

Service Manual

Models: GWH(07)KF-K3DNA8E/I GWH(12)KF-K3DNB4E/I
GWH(07)KF-K3DNA6E/I GWH(12)KF-K3DNB1E/I
GWH(07)KF-K3DNB4E/I GWH(12)KF-K3DNB2E/I
GWH(07)KF-K3DNB1E/I GWH(12)KF-K3DNA5E/I
GWH(07)KF-K3DNA5E/I GWH(18)KG-K3DNA6E/I
GWH(07)KF-K3DNB2E/I GWH(18)KG-K3DNB2E/I
GWH(09)KF-K3DNA6E/I GWH(18)KG-K3DNA8E/I
GWH(09)KF-K3DNB1E/I GWH(18)KG-K3DNB1E/I
GWH(09)KF-K3DNA5E/I GWH(18)KG-K3DNA5E/I
GWH(09)KF-K3DNB2E/I (Refrigerant R410A)
GWH(12)KF-K3DNA6E/I

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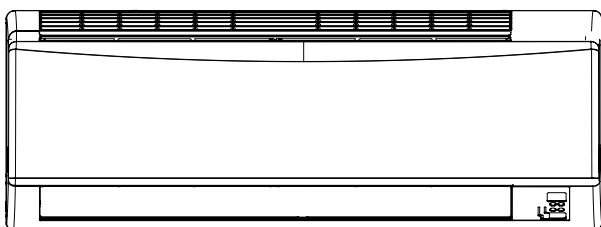
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Part I : Technical Information

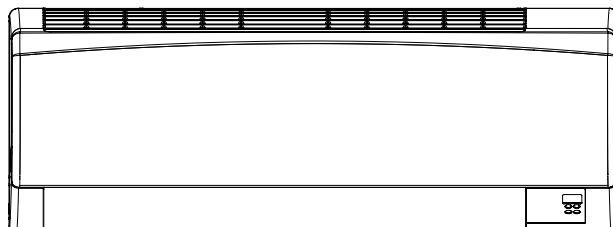
1. Summary

Indoor Unit:

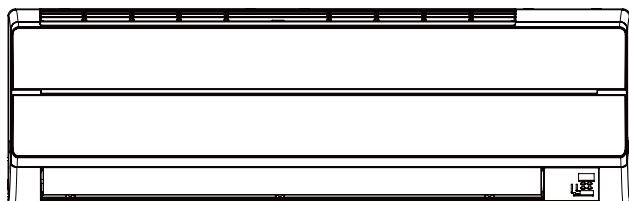
GWH(07)KF-K3DNA6E/I
GWH(09)KF-K3DNA6E/I
GWH(12)KF-K3DNA6E/I
GWH(18)KG-K3DNA6E/I



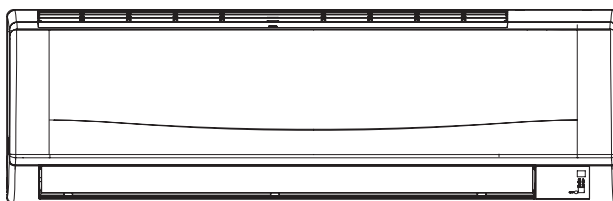
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GWH(12)KF-K3DNB1E/I
GWH(18)KG-K3DNB1E/I



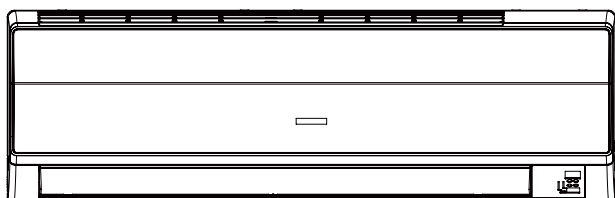
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GWH(18)KG-K3DNA8E/I



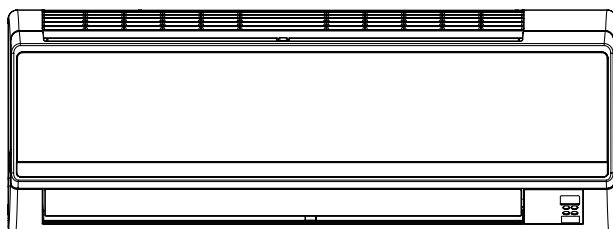
GWH(07)KF-K3DNB4E/I
GWH(12)KF-K3DNB4E/I



GWH(07)KF-K3DNB2E/I
GWH(09)KF-K3DNB2E/I
GWH(12)KF-K3DNB2E/I
GWH(18)KG-K3DNB2E/I



GWH(12)KF-K3DNA5E/I
GWH(18)KG-K3DNA5E/I
GWH(07)KF-K3DNA5E/I
GWH(09)KF-K3DNA5E/I



Remote Controller:

YB1F2(XFAN)



2. Specifications

2.1 Specification Sheet

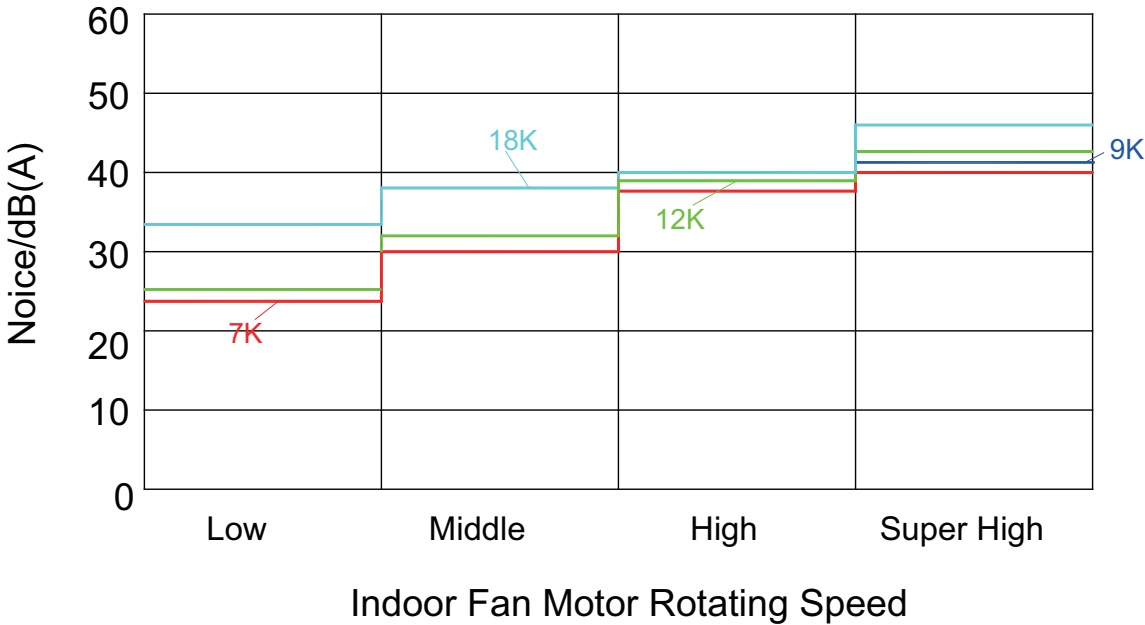
Model		GWH(07)KF-K3DNA6E/I GWH(07)KF-K3DNA8E/I GWH(07)KF-K3DNB4E/I GWH(07)KF-K3DNB1E/I GWH(07)KF-K3DNA5E/I GWH(07)KF-K3DNB2E/I	GWH(09)KF-K3DNA6E/I GWH(09)KF-K3DNB1E/I GWH(09)KF-K3DNA5E/I GWH(09)KF-K3DNA6E/I GWH(09)KF-K3DNB2E/I
Product Code		CB146N26201 CB146N32800 CB146N33300 CB146N30000 CB146N35500 CB409N01400	CB146N26301 CB146N30100 CB146N28301 CB146N26302 CB409N01100
Rated Voltage	V~	220-240	220-240
Rated Frequency	Hz	50	50
Phases		1	1
Cooling Capacity	KW	2.1	2.6
Heating Capacity	KW	2.6	2.8
Air Flow Volume (SH/H/M/L)	m ³ /h	550/520/370/280	600/520/370/280
Dehumidifying Volume	L/h	0.6	0.8
Fan Type		Cross-flow	Cross-flow
Fan Diameter-height	mm	Φ92X594	Φ92X594
Fan Motor Speed (SH/H/M/L) Cool	rpm	1350/1100/900/700	1350/1100/900/700
Fan Motor Speed (SH/H/M/L) Heat	rpm	1350/1140/980/820	1350/1140/980/820
Fan Motor Power Output	W	10	10
Fan motor running current	A	0.16	0.16
Fan Motor Capacitor	μF	1.2	1.2
Evaporator Material		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
Evaporator Pipe Diameter	mm	7	7
Evaporator Number of Rows		2	2
Evaporator Fin Pitch	mm	1.4	1.4
Evaporator Length(L) X Height(H) X Width(W)	mm	610X25.4X294	610X25.4X294
Motor Model		FN10V-PG	FN10V-PG
Overload Protector		3.15	3.15
Motor Full Load Amp(FLA)	A	0.16	0.16
Sound Pressure Level (SH/H/M/L)	dB (A)	40/38/30/24	41/38/30/24
Sound Power Level (SH/H/M/L)	dB (A)	50/48/40/34	51/48/40/34
Outline Dimension (WXHXD)	mm	770X283X201	770X283X201
Package Carton Dimension (LXWXH)	mm	844X342X261	844X342X261
Package Dimension (LXWXH)	mm	847X345X276	847X345X276
Net Weight	kg	8	8
Gross Weight	kg	10	10
Liquid Pipe	mm	Φ6	Φ6
Gas Pipe(to Indoor Unit)	mm	Φ9.52	Φ9.52

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

Model		GWH(12)KF-K3DNA6E/I GWH(12)KF-K3DNB4E/I GWH(12)KF-K3DNB1E/I GWH(12)KF-K3DNA5E/I GWH(12)KF-K3DNA6E/I GWH(12)KF-K3DNB2E/I	GWH(18)KG-K3DNA6E/I GWH(18)KG-K3DNB2E/I GWH(18)KG-K3DNB1E/I GWH(18)KG-K3DNA5E/I
Product Code		CB146N26401 CB146N33400 CB146N30500 CB146N33001 CB146N26402 CB409N00900	(CB146N32500/CB146N26501) CB409N01900 CB146N35400 CB146N32901
Rated Voltage	V~	220-240	220-240
Rated Frequency	Hz	50	50
Phases		1	1
Cooling Capacity	KW	3.5	5.3
Heating Capacity	KW	3.8	5.8
Air Flow Volume (SH/H/M/L)	m ³ /h	680/560/410/300	800/680/560/460
Dehumidifying Volume	L/h	1.4	1.8
Fan Type		Cross-flow	Cross-flow
Fan Diameter-height	mm	Φ92X594	Φ98X710
Fan Motor Speed (SH/H/M/L) Cool	rpm	1350/1150/950/750	1350/1100/950/800
Fan Motor Speed (SH/H/M/L) Heat	rpm	1350/1190/1020/850	1400/1200/1050/900
Fan Motor Power Output	W	10	20
Fan motor running current	A	0.16	0.31
Fan Motor Capacitor	μF	1.2	1.5
Evaporator Material		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
Evaporator Pipe Diameter	mm	7	7
Evaporator Number of Rows		2	2
Evaporator Fin Pitch	mm	1.4	1.4
Evaporator Length(L) X Height(H) X Width(W)	mm	610X25.4X294	657X25.4X304.8
Motor Model		FN10V-PG	FN20V-PG
Overload Protector		3.15	3.15
Motor Full Load Amp(FLA)	A	0.16	0.31
Sound Pressure Level (SH/H/M/L)	dB (A)	42/39/31/25	45/40/37/32
Sound Power Level (SH/H/M/L)	dB (A)	52/49/41/35	55/50/47/42
Outline Dimension (WXHXD)	mm	770X283X201	865X305X215
Package Carton Dimension (LXWXH)	mm	844X342X261	945X380X295
Package Dimension (LXWXH)	mm	847X345X276	948X383X310
Net Weight	kg	9	12
Gross Weight	kg	11	15
Liquid Pipe	mm	Φ6	Φ6
Gas Pipe(to Indoor Unit)	mm	Φ9.52	Φ12

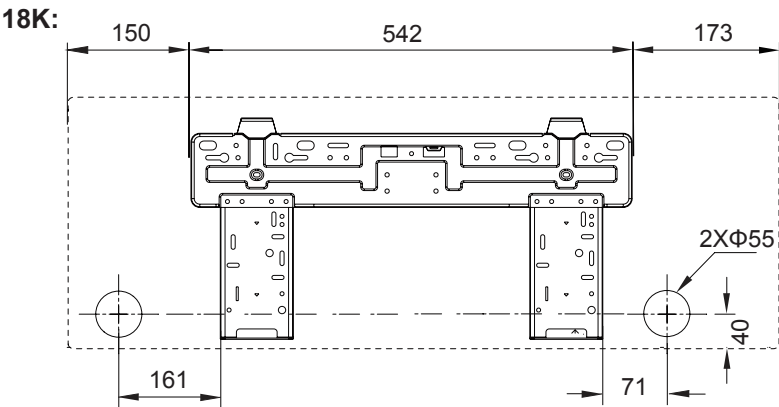
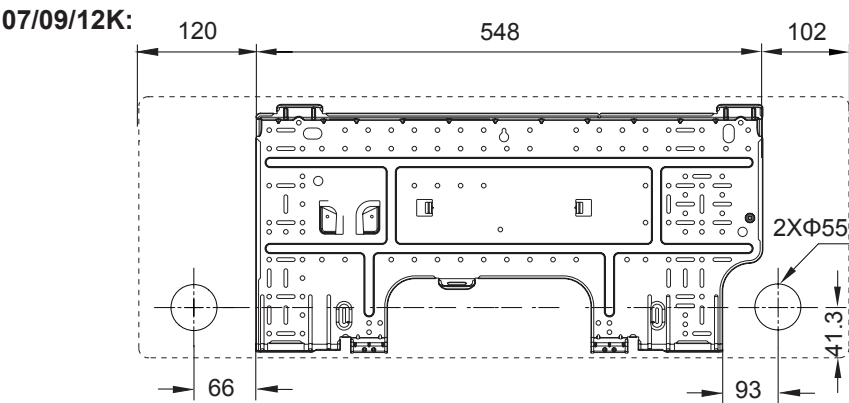
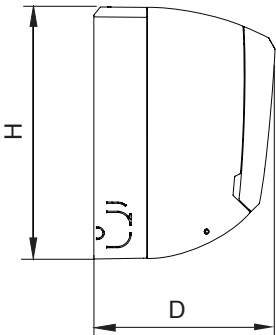
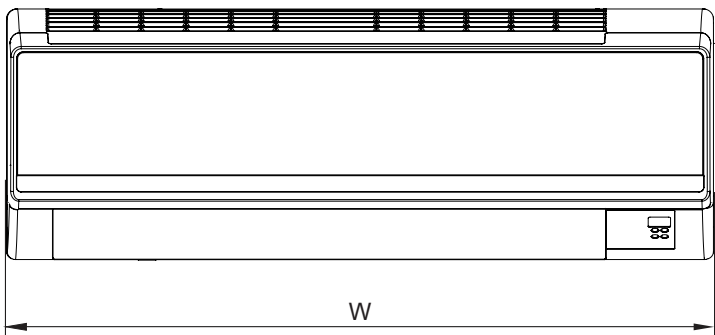
The above data is subject to change without notice. Please refer to the nameplate of the unit.

2.2 Noise Criteria Curve Tables for Both Models



3. Outline Dimension Diagram

3.1 Indoor Unit



Unit:mm

Mode	W	H	D
07/09/12K	770	283	201
18K	865	305	215

4. Electrical Part

4.1 Wiring Diagram

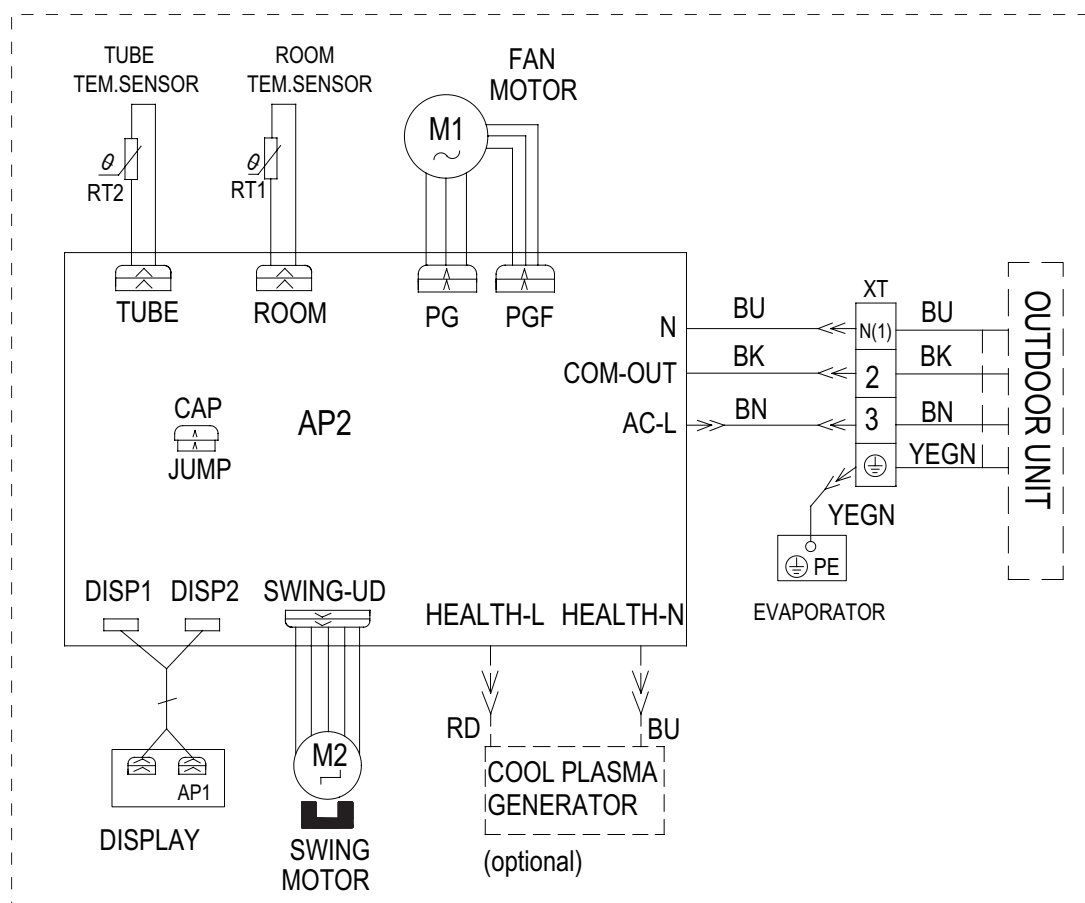
• Instruction

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

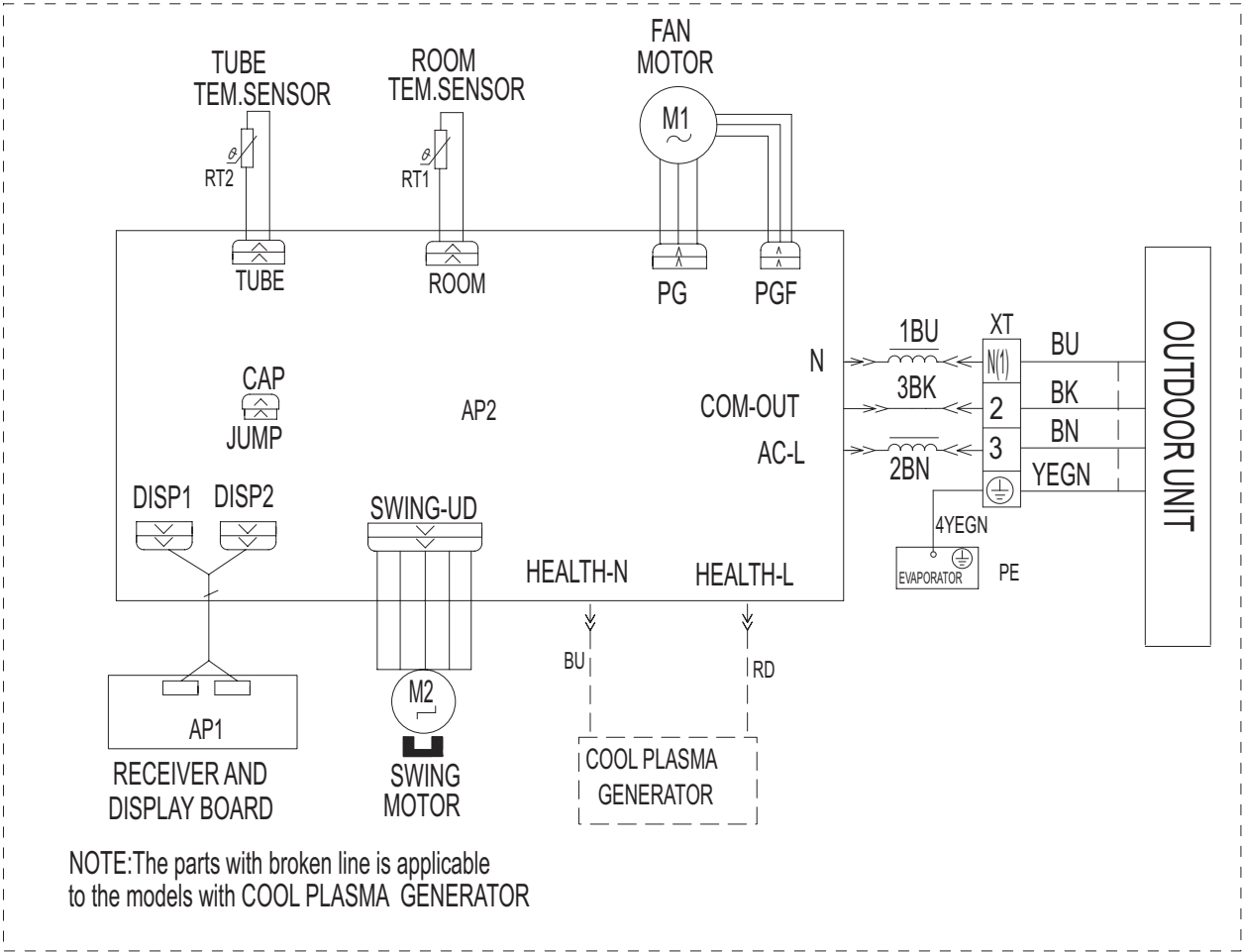
Note: Jumper cap is used to determine fan speed and the swing angle of horizontal lover for this model.

• Indoor Unit

07/09/12K



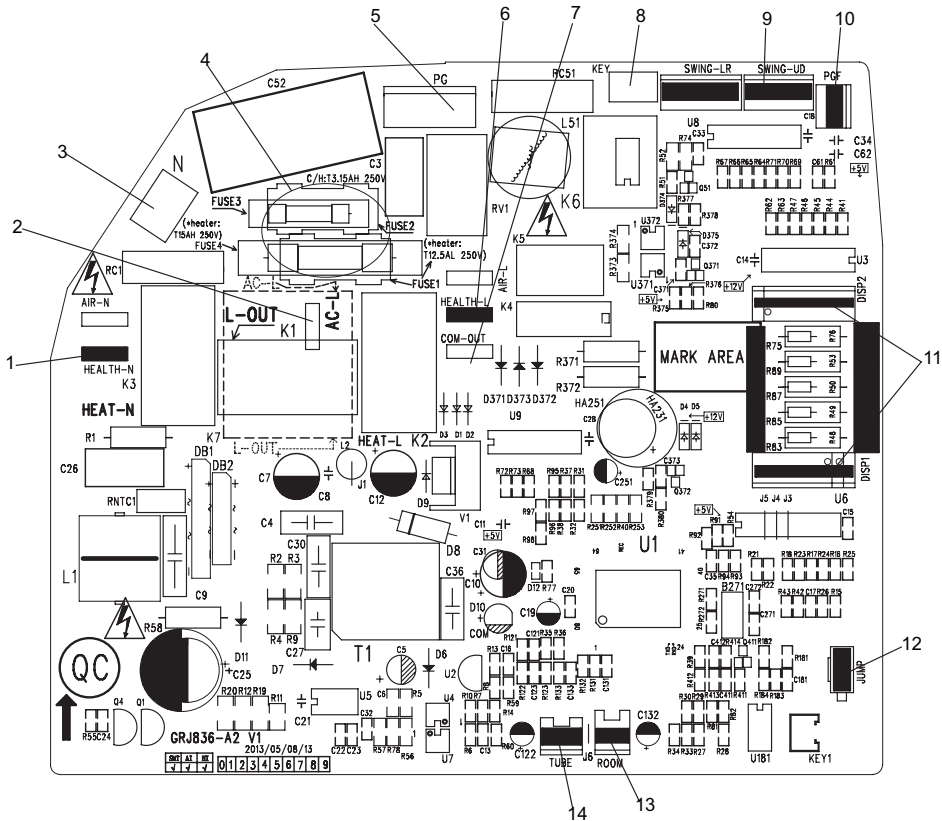
18K



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

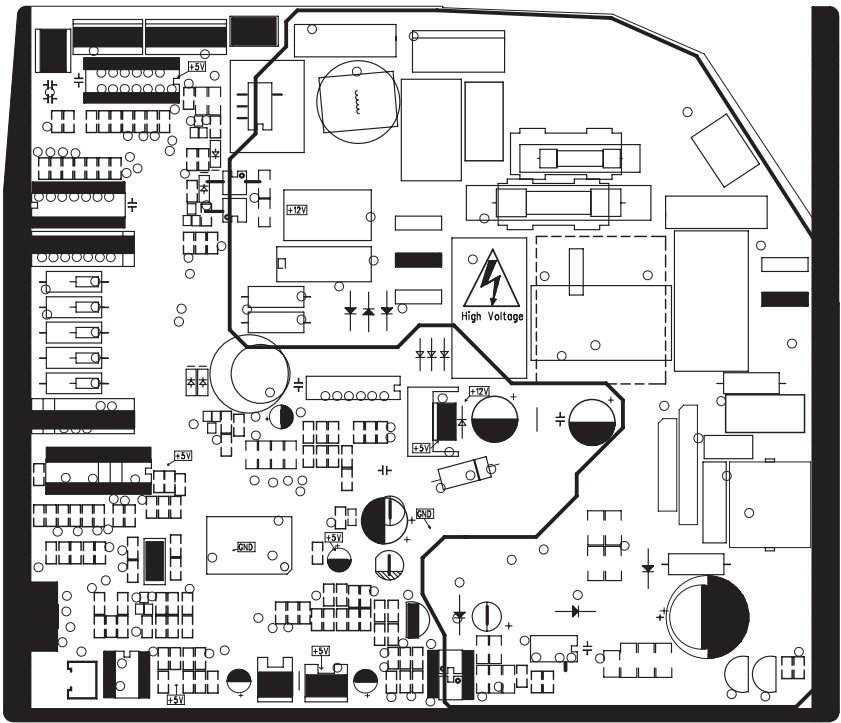
(2) 18K

• Top view



No.	Name
1	Interface of health function neutral wire
2	Interface of live wire
3	Neutral wire
4	Fuse
5	PG motor
6	Interface of health function live wire
7	Communication interface between indoor unit and outdoor unit
8	Auto button
9	Up&down swing
10	PG feedback
11	Display interface
12	Jumper cap
13	Ambient temperature sensor
14	Tube temperature sensor

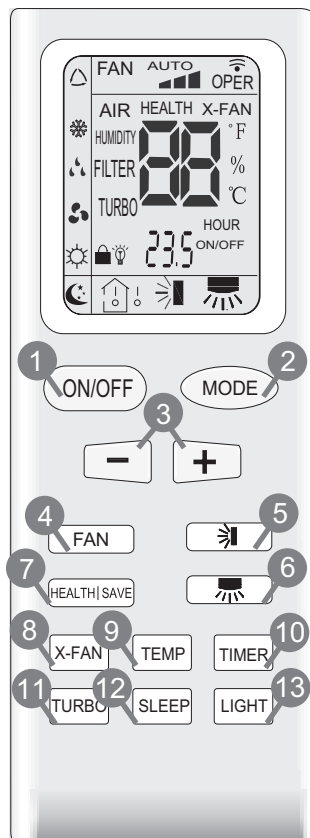
• Bottom view



5. Function and Control

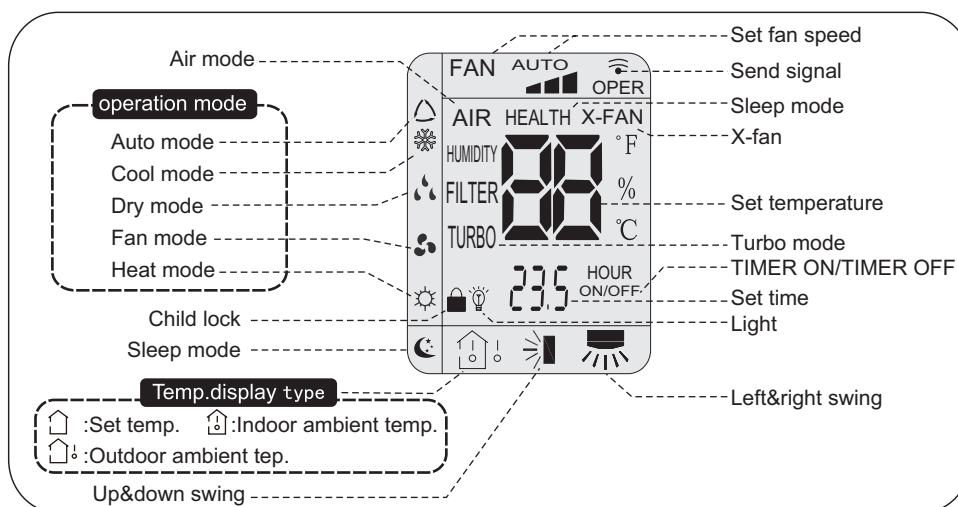
5.1 Remote Controller Introduction

Buttons on Remote Controller



- 1 ON/OFF Button
- 2 MODE Button
- 3 +/- Button
- 4 FAN Button
- 5 Button
- 6 Button
- 7 HEALTH|SAVE Button
- 8 X-FAN Button
- 9 TEMP Button
- 10 TIMER Button
- 11 TURBO Button
- 12 SLEEP Button
- 13 LIGHT Button

Introduction for Icons on Display Screen



Introduction for Buttons on Remote Controller

Note:

- After putting through the power, the air conditioner will give out a sound. Operation indicator " " is ON (red indicator). After that, you can operate the air conditioner by using remote controller.
 - At ON status, after each pressing button on remote controller, the signal icon " " on remote controller will flash once. Air conditioner will give out a sound, which indicates the signal has been sent to air conditioner.
 - At OFF status, display screen on remote controller displays set temperature.
- At on status, display screen on remote controller displays the corresponding startup function's icon.

1. ON/OFF Button

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

2. MODE Button

Press this button to select your required operation mode.



- After selecting auto mode, air conditioner will operate automatically according to ambient temperature. Set temperature can't be adjusted and also can't be displayed. Press “FAN” button can adjust fan speed. Press “” button and “” button can adjust swing angle
- After selecting cool mode, air conditioner operates under cool mode. Cool indicator “” on indoor unit is ON. You can press “+” or “-” button to adjust set temperature. Press “FAN” button can adjust fan speed. Press “” button and “” button can adjust swing angle.
- After selecting dry mode, air conditioner operates under dry mode at low speed. Dry indicator “” on indoor unit is ON. Under dry mode, fan speed can't be adjusted. Press “” button and “” button to adjust swing angle.
- After selecting fan mode, air conditioner operates only under fan mode, All mode indicators on indoor unit is OFF. Press “FAN” button can adjust fan speed. Press “” button and “” button to adjust swing angle.
- After selecting heat mode, air conditioner operates under heat mode. Heat indicator “” on indoor unit is ON. You can press “+” or “-” button to adjust set temperature. Press “FAN” button to adjust fan speed. Press “” button and “” button to adjust swing angle. (Cooling only unit can't receive the signal for heating mode.)

Note:For preventing cold wind, after starting up heating mode, indoor fan will blow fan after delaying 1-5min. (Details time is decided by indoor ambient temperature)

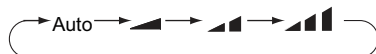
Temperature setting range on remote controller: 16℃ -30℃ . Fan speed setting range: auto, low speed, medium speed and high speed.

3. “+” or “-” button

- After each pressing of “+” or “-” button, it can increase or decrease set temperature 1℃ . 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 indoor unit will also change accordingly. (Temperature can't be adjusted under auto mode)
- Under TIMER ON, TIMER OFF or Clock setting, you can press “+” or “-” button to adjust time. (Refer to TIMER button for details)

4. FAN button

Press this button you can select the fan speed in sequence: auto (AUTO), low speed (), medium speed, ) high speed ().

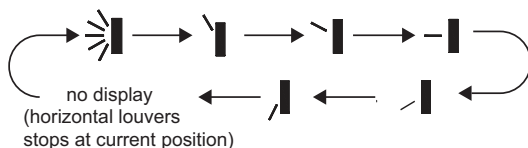


Note:

- Under auto mode, air conditioner will select proper fan speed according to ex-factory setting automatically. Air conditioner will select proper fan speed according to ex-factory setting automatically.
- Low speed under dry mode.

5. button

Press this button can select up&down swing. Swing angle can be selected in sequence as below:



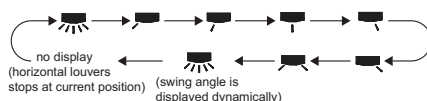
When selecting “” with remote controller, it's auto swing. Horizontal louver of air conditioner will swing up&down automatically at the maximum angle.

When selecting “”, “”, “”, “”, “” with remote controller, it's the fixed position swing. Horizontal louver of air conditioner will stop at that position as shown by the icon to swing.

Under unit off status, press “+” button and  button simultaneously to switch between simple swing setting and fixed-angle swing setting. During switching the two swing settings,  icon will blink for 2s.

6. button

Press this button can select left&right swing. Swing angle can be selected circularly in sequence as below:



When selecting“  ”with remote controller, it's auto swing. Horizontal louver of air conditioner will swing left&right automatically at the maximum angle.

When selecting“ , , , ,  ”with remote controller, it's the fixed position swing. Horizontal louver of air conditioner will stop at that position as shown by the icon to swing.

When selecting“  ”it's the circulating swing. Horizontal louver of air conditioner will swing circularly according to the angle as shown by the icon.

Under unit off status, press “+” button and  button simultaneously to switch between simple swing setting and fixed-angle swing setting. During switching the two swing settings,  icon will blink for 2s.

7. HEALTH/SAVE button (Note: Health function is not available for some models.)

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.

When selecting “AIT HEALTH”, AIR and HEALTH function will be started up.

When there's no display on remote controller, AIR and HEALTH function will be turned off.

SAVE function:

Under cool mode, press SAVE button and the unit will operate under SAVE mode. Dual-8 nixie tube on remote controller displays “SE”. Air conditioner will operate at auto speed. Set temperature can't be adjusted. Press SAVE button again to exit SAVE mode. Air conditioner turn back to original set speed and set temperature.

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 indoor 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 indoor unit's display. Temperature is set circularly by remote controller as below:



When selecting“  ”by remote controller or no display, temperature indicator on indoor unit displays set temperature;

When selecting“  ”by remote controller, temperature indicator on indoor unit displays indoor ambient temperature;

When selecting“  ”by remote controller, temperature indicator on indoor unit displays outdoor ambient temperature.

Note:

- Outdoor ambient temperature display may can't be selected for some models. When indoor unit receives“  ”signal, it displays indoor set temperature.
- Only for the model whose indoor 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 won't 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:

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

11. TURBO button

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 or drying 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 indoor unit's display "💡" icon on remote controller will disappear. Press this button again to turn on the light for indoor unit's 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" button simultaneously to switch between °C and °F .

Operation Guide

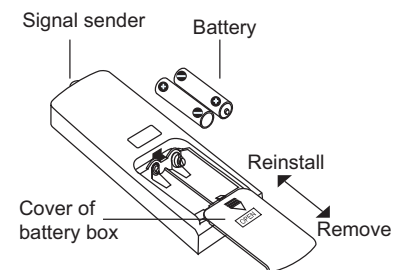
1. After putting through the power, press "ON/OFF" button on remote controller to turn on the air conditioner.
2. Press "MODE" button to select your required mode: AUTO, COOL, DRY, FAN, HEAT.
3. Press "+" or "-" button to set your required temperature. (Temperature can't be adjusted under auto mode).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

Replacement of Batteries in Remote Controller

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

Note:

- During operation, point the remote control signal sender at the receiving window on indoor unit.
- The distance between signal sender and receiving window should be no more than 8m, and there should be no obstacles between them.
- Signal may be interfered easily in the room where there is fluorescent lamp or wireless telephone; remote controller should be close to indoor unit during operation.
- Replace new batteries of the same model when replacement is required.
- When you don't use remote controller for a long time, please take out the batteries.
- If the display on remote controller is fuzzy or there's no display, please replace batteries.



5.2 Brief Description of Modes and Functions

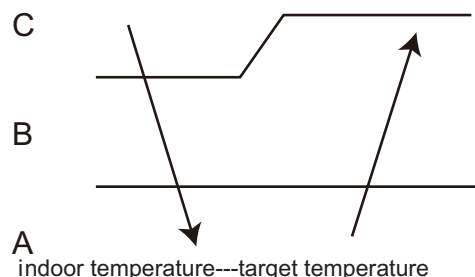
I. Basic Operation Mode

1. Cool; 2. Dry; 3. Heat; 4. Auto; 5. Fan

II. Basic Functions

1. Cooling Only

(1) Under this mode, fan and swing run at preset status, the temperature setting range is 16-30°C.



(2) Under malfunction for outdoor unit and protection stop, the indoor unit runs with the original status, and display malfunction.

(3) The indoor fan stops when the modes conflict with each other.

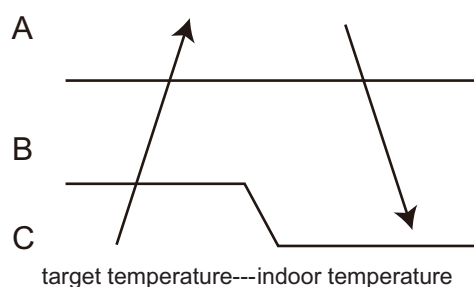
2. Dry Mode

(1) Under this mode, the indoor fan runs with low speed, and swing runs at preset status, the temperature setting range is 16-30°C.

(2) Under malfunction for outdoor unit and protection stop, the indoor unit runs with the original status, and display malfunction.

3. Heating Mode

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



(2) Working condition and Process of Heating

When the unit is ON and in heating mode, indoor fan starts cold air prevention operation; when the unit is off and the indoor fan stopped before, it blows residual heat.

(3) Protection Function. The compressor stops as the malfunction (including any temperature sensor malfunction) in heating mode, the indoor fan runs with blowing residual heat

(4) Defrosting and Oil Return

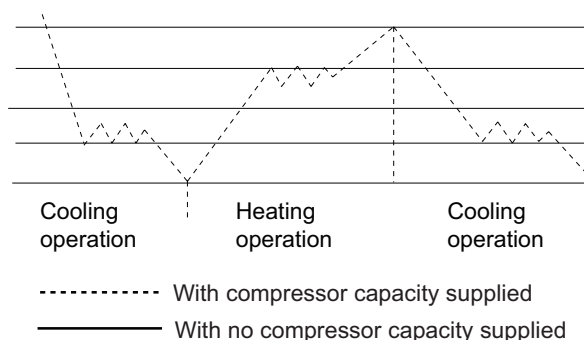
Once defrosting signal of outdoor unit is received, Heating indicator on indoor unit OFF 0.5s and ON 10s.

4. Working Methods of Auto Mode

(1) When $T_{amb} \geq 26^{\circ}\text{C}$ (79°F), it operates in Cool mode.

(2) For heat pump unit, when $T_{amb} \leq 22^{\circ}\text{C}$, it operates in Heat mode.

(3) When $22^{\circ}\text{C} < T_{amb} < 26^{\circ}\text{C}$, it operates in auto fan mode upon initial startup of the unit. When changing to auto mode from other modes, it will keep the previous operation mode (when it enter Dry mode, it operates in auto fan mode.).



5. Fan Mode

Only indoor fan operates in Fan mode. Under auto fan speed, it runs in cooling auto fan mode.

III. Other Control

1. Buzzer

The buzzer will give out a beep when the controller is energized, receiving signal from remote controller and auto button.

2. Auto Button

Press this button once, it will operate in Auto mode, and indoor fan operates in Auto fan mode and swing. When the unit is on, pressing this button will turn off the unit.

3. Auto Fan

a. Auto fan speed under heating mode

When $T_{indoor\ amb.} \leq T_{preset} + 1\text{ }^{\circ}\text{C}$, indoor fan operates at high speed;

When $T_{preset} + 1\text{ }^{\circ}\text{C} < T_{indoor\ amb.} < T_{preset} + 3\text{ }^{\circ}\text{C}$, indoor fan operates at medium speed;

When $T_{indoor\ amb.} \geq T_{preset} + 3\text{ }^{\circ}\text{C}$, indoor fan operates at low speed.

b. Auto fan speed under cooling or fan mode

When $T_{amb.} \geq T_{preset} + 3\text{ }^{\circ}\text{C}$, indoor fan operates at high speed;

When $T_{preset} + 1\text{ }^{\circ}\text{C} < T_{amb.} < T_{preset} + 3\text{ }^{\circ}\text{C}$, indoor fan operates at medium speed;

When $T_{amb.} \leq T_{preset} + 1\text{ }^{\circ}\text{C}$, indoor fan operates at low speed.

c. Auto fan speed under drying mode is low speed.

During auto fan speed, there's should be at least 3min and 30s operation time when switching between high speed, medium speed and low speed.

4. Sleep

Sleep mode is only valid under cooling mode and heating mode;

Cooling mode: Basing on the set temperature of remote controller, after turning on the sleep function for a few hours, set temperature will increase properly and automatically according to human body's comfort.

Heating mode: Basing on the set temperature of remote controller, after turning on the sleep function for a few hours, set temperature will decrease properly and automatically according to human body's comfort.

5. Timer Function

(1) General Timer:

1.1 Time On: If Timer On is set when the system is, the controller will operate in the original setting mode after reaching the timer on time. The timer interval is 0.5h, and the setting range is 0.5-24h.

1.2 Timer Off: Timer Off can be set when the unit is on. The unit will be off when timer off time is reached. The timer interval is 0.5h, and the setting range is 0.5-24h.

(2) Clock Timer:

2.1 Timer On: If Timer On is set when the system runs, it will continue to run; if Timer On is set when the system is off, the system will start to run in the original setting mode when timer on time is reached.

2.2 Timer Off: If timer off is set when the system is off, the system keeps stand-by status; if timer off is set when the system is on, the system stops when reaching timer off time.

2.3 Timer Change

Timer On and Timer OFF can be set via remote ON/OFF button. Timer time can be reset and the system will operate according to the latest setting.

When the unit is on and Timer On and Timer Off are both set, the system will operate according to the set state. When the timer off time is reached, the system will stop.

When the system stops, and Timer On and Timer Off are both set, the system will remain stop until timer on time is reached. After that, the unit will operate according to the set mode everyday when the timer on time is reached. When the timer off time is reached, the system will stop. If timer on time is the same as timer off time, the system will stop.

6. Memory Function

Memory contents: mode, up& down swing, light, set temperature, set fan speed, general timer (but clock timer). After power failure, if the unit is reenergized, it will operate according to memory contents. If Timer function is not set in the last remote control, the system will operate according to the last remote control.

If general timer function is set in the last remote control and power failure occurs before timer time is reached, the unit will operate according to the timer function set in the last remote control. Timer time is calculated after the unit is re-energized.

If general timer function is set in the last remote control and power failure occurs after timer time is reached, the system will operate according to the memory content before power failure. Timer operation is not memorized.

7. HEALTH Function

When the unit is on and the indoor fan operates, press HEALTH button to start this function (if there is no Health button, HEALTH operation is defaulted). When indoor fan stops or turning of HEALTH function by remote controller, HEALTH function will be off.

8. I Feel Function

When the controller receives I Feel order, the controller will operate according to the ambient temperature. The remote controller will send ambient temperature to the controller every 10min. If the controller does not receive the ambient temperature sent by remote controller for 11min, the air conditioner will operate according the ambient temperature around it. If I Feel function is not set, the air conditioner will operate according the ambient temperature around it. This function is not memorized upon power failure.

9. Reserved Fahrenheit Temperature

The nixie tube will display the set temperature in Celsius temperature or Fahrenheit Temperature according to the order. Setting range is 16~30°C (61~86°F). In Auto mode, it will display 25°C (77°F) during cooling and fan operation, and display 20°C (68°F) during heating operation. For cooling only unit, it displays 25°C (77°F).

The indoor temperature displayed is sent by remote controller, ranging from 0~60°C (32~99°F). If outdoor ambient temperature is received, the display remains the same. If valid control signal is received, it will display set temperature for 5s and then resume displaying ambient temperature.

For units with memory function, set temperature will be displayed after re-energizing the unit.

10. Cold Plasma Function

Turning on the cold plasma function with remote controller when the fan operates, this function will act. Turning off the cold plasma function with remote controller or turning off the fan, this function will end.

11. Turbo Function

When the controller receives Turbo order, indoor fan runs in high speed, outdoor unit runs in high frequency in cooling mode and heating mode.

12. Comfortable and energy-saving function (this function is realized by setting energy-saving signal with remote controller. Please refer to corresponding part of remote controller in instruction manual)

① Comfortable and energy-saving function is only valid under cooling mode. After setting is succeeded, set temperature of indoor unit is 27°C(81°F), and indoor unit displays "SE".

② After setting is succeeded and compressor operates, fan speed is adjusted automatically according to below condition:

When $T_{amb} \geq 32^{\circ}\text{C}(90^{\circ}\text{F})$, indoor fan operates at super-high speed;

When $32^{\circ}\text{C}(90^{\circ}\text{F}) > T_{amb} \geq T_{preset} + 2^{\circ}\text{C}(3\sim 4^{\circ}\text{F})$, indoor fan operates at high speed;

When $T_{preset} < T_{amb} < T_{preset} + 2^{\circ}\text{C}(3\sim 4^{\circ}\text{F})$, indoor fan operates at medium speed;

When $T_{amb} \leq T_{preset}$, indoor fan operates at low speed.

After setting is succeeded and compressor operates, the unit operates at low speed.

③ There should be at least 3min and 30s operation time for the switchover among high speed, medium speed and low speed.

④ After entering into energy-saving mode and When $T_{amb} \geq 28^{\circ}\text{C}(82^{\circ}\text{F})$, horizontal louver operates at fix-angle position 4. 10min later or $T_{amb} < 28^{\circ}\text{C}(82^{\circ}\text{F})$, or after receiving the changing order for swing angle, horizontal louver will operate the angle set by remote controller.

⑤ Other requirement and protection is same as that under cooling mode.

⑥ If set energy-saving function again under energy-saving mode, it will exit energy-saving mode.

13. Compulsory Defrosting Function

(1) Start up compulsory defrosting function

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

(2)Exit compulsory defrosting mode

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

14. Refrigerant Recovery Function (Applicable for Moving the Unit or Maintaining the Unit)

(1) Start up refrigerant recovery function

Set cooling mode with remote controller within 5min after energization, adjust temperature at 16°C and press light button on remote controller for 3 times successively to any one indoor unit within 3s and then the complete unit will enter into refrigerant recovery status. All indoor units display Fo. Maintenance person close all liquid valves. After 5min, withstand the thimble of all checking valves with tools one by one. If there's no refrigerant spraying out, close corresponding valve immediately, turn off the unit with remote controller and then remove the connection pipe.

(2) Exit refrigerant recovery function

During refrigerant recovery process, if any one indoor unit receives any remote control signal or refrigerant recovery function has operates for about 25min, refrigerant recovery function will be exited automatically. If the complete unit is at standby status before refrigerant recovery, the complete unit will still at standby status after refrigerant recovery. If the complete unit is at ON status, the unit will operate according to original operation mode.

(3) After entering refrigerant recovery function: Indoor unit operates at cooling mode. Fan speed is super-high speed and set temperature is 16°C. Horizontal will open at the minimum operation angle.

15. Mode Shock

When there's indoor unit under operation, if start up other indoor unit and the setting mode is inconsistent with that indoor unit, mode shock will occur. The indoor with mode shock displays "E7" and indoor fan stops operation. Corresponding relationship for mode shock and operation status after shock is as below:

Mode relationship table for mode shock				
Mode		Indoor unit with mode shock	Operation status after mode shock	
Indoor unit A	Indoor unit B		Indoor unit A	Indoor unit B
Cooling/drying	heating	Indoor unit B	Cooling/drying	Indoor fan stops operation
Heating	Cooling, drying, fan	Indoor unit B	Heating	Indoor fan stops operation
Fan	Heating	Indoor unit A	Indoor fan stops operation	Heating

Note: (1) Indoor unit A: The indoor unit under operation currently

(2) Indoor unit B: The indoor unit is tuned on latter

(3) If set auto mode with remote controller, the complete unit will judge according to actual operation mode under auto mode.

Part II : Installation and Maintenance

6. Notes for Installation and Maintenance

Safety Precautions: Important!

Please read the safety precautions carefully before installation and maintenance.

The following contents are very important for installation and maintenance.

Please follow the instructions below.

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



Warnings

Electrical Safety Precautions:

1. Cut off the power supply of air conditioner before checking and maintenance.
2. The air condition must apply specialized circuit and prohibit share the same circuit with other appliances.
3. The air conditioner should be installed in suitable location and ensure the power plug is touchable.
4. Make sure each wiring terminal is connected firmly during installation and maintenance.
5. Have the unit adequately grounded. The grounding wire can't be used for other purposes.
6. Must apply protective accessories such as protective boards, cable-cross loop and wire clip.
7. The live wire, neutral wire and grounding wire of power supply must be corresponding to the live wire, neutral wire and grounding wire of the air conditioner.
8. The power cord and power connection wires can't be pressed by hard objects.
9. If power cord or connection wire is broken, it must be replaced by a qualified person.

10. If the power cord or connection wire is not long enough, please get the specialized power cord or connection wire from the manufacture or distributor. Prohibit prolong the wire by yourself.

11. For the air conditioner without plug, an air switch must be installed in the circuit. The air switch should be all-pole parting and the contact parting distance should be more than 3mm.

12. Make sure all wires and pipes are connected properly and the valves are opened before energizing.

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

14. Replace the fuse with a new one of the same specification if it is burnt down; don't replace it with a cooper wire or conducting wire.

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

Installation Safety Precautions:

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

Refrigerant Safety Precautions:

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

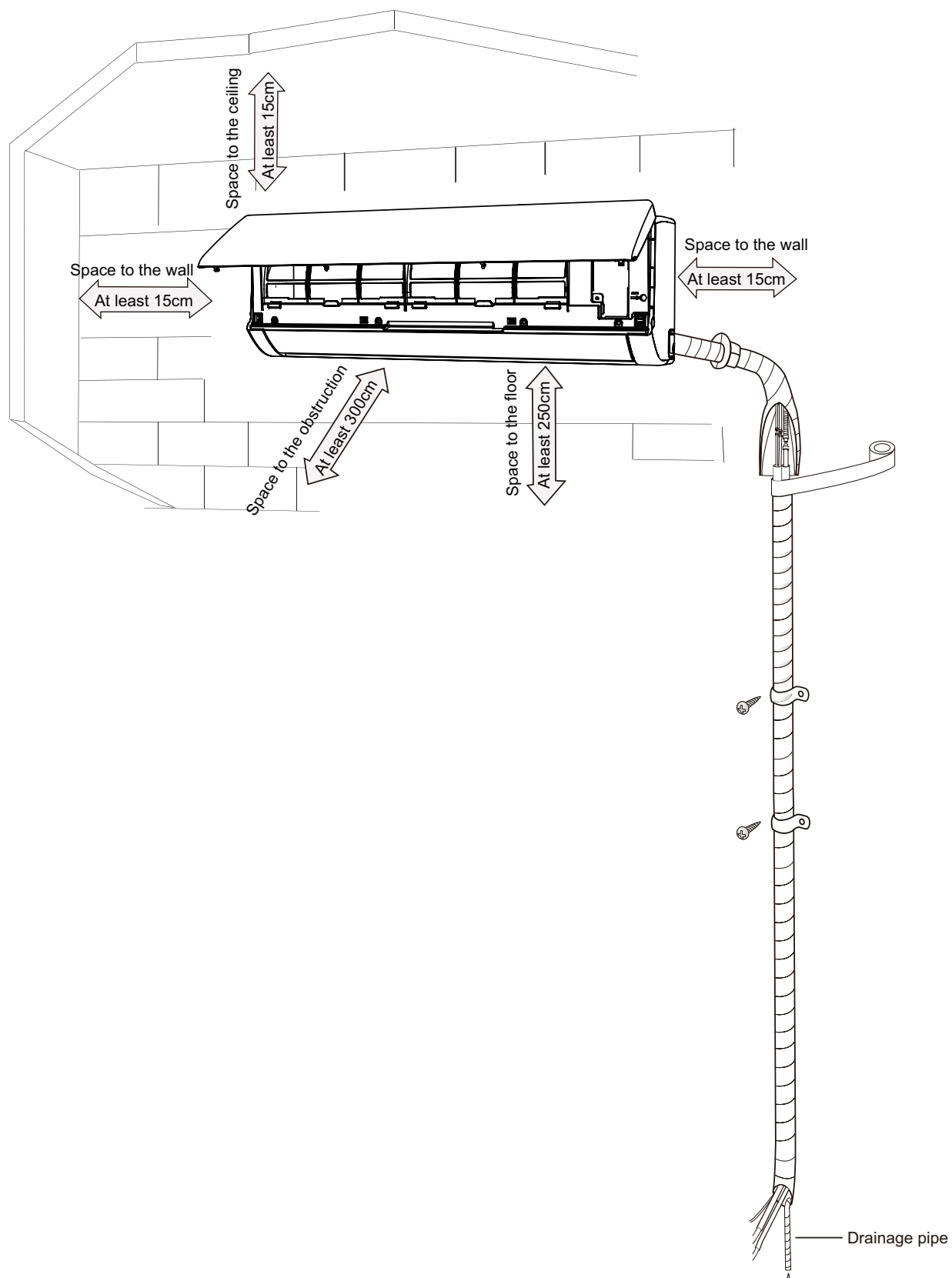
Improper installation may lead to fire hazard, explosion, electric shock or injury.

Main Tools for Installation and Maintenance

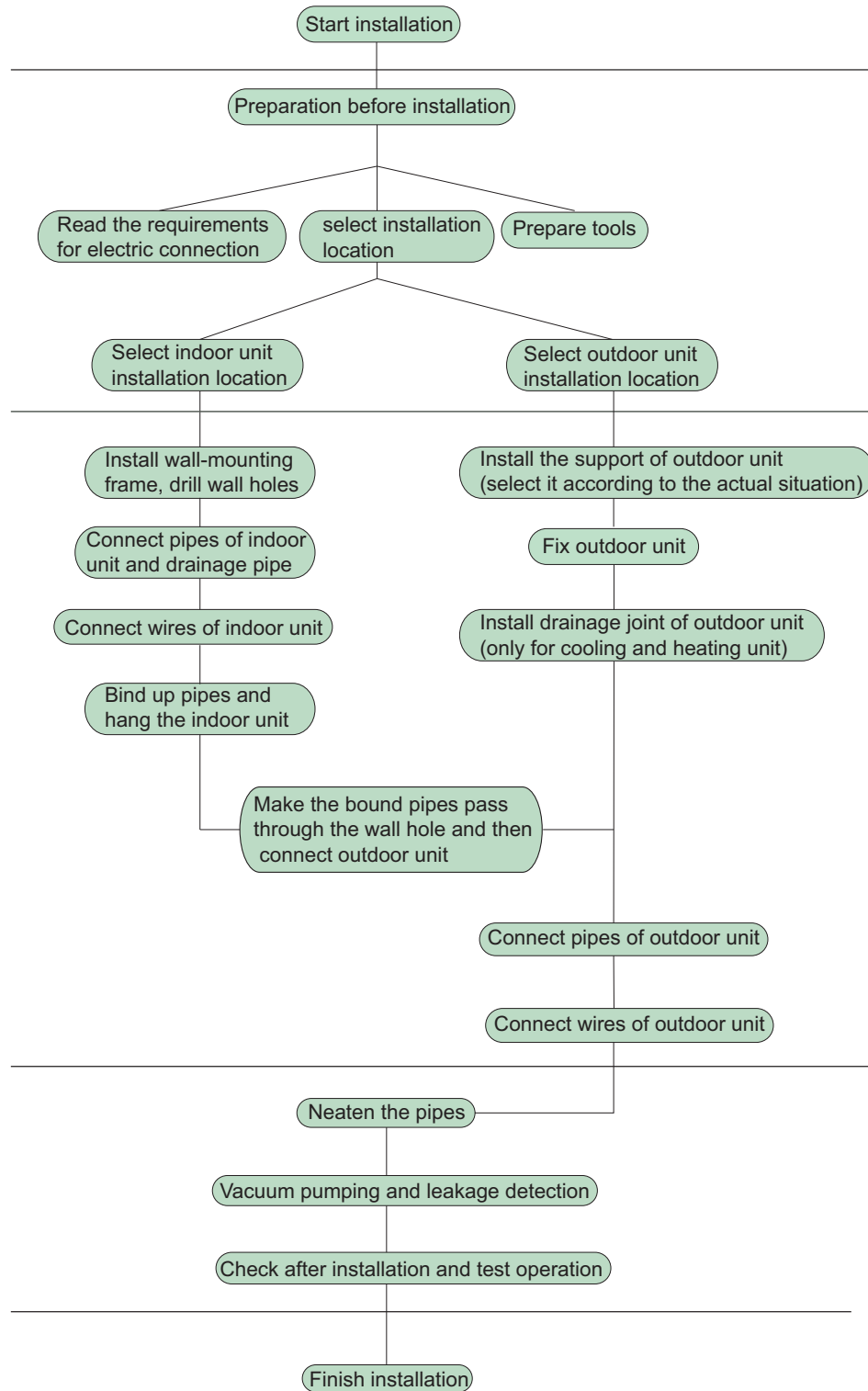
1. Level meter, measuring tape 	2. Screw driver 	3. Impact drill, drill head, electric drill 
4. Electroprobe 	5. Universal meter 	6. Torque wrench, open-end wrench, inner hexagon spanner 
7. Electronic leakage detector 	8. Vacuum pump 	9. Pressure meter 
10. Pipe pliers, pipe cutter 	11. Pipe expander,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

7. Installation

7.1 Installation Dimension Diagram



Installation Procedures



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

7.2 Installation Parts-Checking

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

⚠ Note:

- 1.Please contact the local agent for installation.
- 2.Don't use unqualified power cord.

7.3 Selection of Installation Location

1. Basic Requirement:

Installing the unit in the following places may cause malfunction. If it is unavoidable, please consult the local dealer:

- (1) The place with strong heat sources, vapors, flammable or explosive gas, or volatile objects spread in the air.
- (2) The place with high-frequency devices (such as welding machine, medical equipment).
- (3) The place near coast area.
- (4) The place with oil or fumes in the air.
- (5) The place with sulfured gas.
- (6) Other places with special circumstances.

2. Indoor Unit:

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

7.4 Requirements Forelectric Connection

1. Safety Precaution

- (1) Must follow the electric safety regulations when installing the unit.
- (2) According to the local safety regulations, use qualified power supply circuit and air switch.
- (3) Make sure the power supply matches with the requirement of air conditioner. Unstable power supply or incorrect wiring may result in electric shock, fire hazard or malfunction. Please install proper power supply cables before using the air conditioner.
- (4) Properly connect the live wire, neutral wire and grounding wire of power socket.
- (5) Be sure to cut off the power supply before proceeding any work related to electricity and safety.
- (6) Do not put through the power before finishing installation.
- (7) For appliances with type Y attachment, the instructions shall contain the substance of the following. If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- (8) The temperature of refrigerant circuit will be high, please keep the interconnection cable away from the copper tube.

2. Grounding Requirement:

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

7.5 Installation of Indoor Unit

1. Choosing Installation location

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

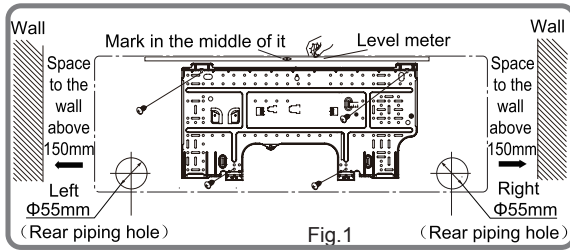
2. Install Wall-mounting Frame

- (1) Hang the wall-mounting frame on the wall; adjust it in horizontal position with the level meter and then point out the screw fixing holes on the wall.
- (2) Drill the screw fixing holes on the wall with impact drill (the specification of drill head should be the same as the plastic expansion particle) and then fill the plastic expansion particles in the holes.
- (3) Fix the wall-mounting frame on the wall with tapping screws (ST4.2X25TA) and then check if the frame is firmly installed by pulling the frame. If the plastic expansion particle is loose, please drill another fixing hole nearby.

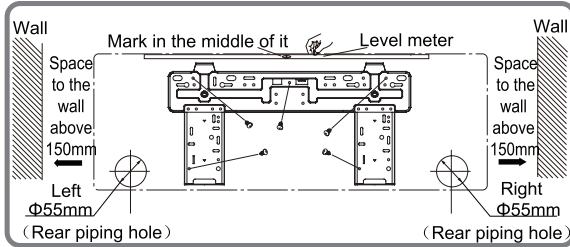
3. Install Wall-mounting Frame

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

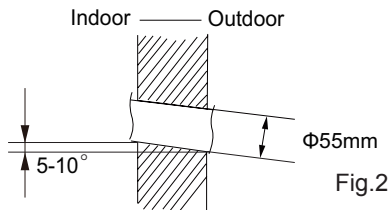
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(2) Open a piping hole with the diameter 55mm on the selected outlet pipe position. In order to drain smoothly, slant the piping hole on the wall slightly downward to the outdoor side with the gradient of 5-10°. (As show in Fig.2)

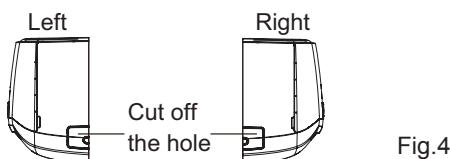
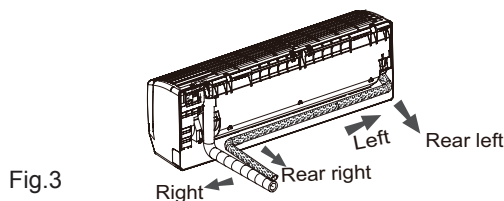


⚠ Note:

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

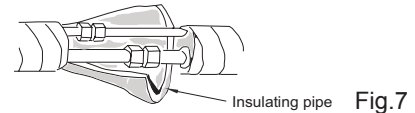
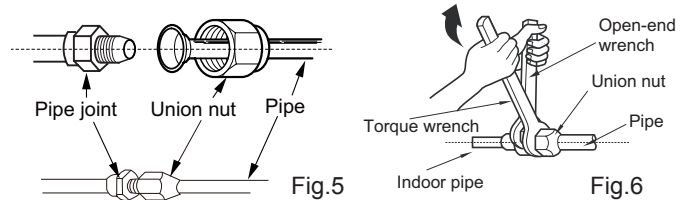
4. Outlet Pipe

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



5. Connect the Pipe of Indoor Unit

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

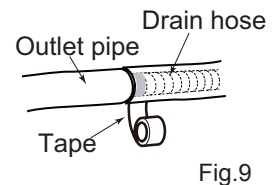
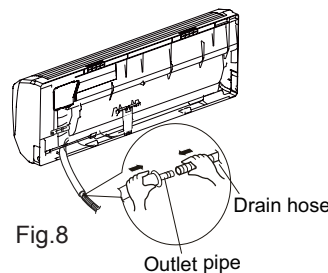


Refer to the following table for wrench moment of force:

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

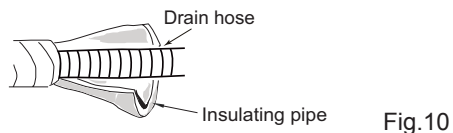
6. Install Drain Hose

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



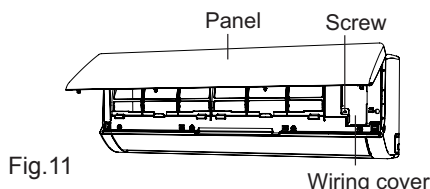
⚠ Note:

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

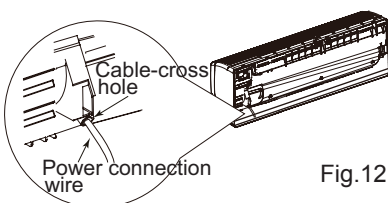


7. Connect Wire of Indoor Unit

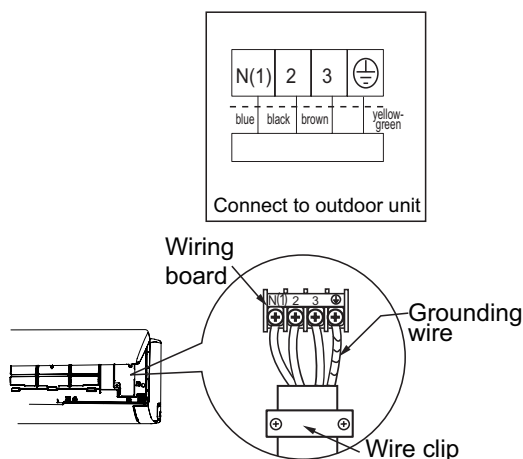
(1) Open the panel, remove the screw on the wiring cover and then take down the cover.(As show in Fig.11)



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



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



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

Fig.13

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

(5) Close the panel.

⚠ Note:

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

8. Bind up Pipe

(1) Bind up the connection pipe, power cord and drain hose with the band.(As show in Fig.14)

(2) Reserve a certain length of drain hose and power cord for installation when binding them. When binding to a certain degree, separate the indoor power and then separate the drain hose.(As show in Fig.15)

(3) Bind them evenly.

(4) The liquid pipe and gas pipe should be bound separately at the end.

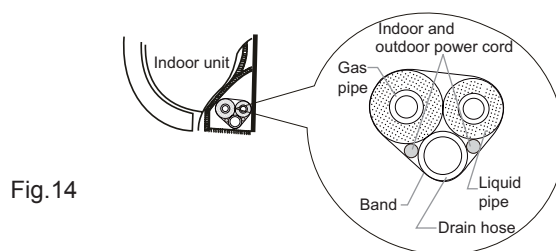


Fig.14

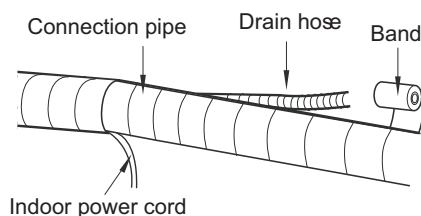


Fig.15

⚠ Note:

- (1) The power cord and control wire can't be crossed or winding.
- (2) The drain hose should be bound at the bottom.

9. Hang the Indoor Unit

(1) Put the bound pipes in the wall pipe and then make them pass through the wall hole.

(2) Hang the indoor unit on the wall-mounting frame.

(3) Stuff the gap between pipes and wall hole with sealing gum.

(4) Fix the wall pipe.(As show in Fig.16)

(5) Check if the indoor unit is installed firmly and closed to the wall.(As show in Fig.17)

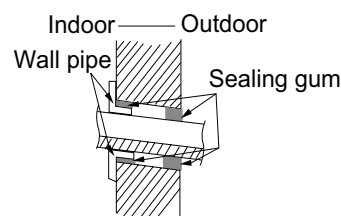


Fig.16

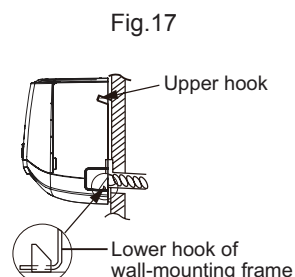


Fig.17

⚠ Note:

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

7.6 Check after Installation and Test Operation

1. Check after Installation

Check according to the following requirement after finishing installation.

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

2. Test Operation

(1) Preparation of test operation

- The client approves the air conditioner installation.
- Specify the important notes for air conditioner to the client.

(2) Method of test operation

- Put through the power, press ON/OFF button on the remote controller to start operation.
- Press MODE button to select AUTO, COOL, DRY, FAN and HEAT to check whether the operation is normal or not.
- If the ambient temperature is lower than 16°C , the air conditioner can't start cooling.

8. Maintenance

8.1 Error Code

1. Malfunction display requirement

When there are several malfunctions, they will be displayed circularly.

2. Malfunction display method

(1) Hardware malfunction: immediate display; refer to "error code list";

(2) Operation state: immediate display; refer to "error code list";

(3) Other malfunctions: it is displayed after the compressor stops for 200s; refer to "error code list".

Note: when the compressor is restarted, the malfunction display delay time (200s) is cleared.

3. Malfunction display control

The indicator lamp and dual 8 nixie tube displays shall be synchronized. That is when the indicator lamp blinks, the dual 8 nixie tube displays the corresponding malfunction code.

4. Display control viaremote controller

Enter display control: press light button successively for 6 times within 3s to display the corresponding malfunction code;

Exit display control: pressing light button successively for 6 times within 3s or after display is shown for 5min, the display will terminate.

Error Code List

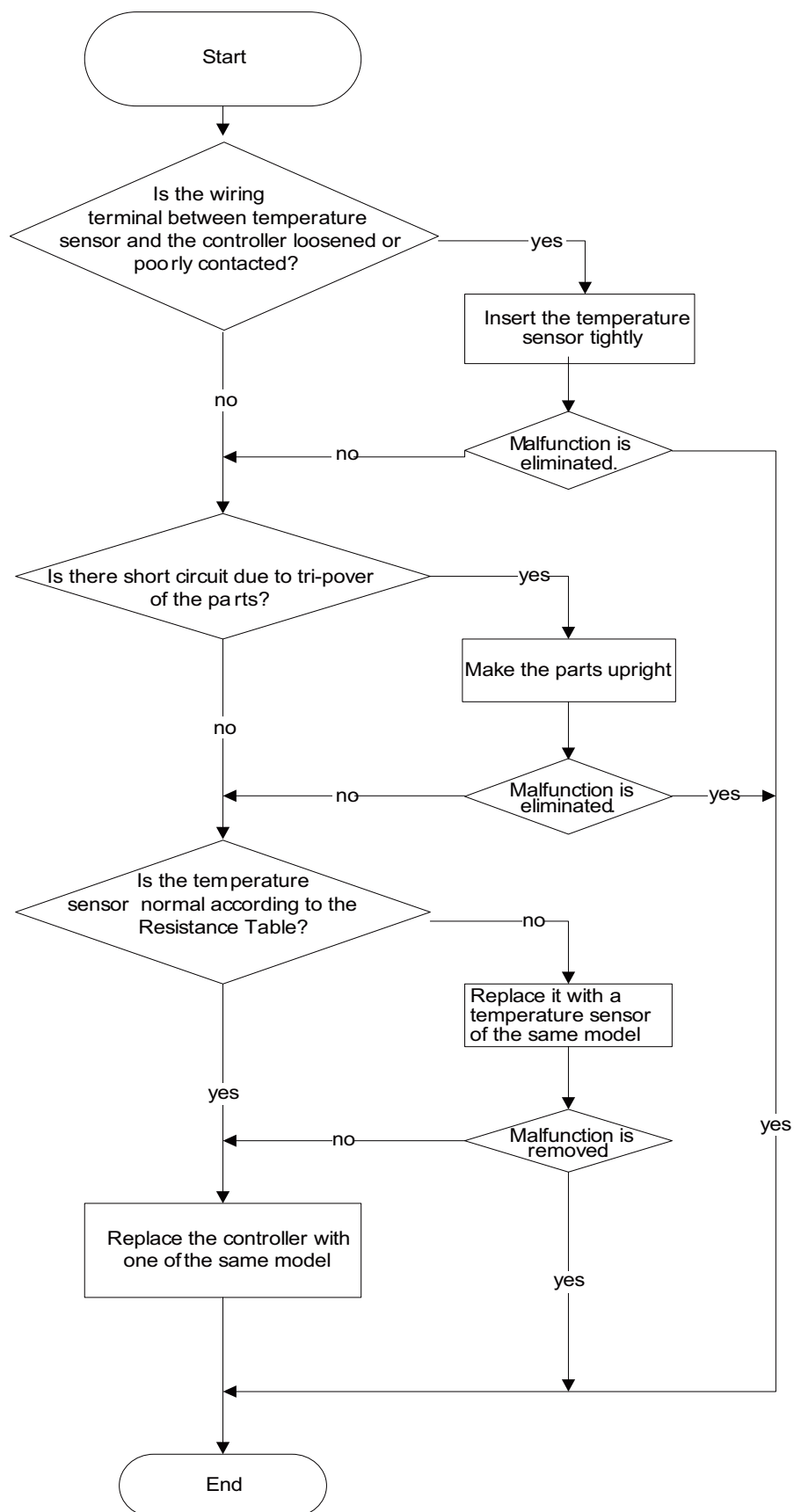
Malfunction Name	Malfunction types	Dual-8 Nixie Tube	Indicator Display		
			Operation indicator	Cooling indicator	Heating indicator
Fault in input power zero	Hardware malfunction	U8	blink 17 times		
Jumper cap malfunction protection	Hardware malfunction	C5	blink 15 times		
No feedback of indoor fan motor	Hardware malfunction	H6	blink 11 times		
Indoor ambient sensor open or short circuit	Hardware malfunction	F1		blink once	
Indoor tube sensor open or short circuit	Hardware malfunction	F2		blink twice	
Inlet tube sensor malfunction	Hardware malfunction	b5		blink 19 times	
Outlet tube sensor malfunction	Hardware malfunction	b7		blink 22 times	
IPM sensor circuit malfunction	Hardware malfunction	P7			blink 18 times
Outdoor ambient sensor open or short circuit	Hardware malfunction	F3		blink 3 times	
Inlet pipe temperature sensor of outdoor condenser is open-circuit/short circuit(commercial air con)	Hardware malfunction	A5			
Outdoor tube sensor open or short circuit	Hardware malfunction	F4		blink 4 times	
outlet pipe temperature sensor of outdoor condenser is open-circuit/short circuit(commercial air con)	Hardware malfunction	A7			
Exhaust sensor open or short circuit	Hardware malfunction	F5		blink 5 times	
Communication failure between indoor unit and outdoor unit	Hardware malfunction	E6	blink 6 times		
Compressor phase current detection circuit malfunction	Hardware malfunction	U1			blink 12 times
Compressor demagnetization protection	It can be displayed through remote controller within 200s and displayed directly after 200s	HE			blink 14 times
PN voltage drop protection		U3			blink 20 times
IPM high temperature protection		P8			blink 19 times
Refrigerant-lacking or blockage protection		F0		blink 10 times	
Capacitor charge malfunction	Hardware malfunction	PU			blink 17 times
Refrigerant system high pressure protection	Hardware malfunction	E1	blink once		
system low-pressure protection (reserved)	Hardware malfunction	E3	blink 3 times		
Compressor over load protection	It can be displayed through remote controller within 200s and displayed directly after 200s	H3			blink 3 times
Fault in matching	Hardware malfunction	LP	blink 19 times		
Loading EEPROM malfunction	Hardware malfunction	EE			blink 15 times
AC current detect circuit malfunction	Hardware malfunction	U5		blink 13 times	
Outdoor DC fan motor malfunction	Hardware malfunction	L3	blink 23 times		
Mode conflict	operation status	E7	blink 7 times		

Recovery refrigerant mode	operation status	Fo	blink once	blink once	
X-fan	operation status			ON for 0.5s and OFF for 10s	
Defrosting or oil return in heating	operation status				OFF for 0.5s and ON for 10s
Startup failure	It can be displayed through remote controller within 200s and displayed directly after 200s	Lc			blink 11 times
Compressor exhaust high temperature protection		E4	blink 4 times		
Anti-high temperature protection		E8	blink 8 times		
AC over-current protection		E5	blink 5 times		
Over compressor phase current protection		P5			blink 15 times
Compressor loss step protection		H7			blink 7 times
Compressor loss of phase protection		Ld			
IPM protection		H5			blink 5 times
Low PN voltage protection		PL			blink 21 times
Over voltage protection for PN		PH		blink 11 times	
PFC protection		HC			blink 6 times
4-way valve reversal abnormal		U7		blink 20 times	

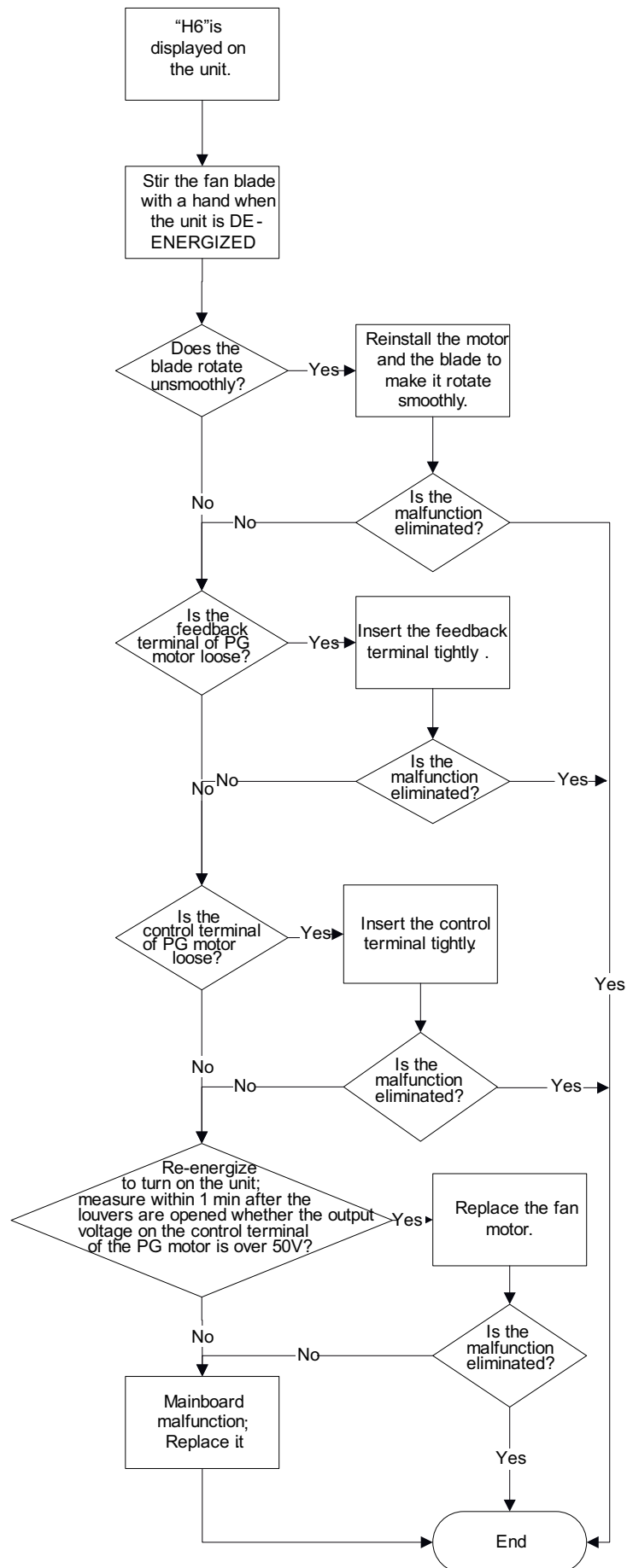
Note: Please refer to service manual for the troubleshooting procedure for outdoor unit.

8.2 Troubleshooting

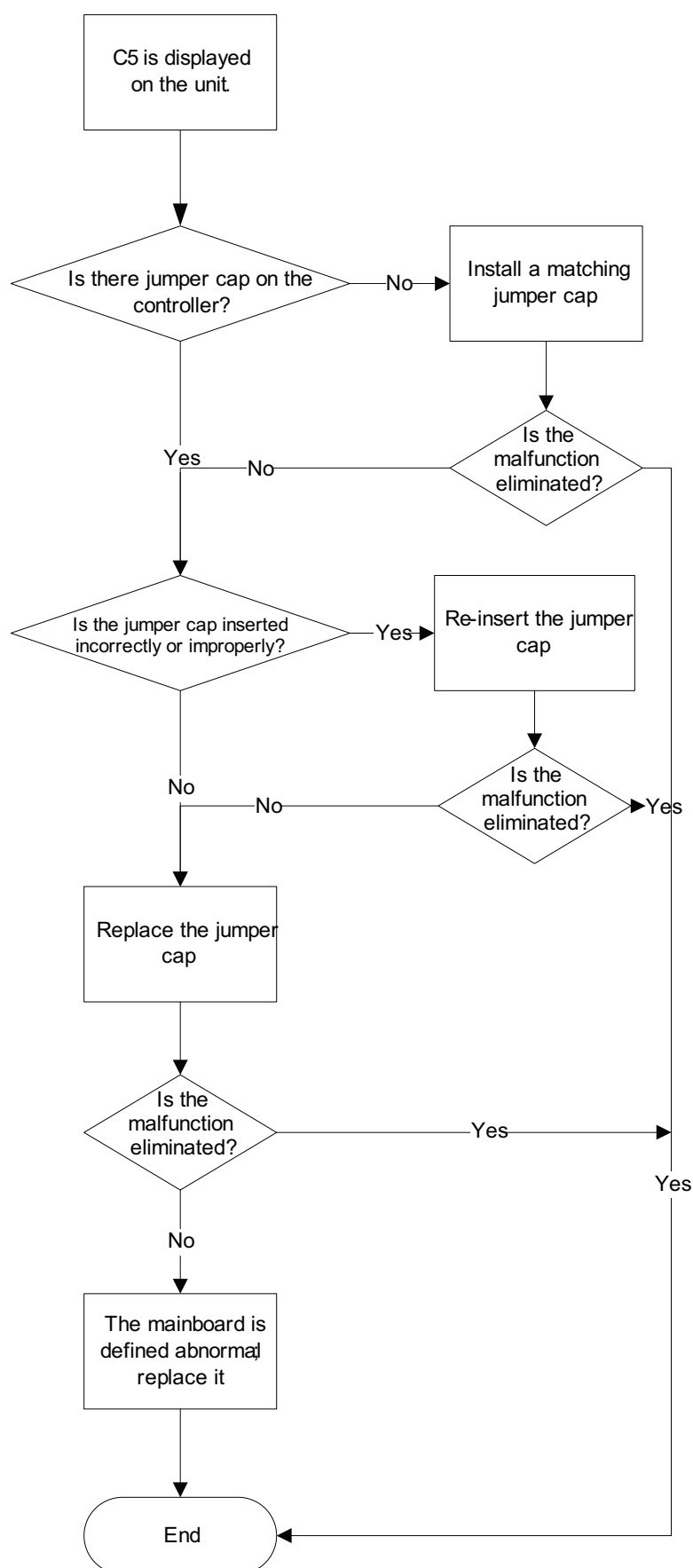
(1) Temperature sensor malfunction (F1/F2)



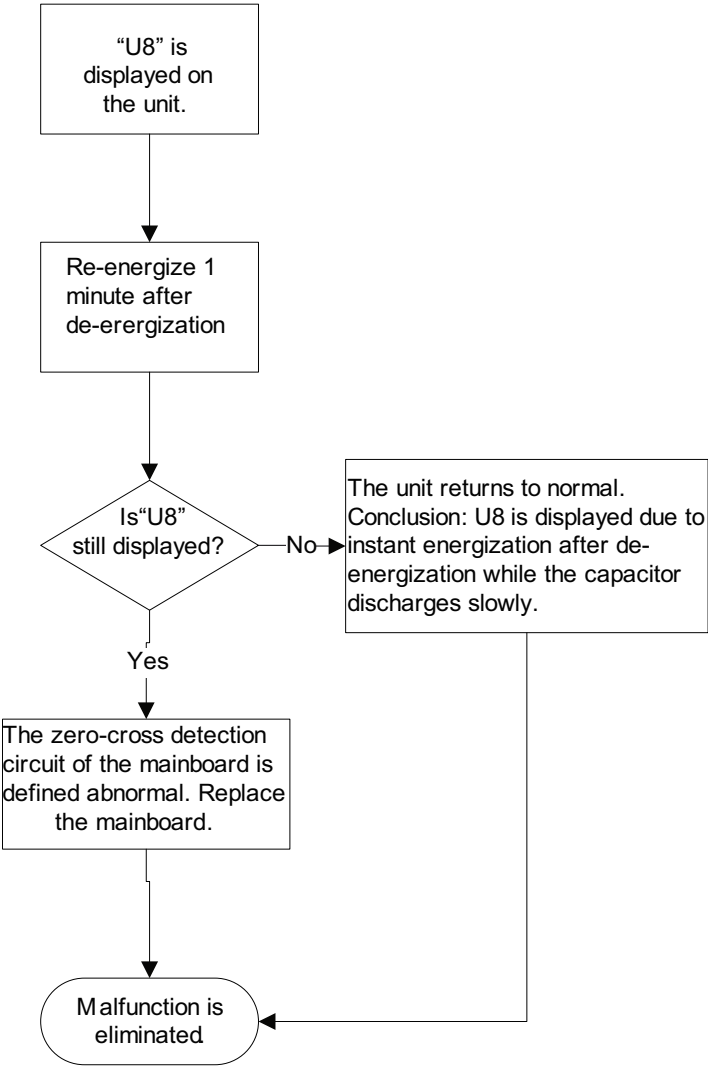
(2) PG motor (indoor fan motor) does not operate (H6)



(3) Jumper cap malfunction (C5)



(4) U8 malfunction

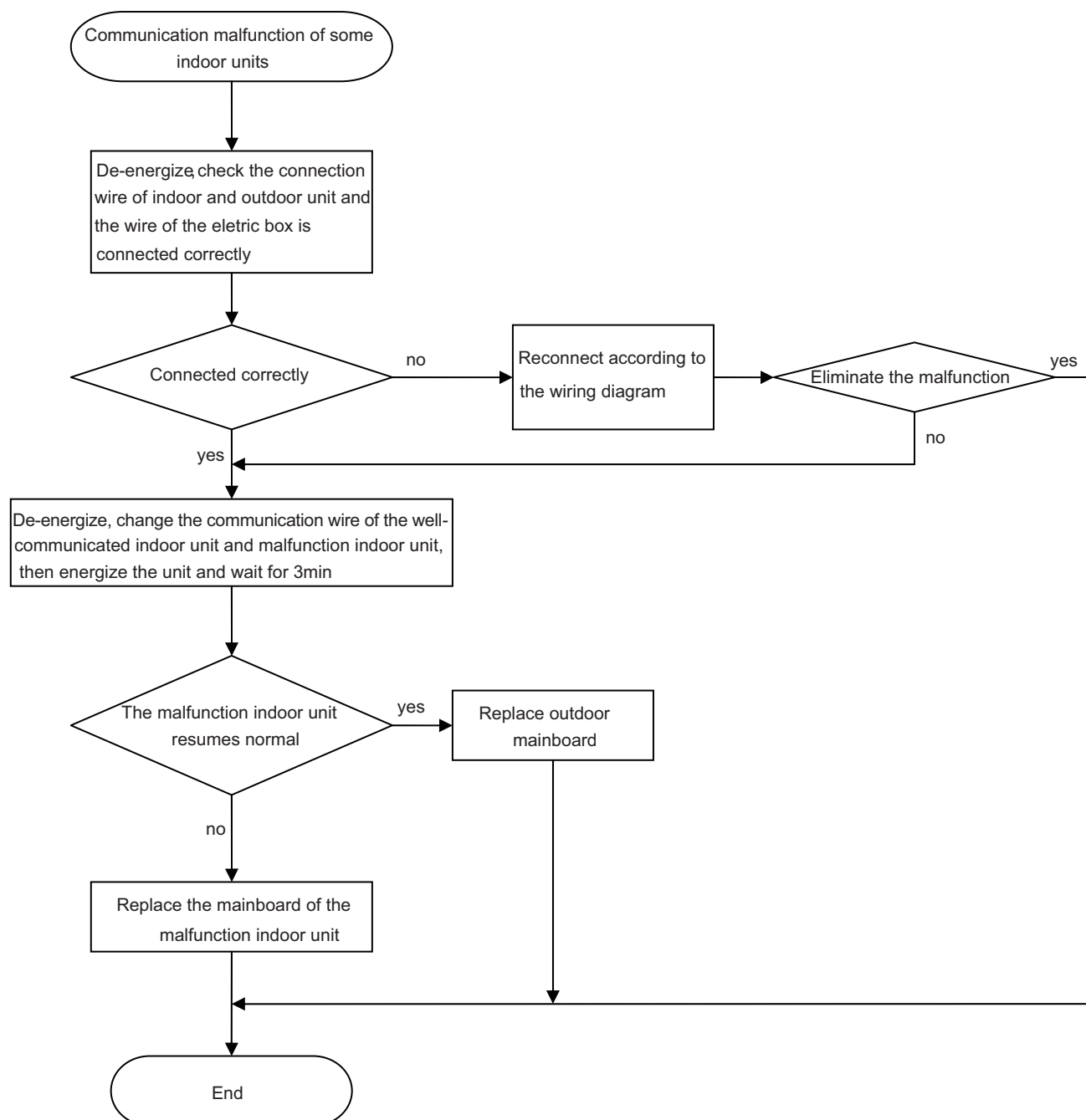


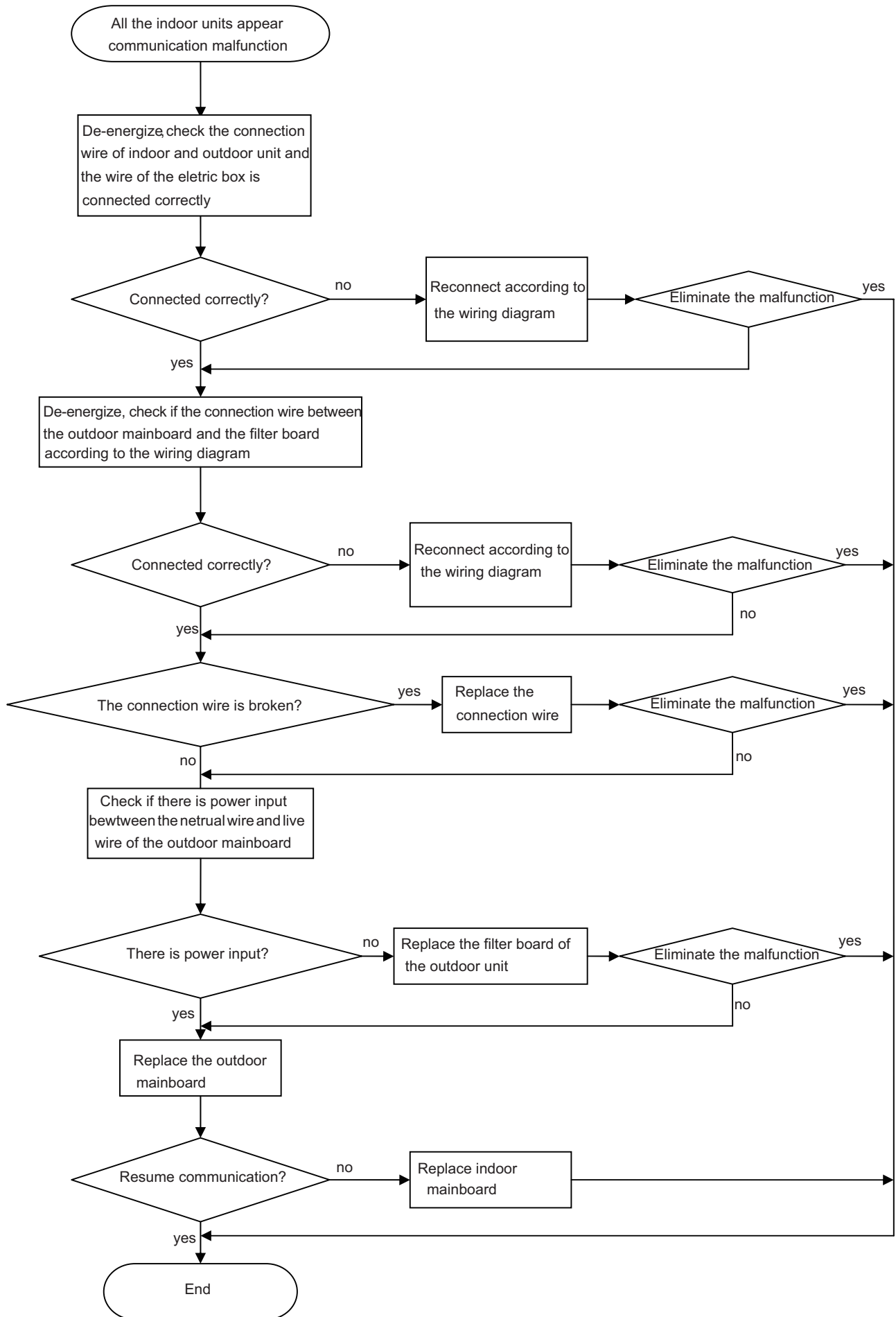
(5) Communication malfunction (E6)

Main checking points:

- If the connection wire between the indoor unit and outdoor unit is connected well, if the wires inside the unit is connected well;
- If the indoor mainboard or outdoor main board is broken;

Flow chart:





8.3 Maintenance Method for Normal Malfunction

1. Air Conditioner Can't be Started Up

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

2. Poor Cooling (Heating) for Air Conditioner

Possible Causes	Discriminating Method (Air conditioner Status)	Troubleshooting
Set temperature is improper	Observe the set temperature on remote controller	Adjust the set temperature
Rotation speed of the IDU fan motor is set too low	Small wind blow	Set the fan speed at high or medium
Filter of indoor unit is blocked	Check the filter to see it's blocked	Clean the filter
Installation position for indoor unit and outdoor unit is improper	Check whether the installation position is proper according to installation requirement for air conditioner	Adjust the installation position, and install the rainproof and sunproof for outdoor unit
Refrigerant is leaking	Discharged air temperature during cooling is higher than normal discharged wind temperature; Discharged air temperature during heating is lower than normal discharged wind temperature; Unit's pressure is much lower than regulated range	Find out the leakage causes and deal with it. Add refrigerant.
Malfunction of 4-way valve	Blow cold wind during heating	Replace the 4-way valve
Malfunction of capillary	Discharged air temperature during cooling is higher than normal discharged wind temperature; Discharged air temperature during heating is lower than normal discharged wind temperature; Unit's pressure is much lower than regulated range. If refrigerant isn't leaking, part of capillary is blocked	Replace the capillary
Flow volume of valve is insufficient	The pressure of valves is much lower than that stated in the specification	Open the valve completely
Malfunction of horizontal louver	Horizontal louver can't swing	Refer to point 3 of maintenance method for details
Malfunction of the IDU fan motor	The IDU fan motor can't operate	Refer to troubleshooting for H6 for maintenance method in details
Malfunction of the ODU fan motor	The ODU fan motor can't operate	Refer to point 4 of maintenance method for details
Malfunction of compressor	Compressor can't operate	Refer to point 5 of maintenance method for details

3. Horizontal Louver Can't Swing

Possible Causes	Discriminating Method (Air conditioner Status)	Troubleshooting
Wrong wire connection, or poor connection	Check the wiring status according to circuit diagram	Connect wires according to wiring diagram to make sure all wiring terminals are connected firmly
Stepping motor is damaged	Stepping motor can't operate	Repair or replace stepping motor
Main board is damaged	Others are all normal, while horizontal louver can't operate	Replace the main board with the same model

4. Outdoor Fan Motor Can't Operate

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

5. Compressor Can't Operate

Possible causes	Discriminating method (air conditioner status)	Troubleshooting
Wrong wire connection, or poor connection	Check the wiring status according to circuit diagram	Connect wires according to wiring diagram 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 it's 0	Repair or replace compressor
Cylinder of compressor is blocked	Compressor can't operate	Repair or replace compressor

6. Air Conditioner is Leaking

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

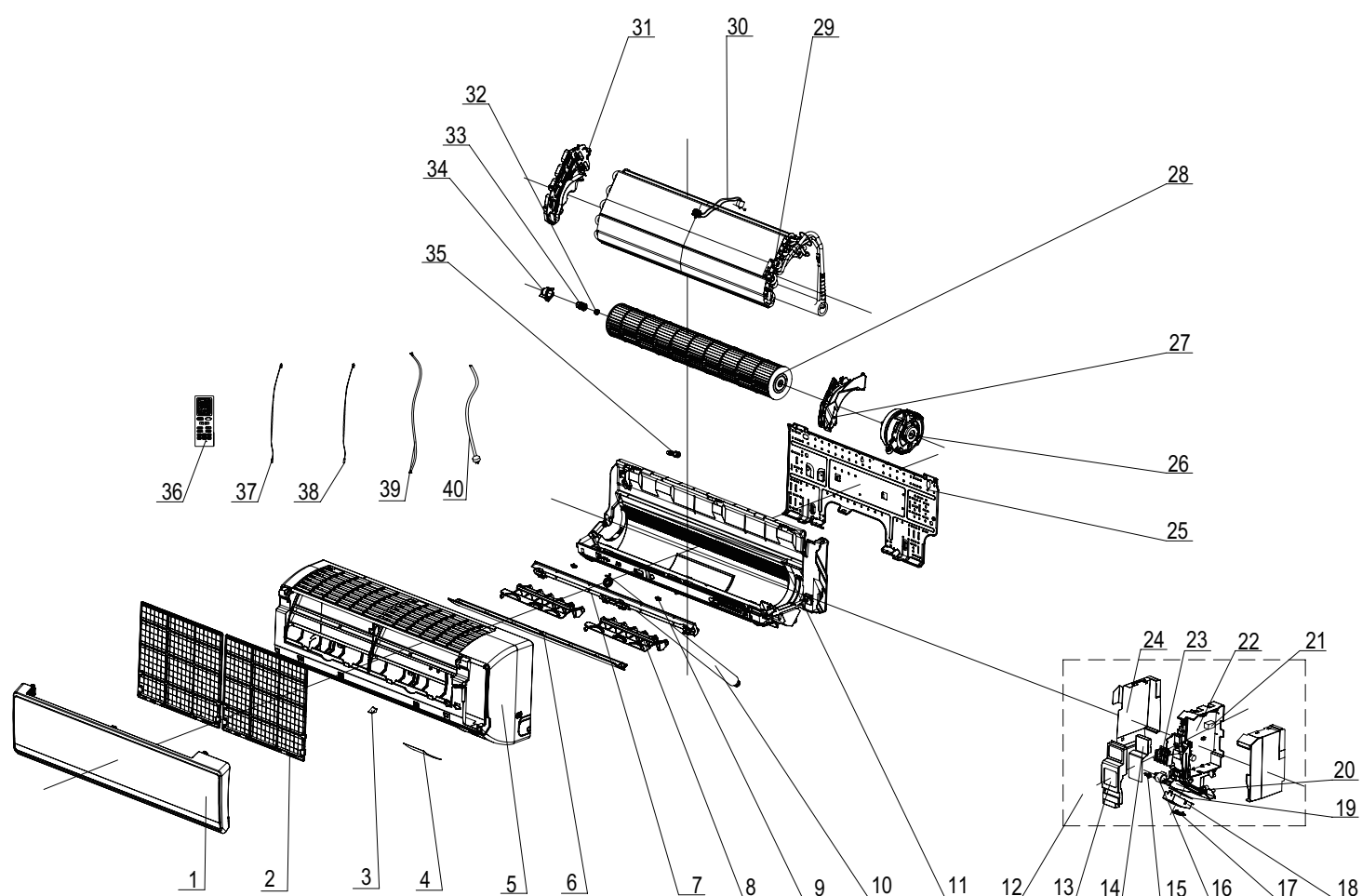
7. Abnormal Sound and Vibration

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

9. Exploded View and Parts List

9.1 Indoor Unit

(1) 07/09/12K



NO.	Description	Part Code			Qty
		GWH(07)KF-K3DNA8E/I	GWH(07)KF-K3DNB4E/I	GWH(07)KF-K3DNA6E/I	
	Product Code	CB146N32800	CB146N33300	CB146N26201	
1	Front Panel	20012597S	20022500S	20012443S	1
2	Filter Sub-Assy	1112208201	1112208201	1112208201	2
3	Screw Cover	24252019	24252019	24252019	1
4	Membrane	63062017	63062017	63062017	1
5	Front Case Assy	2001237501	2001237501	2001237501	1
6	Guide Louver	10512119	10512119	10512119	1
7	Helicoid Tongue	26112486	26112486	26112486	1
8	Air Louver	10512160	10512160	10512160	2
9	Shaft of Guide Louver	1054202001	1054202001	1054202001	2
10	Drainage Pipe Sub-assy	0523204101	0523204101	0523204101	1
11	Rear Case assy	20022544	2220229501	2220229501	1
12	Electric Box Assy	20402550	20402550	20402550	1
13	Electric Box Cover	20122106	20122106	20122106	1
14	Shield Cover	01592074	01592074	01592076	1
15	Crank	73012005	73012005	73012005	1
16	Step Motor	1521210701	1521210701	1521210701	1
17	Indicator Light Cover	22242084	22242084	22242084	1
18	Indicator Shield Cover	22242083	22242083	22242083	1
19	Display Board	30568112	30568112	30568112	1
20	Electric Box	20112086	20112086	20112086	1
21	Capacitor CBB61	3301000213	3301000213	3301000213	1
22	Main Board	30148872	30148872	30148872	1
23	Terminal Board	42011233	42011233	42011233	1
24	Shield Cover	01592074	01592074	01592074	1
25	Wall Mounting Frame	0125201801A	0125201801A	0125201801A	1
26	Fan Motor	15012141	15012141	15012093	1
27	Motor Press Plate	26112191	26112191	26112191	1
28	Cross Flow Fan	10352423	10352423	10352423	1
29	Evaporator Assy	01002957	01002957	01002957	1
30	Cold Plasma Generator	1114001602	1114001602	1114001602	1
31	Evaporator Support	24212108	24212108	24212108	1
32	Fan Bearing	76512210	76512210	76512210	1
33	Damping Washer Sub-assy	76512011	76512011	76512011	1
34	Axile Bush Sub-assy	10542024	10542024	10542024	1
35	Pipe Plug (Outlet)	76712020	76712020	76712020	1
36	Remote Controller	305100611	305100611	305100611	1
37	Temperature Sensor	390000453	390000453	390000453	1
38	Temperature Sensor	39000305	39000305	39000305	1
39	Connecting Cable	400204056	400204056	400204056	0
40	Power Cord	/	/	/	/

Above data is subject to change without notice.

NO.	Description	Part Code			Qty
		GWH(07)KF-K3DNB1E/I	GWH(09)KF-K3DNB1E/I	GWH(09)KF-K3DNA6E/I	
	Product Code	CB146N30000	CB146N30100	CB146N26301	
1	Front Panel	2001268801S	2001268801S	20012443S	1
2	Filter Sub-Assy	1112208201	1112208201	1112208201	2
3	Screw Cover	24252019	24252019	24252019	1
4	Membrane	63062017	63062017	63062017	1
5	Front Case Assy	2001237501	2001237501	2001237501	1
6	Guide Louver	10512119	10512119	10512119	1
7	Helicoid Tongue	26112486	26112486	26112486	1
8	Air Louver	10512160	10512160	10512160	2
9	Shaft of Guide Louver	1054202001	1054202001	1054202001	2
10	Drainage Pipe Sub-assy	0523204101	0523204101	0523204101	1
11	Rear Case assy	2220229501	20022544	2220229501	1
12	Electric Box Assy	20402550	20402550	20402550	1
13	Electric Box Cover	20122106	20122106	20122106	1
14	Shield Cover	01592074	01592074	01592076	1
15	Crank	73012005	73012005	73012005	1
16	Step Motor	1521210701	1521210701	1521210701	1
17	Indicator Light Cover	22242084	22242084	22242084	1
18	Indicator Shield Cover	22242083	22242083	22242083	1
19	Display Board	30568112	30568112	30568112	1
20	Electric Box	20112086	20112086	20112086	1
21	Capacitor CBB61	3301000213	3301000213	3301000213	1
22	Main Board	30148872	30148872	30148872	1
23	Terminal Board	42011233	42011233	42011233	1
24	Shield Cover	01592074	01592074	01592074	1
25	Wall Mounting Frame	0125201801A	0125201801A	0125201801A	1
26	Fan Motor	15012141	15012141	15012093	1
27	Motor Press Plate	26112191	26112191	26112191	1
28	Cross Flow Fan	10352423	10352423	10352423	1
29	Evaporator Assy	01002957	01002957	01002957	1
30	Cold Plasma Generator	1114001602	1114001602	1114001602	1
31	Evaporator Support	24212108	24212108	24212108	1
32	Fan Bearing	76512210	76512210	76512210	1
33	Damping Washer Sub-assy	76512011	76512011	76512011	1
34	Axile Bush Sub-assy	10542024	10542024	10542024	1
35	Pipe Plug (Outlet)	76712020	76712020	76712020	1
36	Remote Controller	305100611	305100611	305100611	1
37	Temperature Sensor	390000453	390000453	390000453	1
38	Temperature Sensor	39000305	39000305	39000305	1
39	Connecting Cable	400204056	400204056	400204056	0
40	Power Cord	/	/	/	/

Above data is subject to change without notice.

NO.	Description	Part Code			Qty
		GWH(12)KF-K3DNB1E/I	GWH(12)KF-K3DNA6E/I	GWH(12)KF-K3DNB4E/I	
	Product Code	CB146N30500	CB146N26401	CB146N33400	
1	Front Panel	2001268801S	20012443S	20022500S	1
2	Filter Sub-Assy	1112208201	1112208201	1112208201	2
3	Screw Cover	24252019	24252019	24252019	1
4	Membrane	63062017	63062017	63062017	1
5	Front Case Assy	2001237501	2001237501	2001237501	1
6	Guide Louver	10512119	10512119	10512119	1
7	Helicoid Tongue	26112486	26112486	26112486	1
8	Air Louver	10512160	10512160	10512160	2
9	Shaft of Guide Louver	1054202001	1054202001	1054202001	2
10	Drainage Pipe Sub-assy	0523204101	0523204101	0523204101	1
11	Rear Case assy	2220229501	2220229501	2220229501	1
12	Electric Box Assy	20402549	20402550	20402549	1
13	Electric Box Cover	20122106	20122106	20122106	1
14	Shield Cover	01592074	01592076	01592076	1
15	Crank	73012005	73012005	73012005	1
16	Step Motor	1521210701	1521210701	1521210701	1
17	Indicator Light Cover	22242084	22242084	22242084	1
18	Indicator Shield Cover	22242083	22242083	22242083	1
19	Display Board	30568112	30568112	30568112	1
20	Electric Box	20112086	20112086	20112086	1
21	Capacitor CBB61	3301000213	3301000213	3301000213	1
22	Main Board	30148872	30148872	30148872	1
23	Terminal Board	42011233	42011233	42011233	1
24	Shield Cover	01592074	01592074	01592074	1
25	Wall Mounting Frame	0125201801A	0125201801A	0125201801A	1
26	Fan Motor	15012141	15012093	15012141	1
27	Motor Press Plate	26112191	26112191	26112191	1
28	Cross Flow Fan	10352423	10352423	10352423	1
29	Evaporator Assy	01002958	01002957	01002958	1
30	Cold Plasma Generator	1114001602	1114001602	1114001602	1
31	Evaporator Support	24212108	24212108	24212108	1
32	Fan Bearing	76512210	76512210	76512210	1
33	Damping Washer Sub-assy	76512011	76512011	76512011	1
34	Axile Bush Sub-assy	10542024	10542024	10542024	1
35	Pipe Plug (Outlet)	76712020	76712020	76712020	1
36	Remote Controller	305100611	305100611	305100611	1
37	Temperature Sensor	390000453	390000453	390000453	1
38	Temperature Sensor	39000305	39000305	39000305	1
39	Connecting Cable	400204056	400204056	400204056	0
40	Power Cord	/	/	/	/

Above data is subject to change without notice.

NO.	Description	Part Code			Qty
		GWH(07)KF-K3DNA5E/I	GWH(09)KF-K3DNA5E/I	GWH(12)KF-K3DNA5E/I	
	Product Code	CB146N35500	CB146N28301	CB146N33001	
1	Front Panel	2001232501S	2001232501S	2001232501S	1
2	Filter Sub-Assy	1112208201	1112208201	1112208201	2
3	Screw Cover	24252019	24252019	24252019	1
4	Membrane	63062017	63062017	63062017	1
5	Front Case Assy	2001237501	2001237501	2001237501	1
6	Guide Louver	10512119	10512119	10512119	1
7	Helicoid Tongue	26112486	26112486	26112486	1
8	Air Louver	10512160	10512160	10512160	2
9	Shaft of Guide Louver	1054202001	1054202001	1054202001	2
10	Drainage Pipe Sub-assy	0523204101	0523204101	0523204101	1
11	Rear Case assy	2220229501	2220229501	2220229501	1
12	Electric Box Assy	20402550	20402550	20402549	1
13	Electric Box Cover	20122106	20122106	20122106	1
14	Shield Cover	01592076	01592076	01592076	1
15	Crank	73012005	73012005	73012005	1
16	Step Motor	1521210701	1521210701	1521210701	1
17	Indicator Light Cover	22242084	22242084	22242084	1
18	Indicator Shield Cover	22242083	22242083	22242083	1
19	Display Board	30568112	30568112	30568112	1
20	Electric Box	20112086	20112086	20112086	1
21	Capacitor CBB61	3301000213	3301000213	3301000213	1
22	Main Board	30148872	30148872	30148872	1
23	Terminal Board	42011233	42011233	42011233	1
24	Shield Cover	01592074	01592074	01592074	1
25	Wall Mounting Frame	0125201801A	0125201801A	0125201801A	1
26	Fan Motor	15012141	15012141	15012141	1
27	Motor Press Plate	26112191	26112191	26112191	1
28	Cross Flow Fan	10352423	10352423	10352423	1
29	Evaporator Assy	01002957	01002957	01002958	1
30	Cold Plasma Generator	1114001602	1114001602	1114001602	1
31	Evaporator Support	24212108	24212108	24212108	1
32	Fan Bearing	76512210	76512210	76512210	1
33	Damping Washer Sub-assy	76512011	76512011	76512011	1
34	Axile Bush Sub-assy	10542024	10542024	10542024	1
35	Pipe Plug (Outlet)	76712020	76712020	76712020	1
36	Remote Controller	305100611	305100611	305100611	1
37	Temperature Sensor	390000453	390000453	390000453	1
38	Temperature Sensor	39000305	39000305	39000305	1
39	Connecting Cable	400204056	400204056	400204056	0
40	Power Cord	/	/	/	/

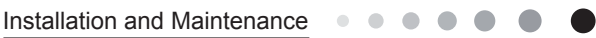
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NO.	Description	Part Code		Qty
		GWH(09)KF-K3DNA6E/I	GWH(12)KF-K3DNA6E/I	
	Product Code	CB146N26302	CB146N26402	
1	Front Panel	20012443S	20022500S	1
2	Filter Sub-Assy	1112208201	1112208201	2
3	Screw Cover	24252019	24252019	1
4	Membrane	63062017	63062017	1
5	Front Case Assy	2001237501	2001237501	1
6	Guide Louver	10512119	10512119	1
7	Helicoid Tongue	26112486	26112486	1
8	Air Louver	10512160	10512160	2
9	Shaft of Guide Louver	1054202001	1054202001	2
10	Drainage Pipe Sub-assy	0523204101	0523204101	1
11	Rear Case assy	2220229501	2220229501	1
12	Electric Box Assy	20402550	20402549	1
13	Electric Box Cover	20122106	20122106	1
14	Shield Cover	01592076	01592076	1
15	Crank	73012005	73012005	1
16	Step Motor	1521210701	1521210701	1
17	Indicator Light Cover	22242084	22242084	1
18	Indicator Shield Cover	22242083	22242083	1
19	Display Board	30568112	30568112	1
20	Electric Box	20112086	20112086	1
21	Capacitor CBB61	3301000213	3301000213	1
22	Main Board	30148873	30148873	1
23	Terminal Board	42011233	42011233	1
24	Shield Cover	01592074	01592074	1
25	Wall Mounting Frame	0125201801A	0125201801A	1
26	Fan Motor	15012093	15012141	1
27	Motor Press Plate	26112191	26112191	1
28	Cross Flow Fan	10352423	10352423	1
29	Evaporator Assy	01002957	01002958	1
30	Cold Plasma Generator	/	/	/
31	Evaporator Support	24212108	24212108	1
32	Fan Bearing	76512210	76512210	1
33	Damping Washer Sub-assy	76512011	76512011	1
34	Axile Bush Sub-assy	10542024	10542024	1
35	Pipe Plug (Outlet)	76712020	76712020	1
36	Remote Controller	305100611	305100611	1
37	Temperature Sensor	390000453	390000453	1
38	Temperature Sensor	39000305	39000305	1
39	Connecting Cable	400204056	400204056	0
40	Power Cord	/	/	/

Above data is subject to change without notice.

NO.	Description	Part Code			Qty
		GWH(07)KF-K3DNB2E/I	GWH(09)KF-K3DNB2E/I	GWH(12)KF-K3DNB2E/I	
	Product Code	CB409N01400	CB409N01100	CB409N00900	
1	Front Panel	20012980	20012980	20012980	1
2	Filter Sub-Assy	1112208201	1112208201	1112208201	2
3	Screw Cover	24252019	24252019	24252019	1
4	Membrane	63062017	63062017	63062017	1
5	Front Case Assy	2001237501	2001237501	2001237501	1
6	Guide Louver	10512119	10512119	10512119	1
7	Helicoid Tongue	26112486	26112486	26112486	1
8	Air Louver	10512160	10512160	10512160	2
9	Shaft of Guide Louver	1054202001	1054202001	1054202001	2
10	Drainage Pipe Sub-assy	0523204101	0523204101	0523204101	1
11	Rear Case assy	2220229501	2220229501	2220229501	1
12	Electric Box Assy	20402803	20402913	20402927	1
13	Electric Box Cover	20122106	20122106	20122106	1
14	Shield Cover	01592074	01592074	01592076	1
15	Crank	73012005	73012005	73012005	1
16	Step Motor	1521210701	1521210701	1521210701	1
17	Indicator Light Cover	22242084	22242084	22242084	1
18	Indicator Shield Cover	22242083	22242083	22242083	1
19	Display Board	30568112	30568112	30568112	1
20	Electric Box	20112086	20112086	20112086	1
21	Capacitor CBB61	3301000213	3301000213	3301000213	1
22	Main Board	30148873	30148873	30148873	1
23	Terminal Board	42011233	42011233	42011233	1
24	Shield Cover	01592076	01592076	01592074	1
25	Wall Mounting Frame	0125201801A	0125201801A	0125201801A	1
26	Fan Motor	15012141	15012141	15012141	1
27	Motor Press Plate	26112191	26112191	26112191	1
28	Cross Flow Fan	10352423	10352423	10352423	1
29	Evaporator Assy	01002957	01002957	01002958	1
30	Cold Plasma Generator	/	/	/	/
31	Evaporator Support	24212108	24212108	24212108	1
32	Fan Bearing	76512210	76512210	76512210	1
33	Damping Washer Sub-assy	76512011	76512011	76512011	1
34	Axile Bush Sub-assy	10542024	10542024	10542024	1
35	Pipe Plug (Outlet)	76712020	76712020	76712020	1
36	Remote Controller	305100611	305100611	305100611	1
37	Temperature Sensor	390000453	390000453	390000453	1
38	Temperature Sensor	390000453	390000453	39000305	1
39	Connecting Cable	400204056	400204056	400204056	0
40	Power Cord	/	/	/	/

Above data is subject to change without notice.



NO.	Description	Part Code			Qty
		GWH(18)KG-K3DNA6D/I	GWH(18)KG-K3DNA8E/I	GWH(18)KG-K3DNB2E/I	
	Product Code	CB146N26501	CB146N32500	CB409N01900	
1	Front Panel	20012495S	20012663	20012663	1
2	Filter Sub-Assy	11122104	11122104	11122104	2
3	Screw Cover	242520041	242520041	242520041	1
4	Front Case Assy	20012497	20012497	20012497	1
5	Guide Louver	10512140	10512140	10512140	1
6	Air Louver	10512160	10512160	10512160	2
7	Helicoid Tongue	26112232	26112232	26112232	1
8	Left Axle Bush	10512037	10512037	10512037	1
9	Rear Case assy	22202154	22202154	22202154	1
10	Rubber Plug (Water Tray)	76712012	76712012	76712012	1
11	Ring of Bearing	26152022	26152022	26152022	1
12	O-Gasket sub-assy of Bearing	76512051	7651205102	7651205102	1
13	Evaporator Support	24212119	24212119	24212119	1
14	Cold Plasma Generator	1114001602	1114001602	/	1
15	Evaporator Assy	0100260301	01002775	01002775	1
16	Wall Mounting Frame	01252484	01252484	01252484	1
17	Cross Flow Fan	10352036	10352036	10352036	1
18	Motor Press Plate	26112231	26112231	26112231	1
19	Fan Motor	15012146	15012146	15012146	1
20	Connecting Pipe Clamp	2611216401	2611216401	2611216401	1
21	Drainage Hose	0523001407	0523001407	0523001407	1
22	Stepping Motor	15012086	15012086	15012086	1
23	Crank	10582070	10582070	10582070	1
24	Electric Box Assy	20402552	20402552	20403028	1
25	Electric Box	20112103	20112103	20112103	1
26	Axle Bush	10542036	10542036	10542036	1
27	Indicator Light Cover	22242084	22242084	22242084	1
28	Indicator Shield Cover	22242083	22242083	22242083	1
29	Terminal Board	42011233	42011233	42011233	1
30	Electric Box Cover2	42011233	20122142	20122142	1
31	Main Board	30148878	30148878	30138000072	1
32	Display Board	30568112	30568112	30568112	1
33	Shield Cover of Electric box Cover	01592088	01592088	01592088	1
34	Electric Box Cover	20122123	20122123	20122123	1
35	Shield Cover of Electric Box	01592087	01592087	01592087	1
36	Power Cord	/	/	/	/
37	Connecting Cable	4002052317	4002052317	4002052317	0
38	Remote Controller	305100611	305100611	305100611	1

Above data is subject to change without notice.

NO.	Description	Part Code		Qty
		GWH(18)KG-K3DNA5E/I	GWH(18)KG-K3DNB1E/I	
	Product Code	CB146N32901	CB146N35400	
1	Front Panel	20012473S	20012676S	1
2	Filter Sub-Assy	11122104	11122104	2
3	Screw Cover	242520041	242520041	1
4	Front Case Assy	20012497	20012497	1
5	Guide Louver	10512140	10512140	1
6	Air Louver	10512160	10512160	2
7	Helicoid Tongue	26112232	26112232	1
8	Left Axile Bush	10512037	10512037	1
9	Rear Case assy	22202154	22202154	1
10	Rubber Plug (Water Tray)	76712012	76712012	1
11	Ring of Bearing	26152022	26152022	1
12	O-Gasket sub-assy of Bearing	7651205102	7651205102	1
13	Evaporator Support	24212119	24212119	1
14	Cold Plasma Generator	1114001602	1114001602	1
15	Evaporator Assy	1002775	01002775	1
16	Wall Mounting Frame	01002775	01252484	1
17	Cross Flow Fan	10352036	10352036	1
18	Motor Press Plate	26112231	26112231	1
19	Fan Motor	15012146	15012146	1
20	Connecting Pipe Clamp	2611216401	2611216401	1
21	Drainage Hose	0523001407	0523001407	1
22	Stepping Motor	15012086	15012086	1
23	Crank	10582070	10582070	1
24	Electric Box Assy	20402552	20402552	1
25	Electric Box	20112103	20112103	1
26	Axile Bush	10542036	10542036	1
27	Indicator Light Cover	22242084	22242084	1
28	Indicator Shield Cover	22242083	22242083	1
29	Terminal Board	42011233	42011233	1
30	Electric Box Cover2	20122142	20122142	1
31	Main Board	30148878	30148878	1
32	Display Board	30568112	30568112	1
33	Shield Cover of Electric box Cover	01592088	01592088	1
34	Electric Box Cover	20122123	20122123	1
35	Shield Cover of Electric Box	01592087	01592087	1
36	Power Cord	/	/	/
37	Connecting Cable	4002052317	4002052317	0
38	Remote Controller	305100611	305100611	1

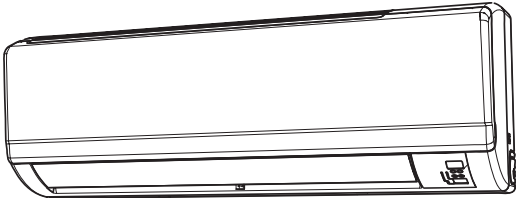
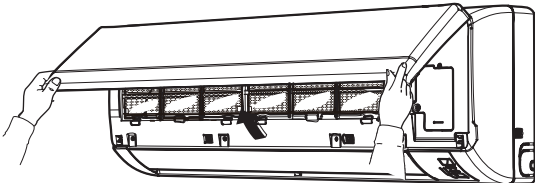
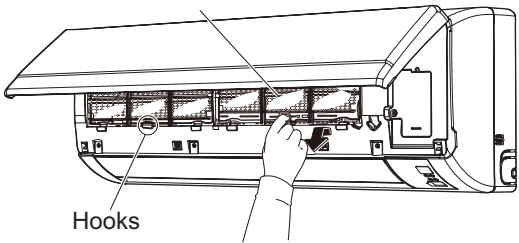
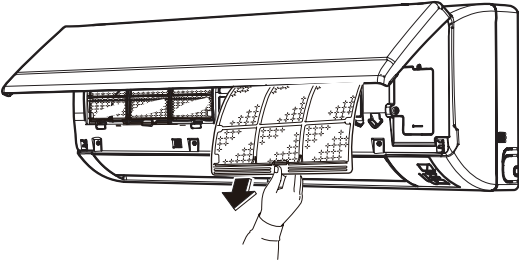
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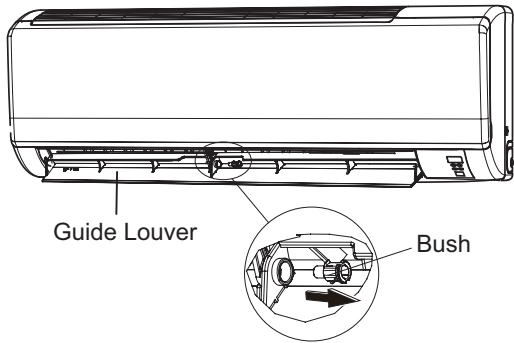
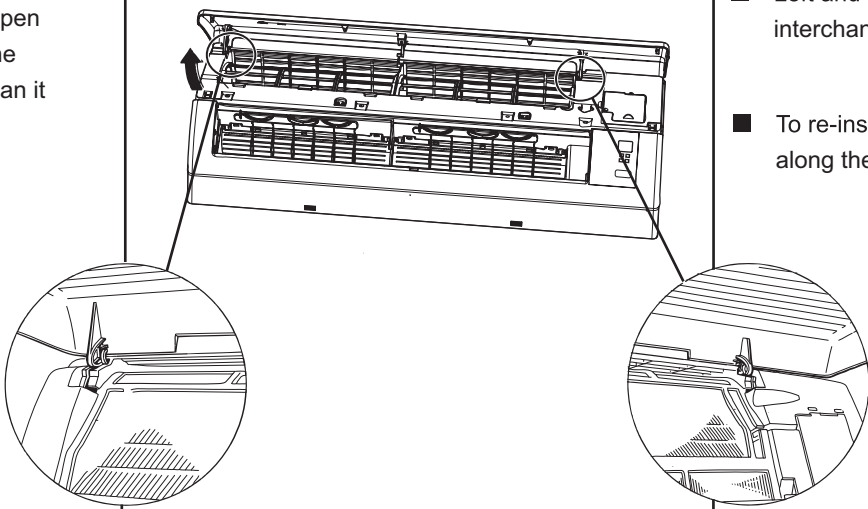
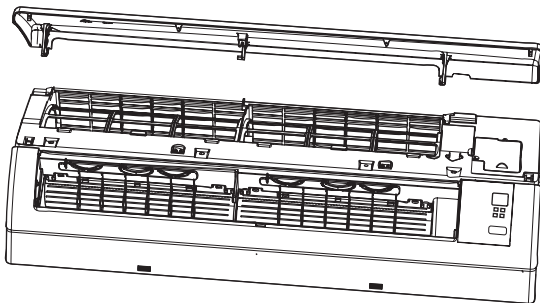
10. Removal Procedure

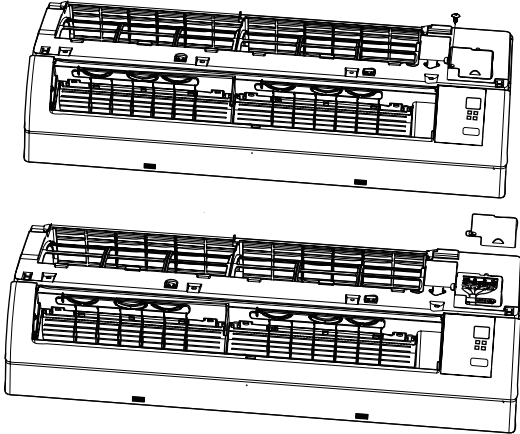
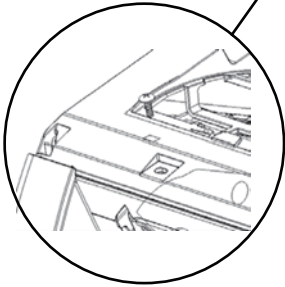
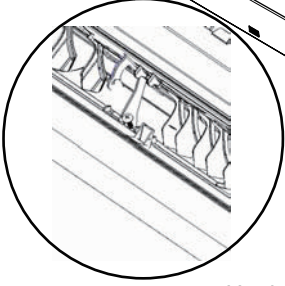
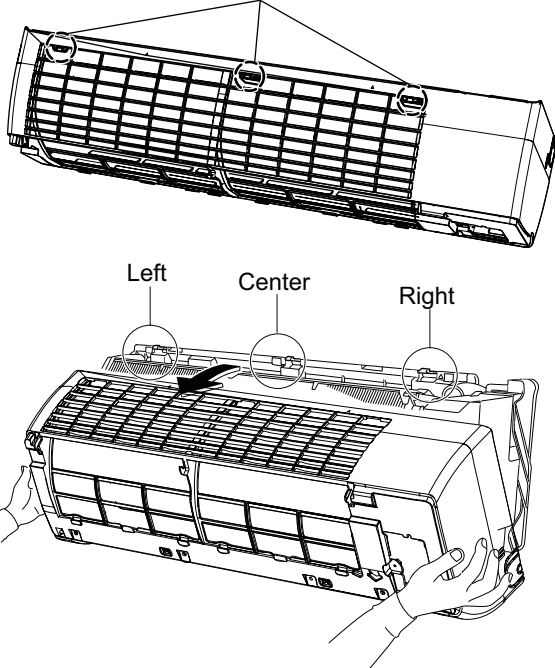


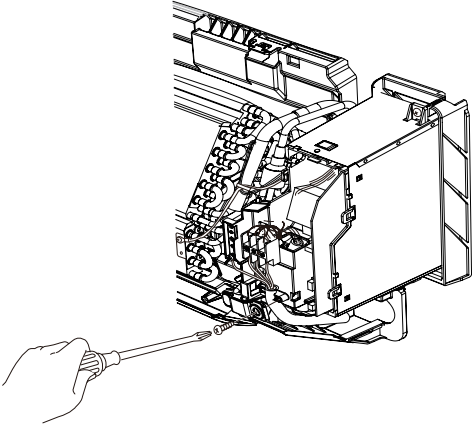
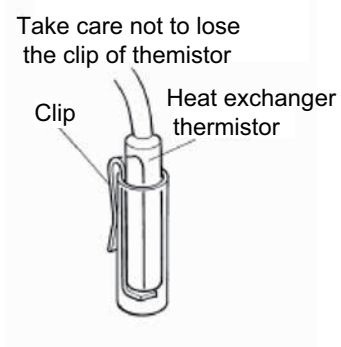
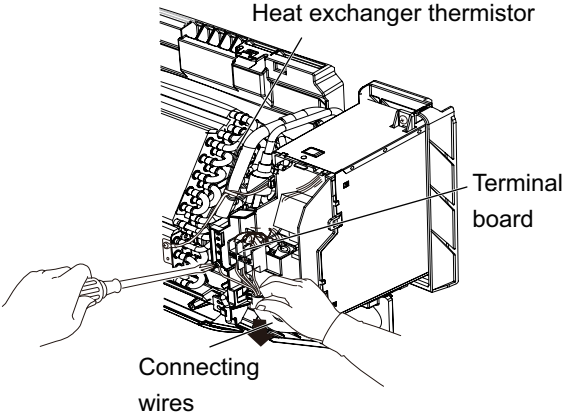
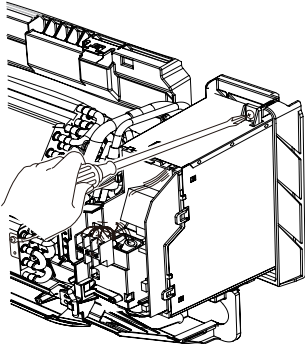
Caution: discharge the refrigerant completely before removal.

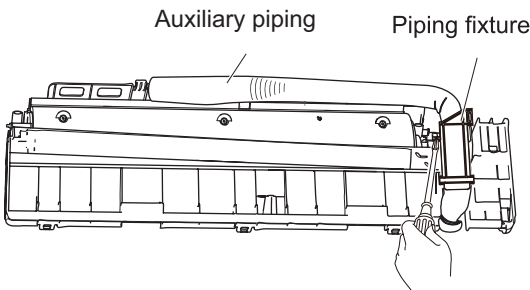
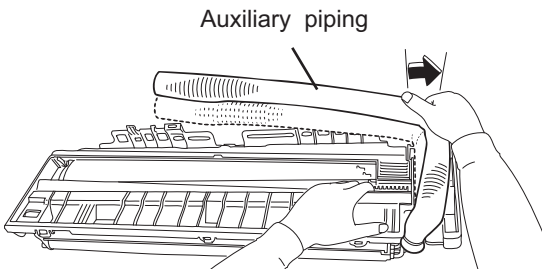
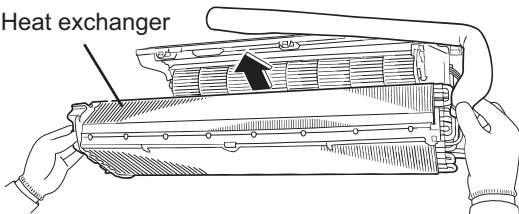
10.1 Removal Procedure of Indoor Unit

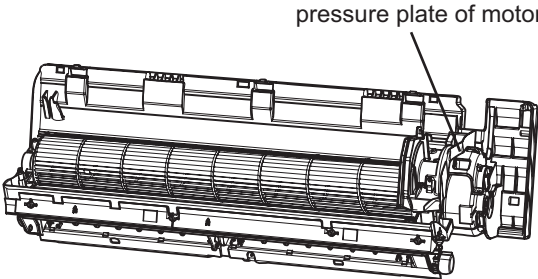
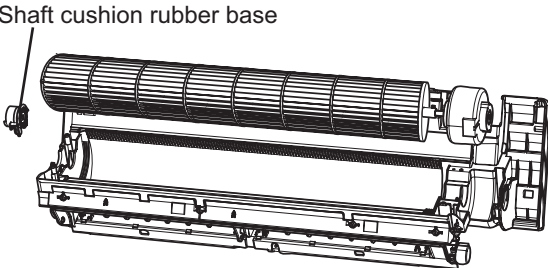
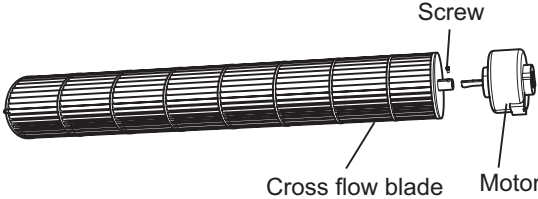
Step	Procedure	Points
1. External features		■ If ON/OFF button is kept pushing for 5 seconds, a forced cooling operation will be carried out for approx. 15 minutes.
2. Removing air filters	a Pull protrusions on left and right sides of panel with fingers and open front panel all the way.  b Lift center section of air filter and disengage hooks.  c Remove air filter by pulling forward. 	■ Left and right filters are interchangeable. ■ To re-install, insert air filter along the guide.

Step	Procedure	Points
3. Open and shut front panel		
a	Remove the bush. Bend the horizontal louver slightly to remove it.  Guide Louver Bush	Support the front panel by one hand, while remove the rotation axis at the upper center by the other hand.
b	Hook a finger onto the projection part provided on the both sides of the units panel and open up the panel to the position higher than it will stop. 	- Left and right filters are interchangeable. - To re-install, insert air filter along the guide.
c	Remove the front panel from the unit. 	

Step	Procedure	Points
4. Opening and closing of service cover		■ A switch for field setting is not provided in particular.
5. Removal of front grille assembly	a Remove the 5 screws, in the right and the left, which fix the main body with the front grille.  b Disengage the 3 hooks on the upper part. In case that the hooks are not pressed from above, remove the front panel and then remove the grille while pushing the hook through a clearance between the front grille and the heat exchanger.  c The front grille can be removed in a manner to pull out the upper part forward and lift up the lower part. 	■ Screw stoppers inside the flap which were equipped in the existing models are not provided. ■ At the upper part there are 2 hooks in the left and the right. ■ Disengage the hooks by pressing knobs with a screwdriver.

Step	Procedure		Points
6. Remove electrical box			
a	Disconnect the Cable clamp		■ Pay attention to the direction of the retainer of the thermistor so that the retainer will not touch the harness (same as the existing models.) Take care not to lose the clip of themistor 
b	Remove Temperature Sensor; Disconnect the connection wires. Twist off the earthing screw fixing the evaporator; Pull out the all the wiring terminals		
c	Remove a screw on the electrical box.		

Step	Procedure		Points
7. Remove piping fixture.			
a	Remove Pipe Clamp		
b	Adjust the pipeline slightly		
c	Loosen the screws, in the right and the left, which fix the Evaporator Assy. Remove Evaporator Assy		

Step	Procedure		Points
8. Remove pressure plate of motor	Remove the screws fixing the pressure plate of motor and then remove the pressure plate of motor.		
9. Remove shaft cushion rubber base	Remove the motor, blade and shaft cushion rubber base Remove the connecting screws of the cross flow blade and the motor, and then separate the cross flow blade and the motor.	 	

Appendix:

Appendix 1: Reference Sheet of Celsius and Fahrenheit

Conversion formula for Fahrenheit degree and Celsius degree: $T_f = T_c \times 1.8 + 32$

Set temperature

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

Ambient temperature

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

Appendix 2: Configuration of Connection Pipe

1. Standard length of connection pipe

- 5m, 7.5m, 8m.

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

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

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

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

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

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

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

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

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

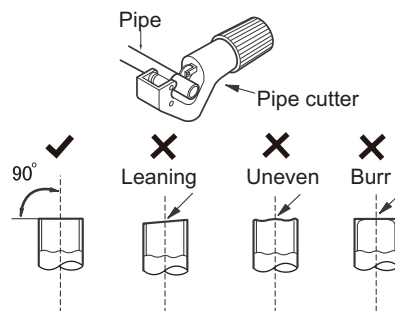
Appendix 3: Pipe Expanding Method

⚠ Note:

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

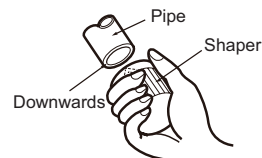
A: Cut the pip

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



B: Remove the burrs

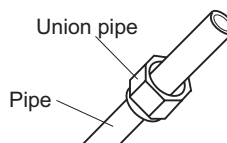
- Remove the burrs with shaper and prevent the burrs from getting into the pipe.



C: Put on suitable insulating pipe

D: Put on the union nut

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



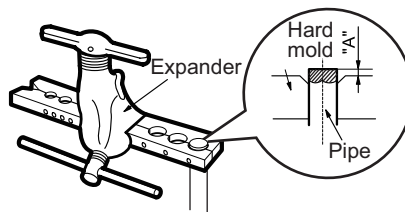
E: Expand the port

- Expand the port with expander.

⚠ Note:

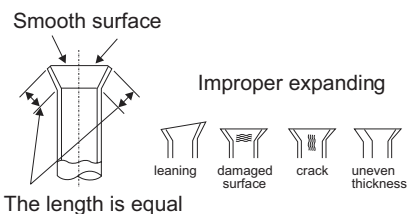
- "A" is different according to the diameter, please refer to the sheet below:

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



F: Inspection

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



Appendix 4: List of Resistance for Temperature Sensor

Resistance Table of Ambient Temperature Sensor for Indoor and Outdoor Units(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 Tube Temperature Sensors for Indoor and Outdoor (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 Discharge Temperature Sensor for Outdoor(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

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