Air Flow Volu	me(SH/H/MH/M/ML/L/SL)	m³/h	950/870/790/710/630/560/480	
Dehumidifying	g Volume	L/h	1.8	
EER		W/W	3.5	
СОР		W/W	3.5	
SEER			6.4	
SCOP			4.0	
Application A	rea	m ²	23-34	
	Model of indoor unit		WGH 18E	
	Indoor Unit Product Code		CB148N07300,CB148N07301 CB411N01200 CB412N02400	
	Fan Type		Cross-flow	
	Diameter Length(DXL)	mm	Ф100Х765	
	Fan Motor Cooling Speed (SH/H/MH/M/ML/L/SL)	r/min	1200/1150/1050/950/850/750/650	
	Fan Motor Heating Speed (SH/H/MH/M/ML/L/SL)	r/min	1250/1200/1100/1000/900/800/700	
	Output of Fan Motor	W	25	
	Ean Motor RI A	Δ	0.1	
	Fan Motor Capacitor	UF	/	
	Evaporator Form	P'	Aluminum Fin-copper Tube	
Indoor Unit	Pipe Diameter	mm	Φ7	
	Pow fin Con	mm	215	
			2-1.5	
		mm	/05A25.4A342.9	
	Swing Motor Model		MP28VC/MP35DA/MP24AA	
	Output of Swing Motor	W	2/2.5/1.5	
	Fuse	A	3.15	
	Sound Pressure Level (SH/H/MH/M/ML/L/SL)	dB (A)	46/44/42/40/38/36/34	
	Sound Power Level (SH/H/MH/M/ML/L/SL)	dB (A)	58/56/54/52/50/48/46	
	Dimension (WXHXD)	mm	1018X319X230	
	Dimension of Carton Box (LXWXH)	mm	1094X394X325	
	Dimension of Package (LXWXH)	mm	1097X397X340	
	Net Weight	ka	15	
	Gross Weight	ka	18.5	
			10.0	

WGH-E/GH-E Model: 18-24

Service Manual

	Model of Outdoor Unit		GH 18
	Outdoor Unit Product Code		CB412W02400
	Compressor Manufacturer/Trademark		ZHUHAI LANDA COMPRESSOR CO.,LTD.
	Compressor Manalactaren mademark		QXA-B141zF030A
	Compressor Oil		68EP
	Compressor Type		Rotary
		Δ	25
	Compressor RLA	A	7.2
	Compressor Power Input	W	1440
	Overload Protector		1NT11L-6233
	Throttling Method		Electron expansion valve
	Operation temp	°C	16~30
	Ambient temp (cooling)	°C	-15~43
	Ambient temp (heating)	°C	-20~24
	Condenser Form		Aluminum Fin-copper Tube
	Pipe Diameter	mm	Ф9.52
	Rows-fin Gap	mm	2-1.4
	Coil Length (LXDXW)	mm	812.5X44X660
	Fan Motor Speed	rpm	800
	Output of Fan Motor	W	60
Outdoor Unit	Fan Motor RLA	A	0.365
	Fan Motor Capacitor	μF	1
	Air Flow Volume of Outdoor Unit	m³/h	3200
	Fan Type		Axial-flow
	Fan Diameter	mm	Ф520
	Defrosting Method		Automatic Defrosting
	Climate Type		T1
	Isolation		l
	Moisture Protection		IP24
	Permissible Excessive Operating Pressure for the Discharge Side	MPa	4.3
	Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5
	Sound Pressure Level (H/M/L)	dB (A)	56/-/-
	Sound Power Level (H/M/L)	dB (A)	66/-/-
	Dimension (WXHXD)	mm	963X700X396
	Dimension of Carton Box (LXWXH)	mm	1026X455X735
	Dimension of Package (LXWXH)	mm	1029X458X750
	Net Weight	kg	49
	Gross Weight	kg	53
	Refrigerant		R410A
	Refrigerant Charge	kg	1.6
	Length	m	5
	Gas Additional Charge	g/m	50
	Outer Diameter Liquid Pipe	mm	Ф6
Connection	Outer Diameter Gas Pipe	mm	Φ16
Pipe	Max Distance Height	m	10
	Max Distance Length	m	25
	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			WGH 24 E - GH 24 E	
Product Code			CB148003603 CB411001100 CB412002500	
	Rated Voltage	V ~	220-240	
Power Supply	Rated Frequency	Hz	50/60	
	Phases		1	
Power Supply	/ Mode		Indoor	
Cooling Capa	city	W	7000	
Heating Capa	icity	W	7600	
Cooling Powe	er Input	W	2000	
Heating Powe	er Input	W	2170	
Cooling Powe	er Current	A	8.9	
Heating Powe	er Current	A	9.63	
		VV	2000	
Rated Curren	t	A	8.9	
Air Flow Volu	me(SH/H/MH/M/ML/L/SL)	m³/h	1250/1130/1060/990/920/850/780	
Dehumidifying	g Volume	L/h	2.5	
EER		W/W	3.5	
СОР		W/W	3.5	
SEER			6.3	
SCOP			4.0	
Application Area		m²	32-50	
	Model of indoor unit		WGH 24 E	
	Indoor Unit Product Code		CB148N03603 CB411N01100 CB412N02500	
	Fan Type		Cross-flow	
	Diameter Length(DXL)	mm	Φ106X890	
	Ean Motor Cooling Speed (SH/H/MH/M/ML/L/SL)	r/min	1400/1300/1200/1100/1000/850/750	
	Ean Motor Heating Speed (SH/H/MH/M/ML/L/SL)	r/min	1400/1300/1200/1100/1000/850/750	
	Output of Eon Motor	1/11111	60	
		VV	80	
			0.24	
	Fan Motor Capacitor		/	
Indoor Unit		 		
		mm	Ψ	
	Row-fin Gap	mm	2-1.5	
	Coil Length (LXDXW)	mm	903X25.4X381	
	Swing Motor Model		MP35CJ/MP24HB/MP24HC	
	Output of Swing Motor	W	2.5/1.5/1.5	
	Fuse	A	3.15	
	Sound Pressure Level (SH/H/MH/M/ML/L/SL)	dB (A)	50/48/46/44/42/40/37	
	Sound Power Level (SH/H/MH/M/ML/L/SL)	dB (A)	62/60/58/56/54/52/49	
	Dimension (WXHXD)	mm	1178X326X264	
	Dimension of Carton Box (LXWXH)	mm	1253X411X349	
		mm	1256X414X364	
		кд	1/.5	
	Gross Weight	kg	21.5	

	1		
	Model of Outdoor Unit		GH24E
	Outdoor Unit Product Code		CB412W02500
	Compressor Manufacturer/Trademark		ZHUHAI LANDA COMPRESSOR CO,LTD.
	Compressor Model		QXAS-D23zX090A
	Compressor Oil		FV50S
	Compressor Type		Rotary
	L.R.A.	A	25
	Compressor RLA	Α	11.5
	Compressor Power Input	W	2550
	Overload Protector		1NT11L-6233
	Throttling Method		Electron expansion valve
	Operation temp	°C	16~30
	Ambient temp (cooling)	°C	-15~43
	Ambient temp (heating)	°C	-20~24
	Condenser Form		Aluminum Fin-copper Tube
	Pipe Diameter	mm	Ф7.94
	Rows-fin Gap	mm	3-1.4
	Coil Length (LXDXW)	mm	960X87.15X748
	Fan Motor Speed	rpm	780
	Output of Fan Motor	W	90
Outdoor Unit	Fan Motor RLA	A	0.485
	Fan Motor Capacitor	μF	/
	Air Flow Volume of Outdoor Unit	m³/h	4000
	Fan Type		Axial-flow
	Fan Diameter	mm	Ф552
	Defrosting Method		Automatic Defrosting
	Climate Type		T1
	Isolation		I
	Moisture Protection		IP24
	Permissible Excessive Operating Pressure for the Discharge Side	MPa	4.3
	Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5
	Sound Pressure Level (H/M/L)	dB (A)	58/-/-
	Sound Power Level (H/M/L)	dB (A)	68/-/-
	Dimension (WXHXD)	mm	1000X790X427
	Dimension of Carton Box (LXWXH)	mm	1080X485X840
	Dimension of Package (LXWXH)	mm	1083X488X855
	Net Weight	kg	68
	Gross Weight	kg	73
	Refrigerant		R410A
	Refrigerant Charge	ka	23
		m	5
	Cas Additional Charge	a/m	5
		g/11	50
Connection		11111	Ψ0
Pipe		mm	Ψ16
	Max Distance Height	m	10
	Max Distance Length	m	25
	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			WGH 24 E - GH 24 E	
Product Code			CB148003603 CB411001100 CB412002500	
	Rated Voltage	$V \sim$	220-240	
Power Supply	Rated Frequency	Hz	50/60	
	Phases		1	
Power Supply	/ Mode		Indoor	
Cooling Capa	city	W	7000	
Heating Capa	city	VV	7600	
Cooling Powe	er Input	W	2000	
Heating Powe	er Input	W	2170	
Cooling Powe	er Current	A	8.9	
Rated Input		A W	<u> </u>	
Rated Input	4	~	2000	
Rated Curren		A 3//	0.9	
Air Flow Volur	me(SH/H/MH/M/ML/L/SL)	m°/h	1250/1130/1060/990/920/850/780	
Dehumidifying	g Volume	L/h	2.5	
EER		W/W	3.5	
СОР		W/W	3.5	
SEER			6.3	
SCOP			4.0	
Application Area		m ²	32-50	
	Model of indoor unit		WGH 24 E	
	Indoor Unit Product Code		CB148N03603 CB411N01100 CB412N02500	
	Fan Type		Cross flow	
	Diameter Length(DXL)	mm	Ф106X890	
	Ean Motor Cooling Speed (SH/H/MH/M/MI /I /SL)	r/min	1400/1300/1200/1100/1000/850/750	
	Ean Motor Heating Speed (SH/H/MH/M/MI /I /SI)	r/min	1400/1300/1200/1100/1000/850/750	
		W	60	
		Λ Λ	0.24	
	Fan Motor Canacitor		/	
	Evaporator Form	μι	Aluminum Ein-copper Tube	
Indoor Unit	Pine Diameter	mm		
			Ψ1 0.4.5	
	Row-fin Gap	mm	2-1.5	
	Coil Length (LXDXW)	mm	903X25.4X381	
	Swing Motor Model		MP35CJ/MP24HB/MP24HC	
	Output of Swing Motor	W	2.5/1.5/1.5	
	Fuse	A	3.15	
	Sound Pressure Level (SH/H/MH/M/ML/L/SL)	dB (A)	50/48/46/44/42/40/37	
	Sound Power Level (SH/H/MH/M/ML/L/SL)	dB (A)	62/60/58/56/54/52/49	
	Dimension (WXHXD)	mm	1178X326X264	
	Dimension of Carton Box (LXWXH)	mm	1253X411X349	
	Dimension of Package (LXWXH)	mm	1256X414X364	
	Net Weight	ka	17.5	
	Gross Weight	ka	21.5	
		la	20	

	Model of Outdoor Unit		GH24E
	Outdoor Unit Product Code		CB412W02500
	Compressor Manufacturer/Trademark		ZHUHAI LANDA COMPRESSOR CO,LTD.
	Compressor Model		QXAS-D23zX090A
	Compressor Qil		FV50S
	Compressor Type		Rotary
	L.R.A.	Α	25
	Compressor RLA	A	11.5
	Compressor Power Input	W	2550
	Overload Protector		1NT11L-6233
	Throttling Method		Electron expansion valve
	Operation temp	°C	16~30
	Ambient temp (cooling)	°C	-15~43
	Ambient temp (heating)	°C	-20~24
	Condenser Form		Aluminum Fin-copper Tube
	Pipe Diameter	mm	Ф7.94
	Rows-fin Gap	mm	3-1.4
	Coil Length (LXDXW)	mm	960X87.15X748
	Fan Motor Speed	rpm	780
	Output of Fan Motor	W	90
Outdoor Unit	Fan Motor RLA	A	0.485
	Fan Motor Capacitor	μF	/
	Air Flow Volume of Outdoor Unit	m³/h	4000
	Fan Type		Axial-flow
	Fan Diameter	mm	Φ552
	Defrosting Method		Automatic Defrosting
	Climate Type		T1
	Isolation		
	Moisture Protection		IP24
	Discharge Side	MPa	4.3
	Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5
	Sound Pressure Level (H/M/L)	dB (A)	58/-/-
	Sound Power Level (H/M/L)	dB (A)	68/-/-
	Dimension (WXHXD)	mm	1000X790X427
	Dimension of Carton Box (LXWXH)	mm	1080X485X840
	Dimension of Package (LXWXH)	mm	1083X488X855
	Net Weight	kg	68
	Gross Weight	kg	73
	Refrigerant		R410A
	Refrigerant Charge	kg	2.3
	Length	m	5
	Gas Additional Charge	g/m	50
	Outer Diameter Liquid Pipe	mm	Φ6
Connection	Outer Diameter Gas Pipe	mm	Ф16
Pipe	Max Distance Height	m	10
	Max Distance Length	m	25
	Note:The connection pipe applies metric diameter.	I]	-

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

8

Model			WGH 24 E - GH 24 E	
Product Code			CB148003603 CB411001100 CB412002500	
	Rated Voltage	V ~	220-240	
Power Supply	Rated Frequency	Hz	50/60	
	Phases		1	
Power Supply	/ Mode		Indoor	
Cooling Capa	city	W	7000	
Heating Capa	icity	W	7600	
Cooling Powe	er Input	W	2000	
Heating Powe	er Input	W	2170	
Cooling Powe	er Current	A	8.9	
Heating Powe	er Current	A	9.63	
Rated Input		VV	2000	
Rated Curren	t	A	8.9	
Air Flow Volu	me(SH/H/MH/M/ML/L/SL)	m³/h	1250/1130/1060/990/920/850/780	
Dehumidifying	g Volume	L/h	2.5	
EER		W/W	3.5	
СОР		W/W	3.5	
SEER			6.3	
SCOP			4.0	
Application Ar	rea	m ²	32-50	
	Model of indoor unit		WGH 24 E	
	Indoor Unit Product Code		CB148N03603 CB411N01100 CB412N03500	
	Fan Type		Cross flow	
	Diameter Length(DXL)	mm	<u>Ф106Х890</u>	
	Ean Motor Cooling Speed (SH/H/MH/M/ML/L/SL)	r/min	1400/1300/1200/1100/1000/850/750	
	For Motor Hosting Speed (SH/H/MH/M/ML/L/SL)	r/min	1400/1200/1200/1100/1000/850/750	
			1400/1300/1200/1100/1000/830/730	
		VV	60	
	Fan Motor RLA	A	0.24	
	Fan Motor Capacitor	μF		
Indoor Unit	Evaporator Form		Aluminum Fin-copper Tube	
	Pipe Diameter	mm	φ7	
	Row-fin Gap	mm	2-1.5	
	Coil Length (LXDXW)	mm	903X25.4X381	
	Swing Motor Model		MP35CJ/MP24HB/MP24HC	
	Output of Swing Motor	W	2.5/1.5/1.5	
	Fuse	A	3.15	
	Sound Pressure Level (SH/H/MH/M/ML/L/SL)	dB (A)	50/48/46/44/42/40/37	
	Sound Power Level (SH/H/MH/M/ML/L/SL)	dB (A)	62/60/58/56/54/52/49	
	Dimension (W/XHXD)		1178¥326¥264	
			117073207204	
	Dimension of Carton Box (LXWXH)	mm	1253X411X349	
	Dimension of Package (LXWXH)	mm	1256X414X364	
	Net Weight		17.5	
	Gross Weight		21.5	

WGH-E/GH-E Model: 18 - 24

	Model of Outdoor Unit		GH24E
	Outdoor Unit Product Code		CB412W02500
	Compressor Manufacturer/Trademark		ZHUHAI LANDA COMPRESSOR CO,LTD.
	Compressor Model		QXAS-D23zX090A
	Compressor Oil		FV50S
	Compressor Type		Rotary
		Α	25
	Compressor RLA	A	11.5
	Compressor Power Input	W	2550
	Overload Protector		1NT11L-6233
	Throttling Method		Electron expansion valve
	Operation temp	°C	16~30
	Ambient temp (cooling)	°C	-15~43
	Ambient temp (heating)	°C	-20~24
	Condenser Form		Aluminum Fin-copper Tube
	Pipe Diameter	mm	Ф7.94
	Rows-fin Gap	mm	3-1.4
	Coil Length (LXDXW)	mm	960X87.15X748
	Fan Motor Speed	rpm	780
	Output of Fan Motor	W	90
Outdoor Unit	Fan Motor RLA	A	0.485
	Fan Motor Capacitor	μF	1
	Air Flow Volume of Outdoor Unit	m³/h	4000
	Fan Type		Axial-flow
	Fan Diameter	mm	Φ552
	Defrosting Method		Automatic Defrosting
	Climate Type		T1
	Isolation		
	Moisture Protection		IP24
	Permissible Excessive Operating Pressure for the Discharge Side	MPa	4.3
	Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5
	Sound Pressure Level (H/M/L)	dB (A)	58/-/-
	Sound Power Level (H/M/L)	dB (A)	68/-/-
	Dimension (WXHXD)	mm	1000X790X427
	Dimension of Carton Box (LXWXH)	mm	1080X485X840
	Dimension of Package (LXWXH)	mm	1083X488X855
	Net Weight	kg	68
	Gross Weight	kg	73
	Refrigerant		R410A
	Refrigerant Charge	kg	2.3
	Length	m	5
	Gas Additional Charge	g/m	50
	Outer Diameter Liquid Pipe	mm	Φ6
Connection	Outer Diameter Gas Pipe	mm	Ф16
Pipe	Max Distance Height	m	10
	Max Distance Length	m	25
	Note: The connection pipe applies metric diameter	1	

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



Technical Information

2.4 Noise Curve



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	35/24	18K	0.9~1.0	in:8~11 out:11~14	in:75~83 out:37~48	Super High	High	73
27/19	35/24	24K	0.9~1.0	in:8~11 out:11~14	in:75~83 out:37~48	Super High	High	75

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	18K	2.2~2.4	in:75~83 out:37~45	in:1~3 out:2~6	Super High	High	75
20/15	7/6	24K	2.2~2.4	in:75~83 out:37~45	in:1~3 out:2~6	Super High	High	80

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

Model	W	Н	D
18K	1018	319	230
24K	1178	326	264

Technical Information

3.2 Outdoor Unit

GH 18 E



GH 24 E







Unit:mm

Technical Information

4. Refrigerant System Diagram



Connection pipe specification: Liquid pipe:1/4" (6mm) Gas pipe:5/8" (16mm)



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

(1) WGH 18 E (electrostatic+plasma)



Technical Information

(2) WGH 18 E (plasma)



(3) WGH 24 E (plasma)



(4) WGH 24 E (electrostatic+pasma model 00)



(5) WGH 24 E (electrostatic+plasma model 01)



Outdoor Unit

(1) GH 18 E



(2) GH 24 E (LC)



(3) GH24 E (LCLH m.00)



(4) GH 24E (LCLH m.01)



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



Bottom view



Outdoor Unit

GH 18 E

• Top view



Bottom view



GH 24 E

• Top view





• Bottom view



6. Function and Control

6.1 Remote Controller Introduction

Buttons on Remote Controller



Introduction for Icons on Display Screen



Introduction for Buttons on Remote Controller

Note:

• After putting through the power, the air conditioner will give out a sound.Operation indictor " U " 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: It's 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).

 $\bigcirc & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & &$

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 $^{\circ}C(^{\circ}F)$ 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, the Timer On will be canceled. Before setting the Timer, 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, the following temperature can be setted circularly: the setting temperature, indoor ambient temperature and outdoor ambient temperature. when the indoor unit firstly power on, it will display the setting temperature $\hat{\Box}$. If the displaying status is changed to $\hat{\Box}$, displaying the indoor ambient temperature. $\hat{\Box}$ is the outdoor ambient temperature. 3s laterit will return to the setting temprature or it depends on the other received signal within3s.

Note: Outdoor ambient temperatue display range is 0~60°C (32~99°F). As for the outdoor ambient temperature below 0it displays 0°C(32°F). Warm tips: When operating buttons on the cover, please make sure the cover is closed completely.

11. $\hat{\uparrow}$ / $\hat{\Box}$ 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 "①".Press the button for the second time to start healthy and scavenging functions simultaneously; LCD displays "②" and "希".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 \forall 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, 2 hours, setting temperature increased 2°C, 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, 2 hours, setting temperature will decrease 2°C, 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, after turned on Sleep function, the temperature will be increased 1°C in every hour, after 3°C the temperature will be maintained, after 7hours, the temperature will be decreased 1°C, after that the unit will keep on running under this temperature;

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

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

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

In Heat mode:

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

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

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

(4) Under the initial presetting temperature 28~30°C, after Sleep function started up, the temperature will decrease 1°C in every hour, after 3°C 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"),

Technical Information

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 3, if press this button again 2s later, 3 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)2. Under swing left and right mode, when the status is switched from off to π , if press this button again 2s later, π 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 Heating Function

Press "TEMP" and "CLOCK" simultaneously in HEAT mode to start 8°C 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, indoor fan will operate at notch 2 speed or quiet mode according to the comparison between indoor ambient 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 don't use remote controller for a long time, please take out the batteries.
- If the display on remote controller is fuzzy or there's no display, please replace batteries.







6.2 Brief Description of Modes and Functions

• Indoor Unit

1.Temperature 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 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 deenergized and then energized, the compressor can restart within 3 minutes.

(1)Cooling mode

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°C, the compressor and the outdoor fan stop while the indoor fan runs at set speed.

When Tpreset-3°C<Tamb.<Tpreset, the unit will maintain its previous running status.

In cooling mode, temperature setting range is 16~30°C; the indoor unit displays operation icon, cooling icon and set temperature.



② When outdoor unit has malfunction or stops for protection, indoor unit will keep previous operation status and display malfunction code.

③ The protection status is as the same as the cooling mode.

(2)Dry Mode

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°C<Tamb. ≤Tpreset, the unit keeps previous operation status.

When Tamb.≤Tpreset-2°C, 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°C. Display displays operation icon, drying icon and set temperature.



(3)Heating mode (not available for cooling only type)

 $(\ensuremath{\underline{1}})$ Heating conditions and process

When Tamb. ≤Tpreset+2°C, 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°C, the compressor and outdoor fan stop operation; the indoor fan blows residual heat.

When Tpreset+2°C<Tamb.<Tpreset +5°C, the unit will maintain its previous running status.

Under this mode, temperature setting range is 16~30°C; the indoor unit displays operation icon, heating icon and set temperature.



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, Heating indicator on indoor unit is off for 0.5s and then blinks for 10s.

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.

(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°C. Operation icon and set temperature are displayed.

(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.

① When Tamb.≥26°C the unit will operate at cooling mode, the default set temperature is 25°C.

② When Tamb. ≤21°C the unit will operate at heating mode, the default set temperature is 20°C if the cooling only unit operates at fan mode, the default set temperature is 25°C;

③ When 22°C<Tamb.<25°C 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.

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.



(6) "8°C" Heating

Under heating mode, press buttons "Temp" and "Clock" simultaneously, the 8°C heating function will be activated and "cold air prevention" will be shielded.

1 8°C heating can't co-exist with sleep function. If 8°C 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°C function and cancel sleep function at the same time.

2 Set temperature is 8°C and it is displayed on the indoor display panel.



VESSER WGH-E / GH-E Model: 18 - 24

③ In this mode, TURBO can't be set and fan speed can't be adjusted.

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°C, indoor fan operates at high fan speed;

When $9^{\circ}C < Tindoor amb. < 11^{\circ}C$, indoor fan operates at medium fan speed;

When Tindoor amb.≥11°C, indoor fan operates at low fan speed;

When changing among low high, medium, and low speeds, the minimum operation time is 210 seconds.

(5) The unit with memory function can memorize 8°C heating mode.



(7) Energysaving Function

① In cooling mode, when receiving command of energysaving sent by remote control, the controller enters energysaving mode; If the unit is under energysaving mode already, such command will not be executed.

2 When remote control is set to display set temperature, "dual 8"nixie tube displays "SE".

③ In this mode, when compressor operates, fan speed will be adjusted according to auto fan mode under energysaving operation;

when compressor stops operation, indoor fan will operate at low speed.

a. When Tamb.≥31°C, indoor fan will operate at super high speed;

b. When 31°C>Tamb.≥Tpreset+3°C, indoor fan will operate at high speed;

c. When Tpreset+1<Tamb.<Tpreset+3°C indoor fan will operate at medium speed;

d. When Tamb.≤Tpreset+1°C 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.



④ In this mode, set temperature will be automatically adjusted according to actual operation conditions.

3. Other Control

(1)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.

(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)Buzzer

Upon energization or availably operating the unit or remote controller, the buzzer will give out a beep.

(4)Sleep Function

In SLEEP mode, the unit will automatically select appropriate sleep curve to operate according to different temperature setting.

(5)Turbo Function

This function can be set in cooling or heating mode to quickly cool or heat the room.

(6)X-FAN Function

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 2 minutes. Within the 2 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.

② During X-FAN operation, press X-FAN button, the indoor fan, horizontal louver, cold plasma and static-dedusting will be turned off immediately.

(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. ① Under Auto Heat mode or regular Heat mode, auto fan speed will be as follows:

When Tamb.<Tpreset-3°C, indoor fan will operate at high speed;

When Tpreset-3°C≤Tamb.<Tpreset+2°C indoor fan will operate at med. speed;

When Tpreset+2°C≤Tamb.<Tpreset+4°C, indoor fan will operate at low fan speed;

When Tamb≥Tpreset+4°C indoor fan will operate at mute.

Control Diagram of Auto Fan Speed under HEAT Mode



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°C, indoor fan will operate at high speed;

When Tpreset<Tamb.<Tpreset+3°C indoor fan will operate at med. speed;

When Tpreset-2°C<Tamb.≤Tpreset, indoor fan will operate at low speed;

When Tamb.≤Tpreset-2°C indoor fan will operate at mute;

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.



(8)Vertical Swing

(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. For model 18K, only when big horizontal louver rotates to the first position for heating(63° of corresponding angle), this louver will be activated, For model 24K, only when big horizontal louver rotates to the first position for heating(40° of corresponding angle), this louver will be activated.

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



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.



(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, Position ④, Position ⑤, swing between ① and ⑤ and stop at any position between ① and 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.



(10)Display

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.

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°C). 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.

(11)Memory Function

- $(\ensuremath{\underline{1}})$ Memory when power failure upon turning on the unit
- Memory content: ON status, mode, up&down swing, light, set temperature, set fan speed, general timer, Fahrenheit/ Centigrade
- General timer can be memorized. Timer will be recalculated from the time of energization.
- Clock timer can't be memorized.
- 2 Memory when power failure upon turning off the unit
- Memory content: ON status, mode, up&down swing, light, set temperature, set fan speed, general timer, Fahrenheit/ Centigrade
- General timer can be memorized. Timer will be recalculated from the time of energization.
- Clock timer can't be memorized.

(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°C.

(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.

(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.

(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°C. Under Auto mode, in COOL operation and FAN operation, 25°C will be displayed, while in HEAT operation and FAN operation, 20°C will be displayed. For cooling-only controller, only 25°C will be displayed.

(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".

(17)Mute Mode

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.

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

This position is start point

(18)Compulsive Defrosting Function

① Start up compulsory defrosting function

Under ON status, set heating mode with remote controller and adjust the temperature to 16°C. Press "+, -, +, -, +,-" button successively within 5s and the complete unit will enter into compulsory defrosting status. Meanwhile, heating indicator on indoor unit will ON 10s and OFF 0.5s successively. (Note: If complete unit has malfunction or stops operation due to protection, compulsory defrosting function can be started up after malfunction or protection is resumed.

2 Exit compulsory defrosting mode

After compulsory defrosting is started up, the complete unit will exit defrosting operation according to the actual defrosting result, and the complete unit will resume normal heating operation.

(19)Refrigerant Recycling Function

1) Enter refrigerant recycling function

Within 5min after energizing(unit ON or OFF status is ok), continuously press LIGHT button for 3 times within 3s to enter refrigerant Recycling mode; Fo is displayed and refrigerant recycling function is started, Ar this moment, the maintenance people closes liquid Valve. After 5min, stick the thimble of maintenance valve with a tool. If there is no refrigerant spraying out, close the gas valve Immediately and then turn off the unit to remove the connection pipe.

2 Exit refrigerant recycling function

After entering refrigerant recycling mode, when receive any remote control signal or enter refrigerant recycling mode for 25min, the Unit will exit refrigerant recycling mode automatically. If the unit is in standby mode before refrigerant recycling, it will be still in standby mode after finishing refrigerant recycling; If the unit is in ON status before refrigerant recycling, it will still run in original operation 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 $(T_{preset}-(T_{indoor amb.}- \bigtriangleup T_{indoor amb. compensation of cooling})) \leq 0^{\circ} C$, the unit operates in cooling mode;

3.1.2 During cooling operation, if $0^{\circ}C \leq (T_{\text{preset}} - (T_{\text{indoor amb.}} - \Box T_{\text{indoor amb. compensation of cooling}})) < 3^{\circ}C$, the unit still operates in cooling mode;

3.1.3 During cooling operation, if $3^{\circ}C \leq (T_{preset}-(T_{indoor amb.}- \Box T_{indoor amb.} compensation of cooling}))$, the unit stops operation when reaching the temperature point in cooling.

3.2 Temperature setting range:

3.2.1 If T_{outdoor amb.}≥T_{cooling temperature(low temperature)}, the temperature setting range is 16-30°C (cooling in room temperature);

3.2.2 If $T_{outdoor amb}$. $T_{cooling temperature(low temperature)}$, the temperature setting range is 25-30 °C. That is: the lower limit of set temperature for outdoor unit is 25 °C.

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°C;

5. Fan mode

5.1 Compressor, outdoor fan and 4-way valve are all turned off;

5.2 Temperature setting range is 16-30 $^\circ\!\mathrm{C}.$

6. Heating ode

6.1 Working conditioner and process of heating: ($T_{indoor amb.}$ is the actual temperature detected by indoor ambient temperature sensor; $\Box T_{indoor amb. compensation of heating}$ is indoor ambient temperature compensation during heating operation).

6.1.1 If compressor is at OFF status, and $(T_{indoor amb.} - \triangle T_{indoor amb. compensation of heating}) - T_{preset}) \leq -1^{\circ}C$, the unit operates in heating mode. 6.1.2 During heating operation, if $0^{\circ}C \leq ((T_{indoor amb.} - \triangle T_{indoor amb. compensation of heating}) - T_{preset}) < 2^{\circ}C$, the unit still operates in heating mode.

6.1.3 During heating mode, if $2^{\circ}C \leq ((T_{indoor amb.} - \Box T_{indoor amb. compensation of heating}) - T_{preset})$, the unit stops operation when reaching the temperature point in heating.

6.2 Under this mode, the temperature setting range is $16-30^{\circ}$ C.

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}≥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 $T_{outdoor tube} < T_{overload limit-frequency temp in cooling}$ and the compressor has stopped for 3min, the complete unit can resume operation.

12.2 Under cooling or drying mode, if $T_{overload limit-frequency temp. in cooling} \leq T_{outdoor tube}$, 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 $T_{indoor tube} < T_{overload limit-frequency temp. in heating}$ and the compressor has stopped for 3min, the complete unit can resume operation.

12.4 Under heating mode. If T_{overload limit-frequency temp. in heating}≤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 $T_{discharge} < T_{limit-frequecny temperature for discharge}$ and compressor has stopped for 3min, the complete unit can resume operation;

13.2 If Tnormal speed decrease-frequency for dischargeSTdischarge, 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≤I_{AC current}, operation frequency of compressor may decrease or increase;

14.2 If 17A≤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 $T_{normal speed frequency-decreasing temp. of module} \leq T_{module}$, the operation frequency of compressor may decrease or increase;

18.2 If T_{stop} operation temperature of module</sub> T_{module} , the syste will stop operation for protection. If T_{module} $T_{frequency-limiting temperature of module}$ 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.



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 can't be used for other purposes.

6. Must apply protective accessories such as protective boards, cable-cross loop and wire clip.

7. The live 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 can't 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; don't 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
	RA	
5.52		NK

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
2	Connection pipe	10	Support of outdoor
3	Connection pipe	10	unit
4	Drainage pipe	11	Fixing screw
Б	Wall-mounting	10	Drainage plug(cooling
5	frame	12	and heating unit)
6	Connecting	12	Owner's manual,
0	cable(power cord)	13	remote controller
7	Wall pipe		

∕î∖ Note:

1. Please contact the local agent for installation.

2.Don't 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. 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 won't 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 won't increase noise and vibration.

(6) The appliance must be installed 2.5m above floor.

(7) Don't 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 won't 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
18K	16A
24K	25A

(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 can't 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

Service Manual

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)



(2) Open a piping hole with the diameter 70 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)



▲ 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)



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)



Insulating pipe Fig.7

Refer to the following table for wrench moment of force:

_		
	Hex nut diameter(mm)	Tightening torque(N.m)
	Ф6	15~20
	Ф9.52	30~40
	Φ12	45~55
	Ф16	60~65
	Ф19	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)



⚠ 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)







(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)







Fig.13

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

<u>∧</u> 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.





▲ Note:

(1) The power cord and control wire can't 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)



▲ 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.

A 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.



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)



4. Fix outdoor unit

(1) Remove the screw on the right handle of outdoor unit and then remove the handle.(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)



(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)
Ф6	15~20
Ф9.52	30~40
Ф12	45~55
Ф16	60~65
Ф19	70~75

5. Connect outdoor electric wire

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



Fig.23

(2) Fix the power connection wire 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)



▲ Note:

(1) The through-wall height of drain hose shouldn't 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 can't be curved, raised and fluctuant, etc.(As show in Fig.26)

(3) The water outlet can't be placed in water in order to drain smoothly.(As show in 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)



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, there's 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		
4	Has the unit been	The unit may drop, shake or		
I	installed firmly?	emit noise.		
2	Have you done the	It may cause insufficient cooling		
2	refrigerant leakage test?	(heating) capacity.		
3	Is heat insulation of	It may cause condensation and		
5	pipeline sufficient?	water dripping.		
Л	Is water drained well?	It may cause condensation and		
-		water dripping.		
	Is the voltage of power			
5	supply according to the	It may cause malfunction or		
5	voltage marked on the	damage the parts.		
	nameplate?			
	Is electric wiring and	It may cause malfunction or		
6	pipeline installed	damage the parts		
	correctly?			
7	Is the unit grounded	It may cause electric leakage		
	securely?	in may baueb blobario loanago.		
8	Does the power cord	It may cause malfunction or		
	follow the specification?	damage the parts.		
9	Is there any obstruction	It may cause insufficient cooling		
	in air inlet and air outlet?	(heating).		
	The dust and			
10	sundries caused	It may cause malfunction or		
	during installation are	damaging the parts.		
	removed?			
	The gas valve and liquid	It may cause insufficient cooling		
11	valve of connection pipe	(heating) capacity.		
	are open completely?			

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.

 \bullet If the ambient temperature is lower than 16 $^\circ\! {\mathbb C}$, the air conditioner can't start cooling.

9. Maintenance

9.1 Precautions before Maintenance

There are high-capacity electrolytic capacitors on the outdoor mainboard. Thus, even the power is cut off, there is high voltage inside the capacitors and it needs more than 20min to reduce the voltage to safety value. Touching the electrolytic capacitor within 20min after cutting the power will cause electric shock. If maintenance is needed, follow the steps below to discharge electricity of electrolytic capacitor after power off.

(1) Open the top cover of outdoor unit and then remove the cover of electric box.



(2) As shown in the fig below, connect the plug of discharge resistance (about 100ohm, 20W) (if there is no discharge resistance, you can use the plug of soldering iron) to point A and B of electrolytic capacitor. There will be sparks when touching them. Press them forcibly for 30s to discharge electricity of electrolytic capacitor.



outdoor mainboard

(3) After finish discharging electricity, measure the voltage between point A and B with universal meter to make sure if electricity discharging is completed, in order to prevent electric shock. If the voltage between the two points is below 20V, you can perform maintenance safely.

9.2 Error Code List

NO.	Malfunction Name	Dual-8 Code Display	Dis (India of di they circ □O D5 (D40)	play N Outdo cator I splay will be ularly FF ∎II ☆ E D6 (D41)	Method or Uni has 3 status e displ every lumina Blink D16 (D42)	d of it kinds and layed 5s.) ated D30 (D43)	A/C status	Possible Causes
1	High discharge temperature protection of compressor	E4			•	☆	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).
2	Overcurrent protection	E5		•	☆		During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	 Supply voltage is unstable; Supply voltage is too low and load is too high; Evaporator is dirty.
3	Communi- cation Malfunction	E6				☆	During cooling operation,compressor stops while indoor fan motor operates. During heating operation, the complete unit stops.	Refer to the corresponding malfunction analysis.
4	High temperature resistant protection	E8	-		•	•	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).
5	PG motor (indoor fan motor) does not operate	H6					Indoor fan, outdoor fan, compressor and electric heat tube stop operation. Horizontal louver stops at the current position.	 The feedback terminal of PG motor is not connected tightly. The control terminal of PG motor isnot connected tightly. Fan blade rotates unsmoothly. Malfunctionof moto.r Controller is damaged.
6	Malfunction protection of jumper cap	C5					Operation of remote controller or control panel is available, but the unit won't act.	 There's not jumper cap on the controller. Jumper cap is not inserted properly and tightly Jumper cap is damaged. Controller is damaged.
7	Indoor ambient temperature sensor is open/short circuited	F1					During cooling and drying operation, indoor unit operates while other loads will stop; during heating operation, the complete unit will stop operation.	 The wiring terminal between indoor ambient temperature sensor and controller is loosened or poorly contacted; There's short circuit due to trip-over of the parts on controller; Indoor ambient temperature sensor is damaged(Please check it by referring to the resistance table for temperature sensor) Main board is broken.
8	Indoor evaporator temperature sensor is open/short circuited	F2					The unit will stop operation as it reaches the temperature point. During cooling and drying operation, except indoor fan operates, other loads stop operation; During heating operation, the complete unit stops operation.	 The wiring terminal between indoor evaporator temperature sensor and controller is loosened or poorly contacted; There's short circuit due to the trip-over of the parts on controller; Indoor evaporator temperature sensor is damaged (Please check it by referring to the resistance table for temperature sensor) Main board is broken.
9	Outdoor ambient temperature sensor is open/short circuited	F3			☆	•	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)

	SER	
WGH-E / GH-E	Model:	18 - 24

10	Outdoor condenser temperature sensor is open/short circuited	F4		☆		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)
11	Outdoor discharge temperature sensor is open/short circuited	F5		☆	☆	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
12	Voltage for DC bus-bar is too high	РН	-		*	During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	 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. 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)
13	Malfunction of complete units current detection	U5	•	☆	•	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.
14	Overcurrent protection of phase current for compressor	P5	☆			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.
15	Defrosting	Heating indicator off for 0.5s and then blinks for 10s				Defrosting will occur in heating mode. Compressor will operate while indoor fan will stop operation.	Its the normal state
16	Overload protection for compressor	H3	☆	☆		During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation.	 Wiring terminal OVC-COMP is loosened. In normal state, the resistance for this terminal should be less than 10hm. Refer to the malfunction analysis (discharge protection, overload)
17	IPM protection	H5	☆		•	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.
18	PFC protection	HC	-	☆	\$	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
19	Desynchron- izing of compressor	H7	☆	•	☆	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.
20	Failure start- up	LC	☆		☆	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
21	Malfunction of phase current detection circuit for compressor	U1	☆	•		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
22	EEPROM malfunction	EE				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
23	Charging malfunction of capacitor	PU	•		•	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

∕∠∨∈≤	SER	
WGH-E / GH-E	Model:	18 - 24

24	Malfunction of module temperature sensor circuit	P7			-	☆	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
25	Module high temperature protection	P8	-		\$	•	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.
26	Malfunction of voltage dropping for DC bus-bar	U3		•	-	•	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
27	Voltage of DC bus-bar is too low	PL		•			During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop	 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. 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)
28	Limit/ decrease frequency due to high temperature of module	EU	•	•	•	☆	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.
29	The four-way valve is abnormal	U7	•		X		If this malfunction occurs during heating operation, the complete unit will stop operation.	 Supply voltage is lower than AC175V; Wiring terminal 4V is loosened or broken; 4V is damaged, please replace 4V.
30	Fan module protection	L3	•				Cooling:outdoor fan motor,compressor stop running;indoor fan works. Heating:outdoor fan motor,compressor,indoor fan motor stop running.	 The wire terminal of outdoor fan motor is loosed, fix the terminal. Motor damaged, replace the motor. Fan motor module on mainboard is damaged; replace the mainboard AP1.

9.3 Troubleshooting for Main Malfunction

Indoor unit:

1. Malfunction of Temperature Sensor F1, F2



Installation and Maintenance

2. Malfunction of Blocked Protection of IDU Fan Motor H6



3. Malfunction of Protection of Jumper Cap C5



4. Communication malfunction E6



WGH-E / GH-E Model: 18 - 24

Service Manual

•Outdoor unit:

1.Key detection point



Test NO	Test point	Corresponding component	Test value under normal condition
Test 1	Between A and C	Neutral and live wires	160V~265V
Test 2	Between B and C	Neutral and live wires	160V~265V
Test 3	Between D and E	DC busbar electrolytic capacitor	DC 180V~380V
Test 4	Between F and G	Electrolytic capacitor of power	DC 180V~380V
Test 5	Two ends of diode D15	D15(IPM modular +15V power supply)	DC 14.5V~15.6V
Test 6	Two ends of electrolytic capacitor C715	C715(+12V power supply)	DC 12V~13V
Test 7	Two ends of electrolytic capacitor C710	C710(+5V power supply)	DC 5V
Test 8	Two ends of electrolytic capacitor C226	C226(+3.3V power supply)	DC 3.3V
Test 9	Two ends of chip capacitor C912	C912(+17V power supply)	DC 15V~18V
Test 10	Between M to GND	Point M of R75 to ground (signal sending port of ODU)	Fluctuate between 0~3.3V
Test 11	Between N to GND	Point N of R123 to ground (signal receiving port of ODU)	Fluctuate between 0~3.3V
Test 12	Between S and T	Power supply of communication ring	DC 56V

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?



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?



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.



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?



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?



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?



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.



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



10.Diagnosis process for outdoor communication circuit



9.4 Troubleshooting for Normal Malfunction

1. Air conditioner can't be started up

Possible Causes	Discriminating Method (Air conditioner Status)	Troubleshooting	
No power supply, or poor connection for power plug	After energization, operation indicator isn't bright and the buzzer can't give out sound	Confirm whether it's 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		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 it's 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; Unit's 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; Unit't pressure is much lower than regulated range. If refrigerant isn't 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 can't swing	Refer to point 3 of maintenance method for details	
Malfunction of the IDU fan motor	The IDU fan motor can't operate	Refer to troubleshooting for H6 for maintenance method in details	
Malfunction of the ODU fan motor	The ODU fan motor can't operate	Refer to point 4 of maintenance method for details	
Malfunction of compressor	Compressor can't operate	Refer to point 5 of maintenance method for	

3. Horizontal louver can't 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 can't operate	Repair or replace stepping motor
Main board is damaged	Others are all normal, while horizontal louver can't operate	Replace the main board with the same model

Service Manual

4. ODU fan motor can't 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 can't 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 t 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 it's 0	Repair or replace compressor	
Cylinder of compressor is blocked	Compressor can't operate	Repair or replace compressor	

6. Air conditioner is leaking

Possible causes	Discriminating method (air conditioner status)	is) 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 there's abnormal sound	There's the sound of "PAPA"	Normal phenomenon. Abnormal sound will disappear after a few minutes.
When turn on or turn off the unit, there's 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 there're parts touching together inside the indoor unit	There's 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 there're parts touching together inside the outdoor unit	There's 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.

Service Manual

10. Exploded View and Parts List

10.1 Indoor Unit

(1) 18K Unit



	Description	Part Code		
No.		WGH 18 E		Qty
	Product Code	CB148N07300	CB148N07301	
1	Front Panel	20012820U	20012820U	1
2	Display Board	30565141	30565141	1
3	Filter Sub-Assy	1112209105	1112209105	2
4	Screw Cover	24252016	24252016	3
5	Front Case	20012821	20012821	1
6	Guide Louver	10512225	10512225	1
7	Guide Louver (small)	1051222601	1051222601	1
8	Helicoid Tongue	2611236701	2611236701	1
9	Left Axile Bush	1051203701	1051203701	2
10	SteppingMotor	1501208602	1501208602	1
11	O-Gasket of Cross Fan Bearing	76512203	76512203	1
12	Ring of Bearing	26152025	26152025	1
13	Cross Flow Fan	10352045	10352045	1
14	Evaporator Support	24212139	24212139	1
15	Evaporator Assy	0100238601	0100238601	1
16	Wall Mounting Frame	01252123	01252123	1
17	Motor Press Plate	26112330	26112330	1
18	Fan Motor	15012127	15012127	1
19	Drainage Hose	0523001406	0523001406	1
20	Connecting pipe clamp	26112188	26112188	1
21	Rear Case assy	22202361	22202361	1
22	SteppingMotor	1501208602	1501208602	1
23	SteppingMotor	1501208602	1501208602	1
24	Axile Bush	10542036	10542036	4
25	Electric Box Assy	20403068	20403067	1
26	Terminal Board	42011233	42011233	1
27	Main Board	30139053	30139052	1
28	Jumper	4202300114	4202300114	1
29	Electric Box Cover2	20122142	20122142	1
30	Electric Box Cover	2012240901	2012240901	1
31	Power Cord	4002048722	4002048734	1
32	Connecting Cable	40020538	40020538	0
33	Remote Controller	30510137	30510137	1
34	Electrostatic Duster	11012027	/	1
35	Cold Plasma Generator	1114001601	/	1

Above data is subject to change without notice.

No.	Description	WGH 18 E		
		Part Code	Part Code	Qty
	Product Code	CB411N01200	CB412N02400	
1	Front Panel	20022272T 30565209	20022287	1
2	Display Board	1112209105	30565210 1112209105	1
3	Filter Sub-Assy	242520179	242520179	2
4	Screw Cover	2001282101	2001282101	3
5	Front Case	1051222501	1051222501	1
6	Guide Louver	1051222601	1051222601	1
7	Guide Louver (small)	2611236701	2611236701	1
8	Helicoid Tongue	1051203701	1051203701	1
9	Left Axile Bush	1501208602 76512203	1501208602 76512203	2
10	SteppingMotor	26152025	26152025	1
11	O-Gasket of Cross Fan Bearing	10352045	10352045	1
12	Ring of Bearing	24212139 0100238601	24212139 0100238601	1
13	Cross Flow Fan	01252123	01252123	1
14	Evaporator Support	26112330 1501212701	26112330	1
15	Evaporator Assy	0523001406 26112188	15012127 0523001406	1
16	Wall Mounting Frame	22202361 1501208602	26112188	1
17	Motor Press Plate	1501208602 10542036	22202361 1501208602	1
18	Fan Motor	20403069	1501208602 10542036	1
19	Drainage Hose	42011233	20403060	1
20	Connecting pipe clamp	30139052 4202300114	42011233	1
21	Rear Case assy	2012214204	30139053 4202300114	1
22	SteppingMotor	2012240901	2012214204	1
23	SteppingMotor	4002048734 40020538	2012240901	1
24	Axile Bush	30510137	4002048734 40020538	4
25	Electric Box Assy	/	30510137	1
26	Terminal Board	/	11012027 1114001601	1
27	Main Board			1
28	Jumper			1
29	Electric Box Cover2			1
30	Electric Box Cover			1
31	Power Cord			1
32	Connecting Cable			0
33	Remote Controller			1
34	Electrostatic Duster			1
35	Cold Plasma Generator			1

Above data is subject to change without notice.
(2) 24K Unit



	Description	WGH		
No.	Description	Part Code	Part Code	Qty
	Product Code	Code CB148N03603 CB148N07200 Code 20012804U 11122120 20012804U 11122120		
1	Front Panel Assy	20012894U 11122136	20012894U 11122136	1
2	Filter Sub-Assy	242520053 20022004	242520053 20022004	2
5	Screw Cover	10512236 1051223701	10512236 1051223701	4
4	Front Case Sub-assy	1058211601 10512252	1058211601	1
5	Guide Louver	1051203701 20182148	10512252	1
6	Small Guide Louver	22202498	1051203701 20182148	1
7	Swing Lever2	10352420	22202498	1
8	Air Louver	76512203	10352420	15
9	Left Axile Bush	24212041	76512203	2
10	Water Trav Assv	01002340	24212041	1
11	Rear Case Sub-Assy	01252398	01002000025	1
12	Cross Flow Fan	42020063 2421204201	01252398 42020063	1
13	O-Gasket of Cross Fan Bearing	15012134	2421204201	1
14	l eft Evaporator Support	26112071	1501213401 26112071	1
15	Evaporator Assy	02112009	26112069 15012134	1
16	Wall Mounting Frame	26112325 0523001403	0523001403 76712012	1
17	Sensor Insert	76712012 1521212602	1521212602	1
18	Right Support of Evaporator	1521240208 73012021	1521240208 73012021	1
19	Fan Motor	1521212301 26152046	1521212301 26152046	1
20	Pine Clamp	1058211701	1058211701	1
20	Fixed Clip (Evaporator)	1058211501 /2011233	1058211501 /2011233	1
21	Motor Eixed Clip	1050211501 42011255	1054203602 30130052	1
22	Drainage Hese	30130053	20122142	1
23	Pubber Plug (Water Tray)	20122142	30565141	1
24	Sten Motor	30565141	01502108	1
20	Step Motor	01502108	20122164_01502107	1
20	Cronk	20122164	20122104 01392107	
21	Stan Mater	01502109	20112140	2
20	Step Motor	01592106	20102000017	1
29		20112140	4002032511	
30	Swing Lever 3	20102000036	400205382	1
31	Swing Lever 1	4002032511	39000451 30510137	1
32		400205382 390000451	1	1
33	Axile Bush	30510137	1	6
34	Main Board	11012027 1114001601		1
35	Electric Box Cover2			1
36	Display Board			1
37	Shield Cover of Electric Box Cover			1
38	Electric Box Cover			1
41	Lower Shield of Electric Box			1
40	Electric Box			1
41	Electric Box Assy			1
42	Power Cord			1
43	Connecting Cable			1
44	Ambient Temperature Sensor			1
45	Remote Controller			1
46	Electrostatic Dedust			1
47	Cold Plasma			1

	WGH 24 E		H 24 E		
No.	Description	Part Code	Part Code	Qty	
	Product Code	CB411N01100	CB412N02500	1	
1	Front Panel Assy	20022305	20022299	1	
2	Filter Sub-Assy	11122136 242520054	11122136 242520054	2	
5	Screw Cover	20022298 1051223601	20022298 1051223601	4	
4	Front Case Sub-assy	1051223701	1051223701	1	
5	Guide Louver	1058211601 10512252	1058211601 10512252	1	
6	Small Guide Louver	1051203701 20182148	1051203701 20182148	1	
7	Swing Lever2	20022551	20022551	1	
8	Air Louver	10352420	10352420	15	
9	Left Axile Bush	76512203	76512051	2	
10	Water Tray Assy	24212041	24212041	1	
11	Rear Case Sub-Assy	01002340	01002340	1	
12	Cross Flow Fan	01252398	01252398	1	
13	O-Gasket of Cross Fan Bearing	42020063 2421204201	42020063 2421204201	1	
14	Left Evaporator Support	15012134	15012134	1	
15	Evaporator Assy	26112071	26112071	1	
16	Wall Mounting Frame	02112009	02112009	1	
17	Sensor Insert	26112325 0523001403	26112325 0523001403	1	
18	Right Support of Evaporator	76712012 1521212602	76712012 1521212602	1	
19	Fan Motor	1521240208 73012021	1521240208 73012021	1	
20	Pipe Clamp	1521212301 26152046	1521212301 26152046	1	
21	Fixed Clip (Evaporator)	1058211701	1058211701	1	
22	Motor Fixed Clip	1058211501 42011233	1058211501 42011233	1	
23	Drainage Hose	10542036	10542036	1	
24	Rubber Plug (Water Tray)	30139052 2012214204	30139053 2012214204	1	
25	Step Motor	30565209	30565210	1	
26	Step Motor	01592108	01592107	1	
27	Crank	20122164	20122164	2	
28	Step Motor	01592108	01592108	1	
29	Motor Holder	20112140	20112140	1	
30	Swing Lever 3	20403071 4002032511	20403059 400203259	1	
31	Swing Lever 1	400205382 390000451	400205382 390000451	1	
32	Terminal Board	30510137	30510137	1	
33	Axile Bush	/	11012027 1114001601	6	
34	Main Board	/		1	
35	Electric Box Cover2			1	
36	Display Board			1	
37	Shield Cover of Electric Box Cover			1	
38	Electric Box Cover			1	
41	Lower Shield of Electric Box			1	
40	Electric Box			1	
41	Electric Box Assy			1	
42	Power Cord			1	
43	Connecting Cable			1	
44	Ambient Temperature Sensor			1	
45	Remote Controller			1	
46	Electrostatic Dedust			1	
47	Cold Plasma			1	

No.	Description	WGH 24 E	
	Description	Part Code	Qty
	Product Code	CB148N07201	
1	Front Panel Assy	20012894U 11122136	1
2	Filter Sub-Assy	242520053 20022004	2
5	Screw Cover	10512236 1051223701	4
4	Front Case Sub-assy	1058211601	1
5	Guide Louver	10512252	1
6	Small Guide Louver	1051203701 20182148	1
7	Swing Lever2	22202498	1
8	Air Louver	10352420	15
9	Left Axile Bush	76512203	2
10	Water Trav Assv	24212041	1
11	Rear Case Sub-Assy	01002000025	1
12	Cross Flow Fan	01252398 42020063	1
13	O-Gasket of Cross Fan Bearing	2421204201	1
14	l eft Evaporator Support	1501213401 26112071	1
15	Evaporator Assy	26112069 15012134	1
16	Wall Mounting Frame	0523001403 76712012	1
17	Sensor Insert	1521212602	1
18	Right Support of Evaporator	1521240208 73012021	1
10	Fan Motor	1521212301 261520/6	1
20	Pine Clamp	1058211701	1
20	Fixed Clin (Evanorator)	1058211501 /2011233	1
21	Motor Fixed Clip	105/2016/2017/2053	1
22	Drainage Hose	201221/2	1
23	Pubber Plug (Water Tray)	305651/1	1
24	Step Motor	01502108	1
25	Step Motor	20122164_01502107	1
20	Cronk	20122104 01392107	2
21	Stop Motor	20112140	<u> </u>
20		20102000037	
29		4002052511	
30	Swing Lever 3	400200302	
31		390000451 30510137	
32	Avila Duch	11012027 1114001601	
33	Axile Bush		0
34	Main Board		1
35	Electric Box Cover2		
36	Display Board		
37	Shield Cover of Electric Box Cover		1
38	Electric Box Cover		1
41	Lower Shield of Electric Box		1
40	Electric Box		1
41	Electric Box Assy		1
42	Power Cord		1
43	Connecting Cable		1
44	Ambient Temperature Sensor		1
45	Remote Controller		1
46	Electrostatic Dedust		1
47	Cold Plasma		1

10.2 Outdoor Unit

(1) GH 18 E



No.	Description	GH 18 E	
	Description	Part Code	Qty
	Product Code	CB412W02400	
1	Fan Motor	1501506402 420111041	1
2	Terminal Board	20113027	1
3	Electric Box	49010252	1
4	Radiator	30139054	1
5	Main Board	20123028	1
6	Electric Box Cover	02613946	1
7	Electric Box Assy	26235401	1
8	Left Handle	01305093P 0170512001	1
9	Left Side Plate	01173415	1
10	Motor Support Sub-Assy	01255005P	1
11	Condenser Support Plate	43130025	1
12	Coping	01233153 0111360901	1
13	Reactor	/	1
14	Clapboard Assy	26115004	1
15	Condenser Assy	39000072	1
16	Rear Grill	26235254	/
17	Wiring Clamp	07133157	1
18	Temperature Sensor	22245002	1
19	Handle	07133157	1
20	Cut off Valve	01713098P	1
21	Valve Cover	0130509402P 07133853	1
22	Cut off Valve	03073213 4300040033	1
23	Valve Support Sub-Assy	76710247	1
24	Right Side Plate	00105249G 02803310P	1
25	Electronic Expansion Valve assy	/	1
26	4-Way Valve Assy	7651000411 10335008	1
27	Magnet Coil		1
28	Compressor Gasket		3
29	Compressor and Fittings		1
30	Chassis Sub-assy		1
31	Drainage Connecter		/
32	Drainage hole Cap		1
33	Axial Flow Fan		1
34	Insulated Board (Cover of Electric	20113003	1
	BOX)	045050405	
35		01535013P	1
36		22415002	1

(2) GH 24 E



No.	Description	GH 24E	
	Description	Part Code	Qty
	Product Code	CB412W02500	
1	Front Grill	22415003 1501403402	1
2	Fan Motor	01413426	1
3	Electric box (fireproofing)	49015215	1
4	Radiator	30139043	1
5	Main Board	02613947	1
6	Electric Box Assy	20125002	1
7	Electric Box Cover	420111041	1
8	Terminal Board	26235401	1
9	left handle	01305043P	2
10	Left Side Plate	01255006	1
11	Coping	01705437	1
12	Motor Support Sub-Assy	01175092	1
13	Condenser Support Plate	01233140	1
14	Clapboard	01163118	1
15	Condenser Assy		1
16	Rear Grill	26115004	/
17	Wiring clamp	39000072	1
18	Temperature Sensor	00180030	1
	Compressor Overland	00183032	1
19	Compressor Ovendad	00183051 0130504401P	1
		26235001	1
20	Right Side Plate	07133157	1
21	Big Handle	22245003 0171501201P	1
22	Cut off Valve	01365435P	1
23	Valve Cover	07133157	1
24	Valve Support Sub-Assy	07138807	1
25	Baffle(Valve Support)	03073214 4300040033	1
26	Cut off Valve	76713066 0010505701	1
27	Electronic Expansion Valve	/	1
28	4-way Valve Assy	0280319602P	1
29	Magnet Coil	7651000411 10335014	1
30	Compressor Gasket	01305086P 01435004P	3
31	Compressor and fittings		1
32	Drainage Connecter		/
33	Chassis Sub-assy		1
34	Drainage hole Cap		1
35	Axial Flow Fan		1
36	Front Side Plate		1
37	Cabinet		1

(3) GH 24 E (CB148W07200)



	Description	GH 24 E	
No.	Description	Part Code	Qty
	Product Code	CB148W07200	
1	Fan Motor	1501403402 42011113	1
2	Terminal Board	20125002	1
3	Electric Box Cover	49015215 30138000100	1
4	Radiator	02613964	1
5	Main Board	26235401	1
6	Electric Box Assy	01305043P	1
7	Left Handle	01705038	2
8	Left Side Plate	01175092	1
9	Motor Support Assy	01255015	1
10	Condenser Support Plate	43130024	1
11	Top Cover Sub-Assy	01235091 01103000106	1
12	Reactor	07133958 3900030901	1
13	Clapboard Sub-Assy	7651000411 26235001	1
14	Condenser Assy	07133934 0713517901	1
15	Electronic Expansion Valve assy	01705061P 01305044P	1
16	Temperature Sensor	03025497	1
17	Electrical Heater (Chassis)	00105251	1
18	Big Handle	02803315P	1
19	Cut off Valve Sub-Assy	10335014	1
20	Cut off Valve	01305086P 01435004P	1
21	Valve Support Sub-Assy	22415003	1
22	Right Side Plate		1
23	4-Way Valve Assy		1
24	Compressor and Fittings		1
25	Chassis Sub-assy		1
26	Axial Flow Fan		1
27	Front Side Plate		1
28	Cabinet		1
29	Front Grill		1

(4) GH 24 E (CB148W07201)



	Description	GH 24 E	
No.	Description	Part Code	Qty
	Product Code	CB148W07201	-
1	Fan Motor	1501403402 42011113	1
2	Terminal Board	20125002	1
3	Electric Box Cover	49015215 30138000101	1
4	Radiator	20102000037	1
5	Main Board	26235401	1
6	Electric Box Assy	01305043P	1
7	Left Handle	01705038	2
8	Left Side Plate	01175092	1
9	Motor Support Assy	01255015	1
10	Condenser Support Plate	43130024	1
11	Top Cover Sub-Assy	01235091	1
12	Reactor	0110300010601	1
13	Clapboard Sub-Assy	07133958 3900030901	1
14	Condenser Assy	39000072 7651000411	1
15	Electronic Expansion Valve assy	26235001	1
16	Temperature Sensor	07133934 0713517901	1
17	Temperature Sensor	01705061P 01305044P	1
18	Electrical Heater (Chassis)	03025497	1
19	Big Handle	00105251	1
20	Cut off Valve Sub-Assy	02803315P	1
21	Cut off Valve	10335014	1
22	Valve Support Sub-Assy	01305086P 01435004P	1
23	Right Side Plate	22415003	1
24	4-Way Valve Assy	22245003	1
25	Compressor and Fittings		1
26	Chassis Sub-assy		1
27	Axial Flow Fan		1
28	Front Side Plate		1
29	Cabinet		1
30	Front Grill		1
31	Valve Cover		1

18K

11. Removal Procedure

11.1 Removal Procedure of Indoor Unit

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

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

Steps		Procedure
2	Remove the rotating shaft of big guide louver from the groove, slightly bend thebig guide louver to remove it.	big guide louver
3	Remove the axial bushing of small guide louver.	axial bushing
4	Remove the rotating shaft of small guide louver from the groove, slightly bend the small guide louver to remove it.	small guide louver
4.Remo	ve panel	
1	Loosen the clamps of the panel to remove the panel.	

Steps	F	Procedure
2	Remove the screws fixing display on the panel, to remove the display.	
5.Remov	e front case	
1	Remove the screws fixing electric box cover 2, to remove the electric box cover 2.	
2	Remove the screws fixing front panel, loosen the clamps, to remove the front case.	

Steps	F	Procedure
6.Remo	ve swing fan blade	
1	Loosen the clamps fixing swing connecting rod, to remove the swing connecting rod.	clamp swing connecting rod
2	Remove the clamps fixing swing fan blade, to remove the swing fan blade.	clamp swing fan blade
7.Remov	l /e electric box sub-assy	
1	Remove the indoor tube temp. sensor.	heat exchanger thermistor
2	Remove the screws fixing earth wire, to remove the earth wire.	earth wire earth wire

Steps	F	Procedure
3	Remove the clamps fixing electric box cover, to remove the cover.	electric box cover
4	Remove every wiring terminals, and remove the screws fixing electric box cover, to remove the electric box cover sub-assy.	electric box cover sub-assy screw
7.Remov	e evaporator sub-assy	
1	Remove the screws fixing connection pipe clamp, to remove the connection pipe clamp.	pipe clamp auxiliary piping
		Screw

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

Steps		Procedure
3	Remove the screws fixing motor clamp, to remove the motor clamp.	
4	Remove the cross fan blade and motor.	screw motor clamp
5	Remove the shafting bearing cushion rubber base	bearing cushion rubber base
6	Remove the screws fixing cross fan blade and motor, and then remove the motor.	cross fan blade motor

24K

Steps		Procedure
1. Be	Before disassembly of the unit	
	Before disassembling the unit.	
2. Rem	nove filter	panel
1	Open the panel.	
2	Loosen the clasps on filter, push the filter inward and then pull it upward, then the filter can be removed.	air filter
		air filter

Steps		Procedure
3. Remove the panel		scrow
1	Remove the screws fixing display on the panel, to remove the display.	display
2	Along the groove fixing front panel, slide the rotor shaft outward to remove the front panel.	panel
3	Remove the panel.	
4. Rem	ove electric box cover	
	Unscrew a screw of electric box cover with screwdriver. Then take out the electric box cover.	electric box cover

Steps	Procedure	
5. Rem	nove Axial bush	
1	Remove the axial bush of horizontal louver to remove the axial bush.	Axial sleeve
2	Remove Axial bush	Axial bush
6. Remove front case		
1	Remove the screw cover of front case, unscrew the 8 screws of front case with screwdriver.	
2	Take out the front case to separate the front case with bottom assembly.	front case

Steps		Procedure
7. Rem	nove electric box	
1	Remove Temperature Sensor; Twist off the earthing screw fixing the evaporator.	temperature sensor
2	Remove the screw of electric box.Take out the electric box cover to separate the electric box cover 2.	electric box cover 2
3	Remove every wiring terminals, and remove the screws fixing electric box to remove the electric box sub-assy.	
		electric box

Steps		Procedure	
8. Rem	8. Remove evaporator sub-assy		
1	Loosen the clasps connecting the water tray and chassis, and then remove the water tray.	water tray	
2	Remove the screws fixing connection pipe clamp, to remove the connection pipe clamp.		
		pipe clamp	
3	Remove the screws fixing evaporator sub-assy, slightly regulate the tube, to remove the evaporator sub-assy.	Screw Screw Generator sub-assy	

Steps		Procedure
		srews
4	Turn over the indoor unit and adjust the pipe line to the position as shown by the broken line.	
5	Lift up the evaporator, and then remove the evaporator.	evaporator
9. Rem	I ove the cross-flow louver and motor	
1	Remove the 2 screws of step motor with screwdriver, and remove the step motor.	screws

Steps		Procedure
2	Remove screws fixing cross flow blade and motor.	
3	Remove the motor sub-assy.	Cross blow blade Fan motor
4	Pull out the plug of ring of bearing.	Ring of Bearing

11.2 Removal Procedure of Outdoor Unit

GH 18 E

Steps	Procedure	
1. Rem	nove big handle,valve cover and top cover	
	Remove the screw connecting the big handle and right side plate, and then remove the big handle. Remove the screw connecting the valve cover and right side plate, and then remove the valve cover.	big handle
	Remove the screws connecting the top cover with outer case, right side plate and left side plate; lift the top cover upwards to remove it.	top cover
2. Rem	nove grille and outer case	
	Remove the 4 screws connecting the grille and outer case, and then remove the panel grille.	grille







Steps	Procedure	
6. Rem	Tear off the sticking stripe and then remove the soundproof sponge.	i i i i i i i i i i i i i i i i i i i
7. Rem	Remove the 2 screws connecting the isolation plate and condenser side plate; remove the 3 screws connecting the isolation plate and chassis, and then remove the isolation plate.	isolation plate
8. Rem	Unsolder the welding joints connecting the 4-way valve assy with capillary sub-assy, compressor and condenser; remove the 4-way valve. Note: Before unsoldering the welding joint, wrap the 4-way valve with a wet cloth completely to avoid damage to the valve caused by high temperature.	4-way valve assy

Steps	Procedure	
9. Rem	ove compressor	
	Remove the 3 foot nuts fixing compressor and then lift the compressor upwards to remove the compressor and damping cushion. Note: Keep the ports of discharge pipe and suction pipe from foreign objects.	compressor
10. Rei	move condenser sub-assy	
	Remove the screws connecting the support (condenser) and condenser assy,and then remove the support(condenser).	support
	Remove the 2 screws fixing the condenser and chassis, and then lift the condenser upwards to remove it.	condenser sub-assy chassis subassy



GH 24 E

Steps		Procedure
1.Remove handle		
	Twist off the screws used for fixing the handle , pull the handle up ward to remove it.	handle
2.Remo	ve top panel	
	Remove the screws connecting the top panel with the front panel and left&right side plate, and then remove the top panel.	top panel
3.Remo	ve front side panel	
	Loosen the screws connecting the front side panel and chassis. Remove the front side panel.	front side panel

Steps	Proc	cedure
4.Rem	ove grille and panel	
	Twist off the screws connecting the grille and panel, and then remove the grille. Twist off the screws connecting the panel, chassis and motor support with screwd-river, and then remove the panel.	grille panel
5.Remo	ove right side plate	
	Twist off the screws connecting the right side plate and chassis, valve support and condenser, and then remove the right side plate.	right side plate
6.Rem	Dve axial flow blade	
	Twist off the nuts on blade with wrench and then remove the axial flow blade.	axial flow blade

Steps	Proc	cedure
7.Remove electric box		
	Twist off the screws on electric box, cut off the tieline with scissors or pliers, pull out the wiring terminal, pull it upwards to remove the electric box.	electric box
	Twist off the screws on electric box (fireproofing) with screwdriver, and then remove the electric box (fireproofing).	electric box (fireproofing)
8.Remo	Twist off the tapping screws fixing the motor, pull out the pin of leading wire for motor and then remove the motor.	motor

Steps	Proc	cedure
9.Remo	ove motor support	
	Twist off the tapping screws fixingthe motor support, pull it upwardsand then remove the motor support.	motor support
10.Ren	nove isolation sheet	
	Twist off the screws connecting isolation sheet and end plate of condenser and chassis, and then remove the isolation sheet.	isolation sheet
11.Rem	nove 4-way valve	
	Unsolder the pipeline between compressor, condenser, gas and liquid valve, and then remove the 4-way valve. (note: release all refrigerant before unsoldering).	4-way valve

Steps	Proc	edure							
12.Rem	2.Remove gas valve and liquid valve								
	Twist off the 2 bolts fixing the valve sub-assy. Unsolder the soldering joint between gas valve and air-return pipe and then remove the gas valve.(note: when unsoldering the soldering joint, wrap the gas valve with wet cloth completely to avoid the damage to valve, and release all refrigerant completely at first). Unsolder the soldering joint between liquid valve and connection pipe of liquid valve, and then remove the liquid valve.	gas valve gas valve liquid valve							
13.Rem	nove valve support								
	Twist off the screws connecting valve support and chassis, and then remove the valve support.	valve support							
14.Rem	nove compressor								
	Twist off the 3 foot nuts on compressor and then remove the compressor.	compressor Compressor							
Steps	Procedure								
--------	--	----------------------	--	--	--	--	--	--	--
15.Rem	nove left side plate								
	Twist off the screws connecting the left side plate and chassis with screwdriver, and then remove the left side plate.	left side plate							
16.Rem	nove chassis and condenser	E							
	Pull it upwards to separate the chassis and condenser.	condenser chassis							

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 (°F)	Fahrenheit (°F)	Celsius(℃)	Fahrenheit display temperature (°F)	Fahrenheit (°F)	Celsius (°C)	Fahrenheit display temperature (°F)	Fahrenheit (°F)	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 (°F)	Fahrenheit	Celsius(℃)	Fahrenheit display temperature (°F)	Fahrenheit (°F)	Celsius (℃)	Fahrenheit display temperature (°F)	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):

• 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 R410A									
Diameter of con	nection pipe	Outdoor unit throttle							
Liquid pipe(mm)	Gas pipe(mm)	Cooling only(g/m)	Cooling and heating(g/m)						
Ф6	Ф9.5 or Ф12	15	20						
Φ6 or Φ9.5	Φ16 or Φ19	15	20						
Φ12	Φ19 or Φ22.2	30	120						
Ф16	Ф25.4 or Ф31.8	60	120						
Ф19	/	250	250						
Φ22.2	/	350	350						

Cooling capacity	connection pipe	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		

Cooling capacity

Max length of

Max height

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



• 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:

Outor diamotor(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				
Ф16 - 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.











Appendix 4: List of Resistance for Ambient Temperature Sensor

Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)
-19	138.1	20	18.75	59	3.848	98	1.071
-18	128.6	21	17.93	60	3.711	99	1.039
-17	121.6	22	17.14	61	3.579	100	1.009
-16	115	23	16.39	62	3.454	101	0.98
-15	108.7	24	15.68	63	3.333	102	0.952
-14	102.9	25	15	64	3.217	103	0.925
-13	97.4	26	14.36	65	3.105	104	0.898
-12	92.22	27	13.74	66	2.998	105	0.873
-11	87.35	28	13.16	67	2.896	106	0.848
-10	82.75	29	12.6	68	2.797	107	0.825
-9	78.43	30	12.07	69	2.702	108	0.802
-8	74.35	31	11.57	70	2.611	109	0.779
-7	70.5	32	11.09	71	2.523	110	0.758
-6	66.88	33	10.63	72	2.439	111	0.737
-5	63.46	34	10.2	73	2.358	112	0.717
-4	60.23	35	9.779	74	2.28	113	0.697
-3	57.18	36	9.382	75	2.206	114	0.678
-2	54.31	37	9.003	76	2.133	115	0.66
-1	51.59	38	8.642	77	2.064	116	0.642
0	49.02	39	8.297	78	1.997	117	0.625
1	46.6	40	7.967	79	1.933	118	0.608
2	44.31	41	7.653	80	1.871	119	0.592
3	42.14	42	7.352	81	1.811	120	0.577
4	40.09	43	7.065	82	1.754	121	0.561
5	38.15	44	6.791	83	1.699	122	0.547
6	36.32	45	6.529	84	1.645	123	0.532
7	34.58	46	6.278	85	1.594	124	0.519
8	32.94	47	6.038	86	1.544	125	0.505
9	31.38	48	5.809	87	1.497	126	0.492
10	29.9	49	5.589	88	1.451	127	0.48
11	28.51	50	5.379	89	1.408	128	0.467
12	27.18	51	5.197	90	1.363	129	0.456
13	25.92	52	4.986	91	1.322	130	0.444
14	24.73	53	4.802	92	1.282	131	0.433
15	23.6	54	4.625	93	1.244	132	0.422
16	22.53	55	4.456	94	1.207	133	0.412
17	21.51	56	4.294	95	1.171	134	0.401
18	20.54	57	4.139	96	1.136	135	0.391
19	19.63	58	3 99	97	1 103	136	0.382

Resistance Table of Ambient Temperature Sensor for Indoor and Outdoor Units(15K)

WGH-E / GH-E Model: 18 - 24

Resistance Table of Ambient Temperature Sensor for Indoor and Outdoor Units(20K)

Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)
-19	181.4	20	25.01	59	5.13	98	1.427
-18	171.4	21	23.9	60	4.948	99	1.386
-17	162.1	22	22.85	61	4.773	100	1.346
-16	153.3	23	21.85	62	4.605	101	1.307
-15	145	24	20.9	63	4.443	102	1.269
-14	137.2	25	20	64	4.289	103	1.233
-13	129.9	26	19.14	65	4.14	104	1.198
-12	123	27	18.13	66	3.998	105	1.164
-11	116.5	28	17.55	67	3.861	106	1.131
-10	110.3	29	16.8	68	3.729	107	1.099
-9	104.6	30	16.1	69	3.603	108	1.069
-8	99.13	31	15.43	70	3.481	109	1.039
-7	94	32	14.79	71	3.364	110	1.01
-6	89.17	33	14.18	72	3.252	111	0.983
-5	84.61	34	13.59	73	3.144	112	0.956
-4	80.31	35	13.04	74	3.04	113	0.93
-3	76.24	36	12.51	75	2.94	114	0.904
-2	72.41	37	12	76	2.844	115	0.88
-1	68.79	38	11.52	77	2.752	116	0.856
0	65.37	39	11.06	78	2.663	117	0.833
1	62.13	40	10.62	79	2.577	118	0.811
2	59.08	41	10.2	80	2.495	119	0.77
3	56.19	42	9.803	81	2.415	120	0.769
4	53.46	43	9.42	82	2.339	121	0.746
5	50.87	44	9.054	83	2.265	122	0.729
6	48.42	45	8.705	84	2.194	123	0.71
7	46.11	46	8.37	85	2.125	124	0.692
8	43.92	47	8.051	86	2.059	125	0.674
9	41.84	48	7.745	87	1.996	126	0.658
10	39.87	49	7.453	88	1.934	127	0.64
11	38.01	50	7.173	89	1.875	128	0.623
12	36.24	51	6.905	90	1.818	129	0.607
13	34.57	52	6.648	91	1.736	130	0.592
14	32.98	53	6.403	92	1.71	131	0.577
15	31.47	54	6.167	93	1.658	132	0.563
16	30.04	55	5.942	94	1.609	133	0.549
17	28.68	56	5.726	95	1.561	134	0.535
18	27.39	57	5.519	96	1.515	135	0.521
19	26.17	58	5.32	97	1.47	136	0.509

WGH-E / GH-E Model: 18 - 24

Service Manual

Resistance Table of Ambient Temperature Sensor for Indoor and Outdoor Units(50K)

Temp(°C)	Resistance(kΩ)	Tem	p(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)
-29	853.5		0	98	49	18.34	88	4.75
-28	799.8		1	93.42	50	17.65	89	4.61
-27	750		2	89.07	51	16.99	90	4.47
-26	703.8		3	84.95	52	16.36	91	4.33
-25	660.8		4	81.05	53	15.75	92	4.20
-24	620.8		5	77.35	54	15.17	93	4.08
-23	580.6		6	73.83	55	14.62	94	3.96
-22	548.9		7	70.5	56	14.09	95	3.84
-21	516.6		8	67.34	57	13.58	96	3.73
-20	486.5		9	64.33	58	13.09	97	3.62
-19	458.3		20	61.48	59	12.62	98	3.51
-18	432		1	58.77	60	12.17	99	3.41
-17	407.4		2	56.19	61	11.74	100	3.32
-16	384.5		3	53.74	62	11.32	101	3.22
-15	362.9		24	51.41	63	10.93	102	3.13
-14	342.8		25	49.19	64	10.54	103	3.04
-13	323.9		26	47.08	65	10.18	104	2.96
-12	306.2		27	45.07	66	9.83	105	2.87
-11	289.6		.8	43.16	67	9.49	106	2.79
-10	274		9	41.34	68	9.17	107	2.72
-9	259.3	3	0	39.61	69	8.85	108	2.64
-8	245.6		51	37.96	70	8.56	109	2.57
-7	232.6		2	36.38	71	8.27	110	2.50
-6	220.5		3	34.88	72	7.99	111	2.43
-5	209	3	4	33.45	73	7.73	112	2.37
-4	198.3		5	32.09	74	7.47	113	2.30
-3	199.1		6	30.79	75	7.22	114	2.24
-2	178.5		57	29.54	76	7.00	115	2.18
-1	169.5		8	28.36	77	6.76	116	2.12
0	161		9	27.23	78	6.54	117	2.07
1	153		0	26.15	79	6.33	118	2.02
2	145.4		1	25.11	80	6.13	119	1.96
3	138.3		2	24.13	81	5.93	120	1.91
4	131.5		3	23.19	82	5.75	121	1.86
5	125.1		.4	22.29	83	5.57	122	1.82
6	119.1	2	-5	21.43	84	5.39	123	1.77
7	113.4		-6	20.6	85	5.22	124	1.73
8	108	2	7	19.81	86	5.06	125	1.68
9	102.8	4	-8	19.06	87	4.90	126	1.64



Vidicon Ltd. Commercial Air Conditioners

