

# Service Manual

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Models: GPC12AL-K3NNA1A  
GPH12AL-K3NNA1A  
GPH12AL-K3NNA2A  
GPH12AL-K3NNA3A  
(Refrigerant R410A)

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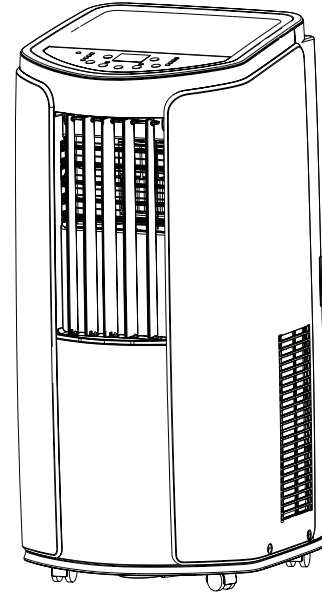


# Part I : Technical Information

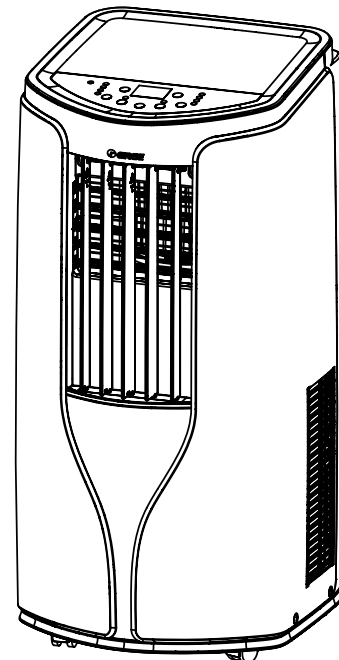
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## 1. Summary

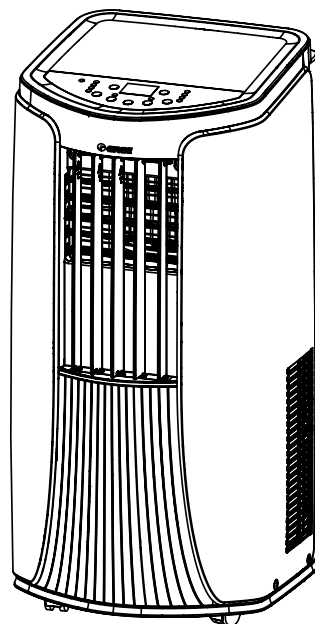
Models:GPC12AL-K3NNA1A  
GPH12AL-K3NNA1A



Model: GPH12AL-K3NNA2A



Model: GPH12AL-K3NNA3A



Remote Controller:

YB1F2(XFAN)



## 2. Specifications

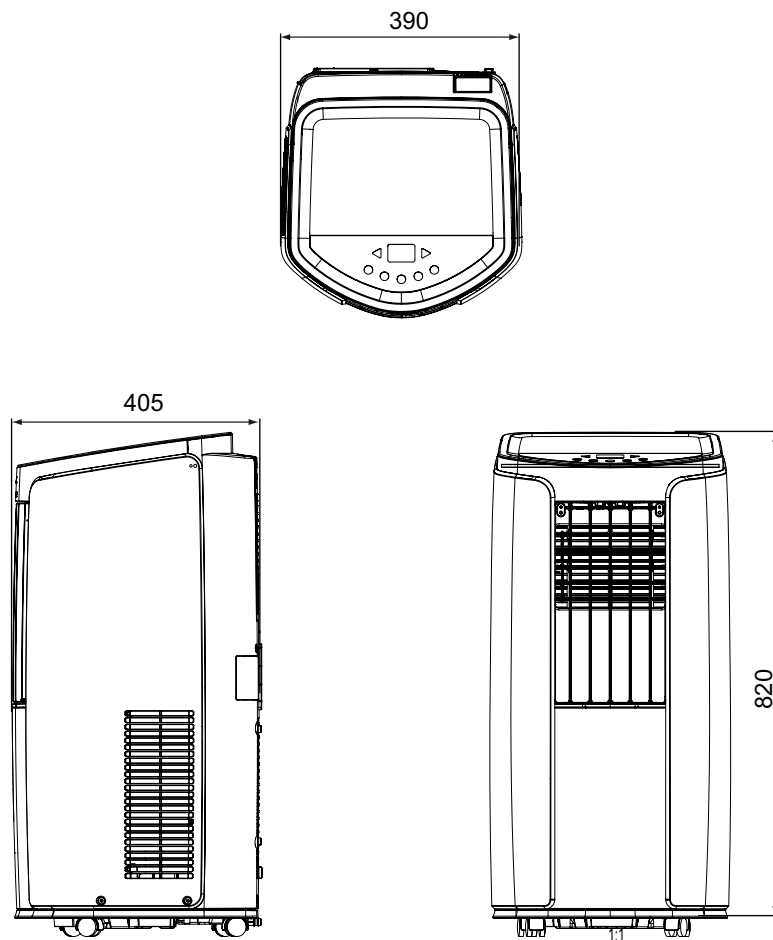
Parameter		Unit	Value	
Model			GPC12AL-K3NNA1A	GPH12AL-K3NNA1A GPH12AL-K3NNA2A GPH12AL-K3NNA3A
Product Code			CK010025700 CK010025702	CK010024500 CK010025800 CK010025900
Power Supply	Rated Voltage	V ~	220-240	220-240
	Rated Frequency	Hz	50	50
	Phases		1	1
Cooling Capacity		W	3520	3520
Heating Capacity		W	/	3520
Cooling Power Input		W	1345	1345
Heating Power Input		W	/	1235
Cooling Power Current		A	6.0	6.0
Heating Power Current		A	/	5.5
Rated Input		W	1550	1550
Rated Current		A	7.0	7.0
Air Flow Volume(H/M/L)		m <sup>3</sup> /h	360/330/300	360/330/300
Dehumidifying Volume		L/h	1.6	1.6
EER		W/W	2.61	2.61
COP		W/W	/	2.85
SEER			/	/
HSPF			/	/
Application Area		m <sup>2</sup>	15-22	15-22
Climate Type			T1	T1
Isolation			I	I
Moisture Protection			IPX0	IPX0
Permissible Excessive Operating Pressure for the Discharge Side		MPa	4.3	4.3
Permissible Excessive Operating Pressure for the Suction Side		MPa	2.5	2.5
Throttling Method			Capillary	Capillary
Defrosting Method			/	Automatic Defrosting
Fuse		A	3.15	3.15
Operation Temp		°C	16~30	16~30
Ambient Temp (Cooling)		°C	16~35	16~35
Ambient Temp (Heating)		°C	/	10~27
Sound Pressure Level (H/M/L)		dB (A)	53/51/49	53/51/49
Sound Power Level (H/M/L)		dB (A)	65/64/63	65/64/63
Dimension (WXHXD)		mm	390X820X405	390X820X405
Dimension of Carton Box (LXWXH)		mm	578X452X847	578X452X847
Dimension of Package (LXWXH)		mm	581X455X862	581X455X862
Net Weight		kg	39	39
Gross Weight		kg	44	44
Refrigerant			R410A	R410A
Refrigerant Charge		kg	0.79	0.81

Compressor	Compressor Manufacturer/Trademark		ZHUHAI LANDA COMPRESSOR CO., LTD	ZHUHAI LANDA COMPRESSOR CO., LTD
	Compressor Model		QXA-C136B030B	QXA-C136B030B
	Compressor Oil		POE(RB68EP)	POE(RB68EP)
	Compressor Type		Rotary	Rotary
	L.R.A.	A	27.00	27.00
	Compressor RLA	A	5.1	5.1
	Compressor Power Input	W	1115	1115
	Overload Protector		UP3-02	UP3-02
Evaporator	Fan Type		Centrifugal	Centrifugal
	Diameter Length(DXL)	mm	Φ187.6X108.2	Φ187.6X108.2
	Fan Motor Speed(H/M/L)	r/min	1050/960/870	1050/960/870
	Output of Fan Motor	W	16	16
	Fan Motor RLA	A	0.3	0.3
	Fan Motor Capacitor	μF	3.5	3.5
	Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Pipe Diameter	mm	Φ7	Φ7
	Row-fin Gap	mm	3-1.4	3-1.4
	Coil Length (LXDXW)	mm	442X38.1X228.6	442X38.1X228.6
	Swing Motor Model		/	/
	Output of Swing Motor	W	/	/
Condenser	Fan Type		Centrifugal	Centrifugal
	Fan Diameter	mm	Φ224.5X80	Φ224.5X80
	Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Pipe Diameter	mm	Φ7	Φ7
	Rows-fin Gap	mm	3-1.4	3-1.4
	Coil Length (LXDXW)	mm	592X34.2X304.8/475X11.4X266.7	592X34.2X304.8/475X11.4X266.7
	Fan Motor Speed	rpm	1040/850	1040/850
	Output of Fan Motor	W	50	50
	Fan Motor RLA	A	0.53	0.53
	Fan Motor Capacitor	μF	3.5	3.5

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

### 3. Outline Dimension Diagram

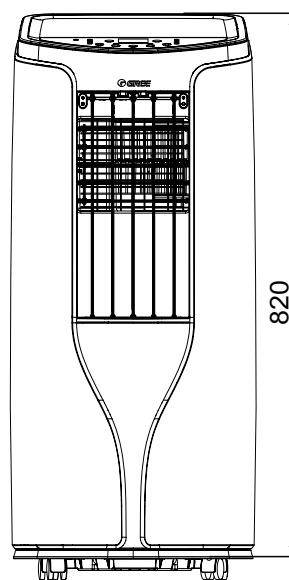
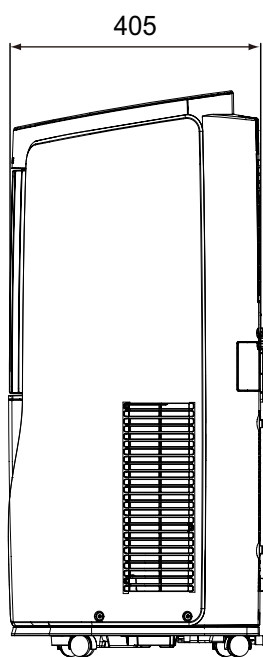
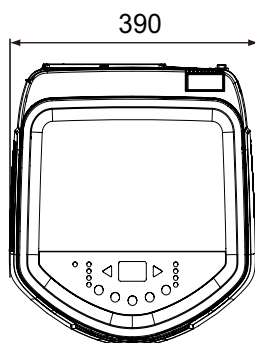
GPC12AL-K3NNA1A GPH12AL-K3NNA1A



Unit:mm

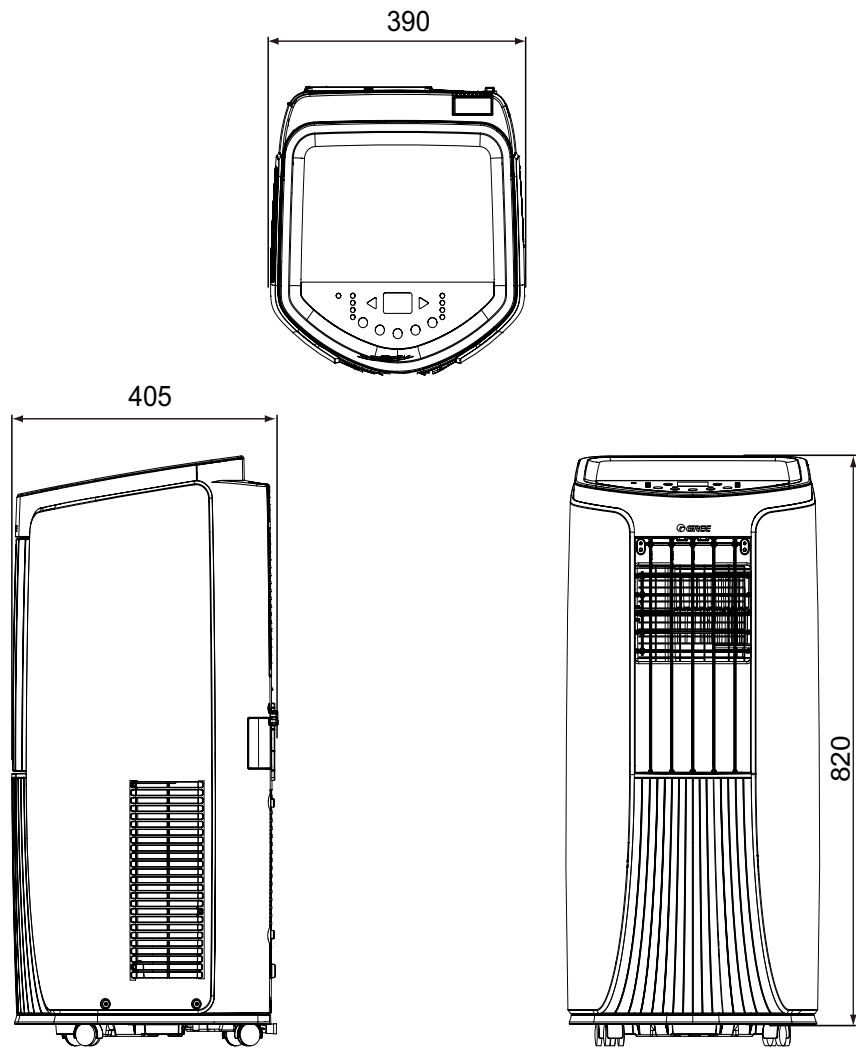


GPH12AL-K3NNA2A



Unit:mm

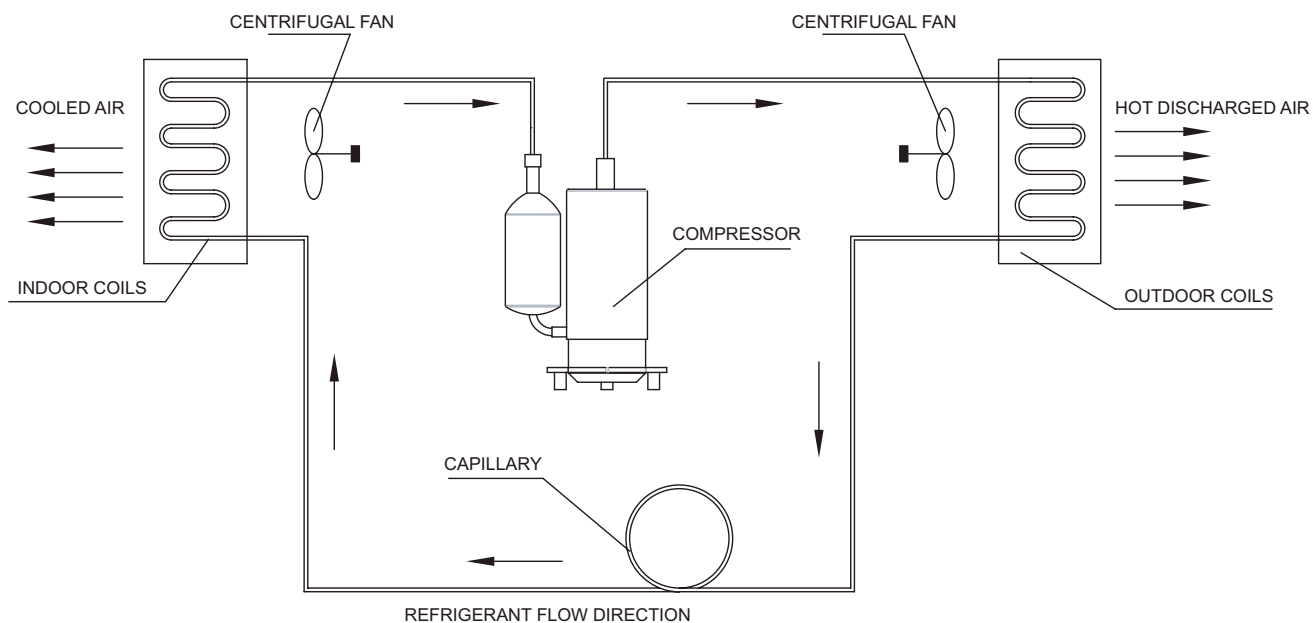
GPH12AL-K3NNA3A



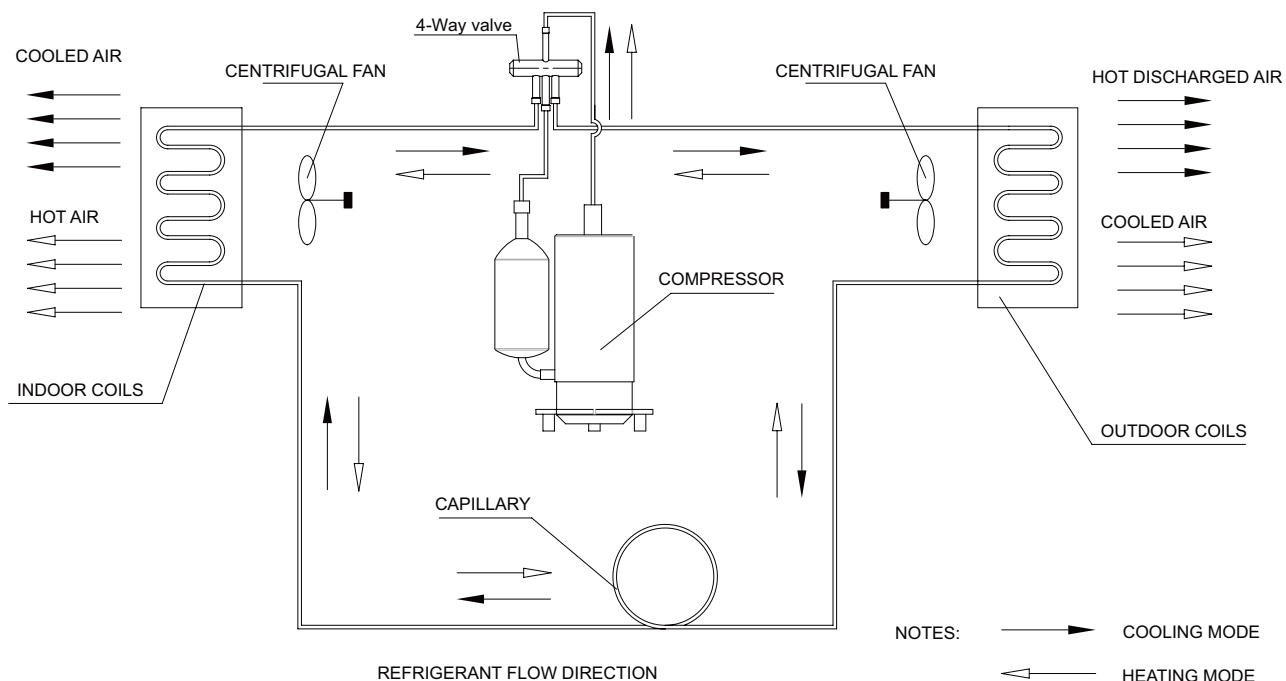
Unit:mm

# 4. Refrigerant System Diagram

GPC12AL-K3NNA1A



GPH12AL-K3NNA1A GPH12AL-K3NNA2A GPH12AL-K3NNA3A



# 5. Electrical Part

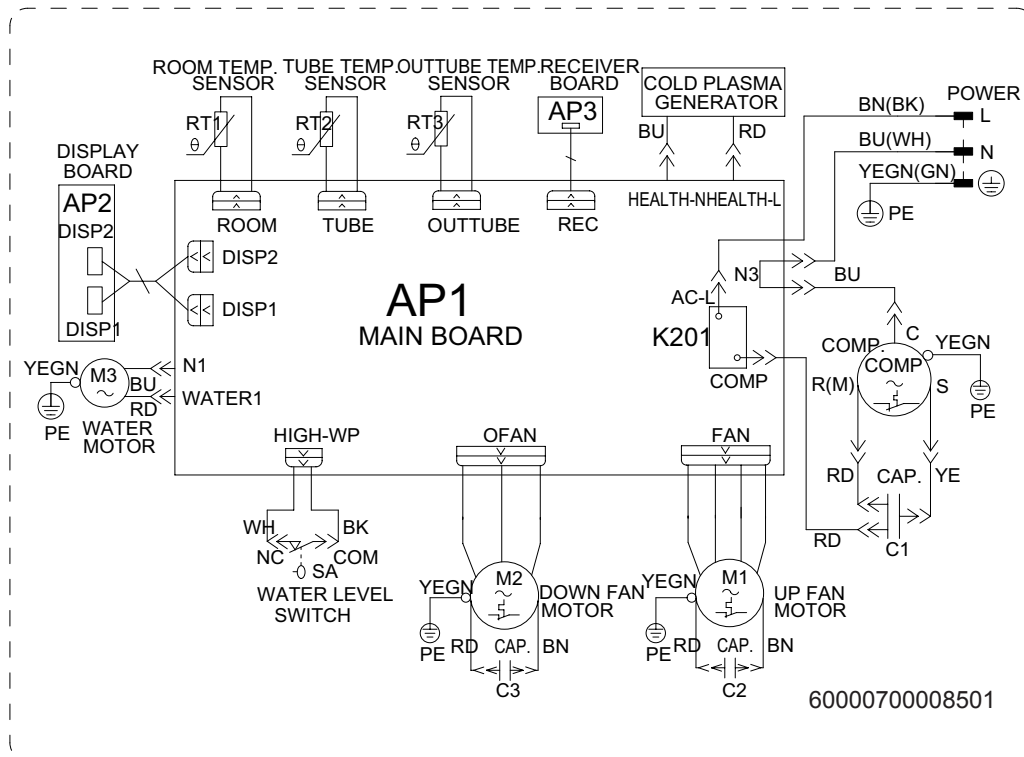
## 5.1 Wiring Diagram

### ●Instruction

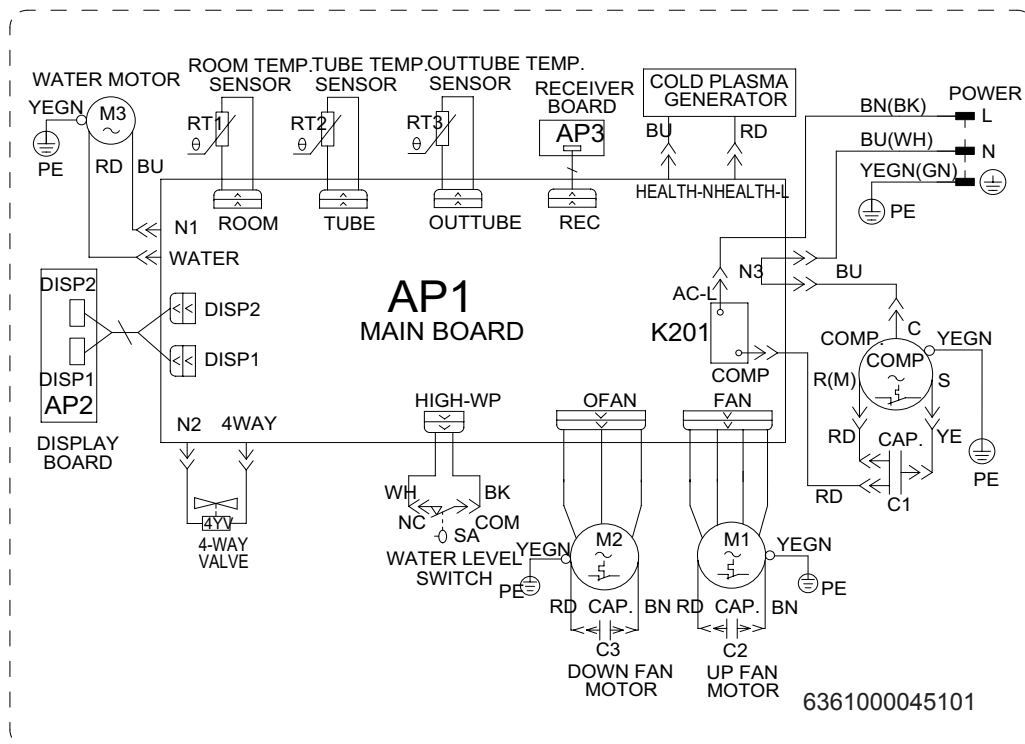
Symbol	Symbol Color	Symbol	Symbol Color	Symbol	Name
WH	White	GN	Green	COMP	Compressor
YE	Yellow	BN	Brown		Grounding wire
RD	Red	BU	Blue	/	/
YEGN	Yellow/Green	BK	Black	/	/
VT	Violet	OG	Orange	/	/

### ●Electric Diagram

Model:GPC12AL-K3NNA1A



Models:GPH12AL-K3NNA1A GPH12AL-K3NNA2A GPH12AL-K3NNA3A



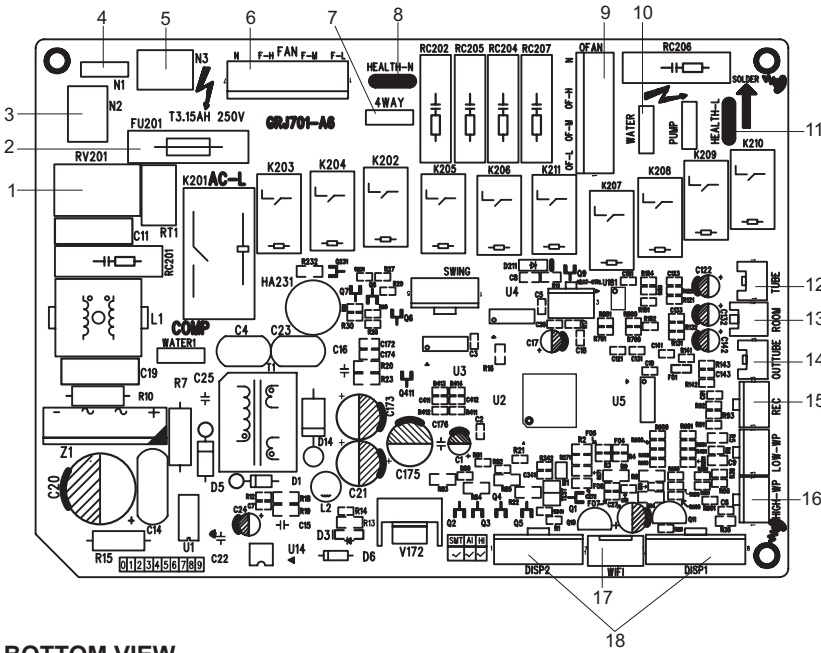
These wiring diagrams are subject to change without notice; please refer to the one supplied with the unit.



## 5.2 PCB Printed Diagram

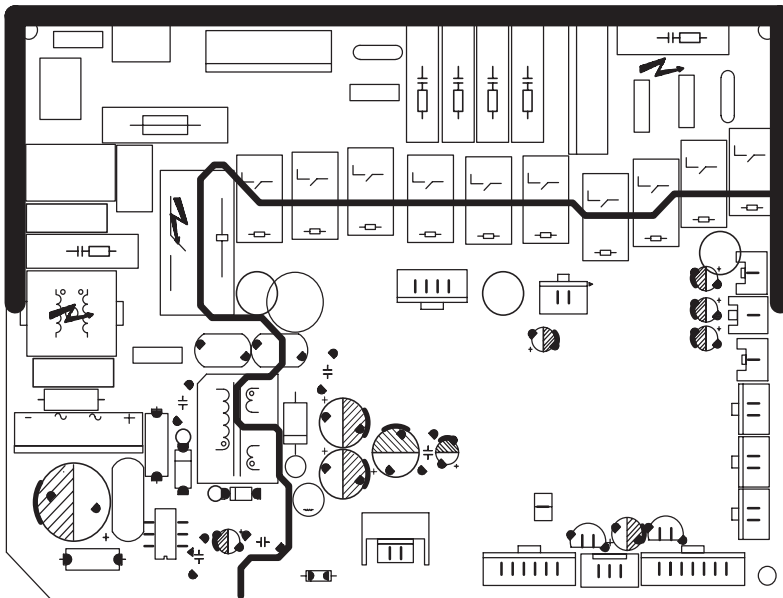
### (1)Silk screen on main board

● TOP VIEW



NO.	NAME
1	Piezoresistor
2	Fuse
3	Copper fin N2 of neutral wire
4	Copper fin N1 of neutral wire
5	Copper fin N3 of neutral wire
6	Indoor fan
7	4-way valve terminal
8	Neutral wire terminal
9	Outdoor fan
10	Copper fin water of motor
11	Copper fin Health of live wire
12	Tube temperature sensor
13	Ambient temperature sensor
14	Outtube temperature sensor
15	Interface of remoter
16	High water level
17	Interface of display board
18	Interface of wifi board

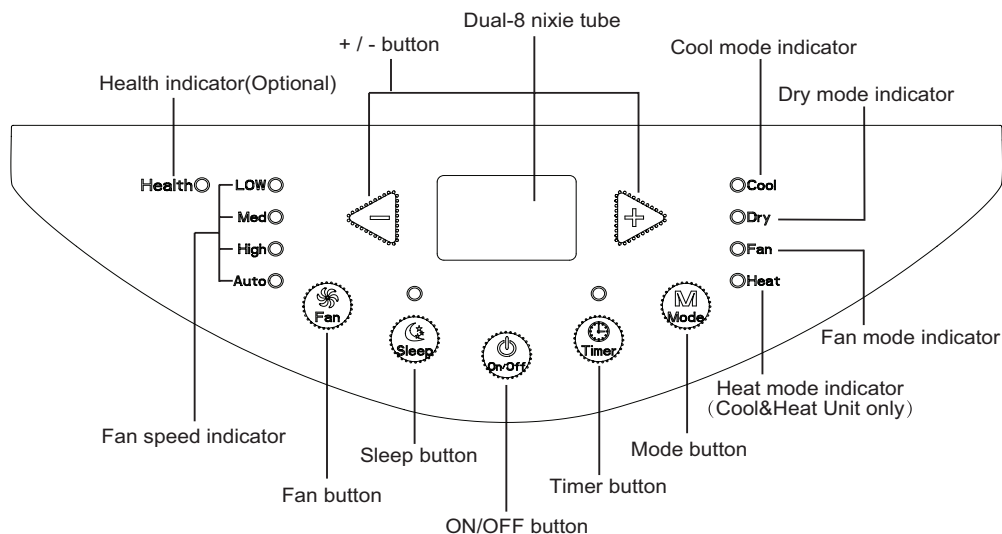
● BOTTOM VIEW





## 6. Function and Control

### 6.1 Introduction of control panel



#### Operation of control panel

Note:

- After putting through the power, the air conditioner will give out a sound. After that, you can operate the air conditioner by the control panel.
- Under ON status, after each pressing of the button on control panel, the air conditioner will give out a sound. Meanwhile, corresponding indicator on control panel will be bright.
- Under OFF status, dual-8 nixie tube on control panel wont display.  
Under ON status, dual-8 nixie tube on control panel will display set temperature.  
under cooling mode, while it wont display under other modes

#### 1. ON/OFF button

Press this button to turn on or turn off air conditioner.

#### 2. + / - button

Under cooling mode, press "+" or "-" button to increase or decrease set temperature by 1°C(°F). Set temperature range is 16°C(61°F)~30°C(86°F). Under auto, drying or fan mode, this button is invalid.

#### 3. Mode button

Press this button and the mode will circulate according to below sequence:

COOL→DRY→FAN

COOL: Under this mode, cooling mode indicator is bright. Dual-8 nixie tube displays set temperature. Temperature setting range is 16°C~30°C.

DRY: Under this mode, drying mode indicator is bright. Dual-8 nixie tube wont display.

FAN: Under this mode, air conditioner operates at set fan speed. Fan indicator and corresponding speed indicator is ON. Dual-8 nixie tube wont display.(Note: You must connect the heat-discharge pipe before operating cooling or drying mode. No need for only fan mode.)

Heat Cool&Heat Unit only : Under this mode, heating mode indicator is bright.

Dual-8 nixie tube displays set temperature.

Temperature setting range is 16°C~30°C.

#### 4. FAN button

Press this button and the fan speed will circulate as "low speed→medium speed →high speed→auto fan→low speed".

#### 5. Timer button

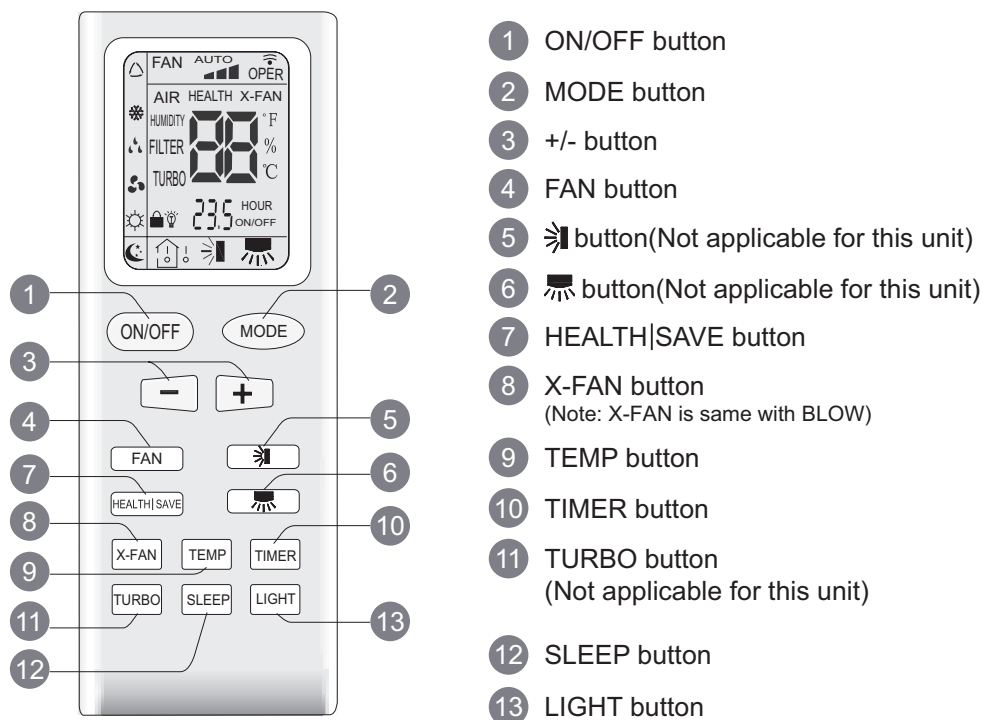
Press timer button to enter into timer setting mode. Under this mode, press "+" or "-" button to adjust the timer setting. Timer setting will increase or decrease 0.5 hour by pressing "+" or "-" button within 10 hours, while timer setting will increase or decrease 1 hour by pressing "+" or "-" button beyond 10 hours. After timer setting is finished, the unit will display temperature if theres no operation for 5s. If timer function is started up, the upper indicator will keep the display status. Others, it wont be displayed. Under timer mode, press timer button again to cancel timer mode.

#### 6. Sleep

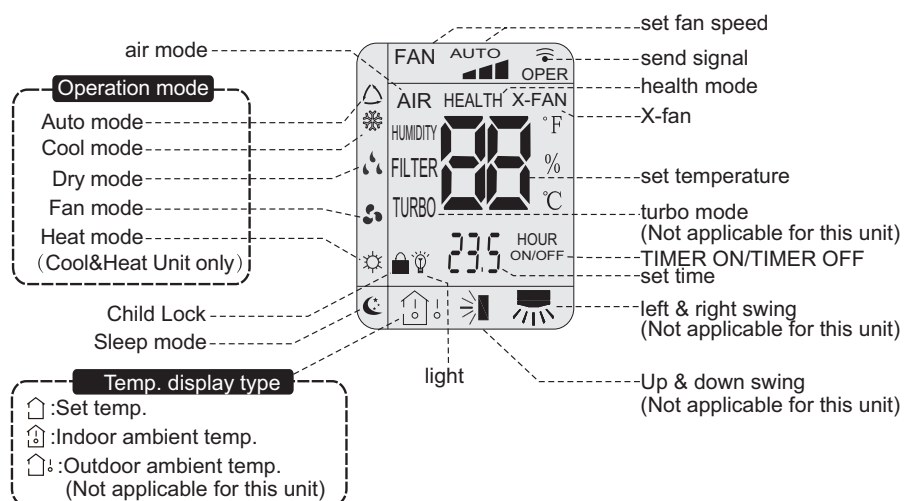
- Press sleep button to enter into sleep mode. If the controller operates at cooling mode, after sleep mode is started up, preset temperature will increase by 1°C within 1 hour ;preset temperature will increase by 2°C within 2 hours and then the unit will operate at this temperature all the time;
- Press sleep button to enter into sleep mode. If the controller operates at heating mode, after sleep mode is started up, preset temperature will decrease by 1°C within 1 hour ;preset temperature will decrease by 2°C within 2 hours and then the unit will operate at this temperature all the time;
- Sleep function is not available for fan mode, drying mode. If sleep function is started up, the upper indicator will keep the display status. Others, it wont be displayed.

## 6.2 Remote Controller Introduction

### Buttons on Remote Controller




### Icon Display on Remote Controller



#### Note:

- This is a general use remote controller, it could be used for the air conditioners with multifunction; For some function, which the model doesn't have, if press the with multifunction; For some function, which the model doesn't have, if press the corresponding button on the remote controller that the unit will keep the original running status.
- After putting through the power, the air conditioner will give out a sound. Operation indicator " " 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/DFE button**

Press this button can turn on or turn off the air conditioner. After turning on the unit,operation indicator "  " on the unit is ON (green indicator. Color may be differ-ent for different models) and the unit gives out a sound.

**2.MODE button**

Press this button can select your required operation mode.



- After selecting auto mode, air conditioner will operate automatically according to ambient temperature. Set temperature cant be adjusted and also cant be displa- yed. Press "FAN" button can adjust fan speed.
- After selecting cool mode, air conditioner operates under cool mode. Cool indicator "  " on the unit is ON. You can press "+" or "-" button to adjust set temperature. Press "FAN" button can adjust fan speed.
- After selecting dry mode, air conditioner operates under dry mode at low speed. Dry indicator "  " on the unit is ON. Under dry mode, fan speed cant be ad- justed.
- After selecting fan mode, air conditioner operates only under fan mode, All mode indicators on the unit is OFF. Operation indicator is ON. Press "FAN" button can adjust fan speed.
- After selecting heat mode, air conditioner operates under heat mode. Heat indicator "  " on the unit is ON. You can press "+" or "-" button to adjust set temperature. Press "FAN" button to adjust fan speed. (Cool&Heat Unit only)

**Note:**

For preventing cold wind, after starting up heating mode, indoor fan will blow fanafterdelaying 1-5min. (Details time is decided by indoor ambient temperature)Temperature setting range on remote controller: 16°C -30°C . Fan speed setting range: auto, low speed, medium speed and high speed.

**3."+"or"- "button**

- After each pressing of "+" or "-" button, it can increase or decrease set temperature 1°C . Hold "+" or "-" button, 2s later, set temperature on remote controller will change quickly. After reaching to your required time, loosen the button. Temperature indicator on the unit will also change accordingly. (Temperature cant be adjusted under auto mode)

**4. FAN Button**

Pressin this button can select fan s eed circularly as: AUTO, SPEED 1 (  ), SPEED 2 (  ), SPEED 3 (  ).



**Note:**

- ◆ Under Auto mode, air conditioner will select proper fan speed automatically according to ex-factory setting.
- ◆ Fan speed can't be adjusted under Dry mode.

5.  button(Not applicable for this unit)

6.  button(Not applicable for this unit)

**7.HEALTH SAVE button**

**HEALTH FUNCTION:**

After pressing HEALTH button, remote controller will switch circularly as below:"HEALTH"→"AIR"→"AIR HEALTH"→"no display"

- When selecting "HEALTH" by remote controller, HEALTH function will be started up.
- When selecting "AIR" by remote controller, AIR function will be started up. (Not applicable for this unit)
- When selecting "AIT HEALTH", AIR and HEALTH function will be started up.
- When theres no display on remote controller, AIR and HEALTH function will be turned off.

**8.X-FAN button**

After pressing this button under cooling or dry mode, remote controller displays the character of "X-FAN" and X-FAN function is started up. Press this button again to cancel X-FAN function. The character of "X-FAN" will disappear.

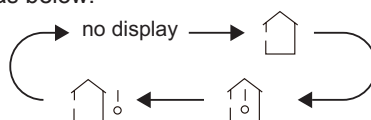
**Note:**

- After starting up X-FAN function, when turning off the unit, indoor fan will continue to operate for a while at low speed to dry the residual water inside the the unit.
- When the unit operates under X-FAN mode, press "X-FAN" button can turn off X-FAN function. Indoor fan stops operation immediately.



## 9.TEMP button

Press this button can see indoor set temperature, indoor ambient temperature or outdoor ambient temperature on the units display. Temperature is set circularly by remote controller as below:



- When selecting "🏠" by remote controller or no display, temperature indicator on the unit displays set temperature.
- When selecting "🏠!" by remote controller, temperature indicator on the unit displays indoor ambient temperature.
- When selecting "🏠☀️" by remote controller, temperature indicator on the unit displays outdoor ambient temperature.

### Note:

• Outdoor ambient temperature display may not be selected for some models.

When the unit receives "🏠☀️" signal, it displays indoor set temperature.

- Only for the model whose the unit has dual-8 display.

## 10.TIMER button

• At ON status, press this button once can set TIMER OFF. The character of HOUR and OFF will flash. Press "+" or "-" button within 5s can adjust the time of TIMER ON. After each pressing of "+" or "-" button, time will increase or decrease half an hour. When holding "+" or "-" button, 2s later, the time will change quickly until to reach to your required time. After that, press "TIMER" button to confirm it. The character of HOUR and OFF will flash again.

Cancel TIMER OFF: Press "TIMER" button again under TIMER OFF status. • At OFF status, press this button once can set TIMER ON. Please refer to TIMER off for detailed operation.

Cancel TIMER ON: Press "TIMER" button again under TIMER ON status.

### Note:

- Timer setting range: 0.5~24h
- Time interval between two operations can't exceed 5s. Otherwise, remote controller will exit the setting status automatically.

## 11.TURBO button (Not applicable for this unit)

When pressing this button under cooling or heating mode, air conditioner will enter into quick cooling or quick heating mode. The character of "TURBO" is displayed on remote controller. Press this button again to exit turbo function and the character of "TURBO" will be disappeared on remote controller.

## 12.SLEEP button

Press this button under cooling, heating mode can start up sleep function. "🌙" icon will be displayed on remote controller. Press this button again to cancel sleep function. "🌙" icon on remote controller will be displayed.

## 13.LIGHT button

Press this button can turn off the light for the units display. "💡" icon on remote controller will disappear. Press this button again to turn on the light for the units display. "💡" icon on remote controller will be displayed.

## Function introduction for combination buttons

### Child lock function

Press "+" and "-" buttons simultaneously can turn on or turn off child lock function. When child lock function is started up, "🔒" icon will be displayed on remote controller. If operate remote controller, "🔒" icon will flash three times, while remote controller won't send signal.


### Switchover function for temperature display

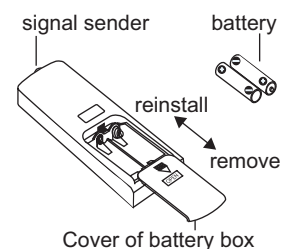
After turning off the unit by remote controller, press "-" button and "MODE" buttons simultaneously to switch between °C and °F.

## Operation Guide

1. After putting through the power, press "ON/OFF" button on remote controller to turn on the air conditioner.
2. Press "MODE" button to select your required mode: COOL, DRY, FAN.
3. Press "+" or "-" button to set your required temperature. (Temperature can't be adjusted under auto mode).
4. Press "FAN" button to set your required fan speed: auto, low, medium and high speed.

## Replacement of Batteries in Remote Controller

1. Press the back side of remote controller on the spot marked with , and then push out the cover of battery box along the arrow direction.
2. Replace two No.7 (AAA 1.5V) dry batteries and make sure the positions of + and -- polar are correct.
3. Reinstall the cover of battery box.



**NOTICE:**

- During operation, point the remote control signal sender at the receiving window on the 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 the unit during operation.
- Replace new batteries of the same model when replacement is required.
- When you dont use remote controller for a long time, please take out the batteries.
- If the display on remote controller is fuzzy or theres no display, please replace batteries.

## 6.3 Introduction of Basic Mode Function

### 1. Temperature Parameter

- ◆ Indo or setting temperature (T<sub>preset</sub>)
- ◆ Indoor ambient temperature (T<sub>amb</sub>.)

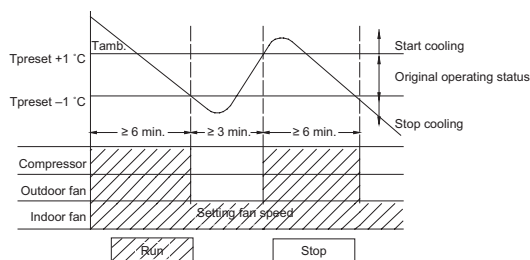
### 2. Basic Functions of System

After the unit is energized, the interval of start-up time for compressor is no less than 3min under any conditions; when the compressor is started, the unit is off without the temperature change in 6min.

#### 2.1 Cool Mode

2.1.1 Working conditions and process of cooling

- a) When  $T_{amb} \geq T_{preset} + 1^{\circ}\text{C}$  (2oF), the unit will start to run in cooling mode, the compressor and kick motor start to run, and fan motor runs under preset fan speed.
- b) When  $T_{amb} \leq T_{preset} - 1^{\circ}\text{C}$  (2oF), the compressor and kick motor stop to run, and fan motor runs under preset fan speed.
- c) When  $T_{preset} - 1^{\circ}\text{C}$  (2oF)  $< T_{amb} < T_{preset} + 1^{\circ}\text{C}$  (2oF), the unit will keep the current running status. Under this mode, the temperature setting range is 61oF-86oF (16oC -30oC).



- a) Under cooling mode, after 1h of setting sleep process, T<sub>preset</sub> increases 2oF(1oC); 2h later, T<sub>preset</sub> increases 4oF(2oC). After 2h, the setting temperature never increases, but the upper limit of increased setting temperature is 86oF(30oC)
- b) Under heating mode, after 1h of setting sleep process, T<sub>preset</sub> decreases 2oF(1oC); 2h later, T<sub>preset</sub> decreases 4oF(2oC). After 2h, the setting temperature never decreases, but the upper limit of decreased setting temperature is 61oF(16oC)
- c) There is no sleep function under fan and dry mode.
- d) When set sleep function, shift mode will cancel sleep function.
- e) The setting temperature display is the same with remote controller; it is not influenced by the setting temperature increases/ decreases.

#### 2.2 Heating mode

When  $T_{amb} \leq T_{preset} + 3^{\circ}\text{C}$  (6°F), the unit operates in heating mode. Meanwhile, 4-way valve, compressor operates, and indoor fan operates at cold air prevention condition;

When  $T_{preset} + 3^{\circ}\text{C}$  (6°F)  $< T_{amb} < T_{preset} + 5^{\circ}\text{C}$  (10°F), the unit keeps original operation status,

When  $T_{amb} \geq T_{preset} + 5^{\circ}\text{C}$  (10°F), compressor stop operation simultaneously. 4-way valve stop operation after the compressor has stopped for 2 minutes. Indoor fan operates at blowing residual heat conditioner.

Under this mode, the temperature setting range is 16-30°C(61-86°F).

#### 3.3 Auto Fan

- |                                                               |               |
|---------------------------------------------------------------|---------------|
| a) Auto fan speed under                                       | Cooling mode; |
| $T_{amb} \geq T_{preset} + 4^{\circ}\text{F}$ (2oC)           | High fan;     |
| $T_{preset} < T_{amb} < T_{preset} + 4^{\circ}\text{F}$ (2oC) | Med fan;      |
| $T_{amb} \leq T_{preset}$                                     | Low fan;      |

- b) There is 3.5min delay for auto fan shift.

#### 3.4 TIMER Function

##### ● General timer

- a) TIMER ON: It can set timer on when the system is off, the setting time range is 0.5h-24h, when the time of setting timer on reaches, and the system runs with the previous setting mode.
- b) TIMER OFF: It can set timer on when the system is on, the setting time range is 0.5h-24h, when the time of setting timer off reaches, the system stop to work.

##### ● Clock timer

- a) TIMER ON: If set timer on when the system is running, it continues to run; if set timer on when the system is off, when the time of setting timer on reaches, and the system runs with the previous setting mode.
- b) TIMER OFF: If set timer off when the system is off, the system keeps the stand-by status when setting timer off; if set timer off when the system is on, when the time of timer off reaches, the system stops to run.

#### 3.5 Memory Function

The system memories the setting running status of previous power-off, and runs automatically with the setting running status before it power-off when it is energized again. If the unit is on before power-off, the compressor will 3min delay protection when it is energized again.

#### 3.6 Indicator Lamp, dual-8 digital pipe

- a) When the unit runs, under cooling mode, cooling indicator lamp lights, dual-8 displays preset temperature.
- b) When the unit runs, under fan mode, fan indicator lamp lights, dual-8 does not display.
- c) When the unit runs, under dry mode, dry indicator lamp lights, dual-8 does not display.
- d) When the unit runs, under heating mode, heating indicator lamp lights, dual-8 displays preset temperature.

### 3.7 Setting button function

- a) ON/OFF button: It controls systems switch.
- b) Mode button: Mode setting cycle with below sequence: Cooling only unit: cooling-> dry-> fan.
- c) Temp. ▼ button: Set temperature when the unit is on, the setting temperature decreases 1°C or °F per press
- Temp. ▼ button; it will never setting when the setting reaches to 16°C or 61°F. The button is not valid under auto, dry and fan mode.
- d) Temp. ▲ button: Set temperature when the unit is on, the setting temperature increases 1°C or °F per press
- Temp. ▲ button; it will never setting when the setting reaches to 30°C or 86°F. The button is not valid under auto, dry and fan mode.

### 3.8 Light Control

If set the light is on with remote control, the indicator lamp and dual-8 display the current setting status; if set the light is off with remote control, turn off the lamp immediately. If there is front panel button or remote control button operation when setting light off with remote control, the indicator lamp and dual-8 display current setting status, and turn off the light 5S later. Remote control light button does not controlled by failure display.

### 3.9 Protection Function

#### ● Anti-freeze Protection

When the anti-freeze protection is inspected, the compressor stops, fan motor runs with setting fan speed.

When the anti-freeze protection is canceled and reaches to the 3min time-delay, it runs with the original status.

Temperature sensor failure inspection

- a) Environment temperature sensor is open, short circuit: dual-8 displays F1, the cooling indicator lamp goes out 3S and blinks 1 time, and it will light up 0.5S and go out 0.5S when it is blinking.
- b) Indoor pipe temperature sensor is open, short circuit: dual-8 displays F2, the cooling indicator lamp goes out 3S and blinks 2 times, and it will light up 0.5S and go out 0.5S when it is blinking.
- c) Outdoor pipe temperature sensor is open, short circuit: dual-8 displays F4, the cooling indicator lamp goes out 3S and blinks 4 times, and it will light up 0.5S and go out 0.5S when it is blinking.
- d) The compressor or electric heating pipe stops when the temperature sensor failure and the unit is on, The fan motor will be deal regarding compressor or electric pipe reach to the temperature point and stops.

#### ● Over current Protection

If the system current is inspected too large for 3min continuously, the fan motor runs with setting conditions, other load stops; 3min later, the unit runs with the previously status; if over current protection occurs for 6 times continuously, display error code "E5", the load stops this time; if block the button except ON/OFF button, it will remote control the unit to off then on, or turn off with button, or re-energized; the time of over current protection will zero clearing with remote control, press to turn on or re-energized.

#### ● Over-flow Protection

If the over-flow is detected for 3S, it will enter into over-flow protection. Display error code H8, heating indicator lamp or over-flow indicator lamp goes out 3S and blinks 8 times.

# 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.

10. Check if there is electric leakage on the unit body. If yes, please eliminate the electric leakage.

11. Replace the fuse with a new one of the same specification if it is burnt down; dont replace it with a cooper wire or conducting wire.

12. If the unit is to be installed in a humid place, the circuit breaker must be installed.

#### Refrigerant Safety Precautions:

1. Avoid contact between refrigerant and fire as it generates poisonous gas. Recycle the refrigerant inside the unit completely before welding pipes.

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.If refrigerant is leaking seriously, it may cause suffocation or explosion. When using the combustibile refrigerant, please put the unit at ventilated place.

4. 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.



## Warnings

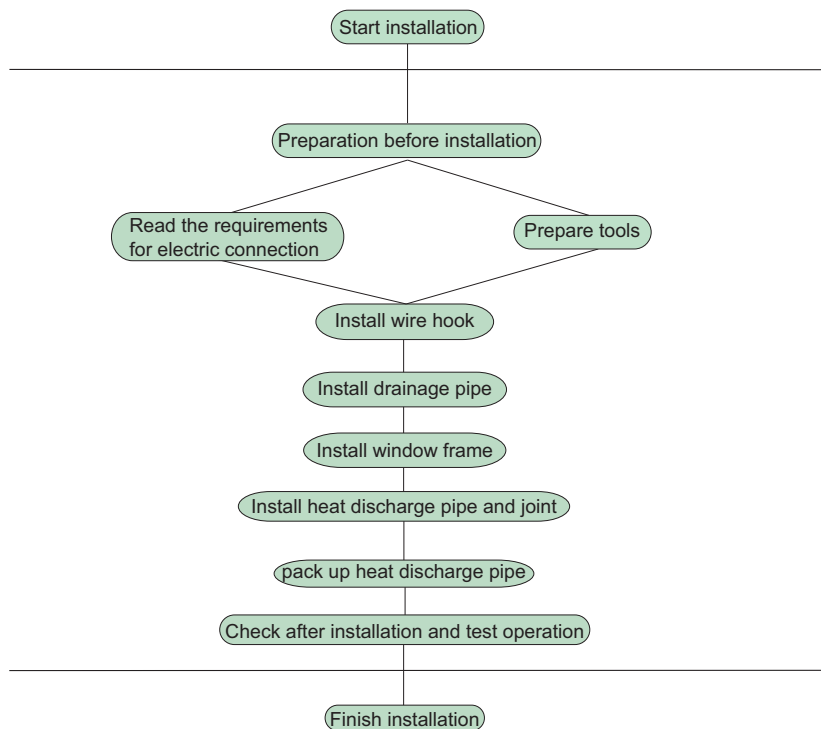
#### Electrical Safety Precautions:

1. Cut off the power supply of air conditioner before checking and maintenance.
2. The air conditioner should be installed in suitable location and ensure the power plug is touchable.
3. Make sure each wiring terminal is connected firmly during installation and maintenance.
4. Have the unit adequately grounded. The grounding wire cant be used for other purposes.
5. Must apply protective accessories such as protective boards, cable-cross loop and wire clip.
6. 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.
7. The power cord and power connection wires cant be pressed by hard objects.
8. If power cord or connection wire is broken, it must be replaced by a qualified person.
9. 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.





## Installation procedures

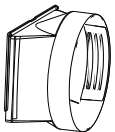
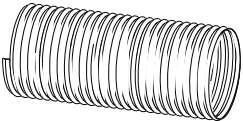
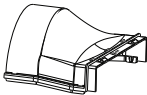
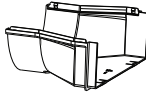
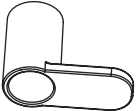



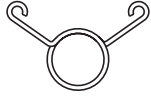
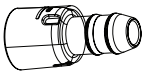
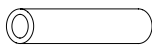





Note: this flow is only for reference; please find the more detailed installation steps in this section.

## Preparation before Installation

**Note:** check if the accessories are available before installation

### Accessory list

 joint A	 heat discharge pipe	 joint B	 joint C	
 wire hook (2)	 screw(3)	 pipe clip	 rubber plug	 pipe hoop (2)
 Drain connector (1)	 drainage pipe	 remote controller	 battery (2) (AAA 1.5V)	 user's manual (2)

## 8. Install

### 8.1 Install Wire Hook

- Assemble the wire hook at the back of the unit with screws.(As show in Fig.1)

direction of wire hook is upward

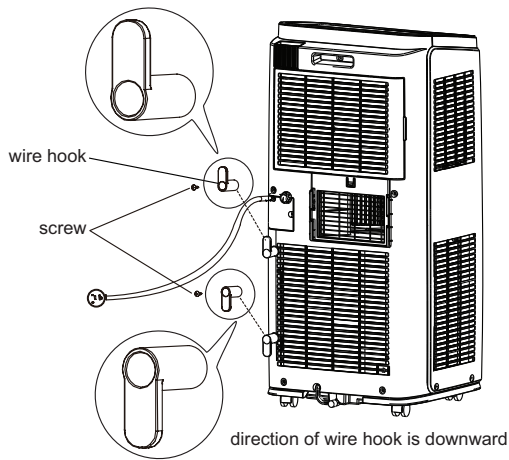


Fig.1

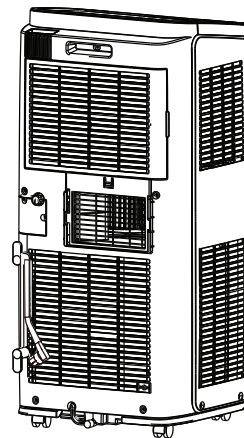


Fig.2

- Wind the power cord around the wire hook.(As show in Fig.2)

### 8.2 Removing Collected Water

There are 2 ways to remove collected water:

#### 1. Use the continuous drainage option from the lower hole.

**NOTICE:**When using the continuous drainage option from the bottom hole, install drainage pipe as follow before using, otherwise poor drainage will affect normal operation of the unit.

- Instructions for drainage pipe installation.

- (1) Fix the drainage pipe clip on the right of rear side plate near drainage port with a screw.(As show in Fig.3)
- (2) Remove the rubber plug at drainage port.(As show in Fig.4)
- (3) Put the drainage pipe into drainage port and screw it up, and then bind it with pipe hoop.
- (4) Put the rubber plug into the other side of drainage pipe, fix it with pipe hoop and then fix it in the drainage pipe clip.(As show in Fig.5)

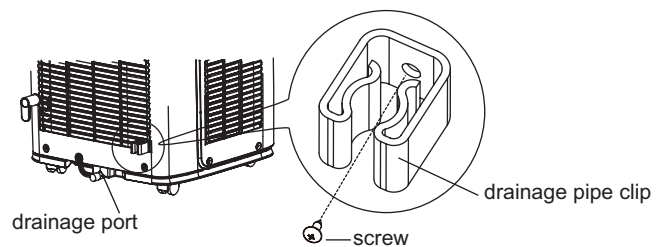


Fig.3

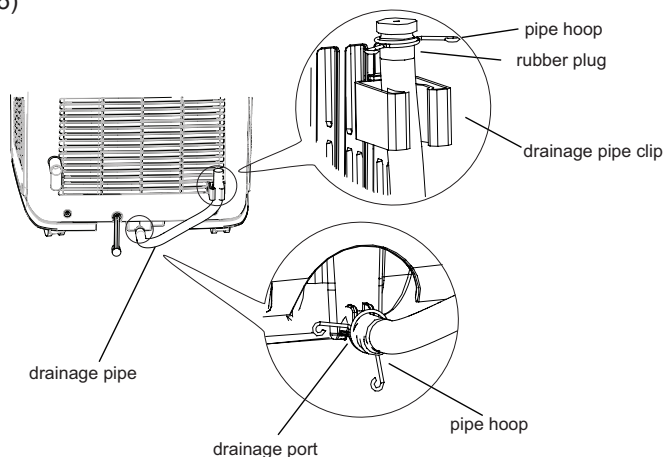


Fig.5

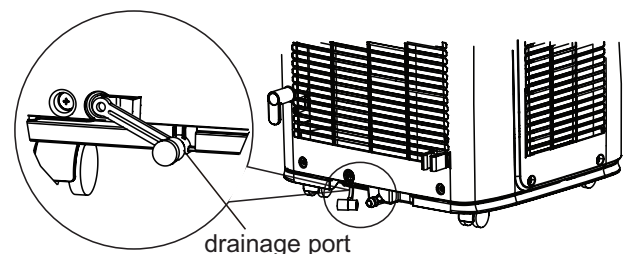


Fig.4

• Drainage way as follows.

1. In Cool, Dry or Heat mode operating, the condensation water will be drained to the chassis.(As show in Fig.6)
2. When the chassis is full with water, the buzzer will give out 8 sounds and "H8" is displayed to remind user to discharge water:
  - Move the unit to a suitable place for discharging water; do not tilt the unit and keep it horizontal during moving;
  - Take the drainage pipe from the clip and pull out the rubber plug on the drainage pipe to discharge water;
  - Put back the rubber plug onto drainage pipe after finishing dischargeing and then fix the pipe on the clip;
  - After full water protection is eliminated and the compressor has been stopped for 3 minutes, the unit will resume operation.

**2.Use the continuous drainage option from the middle hole**

**NOTICE:**Water can be automatically emptied into a floor drain by attaching 14mm inner diameter hose (not included).

(1) Remove the continuous drain cap 1 by turning it counter clockwise then remove the rubber stopper 2 from the spout. (As show in Fig.7)

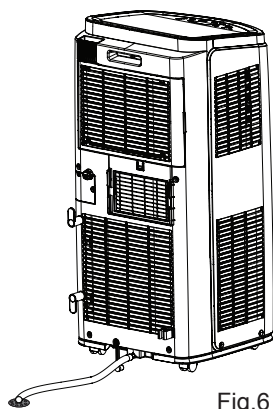


Fig.6

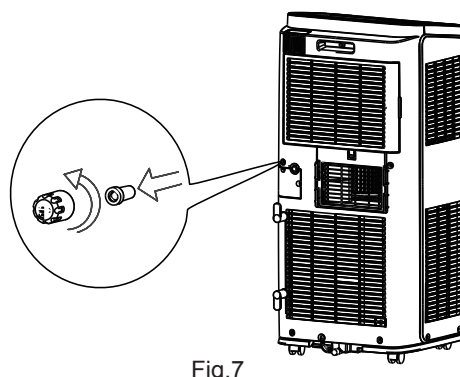


Fig.7

(2) Screw the drain connector to (included in the package) the spout by turning clockwise.(As show in Fig.8)

(3) Insert the drainage hose into drain connector.(As show in Fig.9)

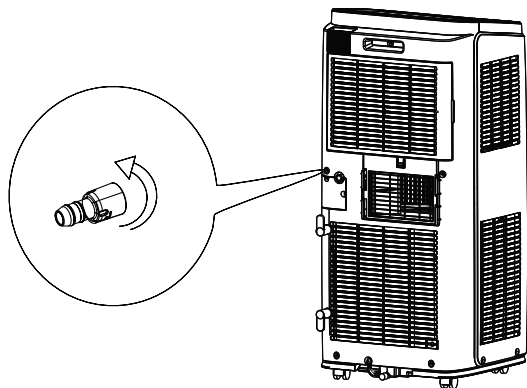


Fig.8

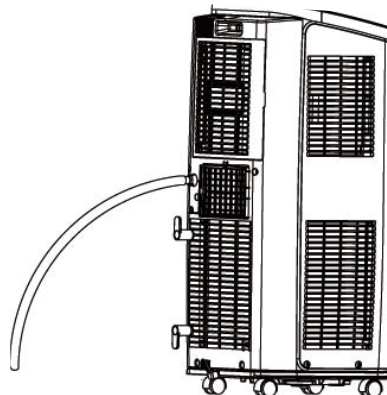
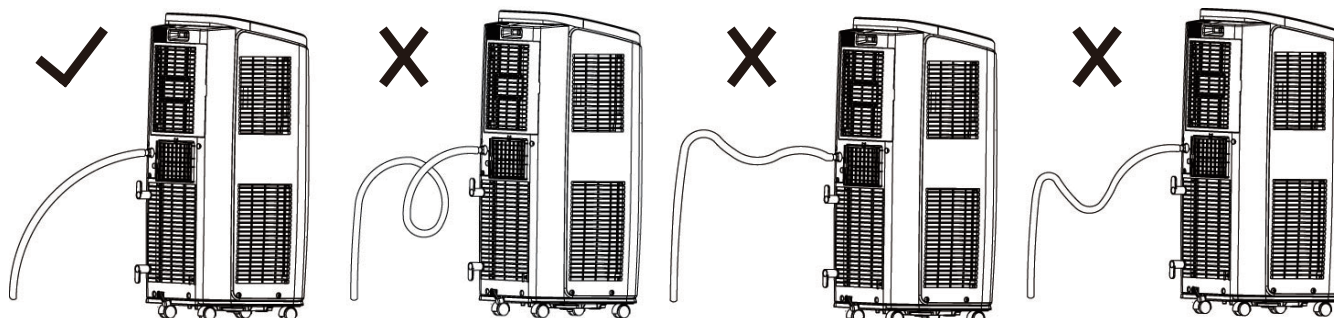


Fig.9

**ATTENTION:**

When using continuous drainage option from the middle hole, place portable on a level surface and make sure garden hose is clear of any obstructions and is directed downward. Placing portable on an uneven surface or improper hose installation may result in water filling up the chassis and causing the unit to shut off. Empty water in the chassis if shut off occurs, then check portable location and hose for proper setup.



## 8.3 Installation and Disassembly of heat Discharge Pipe

### A. Install heat discharge pipe

- (1) Rotate joint A and joint B clockwise into the two ends of heat discharge pipe. (As shown in Fig.10)
- (2) Insert joint A of heat discharge pipe (the side with "TOP" is upwards) into the groove until you hear a sound. (As shown in Fig.11)
- (3) Lead the exhaust hose outdoors. (As shown in Fig.12)

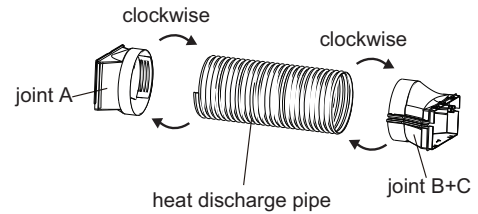


Fig.10

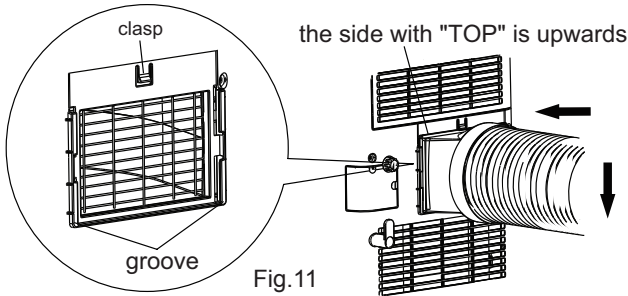


Fig.11

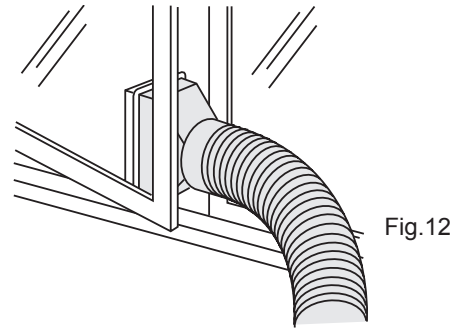


Fig.12

### Note of Install heat discharge pipe

In order to improve cooling efficiency, the heat discharge pipe should be as short as possible and flat without curve to ensure smooth heat discharge. (As shown in Fig.13)

- The length of the heat discharge pipe is less than 1m. It is recommended to use it with shortest length.
- The length of the heat discharge pipe is less than 1m. It is recommended to use it with shortest length. (As shown in Fig.14)

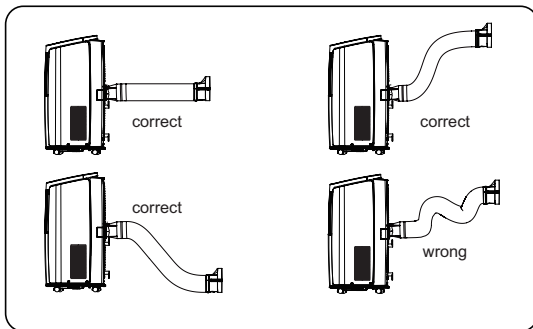


Fig.13

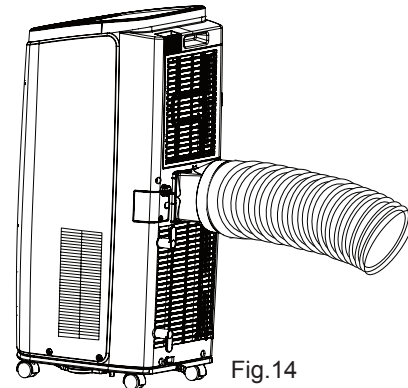


Fig.14

- Correct installation is as shown in figure (When installing it on wall, height of wall should be about 40cm-130cm from floor). (As shown in Fig.15)
- Wrong installation is shown in following figure (If the pipe is bent too much, it would easily cause malfunction). (As shown in Fig.16)

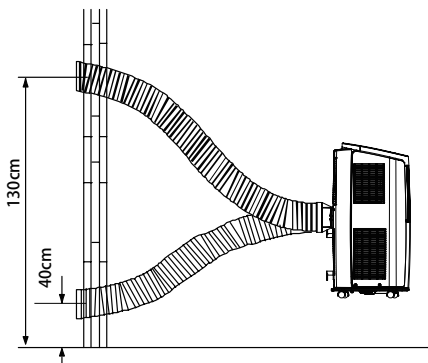


Fig.15

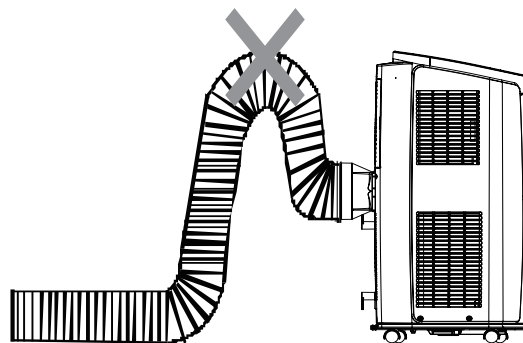


Fig.16

## B. Disassemble heat discharge pipe

- (1) Remove joint B  
remove joint B from joint C.(As shown in Fig.17)
- (2) Remove joint A: Press the clasp and lift joint A upwards to remove it.(As shown in Fig.18)

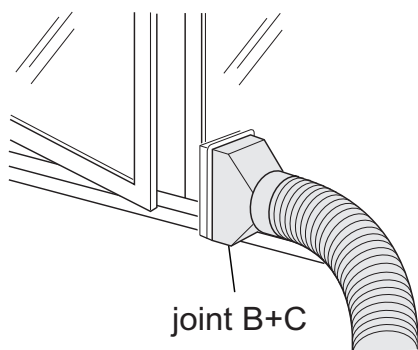


Fig.17

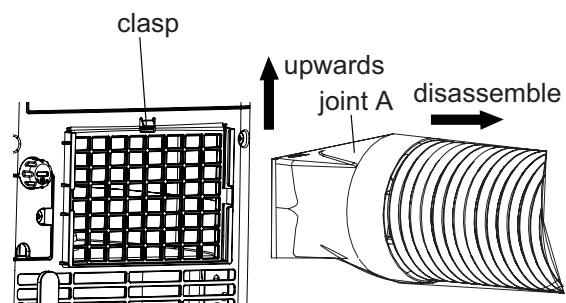


Fig.18

## 8.4 Operation test

- Put through the power supply and then press ON/OFF button on remote controller to start the unit.
- Press mode button to select auto, cooling, drying, fan or heating function, and then check if the unit operates normally.
- If ambient temperature is below 16°C, the unit cant operate in cooling mode.



# 9. Maintenance

## 9.1 Error Code

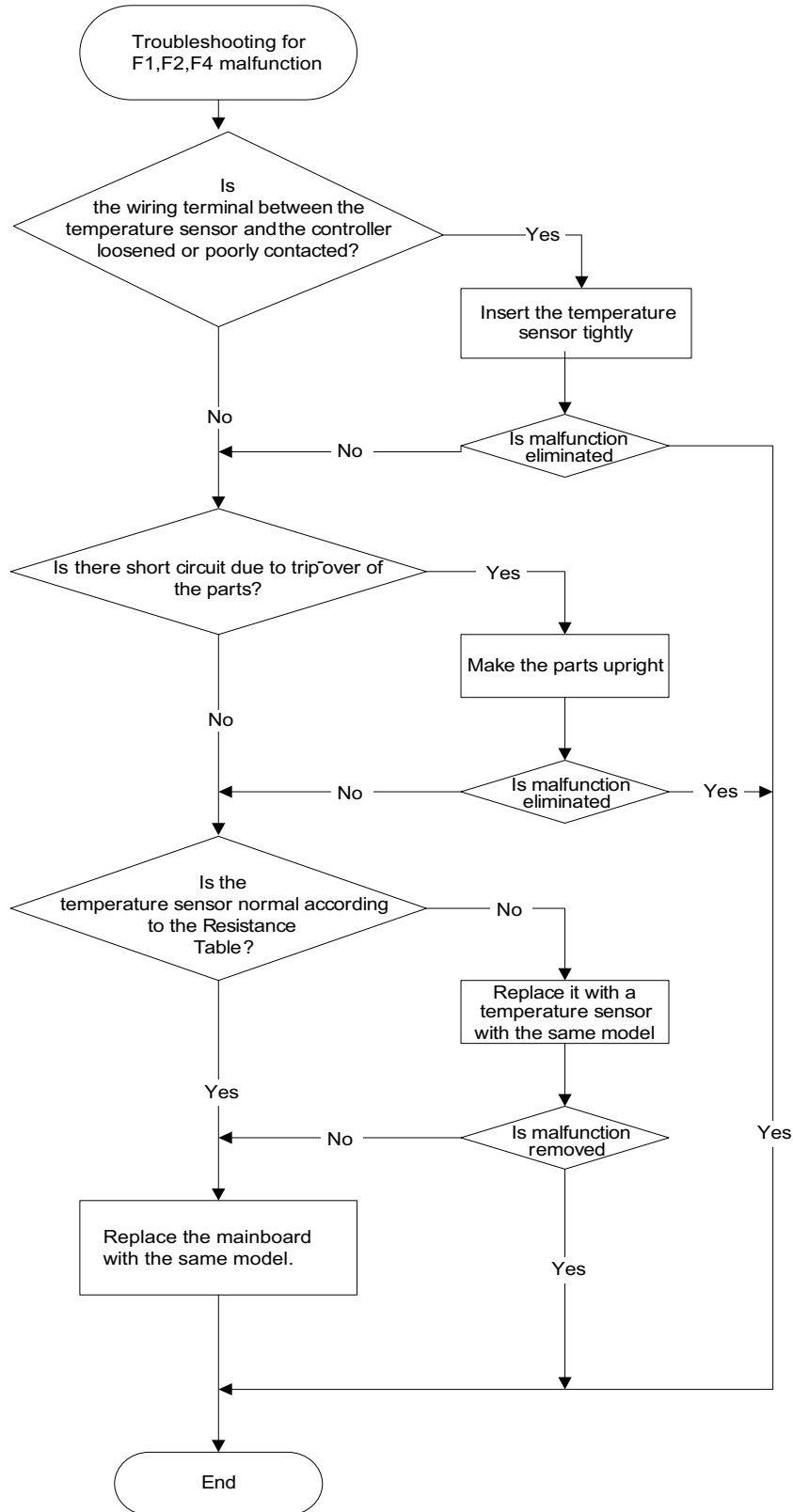
NO.	Malfunction Name	Error Code	Display Method of Indoor Unit			A/C Status	Possible Causes
			Indicator lamp (During blinking, ON for 0.5S and OFF for 0.5 S)				
			Operation Indicator	COOL Indicator	HEAT Indicator		
1	Indoor ambient temperature sensor is open/short-circuited	F1		OFF 3S and blinks once		Compressor and draw water motor stop operation. Fan operates at set fan speed.	1. The wiring terminal between indoor ambient temperature sensor and main board is loosened or poorly contacted. 2. There's short circuit due to trip-over of the parts on main board. 3. Indoor ambient temperature sensor is damaged (Please check it by referring to the resistance table for temperature sensor). 4. Main board is damaged.
2	Indoor evaporator temperature sensor is open/short-circuited	F2		OFF 3S and blinks twice		Compressor and draw water motor stop operation. Fan operates at set fan speed.	1. The wiring terminal between indoor evaporator temperature sensor and main board is loosened or poorly contacted. 2. There's short circuit due to the trip-over of the parts on main board. 3. Indoor evaporator temperature sensor is damaged (Please check it by referring to the resistance table for temperature sensor). 4. Main board is damaged.
3	Outdoor condenser temperature sensor is open/short-circuited	F4		OFF 3S and blinks 4 times		Compressor and draw water motor stop operation. Fan operates at set fan speed.	1. The wiring terminal between outdoor condenser temperature sensor and main board is loosened or poorly contacted. 2. There's short circuit due to the trip-over of the parts on main board. 3. Outdoor condenser temperature sensor is damaged (Please check it by referring to the resistance table for temperature sensor). 4. Main board is damaged.
4	Overcurrent protection	E5					Disconnect power, and then turn on the unit again after 10min. If "E5" still exists, please contact professional person to maintain the unit.

NO.	Malfunction Name	Display Method of Indoor Unit			A/C Status	Possible Causes	
		Error Code	Indicator lamp (During blinking, ON for 0.5S and OFF for 0.5 S)				
			Operation Indicator	COOL Indicator			HEAT Indicator
5	Water over-flow protection	H8				The unit stops operation During cooling or drying operation, condensate water will flow into chassis. If its detected that water inside water chassis is full for 3s successively, it comes into water over-flow protection. Buzzer will give out 8 sounds and dual-8 nixie tube displays error code "H8".	
6	Insufficient fluorine protection	F0				Indoor fan runs according to set fan and other loads will stop. 1. Heat exchangers are too dirty or the air inlet/outlet is blocked. 2. Compressor doesnt work normally. Strange noise or leakage occurs. Temperature of the shell is too high. 3. System is blocked inside(dirt block, ice block, oil block, Y-valve not fully open). 4. The refrigerant is leaking.	
7	Overload protection for compressor	H3				Indoor fan runs according to set fan and other loads will stop. 1. Heat exchangers are too dirty or the air inlet/outlet is blocked. 2. Fan motor is not working Abnormal fan speed; fan speed is too low or the fan doesnt run. 3. Compressor doesnt work normally. Strange noise or leakage occurs. Temperature of the shell is too high. 4. System is blocked inside(dirt block, ice block, oil block, Y-valve not fully open). 5. Draw-water motor cant operate normally. 6. Water outlet hasnt been blocked well by rubber cork . 7. The refrigerant is leaking and cause overheating protection to compressor.	
8	Overload malfunction	E8				During cooling or drying operation, indoor fan operates, while compressor, outdoor fan and water-striking motor stop. "E8" is displayed. 1. The environment is formidable. 2. Heat exchangers are too dirty or the air inlet/outlet is blocked. 3. Fan motor is not working Abnormal fan speed; fan speed is too low or the fan doesnt run. 4. Compressor doesnt work normally. Strange noise or leakage occurs. Temperature of the shell is too high. 5. System is blocked inside(dirt block, ice block, oil block, Y-valve not fully open). 6. Temperature sensor of main board cant detect correctly.	



## 9.2 Malfunction Detection Flowchart

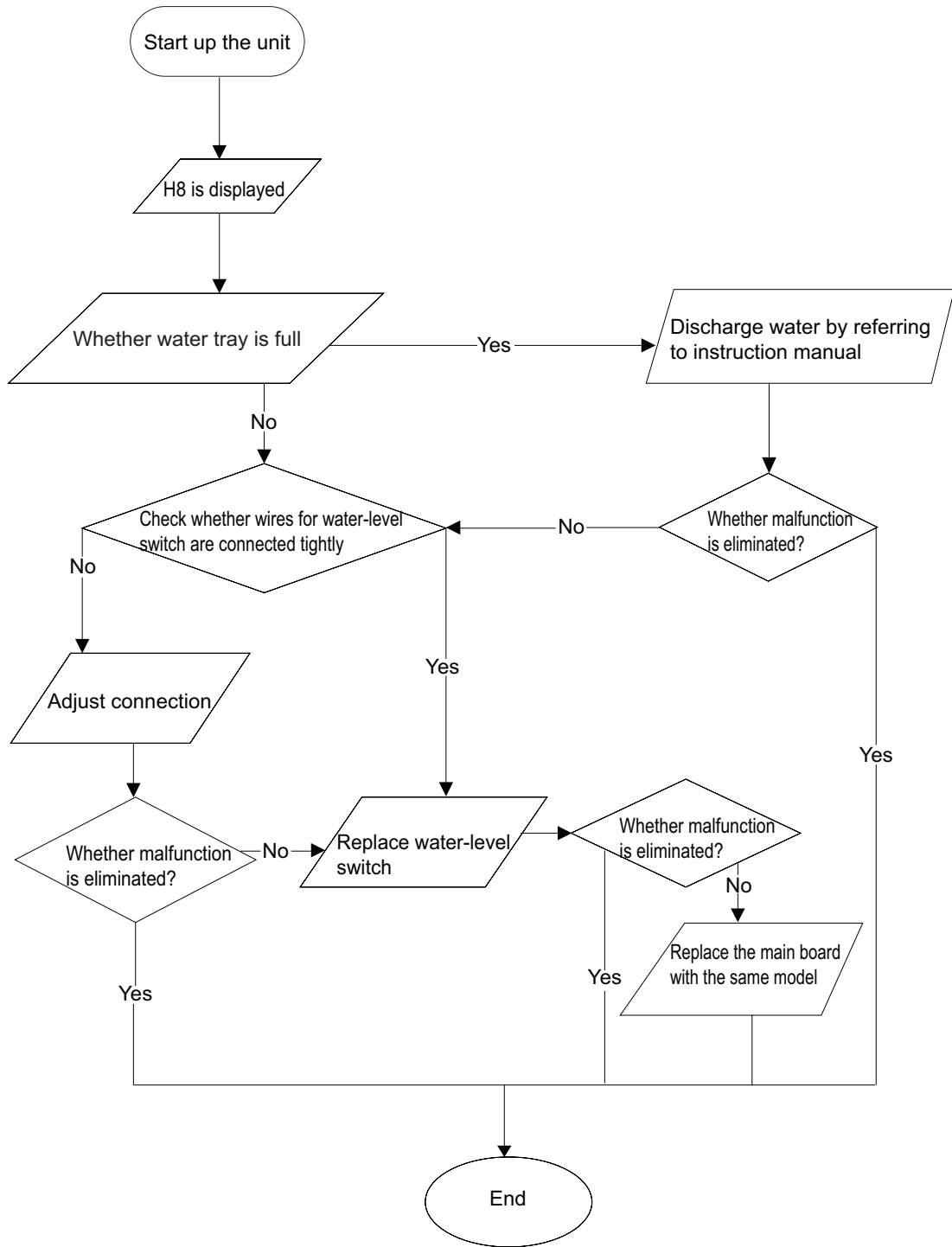
### (1) Malfunction of temperature sensor F1, F2, F4



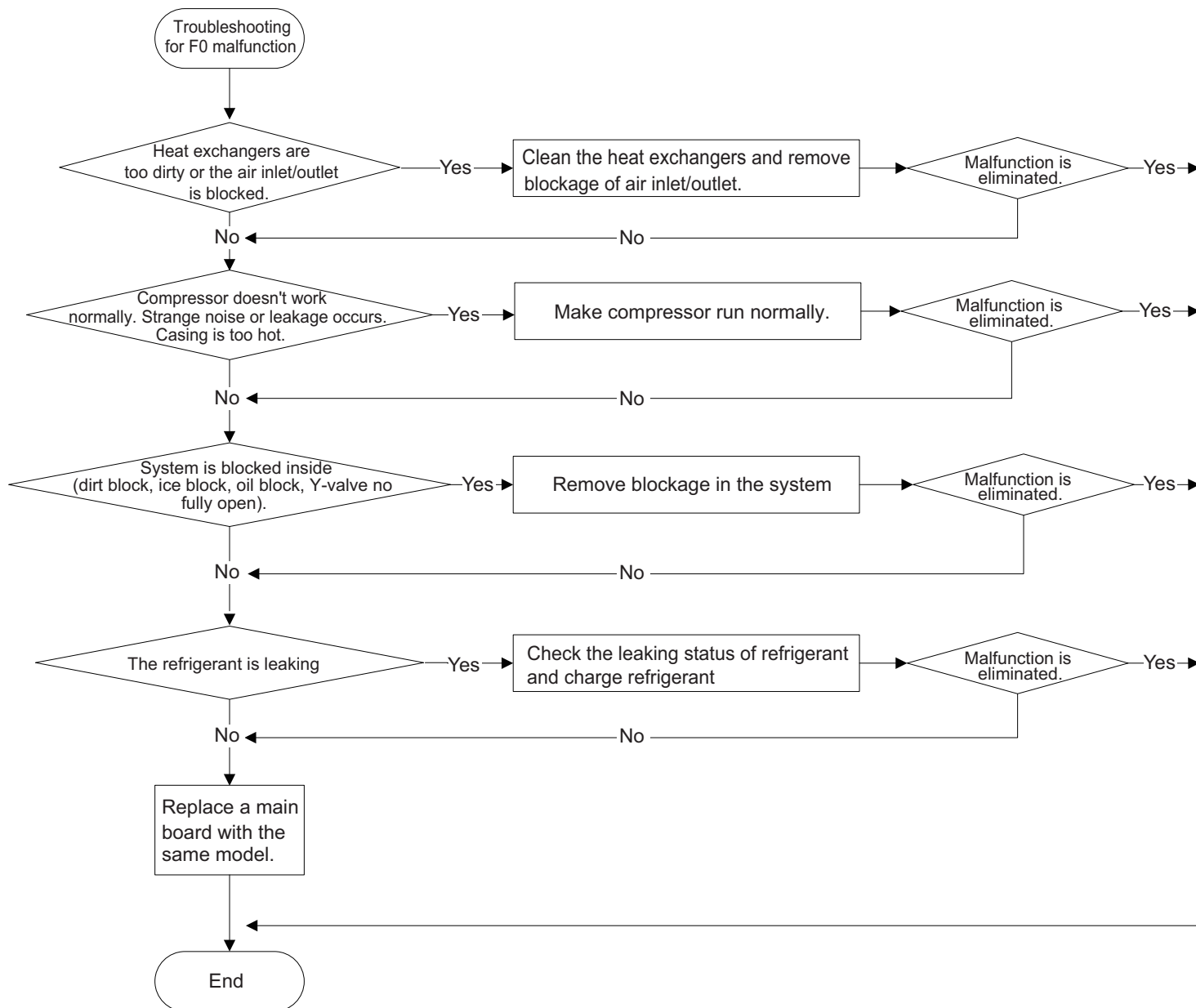
(2) Malfunction of Overcurrent Protection E5



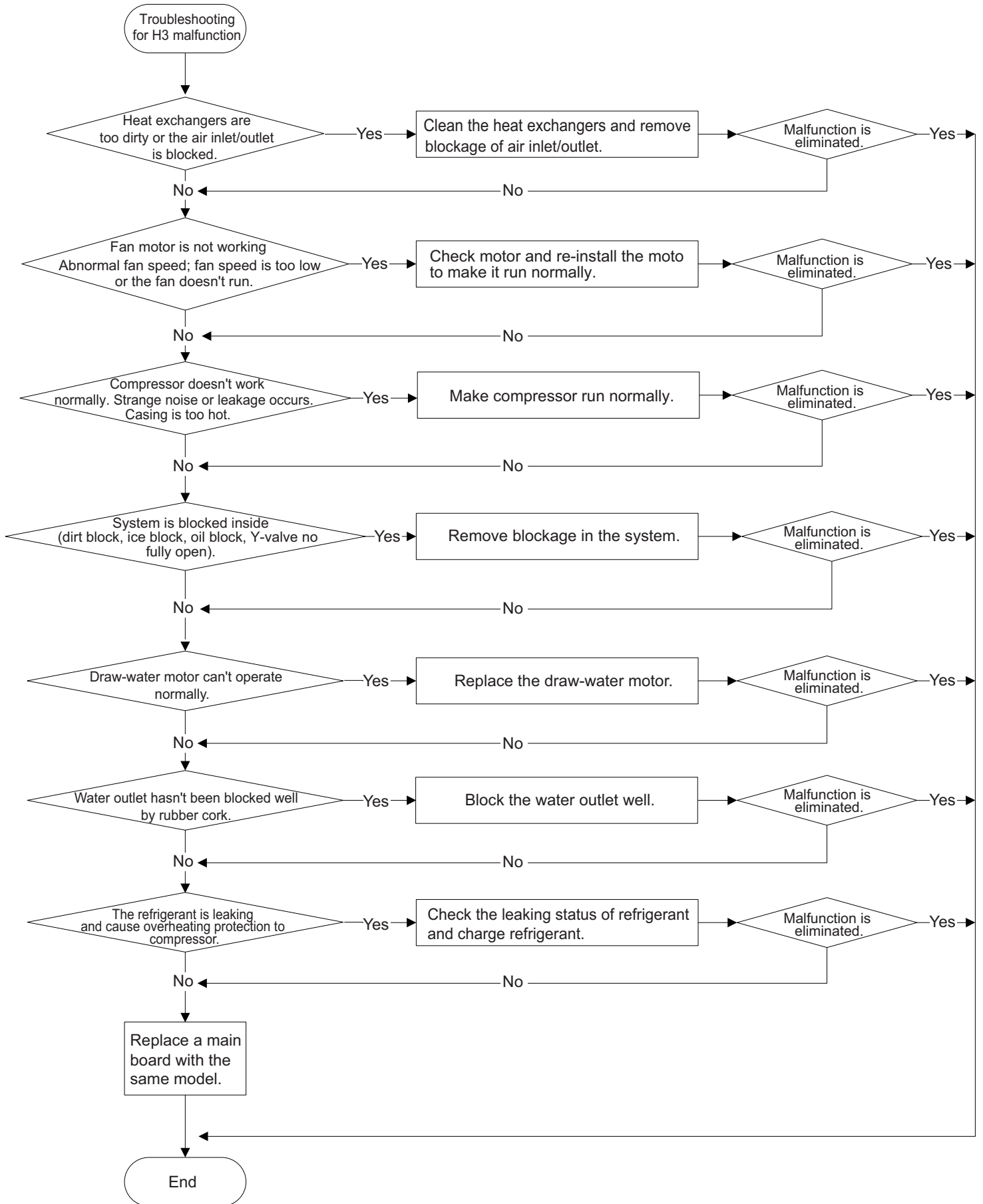
(3) Bucket full protection H8



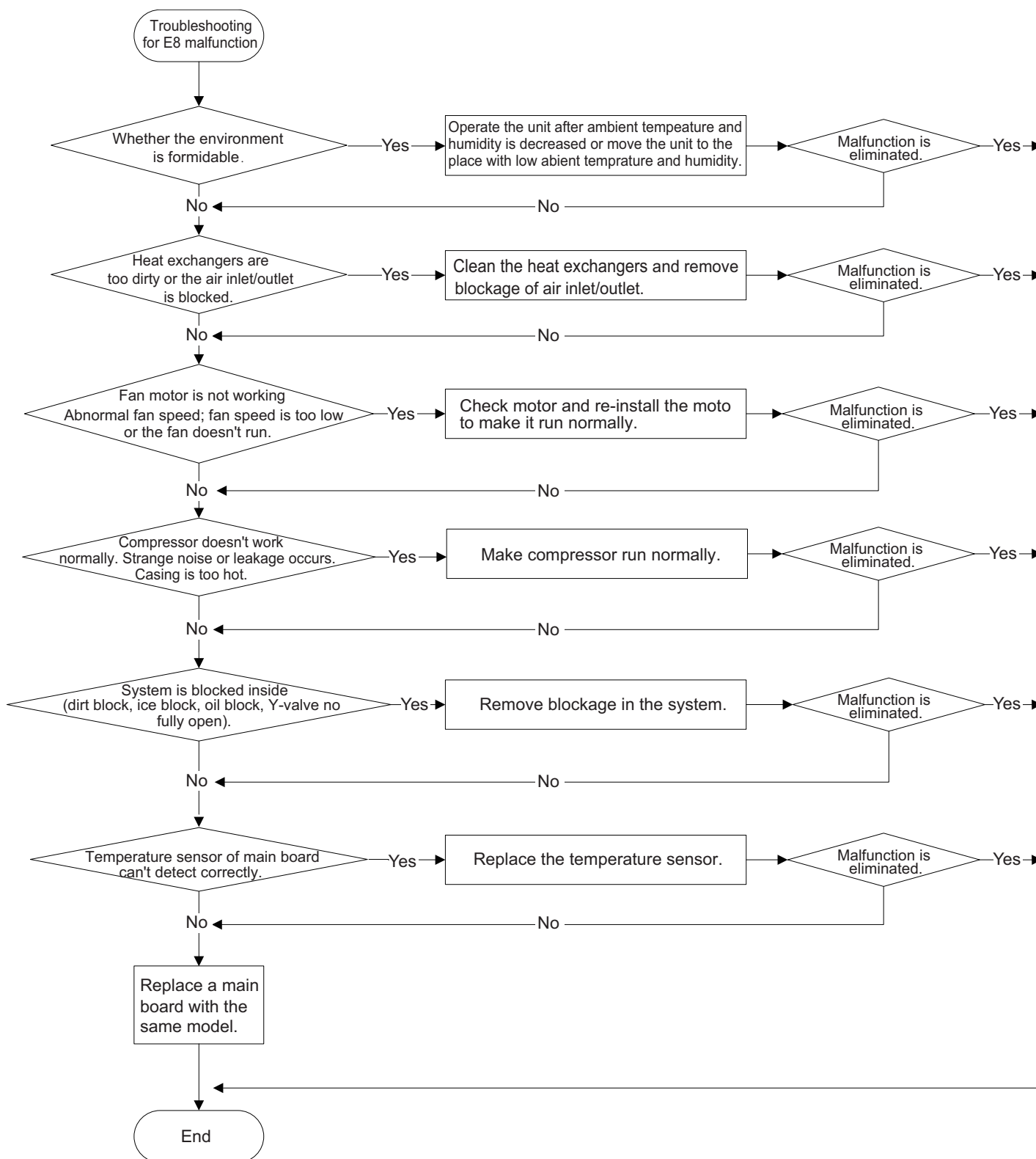
(4) Malfunction of Insufficient fluorine protection F0



(5) Malfunction of Overload protection for compressor H3



(6) Overload malfunction E8



## 9.3 Maintenance Method for Common Malfunction

### 1. Air Conditioner Cant be Started Up

Possible Causes for Malfunction	Distinguish Method (A/C status)	Maintenance Method
No power supply; power plug hasnt been inserted tightly and poorly connected; wires hasnt been connected well.	Operation indicator is OFF and buzzer wont give out sound.	Check whether theres power supply; Check power plug and wire connection.
Ambient temperature sensor is damaged (no connection, loosen, wires are damaged, resistance value for temperature sensor is abnormal).	After energization, the unit will give out a sound, while it cant be started up after pressing ON/OFF button.	Check wire connection of temperature sensor or replace temperature sensor.
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.
Water inside water chassis is full	Dual8 nixie tube displays H8 and buzzer gives out 8 sounds (water over-flow protection).	Discharge condensate water.
Malfunction of water-level switch		Check water-level switch and connection (refer to detection flow chart 3).

### 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.
Fan speed is set too slow	Small fan blow at air outlet	Set the fan speed at high or medium.
Filter unit is blocked	Check the filter to see whether its blocked by sundries	Clean the filter.
Refrigerant is leaking	Discharged air temperature during cooling is higher than normal discharged wind temperature; Discharged air temperature during heating is lower than normal discharged wind temperature; Units pressure is much lower than regulated range	Find out the leakage causes and deal with it. Add refrigerant.
Evaporator is frosted	Has set COOL (DRY) mode, but theres no cool fan	The system is defrosting. Resume operation after defrosting is finished.
Malfunction of capillary	Discharged air temperature during cooling is higher than normal discharged wind temperature; Discharged air temperature during heating is lower than normal discharged wind temperature; Unitt pressure is much lower than regulated range. If refrigerant isnt leaking, part of capillary is blocked	Replace the capillary.
Malfunction of fan	Fan cant operate	Refer to point 3 for detailed maintenance method.
Malfunction of compressor	Compressor cant operate	Refer to point 4 of maintenance method for details.

### 3. Fan Cant Swing

Possible Causes	Discriminating Method (Air conditioner Status)	Troubleshooting
Wrong wire connection, or poor connection	Check the wiring status according to circuit diagram	Connect wires according to wiring diagram to make sure all wiring terminals are connected firmly
Fan capacitor is damaged	Use universal meter to measure voltage at both ends of fan capacitor	Replace fan capacitor
Supply voltage is too low or too high	Use universal meter to measure the voltage	You are suggested to equip with voltage regulator
Motor is damaged	Above circumstances are normal, while the fan cant operate	Repair or replace motor

### 4. Compressor Cant Operate

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

### 5. Unit hasnt stop operation afer bucket full or bucket full protection occurs frequently

Possible causes	Discriminating method (air conditioner status)	Troubleshooting
Water-level switch is open-circuited	The unit hasnt stop operation when water is full and theres water leakage	Check and repair the water-level switch
Draw water motor is damaged	Water over-flow protection occurs frequently and H8 is displayed	Replace draw water motor

### 6. Abnormal Sound and Vibration

Possible causes	Discriminating method (air conditioner status)	Troubleshooting
When turn on or turn off the unit, the panel and other parts will expand and theres abnormal sound	Theres the sound of "PAPA"	Normal phenomenon. Abnormal sound will disappear after a few minutes.
When turn on or turn off the unit, theres abnormal sound due to flow of refrigerant inside air conditioner	Water-running sound can be heard	Normal phenomenon. Abnormal sound will disappear after a few minutes.
Therere foreign objects inside air conditioner or parts are contacting with each other	Abnormal sound	Take out foreign objects. Adjust the position of parts. Stick damping plaster between contacting parts.
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.



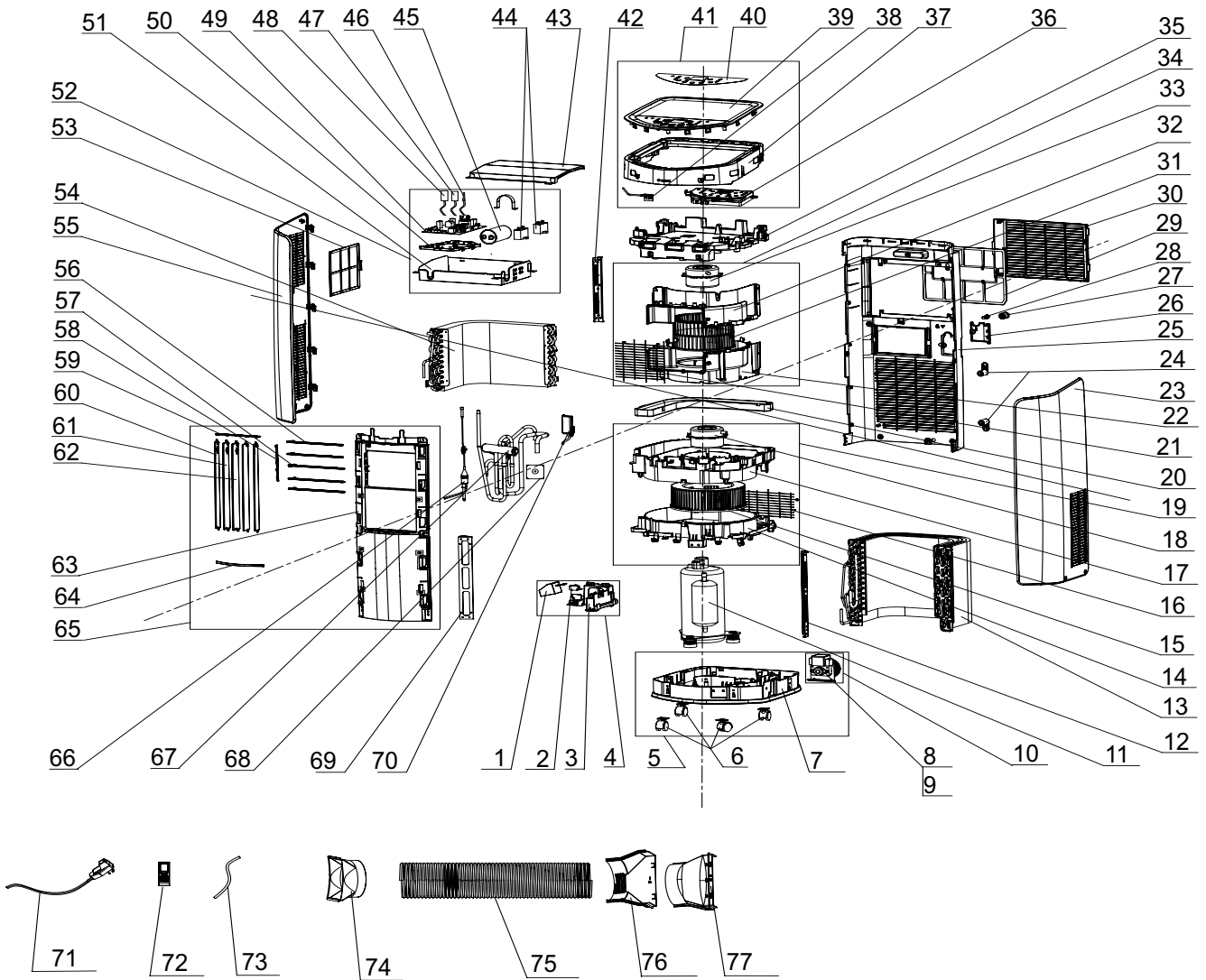


NO.	Description	Part Code		Qty
		GPC12AL-K3NNA1A	GPC12AL-K3NNA1A	
		Product Code	CK010025700	
1	Foam (Inching Switch)	12316037	12316037	1
2	Inching Switch	45017005	45017005	1
3	Water Level Switch Base	20011500074	20011500074	1
4	Water level switch sub-assy	194000003	194000003	4
5	Chassis Assy	209058000005	209058000025	1
6	Castor	24236009	24236009	1
7	Chassis Sub-assy	20902000020	2090200002002	1
8	Fan Motor	1501606303	150101000003	1
9	Splash Water Flywheel	10336003	10336003	1
10	Motor Sub-assy(Flutter)	000089000001	000089000001	1
11	Compressor and Fittings	009001000003	009001000003	1
12	Supporting Board 1	01796035	01796035	1
13	Condenser Assy	011002000093	011002000093	1
14	Diversion Circle	10376064	10376064	1
15	Centrifugal Fan	10316079	10316079	4
16	Rear Grill	01476050	01476050	1
17	Motor Holder	26156103	26156103	1
18	Fan Motor	150101000003	150101000003	1
19	Air Flue Assy 1	017107000003	017107000003	1
20	Foam (Water Tray)	12316052	12316052	1
21	Rear Grill	01476040	01476050	1
22	Diversion Circle	10376065	10376065	1
23	Right Side Plate	20056186	2005618601P01	1
24	Wire Clamp	71010103	71010103	1
25	Rear Plate	20024500010	2002450001002P01	1
26	Cable Cross Plate	26116226	2611622602P01	1
27	Cover of drainage hole	2224609701	2224609702P01	1
28	Rubber Plug	76716054	76716054	1
29	Filter Sub-assy 1	11126042	11126042	1
30	Front Grill Asmy	000087000001	2241607402P01	1
31	Centrifugal Fan	10316079	10316071	1
32	Motor Holder	26156104	26156104	1
33	Fan Motor	1501606303	15010100000301	1
34	Air Flue Assy 2	017107000004	017107000004	1
35	Cover of Propeller Housing	20022300013	20022300013	1
36	Display Board	300001000001	300001000001	1
37	Fixed support (Top Cover)	20011500075	2001150007502S01	1
38	Display Board	300001000001	300001000001	1
39	Top Cover	22246157	2224615701P01	1
40	Membrane	60516017	600006000012	1
41	Top Cover Assy	000097000007	000097000029	1
42	Supporting Board 3	01207200097	01207200097	4
43	Electric Box Cover	01202000107	01202000107	1
44	Capacitor CBB61S	3301074705	3301074705	1
45	Capacitor CBB65	3300008102	3300008102	1
46	Temperature Sensor	390000453	390000453	1
47	Temperature Sensor	390000597	390000453	1
48	Temperature Sensor	3900032101	390000597	1
49	Main Board	300002000004	300002000004	1
50	Fixed support (mainboard)	20011500076	20011500076	1
51	Electric Box Sub-Assy	01700700101	01700700101	1
52	Electric Box Assy	100002000260	100002000260	1
53	Filter Sub-assy 2	11126043	11126043	1
54	Evaporator Assy	011001000114	011001000114	1

55	Left Side Plate	20056185	2005618501P01	1
56	Guide Louver 2	10516098	1051609802P	1
57	Guide Louver 1	10516099	1051609902P	1
58	Guide Blade Lever	20023500011	2002350001102	4
59	Swing Lever	20003500025	2000350002502	1
60	Air Louver 3	10516102	1051610202P	1
61	Air Louver 2	10516101	1051610102P	1
62	Air Louver 1	10516100	1051610002P	1
63	Front Panel	20000300144	2000030014402P01	1
64	Decorative Strip	23000100071	23000100071P01	1
65	Front Panel Assy	209004000002	209004000006	1
66	Capillary Sub-assy	030006000094	030006000094	1
67	Inhalation Tube Assy	030010000228	030010000228	1
68	Discharge Tube	035008000416	035008000416	1
69	Supporting Strip	01796007	01796007	4
70	Cold Plasma Generator	1114001601	1114001601	1
71	Power Cord	400204648	400204648	1
72	Remote Controller	305100611	305100611	1
73	Drainage Hose	05230013	05230013	1
74	Joint	20010900023	20010900023	1
75	Pipe	05236058	05236058	1
76	Rear Clip (upper)	26116132	26116132	1
77	Rear Clip (nether)	26116135	26116135	1

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GPH12AL-K3NNA1A



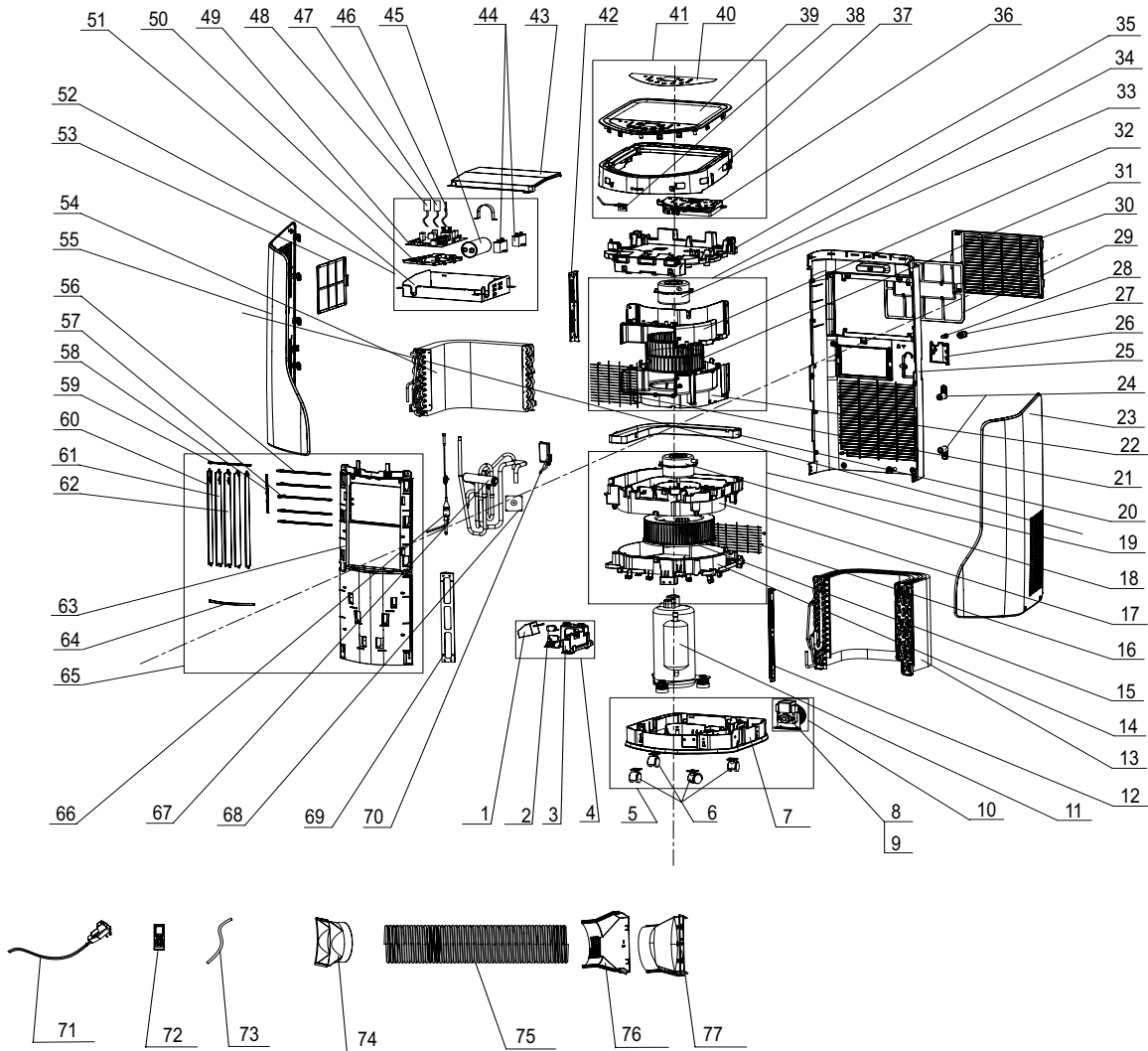
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NO.	Description	Part Code	Qty
		GPH12AL-K3NNA1A	
Product Code		CK010024500	
1	Foam (Inching Switch)	12316037	1
2	Inching Switch	45017005	1
3	Water Level Switch Base	20011500074	1
4	Water level switch sub-assy	194000003	4
5	Chassis Assy	209058000005	1
6	Castor	24236009	1
7	Chassis Sub-assy	20902000020	1
8	Fan Motor	1501606303	1
9	Splash Water Flywheel	10336003	1
10	Motor Sub-assy(Flutter)	000089000001	1
11	Compressor and Fittings	009001000003	1
12	Supporting Board 1	01796035	1
13	Condenser Assy	011002000093	1
14	Diversion Circle	10376064	1
15	Centrifugal Fan	10316079	4
16	Rear Grill	01476040	1
17	Motor Holder	26156103	1
18	Fan Motor	150101000003	1
19	Air Flue Assy 1	017107000003	1
20	Foam (Water Tray)	12316052	1
21	Rear Grill	01476050	1
22	Diversion Circle	10376065	1
23	Right Side Plate	20056186	1
24	Wire Clamp	71010103	1
25	Rear Plate	20024500010	1
26	Cable Cross Plate	26116226	1
27	Cover of drainage hole	2224609701	1
28	Rubber Plug	76716054	1
29	Filter Sub-assy 1	11126042	1
30	Front Grill Asmy	000087000001	1
31	Centrifugal Fan	10316071	1
32	Motor Holder	26156104	1
33	Fan Motor	15010100000301	1
34	Air Flue Assy 2	017107000004	1
35	Cover of Propeller Housing	20022300013	1
36	Display Board	300001000040	1
37	Fixed support (Top Cover)	20011500075	1
38	Display Board	300001000001	1
39	Top Cover	22246157	1
40	Membrane	60516016	1
41	Top Cover Assy	000097000007	1
42	Supporting Board 3	01207200097	4
43	Electric Box Cover	01202000107	1
44	Capacitor CBB61S	3301074705	1
45	Capacitor CBB65	3300008102	1
46	Temperature Sensor	390000453	1
47	Temperature Sensor	390000597	1
48	Temperature Sensor	3900032101	1
49	Main Board	30137064	1
50	Fixed support (mainboard)	20011500076	1
51	Electric Box Sub-Assy	01700700101	1
52	Electric Box Assy	100002000084	1
53	Filter Sub-assy 2	11126043	1
54	Evaporator Assy	011001000048	1

55	Left Side Plate	20056185	1
56	Guide Louver 2	10516098	1
57	Guide Louver 1	10516099	1
58	Guide Blade Lever	20023500011	4
59	Swing Lever	20003500025	1
60	Air Louver 3	10516102	1
61	Air Louver 2	10516101	1
62	Air Louver 1	10516100	1
63	Front Panel	20000300144	1
64	Decorative Strip	23000100071	1
65	Front Panel Assy	209004000002	1
66	Capillary Sub-assy	030006000094	1
67	4-Way Valve Assy	030152000057	1
68	Magnet Coil	430004017	1
69	Supporting Strip	01796007	4
70	Cold Plasma Generator	1114001601	1
71	Power Cord	400204648	1
72	Remote Controller	305100611	1
73	Drainage Hose	05230013	1
74	Joint	20010900023	1
75	Pipe	05236058	1
76	Rear Clip (upper)	26116132	1
77	Rear Clip (nether)	26116135	1

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GPH12AL-K3NNA2A



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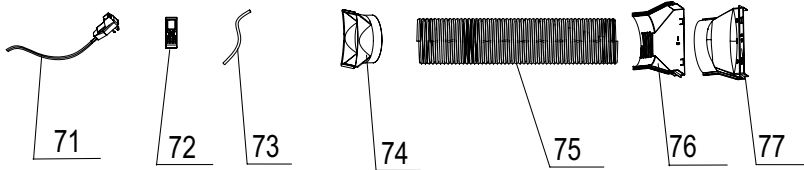
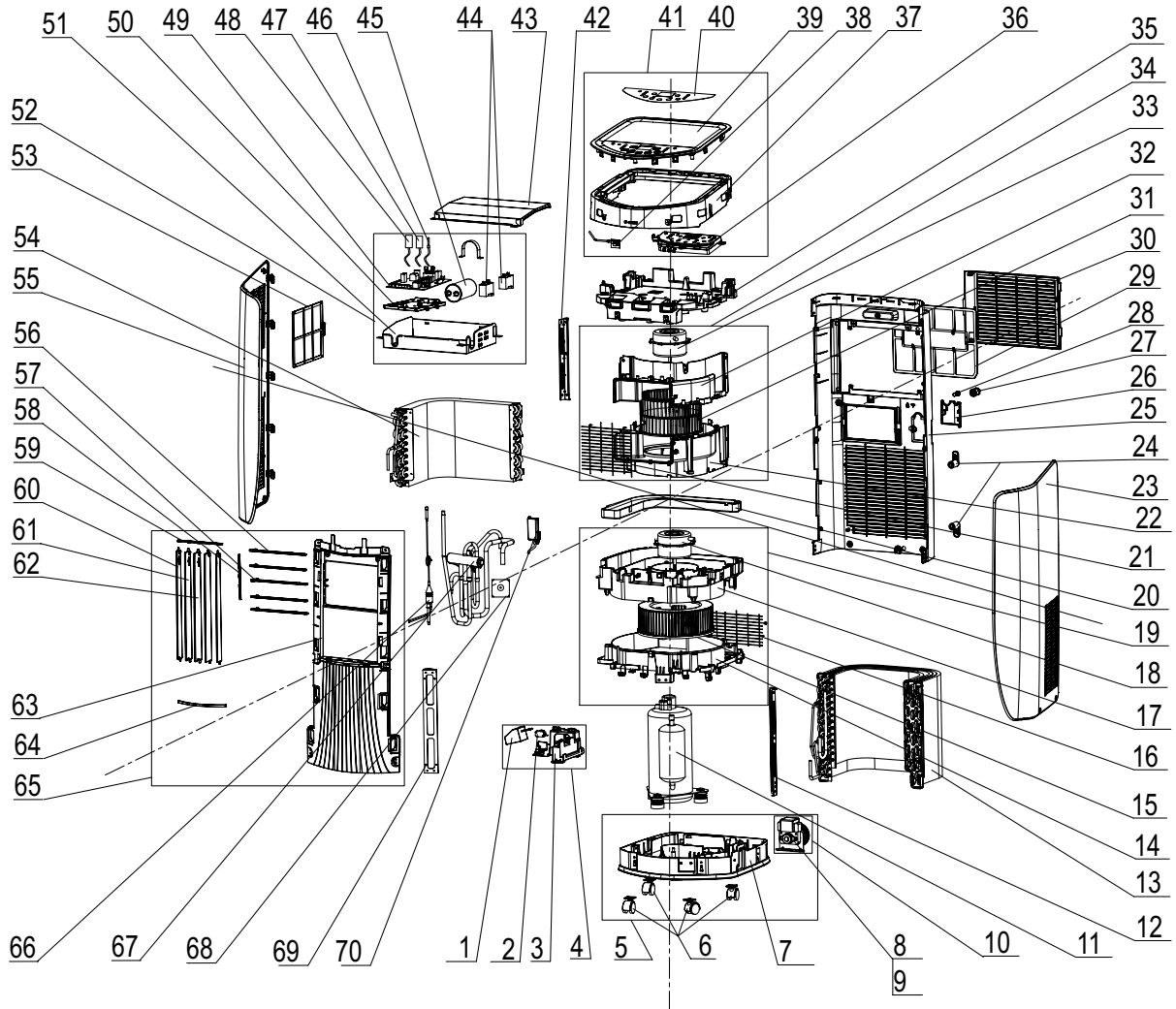
NO.	Description	Part Code		Qty
		GPH12AL-K3NNA2A		
		CK010025800		
1	Buoy	12316037	1	
2	Inching Switch	45017005	1	
3	fixed support (Compressor)	20011500074	1	
4	Liquid Level Switch Sub-assy	000194000003	4	
5	Chassis Assy	209058000005	1	
6	Castor	24236009	1	
7	Chassis Sub-assy	20902000020	1	
8	Fan Motor	150101000003	1	
9	Splash Water Flywheel	10336003	1	
10	Motor Sub-assy(Flutter)	000089000001	1	
11	Compressor and Fittings	009001000003	1	
12	Supporting Board 1	01796035	1	
13	Condenser Assy	011002000093	1	
14	Diversion Circle (Upper)	10376065	1	
15	Centrifugal Fan	10316079	4	
16	Rear Grill	01476050	1	
17	Motor Holder	26156103	1	
18	Fan Motor	150101000003	1	
19	Air Duct Sub-assy 1	017107000003	1	
20	Foam (Water Tray)	12316052	1	
21	Rear Grill	01476050	1	
22	Diversion Circle (lower)	10376064	1	
23	Right Side Plate	200086000001	1	
24	Wire Clamp	71010103	1	
25	Rear Plate	20024500010	1	
26	Cable Cross Plate	26116226	1	
27	Cover of drainage hole	2224609701	1	
28	Rubber Plug	06816101	1	
29	Filter Sub-assy 1	11126042	1	
30	Front Grill	22416074	1	
31	Centrifugal Fan	10316071	1	
32	Motor Holder	26156104	1	
33	Fan Motor	15010100000301	1	
34	Air Duct Sub-assy 2	017107000004	1	
35	Cover of Propeller Housing	20022300013	1	
36	Display Board	300001000001	1	
37	Fixed support (Top Cover)	20011500075	1	
38	Display Board	300001000001	1	
39	Coping	22246157	1	
40	Membrane	60516016	1	
41	Top Cover Assy	000097000007	1	
42	Supporting Board 3	01207200097	4	
43	Electric Box Cover	01202000107	1	
44	Capacitor CBB61S	3301074705	1	
45	Capacitor CBB65	3300008102	1	
46	Temperature Sensor	390000453	1	
47	Temperature Sensor	390000597	1	
48	Temperature Sensor	390000597	1	
49	Main Board	30137064	1	
50	fixed support (mainboard)	20011500076	1	
51	Electric Box Sub-Assy	01700700101	1	
52	Electric Box Assy	100002000084	1	
53	Filter Sub-assy 2	11126043	1	
54	Evaporator Assy	011001000048	1	



55	Left Side Plate	200085000001	1
56	Guide Louver 2	10516098	1
57	Guide Louver 1	10516099	1
58	Guide Blade Lever	20023500011	4
59	Swing Lever	20003500025	1
60	Air Louver 3	10516102	1
61	Air Louver 2	10516101	1
62	Air Louver 1	10516100	1
63	Front Panel	200003000002	1
64	Decorative Strip	23000100071	1
65	Front Panel Sub-Assy	209004000004	1
66	Capillary Sub-assy	030006000094	1
67	4-Way Valve	430004032	1
68	Magnet Coil	430004017	1
69	Supporting Strip	01796007	4
70	Cold Plasma Generator	1114001601	1
71	Power Cord	400204648	1
72	Remote Controller	305100611	1
73	Drainage Hose	05230013	1
74	Tie-in 1	20010900023	1
75	Pipe	05236058	1
76	Rear Clip (upper)	26116132	1
77	Rear Clip (nether)	26116135	1

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GPH12AL-K3NNA3A



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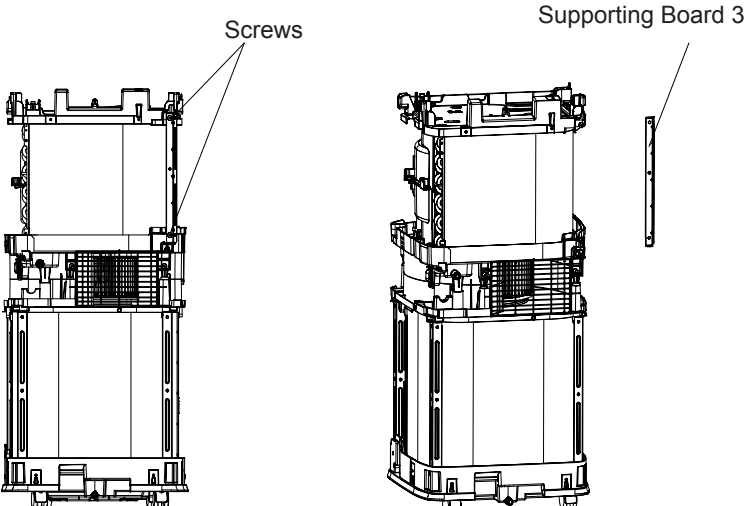
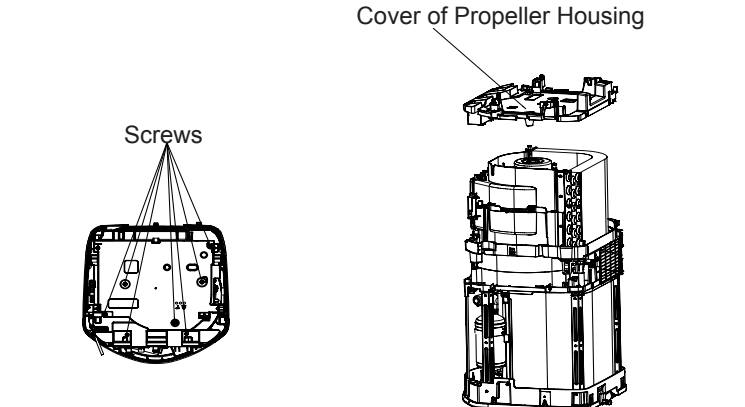
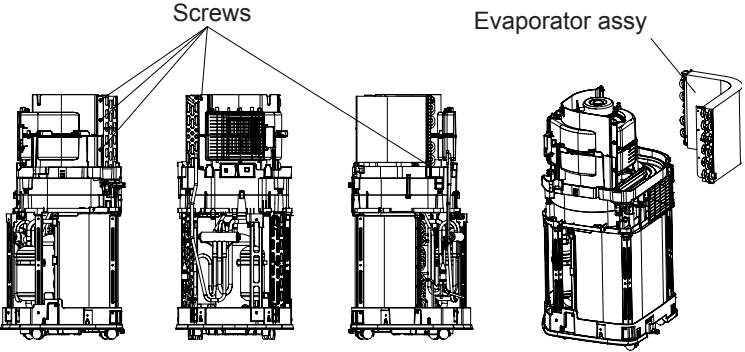
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		GPH12AL-K3NNA3A	
	Product Code	CK010025900	
1	Buoy	12316037	1
2	Inching Switch	45017005	1
3	fixed support (Compressor)	20011500074	1
4	Liquid Level Switch Sub-assy	000194000003	4
5	Chassis Assy	209058000019	1
6	Castor	24236009	1
7	Chassis Sub-assy	2090200002001	1
8	Fan Motor	150101000003	1
9	Splash Water Flywheel	10336003	1
10	Motor Sub-assy(Flutter)	000089000001	1
11	Compressor and Fittings	009001000003	1
12	Supporting Board 1	01796035	1
13	Condenser Assy	011002000093	1
14	Diversion Circle (Upper)	10376065	1
15	Centrifugal Fan	10316079	4
16	Rear Grill	01476050	1
17	Motor Holder	26156103	1
18	Fan Motor	150101000003	1
19	Air Duct Sub-assy 1	017107000003	1
20	Foam (Water Tray)	12316052	1
21	Rear Grill	01476050	1
22	Diversion Circle (lower)	10376064	1
23	Right Side Plate	200086000002	1
24	Wire Clamp	71010103	1
25	Rear Plate	2002450001001	1
26	Cable Cross Plate	2611622601	1
27	Cover of drainage hole	22246097	1
28	Rubber Plug	06816101	1
29	Filter Sub-assy 1	1112604201	1
30	Front Grill	2241607401	1
31	Centrifugal Fan	10316071	1
32	Motor Holder	26156104	1
33	Fan Motor	15010100000301	1
34	Air Duct Sub-assy 2	017107000004	1
35	Cover of Propeller Housing	20022300013	1
36	Display Board	300001000001	1
37	Fixed support (Top Cover)	2001150007501T	1
38	Display Board	300001000001	1
39	Coping	22246157	1
40	Membrane	60516016	1
41	Top Cover Assy	000097000027	1
42	Supporting Board 3	01207200097	4
43	Electric Box Cover	01202000107	1
44	Capacitor CBB61S	3301074705	1
45	Capacitor CBB65	3300008102	1
46	Temperature Sensor	390000453	1
47	Temperature Sensor	390000597	1
48	Temperature Sensor	390000453	1
49	Main Board	30137064	1
50	fixed support (mainboard)	20011500076	1
51	Electric Box Sub-Assy	01700700101	1
52	Electric Box Assy	100002000084	1
53	Filter Sub-assy 2	11126043	1
54	Evaporator Assy	011001000048	1

55	Left Side Plate	200085000002	1
56	Guide Louver 2	1051609801	1
57	Guide Louver 1	1051609901	1
58	Guide Blade Lever	2002350001101	4
59	Swing Lever	2000350002501	1
60	Air Louver 3	1051610201	1
61	Air Louver 2	1051610101	1
62	Air Louver 1	1051610001	1
63	Front Panel	200003000009	1
64	Decorative Strip	2300010007101	1
65	Front Panel Sub-Assy	209004000005	1
66	Capillary Sub-assy	030006000094	1
67	4-Way Valve	430004032	1
68	Magnet Coil	430004017	1
69	Supporting Strip	01796007	4
70	Cold Plasma Generator	1114001601	1
71	Power Cord	400204648	1
72	Remote Controller	305100611	1
73	Drainage Hose	05230013	1
74	Tie-in 1	20010900023	1
75	Pipe	05236058	1
76	Rear Clip (upper)	26116132	1
77	Rear Clip (nether)	26116135	1

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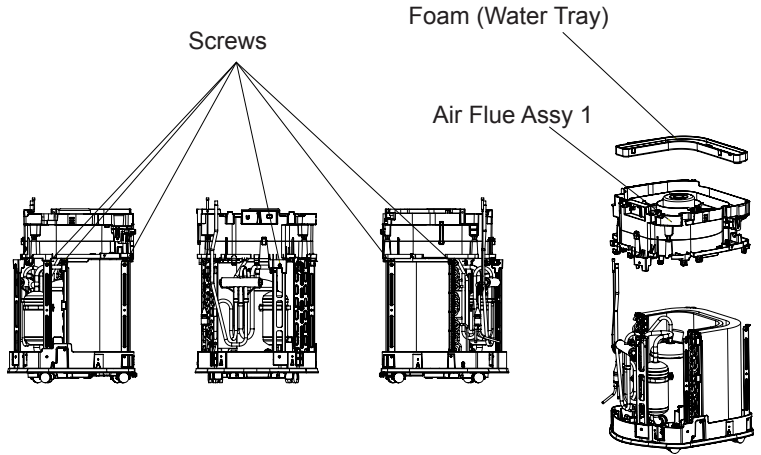
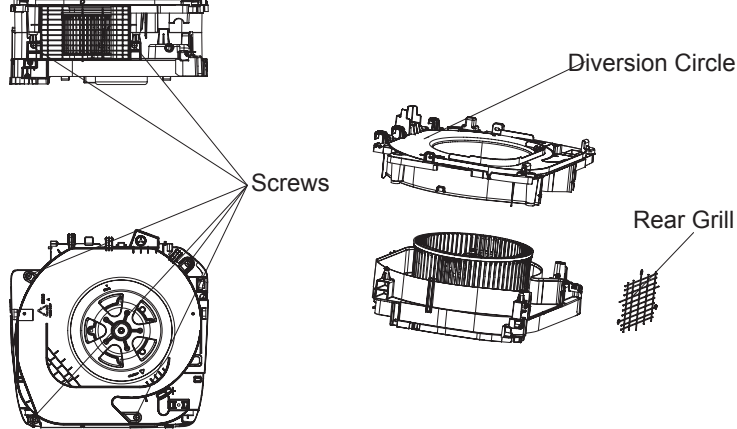
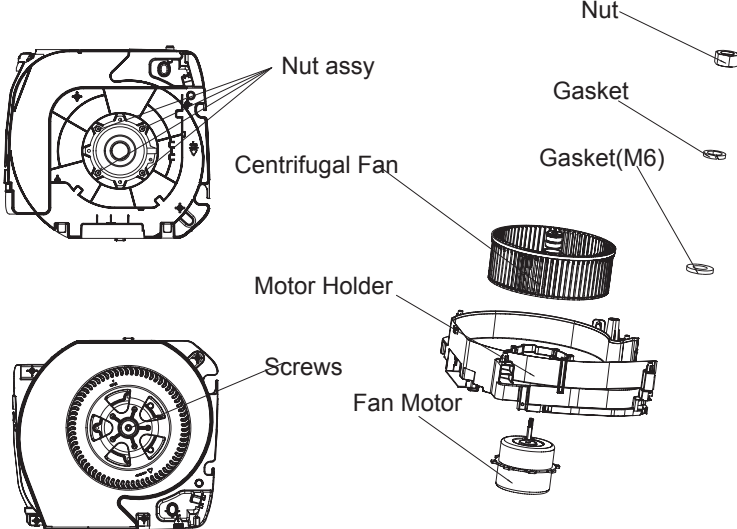


Step	Procedure
<p><b>4.Remove top cover assy</b></p> <p>Remove the 4 screws to remove the top cover assy.</p>	
<p><b>5.Remove front panel assy</b></p> <p>Remove the four screws fixing front panel to remove the front panel sub-assy.</p>	
<p><b>6.Remove electric box cover</b></p> <p>Unscrew 4 screws to remove the electric box cover assy and wire clamp.</p>	

Step	Procedure
<p><b>7. Remove Supporting Board 3</b></p>	<p>Unscrew 2 screws to remove the Supporting board 3.</p> 
<p><b>8. Remove Cover of Propeller Housing</b></p>	<p>Unscrew 7 screws to remove the cover of propeller housing.</p> 
<p><b>9. Remove Evaporator Assy</b></p>	<p>Unscrew 5 screws to remove the evaporator assy.</p> 

Step	Procedure	
10. Remove Air Flue Assy 2		
a	<p>Unscrew 4 screws to remove the air flue Assy 2.</p>	<p>Screws</p> <p>Air Flue Assy 2</p>
b	<p>Unscrew 3 screws to remove the diversion circle and cold plasma generator Assy.</p>	<p>Cold Plasma Generator</p> <p>Diversion Circle</p> <p>Cold Plasma Generator Assy</p> <p>Screws</p>
c	<p>Unscrew 5 screws to remove the nut Assy and gasket and centrifugal and motor holder(upper).</p>	<p>Nut Assy</p> <p>Nut</p> <p>Gasket</p> <p>Gasket(M6)</p> <p>Centrifugal Fan</p> <p>Rear Grill</p> <p>Motor Holder(upper)</p> <p>Screws</p> <p>Fan Motor</p>

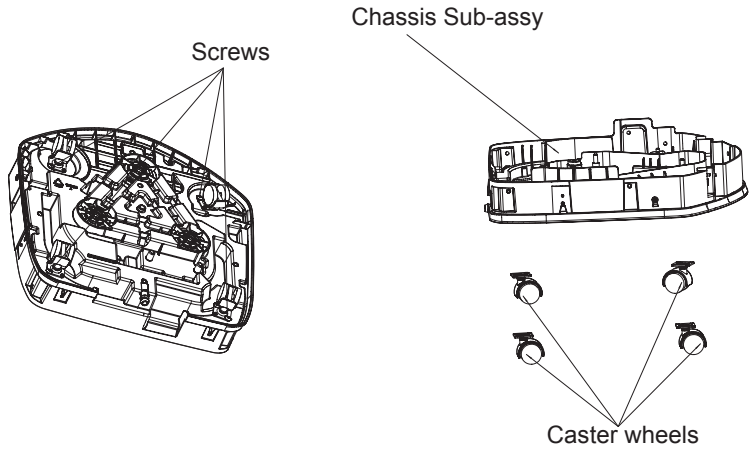


Step	Procedure
<p><b>11. Remove Air Flue Assy 1</b></p>	
<p>a</p>	<p>Unscrew 6 screws to remove the air flue assy 1 and foam(water tray).</p> 
<p>b</p>	<p>Unscrew 6 screws to remove the diversion circle and rear grill.</p> 
<p>c</p>	<p>Unscrew screws to remove the nut assy and gasket and centrifugal and motor holder.</p> 

Step	Procedure	
<p><b>12. Remove supporting board and supporting strip</b></p>	<p>Unscrew 4 screws to remove supporting board 1 and supporting strip.</p>	<p>Screws</p> <p>Supporting Board 1</p> <p>Supporting Strip</p>
<p><b>13. Remove 4-way valve interface</b></p>	<p>Unscrew screws to remove the 4-way valve interface and capillary sub-assy.</p>	<p>4-way valve interface</p> <p>Capillary Sub-assy</p> <p>4-way valve interface</p> <p>Screws</p>
<p><b>14. Remove condenser assy</b></p>	<p>Unscrew screws to remove condenser assy.</p>	<p>Condenser Assy</p> <p>Screws</p>



Step	Procedure
<b>18. Remove chassis sub-assy</b>	
	<p>Unscrew 4 screws fixing caster wheel to remove the 4 caster wheels.</p>





## Appendix 2: List of Resistance for Temperature Sensor

Resistance table of temperature sensor (15K)

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 temperature sensor (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

Resistance table of temperature sensor (50K)

Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)
-29	853.5	10	98	49	18.34	88	4.75
-28	799.8	11	93.42	50	17.65	89	4.61
-27	750	12	89.07	51	16.99	90	4.47
-26	703.8	13	84.95	52	16.36	91	4.33
-25	660.8	14	81.05	53	15.75	92	4.20
-24	620.8	15	77.35	54	15.17	93	4.08
-23	580.6	16	73.83	55	14.62	94	3.96
-22	548.9	17	70.5	56	14.09	95	3.84
-21	516.6	18	67.34	57	13.58	96	3.73
-20	486.5	19	64.33	58	13.09	97	3.62
-19	458.3	20	61.48	59	12.62	98	3.51
-18	432	21	58.77	60	12.17	99	3.41
-17	407.4	22	56.19	61	11.74	100	3.32
-16	384.5	23	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	28	43.16	67	9.49	106	2.79
-10	274	29	41.34	68	9.17	107	2.72
-9	259.3	30	39.61	69	8.85	108	2.64
-8	245.6	31	37.96	70	8.56	109	2.57
-7	232.6	32	36.38	71	8.27	110	2.50
-6	220.5	33	34.88	72	7.99	111	2.43
-5	209	34	33.45	73	7.73	112	2.37
-4	198.3	35	32.09	74	7.47	113	2.30
-3	199.1	36	30.79	75	7.22	114	2.24
-2	178.5	37	29.54	76	7.00	115	2.18
-1	169.5	38	28.36	77	6.76	116	2.12
0	161	39	27.23	78	6.54	117	2.07
1	153	40	26.15	79	6.33	118	2.02
2	145.4	41	25.11	80	6.13	119	1.96
3	138.3	42	24.13	81	5.93	120	1.91
4	131.5	43	23.19	82	5.75	121	1.86
5	125.1	44	22.29	83	5.57	122	1.82
6	119.1	45	21.43	84	5.39	123	1.77
7	113.4	46	20.6	85	5.22	124	1.73
8	108	47	19.81	86	5.06	125	1.68
9	102.8	48	19.06	87	4.90	126	1.64



### Appendix 3: Resistance Value Table of Humidity Sensor

HIS-06 temperature and humidity characteristic 5°C ~ 14°C

Unit:KΩ

Relative humidity	Temperature (°C)									
	5°C	6°C	7°C	8°C	9°C	10°C	11°C	12°C	13°C	14°C
90	5.35	4.92	4.55	4.23	3.95	3.70	3.47	3.25	3.05	2.87
89	5.80	5.33	4.93	4.58	4.27	4.00	3.74	3.51	3.29	3.09
88	6.29	5.77	5.33	4.95	4.62	4.32	4.03	3.78	3.54	3.32
87	6.82	6.25	5.77	5.36	4.99	4.66	4.35	4.08	3.82	3.58
86	7.40	6.78	6.25	5.80	5.40	5.04	4.70	4.40	4.11	3.85
85	8.03	7.35	6.78	6.28	5.84	5.45	5.09	4.75	4.45	4.16
84	8.71	7.97	7.35	6.81	6.33	5.91	5.50	5.14	4.80	4.49
83	9.44	8.65	7.97	7.39	6.87	6.41	5.96	5.56	5.19	4.84
82	10.25	9.39	8.65	8.02	7.46	6.96	6.47	6.03	5.62	5.24
81	11.13	10.19	9.40	8.71	8.10	7.56	7.03	6.54	6.09	5.68
80	12.09	11.07	10.21	9.46	8.80	8.21	7.62	7.08	6.59	6.13
79	13.14	12.03	11.09	10.28	9.57	8.93	8.28	7.70	7.16	6.66
78	14.27	13.07	12.05	11.17	10.40	9.70	8.99	8.35	7.75	7.20
77	15.50	14.20	13.10	12.14	11.30	10.55	9.78	9.07	8.43	7.83
76	16.84	15.43	14.24	13.21	12.30	11.48	10.64	9.87	9.16	8.51
75	18.31	16.78	15.49	14.37	13.38	12.50	11.58	10.75	9.98	9.26
74	19.91	18.25	16.85	15.64	14.57	13.62	12.62	11.72	10.89	10.12
73	21.67	19.87	18.35	17.04	15.88	14.84	13.71	12.67	11.72	10.84
72	23.61	21.66	20.00	18.57	17.31	16.18	14.98	13.90	12.89	11.96
71	25.78	23.64	21.84	20.27	18.89	17.66	16.35	15.16	14.06	13.05
70	28.15	25.82	23.85	22.15	20.65	19.30	17.91	16.63	15.46	14.37
69	30.78	28.24	26.10	24.24	22.60	21.13	19.60	18.19	16.91	15.71
68	33.69	30.92	28.58	26.55	24.76	23.16	21.48	19.94	18.53	17.22
67	36.90	33.88	31.33	29.11	27.16	25.42	23.56	21.86	20.29	18.85
66	40.45	37.16	34.37	31.96	29.84	27.93	25.83	23.92	22.15	20.52
65	44.38	40.78	37.74	35.11	32.78	30.70	28.42	26.34	24.42	22.65
64	48.75	44.81	41.48	38.59	36.05	33.77	31.24	28.93	26.80	24.83
63	53.64	49.31	45.65	42.48	39.68	37.17	34.34	31.74	29.36	27.15
62	59.14	54.36	50.32	46.82	43.73	40.97	37.83	34.96	32.32	29.87
61	65.31	60.02	55.55	51.68	48.26	45.20	41.70	38.51	35.58	32.86
60	72.27	66.40	61.43	57.13	53.33	49.94	46.07	42.53	39.28	36.27
59	80.13	73.58	68.04	63.25	59.01	55.23	50.94	47.03	43.43	40.10
58	88.92	81.61	75.43	70.08	65.36	61.14	56.40	52.08	48.11	44.43
57	98.86	90.68	83.77	77.78	72.50	67.78	62.49	57.67	53.23	49.12
56	112.59	102.79	94.50	87.33	81.00	75.33	69.42	64.03	59.07	54.48
55	122.69	112.51	103.91	96.45	89.88	84.00	77.42	71.41	65.88	60.76
54	137.09	125.76	116.19	107.89	100.57	94.03	86.69	79.99	73.82	68.11
53	153.46	140.88	130.25	121.03	112.91	105.64	97.26	89.61	82.58	76.06
52	172.19	158.19	146.35	136.10	127.05	118.96	109.52	100.90	92.97	85.63
51	193.69	178.04	164.81	153.36	143.25	134.21	123.35	113.43	104.31	95.86
50	218.48	200.85	185.94	173.02	161.63	151.44	139.14	127.90	117.57	108.01
49	247.23	227.16	210.19	195.49	182.52	170.92	156.84	143.98	132.15	121.20
48	278.74	256.20	237.15	220.64	206.08	193.06	177.34	163.00	149.80	137.58
47	315.50	289.95	268.35	249.64	233.14	218.37	200.56	184.30	169.34	155.49
46	357.93	328.94	304.43	283.20	264.47	247.72	227.57	209.18	192.25	176.59
45	406.44	373.72	346.05	322.08	300.94	282.03	259.22	238.40	219.24	201.51
44	463.66	426.44	394.96	367.70	343.66	322.14	296.25	272.62	250.87	230.74
43	531.25	488.59	452.53	421.28	393.73	369.08	339.44	312.38	287.50	264.45
42	611.22	562.01	520.40	484.35	452.55	424.11	390.24	359.31	330.86	304.52
41	707.78	650.29	601.68	559.58	522.44	489.21	450.38	414.92	382.31	352.11
40	823.98	756.22	698.93	649.30	605.53	566.37	521.46	480.46	442.74	407.81
39	962.72	882.62	814.90	756.23	704.48	658.19	604.79	556.03	511.18	469.66

38	1128.50	1033.61	953.39	883.90	822.61	767.78	704.83	647.37	594.51	545.56
37	1325.87	1213.40	1118.31	1035.94	963.29	898.30	823.48	755.17	692.34	634.16
36	1563.51	1430.14	1317.38	1219.71	1133.55	1056.48	967.04	885.39	810.28	740.74
35	1855.67	1695.83	1560.69	1443.63	1340.37	1248.00	1140.34	1042.06	951.64	867.93
34	2213.60	2020.33	1856.92	1715.37	1590.51	1478.82	1349.81	1232.04	1123.70	1023.39
33	2665.63	2426.92	2225.10	2050.27	1896.06	1758.12	1605.77	1466.69	1338.74	1220.28
32	3230.73	2933.36	2681.95	2464.17	2272.06	2100.23	1916.82	1749.39	1595.37	1452.76
31	3962.78	3585.59	3266.69	2990.44	2746.77	2528.80	2308.12	2106.66	1921.33	1749.74
30	4915.40	4431.65	4022.65	3668.35	3355.84	3076.30	2801.20	2550.06	2319.03	2105.13
29	6180.16	5548.66	5014.73	4552.22	4144.26	3779.32	3431.59	3114.13	2822.10	2551.72
28	7874.08	7035.10	6325.74	5711.27	5169.27	4684.43	4243.82	3841.57	3471.54	3128.95
27	10162.49	9029.08	8070.80	7240.70	6508.50	5853.53	5293.25	4781.75	4311.22	3875.57
26	13243.42	11702.63	10399.92	9271.46	8276.08	7385.69	6658.01	5993.68	5382.56	4816.75
25	17366.01	15270.67	13499.09	11964.48	10610.86	9400.00	8447.52	7577.98	6778.07	6037.48
24	22845.46	20023.30	17637.20	15570.26	13747.10	12116.22	10866.57	9725.72	8676.25	7704.59
23	30130.06	26367.98	23187.18	20431.85	18001.48	15827.43	14156.73	12631.50	11228.43	9929.38
22	39673.45	34712.87	30518.76	26885.65	23681.03	20814.39	18624.92	16626.08	14787.33	13084.91
21	51880.00	45447.42	40008.75	35297.56	31142.00	27424.72	24504.12	21837.82	19385.06	17114.16
20	68057.37	59623.21	52492.24	46315.10	40866.49	35992.53	32084.71	28517.14	25235.30	22196.79

HIS-06 temperature and humidity characteristic 15°C ~24°C

Unit:KΩ

Relative humidity	Temperature (°C)									
	15°C	16°C	17°C	18°C	19°C	20°C	21°C	22°C	23°C	24
90	2.70	2.56	2.43	2.31	2.19	2.08	1.99	1.91	1.83	1.75
89	2.91	2.76	2.61	2.48	2.35	2.23	2.13	2.04	1.95	1.86
88	3.12	2.96	2.80	2.66	2.52	2.39	2.28	2.18	2.08	1.98
87	3.36	3.18	3.01	2.85	2.70	2.56	2.44	2.33	2.22	2.12
86	3.61	3.42	3.23	3.06	2.90	2.75	2.62	2.50	2.38	2.27
85	3.90	3.69	3.49	3.30	3.12	2.95	2.81	2.67	2.54	2.42
84	4.20	3.97	3.76	3.55	3.36	3.18	3.03	2.88	2.74	2.61
83	4.52	4.28	4.05	3.83	3.63	3.43	3.26	3.10	2.94	2.79
82	4.89	4.63	4.38	4.14	3.92	3.71	3.52	3.33	3.16	2.99
81	5.29	5.00	4.73	4.48	4.24	4.01	3.80	3.60	3.42	3.23
80	5.70	5.39	5.10	4.83	4.57	4.33	4.10	3.88	3.68	3.48
79	6.19	5.85	5.53	5.22	4.94	4.67	4.41	4.17	3.94	3.72
78	6.69	6.32	5.96	5.63	5.32	5.02	4.75	4.49	4.24	4.01
77	7.27	6.85	6.46	6.09	5.74	5.41	5.11	4.83	4.56	4.31
76	7.90	7.44	7.00	6.59	6.20	5.83	5.51	5.21	4.92	4.65
75	8.60	8.08	7.60	7.14	6.71	6.30	5.95	5.62	5.30	4.99
74	9.40	8.82	8.28	7.77	7.29	6.83	6.45	6.09	5.74	5.41
73	10.02	9.44	8.89	8.38	7.89	7.43	7.01	6.60	6.21	5.84
72	11.10	10.43	9.79	9.19	8.63	8.09	7.62	7.17	6.74	6.33
71	12.10	11.36	10.67	10.02	9.40	8.82	8.31	7.82	7.36	6.92
70	13.36	12.52	11.72	10.98	10.27	9.60	9.03	8.49	7.97	7.48
69	14.60	13.67	12.79	11.97	11.19	10.45	9.82	9.23	8.66	8.11
68	16.00	14.96	13.99	13.07	12.20	11.37	10.68	10.02	9.39	8.78
67	17.50	16.35	15.27	14.26	13.30	12.39	11.61	10.86	10.15	9.47
66	19.00	17.76	16.60	15.51	14.47	13.49	12.64	11.83	11.05	10.31
65	21.00	19.59	18.26	17.01	15.82	14.70	13.76	12.86	12.01	11.19
64	23.00	21.43	19.96	18.57	17.25	16.00	14.98	14.00	13.06	12.16
63	25.10	23.38	21.77	20.24	18.80	17.44	16.31	15.24	14.22	13.24
62	27.60	25.66	23.84	22.13	20.51	18.97	17.73	16.55	15.42	14.34
61	30.33	28.17	26.14	24.23	22.42	20.71	19.37	18.10	16.88	15.72
60	33.47	31.05	28.78	26.64	24.62	22.70	21.24	19.84	18.50	17.23
59	37.00	34.31	31.77	29.39	27.13	24.99	23.37	21.83	20.36	18.95
58	41.00	38.00	35.18	32.52	30.00	27.61	25.82	24.11	22.47	20.90
57	45.30	41.99	38.88	35.95	33.18	30.54	28.59	26.72	24.94	23.24

56	50.20	46.55	43.12	39.89	36.83	33.93	31.76	29.69	27.71	25.82
55	56.00	51.92	48.08	44.47	41.05	37.80	35.35	33.02	30.79	28.65
54	62.80	58.20	53.88	49.80	45.95	42.29	39.51	36.87	34.34	31.92
53	70.00	64.95	60.21	55.74	51.51	47.50	44.33	41.31	38.42	35.65
52	78.80	73.12	67.79	62.76	58.00	53.49	49.86	46.40	43.10	39.94
51	88.00	81.79	75.97	70.47	65.27	60.34	56.11	52.08	48.23	44.54
50	99.10	92.12	85.57	79.39	73.55	68.00	63.15	58.52	54.10	49.86
49	111.00	103.28	96.04	89.20	82.74	76.61	70.94	65.54	60.38	55.44
48	126.20	117.27	108.88	100.97	93.48	86.38	79.89	73.71	67.79	62.13
47	142.60	132.48	122.97	114.00	105.52	97.48	90.16	83.18	76.51	70.12
46	162.00	150.38	139.46	129.16	119.43	110.19	101.62	93.45	85.64	78.17
45	185.00	171.49	158.81	146.85	135.53	124.80	115.00	105.66	96.74	88.20
44	212.00	196.23	181.41	167.45	154.23	141.70	130.18	119.19	108.69	98.64
43	243.00	224.65	207.41	191.15	175.78	161.19	148.03	135.48	123.49	112.01
42	280.00	258.38	238.08	218.93	200.82	183.64	168.64	154.32	140.65	127.56
41	324.00	298.37	274.29	251.59	230.12	209.75	192.53	176.11	160.43	145.41
40	375.30	344.95	316.43	289.55	264.12	240.00	220.30	201.52	183.57	166.39
39	431.00	395.97	363.07	332.05	302.71	274.87	251.94	230.08	209.19	189.19
38	500.00	458.51	419.54	382.80	348.04	315.07	289.04	264.21	240.49	217.78
37	580.00	531.11	485.18	441.88	400.92	362.06	332.09	303.52	276.21	250.07
36	676.00	618.14	563.79	512.55	464.08	418.09	383.52	350.57	319.07	288.92
35	790.00	721.80	657.74	597.34	540.20	486.00	445.77	407.41	370.75	335.66
34	930.00	848.96	772.84	701.08	633.19	568.78	521.38	476.19	433.01	391.66
33	1110.00	1011.10	918.19	830.60	747.75	669.14	613.58	560.59	509.97	461.49
32	1320.00	1201.45	1090.09	985.09	885.78	791.56	725.62	662.75	602.68	545.17
31	1590.00	1444.80	1308.40	1179.80	1058.15	942.75	863.43	787.81	715.55	646.36
30	1906.00	1731.91	1568.38	1414.20	1268.36	1130.00	1034.60	943.64	856.73	773.51
29	2300.00	2089.81	1892.37	1706.22	1530.13	1363.08	1244.55	1131.54	1023.56	920.17
28	2810.00	2550.31	2306.37	2076.38	1858.82	1652.43	1505.84	1366.07	1232.52	1104.65
27	3470.00	3144.23	2838.22	2549.70	2276.79	2017.87	1836.86	1664.27	1499.35	1341.45
26	4290.00	3885.50	3505.53	3147.28	2808.41	2486.92	2253.64	2031.21	1818.67	1615.18
25	5348.00	4843.01	4368.65	3921.40	3498.35	3097.00	2802.48	2521.66	2253.33	1996.42
24	6800.00	6152.28	5543.84	4970.19	4427.56	3912.77	3538.27	3181.20	2840.01	2513.33
23	8720.00	7888.61	7107.64	6371.32	5674.82	5014.05	4529.95	4068.38	3627.32	3205.04
22	11500.00	10371.38	9311.21	8311.65	7366.14	6469.15	5839.63	5239.39	4665.85	4116.71
21	15000.00	13512.80	12115.79	10798.65	9552.74	8370.76	7546.29	6760.17	6009.01	5289.82
20	19368.00	17441.37	15631.58	13925.26	12311.23	10780.00	9716.41	8702.31	7733.29	6805.52

HIS-06 temperature and humidity characteristic 25°C~34°C

Unit:KQ

Relative humidity	Temperature (°C)									
	25°C	26°C	27°C	28°C	29°C	30°C	31°C	32°C	33°C	34°C
90	1.68	1.62	1.57	1.52	1.47	1.42	1.37	1.33	1.28	1.24
89	1.78	1.72	1.66	1.61	1.55	1.50	1.45	1.40	1.36	1.31
88	1.89	1.83	1.76	1.70	1.65	1.59	1.54	1.49	1.44	1.39
87	2.02	1.95	1.88	1.81	1.74	1.68	1.63	1.57	1.52	1.47
86	2.16	2.08	2.00	1.93	1.85	1.78	1.72	1.66	1.61	1.55
85	2.30	2.21	2.13	2.05	1.97	1.89	1.82	1.76	1.70	1.64
84	2.48	2.38	2.28	2.19	2.10	2.01	1.94	1.87	1.80	1.73
83	2.65	2.54	2.43	2.33	2.24	2.14	2.06	1.98	1.91	1.83
82	2.83	2.71	2.60	2.49	2.38	2.28	2.19	2.11	2.02	1.94
81	3.06	2.93	2.80	2.67	2.55	2.44	2.34	2.24	2.15	2.06
80	3.28	3.14	3.00	2.86	2.73	2.60	2.49	2.38	2.28	2.18
79	3.51	3.35	3.20	3.05	2.91	2.78	2.65	2.54	2.42	2.31
78	3.78	3.61	3.44	3.28	3.12	2.97	2.83	2.70	2.57	2.45
77	4.06	3.87	3.69	3.51	3.34	3.17	3.03	2.88	2.74	2.61
76	4.38	4.17	3.97	3.77	3.58	3.40	3.23	3.07	2.92	2.77
75	4.70	4.47	4.25	4.04	3.84	3.64	3.46	3.28	3.11	2.94
74	5.09	4.83	4.59	4.35	4.12	3.90	3.70	3.51	3.32	3.14

73	5.49	5.21	4.94	4.68	4.43	4.19	3.97	3.75	3.54	3.34
72	5.93	5.62	5.33	5.04	4.77	4.50	4.26	4.02	3.80	3.57
71	6.49	6.13	5.79	5.46	5.14	4.84	4.57	4.32	4.07	3.83
70	7.00	6.61	6.24	5.88	5.53	5.20	4.91	4.63	4.35	4.09
69	7.59	7.16	6.75	6.35	5.96	5.59	5.27	4.97	4.67	4.38
68	8.20	7.73	7.28	6.84	6.42	6.01	5.67	5.34	5.01	4.70
67	8.82	8.32	7.83	7.36	6.91	6.47	6.10	5.74	5.38	5.04
66	9.60	9.03	8.49	7.96	7.46	6.97	6.57	6.18	5.80	5.43
65	10.40	9.78	9.18	8.61	8.06	7.52	7.08	6.65	6.24	5.84
64	11.30	10.62	9.96	9.33	8.72	8.13	7.65	7.19	6.74	6.30
63	12.30	11.55	10.82	10.12	9.45	8.80	8.27	7.75	7.26	6.78
62	13.30	12.49	11.71	10.96	10.23	9.53	8.96	8.41	7.87	7.35
61	14.60	13.69	12.81	11.97	11.15	10.36	9.73	9.12	8.53	7.96
60	16.00	14.99	14.02	13.08	12.17	11.30	10.61	9.94	9.29	8.66
59	17.60	16.48	15.40	14.35	13.35	12.38	11.61	10.87	10.15	9.46
58	19.40	18.15	16.95	15.79	14.68	13.60	12.75	11.93	11.13	10.36
57	21.60	20.18	18.81	17.49	16.22	14.99	14.05	13.14	12.26	11.41
56	24.00	22.40	20.86	19.37	17.94	16.55	15.50	14.48	13.50	12.54
55	26.60	24.81	23.10	21.44	19.84	18.30	17.13	16.00	14.90	13.83
54	29.60	27.59	25.66	23.81	22.01	20.28	18.96	17.69	16.46	15.26
53	33.00	30.74	28.57	26.48	24.46	22.52	21.04	19.62	18.24	16.90
52	36.90	34.35	31.90	29.53	27.25	25.05	23.38	21.77	20.21	18.69
51	41.00	38.18	35.47	32.86	30.34	27.90	26.03	24.22	22.46	20.76
50	45.80	42.62	39.55	36.60	33.75	31.00	28.91	26.89	24.93	23.03
49	50.70	47.20	43.83	40.59	37.45	34.43	32.08	29.81	27.61	25.47
48	56.70	52.72	48.90	45.21	41.66	38.22	35.62	33.10	30.67	28.30
47	64.00	59.37	54.91	50.61	46.46	42.46	39.57	36.78	34.07	31.45
46	71.00	65.89	60.97	56.22	51.65	47.23	43.99	40.85	37.81	34.86
45	80.00	74.13	68.48	63.03	57.78	52.70	49.02	45.46	42.00	38.65
44	89.00	82.54	76.32	70.33	64.54	58.96	54.75	50.69	46.74	42.92
43	101.00	93.48	86.25	79.28	72.55	66.06	61.28	56.65	52.17	47.82
42	115.00	106.23	97.79	89.66	81.81	74.23	68.69	63.33	58.14	53.10
41	131.00	120.81	111.01	101.56	92.44	83.64	77.33	71.23	65.31	59.57
40	149.90	138.01	126.56	115.53	104.88	94.60	87.37	80.37	73.58	66.99
39	170.00	156.52	143.54	131.04	118.97	107.32	99.08	91.11	83.38	75.88
38	196.00	180.09	164.79	150.04	135.81	122.06	112.71	103.65	94.88	86.37
37	225.00	206.61	188.92	171.87	155.41	139.52	128.86	118.54	108.53	98.82
36	260.00	238.50	217.80	197.86	178.62	160.04	147.90	136.16	124.77	113.73
35	302.00	276.83	252.61	229.27	206.76	185.00	170.96	157.37	144.19	131.41
34	352.00	322.66	294.42	267.21	240.96	215.59	199.30	183.53	168.24	153.40
33	415.00	380.13	346.58	314.24	283.04	252.90	233.57	214.84	196.70	179.09
32	490.00	448.82	409.19	371.01	334.16	298.57	275.69	253.53	232.06	211.23
31	580.00	531.32	484.48	439.35	395.79	353.72	326.76	300.66	275.37	250.83
30	693.69	634.81	578.16	523.57	470.89	420.00	387.67	356.36	326.02	296.58
29	821.00	751.60	684.82	620.48	558.38	498.40	459.39	421.61	385.00	349.49
28	982.00	898.01	817.20	739.32	664.18	591.58	544.87	499.65	455.82	413.29
27	1190.00	1085.85	985.63	889.06	795.87	705.85	649.51	594.96	542.09	490.80
26	1420.00	1297.43	1179.49	1065.83	956.17	850.22	781.68	715.32	651.00	588.59
25	1750.00	1597.27	1450.30	1308.67	1172.02	1040.00	954.91	872.53	792.68	715.22
24	2200.00	2005.83	1818.99	1638.94	1465.21	1297.38	1189.66	1085.37	984.29	886.22
23	2800.00	2551.47	2312.32	2081.87	1859.50	1644.68	1506.06	1371.84	1241.75	1115.55
22	3590.00	3270.74	2963.54	2667.51	2381.86	2105.90	1925.97	1751.75	1582.89	1419.07
21	4600.00	4191.56	3798.54	3419.81	3054.38	2701.33	2467.06	2240.24	2020.39	1807.10
20	5915.63	5385.23	4874.84	4383.03	3908.47	3450.00	3152.84	2865.12	2586.25	2315.70

HIS-06 Characteristic of temperature and humidity 35°C ~ 45°C

Unit:KΩ

Relative humidity	Temperature (°C)										
	35°C	36°C	37°C	38°C	39°C	40°C	41°C	42°C	43°C	44°C	45°C
90	1.20	1.17	1.14	1.11	1.08	1.05	1.02	1.00	0.98	0.95	0.93
89	1.27	1.23	1.20	1.16	1.13	1.10	1.07	1.05	1.02	1.00	0.97
88	1.34	1.30	1.26	1.22	1.19	1.15	1.12	1.09	1.07	1.04	1.02
87	1.42	1.37	1.33	1.29	1.25	1.21	1.18	1.15	1.12	1.09	1.06
86	1.50	1.45	1.40	1.36	1.31	1.27	1.24	1.20	1.17	1.14	1.11
85	1.58	1.53	1.48	1.43	1.38	1.33	1.29	1.26	1.23	1.19	1.16
84	1.67	1.61	1.56	1.50	1.45	1.40	1.36	1.32	1.29	1.25	1.21
83	1.76	1.70	1.64	1.58	1.52	1.47	1.43	1.39	1.35	1.31	1.27
82	1.86	1.79	1.73	1.66	1.60	1.54	1.50	1.45	1.41	1.37	1.33
81	1.97	1.90	1.82	1.75	1.69	1.62	1.57	1.53	1.48	1.44	1.40
80	2.08	2.00	1.93	1.85	1.78	1.71	1.66	1.61	1.56	1.51	1.46
79	2.20	2.12	2.03	1.95	1.88	1.80	1.74	1.69	1.64	1.59	1.54
78	2.33	2.24	2.15	2.07	1.98	1.90	1.84	1.78	1.72	1.67	1.61
77	2.48	2.38	2.28	2.18	2.09	2.00	1.94	1.87	1.81	1.75	1.69
76	2.62	2.51	2.41	2.31	2.21	2.12	2.05	1.98	1.91	1.84	1.78
75	2.78	2.67	2.56	2.45	2.34	2.24	2.16	2.09	2.01	1.94	1.87
74	2.96	2.84	2.71	2.60	2.48	2.37	2.29	2.20	2.12	2.04	1.97
73	3.14	3.01	2.88	2.75	2.63	2.51	2.42	2.33	2.24	2.15	2.07
72	3.36	3.21	3.06	2.92	2.78	2.65	2.55	2.46	2.36	2.27	2.18
71	3.60	3.44	3.28	3.12	2.97	2.82	2.71	2.61	2.50	2.40	2.30
70	3.83	3.65	3.48	3.32	3.16	3.00	2.88	2.77	2.65	2.54	2.43
69	4.10	3.91	3.73	3.55	3.37	3.20	3.07	2.94	2.82	2.70	2.58
68	4.40	4.19	3.99	3.79	3.60	3.41	3.27	3.13	2.99	2.86	2.73
67	4.71	4.49	4.27	4.06	3.85	3.65	3.49	3.34	3.19	3.05	2.90
66	5.08	4.83	4.59	4.36	4.13	3.91	3.74	3.57	3.41	3.25	3.09
65	5.45	5.19	4.93	4.68	4.44	4.20	4.01	3.83	3.65	3.47	3.30
64	5.88	5.59	5.31	5.04	4.78	4.52	4.31	4.11	3.91	3.72	3.53
63	6.31	6.00	5.70	5.41	5.13	4.85	4.63	4.41	4.20	4.00	3.80
62	6.84	6.50	6.17	5.84	5.53	5.22	4.98	4.75	4.52	4.30	4.09
61	7.40	7.03	6.66	6.31	5.97	5.63	5.37	5.12	4.88	4.64	4.41
60	8.05	7.64	7.24	6.86	6.48	6.11	5.83	5.55	5.28	5.01	4.76
59	8.78	8.33	7.89	7.46	7.05	6.64	6.33	6.02	5.72	5.43	5.14
58	9.61	9.10	8.61	8.13	7.66	7.20	6.86	6.52	6.19	5.87	5.56
57	10.58	10.00	9.43	8.88	8.34	7.82	7.44	7.08	6.72	6.36	6.02
56	11.61	10.96	10.33	9.71	9.11	8.53	8.11	7.70	7.30	6.91	6.53
55	12.80	12.07	11.36	10.68	10.00	9.35	8.88	8.42	7.97	7.53	7.10
54	14.10	13.29	12.50	11.73	10.98	10.25	9.72	9.21	8.70	8.21	7.73
53	15.60	14.68	13.78	12.90	12.05	11.22	10.63	10.06	9.50	8.96	8.42
52	17.22	16.18	15.18	14.20	13.24	12.31	11.66	11.02	10.40	9.79	9.19
51	19.10	17.93	16.79	15.68	14.59	13.54	12.81	12.10	11.40	10.72	10.05
50	21.18	19.87	18.60	17.36	16.15	14.97	14.14	13.33	12.54	11.77	11.01
49	23.40	21.97	20.57	19.21	17.89	16.60	15.65	14.73	13.82	12.94	12.08
48	26.00	24.35	22.75	21.20	19.68	18.20	17.17	16.16	15.18	14.21	13.27
47	28.90	27.06	25.28	23.54	21.85	20.20	19.03	17.88	16.77	15.68	14.61
46	32.00	29.95	27.96	26.03	24.14	22.30	21.00	19.74	18.50	17.29	16.11
45	35.40	33.16	30.99	28.87	26.81	24.80	23.33	21.90	20.50	19.14	17.80
44	39.20	36.71	34.29	31.93	29.64	27.40	25.79	24.21	22.67	21.17	19.70
43	43.60	40.77	38.02	35.35	32.74	30.20	28.45	26.73	25.06	23.43	21.83
42	48.20	45.06	42.00	39.02	36.13	33.30	31.40	29.55	27.74	25.97	24.25
41	54.00	50.43	46.97	43.59	40.30	37.10	34.98	32.92	30.90	28.93	27.00
40	60.60	56.63	52.78	49.02	45.36	41.80	39.36	36.98	34.66	32.39	30.17
39	68.60	64.04	59.61	55.30	51.10	47.00	44.23	41.53	38.89	36.31	33.78
38	78.10	72.70	67.45	62.33	57.35	52.50	49.44	46.45	43.54	40.69	37.90

37	89.40	82.99	76.75	70.68	64.76	59.00	55.58	52.24	48.98	45.80	42.68
36	103.00	95.43	88.06	80.89	73.91	67.10	63.17	59.33	55.59	51.93	48.35
35	119.00	110.35	101.94	93.75	85.77	78.00	73.18	68.47	63.88	59.39	55.00
34	139.00	129.32	119.90	110.73	101.80	93.10	86.80	80.66	74.66	68.80	63.07
33	162.00	149.97	138.28	126.90	115.81	105.00	98.24	91.63	85.19	78.89	72.73
32	191.00	176.44	162.29	148.50	135.08	122.00	114.10	106.40	98.87	91.52	84.34
31	227.00	209.28	192.04	175.27	158.93	143.00	133.62	124.46	115.52	106.79	98.25
30	268.00	247.75	228.05	208.88	190.20	172.00	160.04	148.37	136.97	125.83	114.95
29	315.00	291.16	267.97	245.41	223.43	202.00	187.96	174.26	160.88	147.81	135.03
28	372.00	342.25	313.32	285.16	257.73	231.00	215.94	201.25	186.90	172.88	159.17
27	441.00	404.50	369.01	334.45	300.80	268.00	251.39	235.18	219.35	203.88	188.76
26	528.00	484.54	442.27	401.13	361.06	322.00	301.66	281.81	262.43	243.49	224.98
25	640.00	590.21	541.79	494.65	448.75	404.00	375.91	348.49	321.72	295.57	270.00
24	791.00	735.73	681.97	629.64	578.68	529.00	486.67	445.36	405.02	365.60	327.08
23	993.00	926.97	862.74	800.23	739.35	680.00	621.22	563.85	507.84	453.11	399.61
22	1260.00	1171.18	1084.80	1000.72	918.82	839.00	766.05	694.86	625.34	557.42	491.03
21	1600.00	1476.79	1356.97	1240.33	1126.73	1016.00	929.53	845.14	762.74	682.23	603.53
20	2053.00	1880.43	1712.58	1549.22	1390.09	1235.00	1131.26	1030.03	931.17	834.59	740.18

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For product improvement, specifications and appearance in this manual are subject to change without prior notice.