

Service Manual

Model: GWH07PA-K3NNA3B

GWH07NA-K3NNB3B(Cold Plasma)

GWH09PA-K3NNA3B

GWH09NA-K3NNB3D(Cold Plasma)

GWH12PC-K3NNA3A

GWH12PC-K3NNA4A

GWH12PC-K3NNA5A

(Refrigerant R410A)

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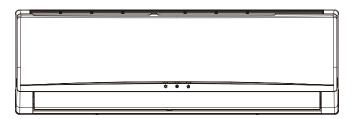
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Part I: Technical Information

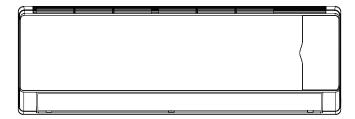
1.Summary

Indoor Unit

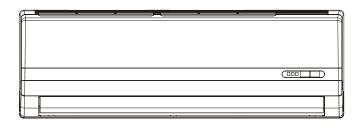
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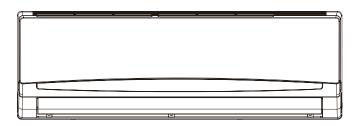
GWH07NA-K3NNB3B/I GWH09NA-K3NNB3D/I



GWH12PC-K3NNA4A/I

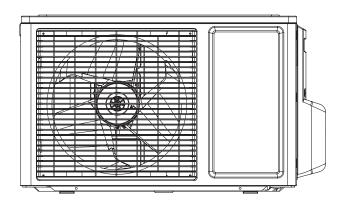


GWH12PC-K3NNA5A/I

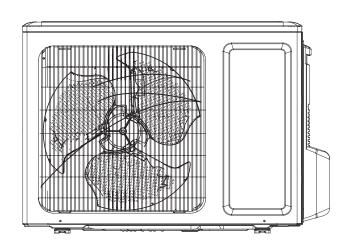


Outdoor Unit

GWH07PA-K3NNA3B/O GWH09PA-K3NNA3B/O



GWH12PC-K3NNA3A/O



Remote Controller

| Product Code | Remote Controller |
|--------------|--|
| CA416000800 | |
| CA416000900 | |
| CA416000700 | YB1FA |
| CA418001300 | |
| CA417001100 | |
| CA138005800 | YV1F7 |
| CA138003600 | 1 1 1 1 7 1 |
| | CA416000800 CA416000900 CA416000700 CA418001300 CA417001100 CA138005800 |

YB1FA YV1F7





2. Specifications

2.1 Specification Sheet

| Model | | | GWH07PA-K3NNA3B | GWH07NA-K3NNB3B | |
|---------------|--------------------------------------|--------|--------------------------|--------------------------|--|
| Product Code | | | CA416000800 | CA138005800 | |
| Davis | Rated Voltage | V~ | 220-240 | 220-240 | |
| Power | Rated Frequency | Hz | 50 | 50 | |
| Supply | Phases | | 1 | 1 | |
| Power Suppl | ly Mode | | Indoor | Indoor | |
| Cooling Cap | acity | W | 2050 | 2050 | |
| Heating Cap | acity | W | 2110 | 2110 | |
| Cooling Pow | er Input | W | 732 | 732 | |
| Heating Pow | er Input | W | 659 | 659 | |
| Cooling Pow | er Current | Α | 3.25 | 3.25 | |
| Heating Pow | rer Current | Α | 2.92 | 2.92 | |
| Rated Input | | W | 1100 | 1100 | |
| Rated Curre | nt | Α | 4.88 | 5.55 | |
| Air Flow Volu | ume(SH/H/M/L/SL) | m³/h | 400/360/320/290/- | 400/360/320/290/- | |
| Dehumidifyir | ng Volume | L/h | 0.6 | 0.6 | |
| EER | | W/W | 2.8 | 2.8 | |
| СОР | | W/W | 3.2 | 3.2 | |
| SEER | | W/W | 1 | 1 | |
| HSPF | | W/W | 1 | / | |
| Application A | Application Area | | 10-16 | 10-16 | |
| | Model of indoor unit | | GWH07PA-K3NNA3B/I | GWH07NA-K3NNB3B/I | |
| | Fan Type | | Cross-flow | Cross-flow | |
| | Diameter Length(DXL) | mm | Ф85Х532 | Ф85Х532 | |
| | Fan Motor Cooling Speed(SH/H/M/L/SL) | r/min | 1350/1220/1100/1000/- | 1350/1220/1100/1000/- | |
| | Fan Motor Heating Speed(SH/H/M/L/SL) | r/min | 1320/1220/1120/980/- | 1320/1220/1120/980/- | |
| | Output of Fan Motor | W | 10 | 10 | |
| | Fan Motor RLA | Α | 0.13 | 0.13 | |
| | Fan Motor Capacitor | μF | 1 | 1 | |
| | Input of Heater | W | 1 | 1 | |
| | Evaporator Form | | Aluminum Fin-copper Tube | Aluminum Fin-copper Tube | |
| | Pipe Diameter | mm | Ф7 | Ф7 | |
| Indoor Unit | Row-fin Gap | mm | 2-1.5 | 2-1.5 | |
| | Coil Length (LXDXW) | mm | 526X25.4X228.6 | 526X25.4X228.6 | |
| | Swing Motor Model | | MP24AA | MP24AA | |
| | Output of Swing Motor | W | 1.5 | 1.5 | |
| | Fuse | Α | 3.15 | 3.15 | |
| | Sound Pressure Level (SH/H/M/L/SL) | dB (A) | 43/37/35/32/- | 40/37/35/32/- | |
| | Sound Power Level (SH/H/M/L/SL) | dB (A) | 53/47/45/42/- | 50/47/45/42/- | |
| | Dimension (WXHXD) | mm | 730X254X184 | 730X255X184 | |
| | Dimension of Carton Box (LXWXH) | mm | 790X255X328 | 790X245X325 | |
| | Dimension of Package(LXWXH) | mm | 793X258X343 | 793X248X340 | |
| | Net Weight | kg | 8 | 8 | |
| | Gross Weight | kg | 10.5 | 10.5 | |

| | Model of Outdoor Unit | | GWH07PA-K3NNA3B/O |
|--------------|---|----------|---|
| | Compressor Manufacturer/Trademark | | Xi'an Qing'an refrigeration Equipment Co.,Ltd |
| | Compressor Model | | YZG-A082Y2T3 |
| | Compressor Oil | | RB68EP |
| | Compressor Type | | Rotary |
| | L.R.A. | А | 17 |
| | Compressor RLA | A | 3.35 |
| | Compressor Power Input | W | 705 |
| | Overload Protector | ** | B135-140-241E |
| | Throttling Method | | Capillary |
| | Operation Temp | °С | 16~30 |
| | Ambient Temp (Cooling) | °C | 18~43 |
| | Ambient Temp (Heating) | °C | -7~24 |
| | Condenser Form | - U | Aluminum Fin-copper Tube |
| | Pipe Diameter | mm | Ф7 |
| | Rows-fin Gap | mm | 1-1.4 |
| | Coil Length (LXDXW) | mm | 681X12.7X400 |
| | Fan Motor Speed | | 950 |
| | Output of Fan Motor | rpm W | 20 |
| | Fan Motor RLA | A | 0.25 |
| Outdoor Unit | Fan Motor Capacitor | | |
| | · | μF | 1.5 |
| | Air Flow Volume of Outdoor Unit | m³/h | 1200 |
| | Fan Type | | Axial-flow |
| | Fan Diameter | mm | Ф320 |
| | Defrosting Method | | Automatic Defrosting |
| | Climate Type | | T1 |
| | Isolation | | |
| | Moisture Protection | | IP24 |
| | Permissible Excessive Operating Pressure for the Discharge Side | MPa | 4.3 |
| | Permissible Excessive Operating Pressure for the Suction Side | MPa | 2.5 |
| | Sound Pressure Level (H/M/L) | dB (A) | 50/-/- |
| | Sound Power Level (H/M/L) | dB (A) | 60/-/- |
| | Dimension (WXHXD) | mm | 720X428X310 |
| | Dimension of Carton Box (LXWXH) | mm | 765X350X475 |
| | Dimension of Package(LXWXH) | mm | 768X353X490 |
| | Net Weight | kg | 22 |
| | Gross Weight | kg | 24.5 |
| | Refrigerant | | R410A |
| | Refrigerant Charge | kg | 0.62 |
| | Length | m | 5 |
| | Gas Additional Charge | g/m | 20 |
| 0 " | Outer Diameter Liquid Pipe | mm | Ф6 |
| Connection | Outer Diameter Gas Pipe | mm | Ф9.52 |
| Pipe | Max Distance Height | m | 5 |
| | Max Distance Length | m | 15 |
| | Note: The connection pipe applies metric diamet | I | |

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

● ● ● ● ■ Technical Information

| Model | | | GWH09PA-K3NNA3B | GWH09NA-K3NNB3D |
|---------------|--------------------------------------|--------|--------------------------|--------------------------|
| Product Code | | | CA416000900 | CA138003600 |
| _ | Rated Voltage | V~ | 220-240 | 220-240 |
| Power | Rated Frequency | Hz | 50 | 50 |
| Supply | Phases | | 1 | 1 |
| Power Suppl | y Mode | | Indoor | Indoor |
| Cooling Capa | acity | W | 2638 | 2638 |
| Heating Cap | acity | W | 2814 | 2814 |
| Cooling Pow | er Input | W | 942 | 942 |
| Heating Pow | er Input | W | 879 | 879 |
| Cooling Pow | er Current | Α | 4.18 | 4.18 |
| Heating Pow | er Current | Α | 3.9 | 3.9 |
| Rated Input | | W | 1250 | 1250 |
| Rated Curre | nt | Α | 5.55 | 5.55 |
| Air Flow Volu | ume(SH/H/M/L/SL) | m³/h | 400/370/340/310/- | 400/370/340/310/- |
| Dehumidifyin | ng Volume | L/h | 0.8 | 0.8 |
| EER | | W/W | 2.8 | 2.8 |
| COP | | W/W | 3.2 | 3.2 |
| SEER | | W/W | / | / |
| HSPF | -ISPF | | / | / |
| Application A | Application Area | | 12-18 | 12-18 |
| | Model of indoor unit | | GWH09PA-K3NNA3B/I | GWH09NA-K3NNB3D/I |
| | Fan Type | | Cross-flow | Cross-flow |
| | Diameter Length(DXL) | mm | Ф85Х532 | Ф85Х532 |
| | Fan Motor Cooling Speed(SH/H/M/L/SL) | r/min | 1390/1280/1180/1080/- | 1390/1280/1180/1080/- |
| | Fan Motor Heating Speed(SH/H/M/L/SL) | r/min | 1350/1250/1140/1040/- | 1350/1250/1140/1040/- |
| | Output of Fan Motor | W | 10 | 10 |
| | Fan Motor RLA | Α | 0.13 | 0.13 |
| | Fan Motor Capacitor | μF | 1 | 1 |
| | Input of Heater | W | / | / |
| | Evaporator Form | | Aluminum Fin-copper Tube | Aluminum Fin-copper Tube |
| | Pipe Diameter | mm | Ф7 | Ф7 |
| Indoor Unit | Row-fin Gap | mm | 2-1.5 | 2-1.5 |
| | Coil Length (LXDXW) | mm | 526X25.4X228.6 | 526X25.4X228.6 |
| | Swing Motor Model | | MP24AA | MP24AA |
| | Output of Swing Motor | W | 1.5 | 1.5 |
| | Fuse | Α | 3.15 | 3.15 |
| | Sound Pressure Level (SH/H/M/L/SL) | dB (A) | 43/37/35/32/- | 40/37/35/32/- |
| | Sound Power Level (SH/H/M/L/SL) | dB (A) | 53/47/45/42/- | 50/47/45/42/- |
| | Dimension (WXHXD) | mm | 730X254X184 | 730X254X184 |
| | Dimension of Carton Box (LXWXH) | mm | 790X255X328 | 790X245X325 |
| | Dimension of Package(LXWXH) | mm | 793X258X343 | 793X248X340 |
| | Net Weight | kg | 8 | 8 |
| | Gross Weight | kg | 10.5 | 10.5 |

| | Model of Outdoor Unit | | GWH09PA-K3NNA3B/O |
|--------------|--|---------|----------------------------------|
| | Compressor Manufacturer/Trademark | | ZHUHAI LANDA COMPRESSOR CO. LTD. |
| | Compressor Model | | QXA-B106C130A |
| | Compressor Oil | | RB68EP |
| | Compressor Type | | Rotary |
| | L.R.A. | Α | 17 |
| | Compressor RLA | Α | 4.1 |
| | Compressor Power Input | W | 875 |
| | Overload Protector | | UP3-20 |
| | Throttling Method | | Capillary |
| | Operation Temp | °С | 16~30 |
| | Ambient Temp (Cooling) | °C | 18~43 |
| | Ambient Temp (Heating) | °C | -7~24 |
| | Condenser Form | | Aluminum Fin-copper Tube |
| | Pipe Diameter | mm | Ф7 |
| | Rows-fin Gap | mm | 1-1.6 |
| | Coil Length (LXDXW) | mm | 681X22X406 |
| | Fan Motor Speed | rpm | 950 |
| | Output of Fan Motor | W | 20 |
| | Fan Motor RLA | A | 0.25 |
| Outdoor Unit | Fan Motor Capacitor | μF | 1.5 |
| | Air Flow Volume of Outdoor Unit | m³/h | 1200 |
| | Fan Type | 111 /11 | Axial-flow |
| | Fan Diameter | mm | Ф320 |
| | Defrosting Method | | Automatic Defrosting |
| | Climate Type | | T1 |
| | Isolation | | |
| | Moisture Protection | | IP24 |
| | Permissible Excessive Operating Pressure for the | | 11 27 |
| | Discharge Side | MPa | 4.3 |
| | Permissible Excessive Operating Pressure for the | MPa | 2.5 |
| | Suction Side | WII G | 2.0 |
| | Sound Pressure Level (H/M/L) | dB (A) | 50/-/- |
| | Sound Power Level (H/M/L) | dB (A) | 60/-/- |
| | Dimension (WXHXD) | mm | 720X428X310 |
| | Dimension of Carton Box (LXWXH) | mm | 765X350X475 |
| | Dimension of Package(LXWXH) | mm | 768X353X490 |
| | Net Weight | kg | 26 |
| | Gross Weight | kg | 28.5 |
| | Refrigerant | | R410A |
| | Refrigerant Charge | kg | 0.73 |
| | Length | m | 5 |
| | Gas Additional Charge | g/m | 20 |
| Connection | Outer Diameter Liquid Pipe | mm | Ф6 |
| Pipe | Outer Diameter Gas Pipe | mm | Ф9.52 |
| ripe | Max Distance Height | m | 10 |
| | Max Distance Length | m | 15 |
| | Note: The connection pipe applies metric diameter. | | |

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

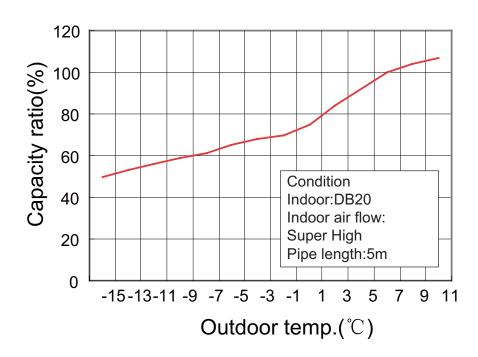
| N 4l - l | | | 1.GWH12PC-K3NNA3A |
|---------------|--------------------------------------|----------------|--|
| Model | nodel | | 2.GWH12PC-K3NNA4A 3.GWH12PC-K3NNA5A |
| | | | 1.CA416000700 |
| Product Code | е | | 2.CA418001300 |
| | | | 3.CA417001100 |
| Davisan | Rated Voltage | V~ | 220-240 |
| Power | Rated Frequency | Hz | 50 |
| Supply | Phases | | 1 |
| Power Suppl | y Mode | | Indoor |
| Cooling Capa | acity | W | 3223 |
| Heating Capa | acity | W | 3370 |
| Cooling Pow | er Input | W | 1150 |
| Heating Pow | er Input | W | 1053 |
| Cooling Pow | er Current | Α | 5.1 |
| Heating Pow | er Current | Α | 4.63 |
| Rated Input | | W | 1450 |
| Rated Currer | nt | А | 6.43 |
| Air Flow Volu | ıme(SH/H/M/L/SL) | m³/h | 600/550/500/450/- |
| Dehumidifyin | | L/h | 1.2 |
| EER | - | W/W | 2.8 |
| COP | | W/W | 3.2 |
| SEER | | W/W | 1 |
| HSPF | | | 1 |
| Application A | rea | m ² | 15-22 |
| | | | 1.GWH12PC-K3NNA3A/I |
| | Model of indoor unit | | 2.GWH12PC-K3NNA4A/I |
| | | | 3.GWH12PC-K3NNA5A/I |
| | Fan Type | | Cross-flow |
| | Diameter Length(DXL) | mm | Ф92Х645 |
| | Fan Motor Cooling Speed(SH/H/M/L/SL) | r/min | 1350/1250/1100/950/- |
| | Fan Motor Heating Speed(SH/H/M/L/SL) | r/min | 1190/1150/1050/920/- |
| | Output of Fan Motor | W | 20 |
| | Fan Motor RLA | Α | 0.31 |
| | Fan Motor Capacitor | μF | 1 |
| | Input of Heater | W | 1 |
| | Evaporator Form | | Aluminum Fin-copper Tube |
| Indoor Unit | Pipe Diameter | mm | Ф7 |
| | Row-fin Gap | mm | 2-1.4 |
| | Coil Length (LXDXW) | mm | 645X25.4X266.7 |
| | Swing Motor Model | | MP24AA |
| | Output of Swing Motor | W | 1.5 |
| | Fuse | А | 3.15 |
| | Sound Pressure Level (SH/H/M/L/SL) | dB (A) | 42/39/36/33/- |
| | Sound Power Level (SH/H/M/L/SL) | dB (A) | 52/49/46/43/- |
| | Dimension (WXHXD) | mm | 848X274X189 |
| | Dimension of Carton Box (LXWXH) | mm | 915X255X355 |
| | Dimension of Package(LXWXH) | mm | 918X258X370 |
| - | Net Weight | kg | 10 |
| | i tot troigiit | | |

| | Model of Outdoor Unit | | GWH12PC-K3NNA3A/O |
|--------------|--|---------|----------------------------------|
| | Compressor Manufacturer/Trademark | | ZHUHAI LANDA COMPRESSOR CO. LTD. |
| | Compressor Model | | QXA-B120C150 |
| | Compressor Oil | | POE(ZE-GLES RB 68EP) |
| | Compressor Type | | Rotary |
| | L.R.A. | A | 22 |
| | Compressor RLA | Α | 4.7 |
| | Compressor Power Input | W | 1020 |
| | Overload Protector | | internal |
| | Throttling Method | | Capillary |
| | Operation Temp | °C | 16~30 |
| | Ambient Temp (Cooling) | °C | 18~43 |
| | Ambient Temp (Heating) | °C | -7~24 |
| | Condenser Form | | Aluminum Fin-copper Tube |
| | Pipe Diameter | mm | Ф7 |
| | Rows-fin Gap | mm | 1-1.4 |
| | Coil Length (LXDXW) | mm | 721.5X12.7X495 |
| | Fan Motor Speed | rpm | 850 |
| | Output of Fan Motor | W | 35 |
| | Fan Motor RLA | A | 0.37 |
| Outdoor Unit | Fan Motor Capacitor | μF | 2.5 |
| | Air Flow Volume of Outdoor Unit | m³/h | 1600 |
| | Fan Type | 111 /11 | Axial-flow |
| | Fan Diameter | mm | Ф394.5 |
| | Defrosting Method | mm | Automatic Defrosting |
| | Climate Type | | T1 |
| | Isolation | | 11 |
| | Moisture Protection | | IP24 |
| | Permissible Excessive Operating Pressure | | IF24 |
| | for the Discharge Side | MPa | 4.3 |
| | Permissible Excessive Operating Pressure | | |
| | for the Suction Side | MPa | 2.5 |
| | Sound Pressure Level (H/M/L) | dB (A) | 52/-/- |
| | Sound Power Level (H/M/L) | dB (A) | 62/-/- |
| | Dimension (WXHXD) | mm | 776X540X320 |
| | Dimension of Carton Box (LXWXH) | mm | 820X355X580 |
| | Dimension of Package(LXWXH) | mm | 823X358X595 |
| | Net Weight | kg | 31 |
| | Gross Weight | kg | 35 |
| | Refrigerant | | R410A |
| | Refrigerant Charge | kg | 0.80 |
| | Length | m | 5 |
| | Gas Additional Charge | g/m | 15 |
| | Outer Diameter Liquid Pipe | mm | Ф6 |
| Connection | Outer Diameter Gas Pipe | mm | Ф9.52 |
| Pine | Max Distance Height | m | 10 |
| | Max Distance Length | m | 20 |
| | | | |

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

2.2 Capacity Curve in Different Outdoor Temperature

Heating



2.3 Heating Data Sheet in Rated Frequency

Heating

| Temperature condition (°C) | | Model name | Standard pressure Heat exchanger pipe to | | er pipe temp. | Indoor fan | Outdoor fan |
|----------------------------|---------|------------|--|-----------------------|-------------------|------------|-------------|
| Indoor | Outdoor | | P (MPa) | T1 (°C) | T2 (°C) | mode | mode |
| 20/- | 7/6 | 07K | 3.5~3.8 | in:75~85 out:37~43 | in:1~3 out:2~5 | Super High | High |
| 20/- | 7/6 | 09K | 3.5~3.8 | in:75~85 out:37~43 | in:1~3 out:2~5 | Super High | High |
| 20/- | 7/6 | 12K | 3.5~3.8 | in:75~85 out:37~43 | in:1~3 out:2~5 | Super High | High |

T1: Inlet and outlet pipe temperature of evaporator

T2: Inlet and outlet pipe temperature of condenser

P: Pressure of air pipe connecting indoor and outdoor units

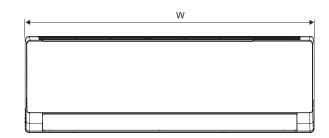
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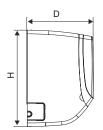
(1) Measure surface temperature of heat exchanger pipe around center of heat exchanger path U bent. (Thermistor themometer)

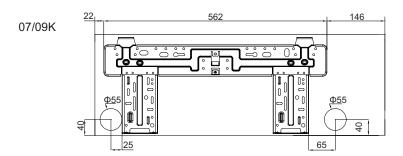
(2) Connecting piping condition:5m.

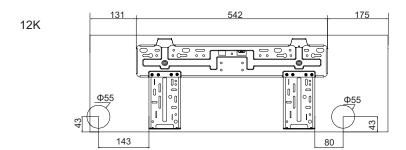
3. Outline Dimension Diagram

3.1 Indoor Unit







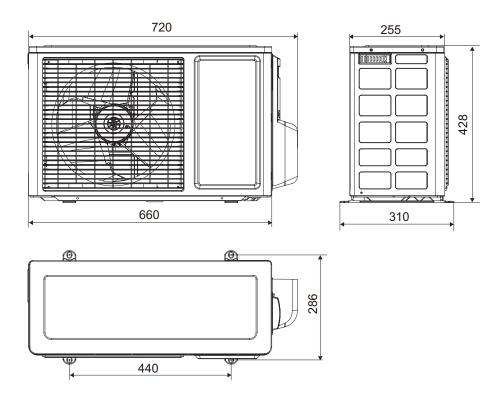


Unit: mm

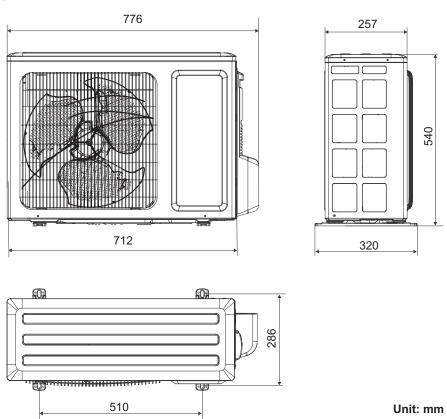
| MODEL | W | Н | D |
|--------|-----|-----|-----|
| 07/09K | 730 | 254 | 184 |
| 12K | 848 | 274 | 189 |

3.2 Outdoor Unit

GWH07PA-K3NNA3B/O GWH09PA-K3NNA3B/O

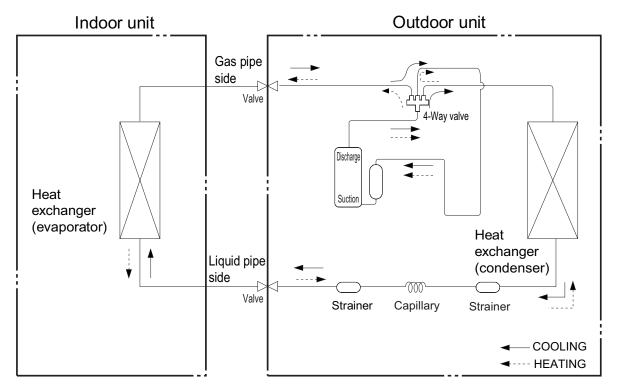


GWH12PC-K3NNA3A/O



4. Refrigerant System Diagram

Heating model



Refrigerant pipe diameter

Liquid :1/4" (6 mm) Gas : 3/8" (9.52 mm)

5. Electrical Part

5.1 Wiring Diagram

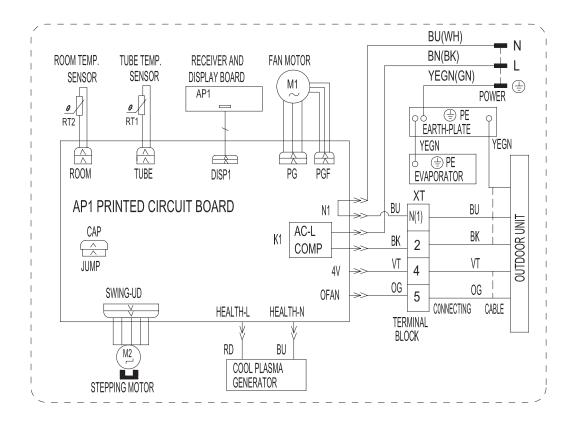
Instruction

| Symbol | Symbol Color | Symbol | Symbol Color | Symbol | Name |
|--------|--------------|--------|--------------|--------|----------------|
| WH | White | GN | Green | CAP | Jumper cap |
| YE | Yellow | BN | Brown | COMP | Compressor |
| RD | Red | BU | Blue | | Grounding wire |
| YEGN | Yellow/Green | BK | Black | / | 1 |
| VT | Violet | OG | Orange | 1 | 1 |

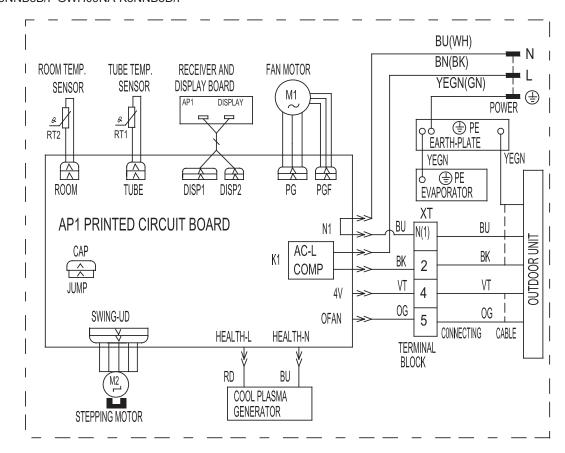
Note: Jumper cap is used to determine fan speed and the swing angle of horizontal lover for this model.

• Indoor Unit

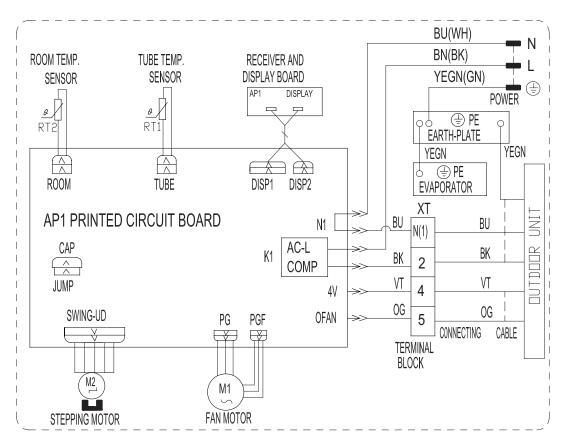
GWH07PA-K3NNA3B/I GWH09PA-K3NNA3B/I GWH12PC-K3NNA3A/I



GWH07NA-K3NNB3B/I GWH09NA-K3NNB3D/I

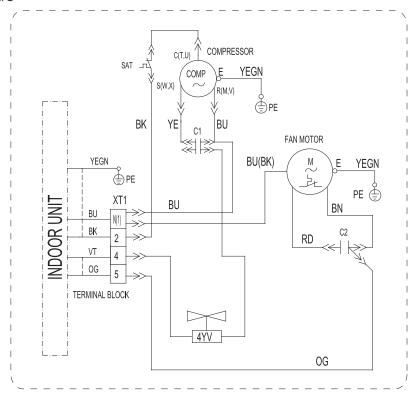


GWH12PC-K3NNA4A/I GWH12PC-K3NNA5A/I

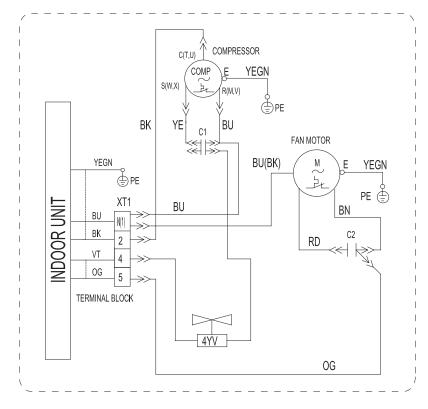


Outdoor Unit

GWH07PA-K3NNA3B/O



GWH09PA-K3NNA3B/O GWH12PC-K3NNA3A/O

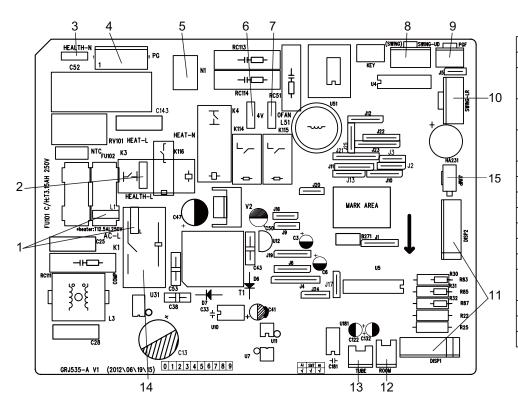


These circuit diagrams are subject to change without notice, please refer to the one supplied with the unit.

5.2 PCB Printed Diagram

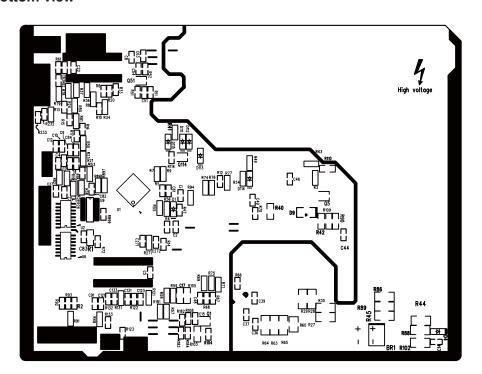
• Top view

GWH07PA-K3NNA3B/I GWH09PA-K3NNA3B/I GWH12PC-K3NNA3A/I GWH12PC-K3NNA4A/I GWH12PC-K3NNA5A/I



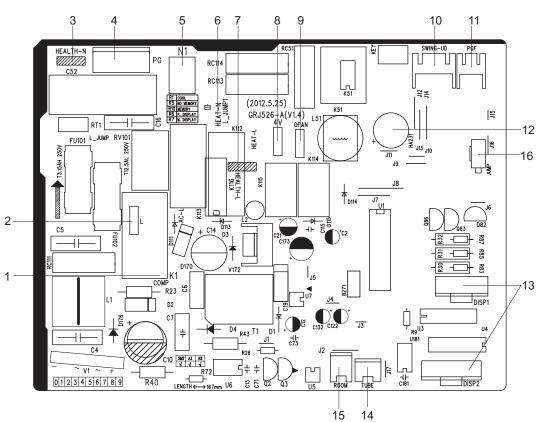
| NO. | NAME | |
|-----|-------------------------------|--|
| 1 | Interface of live wire | |
| 2 | Interface of live wire for | |
| | health function | |
| 3 | Interface of neutral wire for | |
| | health function | |
| 4 | Control interface of PG | |
| | motor | |
| 5 | Interface of neutral wire | |
| 6 | Interface of 4-way valve | |
| 7 | Interface of outdoor fan | |
| 8 | Auto button | |
| 9 | Up & down swing | |
| 10 | Feedback of indoor fan | |
| 11 | Interface of display | |
| 12 | Interface of ambienttemp | |
| | sensor | |
| 13 | Interface of pipe tempsensor | |
| 14 | Interface of compressor | |
| 15 | Jumper Cap Interface | |

Bottom view



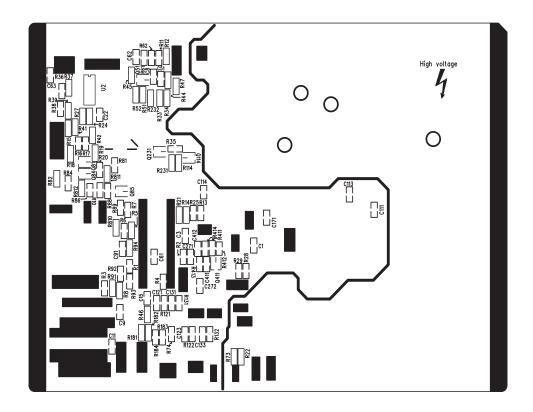
• Top View

GWH07NA-K3NNB3B/I GWH09NA-K3NNB3D/I



| NO. | NAME | |
|-----|---------------------------------|--|
| 1 | Compressor | |
| 2 | Live Wire | |
| 3 | Neutral Wire of Health Function | |
| 4 | PG | |
| 5 | Neutral Wire | |
| 6 | Neutral Wire of Health Function | |
| 7 | Live Wire of Health Function | |
| 8 | 4-Way Valve | |
| 9 | Outdoor Fan Motor | |
| 10 | Air Swing | |
| 11 | PG Feedback | |
| 12 | Buzzer | |
| 13 | Display Interface | |
| 14 | Tube Temperature Sensor | |
| 15 | Ambient Temperature Sensor | |
| 16 | Jumper Cap Interface | |

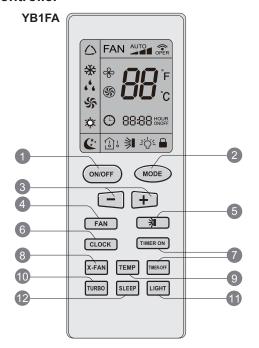
Bottom View



6. Function and Control

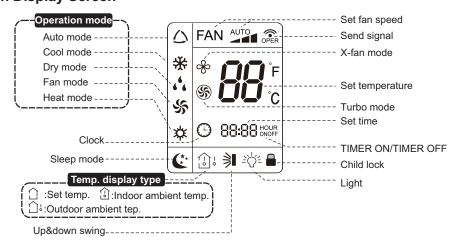
6.1 Remote Controller Introduction

Buttons on Remote Controller



- ON/OFF Button
- MODE Button
- 3 +/- Button
- **4** FAN Button
- CLOCK Button
- **7** TIMER ON/TIMER-OFF Button
- **8** X-FAN Button
- **9** TEMP Button
- **10 TURBO Button**
- LIGHT Button
- SLEEP 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 indictor " ()" is ON (red indicator). After that, you can operate the air conditioner by using remote controller.

1. ON/OFF Button

Press this button can turn on or turn off the air conditioner. After turning on the air conditioner, operation indicator " () " on indoor unit's display is ON (green indicator. The colour is different for different models), and indoor unit will give out a sound.

2. MODE Button

Press this button to select your required operation mode.

- When selecting auto mode, air conditioner will operate automatically according to exfactory setting. Set temperature can't be adjusted and will not be displayed as well. Press "FAN" button can adjust fan speed. Press " 🗦 " button can adjust fan blowing angle.
- When selecting cool mode, air conditioner will operate under cool mode. Cool indicator " 🔆 " on indoor unit is ON. Press "+" or "-" button to adjust set temperature. Press "FAN"button to adjust fan speed. Press " 🛊 " button to adjust fan blowing angle.
- When selecting dry mode, the air conditioner operates at low speed under dry mode. Dry indicator " 4 on indoor unit is ON. Under dry mode, fan speed can't be adjusted. Press " 🔰 " button to adjust fan blowing angle.
- When selecting fan mode, the air conditioner will only blow fan, no cooling and noheating. All mode indicators on indoor display are off, Press "FAN" button to adjust fan speed. Press " i button to adjust fan blowing angle.
- When selecting heating mode, the air conditioner operates under heat mode. Heat indicator " * " on indoor unit is ON. Press "+" or "-" button to adjust set temperature Press "FAN" button to adjust fan speed. Press " * " button to adjust fan blowing angle. (Cooling only unit won't receive heating mode signal. If setting heat mode with remote controller, press ON/OFF button can't start up the unit).

Note:

- For preventing cold air, after starting up heating mode, indoor unit will delay 1~5 minutes to blow air (actual delay time is depend on indoor ambient temperature).
- Set temperature range from remote controller: 16~30°C; Fan speed: auto, low speed, medium speed, high speed.

3. "+" or"-" Button

- Press "+" or "-" button once increase or decrease set temperature 1 °C .Holding "+" or "-" button, 2s later, set temperature on remote controller will change quickly. On releasing button after setting is finished, temperature indicator on indoor unit will change accordingly. (Temperature can't be adjusted under auto mode)
- When setting TIMER ON, TIMER OFF or CLOCK, press "+" or "-" button to adjust time.(Refer to CLOCK, TIMER ON, TIMER OFF buttons)

4. FAN Button

Pressing this button can set fan speed circularly as: auto (AUTO), low(__) ,medium(__),high(__ 1 1 ...

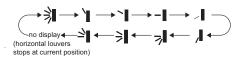


Note:

- Under AUTO speed, air conditioner will select proper fan speed automatically according to ex-factory setting.
- Fan speed under dry mode is low speed.

5. | Button

Press this button can select up&down swing angle. Fan blow angle can be selectedcircularly as below:



- When selecting " 🔰 " , air conditioner is blowing fan automatically. Horizontal louver will automatically swing up & down at maximum angle.
- When selecting " → , ⇒ , ⇒ , air conditioner is blowing fan at fixed angle. Horizontal louver will send air at the fixed angle.
- Hold "¾" button above 2s to set your required swing angle. When reaching your required angle, release the button.

Note:

" 🚉 🌎 " may not be available. When air conditioner receives this signal, the air conditioner will blow fan automatically.

6. CLOCK Button

Press this button to set clock time. " " " icon on remote controller will blink. Pess "+" or "-" button within 5s to set clock time. Each pressing of "+" or "-" button, clock time will increase or decrease 1 minute. If hold "+" or "-" button, 2s later, time will change quickly. Release this button when reaching your required time. Press "CLOCK" button to confirm the time. " " icon stops blinking.

Note:

- Clock time adopts 24-hour mode.
- The interval between two operation can't exceeds 5s. Otherwise, remote controller will quit setting status. Operation for TIMER ON/TIMER OFF is the same.

7. TIMER-ON/TIMER-OFF Button

TIMER ON button

TIMER ON button

"TIMER ON" button can set the time for timer on. After pressing this button, " 🔾 " icon disappears and the word "ON" on remote

Technical Information

controller blinks. Press "+" or "-"button to adjust TIMER ON setting. After each pressing "+" or "-"button, TIMER ON setting will increase or decrease 1min. Hold "+" or "-"button, 2s later, the time will change quickly

until reaching your required time. Press "TIMER ON" to confirm it. The word "ON" will stop blinking. " ① " icon resumes displaying. Cancel TIMER ON: Under the condition that TIMER ON is started up, press "TIMER ON" button to cancel it.

• TIMER OFF button

"TIMER OFF" button can set the time for timer off. After pressing this button, " ("con disappears and the word "OFF" on remote controller blinks. Press "+" or "-" button to adjust TIMER OFF setting. After each pressing "+" or "-" button, TIMER OFF setting will increase or decrease 1min. Hold "+" or "-" button, 2s later, the time will change

quickly until reaching your required time. Press "TIMER OFF"word "OFF" will stop blinking. " () " icon resumes displaying.

Cancel TIMER OFF. Under the condition that TIMER OFF is started up, press "TIMER OFF" button to cancel it.

Note:

- Under on and off status, you can set TIMER OFF or TIMER on simultaneously.
- Before setting TIMER ON or TIMER OFF, please adjust the clock time.
- After starting up TIMER ON or TIMER OFF, set the constant circulating valid. After that, air conditioner will be turned on or turned off according to setting time. ON/OFF button has no effect on setting. If you don't need this function, please use remote controller to cancel it.

8. X-FAN Button

Press this button under cool and dry mode to start up x-fan function, and " % " icon on remote controller will be displayed. Press this button again to cancel x-fan function, and " % "icon will disappear.

Note:

- When x-fan function is started up, if the air conditioner is turned off, indoor fan will still operate at low speed for a while to blow the residual water inside the air duct.
- During x-fan operation, press X-FAN button to turn off x-fan function. Indoor fan will stop operation immediately.

9. TEMP Button

By pressing this button, you can see indoor set temperature, indoor ambient temperature or outdoor ambient temperature on indoor unit's display. The setting on remote controlleris selected circularly as below:



When selecting " \(\text{ } \)" or no display with remote controller, temperature indicator on indoor unit displays set temperature;

When selecting " (a) " with remote controller, temperature indicator on indoor unit displays indoor ambient temperature;

When selecting " 🗀 " with remote controller, temperature indicator on indoor unit displays outdoor ambient temperature.

Note:

- Outdoor temperature display is not available for some models. At that time, indoor unit receives" 🖺 " signal, while it displays indoor set temperature.
- It's defaulted to display set temperature when turning on the unit. There is no display in the remote controller.
- Only for the models whose indoor unit has dual-8 display

10. TURBO Button

Under COOL or HEAT mode, press this button to turn to quick COOL or quick HEAT mode. " § " icon is displayed on remote controller. Press this button again to exit turbo function and " § " icon will disappear.

11. SLEEP Button

Under COOL, HEAT or DRY mode, press this button to start up sleep function. "C*" icon is displayed on remote controller. Press this button again to cancel sleep function and "C*" icon will disappear.

12. LIGHT Button

Function Introduction for Combination Buttons

Child lock function:

Press "+"and "-" simultaneously to turn on or turn off child lock function. When child lock function is on, " 🖨 " icon is displayed on remote controller. If you operate the remote controller, it won't send signal.

Temperature display switchover function:

Under OFF status, press "-" and "MODE" buttons simultaneously to switch temperature display 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 to select fan blowing angle.

Replacement of Batteries in Remote Controller

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

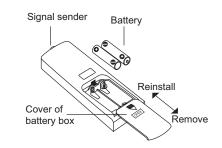
Note:

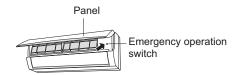
- During operation, point the remote control signal sender at the receiving window on indoor unit.
- The distance between signal sender and receiving window should be no more than 8m, and there should be no obstacles between them.
- Signal may be interfered easily in the room where there is fluorescent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

Emergency Operation

If remote controller is lost or damaged, please use auxiliary button to turn on or turn off the air conditioner. The operation in details are as below: As shown in the fig. Open panel, press aux. button to turn on or turn off the air conditioner. When the air conditioner is turned on, it will operate under auto mode.







YV1F7



1 ON/OFF

Press it to start or stop operation.

- 2 A: Press it to increase temperature setting.
- 3 MODE

Press it to select operation mode (AUTO/COOL/DRY/FAN/HEAT).

4 SWING

Press it set swing angle.

- 5 ▼ : Press it to decrease temperature setting.
- 6 FAN

Press it to set fan speed.

7 TIMER OFF

Press it to set auto-off timer.

8 CLOCK

Press it set clock.

9 TIMER ON

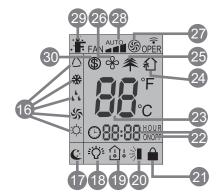
Press it to set auto-on timer.

- 10 SLEEP
- 11 TEMP
- 12 TURBO
- 13 X-FAN LIGHT

Press the button left to turn X-FAN function on/off. Press the button right to turn on/off the light.

- 14 I FEEL
- 15 奉/紀

Press it to set HEALTH or AIR function.



16 MODE icon:

17 SLEEP icon:

is displayed by pressing the SLEEP button. Press this button again to clear the display.

18 LIGHT icon:

is displayed by pressing the LIGHT button. Press LIGHT button again to clear the display.

19 TEMP icon:

Pressing TEMP button, \bigcirc (set temperature), \bigcirc (indoor ambient temperature), \bigcirc (outdoor ambient temperature)(Optional for some models) and blank is displayed circularly.

20 Up & down swing icon:

🔌 is displayed when pressing the up & down swing button. Press this button again to clear the display.

- 21 LOCK icon:
 - is displayed by pressing "+" and "-" buttons simultaneously. Press them again to clear the display.
- 22 SET TIME display:

After pressing TIMER button, ON or OFF will blink. This area will show the set time.

23 DIGITAL display.

This area will show the set temperature. In SAVE mode, "SE" will be displayed. During defrosting operation, "H1" will be displayed.

- 24 AIR icon:
 - is displayed when pressing the AIR button. Press this button again to clear the display. (Optional for some models.)
- 25 HEALTH icon:
 - ♠ is displayed when pressing the HEALTH button.Press this button again to clear the display.
- 26 X-FAN icon:
 - ❖ is displayed when pressing the X-FAN button. Press this button again to clear the display.
- 27 TURBO icon:
 - (§) is displayed when pressing the TURBO button. Press this button again to clear the display.
- 28 FAN SPEED display.

Press FAN button to select the desired fan speed setting(AUTO Low-Med-High). Your selection will be displayed in the LCD windows, except the AUTO fan speed.

- 29 I FEEL icon:
 - is displayed when pressing the I FEEL button. Press this button again to clear the display.
- 30 8°C Heatingicon:
 - (\$) is displayed when Pressing "TEMP" and "CLOCK" simulta-neously in Heat mode.

Remote Controller Description

1 ON/OFF:

Press this button to turn on the unit . Press this button again to turn off the unit.

2

Press this button to increase set temperature. Holding it down above 2 seconds rapidly increases set temperature. In AUTO mode, set temperature is not adjustable.

3 MODE :

Each time you press this button,a mode is selected in a sequence that goes from AUTO, COOL,DRY, FAN,and HEAT *, as the following:

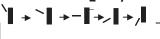
After energization, AUTO mode is defaulted. In AUTO mode, the set temperature will not be displayed on the LCD, and the unit will automatically select the suitable operation mode in accordance with the room temperature to make indoor room comfortable.

4 SWING:

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

This remote controller is universal . If any command \Rightarrow , \Rightarrow or \Rightarrow is sent out, the unit will carry out the command as \Rightarrow

indicates the guide louver swings as:

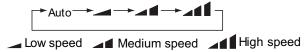


5

Press this button to decrease set temperature. Holding it down above 2 seconds rapidly decreases set temperature. In AUTO mode, set temperature is not adjustable.

6 FAN:

This button is used for setting Fan Speed in the sequence that goes from AUTO,—, 🖊 , to 🗚 , then back to Auto.



7 TIMER OFF:

Press this button to initiate the auto-off timer. To cancel the auto-timer program, simply press the button again.TIMER OFF setting is the same as TIMER ON.

8 CLOCK:

Press CLOCK button, blinking. Within 5 seconds, pressing + or - button adjusts the present time. Holding down either button above 2 seconds increases or decreases the time by 1 minute every 0.5 second and then by 10 minutes every 0.5 second. During blinking after setting, press CLOCK button again to confirm the setting, and then will be constantly displayed.

9 TIMER ON

Press this button to initiate the auto-ON timer. To cancel the auto-timer program, simply press this button again. After press of this button, (a) disappears and "ON "blinks .00:00 is displayed for ON time setting. Within 5 seconds, press + or - button to adjust the time value. Every press of either button changes the time setting by 1 minute. Holding down either button rapidly changes the button changes the time setting by 1 minute and then 10 minutes. Within 5 Seconds after setting, press TIMER ON button to confirm.

10 SLEEP

Press this button to go into the SLEEP operation mode. Press it again to cancel this function. This function is available in COOL, HEAT (Only for models with heating function. This function is available in COOL, HEAT (Only for models with heating function) mode to maintain the most comfortable temperature for you.

11 TEMP:

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

When selecting " \(\text{\text{\$}\text{\$\}\$}}}\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\tex

Caution

- •This model hasn't outdoor ambient temperature display function. While remote controller can operate "and indoor antidisplays set temperature.
- It's defaulted to display set temperature when turning on the unit.
- Only for the models with temperature indicator on indoor unit.

12 TURBO:

Press this button to activate / deactivate the Turbo function which enables the unit to reach the preset temperature in the shortest time. In COOL mode, the unit will blow strong cooling air at super high fan speed. In HEAT mode, the unit will blow strong heating air at super high fan speed.

13 X-FAN 👸:

X-FAN function: in COOL or DRY mode, the icon $\frak{\%}$ is displayed and the indoor fan will continue operation for 2 minutes in order to dry the indoor unit even though you have turned off the unit. After energization, X-FAN OFF is defaulted. X-FAN is not available in AUTO, FAN or HEAT mode. The function: turn on the display's light and press this button again to turn off the display's light. If the light is turned on , is $\frak{\%}$ displayed. If the light is turned off, $\frak{\%}$ disappears.

14 I FEEL:

Press this button to turn on I FEEL function. The unit automatically adjust temperature according to the sensed temperature. Press this button again to cancel I FEEL function.

15 奉/ 倉

Press this button to achieve the on and off of healthy and scavenging functions in operation status. Press this button for the first time to start scavenging function; LCD displays "\(\hat{\frac{1}{4}} \)". Press the button for the second time to start healthy and scavenging functions simultaneously; LCD displays "\(\hat{\frac{1}{4}} \)" and "\(\frac{\frac{1}{4}} \)". Press this button for the third time to quit healthy and scavenging functions simultaneously. Press the button for the fourth time to start healthy function; LCD display "\(\frac{\frac{1}{4}} \)". Press this button again to repeat the operation above. (This function is applicable to partial of models)

16 Combination of "+" and "-" buttons: About lock

Press" + " and "-" buttons simultaneously to lock or unlock the keypad. If the remote controller is locked, $\widehat{\Box}$ is displayed. In this case, pressing any button, $\widehat{\Box}$ blinks three times.

17 Combination of "MODE" and "-" buttons: About switch between Fahrenheit and centigrade At unit OFF, press "MODE" and "-" buttons simultaneously to switch between °C and °F.

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

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

19 Combination of "TEMP" and "CLOCK" buttons: About 8 Heating Function

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

20 About Back-lighting Function

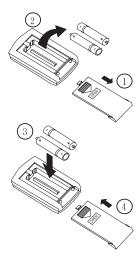
The unit lights for 4s when energizing for the first time, and 3s for later press.

Replacement of Batteries

- 1.Remove the battery cover plate from the rear of the remote controller. (As shown in the figure)
- 2. Take out the old batteries.
- 3.Insert two new AAA1.5V dry batteries, and pay attention to the polarity.
- 4. Reinstall the battery cover plate.

★ Notes:

- When replacing the batteries, do not use old or different types of batteries, otherwise, it may cause malfunction.
- If the remote controller will not be used for a long time, please remove batteries to prevent batteries from leaking.
- The operation should be performed in its receiving range.
- It should be kept 1m away from the TV set or stereo sound sets.
- If the remote controller does not operate normally, please take the batteries out and reinsert them after 30 seconds. If it still can't operate properlyreplace the batteries.



Sketch map for replacing batteries

6.2 Brief Description of Modes and Functions

1. Summary

(1) Buzzer

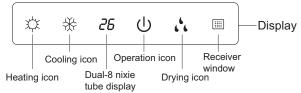
When the controller is energized or receives signal from button (emergency operation switch on air conditioner) or remote controller, the buzzer will give out a beep.

(2) Display

After energization, all icons will be displayed once. Operation icon is in red under standby status. After turning on the unit by remote controller, operation icon is bright and corresponding set operation mode icon will be displayed (Mode icon include: cooling, heating, drying).

(3) Temperature parameter

- ◆ Indoor set temperature (Tpreset)
- ◆ Indoor ambient temperature (Tamb.)
- Inner tube temperature of indoor evaporator (Ttube)



(Display content or position may be different from above graphics, please refer to actual products)

2. Introduction of Basic Mode Function

- ◆ Once the compressor is energized, there should be a minimum interval of 3 mins between two start-ups.
- ◆ If the unit is with memory function and is off before power failure, the compressor can be restarted without an interval of 3 mins; if the
- ◆ unit is on before power failure, the compressor will be restarted with an interval of 3 mins.

Once compressor is started, it won't stop within 6 mins according to the change of room temp.

(1) Auto mode

① Operation condition and process for auto mode

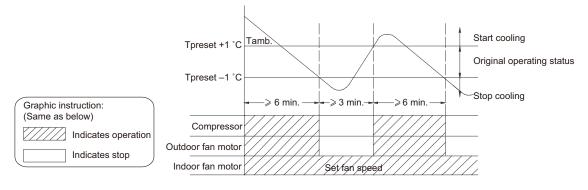
Under auto mode, the system will automatically select operation mode (cooling, heating, and fan) according to indoor ambient temperature. There swill be 30s delayed for protection between mode switchover.

- ◆ When Tamb. ≥26°C, the system operates under cooling mode; Ex-factory set temperature is 20°C.
- ◆ Heat pump unit: when Tamb. ≥22°C, the system operates under heating mode; Ex-factory set temperature is 25°C.
- ♦ 22°C <Tamb.<26°C : The system operates under fan mode if turn on the unit to enter into auto mode for the first time; If switch to auto mode from cooling, heating or fan mode, the system keeps previous operation mode; If switch to auto mode from drying mode, the system operates under fan mode.
- 2 Display: Operation icon, actual operation mode icon, set temperature (that's the display content of dual-8 nixie tube)
- ③ Protection function is same as that under each mode.

(2) Cooling mode

- ① Operation condition and process for cooling mode
- ♦ When Tamb. ≥Tset+1°C , the system operates under cooling mode. In this case, the compressor, the ODU fan motor and the IDU fan motor operates at set speed.
- ◆ When Tamb. ≤Tset-1°C , the compressor and the ODU fan motor stop, while the IDU fan motor operates at set speed.
- ♦ When Tset-1°C <Tamb. <Tset+1°C , the system will maintain its previous operation status.

In cooling mode, the 4-way valve is de-energized (4-way valve is not available for cooling only unit). Temperature setting range is $16\sim30^{\circ}$ C.

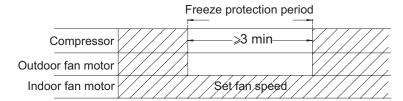


- ② Display: Operation icon, cooling icon, set temperature.
- 3 Protection function
- ◆ Freeze protection

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During operation, when controller detected that Ttube≤0°C for a consecutive period of time, the system enters into freeze protection. In that case, the compressor and the ODU fan stop operation, while the IDU operates at set fan speed. If freeze protection is released and

the compressor has been out of operation for 3 mins, the unit will resume its previous operation status.



◆ Overcurrent protection (this protection function is not available for those models whose cooling capacity ≤12000Btu/h)

During operation process, if controller detected that system current exceeds the limit value for 3s consecutively (overcurrent), only the fan operates. About 3 mins later, if overcurrent is released, the system will resume original operation.

If overcurrent protection occurs for 6 times consecutively, and resume operation time won't exceed 6min every time, overcurrent protection information will be displayed. After turning off the unit, display won't be displayed.

If turn on the unit again, the system will be restated up again. Overcurrent protection information will be eliminated.

Please refer to maintenance part for display information and disposal method for details.

◆ Locked protection to IDU fan motor

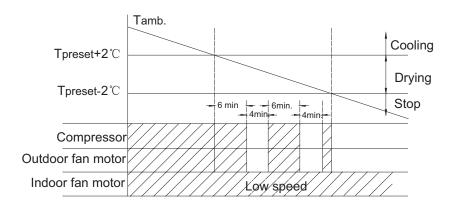
During operation of IDU fan motor, if controller detected that the rotation speed of IDU fan motor less than 300/min or stop rotation, the motor operates abnormally. In order to prevent damage to motor, controller will protect automatically, the system stops operation and blocked information of IDU fan motor will be displayed. After turning off the unit, display won't be displayed.

If turn on the unit again, the system will be restated up again. Blocked information of IDU fan motor will be eliminated. (For some models, they can only be restated up after re-energized)

Please refer to maintenance part for display information and disposal method for details.

(3) Drying mode

- ① Operation condition and process for drying mode
- ♦ When Tamb. >Tset+2°C , the system starts drying and cooling. In this case, the compressor and the ODU fan motor operate, and the IDU fan motor operates at low speed.
- ♦ When Tset-2°C ≤Tamb. ≤Tset+2°C, the system will start drying. In this case, the IDU fan motor operates at low speed; the compressor and the ODU fan motor operate for 6 minutes and stop for 4 minutes in cycle.
- ♦ When Tamb.<Tset-2℃, the compressor and the ODU fan motor stop, while the IDU fan motor runs at low speed. In drying mode, the 4-way valve is de-energized (4-way valve is not available for cooling only unit); Temperature setting range is 16~30℃. Fan speed can't be adjusted.



- 2 Display: Operation icon, drying icon, set temperature.
- ③ Protection function
- Freeze protection

During dying and cooling operation, when the controller detected that Ttube \leq 0°C for a period of time consecutively, the system will enter into freeze protection. In that case, the compressor and the ODU fan motor stops operation, while the IDU fan motor operates at low speed. When freeze protection is release and the compressor has stopped for 3min, the system will resume original operation. During drying operation, when the controller detected that Ttube \leq 0°C for a period of time consecutively, the system enters into freeze protection. In that case, the compressor, the ODU fan motor stops operation, while the IDU fan motor operates at low speed. When freeze protection is release and the compressor has stopped for 4min, the system will resume original operation.

◆ Other protection is same as that under cooling mode.

(4) Fan mode

① Operation condition and process for fan mode

In fan mode, the IDU fan motor operates at set speed, while the compressor and the ODU fan motor stop. 4-way valve is de-energized (4-way valve is not available for cooling only unit). Temperature setting range is $16\sim30^{\circ}$ C.

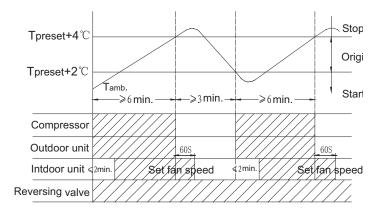
- 2 Display: Operation icon, set temperature.
- ③ Protection function

In fan mode, there are overcurrent protection and blocked protection of IDU fan motor. Please refer to corresponding protection function under cooling mode for details.

(5) Heating mode(no heating mode is not available for cooling only unit)

- ① Operation conditioner and process for heating mode
- ♦ When Tamb. ≤Tset+2°C, the system starts heating operation. In this case, the 4-way valve is energized. The compressor and the ODU fan motor operates simultaneously; The IDU fan motor will be started up after delayed for a period of time to make sure the air conditioner won't blow out cold wind.
- ♦ When Tamb.≥Tpreset+4°C , the compressor and the ODU motor stop. The 4-way valve is energized all the time. The IDU fan motor will blow residual heat after operating at set speed for a period of time consecutively to make sure the inner temperature of air conditioner won't be too high.
- ◆ When Tpreset<Tamb.<Tpreset+4°C , the system will maintain its previous operation status.

In heating mode, 4-way valve is energized. Temperature setting range is $16\sim30\,^{\circ}\mathrm{C}$.



- ② Display: Operation icon, heating icon, set temperature.
- 3 Defrosting condition and process

For ensusing heating effect, air conditioner will defrost automatically according to defrosting status on outdoor unit. Dual-8 nixie tube displays H1 during defrosting. (Heating icon is bright for a period time and then OFF for some models)

- 4 Protection function
- Overheating prevention protection

During operation, when controller is detected that Ttube>55 $^{\circ}$ C , the ODU fan motor stops operation; When Ttube is resumed normally, the ODU fan motor resumes operation.

◆ Noise silencing protection

When turning off the unit or during mode switchover, the 4-way valve is closed. In order to decrease noise, the 4-way valve will delay 2mins to be closed.

◆ Overcurrent protection (this protection function is not available for those models whose cooling capacity ≤12000Btu/h)

During operation process, if controller detected that system current exceeds the limit value for 3s consecutively(overcurrent), the system stops operation. About 3mins later, if overcurrent is released, the system will resume original operation. If overcurrent protection occurs for 6 times consecutively, and resume operation time won't exceed 6min every time, overcurrent protection information will be displayed. After turning off the unit, display won't be displayed.

If turn on the unit again, the system will be restated up again. Overcurrent protection information will be eliminated.

Please refer to maintenance part for display information and disposal method for details.

◆ Locked protection to IDU fan motor

During operation of IDU fan motor, if controller detected that the rotation speed of IDU fan motor less than 300/min or stop rotation, the motor operates abnormally. In order to prevent damage to motor, controller will protect automatically, the system stops operation and blocked information of IDU fan motor will be displayed. After turning off the unit, display won't be displayed.

If turn on the unit again, the system will be restated up again. Blocked information of IDU fan motor will be eliminated. (For some models, they can only be restated up after re-energized)

Please refer to maintenance part for display information and disposal method for details.

3. Other Control Function Introduction

(1)Timer function

Controller has general timer function and clock timer function. When you select the remote controller with general timer function, only the general timer function of controller can be activated; when you select the remote controller with clock timer, only the clock timer function of controller can be activated.

- ① General timer: The precision of general timer is 0.5hour. 24hours circulated timer can't be set.
- ♦ Timer ON: Timer ON can be set at unit OFF. If selected ON time is reached, the unit will start to operate according to previous setting status. Time setting range is 0.5~24hr in 30-minute increments.
- ◆ Timer OFF: Timer OFF can be set at unit ON. If selected OFF time is reached, the unit will stop. Time setting range is 0.5~24hr in 30-minute increments.
- ② Clock timer: The precision of clock timer is 0.5hour. 24hours circulated timer can be set.
- ◆ Timer ON: If timer ON is set during operation of the unit, the unit will continue to operate. If timer ON is set at unit OFF, upon ON time reaches, the unit will start to run according to previous setting status.
- ♦ Timer OFF: If timer OFF is set at unit OFF, the system will keep standby status. If timer OFF is set at unit ON, upon OFF time reaches, the unit will stop operation.

◆ Timer change:

Although timer has been set, the unit still can be turned on/off by pressing ON/OFF button on the remote controller. You can also reset the timer.

If timer ON and timer OFF are set at the same time during operation of the unit, the unit will keep running at current status till OFF time reaches. Upon ON time reached, the system will be turned on automatically. The unit will operate circularly like that every 24hours.

If timer ON and timer OFF are set at unit OFF status, the system keep OFF status till ON time reaches. Upon OFF time reaches, the system will be turned OFF automatically. The unit will operate circularly like that every 24hours.

(2) Emergency operation switch

After pressing this button, the system will operate according under auto mode and the IDU fan motor operates at auto speed. Swing motor operates when the IDU fan motor operates. Press this button again to turn off the unit.



(3) Sleep function

In this mode, the system will select proper sleep curve to operate according to different set temperature.

- ① If start up sleep function under cooling or drying mode, the system will increase set temperature automatically within a certain range to operate.
- ② If start up sleep function under heating mode, the system will decrease set temperature automatically within a certain range to operate.

(4) Turbo function

Turbo function can be set under cooling and heating modes. During operation of turbo function, the system operates at the maximum fan speed.

(5) Dry function

Dry function can be set under cooling and drying modes. During operation of drying function, the fan will stop operation after operating for a period of time when turning off the unit.

(6) Auto fan speed control

Auto fan speed control can be set under cooling, heating and fan mode. During operation of auto fan speed control, the IDU fan motor will adjust the fan speed (high, medium or low speed) according to ambient temperature.

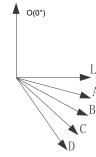
(7) Up&down swing control

① After energization, up & down swing motor will firstly have the horizontal louver rotate anticlockwise to position O to close air outlet. If swing function has not been set after start-up of the unit, horizontal louver will turn clockwise to position D in heating mode, or turn clockwise to level position L in other modes.

② If swing function is set when turning on the unit, the horizontal louver will swing between L and D. Horizontal louver has 7 swing statuses:

- ◆ Stay at position L: control by remote controller: `■
- ◆ Stay at position A: control by remote controller: `■
- ◆ Stay at position B: control by remote controller: -
- Stay at position C: control by remote controller:
- ◆ Stay at position D: control by remote controller:

 ✓
- ◆ Stop at any postion between L and D (angles between L and D are equiangular) and no display on remote controller.



- ③ When turning off the unit, horizontal louver will close at position O.
- Wing action is valid only when set swing command and the IDU fan motor is operating.

(8) Dual-8 nixie tube display

- ◆ When the air conditioner is turned on for the first time, dual-8 nixie tube defaulted to display current set temperature.
- ♦ When controller receives signal of display set temperature, dual-8 nixie tube displays set temperature. When received remote control signal is switched to indoor ambient temperature display status signal from other display status, dual-8 nixie tube will display indoor ambient temperature for 3-5s, and then turn back to display set temperature. If remote control to set other status, the display keeps the same.
- ◆ When air conditioner has a malfunction,dual-8 nixie tube will show relevant error code.

| F1 | Indoor ambient temperature sensor is open/ | | |
|-----|--|--|--|
| ГІ | short-circuited | | |
| F2 | Indoor evaporator temperature sensor is | | |
| ΓΖ | open/short-circuited | | |
| H6 | Blocked protection of IDU fan motor | | |
| C5 | Malfunction protection of jumper cap | | |
| 110 | Zero-crossing inspection circuit malfunction | | |
| U8 | of the IDU fan motor | | |

- ◆ When air conditioner defrosts automatically, dual-8 nixie tube displays "H1". (Heating icon is bright for a period time and then OFF for some models)
- ◆ If turn off light button, all display will be turned off.

(10) Memory function

- ① Power failure when turning on the unit
- ♦ Memory content: ON status, mode, up&down swing, light, set temperature, set fan speed, general timer, Fahrenheit/ Celsius
- ♦ General timer can be memorized. Time of timer is calculated again from energization.
- ◆ Clock timer can't be memorized.
- 2 Power failure when turning off the unit
- ◆ Memory content: OFF status, mode, up&down swing, light, set temperature, set fan speed, general timer, Fahrenheit/ Celsius
- ♦ General timer can be memorized. Time of timer is calculated again from energization.
- ◆ Clock timer can't be memorized.

4. Special Function

(1) Health function (for the model with health function)

During operation of the IDU fan motor, press health button on the remote controller to start health function (If there is not health button on the remote controller, the unit defaults health function ON).

(2) I Feel function (for all models, but it needs the remote controller which can set this function)

When I FEEL command is received, the controller will operate according to the ambient temperature sent by the remote controller (For defrosting and cold air prevention, the unit operates according to the ambient temperature sensed by the air conditioner). The remote controller will regularly send ambient temperature data to the controller. When the data has not been received for a long time, the unit will operate according to the temperature sensed by the air conditioner. If I FEEL function is not set, the ambient temperature will be that sensed by the air conditioner.

Part II: Installation and Maintenance

7. Notes for Installation and Maintenance

Safety Precautions: Important!

Please read the safety precautions carefully before installation and maintenance.

The following contents are very important for installation and maintenance.

Please follow the instructions below.

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



Warnings

Electrical Safety Precautions:

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

- 10. If the power cord or connection wire is not long enough, please get the specialized power cord or connection wire from the manufacture or distributor. Prohibit prolong the wire by yourself.
- 11. For the air conditioner without plug, an air switch must be installed in the circuit. The air switch should be all-pole parting and the contact parting distance should be more than 3mm.
- 12. Make sure all wires and pipes are connected properly and the valves are opened before energizing.
- 13. Check if there is electric leakage on the unit body. If yes, please eliminate the electric leakage.
- 14. Replace the fuse with a new one of the same specification if it is burnt down; don't replace it with a cooper wire or conducting wire.
- 15. If the unit is to be installed in a humid place, the circuit breaker must be installed.

Installation Safety Precautions:

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

Refrigerant Safety Precautions:

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

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

Main Tools for Installation and Maintenance

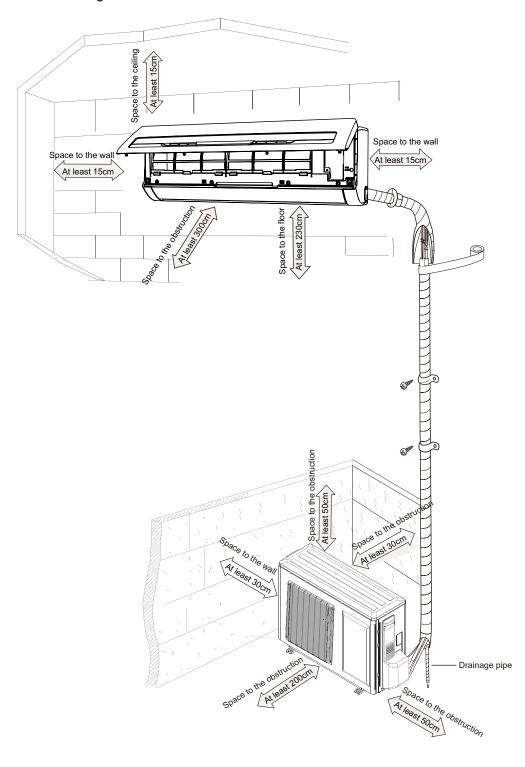


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8. Installation

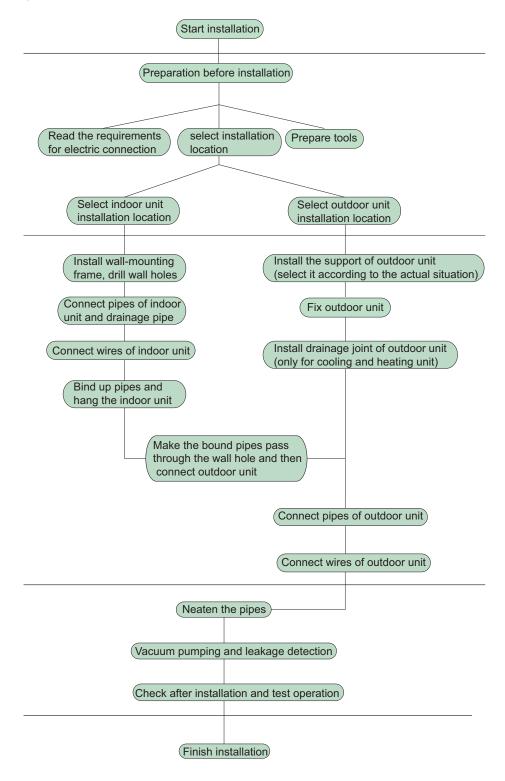
8.1 Installation Dimension Diagram

Installation dimension diagram



Installation and Maintenance

Installation procedures



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

8.2 Installation Parts-checking

| No. | Name | No. | Name |
|-----|-------------------|-----|-----------------------|
| 1 | Indoor unit | 8 | Sealing gum |
| 2 | Outdoor unit | 9 | Wrapping tape |
| 3 | Connection pine | 10 | Support of outdoor |
| ٥ | Connection pipe | 10 | unit |
| 4 | Drainage pipe | 11 | Fixing screw |
| 5 | Wall-mounting | 12 | Drainage plug(cooling |
| 5 | frame | 12 | and heating unit) |
| 6 | Connecting | 13 | Owner's manual, |
| 0 | cable(power cord) | 13 | remote controller |
| 7 | Wall pipe | | |

Note:

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

8.3 Selection of Installation Location

1. Basic Requirement:

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

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

2. Indoor Unit:

- (1) There should be no obstruction near air inlet and air outlet.
- (2) Select a location where the condensation water can be dispersed easily and won't affect other people.
- (3) Select a location which is convenient to connect the outdoor unit and near the power socket.
- (4) Select a location which is out of reach for children.
- (5) The location should be able to withstand the weight of indoor unit and won't increase noise and vibration.
- (6) The height of indoor unit should be between 230-260cm from the floor in order to provide sufficient space for maintenance.
- (7) Don't install the indoor unit right above the electric appliance.
- (8) The appliance shall not be installed in the laundry.

3. Outdoor unit:

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

8.4 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.

| Air-conditioner | Air switch capacity |
|-----------------|---------------------|
| 07K/09K | 10A |
| 12K | 16A |

- (4) Properly connect the live wire, neutral wire and grounding wire of power socket.
- (5) Be sure to cut off the power supply before proceeding any work related to electricity and safety.
- (6) Do not put through the power before finishing installation.
- (7) For appliances with type Y attachment, the instructions shall contain the substance of 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 grounding with specialized grounding device by a professional. Please make sure it is always grounded effectively, otherwise it may cause electric shock.
- (2) The yellow-green wire in air conditioner is grounding wire, which can't be used for other purposes.
- (3) The grounding resistance should comply with national electric safety regulations.
- (4) The appliance must be positioned so that the plug is
- (5) An all-pole disconnection switch having a contact separation of at least 3mm in all poles should be connected in fixed wiring.
- (6) Including an air switch with suitable capacity, please note the following table. Air switch should be included magnet buckle and heating buckle function, it can protect the circuit-short and overload. (Caution: please do not use the fuse only for protect the circuit)

8.5 Installation of Indoor Unit

1. Choosing Installation location

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

2. Install Wall-mounting Frame

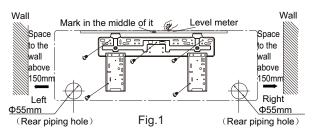
- (1) Hang the wall-mounting frame on the wall; adjust it in horizontal position with the level meter and then point out the screw fixing holes on the wall.
- (2) Drill the screw fixing holes on the wall with impact drill (the specification of drill head should be the same as the plastic expansion particle)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

in the holes.

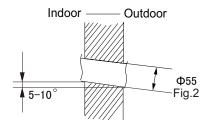
(3) Fix the wall-mounting frame on the wall with tapping screws (ST4.2X25TA) and then check if the frame is firmly installed by pulling the frame. If the plastic expansion particle is loose, please drill another fixing hole nearby.

3. Install Wall-mounting Frame

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



(2) Open a piping hole with the diameter of Φ 55 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)

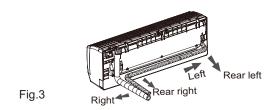


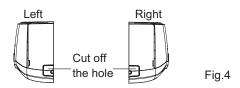
♠ Note:

- (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

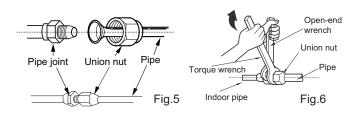
- (1) The pipe can be led out in the direction of right, rear right, left or rear left.(As show in Fig.3)
- (2) When selecting leading out the pipe from left or right, please cut off the corresponding hole on the bottom case.(As show in Fig.4)

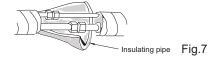




5. Connect the Pipe of Indoor Unit

- (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)



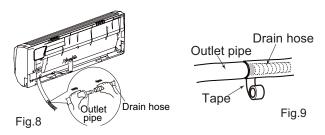


Refer to the following table for wrench moment of force:

| Hex nut diameter(mm) | Tightening torque(N.m) |
|----------------------|------------------------|
| Ф6 | 15~20 |
| Ф9.52 | 30~40 |
| Ф12 | 45~55 |
| Ф16 | 60~65 |
| Ф19 | 70~75 |

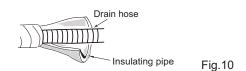
6. Install Drain Hose

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



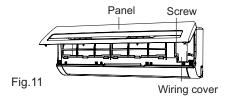
Note:

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

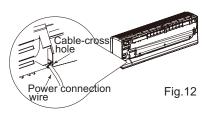


7. Connect Wire of Indoor Unit

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

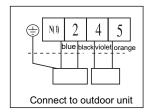


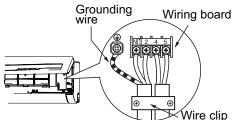
(2) Make the power connection wire go through the cable-cross hole at the back of indoor unit and then pull it out from the front side.(As show in Fig.12)



(3) Remove the wire clip; connect the power connection wiresignal control wire(only for cooling and heating unit) 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)

Cooling and heating unit





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

Fig.13

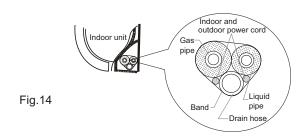
- (4) Put wiring cover back and then tighten the screw.
- (5) Close the panel.

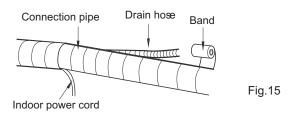
⚠ Note:

- (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





⚠ Note:

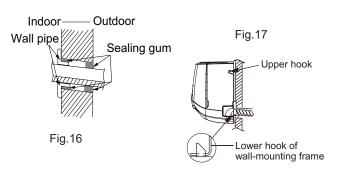
- (1) The power cord and control wire can't be crossed or winding.
- (2) The drain hose should be bound at the bottom.

9. Hang the Indoor Unit

- (1) Put the bound pipes in the wall pipe and then make them pass through the wall hole.
- (2) Hang the indoor unit on the wall-mounting frame.
- (3) Stuff the gap between pipes and wall hole with sealing gum.
- (4) Fix the wall pipe.

(As show in Fig.16)

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



♠ Note:

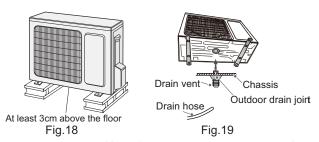
Do not bend the drain hose too excessively in order to prevent blocking.

8.6 Installation of Outdoor Unit

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

⚠ Note:

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



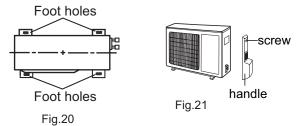
2. Install Drain Joint(Only for cooling and heating unit)

- (1) Connect the outdoor drain joint into the hole on the chassis.
- (2) Connect the drain hose into the drain vent.

(As show in Fig.19)

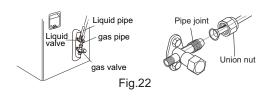
3. Fix Outdoor Unit

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



4. Fix Outdoor Unit

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



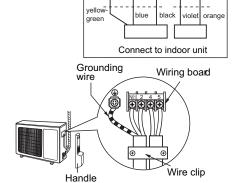
- (3) Pretightening the union nut with hand.
- (4) Tighten the union nut with torque wrench .

Refer to the following table for wrench moment of force:

| Hex nut diameter(mm) | Tightening torque(N.m) |
|----------------------|------------------------|
| Ф6 | 15~20 |
| Ф9.52 | 30~40 |
| Ф12 | 45~55 |
| Ф16 | 60~65 |
| Ф19 | 70~75 |

5. Connect Outdoor Electric Wire

(1) Remove the wire clip; connect the power connection wire and signal control wire (only for cooling and heating unit) to the wiring terminal according to the color; fix them with screws.(As show in Fig.23)



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

Fig.23

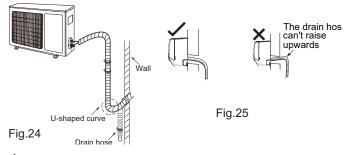
(2) Fix the power connection wire and signal control wire with wire clip (only for cooling and heating unit).

⚠ Note

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

6. Neaten the Pipes

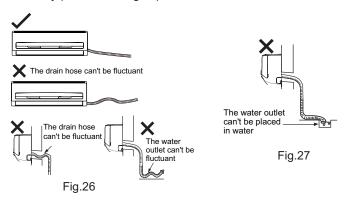
- (1) The pipes should be placed along the wall, bent reasonably and hidden possibly. Min. semidiameter of bending the pipe is 10cm.
- (2) If the outdoor unit is higher than the wall hole, you must set a U-shaped curve in the pipe before pipe goes into the room, in order to prevent rain from getting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



⚠ Note:

- (1) The through-wall height of drain hose shouldn't be higher than the outlet pipe hole of indoor unit.(As show in Fig.25)
- (2) Slant the drain hose slightly downwards. The drain hose can't be curved, raised and fluctuant, etc.(As show in Fig.26)

(3) The water outlet can't be placed in water in order to drain smoothly.(As show in Fig.27)

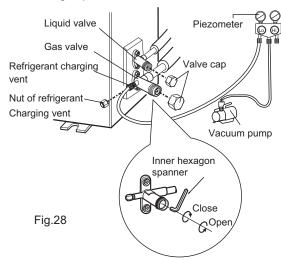


8.7 Vacuum Pumping and Leak Detection

1. Use Vacuum Pump

- (1) Remove the valve caps on the liquid valve and gas valve and the nut of refrigerant charging vent.
- (2) Connect the charging hose of piezometer to the refrigerant charging vent of gas valve and then connect the other charging hose to the vacuum pump.
- (3) Open the piezometer completely and operate for 10-15min to check if the pressure of piezometer remains in -0.1MPa.
- (4) Close the vacuum pump and maintain this status for 1-2min to check if the pressure of piezometer remains in -0.1MPa. If the pressure decreases, there may be leakage.
- (5) Remove the piezometer, open the valve core of liquid valve and gas valve completely with inner hexagon spanner.
- (6) Tighten the screw caps of valves and refrigerant charging vent.

(As show in Fig.28)



2. Leakage detection

(1) With leakage detector:

Check if there is leakage with leakage detector.

(2) With soap water:

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

8.8 Check After Installation and Test Operation

1. Check after Installation

Check according to the following requirement after finishing installation.

| NO. | Items to be checked | Possible malfunction | |
|------|------------------------------|-----------------------------------|--|
| INO. | | | |
| 1 | Has the unit been | The unit may drop, shake or | |
| | installed firmly? | emit noise. | |
| 2 | Have you done the | It may cause insufficient cooling | |
| | refrigerant leakage test? | (heating) capacity. | |
| 3 | Is heat insulation of | It may cause condensation and | |
| | pipeline sufficient? | water dripping. | |
| 4 | Is water drained well? | It may cause condensation and | |
| | 13 Water drained weir: | water dripping. | |
| | Is the voltage of power | | |
| 5 | supply according to the | It may cause malfunction or | |
| 5 | voltage marked on the | damage the parts. | |
| | nameplate? | | |
| | Is electric wiring and | It may acres malfunction or | |
| 6 | pipeline installed | It may cause malfunction or | |
| | correctly? | damage the parts. | |
| 7 | Is the unit grounded | It may cause electric leakage | |
| ′ | securely? | It may cause electric leakage. | |
| | Does the power cord | It may cause malfunction or | |
| 8 | follow the specification? | damage the parts. | |
| | Is there any obstruction | It may cause insufficient cooling | |
| 9 | in air inlet and air outlet? | (heating). | |
| | The dust and | | |
| ,, | sundries caused | It may cause malfunction or | |
| 10 | during installation are | damaging the parts. | |
| | removed? | | |
| | The gas valve and liquid | | |
| 11 | valve of connection pipe | It may cause insufficient cooling | |
| '' | are open completely? | (heating) capacity. | |
| | are sport completely: | | |

2. Test operation

- (1) Preparation of test operation
- The client approves the air conditioner installation.
- Specify the important notes for air conditioner to the client.
- (2) Method of test operation
- Put through the power, press ON/OFF button on the remote controller to start operation.
- Press MODE button to select AUTO, COOL, DRY, FAN and HEAT to check whether the operation is normal or not.

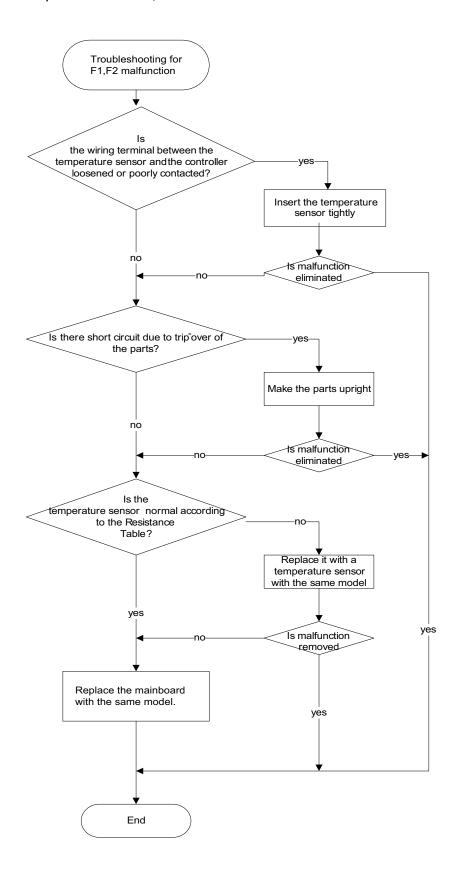
9. Maintenance

9.1 Error Code

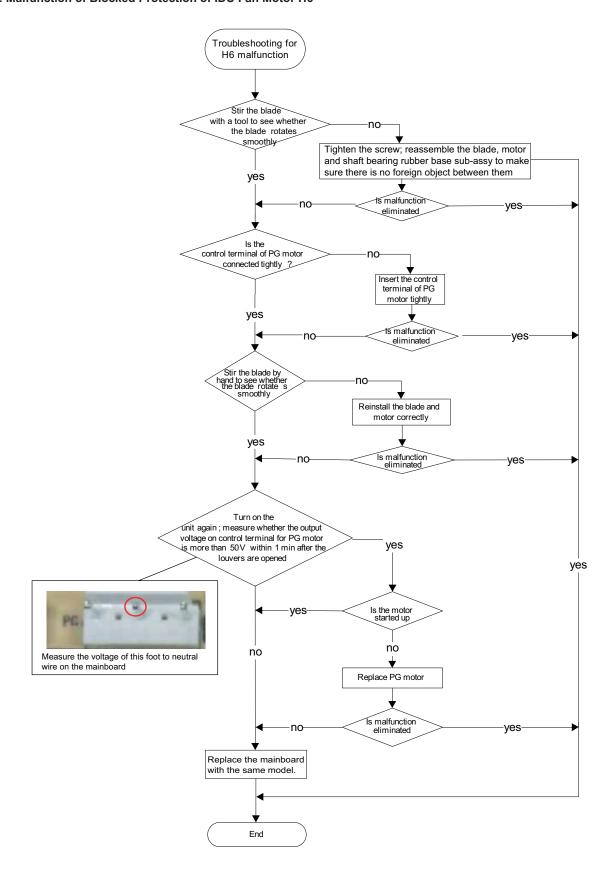
| | | Displa | ay Method | of Indoo | r Unit | | |
|-----|--|--------|--------------------------------|--------------------------------|--------|--|--|
| | | Вюри | Indicator | | | | |
| | No. Malfunction Name | | the unit | | - | | Possible Causes(For specific maintenance |
| No. | | Error | during bl | | | A/C Status | method, please refer to the following procedure |
| | | Code | _ | _ | | 7.00 Status | of troubleshooting) |
| | | | Operation | | | | 3, |
| | | | Lamp | Lamp | Lamp | | |
| 1 | Indoor ambient temperature sensor is open/short- circuited | F1 | Zamp | Blinks once every 3s | Lamp | The unit will stop operation as it reaches the temperature point. During cooling and drying operation, except IDU fan motor operates, other loads stop operation; During heating operation, the system stops operation. | 1. The wiring terminal between indoor ambient temperature sensor and main board is loosened or poorly contacted; 2. There's short circuit due to trip-over of the parts on controller; 3.Indoor ambient temperature sensor is damaged (Please check it by referring to the resistance table for temperature sensor) 4. Main board is broken. |
| 2 | Indoor evaporator temperature sensor is open/short- circuited | F2 | | Blinks twice every 3s | | The unit will stop operation as it reaches the temperature point. During cooling and drying operation, except IDU fan operates, other loads stop operation; During heating operation, the complete unit stops operation. | 1. The wiring terminal between indoor evaporator temperature sensor and main board is loosened or poorly contacted; 2. There's short circuit due to the trip-over of the parts on controller; 3.Indoor evaporator temperature sensor is damaged (Please check it by referring to the resistance table for temperature sensor) 4. Main board is broken. |
| 3 | Blocked protection of IDU fan motor | Н6 | Blinks 11 times every 3s | | | current position. | 1.The feedback terminal of PG motor is not connected tightly. 2.The control terminal of PG motor is not connected tightly. 3.Fan blade rotates unsmoothly. 4.Malfunction of motor 5.Main board is broken. |
| 4 | Malfunction protection of jumper cap | C5 | Blinks 15 times every 3s | | | Operation of remote controller or control panel is available, but the unit won't act. | 1.There's not jumper cap on the main board. 2.Jumper cap is not inserted properly and tightly. 3.Jumper cap is damaged. 4.Controller is damaged. |
| 6 | Zero-crossing inspection circuit malfunction of the IDU fan motor | U8 | Blinks 17 times every 3s | | | Operation of remote controller or control panel is available, but the unit won't act. | 1.Quick de-energization and energization. Wrong judgement by the controller because the electric-discharging of capacitor is slow. 2.Zero-crossing inspection circuit of main board for controller is abnormal. |

9.2 Procedure of Troubleshooting

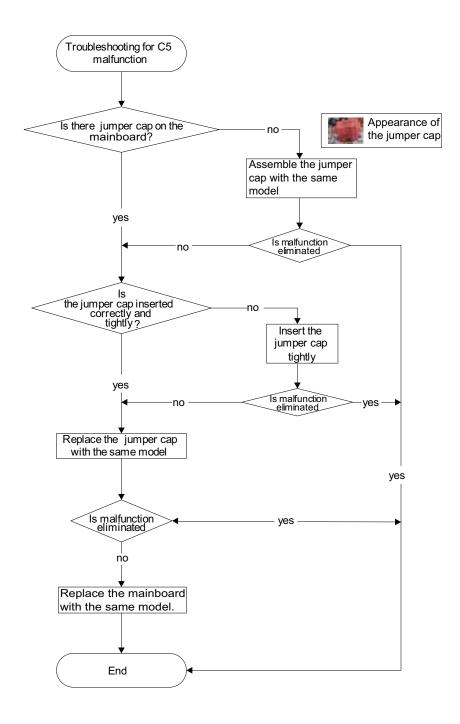
1. Malfunction of Temperature Sensor F1, F2



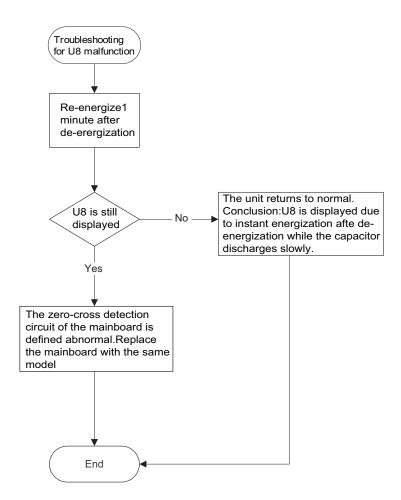
2. Malfunction of Blocked Protection of IDU Fan Motor H6



3. Malfunction of Protection of Jumper Cap C5



4. Malfunction of Zero-crossing Inspection Circuit Malfunction of the IDU Fan Motor U8



9.3 Maintenance Method for Normal Malfunction

1. Air Conditioner can't be Started up

| Possible Causes | Discriminating Method (Air conditioner Status) | Troubleshooting |
|---|---|--|
| | After energization, operation indicator isn't bright | 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 | 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 |
| intecinc leakage for all conglioner | After energization, room circuit breaker trips off at once | Make sure the air conditioner is grounded reliably Make sure wires of air conditioner is connected correctly Check the wiring inside air conditioner. Check whether the insulation layer of power cord is damaged; if yes, place the power cord. |
| Model selection for air switch is improper | After energization, air switch trips off | Select proper air switch |
| Malfunction of remote controller | After energization, operation indicator is bright, while no display on remote controller or buttons have no action. | Replace batteries for remote controller Repair or replace remote controller |

2. Poor Cooling (Heating) for Air Conditioner

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

| Possible causes | Discriminating method (air conditioner status) | Troubleshooting |
|--|--|--|
| _ | 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. | |
| 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 | | 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 |
|---------------------------------------|--|--|
| | check the wiring status according to circuit | 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. | |
| 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 |
| ILIOH OF COMPRESSOR IS PHIRDE OFF | 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 |
| Diairi pipe is blocked | | pipe |
| Drain pipe is broken | Water leaking from drain pipe | Replace drain pipe |
| Wranning is not tight | Water leaking from the pipe connection place of | wrap it again and bundle it tightly |
| Wrapping is not tight | indoor unit | wrap it again and bundle it lightly |

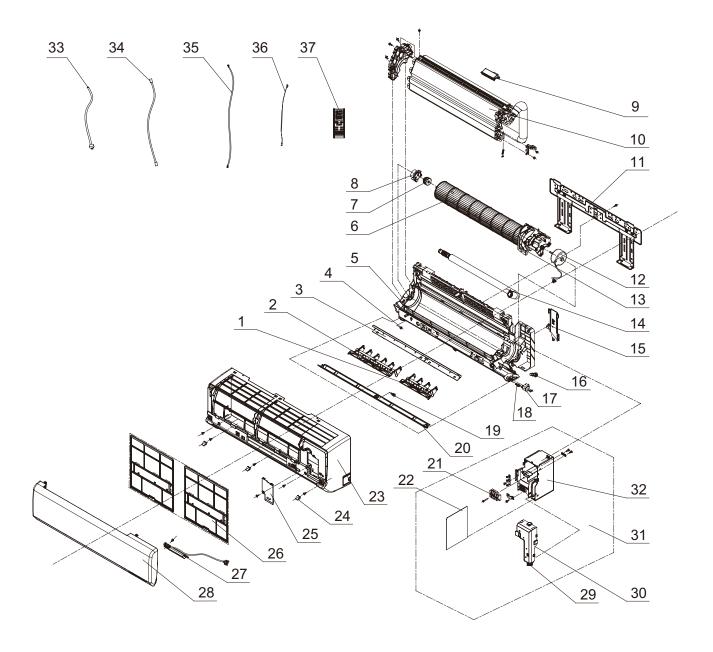
7. Abnormal Sound and Vibration

| 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 |
| _ | During heating, the way valve has abnormal electromagnetic sound | Replace magnetic coil |
| Abnormal shake of compressor | Outdoor unit gives out abnormal sound | Adjust the support foot mat of compressor, tighten the bolts |
| Abnormal sound inside the compressor | Abnormal sound inside the compressor | If add too much refrigerant during maintenance, please reduce refrigerant properly. Replace compressor for other circumstances. |

10. Exploded View and Parts' List

10.1 Indoor Unit

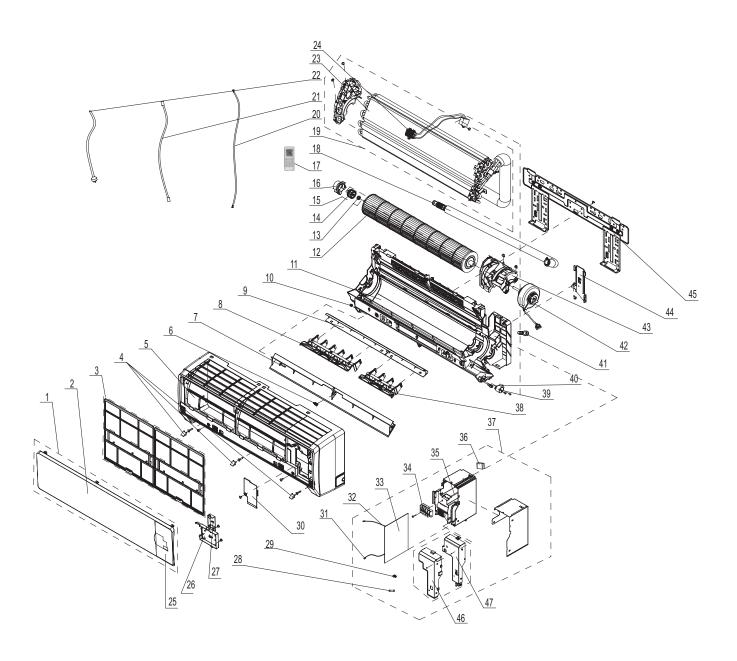
GWH07PA-K3NNA3B/I GWH09PA-K3NNA3B/I



| | Description | Part Code Part Code | | |
|-----|-------------------------------|---------------------|-------------------|-----|
| NO. | Description | GWH07PA-K3NNA3B/I | GWH09PA-K3NNA3B/I | Qty |
| | Product Code | CA416N00800 | CA416N00900 |] |
| 1 | Air Louver 1 | 1051211302 | 1051211302 | 1 |
| 2 | Air Louver 2 | 1051211402 | 1051211402 | 1 |
| 3 | Helicoid Tongue | 2611220202 | 2611220202 | 1 |
| 4 | Left Axile Bush | 10512037 | 10512037 | 1 |
| 5 | Rear Case assy | 22202254 | 22202254 | 1 |
| 6 | Cross Flow Fan | 10352034 | 10352034 | 1 |
| 7 | O-Gasket of Cross Fan Bearing | 76512203 | 76512203 | 1 |
| 8 | Ring of Bearing | 26152022 | 26152022 | 1 |
| 9 | Cold Plasma Generator | 1114001602 | 1114001602 | 1 |
| 10 | Evaporator Assy | 01002577 | 01002577 | 1 |
| 11 | Wall Mounting Frame | 01252231 | 01252231 | 1 |
| 12 | Fan Motor | 15012115 | 15012115 | 1 |
| 13 | Motor Press Plate | 26112201 | 26112201 | 1 |
| 14 | Drainage Hose | 0523001408 | 0523001408 | 1 |
| 15 | Connecting pipe clamp | 26112199 | 26112199 | 1 |
| 16 | Rubber Plug (Water Tray) | 76712012 | 76712012 | 1 |
| 17 | Stepping Motor | 1521212901 | 1521212901 | 1 |
| 18 | Crank | 10582070 | 10582070 | 1 |
| 19 | Axile Bush | 10542036 | 10542036 | 1 |
| 20 | Guide Louver | 10512268 | 10512268 | 1 |
| 21 | Terminal Board | 42010268 | 42010268 | 1 |
| 22 | Main Board | 30145020 | 30135576 | 1 |
| 23 | Front Case | 20022241 | 20022241 | 1 |
| 24 | Screw Cover | 24252016 | 24252016 | 3 |
| 25 | Electric Box Cover2 | 2012216801 | 2012216801 | 1 |
| 26 | Filter Sub-Assy | 11122095 | 11122095 | 2 |
| 27 | Display Board | 30565212 | 30565212 | 1 |
| 28 | Front Panel Assy | 20022309 | 20022309 | 1 |
| 29 | Electric Box Cover | 22242112 | 22242112 | 1 |
| 30 | Shield Box (Electric Box) | 01592116 | 01592116 | 1 |
| 31 | Electric Box Assy | 20402474 | 20402473 | 1 |
| 32 | Electric Box | 20112091 | 20112091 | 1 |
| 33 | Power Cord | 4002046417 | 4002046417 | 1 |
| 34 | Connecting Cable | 40020536 | 40020536 | 0 |
| 35 | Connecting Cable | 40020540 | 40020540 | 0 |
| 36 | Temperature Sensor | 390000453 | 390000453 | 1 |
| 37 | Remote Controller | 305100413 | 305100413 | 1 |

The data above are subject to change without notice.

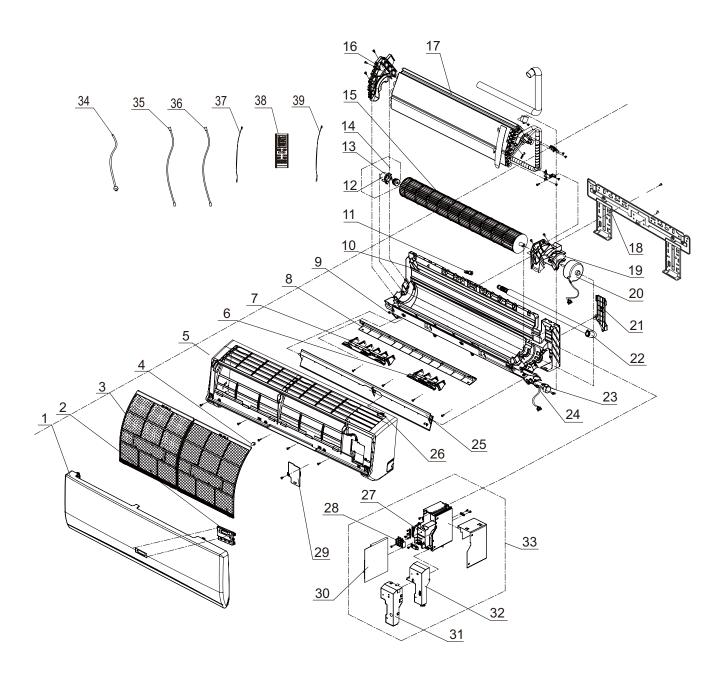
GWH07NA-K3NNB3B/I GWH09NA-K3NNB3D/I



| NO. | Description | Part Code GWH07NA-K3NNB3B/I | GWH09NA-K3NNB3D/I | Qty |
|-----|-------------------------------|--------------------------------|-------------------|-----|
| | Product Code | CA138N05800 | CA138N03600 | ", |
| 1 | Front Panel Assy | 20012462 | 20012462 | 1 |
| 2 | Front Panel | 20012452S | 20012452S | 1 |
| 3 | Filter Sub-Assy | 11122095 | 11122095 | 2 |
| 4 | Screw Cover | 24252016 | 24252016 | 3 |
| 5 | Front Case | 20022286 | 20022286 | 1 |
| 6 | Axile Bush | 10542036 | 10542036 | 1 |
| 7 | Guide Louver | 10512162 | 10512162 | 1 |
| 8 | Air Louver 2 | 10512114 | 10512114 | 1 |
| 9 | Helicoid tongue | 26112202 | 26112202 | 1 |
| 10 | Axile Bush | 10542704 | 10542704 | 1 |
| 11 | Rear Case assy | 22202135 | 22202135 | 1 |
| 12 | Cross Flow Fan | 10352034 | 10352034 | 1 |
| 13 | Fan Bearing | 7651221001 | 7651221001 | 1 |
| 14 | O-Gasket of Cross Fan Bearing | 76512203 | 76512203 | 1 |
| 15 | O-Gasket sub-assy of Bearing | 7651205102 | 7651205102 | 1 |
| 16 | Ring of Bearing | 26152022 | 26152022 | 1 |
| 17 | Remote Controller | 30510468 | 30510468 | 1 |
| 18 | Drainage hose | 523001408 | 523001408 | 1 |
| 19 | Evaporator Assy | 01002577 | 01002577 | 1 |
| 20 | Connecting Cable | 40020536 | 40020536 | 0 |
| 21 | Connecting Cable | 40020540 | 40020540 | 0 |
| 22 | Power Cord | 4002046417 | 4002046417 | 1 |
| 23 | Evaporator Sub-Assy | 01032472 | 01032472 | 1 |
| 24 | Cold Plasma Generator | 1114001602 | 1114001602 | 1 |
| 25 | Decorate Piece | 68012060 | 68012060 | 1 |
| 26 | Display Board | 30565088 | 30565088 | 1 |
| 27 | Display Cover | 20122122 | 20122122 | 1 |
| 28 | Fuse | 46010055 | 46010055 | 1 |
| 29 | Jumper | 4202300115 | 4202300114 | 1 |
| 30 | Electric Box Cover2 | 20122075 | 20122075 | 1 |
| 31 | Temperature Sensor | 390000453 | 390000453 | 1 |
| 32 | Temperature Sensor | 390000597 | 390000597 | 1 |
| 33 | Main Board | 30135357 | 30135357 | 1 |
| 34 | Terminal Board | 42010268 | 42010268 | 1 |
| 35 | Electric Box | 20112091 | 20112091 | 1 |
| 36 | Capacitor CBB61 | 33010002 | 33010020 | 1 |
| 37 | Electric Box Assy | 20102000028 | 2613712 | 1 |
| 38 | Air Louver 1 | 10512113 | 10512113 | 1 |
| 39 | Stepping Motor | 1521212901 | 1521212901 | 1 |
| 40 | Crank | 10582070 | 10582070 | 1 |
| 41 | Rubber Plug (Water Tray) | 76712012 | 76712012 | 1 |
| 42 | Fan Motor | 15012115 | 1501315604 | 1 |
| 43 | Motor Press Plate | 26112201 | 26112201 | 1 |
| 44 | Connecting pipe clamp | 26112199 | 26112199 | 1 |
| 45 | Wall Mounting Frame | 01252231 | 01252231 | 1 |
| 46 | ShieldBox (Electric Box) | 01592080 | 01592080 | 1 |
| 47 | Electric Box Cover | 20122114 | 20122114 | 1 |

The data above are subject to change without notice.

GWH12PC-K3NNA3A/I GWH12PC-K3NNA4A/I GWH12PC-K3NNA5A/I

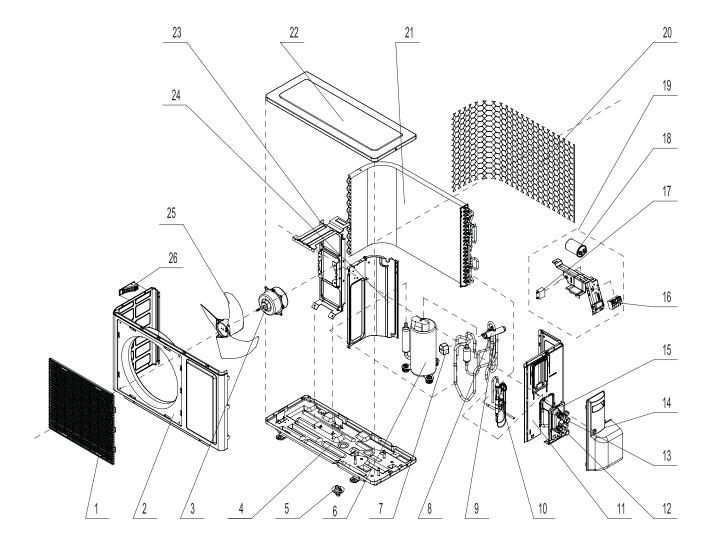


| | | | Part Code | | |
|-----|--|-------------------|-------------------|-------------------|-----|
| NO. | Description | GWH12PC-K3NNA3A/I | GWH12PC-K3NNA4A/I | GWH12PC-K3NNA5A/I | Qty |
| | Product Code | CA416N00700 | CA418N01300 | CA417N01100 | |
| 1 | Front Panel Assy | 20022267 | 20022343 | 20022360 | 1 |
| 2 | Display Board | 30565212 | 30565224 | 30565038 | 1 |
| 3 | Filter Sub-Assy | 1112220403 | 1112220403 | 1112220403 | 2 |
| 4 | Screw Cover | 24252016 | 24252016 | 24252016 | 1 |
| 5 | Front Case Sub-assy | 20022361 | 20022361 | 20022361 | 1 |
| 6 | Air Louver 1 | 1051215603 | 1051215603 | 1051215603 | 1 |
| 7 | Air Louver 2 | 1051215503 | 1051215503 | 1051215503 | 1 |
| 8 | Helicoid Tongue | 2611216302 | 2611216302 | 2611216302 | 1 |
| 9 | Left Axile Bush | 10512037 | 10512037 | 10512037 | 1 |
| 10 | Rear Case assy | 22202467 | 22202467 | 22202467 | 1 |
| 11 | Rubber Plug (Water Tray) | 76712012 | 76712012 | 76712012 | 1 |
| 12 | Ring of Bearing | 26152022 | 1 | 26152022 | 1 |
| 13 | O-Gasket of Cross Fan Bearing | 76512051 | 76512203 | 76512203 | 1 |
| 14 | O-Gasket sub-assy of Bearing | 76512203 | 76512051 | 7651205102 | 1 |
| 15 | Cross Flow Fan | 10352017 | 10352017 | 10352017 | 1 |
| 16 | Evaporator Support | 24212091 | 24212091 | 24212091 | 1 |
| 17 | Evaporator Assy | 0100274401 | 0100274401 | 0100274401 | 1 |
| 18 | Wall Mounting Frame | 01252021 | 01252021 | 01252021 | 1 |
| 19 | Motor Press Plate | 26112161 | 26112161 | 26112161 | 1 |
| 20 | Fan Motor | 150120874 | 150120874 | 150120874 | 1 |
| 21 | Pipe Clamp | 2611216401 | 2611216401 | 2611216401 | 1 |
| 22 | Drainage Hose | 0523001401 | 0523001401 | 0523001401 | 1 |
| 23 | Step Motor | 1521212901 | 1521212901 | 1521212901 | 1 |
| 24 | Crank | 10582070 | 10582070 | 10582070 | 1 |
| 25 | Guide Louver | 10512203 | 10512203 | 10512203 | 1 |
| 26 | Axile Bush | 10542036 | 10542036 | 10542036 | 1 |
| 27 | Electric Box | 2011216701 | 2011216701 | 2011216701 | 1 |
| 28 | Terminal Board | 42010268 | 42010268 | 42010268 | 1 |
| 29 | Electric Box Cover2 | 20122075 | 20122075 | 20122075 | 1 |
| 30 | Main Board | 30135932 | 30135550 | 30135550 | 1 |
| 31 | Shield Cover of Electric Box Sub-assy | 0159207301 | 0159207301 | 0159207301 | 1 |
| 32 | Electric Box Cover1 | 22242135 | 22242135 | 22242135 | 1 |
| 33 | Electric Box Assy | 20402450 | 20403039 | 20402910 | 1 |
| 34 | Power Cord | 4002048718 | 4002046417 | 4002046417 | 1 |
| 35 | Connecting Cable | 40020540 | 40020540 | 40020540 | 0 |
| 36 | Connecting Cable | 40020536 | 40020536 | 40020536 | 0 |
| 37 | Ambient Temperature Sensor | 390000453 | 390000591 | 390000591 | 1 |
| 38 | Remote Controller | 30510425 | 305100413 | 305100413 | 1 |
| 39 | Temperature Sensor | 390000591 | 390000453 | 390000453 | 1 |

The data above are subject to change without notice.

10.2 Outdoor Unit

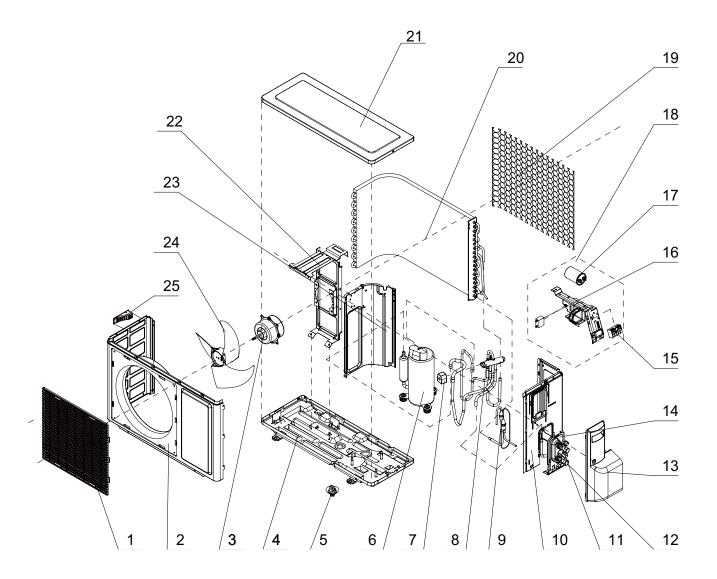
GWH07PA-K3NNA3B/O



| | Description Part Code | Part Code | |
|-----|---------------------------|-------------------|-----|
| NO. | Description | GWH07PA-K3NNA3B/O | Qty |
| | Product code | CA416W00800 | |
| 1 | Front Grill | 22263002 | 1 |
| 2 | Front Panel | 01533255P | 1 |
| 3 | Fan Motor | 1501315604 | 1 |
| 4 | Chassis Sub-assy | 0280322901P | 1 |
| 5 | Drainage Connecter | 06123401 | 1 |
| 6 | Compressor and Fittings | 00106071 | 1 |
| 7 | Magnet Coil | 43000400 | 1 |
| 8 | 4-Way Valve | 430004022 | 1 |
| 9 | 4-Way Valve Assy | 03073128 | 1 |
| 10 | Capillary Sub-assy | 03163270 | 1 |
| 11 | Right Side Plate Sub-Assy | 01303243 | 1 |
| 12 | Valve | 07100003 | 1 |
| 13 | Valve | 07100005 | 1 |
| 14 | Big Handle | 26233042 | 1 |
| 15 | Valve Support | 01713041 | 1 |
| 16 | Terminal Board | 42010265 | 1 |
| 17 | Capacitor CBB61 | 33010020 | 1 |
| 18 | Capacitor CBB65 | 33000081 | 1 |
| 19 | Electric Box Assy | 02613870 | 1 |
| 20 | Rear Grill | 11123204 | 1 |
| 21 | Condenser Assy | 01163882 | 1 |
| 22 | Top Cover Plate | 01253045P | 1 |
| 23 | Motor Support Sub-Assy | 01703019 | 1 |
| 24 | Clapboard Sub-Assy | 01233179 | 1 |
| 25 | Axial Flow Fan | 10333002 | 1 |
| 26 | Small Handle | 26233100 | 1 |

Above data is subject to change without notice.

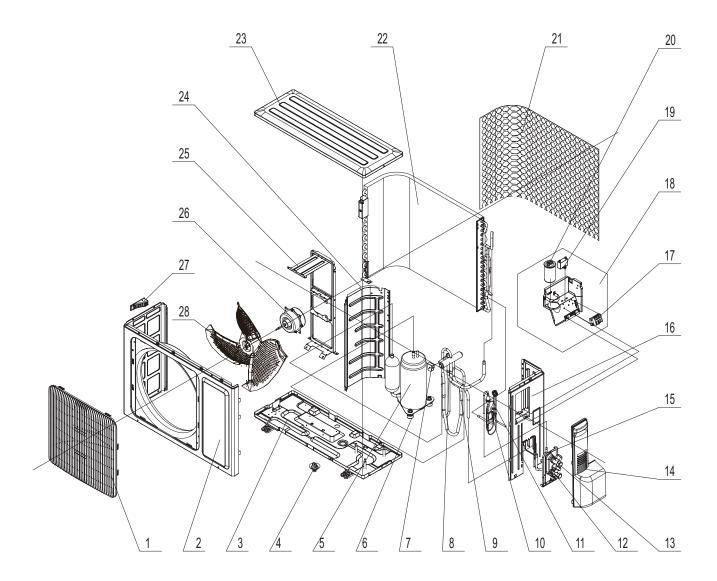
GWH09PA-K3NNA3B/O



| | Description | Part Code | |
|-----|---------------------------|-------------------|-----|
| NO. | Description | GWH09PA-K3NNA3B/O | Qty |
| | Product code | CA416W00900 | |
| 1 | Front Grill | 22263002 | 1 |
| 2 | Front Panel | 01533255P | 1 |
| 3 | Fan Motor | 1501315604 | 1 |
| 4 | Chassis Sub-assy | 02803266P | 1 |
| 5 | Drainage Connecter | 06123401 | 1 |
| 6 | Compressor and Fittings | 00101260 | 1 |
| 7 | Magnet Coil | 4300040047 | 1 |
| 8 | 4-Way Valve Assy | 03073147 | 1 |
| 9 | Capillary Sub-assy | 03163303 | 1 |
| 10 | Right Side Plate Sub-Assy | 01303243 | 1 |
| 11 | Cut off Valve | 07130239 | 1 |
| 12 | Valve | 07100005 | 1 |
| 13 | Big Handle | 26233042 | 1 |
| 14 | Valve Support | 01713041 | 1 |
| 15 | Terminal Board | 42010265 | 1 |
| 16 | Capacitor CBB61 | 33010020 | 1 |
| 17 | Capacitor CBB65 | 3300008101 | 1 |
| 18 | Electric Box Assy | 02613712 | 1 |
| 19 | Rear Grill | 11123204 | 1 |
| 20 | Condenser Assy | 01163883 | 1 |
| 21 | Top Cover Plate | 01253045P | 1 |
| 22 | Motor Support Sub-Assy | 01703054 | 1 |
| 23 | Clapboard Sub-Assy | 01233179 | 1 |
| 24 | Axial Flow Fan | 10333002 | 1 |
| 25 | Small Handle | 26233100 | 1 |

Above data is subject to change without notice.

GWH12PC-K3NNA3A/O



| NO. | Description Part Code GWH12PC-K3NNA3A/O | Part Code | |
|-----|---|-------------------|-----|
| | | GWH12PC-K3NNA3A/O | Qty |
| | Product Code | CA416W00700 | |
| 1 | Front grill | 22413433 | 1 |
| 2 | Front Panel | 01533034P | 1 |
| 3 | Chassis Sub-assy | 02803253P | 1 |
| 4 | Drainage Connecter | 06123401 | 1 |
| 5 | Compressor and Fittings | 00103281 | 1 |
| 6 | Compressor Gasket | 76711004 | 3 |
| 7 | Magnet Coil | 430004002 | 1 |
| 8 | 4-Way Valve Assy | 03073140 | 1 |
| 9 | 4-way Valve | 430004022 | 1 |
| 10 | StrainerA | 07210022 | 1 |
| 11 | Capillary Sub-assy | 03163292 | 1 |
| 12 | Valve | 07100005 | 1 |
| 13 | Valve | 07100003 | 1 |
| 14 | Big Handle | 26233433 | 1 |
| 15 | Valve Support | 0170308901P | 1 |
| 16 | Right Side Plate Sub-Assy | 01303183 | 1 |
| 17 | Terminal Board | 42010265 | 1 |
| 18 | Electric Box Assy | 02613653 | 1 |
| 19 | Capacitor CBB61 | 33010026 | 1 |
| 20 | Capacitor CBB65 | 3300008102 | 1 |
| 21 | Rear grill | 1112320501 | 1 |
| 22 | Condenser Assy | 01163910 | 1 |
| 23 | Top Cover Sub-Assy | 01253031 | 1 |
| 24 | Clapboard Sub-Assy | 01233066 | 1 |
| 25 | Motor Support Sub-Assy | 01703103 | 1 |
| 26 | Fan Motor | 150130676 | 1 |
| 27 | Small Handle | 26233100 | 1 |
| 28 | Axial Flow Fan | 10333427 | 1 |

Above data is subject to change without notice.

11. Removal Procedure



(Caution: discharge the refrigerant completely before removal.

11.1 Removal Procedure of Indoor Unit

| Step | | Procedure |
|--------|--|------------------------------|
| 1. Ren | nove filter | |
| а | Open the panel. | Panel |
| b | Loosen the clasp shown in the fig and then pull the left filter and right filer outwards to remove them. | Clasp |
| | | left filter and right filer |
| 2. Rem | nove horizontal louver | |
| | Push out the axile bush on horizontal louver. Bend the horizontal louver with hand and then separate the horizontal louver from the crankshaft of step motor to remove it. | Horizontal louver Axile bush |

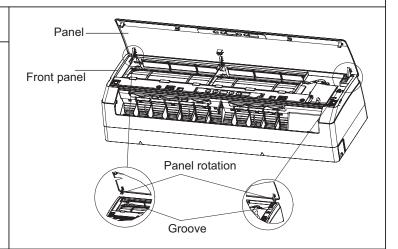
Step Procedure

3. Remove panel

Open the front panel; separate the panel rotation shaft from the groove fixing the front panel and then removes the front panel.

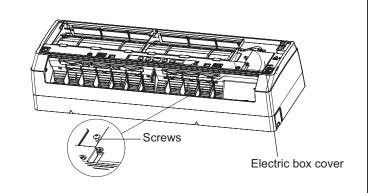
Note:

The display of some models is fixed on the panel; unscrew the screws fixing the display on the panel before removing the panel.



4. Remove electric box cover

Remove the screws on the electric box cover to remove the electric box cover.

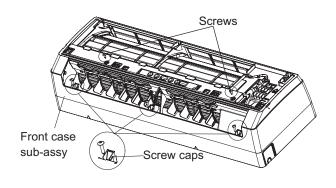


5. Remove front case sub-assy

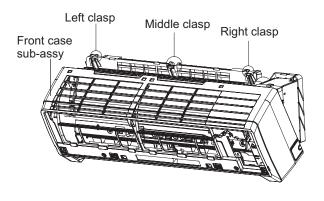
a Remove the screws fixing front case.

Note:

- 1. Open the screw caps before removing the screws around the air outlet.
- 2. The quantity of screws fixing the front case sub-assy is different for different models.



b Loosen the clasps at left, middle and right sides of front case. Life the front case sub-assy upwards to remove it.



Step **Procedure** 6. Remove vertical louver Loosen the connection clasps between vertical louver and bottom case to remove vertical louver. **Bottom** case Vertical louver Clasps 7. Remove electric box assy а Loosen the connection clasps between shield cover of electric box sub-assy and electric box, and then remove the shield cover of electric box sub-assy. Shield cover of electric Electric box Clasps box sub-assy Cut off the tieline which binding the b temperature sensor and grounding wire on the evaporator, and then pull out the indoor tube temperature sensor from the evaporator. Remove the screws at the connection place between grounding wire and Temperature sensor Pull out the wiring terminal of motor and Grounding wire wiring terminal of step motor from the mainboard. Wiring Evaporator terminal Note: of motor 1.Location of tube temperature sensor and tieline on the evaporator is different for different models. Location of grounding 2. When pulling out the wiring terminal, wire screw pay attention to loose the clasp and don't pull it so hard. Wiring terminal of step motor

| Step | | Procedure |
|--------|--|-------------------------|
| С | Remove two screws fixing display. Note: The display of some models is fixed on the panel; unscrew the screws fixing the display on the panel before removing the panel. | Screws Display |
| d | Remove the screw fixing electric box assy and then remove the electric box assy. | Screws |
| 8. Rer | nove evaporator assy | Connection pipe clamp |
| а | At the back of the unit, remove the screw fixing connection pipe clamp and then remove the connection pipe clamp. | Screws |
| b | Remove 3 screws fixing evaporator assy. | Evaporator assy Screws |
| С | Adjust the position of connection pipe on evaporator slightly and then lift the evaporator upwards to remove it. | Connection pipe |

| Step | | Procedure |
|-------|--|------------------------------|
| 9. Re | move stepping motor | Step motor |
| | Remove the screw fixing step motor and then remove the step motor. | Screws |
| 10. R | emove motor and cross flow blade | |
| a | Remove the screws fixing motor clamp and then remove the motor clamp. | Motor clamp |
| b | Remove the screws at the connection place of cross flow blade and motor; lift the motor and cross flow blade upwards to remove them. | Cross flow Motor Screws |
| С | Remove the bearing holder sub-assy. | Holder sub-assy Bottom case |

11.2 Removal Procedure of Outdoor Unit

GWH07PA-K3NNA3B/O GWH09PA-K3NNA3B/O

| Steps | F | Procedure |
|--------|---|-----------|
| 1. Rem | ove big handle | |
| а | Before disassembly. | |
| b | Remove the screw fixing the big handle. Remove the big handle. | handle |
| 2. Rem | nove top panel | * 0 |
| | Remove the 3 screws connecting the top panel with the front panel and the right side panel. Remove the top cover. | top panel |

| Steps | Proce | dure |
|---------|--|------------------|
| 3.Remo | ve front grille and front panel | |
| а | Remove the 2 screws connecting the front grille with front panel. Remove front grille. | front grille |
| b | Remove the 5 screws connecting the front panel with the chassis and the motor support. Remove the front panel. | front panel |
| 4. Remo | ove right side panel | |
| | Remove the 6 screws connecting the right side panel with the chassis, the valve support and the electric box. Remove the right side panel. | right side panel |

Steps **Procedure** 5. Remove axial flow blade and motor Remove the nut on the blade. Remove the axial а axial flow blade flow blade. motor support b Remove the tapping screws fixing the motor; disconnect the leading wire insert of the motor. Remove the motor. Remove the tapping screws motor fixing the motor support. Lift the motor support to remove it. 6. Remove electric box electric box _ Remove screws fixing the electric box subassembly. Loosen the wire bundle; unplug the wiring terminals and lift the electric box to remove it.

| Steps | Pr | ocedure |
|---------|---|-------------------|
| 7. Remo | ove isolation sheet | |
| | Remove the 3 screws fixing the isolation sheet. Remove the isolation sheet. | isolation sheet |
| 8. Remo | Remove the soundproof sponge wrapping the compressor. | soundproof sponge |
| 9. Remo | ove magnet moil | |
| | Remove the screw fixing the magnet moil. Remove the coil. | magnet moil |

Steps Procedure 10. Remove compressor Remove the 2 screws fixing the gas valve. Unsolder а the welding joint connecting the gas valve and the air-return pipe. Remove the gas valve. (NOTE: when unsoldering, wrap the gas valve with a wet cloth completely to avoid damage to the valve liquid valve caused by high temperature.) Remove the 2 screws fixing the liquid valve. Unsolder the welding joint connecting the liquid valve and the Y-type pipe. Remove the liquid valve. (NOTE: Discharge the refrigerant completely before unsoldering.) gas valve 4-way valve b Unsolder welding joint connecting the capillary, the valve and the outlet pipe of condenser to remove the capillary. Do not block the capillary with welding slag during unsoldering. Unsolder the pipes connected to the compressor. Unsolder the welding joint connecting the 4-way valve to remove it. capillary Remove the 3 foot nuts on the compressor. С Remove the compressor. compressor

GWH12PC-K3NNA3A/O

| Steps | Proced | lure |
|-------|---|------------|
| 1. | Before disassembly | |
| 2. | Remove big handle Remove the connection screw fixing the big handle and then remove the handle. | big handle |
| 3. | Remove top panel | top panel |
| | Remove connection screws connecting the top panel with the front panel and the right side plate, and then remove the top panel. | |

Procedure Steps 4. Remove front grille Remove connection screws between the front grille and the front panel. Then remove the front front grille · 5. Remove front panel Remove connection screws connecting the front panel with the chassis and the motor support, and then remove the front panel. front panel 6. Remove right side plate right side plate Remove connection screws connecting the right side plate with the chassis, the valve support and the electric box. Then remove the right side plate. 7. Remove axial flow blade Remove the nut on the blade and then remove the axial flow blade. axial flow blade.

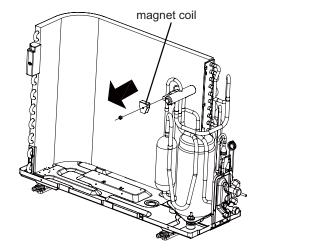
Procedure Steps 8. Remove motor and motor support motor support Remove the 4 tapping screws fixing the motor and disconnect the leading wire insert of the motor. Then remove the motor. Remove the 2 tapping screws fixing the motor support and lift the motor support to remove it. 9. Remove electric box electric box Remove screws fixing the electric box subassembly; loosen the wire bundle and unplug the wiring terminals. Then lift the electric box to remove it. 10. Remove isolation sheet Remove the 3 screws fixing the isolation sheet and then remove the isolation sheet. isolation sheet 11. Remove soundproof sponge Remove the soundproof sponge wrapping the compressor. soundproof sponge

Steps

Procedure

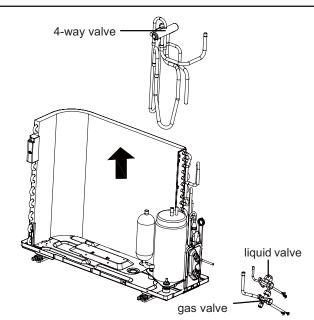
12. Remove magnet coil

Remove the screw fixing the magnet coil and then remove the coil.



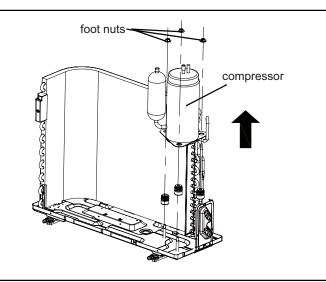
13. Remove valves and 4-way valve subassembly

Unsolder welding joint connecting the capillary, the valve and the outlet pipe of condenser to remove the capillary. Do not block the capillary with welding slag during unsoldering. Remove the 2 screws fixing the gas valve and unsolder the welding point between the gas valve and the air-return pipe to remove the gas valve. (NOTE: Discharge the refrigerant completely before unsoldering; when unsoldering, wrap the gas valve with a wet cloth completely to avoid damage to the valve caused by high temperature). Remove the 2 screws fixing the liquid valve and unsolder the welding joint connecting the liquid valve to the Y-type pipe to remove the liquid valve. Unsolder the welding joint connecting the 4-way valve, the compressor and the condenser to remove the 4-way valve.



14. Remove compressor

Remove the foot nuts on the compressor and then remove the compressor.



Appendix:

Appendix 1: Reference Sheet of Celsius and Fahrenheit

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

| Fahrenheit display temperature | Fahrenheit (°F) | Celsius (°C) | Fahrenheit display temperature (°F') | Fahrenheit (°F) | Celsius (°C) | Fahrenheit display temperature | 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 | Fahrenheit (°F) | Celsius(℃) | Fahrenheit display temperature (°F) | Fahrenheit | Celsius $({\mathbb C})$ | Fahrenheit display temperature | Fahrenheit | 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 con | nection pipe | Outdoor unit throttle | | | | | | | |
| Liquid pipe(mm) | Gas pipe(mm) | Cooling only(g/m) | Cooling and heating(g/m) | | | | | | |
| Ф6 | Ф9.5 ог Ф12 | 15 | 20 | | | | | | |
| Ф6 ог Ф9.5 | Ф16 or Ф19 | 15 | 20 | | | | | | |
| Ф12 | Ф19 or Ф22.2 | 30 | 120 | | | | | | |
| Ф16 | Ф25.4 ог Ф31.8 | 60 | 120 | | | | | | |
| Ф19 | Ф19 / | | 250 | | | | | | |
| Ф22.2 | / | 350 | 350 | | | | | | |

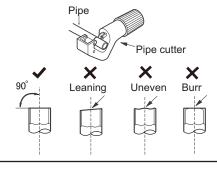
Appendix 3: Pipe Expanding Method

⚠ 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

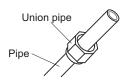
• Remove the burrs with shaper and prevent the burrs from getting into the pipe.

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.



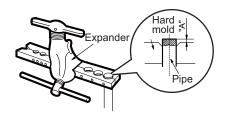
E:Expand the port

• Expand the port with expander.

⚠ Note:

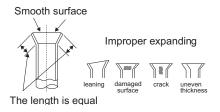
• "A" is different according to the diameter, please refer to the sheet below:

| Outer diameter(mm) | A(mm) | | | | | | |
|--------------------|-------|-----|--|--|--|--|--|
| Outer diameter(mm) | Max | Min | | | | | |
| Ф6 - 6.35 (1/4") | 1.3 | 0.7 | | | | | |
| Ф9.52 (3/8") | 1.6 | 1.0 | | | | | |
| Ф12 - 12.70 (1/2") | 1.8 | 1.0 | | | | | |
| Ф16 - 15.88 (5/8") | 2.4 | 2.2 | | | | | |



F:Inspection

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



Appendix 4: List of Resistance for Ambient Temperature Sensor

Appendix 1: 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 | \neg | 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 | \Box | 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 | \neg | 55 | 4.456 | 94 | 1.207 | 133 | 0.412 |
| 17 | 21.51 | \neg | 56 | 4.294 | 95 | 1.171 | 134 | 0.401 |
| 18 | 20.54 | \neg | 57 | 4.139 | 96 | 1.136 | 135 | 0.391 |
| 19 | 19.63 | | 58 | 3.99 | 97 | 1.103 | 136 | 0.382 |

Appendix 1: Resistance Table of Ambient Temperature Sensor for Indoor and Outdoor Units(20K)

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

Appendix 1: Resistance Table of Ambient Temperature Sensor for Indoor and Outdoor Units(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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