



brisa 

The word "brisa" is written in a large, black, lowercase, sans-serif font. To the right of the word is a stylized icon of three blue, curved lines representing a breeze or wind.

Service Manual - 230V

BRS09HPJ11A/OA
BRS12HPJ11A/OA
BRS18HPJ11A/OA
BRS24HPJ11A/OA

Split Air Conditioner
INVERTER

Thank you for choosing our product.

For proper operation, please read and keep this manual carefully.

If you have lost the Owner's Manual, please contact the local agent or visit

www.borealintl.com or sent email to borealsales@borealintl.com for electronic version.

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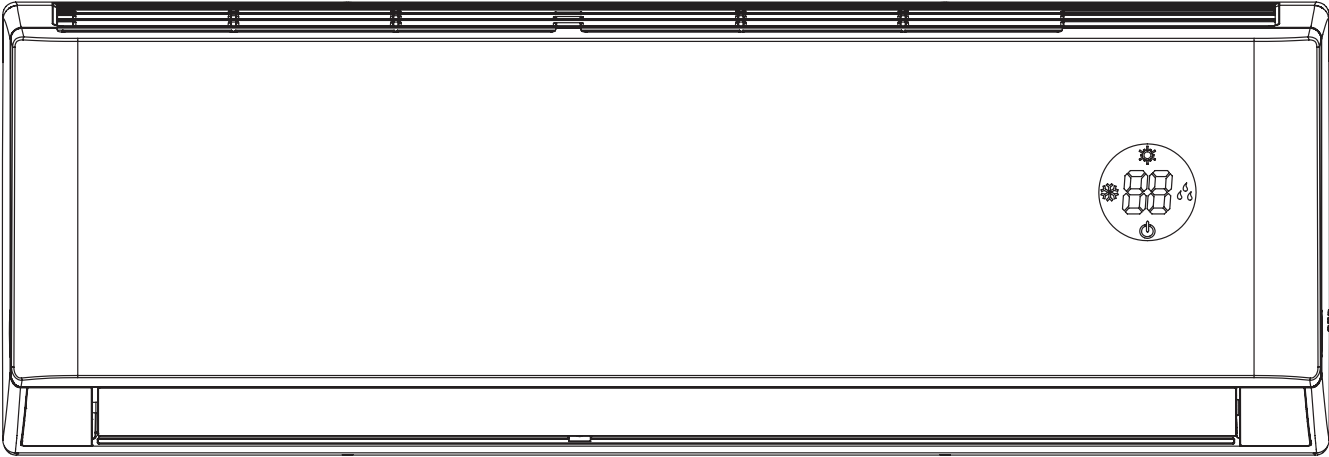
Part I : Technical Information

1. Summary

Indoor Unit

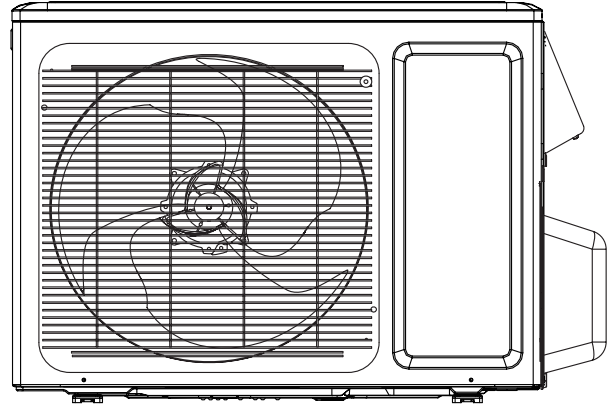
BRS09 - 24HPJ11A

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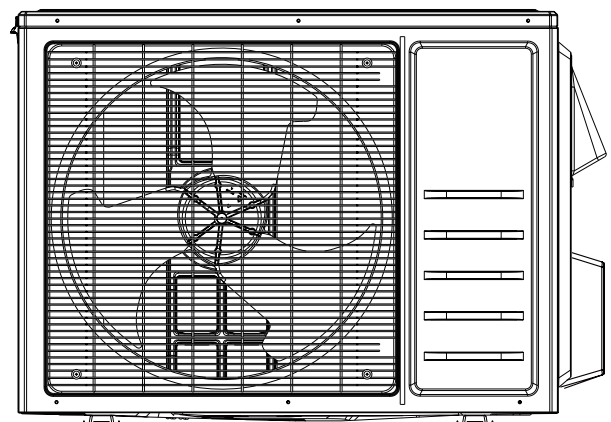


Outdoor Unit

BRS09HPJ10A
BRS12HPJ10A



BRS18HPJ10A
BRS24HPJ10A



Remote Controller

Model List:

| No | Model | Product code | Indoor model | Indoor product code | Outdoor model | Outdoor product code | Remote Controller |
|----|-----------|--------------|--------------|---------------------|---------------|----------------------|--------------------|
| 1 | BRS09HPJ1 | CB432021800 | BRS09HPJ1IA | CB432N21800 | BRS09HPJ10A | CB432W21800 | YAN1F2FF (WiFi) |
| 2 | BRS12HPJ1 | CB432022600 | BRS09HPJ1IA | CB432N22600 | BRS12HPJ10A | CB432W22600 | |
| 3 | BRS18HPJ1 | CB432022400 | BRS18HPJ1IA | CB432N22400 | BRS18HPJ10A | CB432W22400 | |
| 4 | BRS24HPJ1 | CB432021500 | BRS24HPJ1IA | CB432N21500 | BRS24HPJ10A | CB432W21500 | |

2.1 Specification Sheet

| | | |
|---------------------------|---------------------------------------|----------------------------------------------------------|
| Model | | BRS12HPJ1_A |
| Product Code | | CB432022600 |
| Power Supply | Rated Voltage | V~ 208/230 |
| | Rated Frequency | Hz 60 |
| | Phases | 1 |
| Power Supply Mode | | Outdoor |
| Cooling Capacity | Btu/h | 12000 |
| Heating Capacity | Btu/h | 13000 |
| Cooling Power Input | W | 1297 |
| Heating Power Input | W | 1172 |
| Cooling Power Current | A | 5.6 |
| Heating Power Current | A | 5.1 |
| Rated Input | W | 1500 |
| Rated Current | A | 6.5 |
| Air Flow Volume(SH/H/M/L) | CFM | 371/294/235/182 |
| Dehumidifying Volume | Pint/h | 1.4 |
| EER | (Btu/h)/W | 9.25 |
| COP | (Btu/h)/W | 11.09 |
| SEER | | 17 |
| HSPF | | 9 |
| Application Area | yd ² | 19.14-28.7 |
| Indoor Unit | Model of indoor unit | BRS12HPJ11A |
| | Indoor Unit Product Code | CB432N22600 |
| | Fan Type | Cross-flow |
| | Diameter Length(DXL) | inch Φ3 55/64X25 |
| | Fan Motor Cooling Speed (SH/H/M/L/SL) | r/min 1350/1200/1000/800/- |
| | Fan Motor Heating Speed (SH/H/M/L/SL) | r/min 1350/1200/1000/900/- |
| | Output of Fan Motor | W 20 |
| | Fan Motor RLA | A 0.31 |
| | Fan Motor Capacitor | μF 1.5 |
| | Evaporator Form | Aluminum Fin-copper Tube |
| | Pipe Diameter | inch Φ3/16 |
| | Row-fin Gap | inch 2-1/16 |
| | Coil Length (LXD _X W) | inch 25X57/64X12 3/64 |
| | Swing Motor Model | MP24BA |
| | Output of Swing Motor | W 1.5 |
| | Fuse | A 3.15 |
| | Sound Pressure Level(SH/H/M/L/SL) | dB (A) Cooling:42/39/34/28/- Heating:43/39/34/30/- |
| | Sound Power Level (SH/H/M/L/SL) | dB (A) Cooling:52/49/44/38/- Heating:53/49/44/40/- |
| | Dimension (WXHXD) | inch 33 1/4X11 3/8X8 1/4 |
| | Dimension of Carton Box (LXWXH) | inch 36 1/8X11X14 5/16 |
| | Dimension of Package (LXWXH) | inch 36 1/4X11X15 |
| | Net Weight | lb 22.1 |
| Gross Weight | lb 26.5 | |

| | | | |
|---------------------------------|---------------------------------------------------|---------------------------|----------------------------------|
| Outdoor Unit | Model of Outdoor Unit | | BRS12HPJ10A |
| | Outdoor Unit Product Code | | CB432W22600 |
| | Compressor Manufacturer/Trademark | | ZHUHAI LANDA COMPRESSOR CO., LTD |
| | Compressor Model | | QXF-A102zE190B |
| | Compressor Oil | | FW68DA |
| | Compressor Type | | Rotary |
| | Compressor L.R.A. | A | / |
| | Compressor RLA | | 6.6 |
| | Compressor Power Input | W | 1023 |
| | Overload Protector | | HPC115/95U1/KSD115°C |
| | Throttling Method | | Capillary |
| | Operation temp | °F | 61~86 |
| | Ambient temp (cooling) | °F | 0~115 |
| | Ambient temp (heating) | °F | -4~75 |
| | Condenser Form | | Aluminum Fin-copper Tube |
| | Pipe Diameter | inch | Φ5/16 |
| | Row-fin Gap | inch | 1-1/16 |
| | Coil Length (LXDXW) | inch | 36 21/32X3/4X21 21/32 |
| | Fan Motor Speed | rpm | 900 |
| | Output of Fan Motor | W | 30 |
| | Fan Motor RLA | A | 0.37 |
| | Fan Motor Capacitor | μF | 2.5 |
| | Air Flow Volume of Outdoor Unit | CFM | 942 |
| | Fan Type | | Axial-flow |
| | Fan Diameter | inch | Φ15 33/64 |
| | Defrosting Method | | / |
| | Climate Type | | T1 |
| | Isolation | | I |
| | Moisture Protection | | IPX4 |
| | Design Pressure(High) | PSIG | 550 |
| | Design Pressure(Low) | PSIG | 240 |
| | Sound Pressure Level (H/M/L) | dB (A) | 50/-/- |
| | Sound Power Level (H/M/L) | dB (A) | 60/-/- |
| Dimension (WXHXD) | inch | 30 9/16X21 1/4X12 5/8 | |
| Dimension of Carton Box (LXWXH) | inch | 32 9/32X13 63/64X22 27/32 | |
| Dimension of Package (LXWXH) | inch | 32 13/32X14 3/32X23 27/64 | |
| Net Weight | lb | 62.8 | |
| Gross Weight | lb | 68.4 | |
| Refrigerant | | R410A | |
| Refrigerant Charge | oz | 28.2 | |
| Connection Pipe | Length | ft | 24.6 |
| | Gas Additional Charge | oz/ft | 0.2 |
| | Outer Diameter Liquid Pipe | inch | 1/4 |
| | Outer Diameter Gas Pipe | inch | 3/8 |
| | Max Distance Height | ft | 32.8 |
| | Max Distance Length | ft | 65.6 |
| | Note:The connection pipe applies metric diameter. | | |

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

| | | | |
|---------------------------------|-----------------------------------------------------------------|---------------------------|---------------------------------|
| Outdoor Unit | Model of Outdoor Unit | | BRS24HPJ10A |
| | Outdoor Unit Product Code | | CB432W21500 |
| | Compressor Manufacturer/Trademark | | ZHUHAI LANDA COMPRESSOR CO.,LTD |
| | Compressor Model | | QXFS-B181zX030AA |
| | Compressor Oil | | FW68DA or equivalent |
| | Compressor Type | | Twin Rotary |
| | Compressor Locked Rotor Amp (L.R.A) | A | 25.00 |
| | Compressor RLA | A | 13.00 |
| | Compressor Power Input | W | 1635 |
| | Overload Protector | | 1NT11L-6233 KSD115°C HPC 115/95 |
| | Throttling Method | | Electron expansion valve |
| | Operation temp | °F | 61~86 |
| | Ambient temp (cooling) | °F | 0~115 |
| | Ambient temp (heating) | °F | -4~75 |
| | Condenser Form | | Aluminum Fin-copper Tube |
| | Pipe Diameter | inch | Φ17/64 |
| | Row-fin Gap | inch | 2-1/16 |
| | Coil Length (LXDXW) | inch | 31 21/32X1 1/2X24 1/4 |
| | Fan Motor Speed | rpm | 800 |
| | Output of Fan Motor | W | 60 |
| | Fan Motor RLA | A | 0.65 |
| | Fan Motor Capacitor | μF | / |
| | Air Flow Volume of Outdoor Unit | CFM | 1883 |
| | Fan Type | | Axial-flow |
| | Fan Diameter | inch | Φ20 15/32 |
| | Defrosting Method | | / |
| | Climate Type | | T1 |
| | Isolation | | I |
| | Moisture Protection | | IPX4 |
| | Permissible Excessive Operating Pressure for the Discharge Side | PSIG | 550 |
| | Permissible Excessive Operating Pressure for the Suction Side | PSIG | 240 |
| | Sound Pressure Level (H/M/L) | dB (A) | 59/-/- |
| Sound Power Level (H/M/L) | dB (A) | 69/-/- | |
| Dimension (WXHXD) | inch | 35 29/32X25 7/16X14 11/16 | |
| Dimension of Carton Box (LXWXH) | inch | 37 51/64X16 5/8X26 49/64 | |
| Dimension of Package (LXWXH) | inch | 37 29/32X16 3/16X27 9/16 | |
| Net Weight | lb | 97.0 | |
| Gross Weight | lb | 103.6 | |
| Refrigerant | | R410A | |
| Refrigerant Charge | oz | 52.9 | |
| Connection Pipe | Length | ft | 24.6 |
| | Gas Additional Charge | oz/ft | 0.5 |
| | Outer Diameter Liquid Pipe | inch | Φ1/4 |
| | Outer Diameter Gas Pipe | inch | Φ5/8 |
| | Max Distance Height | ft | 32.8 |
| | Max Distance Length | ft | 82 |
| | Note:The connection pipe applies metric diameter. | | |

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

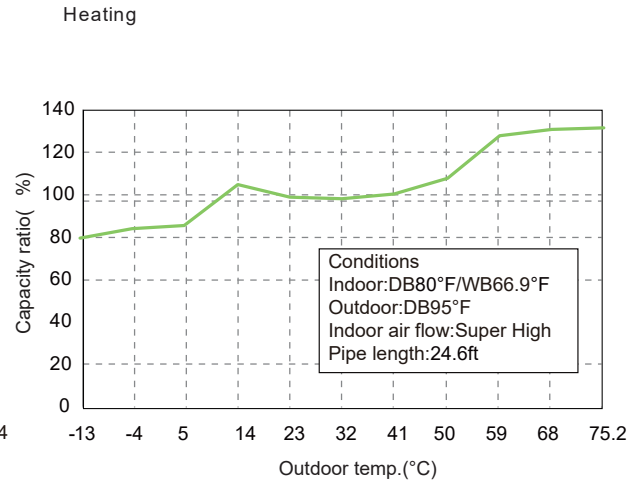
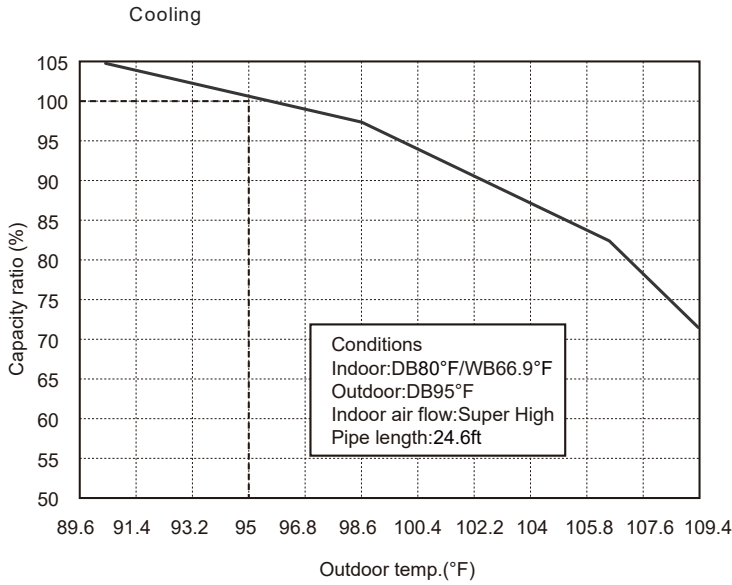
| | | | | |
|---------------------------------------------------|-----------------------------------------------------------------|--------|-----------------------------------|--------------------------|
| Outdoor Unit | Model of Outdoor Unit | | BRS09HPJ10A | |
| | Outdoor Unit Product Code | | CB432W21800 | |
| | Compressor Manufacturer/Trademark | | ZHUHAI LANDA COMPRESSOR CO., LTD. | |
| | Compressor Model | | QXF-A079zE190A | |
| | Compressor Oil | | FW68DA or equivalent | |
| | Compressor Type | | Rotary | |
| | Compressor Locked Rotor Amp (L.R.A) | A | | 18 |
| | Compressor RLA | A | | 6.6 |
| | Compressor Power Input | W | | 790 |
| | Overload Protector | | | HPC115/95U1 KSD115°C |
| | Throttling Method | | | Capillary |
| | Operation temp | °F | | 61~86 |
| | Ambient temp (cooling) | °F | | 0~115 |
| | Ambient temp (heating) | °F | | -4~75 |
| | Condenser Form | | | Aluminum Fin-copper Tube |
| | Pipe Diameter | inch | | Φ9/32 |
| | Row-fin Gap | inch | | 1-1/16 |
| | Coil Length (LXD _X W) | inch | | 27 61/64X3/4X20 |
| | Fan Motor Speed | rpm | | 900 |
| | Output of Fan Motor | W | | 30 |
| | Fan Motor RLA | A | | 0.37 |
| | Fan Motor Capacitor | μF | | / |
| | Air Flow Volume of Outdoor Unit | CFM | | 942 |
| | Fan Type | | | Axial-flow |
| | Fan Diameter | inch | | Φ15 3/4 |
| | Defrosting Method | | | Automatic Defrosting |
| | Climate Type | | | T1 |
| | Isolation | | | I |
| | Moisture Protection | | | IPX4 |
| | Permissible Excessive Operating Pressure for the Discharge Side | PSIG | | 550 |
| | Permissible Excessive Operating Pressure for the Suction Side | PSIG | | 240 |
| | Sound Pressure Level (H/M/L) | dB (A) | | 50/-/- |
| Sound Power Level (H/M/L) | dB (A) | | 60/-/- | |
| Dimension (WXHXD) | inch | | 30 9/16X21 1/4X12 5/8 | |
| Dimension of Carton Box (LXWXH) | inch | | 32 9/32X13 63/64X22 27/32 | |
| Dimension of Package (LXWXH) | inch | | 32 13/32X14 3/32X23 27/64 | |
| Net Weight | lb | | 58.4 | |
| Gross Weight | lb | | 63.9 | |
| Refrigerant | | | R410A | |
| Refrigerant Charge | oz | | 24 | |
| Connection Pipe | Length | ft | 24.6 | |
| | Gas Additional Charge | oz/ft | 0.2 | |
| | Outer Diameter Liquid Pipe | inch | Φ1/4 | |
| | Outer Diameter Gas Pipe | inch | Φ3/8 | |
| | Max Distance Height | ft | 32.8 | |
| | Max Distance Length | ft | 49.2 | |
| Note:The connection pipe applies metric diameter. | | | | |

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

| | | | |
|---------------------------------|-----------------------------------------------------------------|---------------------------|------------------------------------|
| Outdoor Unit | Model of Outdoor Unit | | BRS18HPJ10A |
| | Outdoor Unit Product Code | | CB432W22400 |
| | Compressor Manufacturer/Trademark | | ZHUHAI LANDA COMPRESSOR CO.,LTD |
| | Compressor Model | | QXA-B141zF030A |
| | Compressor Oil | | FW68DA or equivalent |
| | Compressor Type | | Rotary |
| | Compressor Locked Rotor Amp (L.R.A) | A | 25.00 |
| | Compressor RLA | A | 10.20 |
| | Compressor Power Input | W | 1410 |
| | Overload Protector | | 1NT11L-6233 KSD115°C HPC 115/95 |
| | Throttling Method | | Electron expansion valve |
| | Operation temp | °F | 60.8~86 |
| | Ambient temp (cooling) | °F | 0~115 |
| | Ambient temp (heating) | °F | -4~75 |
| | Condenser Form | | Aluminum Fin-copper Tube |
| | Pipe Diameter | inch | Φ3/8 |
| | Row-fin Gap | inch | 2-1/16 |
| | Coil Length (LXDXW) | inch | 33 5/8X26X7/8 |
| | Fan Motor Speed | rpm | 820 |
| | Output of Fan Motor | W | 60 |
| | Fan Motor RLA | A | 0.70 |
| | Fan Motor Capacitor | μF | / |
| | Air Flow Volume of Outdoor Unit | CFM | 1766 |
| | Fan Type | | Axial-flow |
| | Fan Diameter | inch | Φ20 1/2 |
| | Defrosting Method | | Automatic Defrosting |
| | Climate Type | | T1 |
| | Isolation | | I |
| | Moisture Protection | | IPX4 |
| | Permissible Excessive Operating Pressure for the Discharge Side | ISPG | 550 |
| | Permissible Excessive Operating Pressure for the Suction Side | ISPG | 240 |
| | Sound Pressure Level (H/M/L) | dB (A) | 56/-/- |
| | Sound Power Level (H/M/L) | dB (A) | 66/-/- |
| Dimension (WXHXD) | inch | 35 29/32X25 7/16X14 11/16 | |
| Dimension of Carton Box (LXWXH) | inch | 37 51/64X16 5/8X26 49/64 | |
| Dimension of Package (LXWXH) | inch | 37 29/32X16 3/16X27 9/16 | |
| Net Weight | lb | 87.1 | |
| Gross Weight | lb | 93.7 | |
| Refrigerant | | R410A | |
| Refrigerant Charge | oz | 42.3 | |
| Connection Pipe | Length | ft | 24.6 |
| | Gas Additional Charge | oz/ft | 0.2 |
| | Outer Diameter Liquid Pipe | inch | Φ1/4 |
| | Outer Diameter Gas Pipe | inch | Φ1/2 |
| | Max Distance Height | ft | 32.8 |
| | Max Distance Length | ft | 82 |
| | Note: The connection pipe applies metric diameter. | | |

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

Heating operation ambient temperature range is -13°F~75°F



2.4 Cooling and Heating Data Sheet in Rated Frequency

Cooling:

| Rated cooling condition(°F) (DB/WB) | | Model | Pressure of gas pipe connecting indoor and outdoor unit | Inlet and outlet pipe temperature of heat exchanger | | Fan speed of indoor unit | Fan speed of outdoor unit | Compressor revolution (rps) |
|-------------------------------------|---------|-------------------------|---------------------------------------------------------|-----------------------------------------------------|--------------------------------|--------------------------|---------------------------|-----------------------------|
| Indoor | Outdoor | | | P (PSIG) | T1 (°F) | | | |
| 80/66.9 | 95/- | 07/09K | 130~142 | in:46.4~51.8 out:51.8~57.2 | in:167~181.4 out:98.6~118.4 | Super High | High | 52 |
| 80/66.9 | 95/- | 12K | 130~142 | in:46.4~51.8 out:51.8~57.2 | in:167~181.4 out:98.6~118.4 | Super High | High | 72 |
| 81/66 | 95/75 | 09/12K (for some model) | 123.2~145 | in:46~52 out:52~57 | in:122~176 out:99~109 | Suprt High | High | 58 |
| 80/66.9 | 95/- | 18K | 130~142 | in:46.4~51.8 out:51.8~57.2 | in:167~181.4 out:98.6~118.4 | Super High | High | 73 |
| 80/66.9 | 95/- | 24K | 130~142 | in:46.4~51.8 out:51.8~57.2 | in:167~181.4 out:98.6~118.4 | Super High | High | 75 |

Heating:

| Rated heating condition(°F) (DB/WB) | | Model | Pressure of gas pipe connecting indoor and outdoor unit | Inlet and outlet pipe temperature of heat exchanger | | Fan speed of indoor unit | Fan speed of outdoor unit | Compressor revolution (rps) |
|-------------------------------------|-------------|-------------------------|---------------------------------------------------------|-----------------------------------------------------|-------------------------------|--------------------------|---------------------------|-----------------------------|
| Indoor | Outdoor | | | P (PSIG) | T1 (°F) | | | |
| 70/60 | 19.94/19.04 | 07/09K | 362~406 | in:167~181.4 out:98.6~113 | in:33.8~37.4 out:35.6~42.8 | Super High | High | 65 |
| 70/60 | 19.94/19.04 | 12K | 362~406 | in:167~181.4 out:98.6~113 | in:33.8~37.4 out:35.6~42.8 | Super High | High | 77 |
| 70/60 | 19.94/19.04 | 09/12K (for some model) | 362.3~435 | in:122~176 out:99~109 | in:34~37 out:36~41 | Super High | High | 56 |
| 70/60 | 19.94/19.04 | 18K | 507~550 | in:167~181.4 out:98.6~113 | in:33.8~37.4 out:35.6~42.8 | Super High | High | 75 |
| 70/60 | 19.94/19.04 | 24K | 507~550 | in:167~181.4 out:98.6~113 | in:33.8~37.4 out:35.6~42.8 | Super High | High | 80 |

Instruction:

T1: Inlet and outlet pipe temperature of evaporator

T2: Inlet and outlet pipe temperature of condenser

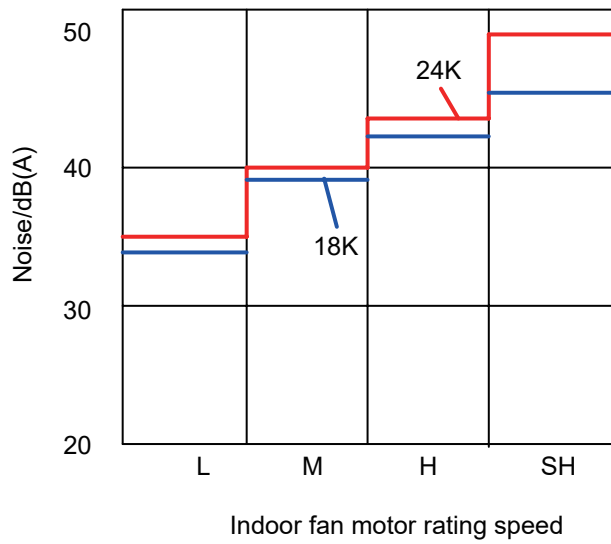
P: Pressure at the side of big valve

Connection pipe length: 24.6ft.

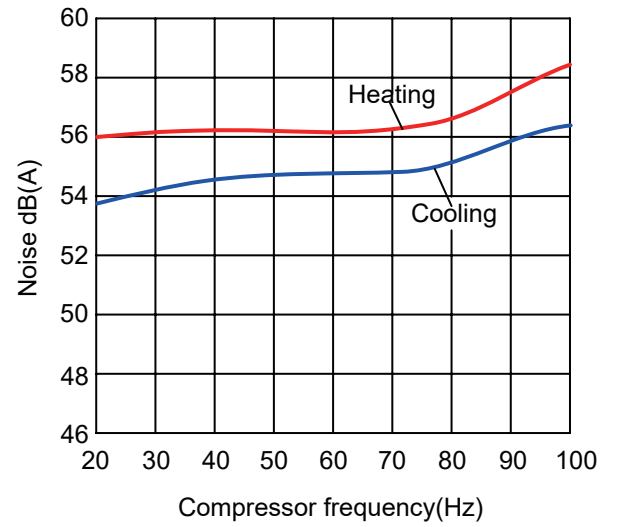
2.5 Noise Curve

BRS18HPJ1 BRS24HPJ1

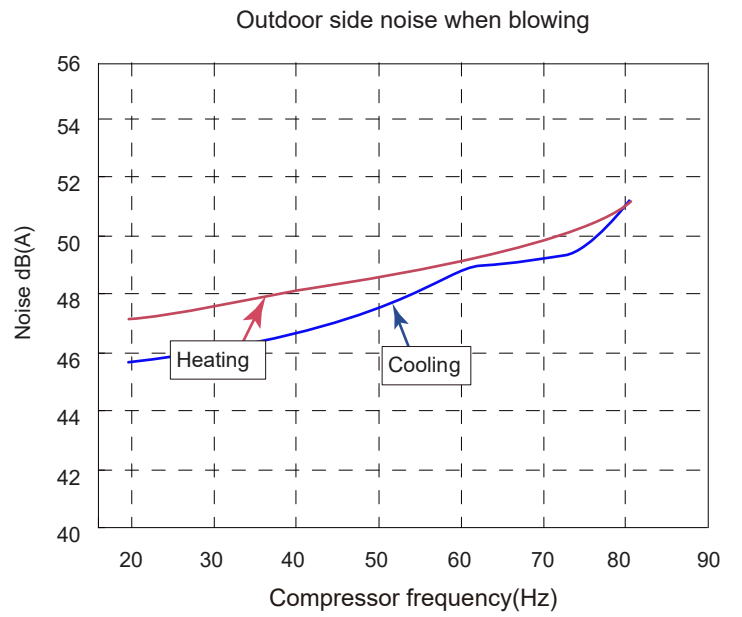
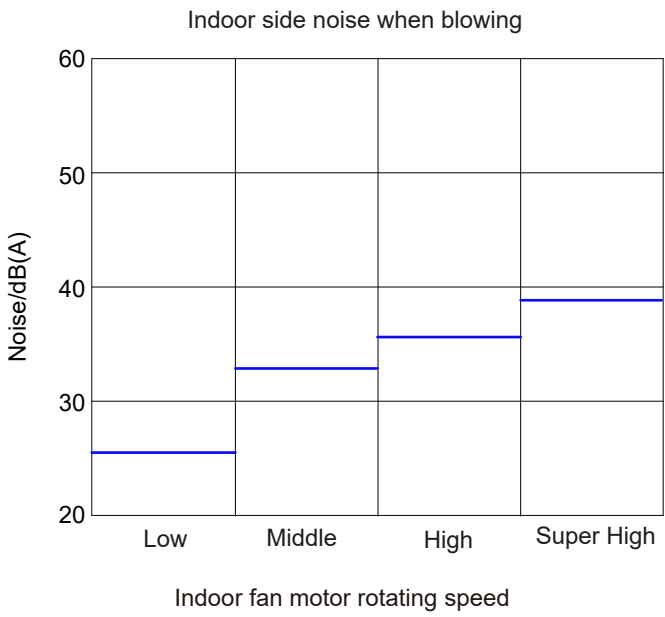
Indoor side noise



Outdoor side noise

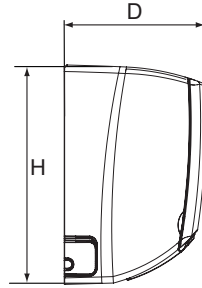
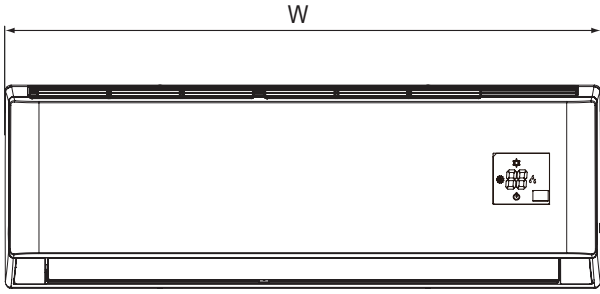


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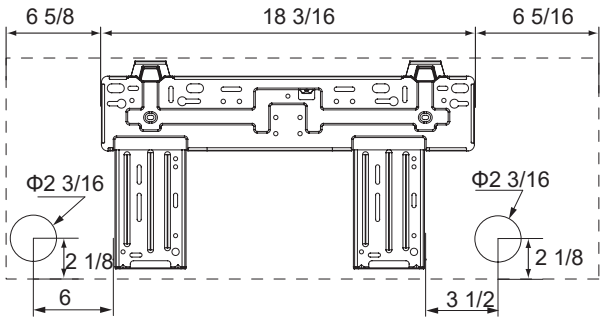


3. Outline Dimension Diagram

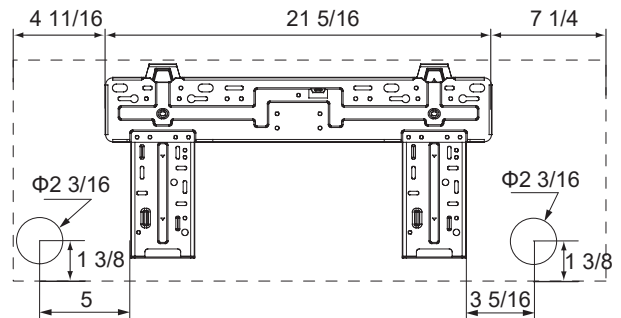
3.1 Indoor Unit



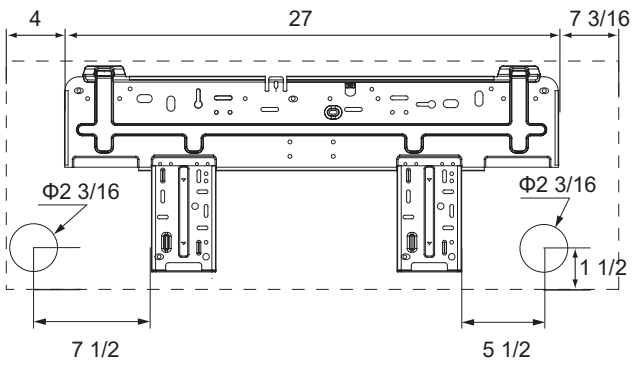
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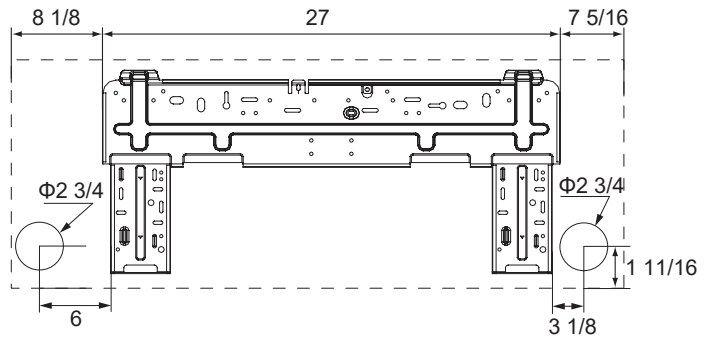
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BRS24HPJ11A



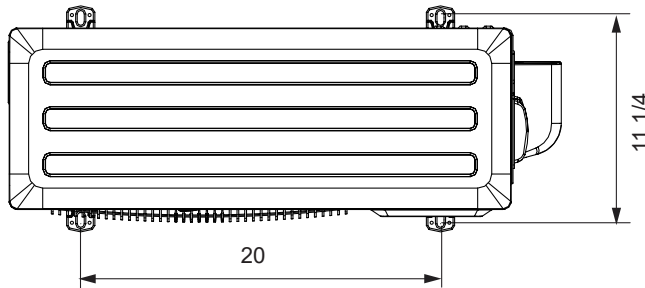
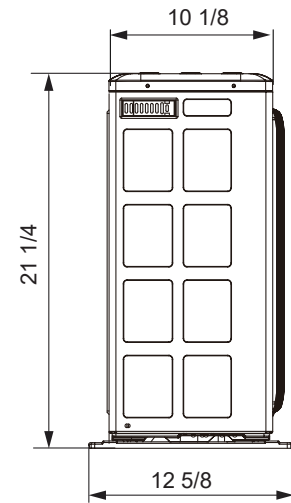
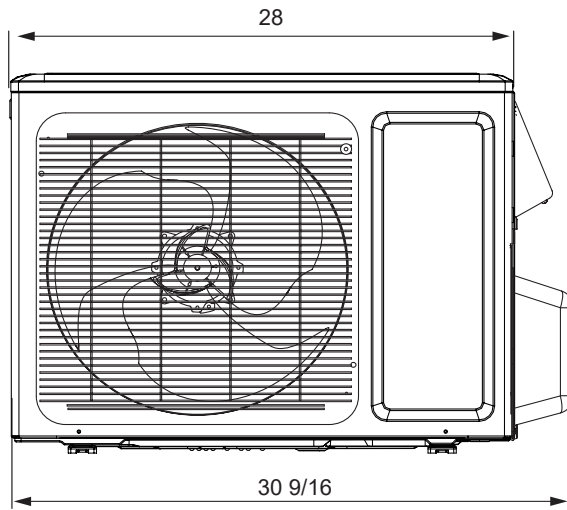
Unit:inch

| MODEL | W | H | D |
|-------|-------------------|--------------------|-------------------|
| QB | $31 \frac{1}{8}$ | $10 \frac{7}{8}$ | $7 \frac{7}{8}$ |
| QC | $33 \frac{1}{4}$ | $11 \frac{3}{8}$ | $8 \frac{1}{4}$ |
| QD | $38 \frac{3}{16}$ | $11 \frac{13}{16}$ | $8 \frac{13}{16}$ |
| QE | $42 \frac{7}{16}$ | $12 \frac{13}{16}$ | $9 \frac{11}{16}$ |

3.2 Outdoor Unit

BRS09HPJ10A

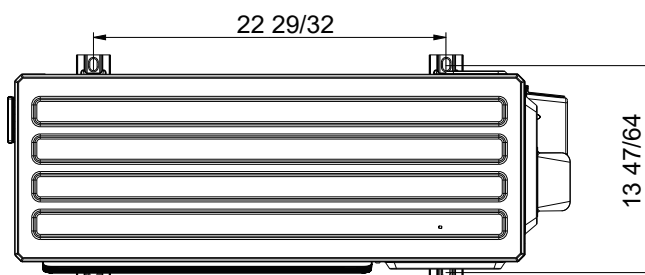
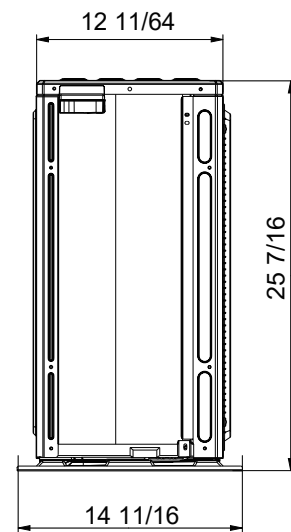
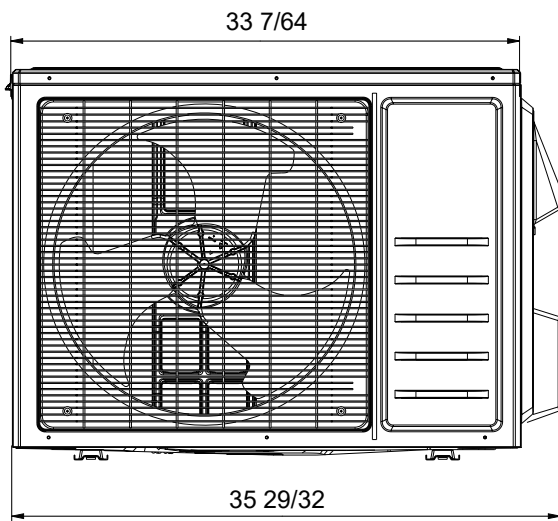
BRS12HPJ10A



Unit:inch

BRS18HPJ10A

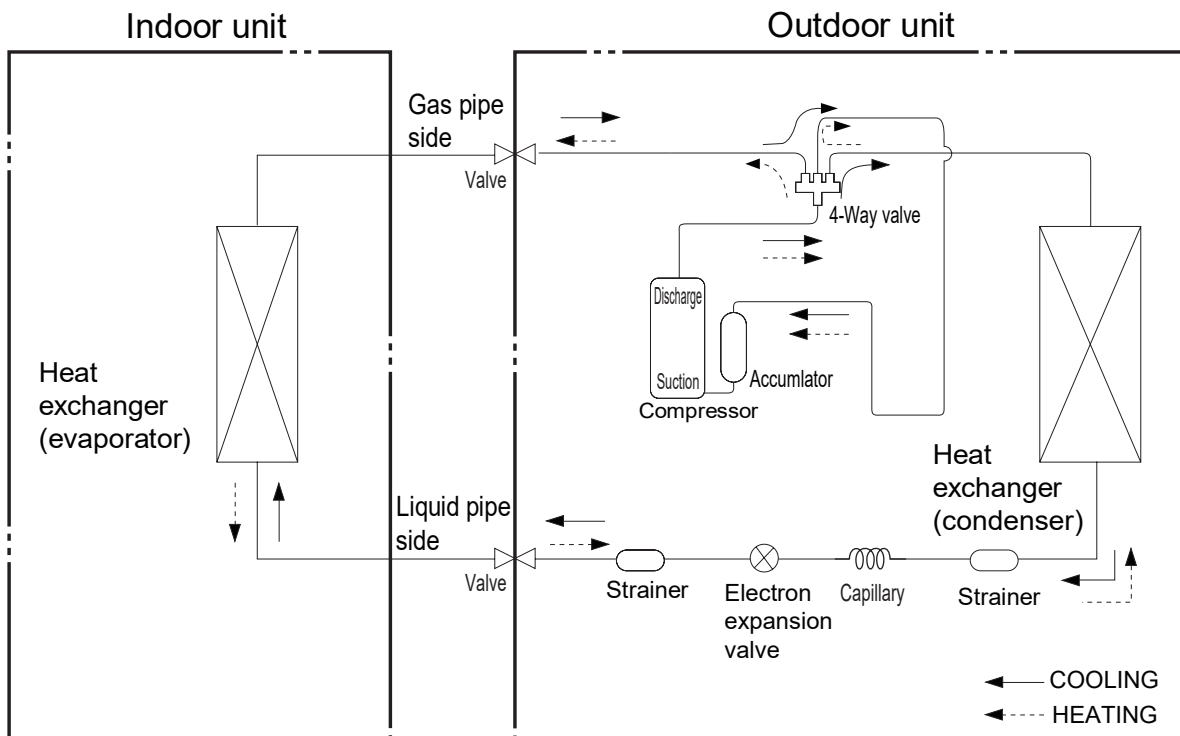
BRS24HPJ10A



Unit:inch

4. Refrigerant System Diagram

Heating model



Connection pipe specification:

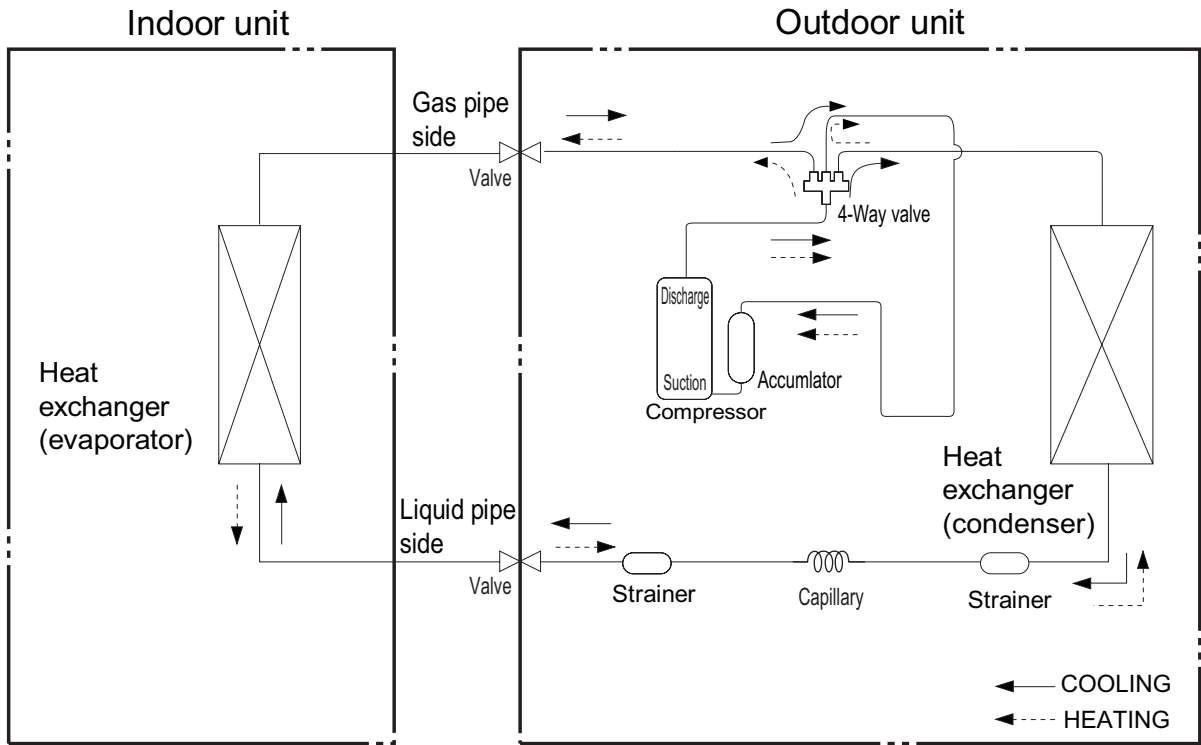
Liquid pipe: 1/4"

Gas pipe: 3/8" for 07/09/12K

Gas pipe: 1/2" for 18K

Gas pipe: 5/8" for 24K

Cooling and heating models



Connection pipe specification:
Liquid pipe: 1/4"
Gas pipe: 3/8"

5. Electrical Part

5.1 Wiring Diagram

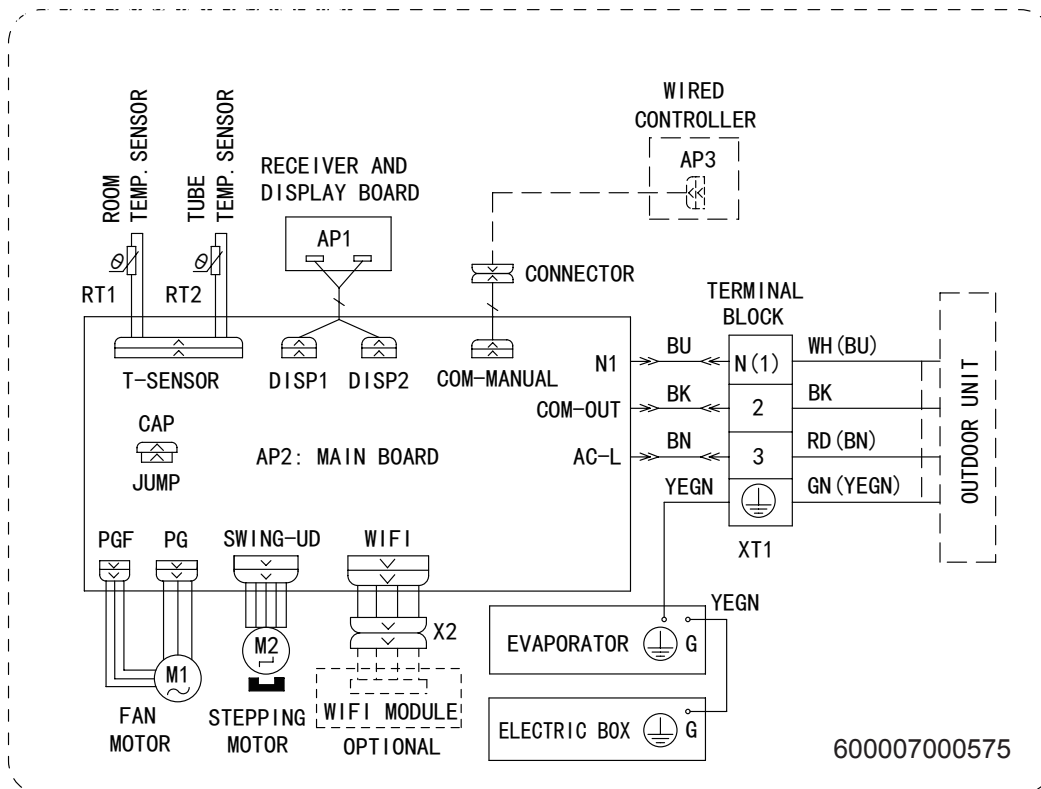
- **Instruction**

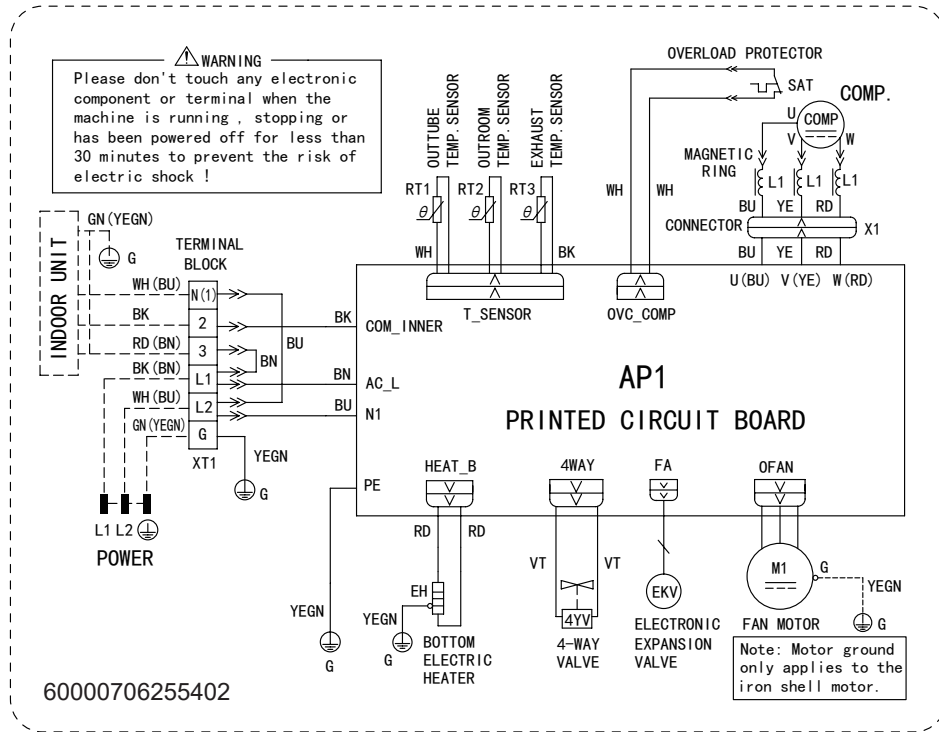
| Symbol | Symbol Color | Symbol | Symbol Color | Symbol | Name |
|--------|--------------|--------|--------------|--------|----------------|
| WH | White | GN | Green | CAP | Jumper cap |
| YE | Yellow | BN | Brown | COMP | Compressor |
| RD | Red | BU | Blue | | Grounding wire |
| YEGN | Yellow/Green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

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

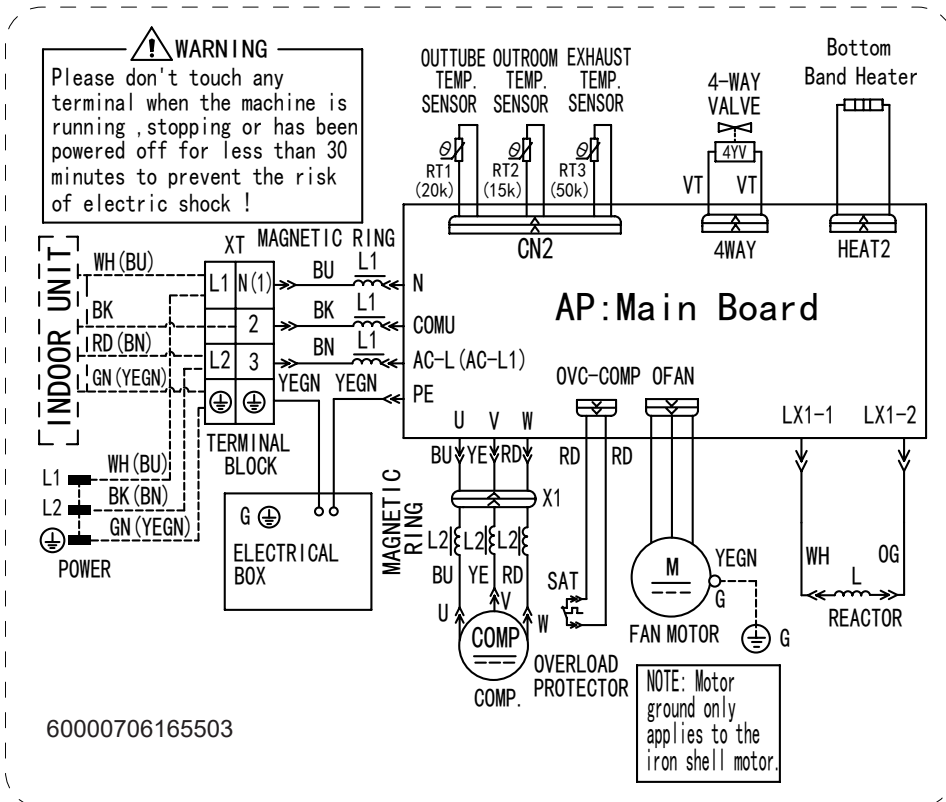
- **Indoor Unit**

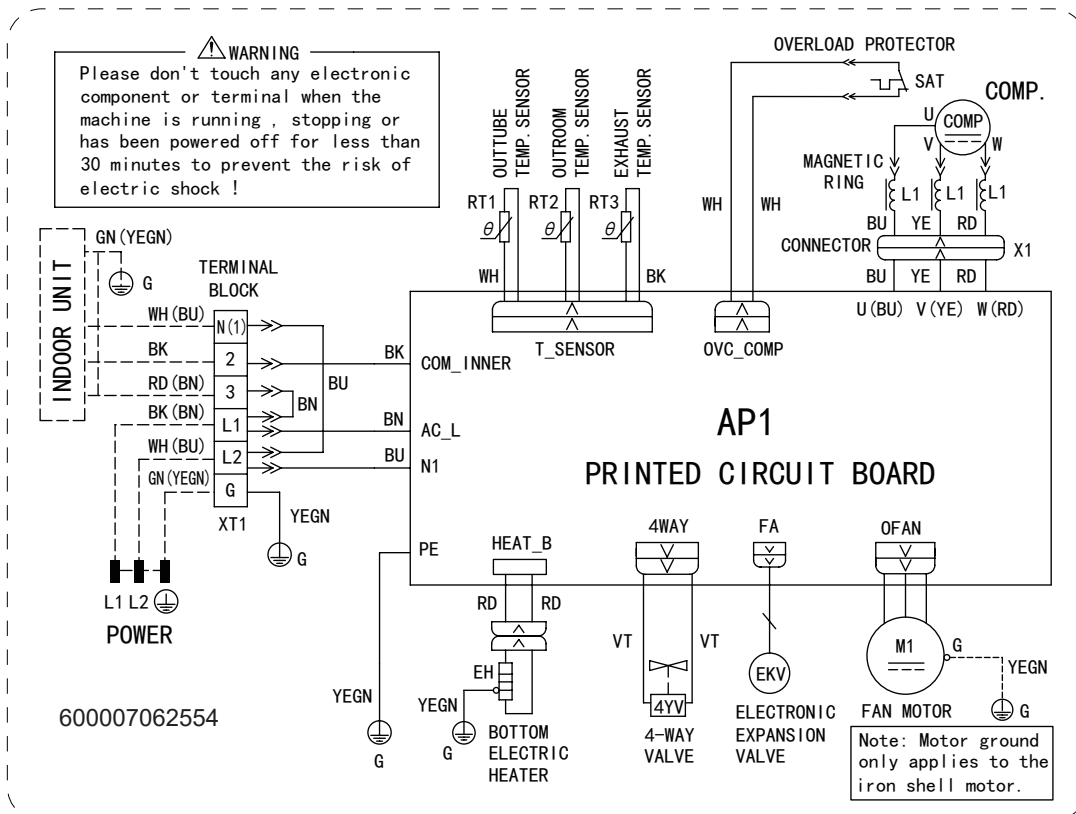
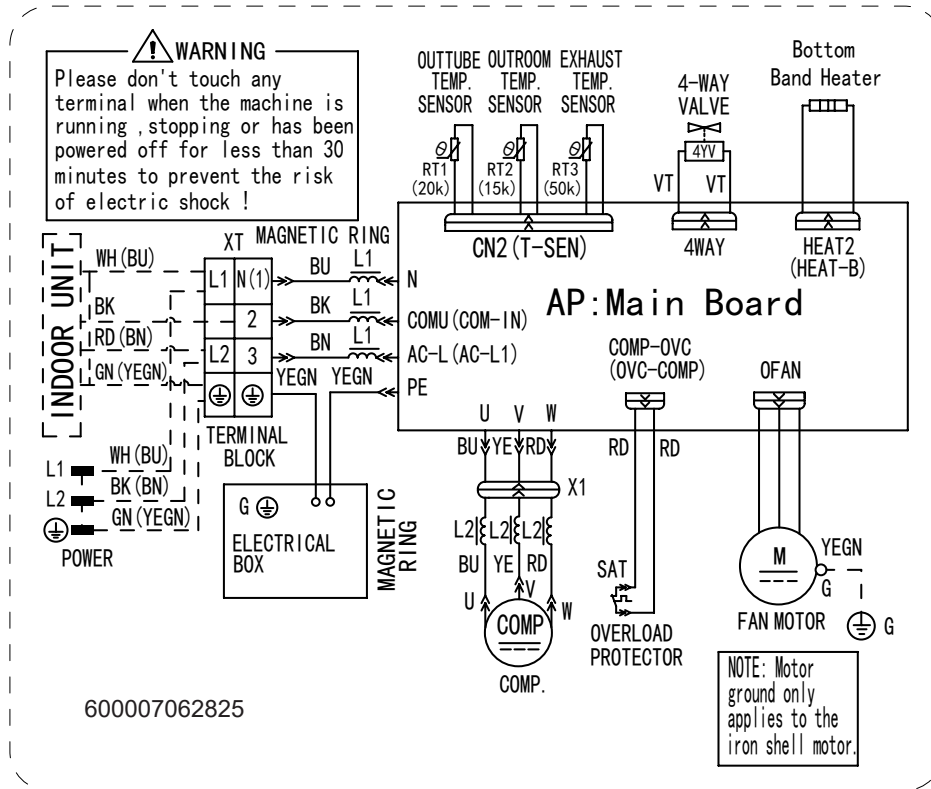
BRS09HPJ1IA BRS12HPJ1IA BRS18HPJ1IA BRS24HPJ1IA



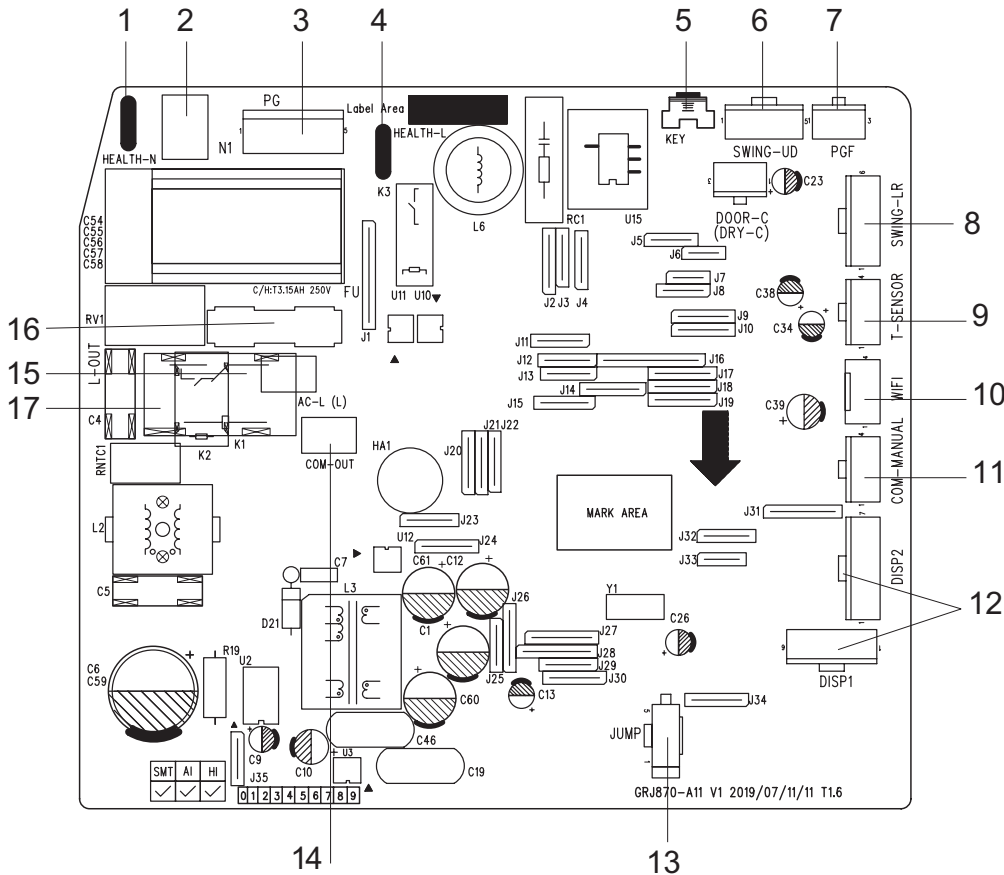


The above data is subject to change without notice. Please refer to the nameplate of the unit.



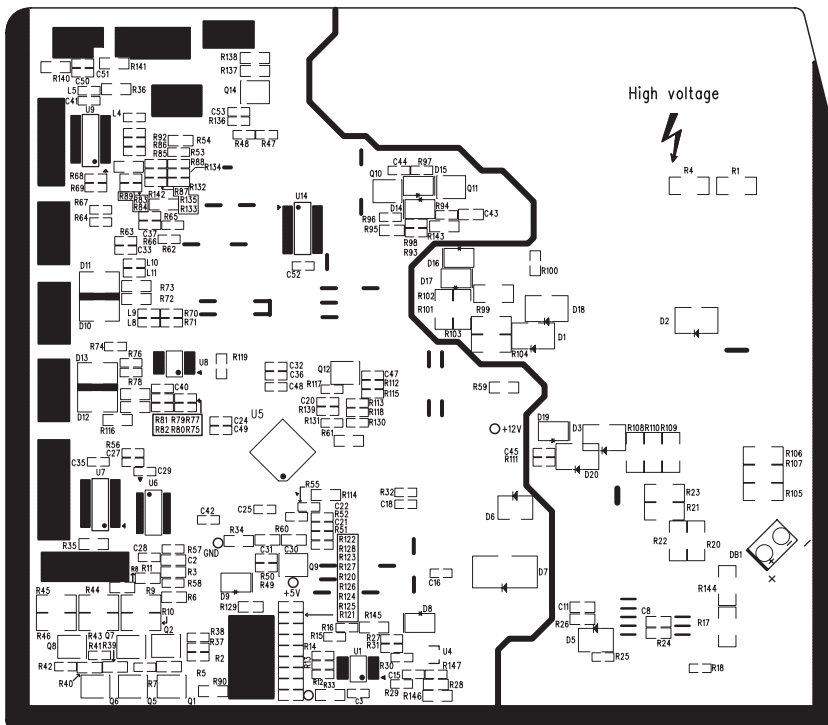


• Top view



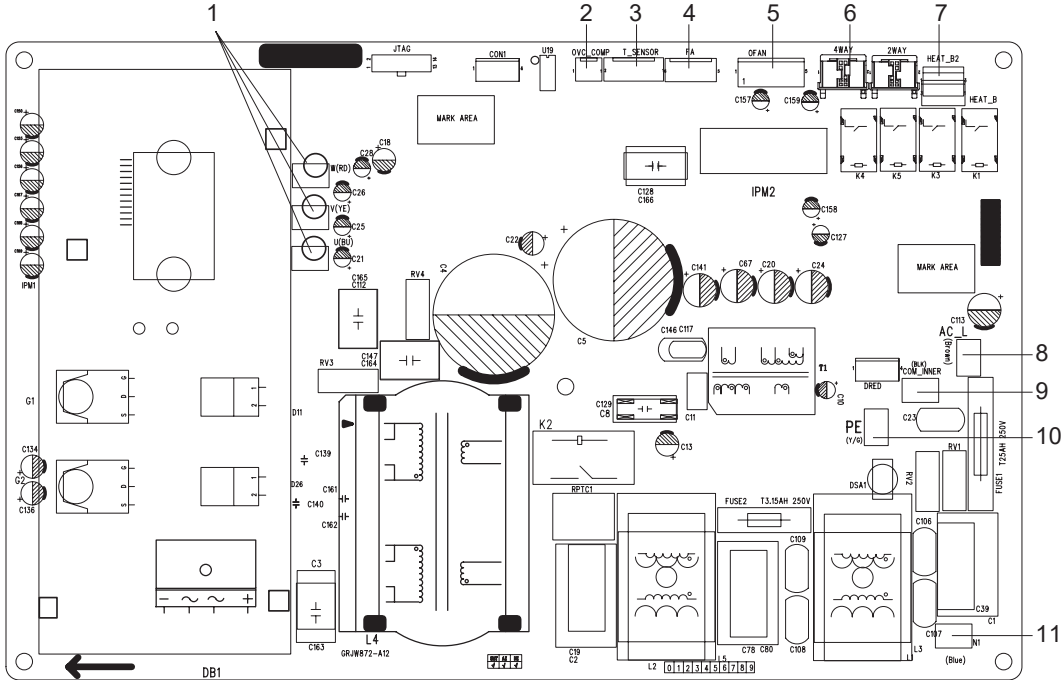
| No. | Name |
|-----|-----------------------------------------------------------------|
| 1 | Interface of health function neutral wire |
| 2 | Neutral wire terminal |
| 3 | Motor terminal |
| 4 | Live wire terminal |
| 5 | Auto button |
| 6 | Up&down swing terminal |
| 7 | Interface of Motor feedback |
| 8 | Left&right swing terminal |
| 9 | Terminal of temperature sensor |
| 10 | WIFI terminal |
| 11 | Wired controller terminal |
| 12 | Interface of display board |
| 13 | Jumper cap |
| 14 | Communication terminal for indoor unit and outdoor unit |
| 15 | Live wire terminal |
| 16 | Fuse |
| 17 | Terminal of live wire used for supplying power for outdoor unit |

• Bottom view



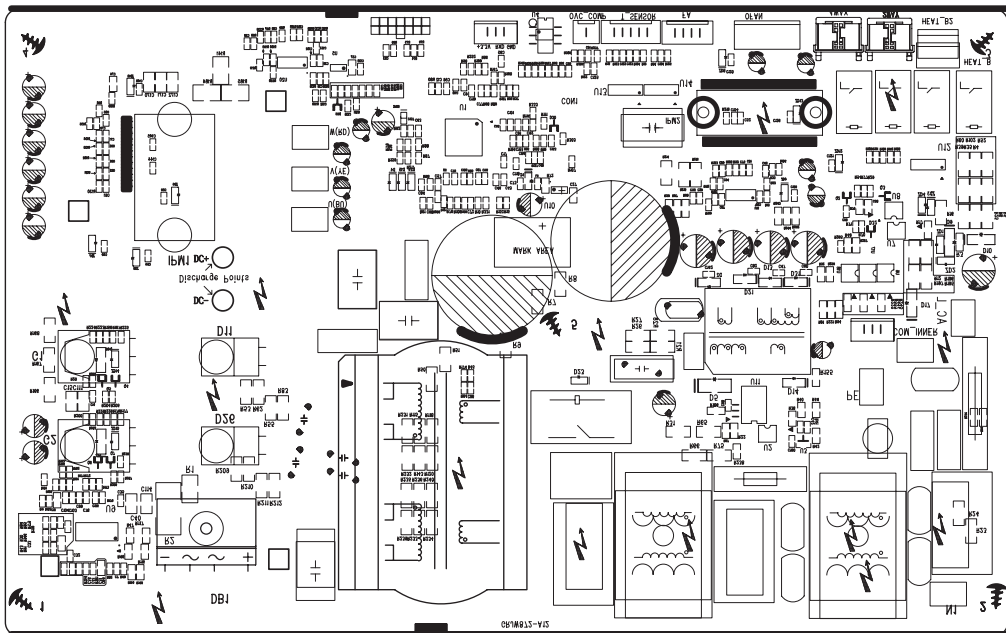
BRS18HPJ10A BRS24HPJ10A

● **Top view**



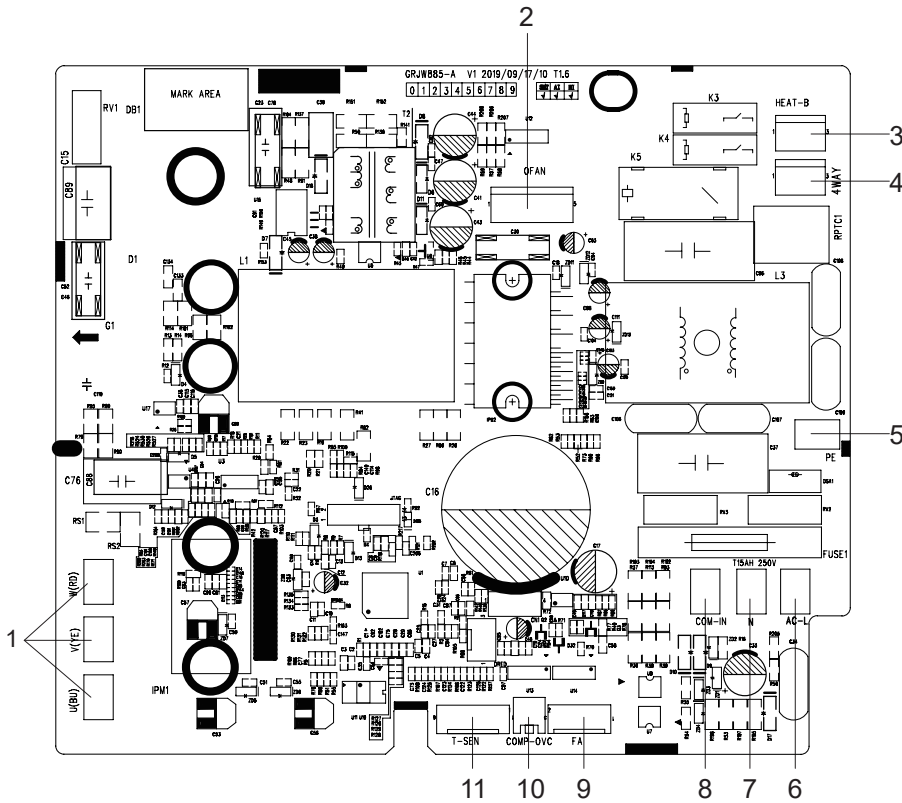
| No. | Name |
|-----|----------------------------------------------|
| 1 | Compressor three phase input interface |
| 2 | Compressor overload protection interface |
| 3 | Interface of temperature sensor |
| 4 | Interface of electronic expansion valve |
| 5 | Interface of fan |
| 6 | 4-way valve interface |
| 7 | Interface of electric heating for compressor |
| 8 | Interface of live wire |
| 9 | Interface of neutral wire |
| 10 | Interface of earthing wire |
| 11 | Interface of neutral wire |

● **Bottom view**



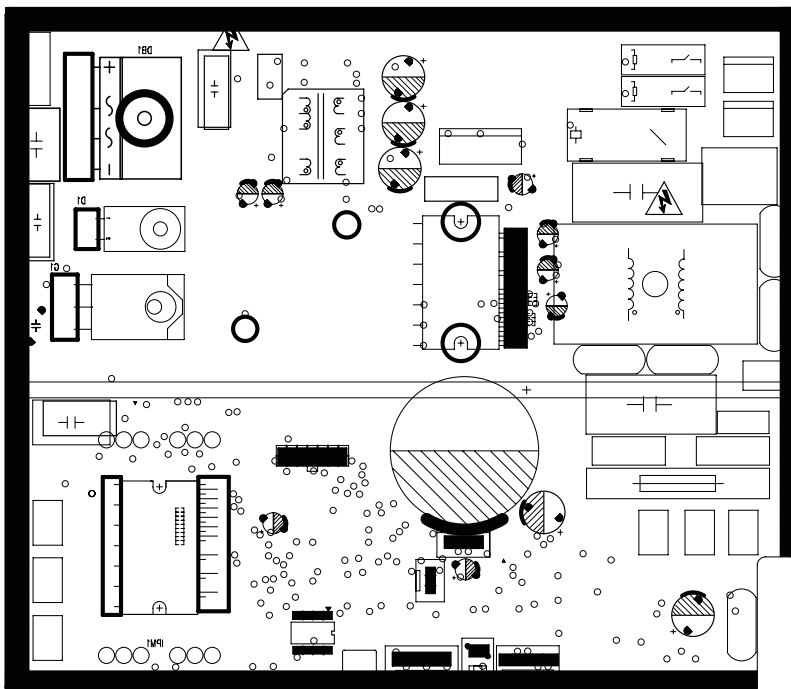
BRS09HPJ10A

• **Top view**



| No. | Name |
|-----|--------------------------------------------|
| 1 | Compressor three phase input interface |
| 2 | Interface of fan |
| 3 | Interface of electric heating for chassis |
| 4 | 4-way valve interface |
| 5 | Interface of earthing wire |
| 6 | Interface of live wire |
| 7 | Neutral wire |
| 8 | Communication interface |
| 9 | Needle stand of electronic expansion valve |
| 10 | Compressor overload protection interface |
| 11 | Interface of temperature sensor |

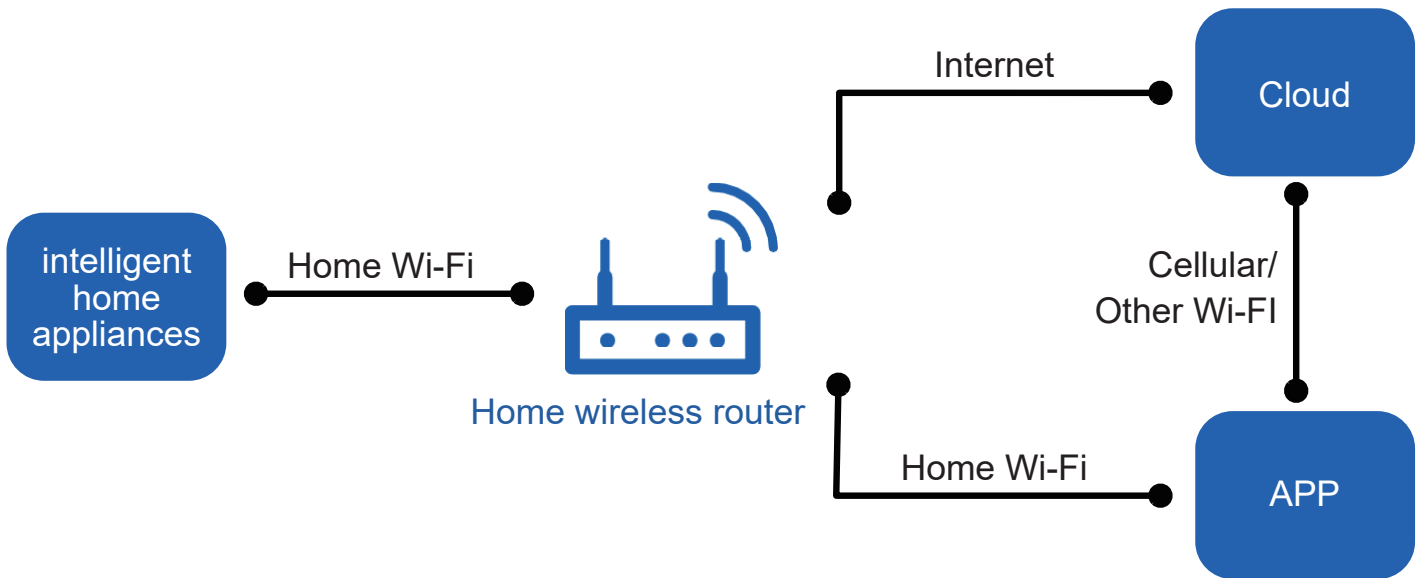
• **Bottom view**



6.1 Remote Controller Introduction of

6.5 Ewpe Smart App Operation Manual

Control Flow Chart



Operating Systems

Requirement for User's smart phone:



iOS system
Support iOS7.0 and
above version



Android system
Support Android 4.4 and
above version

Download and installation



App Download Linkage

Scan the QR code or search "Ewpe Smart" in the application market to download and install it. When "Ewpe Smart" App is installed, register the account and add the device to achieve long-distance control and LAN control of smart home appliances. For more information, please refer to "Help" in App.

6.6 Brief Description of Modes and Functions

All models

● Indoor Unit

1. Basic function of system

(1) Cooling mode

(1) Under this mode, fan and swing operates at setting status. Temperature setting range is 60.8~86.0°F.

(2) During malfunction of outdoor unit or the unit is stopped because of protection, indoor unit keeps original operation status.

(2) Drying mode

(1) Under this mode, fan operates at low speed and swing operates at setting status. Temperature setting range is 60.8~86.0°F.

(2) During malfunction of outdoor unit or the unit is stopped because of protection, indoor unit keeps original operation status.

(3) Protection status is same as that under cooling mode.

(4) Sleep function is not available for drying mode.

(3) Heating mode

(1) Under this mode, Temperature setting range is 60.8~86.0°F.

(2) Working condition and process for heating mode:

When turn on the unit under heating mode, indoor unit enters into cold air prevention status. When the unit is stopped or at OFF status, and indoor unit has been started up just now, the unit enters into residual heat-blowing status.

(4) Working method for AUTO mode:

1. Working condition and process for AUTO mode:

a. Under AUTO mode, standard heating $T_{\text{preset}}=68.0^{\circ}\text{F}$ and standard cooling $T_{\text{preset}}=77.0^{\circ}\text{F}$. The unit will switch mode automatically according to ambient temperature.

2. Protection function

a. During cooling operation, protection function is same as that under cooling mode.

b. During heating operation, protection function is same as that under heating mode.

3. Display: Set temperature is the set value under each condition. Ambient temperature is ($T_{\text{amb.}}-T_{\text{compensation}}$) for heat pump unit and $T_{\text{amb.}}$ for cooling only unit.

4. If there's I feel function, $T_{\text{compensation}}$ is 0. Others are same as above.

(5) Fan mode

Under this mode, indoor fan operates at set fan speed. Compressor, outdoor fan, 4-way valve and electric heating tube stop operation.

Indoor fan can select to operate at high, medium, low or auto fan speed. Temperature setting range is 60.8~86.0°F.

2. Other control

(1) Buzzer

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

(2) Auto button

If press this auto button when turning off the unit, the complete unit will operate at auto mode. Indoor fan operates at auto fan speed and swing function is turned on. Press this auto button at ON status to turn off the unit.

(3) Auto fan

Heating mode: During auto heating mode or normal heating mode, auto fan speed will adjust the fan speed automatically according to ambient temperature and set temperature.

(4) Sleep

After setting sleep function for a period of time, system will adjust set temperature automatically.

(5) Timer function:

General timer and clock timer functions are compatible by equipping remote controller with different functions.

(6) Memory function

memorize compensation temperature, off-peak energization value.

Memory content: mode, up&down swing, light, set temperature, set fan speed, general timer (clock timer can't be memorized).

After power recovery, the unit will be turned on automatically according to memory content.

(7) Health function

During operation of indoor fan, set health function by remote controller. Turn off the unit will also turn off health function.

Turn on the unit by pressing auto button, and the health is defaulted ON.

(8) I feel control mode

After controller received I feel control signal and ambient temperature sent by remote controller, controller will work according to the ambient temperature sent by remote controller.

(9) Compulsory defrosting function

(1) Start up compulsory defrosting function

Under ON status, set heating mode with remote controller and adjust the temperature to 60.8°F. Press “+, -, +, -, +,-” button successively within 5s and the complete unit will enter into compulsory defrosting status. Meanwhile, heating indicator on indoor unit will ON 10s and OFF 0.5s successively. (Note: If complete unit has malfunction or stops operation due to protection, compulsory defrosting function can be started up after malfunction or protection is resumed.)

(2) Exit compulsory defrosting mode

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

(10) Refrigerant recovery function:

(1) Enter refrigerant recycling function

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

(2) Exit refrigerant recycling function

After entering refrigerant recycling mode, when receive any remote control signal or enter refrigerant recycling mode for 25min, the unit will exit refrigerant recycling mode automatically. If the unit is in standby mode before refrigerant recycling, it will be still in standby mode after finishing refrigerant recycling; if the unit is in ON status before refrigerant recycling, it will still run in original operation mode.

(11) Ambient temperature display control mode

1. When user set the remote controller to display set temperature (corresponding remote control code: 01), current set temperature will be displayed.

2. Only when remote control signal is switched to indoor ambient temperature display status (corresponding remote control code: 10) from other display status (corresponding remote control code: 00, 01, 11), controller will display indoor ambient temperature for 3s and then turn back to display set temperature.

Under this mode, indoor fan operates at set fan speed. Compressor, outdoor fan, 4-way valve and electric heating tube stop operation. Indoor fan can select to operate at high, medium, low or auto fan speed. Temperature setting range is 60.8~86.0°F.

(12) Off-peak energization function:

Adjust compressors minimum stop time. The original minimum stop time is 180s and then we change to:

The time interval between two start-ups of compressor can't be less than $180+T$ s ($0 \leq T \leq 15$). T is the variable of controller. That's to say the minimum stop time of compressor is 180s~195s. Read-in T into memory chip when refurbish the memory chip each time. After power recovery, compressor can only be started up after $180+T$ s at least.

(13) SE control mode

The unit operates at SE status.

(14) X-fan mode

When X-fan function is turned on, after turn off the unit, indoor fan will still operate at low speed for 2min and then the complete unit will be turned off. When x-fan function is turned off, after turn off the unit, the complete unit will be turned off directly.

(15) 8° heating function

Under heating mode, you can set 8° heating function by remote controller. The system will operate at 8° set temperature.

(16) Turbo fan control function

Set turbo function under cooling or heating mode to enter into turbo fan speed. Press fan speed button to cancel turbo wind.

No turbo function under auto, dry or fan mode.

(17) Auto cleaning function (only available on some models)

The automatic cleaning function of the indoor heat exchanger can be dedusted and sterilized by the condensation, frosting, defrosting and high temperature stages of the evaporator.

1. Under the power off, press and hold the “Internal Clean” button for 3 seconds while holding down the “MODE” and “FAN” buttons for 5 seconds to turn on the Auto Clean function. After the function is turned on, the air conditioner displays “CL”.

2. The evaporator will be rapidly cooled or heated during the automatic cleaning process. There may be noise or even noise. The noise

generated by the plastic parts due to thermal expansion and contraction is normal. During the cleaning and disinfection process, the room temperature may increase slightly, please keep the room well ventilated.

Tips:

The automatic cleaning function can only be started under normal environmental conditions. If the indoor environment is easy to dust, it is recommended to clean it once a month. If the indoor environment is not so dusty, it is recommended to clean it once every three months. After turning on the automatic cleaning mode, the user can leave the room. When cleaning is complete, the unit will automatically enter standby mode.

Outdoor Units

1. Input Parameter Compensation and Calibration

(1) Check the ambient temperature compensation function Indoor ambient temperature compensation function.

a. In cooling mode, the indoor ambient temperature participating in computing control = ($T_{\text{indoor ambient temperature}} - \Delta T_{\text{cooling indoor ambient temperature compensation}}$)

b. In heating mode, the indoor ambient temperature participating in computing control = ($T_{\text{indoor ambient temperature}} - \Delta T_{\text{heating indoor ambient temperature compensation}}$)

(2) Check effective judgment controls of parameters

Effective judgment function of the outdoor exhaust temperature thermo-bulb When conditions a and b are satisfied, the outdoor exhaust temperature thermo-bulb is judged not to be connected into place, the mainboard of outer units will display failure of the outdoor exhaust temperature thermo-bulb (not connected into place), stop the machine for repairing, and resume the machine by remote controls of ON/OFF.

a. Judgment of exhaust detection temperature change:

After the compressor starts up and runs for 10 minutes, if the compressor frequency $f \geq 40\text{Hz}$, and the rising value T_{exhaust} ($T_{\text{exhaust (after start-up for 10 minutes)}} - T_{\text{exhaust (before start-up)}}$) $< 35.6^\circ\text{F}$, the outdoor exhaust temperature thermo-bulb can be judged not to be connected into place (judging once when the power is on the first time).

b. Comparative judgment of exhaust detection temperature and condenser detection temperature ($T_{\text{pipe temperature}} = T_{\text{outdoor pipe temperature in cooling mode}}$, $T_{\text{pipe temperature}} = T_{\text{indoor pipe temperature in heating mode}}$): After the compressor starts up and runs for 10 minutes, if the compressor frequency $f \geq 40\text{Hz}$, and $T_{\text{pipe temperature}} \geq (T_{\text{exhaust}} + 37.4)$, the outdoor exhaust temperature thermobulb can be judged not to be connected into place (judging once when power is on the first time).

2. Basic Functions

(1) Cooling Mode

1. Conditions and processes of cooling operation:

(1) If the compressor is shut down, and $[T_{\text{setup}} - (T_{\text{indoor ambient temperature}} - \Delta T_{\text{cooling indoor ambient temperature compensation}})] \leq 32.9^\circ\text{F}$, start up the machine for cooling, the cooling operation will start;

(2) During operations of cooling, if $32^\circ\text{F} \leq [T_{\text{setup}} - (T_{\text{indoor ambient temperature}} - \Delta T_{\text{cooling indoor ambient temperature compensation}})] < 35.6^\circ\text{F}$, the cooling operation will be still running;

(3) During operations of cooling, if $35.6^\circ\text{F} \leq [T_{\text{setup}} - (T_{\text{indoor ambient temperature}} - \Delta T_{\text{cooling indoor ambient temperature compensation}})]$, the cooling operation will stop after reaching the temperature point.

2. Temperature setting range

(1) If $T_{\text{outdoor ambient temperature}} \geq [T_{\text{low-temperature cooling temperature}}]$, the temperature can be set at: $60.8\sim 86^\circ\text{F}$ (Cooling at room temperature);

(2) If $T_{\text{outdoor ambient temperature}} < [T_{\text{low-temperature cooling temperature}}]$, the temperature can be set at: $77\sim 86^\circ\text{F}$ (Cooling at low temperature), that is, the minimum setting temperature for outer units judgment is 77°F .

(2) Dehumidifying Mode

1. Conditions and processes of dehumidifying operations: Same as the cooling mode;

2. The temperature setting range is: $60.8\sim 86^\circ\text{F}$;

(3) Air-supplying Mode

1. The compressor, outdoor fans and four-way valves are switched off;

2. The temperature setting range is: $60.8\sim 86^\circ\text{F}$.

(4) Heating Mode

1. Conditions and processes of heating operations: ($T_{\text{indoor ambient temperature}}$ is the actual detection temperature of indoor environment thermo-bulb, $T_{\text{heating indoor ambient temperature compensation}}$ is the indoor ambient temperature compensation during heating operations)

(1) If the compressor is shut down, and $[(T_{\text{indoor ambient temperature}} - \Delta T_{\text{heating indoor ambient temperature compensation}}) - T_{\text{setup}}] \leq 32.9^\circ\text{F}$, start the machine to enter into heating operations for heating;

(2) During operations of heating, if $32^\circ\text{F} \leq [(T_{\text{indoor ambient temperature}} - \Delta T_{\text{heating indoor ambient temperature compensation}}) - T_{\text{setup}}] < 35.6^\circ\text{F}$, the heating operation will be still running;

(3) During operations of heating, if $35.6^\circ\text{F} \leq [(T_{\text{indoor ambient temperature}} - \Delta T_{\text{heating indoor ambient temperature compensation}}) - T_{\text{setup}}]$, the heating operation will stop after reaching the temperature point.

2. The temperature setting range in this mode is: $60.8\sim 86^\circ\text{F}$.

1. Starting estimation:

After the compressor stopped working for 180s, if $T_{\text{inner pipe}} > [T_{\text{frozen-preventing frequency-limited temperature}}$ (the temperature of hysteresis is 35.6°F), the machine is only allowed to start for operating, otherwise it should not be started, and should be stopped to treat according to the frozen-preventing protection: Clear the trouble under the mode of power turn-off / heating, and the protection times are not counted.

2. Frequency limited

$[T_{\text{frozen-preventing normal speed frequency-reducing temperature}}] \leq [T_{\text{inner pipe}} T_{\text{frozen-preventing frequency-limited temperature}}]$, you should limit the frequency raising of compressor.

3. Reducing frequency at normal speed:

If $[T_{\text{frozen-preventing high speed frequency-reducing temperature}}] \leq [T_{\text{inner pipe}} T_{\text{frozen-preventing normal speed frequency-reducing temperature}}]$, you should adjust the compressor frequency by reducing 8Hz/90s till the lower limit;

4. Reducing frequency at high speed:

If $[T_{\text{frozen-preventing power turn-off temperature}}] \leq T_{\text{inner pipe}} [T_{\text{frozen-preventing high speed frequency-reducing temperature}}]$ you should adjust the compressor frequency by reducing 30Hz/90s till the lower limit;

5. Power turn-off:

If the $T_{\text{inner pipe}} < [T_{\text{frozen-preventing power turn-off temperature}}]$, then frozen-preventing protect to stop the machine; If $[T_{\text{frozen-preventing frequency-limited temperature}}] < T_{\text{inner pipe}}$, and the compressor has stopped working for 3 minutes, the whole machine should be allowed to operate.

6. If the frozen-preventing protection power turn-off continuously occurs for six times, it should not be resumed automatically, and you should press the ON/OFF button to resume if the fault keeps on. During the process of running, if the running time of compressor exceeds the evaporator frozen-preventing protection times zero clearing time , the times of frozen-preventing power turn-off should be cleared to recount. The mode of stopping the machine or transferring to supply air will clear the trouble times immediately (if the trouble can not be resumed, mode transferring will not clear it).

(5) Overload protection function

Overload protection function at the mode of Cooling and dehumidifying

1. Starting estimation:

After the compressor stopped working for 180s, if $T_{\text{outer pipe}} < [T_{\text{Cooling overload frequency-limited temperature}}]$ (the temperature of hysteresis is 35.6°F), the machine is allowed to start, otherwise it should not be started, and should be stopped to treat according to the overload protection: Clear the trouble at the mode of power turn-off / heating, and the protection times are not counted.

2. Frequency limited

If $[T_{\text{Cooling overload frequency-limited temperature}}] \leq [T_{\text{outer pipe}} T_{\text{Cooling overload frequency reducing temperature at normal speed}}]$, you should limit the frequency raising of compressor.

3. Reducing frequency at normal speed and power turn-off:

If $[T_{\text{Cooling overload frequency reducing temperature at high speed}}] \leq T_{\text{outer pipe}} < [T_{\text{Cooling overload power turn-off temperature}}]$, you should adjust the compressor frequency by reducing 8Hz/90s till the lower limit; After it was running 90s at the lower limit, if $[T_{\text{Cooling overload frequency reducing temperature at normal speed}}] \leq T_{\text{outer pipe}}$, then Cooling overload protects machine stopping;

4. Reducing frequency at high speed and stop machine:

If $[T_{\text{Cooling overload frequency reducing temperature at high speed}}] \leq T_{\text{outer pipe}} [T_{\text{Cooling overload power turn-off temperature}}]$, you should adjust the compressor frequency by reducing 30Hz/90s till the lower limit; After it was running 90s at the lower limit, if $[T_{\text{Cooling overload frequency reducing temperature at normal speed}}] \leq [T_{\text{outer pipe}}]$, then Cooling overload protects machine stopping;

5. Power turn-off:

If the $[T_{\text{Cooling overload power turn-off temperature}}] \leq T_{\text{outer pipe}}$, then Cooling overload protects machine stopping; If $[T_{\text{outer pipe}}] < [T_{\text{Cooling overload frequency-limited temperature}}]$ and the compressor has been stopped working for 3 minutes, the machine should be allowed to operate.

6. If the Cooling overload protection power turn-off continuously occurs for six times, it should not be resumed automatically, and you should press the ON/OFF button to resume if the fault keeps on. During the process of running, if the running time of compressor exceeds the overload protection times zero clearing time , the times of overload protection power turn-off should be cleared to recount. The mode of stopping the machine or transferring to supply air will clear the trouble times immediately (if the trouble can not be resumed, transferring mode will not clear it).

Overload protection function at the mode of heating

Starting estimation :

After the compressor stopped working for 180s, if $T_{\text{inner pipe}} T_{\text{heating overload frequency-limited temperature}}$ (the temperature of hysteresis is 35.6°F), the machine is allowed to start, otherwise it should not be started, and should be stopped to treat according to the overload protection:

Clear the trouble at the mode of power turn-off / heating, and the protection times are not counted.

(6)Voltage sag protection

After start the compressor, if the time of DC link Voltage sag [$U_{\text{Sagging protection voltage}}$] is measured to be less than t Voltage sag protection time , the machine should be stop at once, hand on the voltage sag trouble, reboot automatically after 30 minutes.

(7)Communication fault

When you have not received any correct signal from the inner machine in three minutes, the machine will stop for communication fault. When you have not received any correct signal from driver IC (aim to the controller for the separating of main control IC and driver IC), and the machine will stop for communication fault. If the communication is resumed, the machine will be allowed to operate.

(8)Module protection

Testing the module protective signal immediately after started, once the module protective signal is measured, stop the machine with module protection immediately. If the module protection is resumed, the machine will be allowed to operate. If the module protection continuously occurs for three times, it should not be resumed automatically, and you should press the ON/OFF button to resume. If the running time of compressor exceeds the [$t_{\text{Protection times clearing of module}}$] , the module protection is cleared to recount.

(9)Module overheating protection

1. Starting estimation:

After the compressor stopped working for 180s, if $T_{\text{Module}} < [T_{\text{Module frequency limited temperature}}]$ (the temperature of hysteresis is 35.6°F), the machine is allowed to start, otherwise it should not be started, and should be stopped to treat according to the module overheating protection: The machine should be stopped or transferred to supply air, the trouble should be cleared immediately, and the protection times are not counted.

2. Frequency limited

If $[T_{\text{Limited frequency temperature of module}}] \leq T_{\text{Module}} < [T_{\text{frequency reducing temperature at normal speed of module}}]$, you should limit the frequency raising of compressor.

3. Reducing frequency at normal speed and power turn-off:

If $[T_{\text{frequency reducing temperature at normal speed of module}}] \leq T_{\text{Module}} < [T_{\text{frequency reducing temperature at high speed of module}}]$, you should adjust the compressor frequency by reducing 8Hz/90s till the lower limit; After it was running 90s at the lower limit, if $[T_{\text{frequency reducing temperature at normal speed of module}}] \leq T_{\text{Module}}$, you should stop the machine for module overheating protection;

4. Reducing frequency at high speed and power turn-off:

If $[T_{\text{frequency reducing temperature at high speed of module}}] \leq T_{\text{Module}} < [T_{\text{Power turn-off temperature of module}}]$ you should adjust the compressor frequency by reducing 30Hz/90s till the lower limit; After it was running 90s at the lower limit, if $[T_{\text{frequency reducing temperature at normal speed of module}}] \leq T_{\text{Module}}$, you should stop the machine for module overheating protection;

5. Power turn-off:

If the $[T_{\text{Power turn-off temperature of module}}] \leq T_{\text{Module}}$, you should stop the machine for module overheating protection; If $T_{\text{Module}} < [T_{\text{Limited frequency temperature of module}}]$ and the compressor has been stopped for 3 minutes, the machine should be allowed to operate.

6. If protection continuously occurs for six times, it should not be resumed automatically, and you should press the ON/OFF button to resume. During the process of running, if the running time of compressor exceeds the [$t_{\text{Protection times clearing of module}}$] , the discharge protection is cleared to recount. Stopped or transferred to supply air mode will clear the trouble times immediately (if the trouble can not be resumed, mode transferring also will not clear it).

(10)Compressor overloads protection

If you measure the compressor overload switch action in 3s, the compressor should be stopped for overloading. The machine should be allowed to operate after overload protection was measured to resume. If the overloading protection continuously occurs for three times, it should not be resumed automatically, and you should press the ON/OFF button to resume. The protection times of compressor is allowed to clear after the compressor run [$t_{\text{Protection times clearing of compressor overloading}}$] 30 minutes.

(11)Phase current overcurrent protection of compressor

During the running process of compressor, you could measure the phase current of the compressor, and control it according to the following steps:

1. Frequency limited

If $[I_{\text{Limited frequency phase current}}] \leq [I_{\text{Phase current T frequency reducing phase current}}]$, you should limit the frequency raising of compressor.

2. Reducing Frequency

If $[I_{\text{Frequency Reducing Phase Current}}] \leq I_{\text{Phase Current}} < [I_{\text{Power Turn-Off Phase Current}}]$, the compressor shall continue to reduce frequency till the lowest frequency limit or out of the condition of reducing frequency;

3. Power turn-off

If $[I_{\text{Phase Current}}] \geq [I_{\text{Power Turn-Off Phase Current}}]$, the compressor phase current shall stop working for overcurrent protection; if $[I_{\text{Phase Current}}] \leq [I_{\text{Frequency Reducing Phase Current}}]$, and the compressor have stopped working for 3 min, the machine shall be allowed to operate;

4. If the overcurrent protection of compressor phase current continuously occurs for six times, it should not be resumed automatically, and you should press the ON/OFF button to resume. During the process of running, if the running time of compressor exceeds the [$t_{\text{Clearing Time of Compressor Phase Current Times}}$] , the overcurrent protection is cleared to recount.

6. Electric Heating Function of Chassis

- (1) When $T_{\text{outdoor amb.}} \leq 32^{\circ}\text{F}$, the electric heating of chassis will operate;
- (2) When $T_{\text{outdoor amb.}} > 35.6^{\circ}\text{F}$, the electric heating of chassis will stop operation;
- (3) When $32^{\circ}\text{F} < T_{\text{outdoor amb.}} \leq 35.6^{\circ}\text{F}$, the electric heating of chassis will keep original status.

7. Electric Heating Function of Compressor

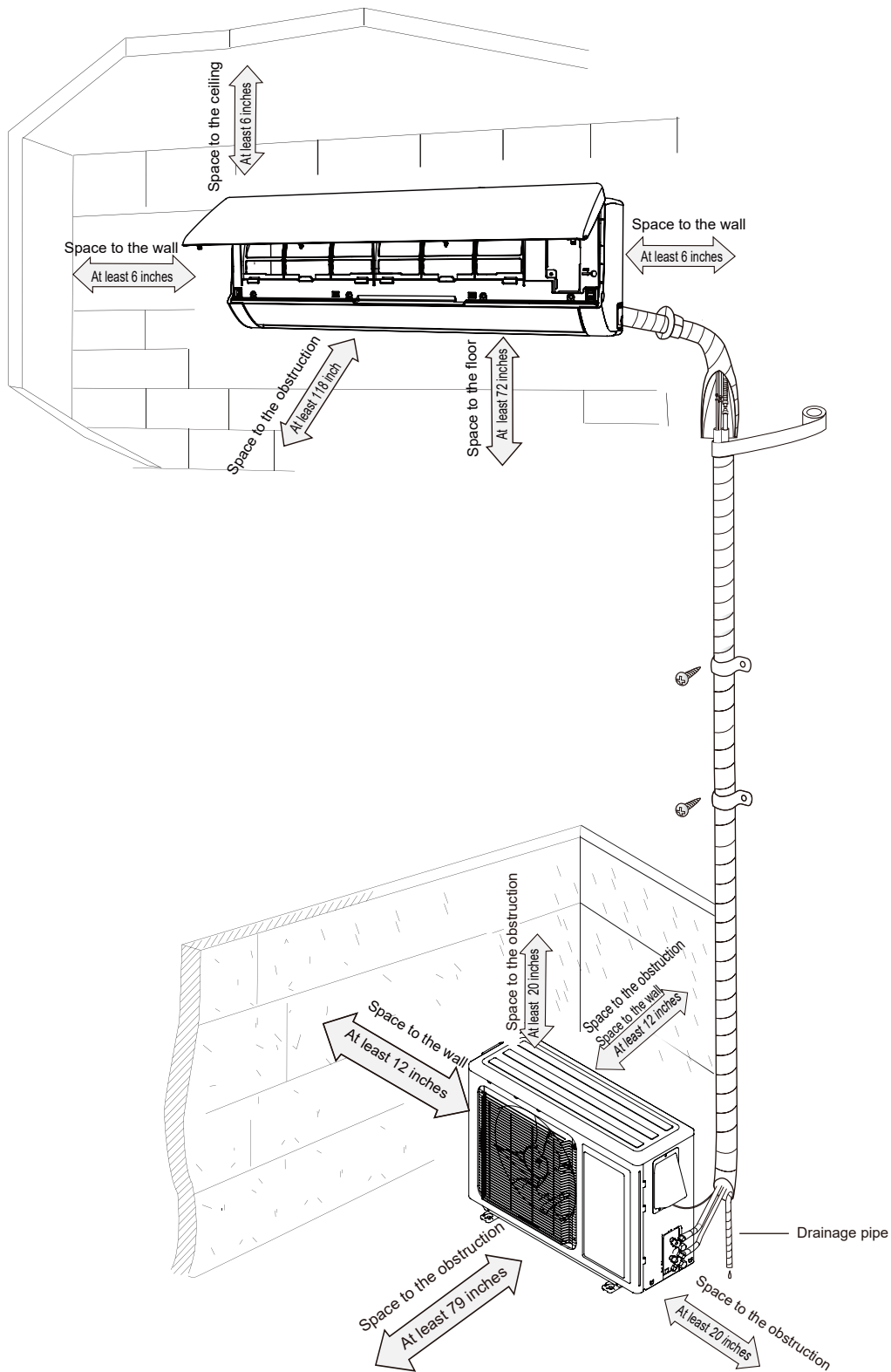
- (1) When $T_{\text{outdoor amb.}} \leq 23^{\circ}\text{F}$, compressor stops operation, while the electric heating of compressor starts operation;
- (2) When $T_{\text{outdoor amb.}} > 28.4^{\circ}\text{F}$, the electric heating of compressor stops operation;
- (3) When $23^{\circ}\text{F} < T_{\text{outdoor amb.}} \leq 28.4^{\circ}\text{F}$, the electric heating of compressor will keep original status.

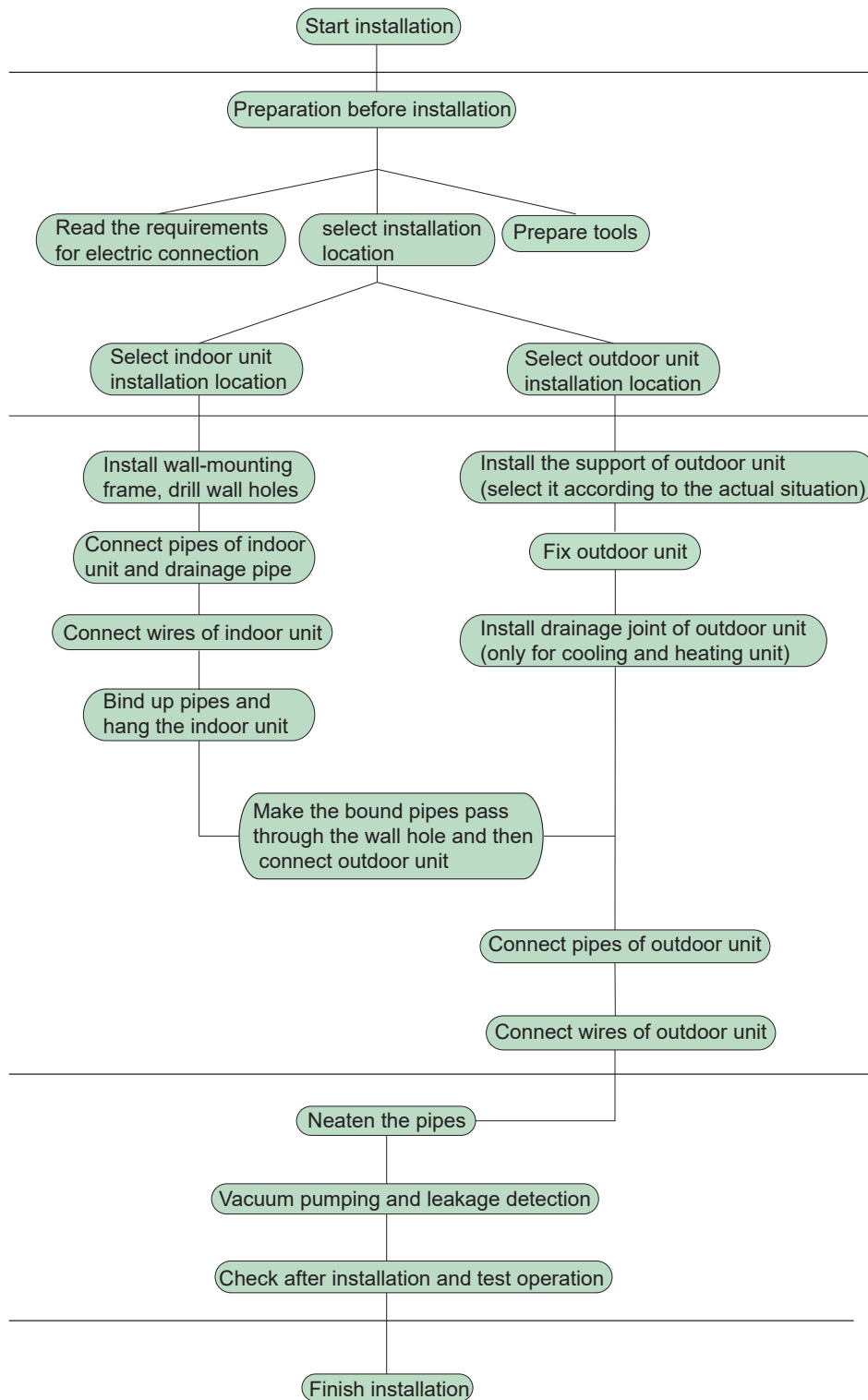
Main Tools for Installation and Maintenance

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

8. Installation

8.1 Installation Dimension Diagram





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

8.2 Installation Parts-checking

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

⚠ Note:

- 1.Please contact the local agent for installation.
- 2.Dont use unqualified power cord.

8.3 Selection of Installation Location

1. Basic Requirement:

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

- (1) The place with strong heat sources, vapors, flammable or explosive gas, or volatile objects spread in the air.
- (2) The place with high-frequency devices (such as welding machine, medical equipment).
- (3) The place near coast area.
- (4) The place with oil or fumes in the air.
- (5) The place with sulfureted gas.
- (6) Other places with special circumstances.
- (7) Do not use the unit in the immediate surroundings of a laundry a bath a shower or a swimming pool.
- (8) It's not allowed to be installed on the unstable or motive base structure(such as truck) or in the corrosive environment (such as chemical factory).

2. Indoor Unit:

- (1) There should be no obstruction near air inlet and air outlet.
- (2) Select a location where the condensation water can be dispersed easily and wont affect other people.
- (3) Select a location which is convenient to connect the outdoor unit and near the power socket.
- (4) Select a location which is out of reach for children.
- (5) The location should be able to withstand the weight of indoor unit and wont increase noise and vibration.
- (6) The appliance must be installed 72inch above floor.
- (7) Dont install the indoor unit right above the electric appliance.
- (8) Please try your best to keep way from fluorescent lamp.

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 away from 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 for Electric 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 breaker.
- (3) Make sure the power supply matches with the requirement of air conditioner. Unstable power supply or incorrect wiring may result in electric shock,fire hazard or malfunction. Please install proper power supply cables before using the air conditioner.
- (4) Properly connect the live wire, neutral wire and grounding wire of power socket.
- (5) Be sure to cut off the power supply before proceeding any work related to electricity and safety.
- (6) Do not put through the power before finishing installation.
- (7) 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.
- (9) The appliance shall be installed in accordance with national wiring regulations.

2. Grounding Requirement:

- (1) The air conditioner is first class electric appliance. It must be properly grounding with specialized grounding device by a professional. Please make sure it is always grounded effectively, otherwise it may cause electric shock.
- (2) The yellow-green wire in air conditioner is grounding wire, which cant be used for other purposes.
- (3) The grounding resistance should comply with national electric safety regulations.
- (4) The appliance must be positioned so that the plug is accessible.
- (5) An all-pole disconnection switch having a contact separation of at least 1/8 inch in all poles should be connected in fixed wiring.
- (6) Including a breaker with suitable capacity, please note the following table. Breaker should include 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)

| Air-conditioner | Breaker capacity |
|-------------------------------------|------------------|
| 07/09/12K | 15A |
| 18K for some model | 20A |
| 18/24K for some model | 25A |
| Check Submittals for Breaker Sizing | |

8.5 Installation of Indoor Unit

1. Choosing Installation location

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

2. Install Wall-mounting Frame

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

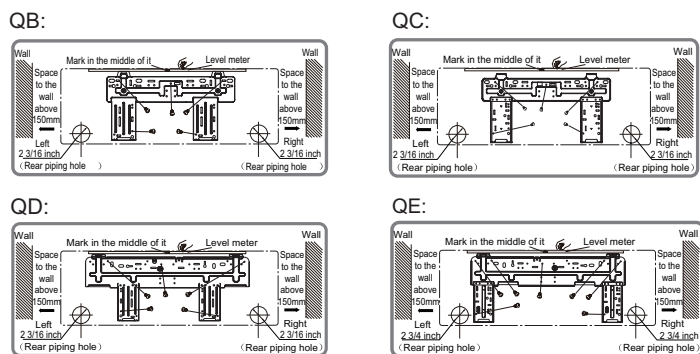
in the holes.

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

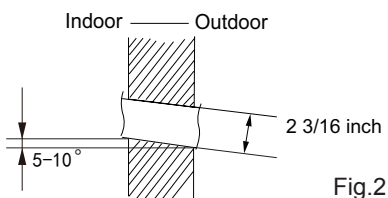
3. Install Wall-mounting Frame

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

Fig.1



(2) Open a piping hole with the diameter of 2 3/16(2 3/4)inch 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)

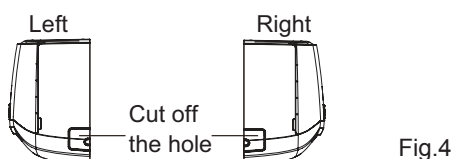
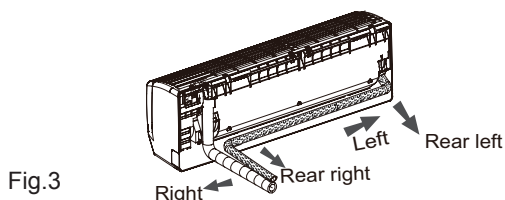


⚠ Note:

- (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.

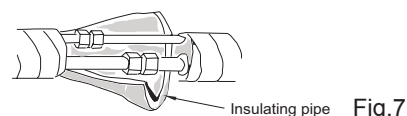
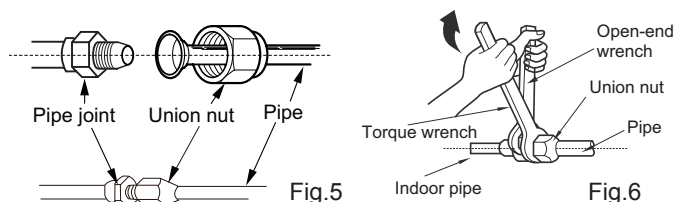
4. Outlet Pipe

- (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)

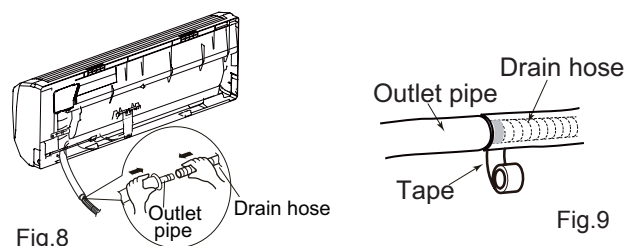


Refer to the following table for wrench moment of force:

| Hex nut diameter(inch) | Tightening torque(ft.lbf) |
|------------------------|---------------------------|
| Φ1/4 | 11.10~14.75 |
| Φ3/8 | 22.12~29.50 |
| Φ1/2 | 33.19~40.56 |
| Φ5/8 | 44.24~47.94 |
| Φ3/4 | 51.32~55.31 |

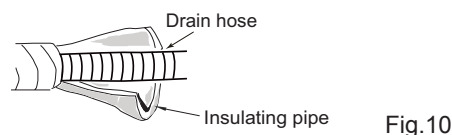
6. Install Drain Hose

- (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)



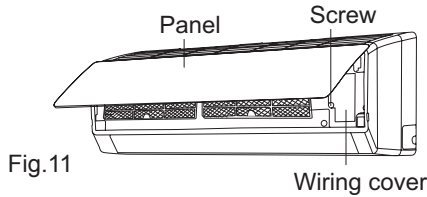
⚠ Note:

- (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)

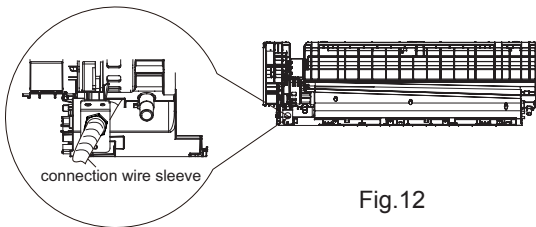


7. Connect Wire of Indoor Unit

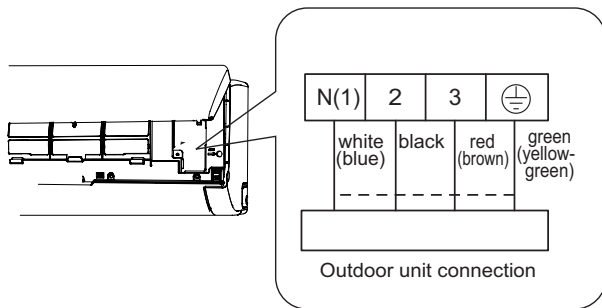
(1) Open the panel, remove the screw on the wiring cover and then take down the cover.(As show in Fig.11)



(2) Fix the wire crossing board on connection wire sleeve at the bottom case; let the connection wire sleeve go through the wire crossing hole at the back of indoor unit, and then pull it out from the front.(As show in Fig.12)



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



Note: the wiring board 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, a breaker must be installed in the line. The breaker 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 to a certain degree, separate the indoor power and then separate the drain hose.(As show in Fig.15)
- (3) Bind them evenly.
- (4) The liquid pipe and gas pipe should be bound separately at the end.

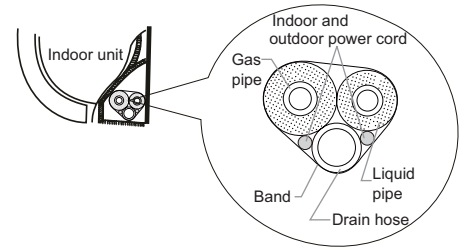


Fig.14

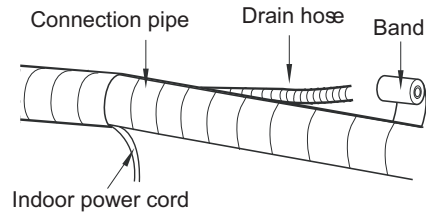


Fig.15

⚠ Note:

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

9. Hang the Indoor Unit

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

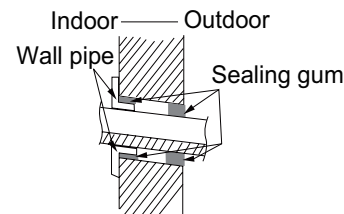


Fig.16

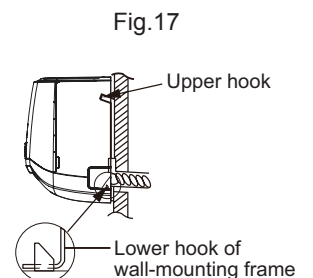


Fig.17

⚠ Note:

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

8.6 Installation of Outdoor Unit

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

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

⚠ Note:

- (1) Take sufficient protective measures when installing the outdoor unit.
- (2) Make sure the support can withstand at least four times the unit weight.
- (3) The outdoor unit should be installed at least 1 3/16 inch above the floor in order to install drain joint.(As show in Fig.18)
- (4) For the unit with cooling capacity of 2300W~5000W, 6 expansion screws are needed; for the unit with cooling capacity of 6000W~8000W, 8 expansion screws are needed; for the unit with cooling capacity of 10000W~16000W, 10 expansion screws are needed.

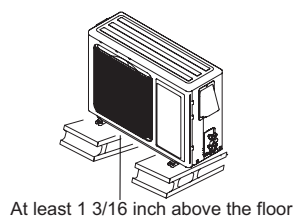


Fig.18

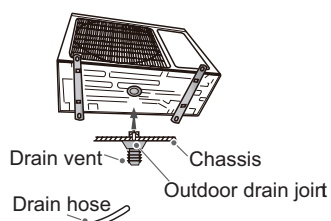


Fig.19

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

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

3. Fix Outdoor Unit

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

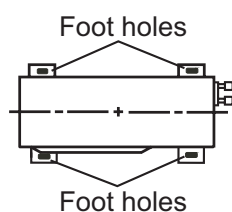


Fig.20

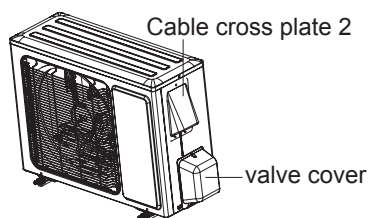


Fig.21

4. Connect Indoor and Outdoor Pipes

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

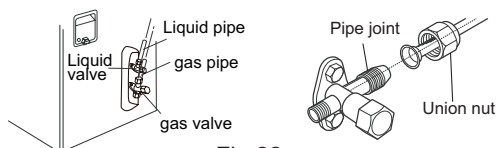


Fig.22

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

Refer to the following table for wrench moment of force:

| Hex nut diameter(inch) | Tightening torque(ft·lbf) |
|------------------------|---------------------------|
| Φ1/4 | 11.10~14.75 |
| Φ3/8 | 22.12~29.50 |
| Φ1/2 | 33.19~40.56 |
| Φ5/8 | 44.24~47.94 |
| Φ3/4 | 51.32~55.31 |

5. Connect Outdoor Electric Wire

- (1) Let the connection wire sleeve go through the two holes of baffle; tighten the connection joint of sleeve and baffle; remove the wire clip; connect the power connection wire and power cord to the wiring terminal according to the color; fix them with screws.(As show in Fig.23)

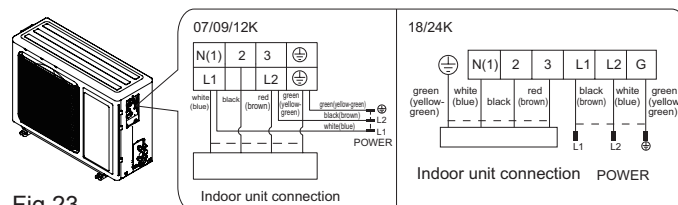


Fig.23

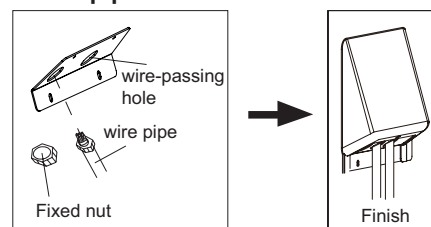
Note: the wiring board is for reference only,please refer to the actual one.

- (2) Fix the power connection wire and power cord with wire clip.
- (3) Fix the stopper on handle with screw.

⚠ 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.
- (3)The connecting wire and connection pipe cannot touch each other,
- (4)Top cover of outdoor unit and electric box assembly should be fixed by the screw.Otherwise,it can cause a fire,or short circuit caused by water or dust.

Install the over line pipe



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 3 15/16inch.
- (2) If the outdoor unit is higher than the wall hole, you must set a U-shaped curve in the pipe before pipe goes into the room, in order to prevent rain from getting into the room.(As show in Fig.24)

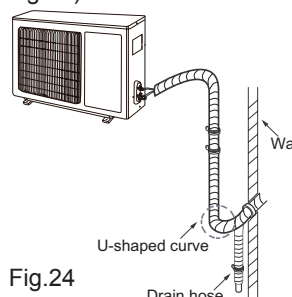


Fig.24

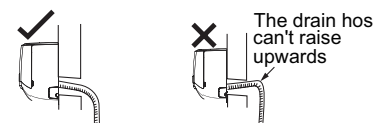


Fig.25

9. Maintenance

9.1 Error Code List

| NO. | Malfunction Name | Display Method of Indoor Unit | | | A/C status | Possible Causes | |
|-----|-------------------------------------------------------------|-------------------------------|-----------------------------------------------------------|----------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | Dual-8 Code Display | Indicator Display (during blinking, ON 0.5s and OFF 0.5s) | | | | |
| | | | Operation Indicator | Cool Indicator | | | Heating Indicator |
| 1 | High pressure protection of system | E1 | | | | During cooling and drying operation, except indoor fan operates, all loads stop operation. During heating operation, the complete unit stops. | Possible reasons: 1. Refrigerant was superabundant; 2. Poor heat exchange (including filth blockage of heat exchanger and bad radiating environment); Ambient temperature is too high. |
| 2 | Antifreezing protection | E2 | | | | During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. | 1. Poor air-return in indoor unit; 2. Fan speed is abnormal; 3. Evaporator is dirty. |
| 3 | Refrigerant leakage protection | F0 | | | | The Dual-8 Code Display will show F0 and the complete unit stops. | 1.Refrigerant leakage; 2.Indoor evaporator temperature sensor works abnormally; 3.The unit has been plugged up somewhere. |
| 4 | High discharge temperature protection of compressor | E4 | | | | During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop. | Please refer to the malfunction analysis (discharge protection, overload). |
| 5 | Overcurrent protection | E5 | | | | During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop. | 1. Supply voltage is unstable; 2. Supply voltage is too low and load is too high; 3. Evaporator is dirty. |
| 6 | Communication Malfunction | E6 | | | | During cooling operation, compressor stops while indoor fan motor operates. During heating operation, the complete unit stops. | Refer to the corresponding malfunction analysis. |
| 7 | High temperature resistant protection | E8 | | | | During cooling operation: compressor will stop while indoor fan will operate. During heating operation, the complete unit stops. | Refer to the malfunction analysis (overload, high temperature resistant). |
| 8 | EEPROM malfunction | EE | | | | During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop | Replace outdoor control panel AP1 |
| 9 | Limit/ decrease frequency due to high temperature of module | EU | | | | All loads operate normally, while operation frequency for compressor is decreased | Discharging after the complete unit is de-energized for 20mins, check whether the thermal grease on IPM Module of outdoor control panel AP1 is sufficient and whether the radiator is inserted tightly. If its no use, please replace control panel AP1. |
| 10 | Malfunction protection of jumper cap | C5 | | | | Wireless remote receiver and button are effective, but can not dispose the related command | 1. No jumper cap insert on mainboard. 2. Incorrect insert of jumper cap. 3. Jumper cap damaged. 4. Abnormal detecting circuit of mainboard. |

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

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

| NO. | Malfunction Name | Display Method of Indoor Unit | | | A/C status | Possible Causes | |
|-----|-------------------------------------------------------------------------------|-------------------------------|-----------------------------------------------------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| | | Dual-8 Code Display | Indicator Display (during blinking, ON 0.5s and OFF 0.5s) | | | | |
| | | | Operation Indicator | Cool Indicator | | | Heating Indicator |
| 26 | Compressor intermediate frequency in test state | P3 | | | | Showing during middle cooling or middle heating test | |
| 27 | Overcurrent protection of phase current for compressor | P5 | | | During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation. | Refer to the malfunction analysis (IPM protection, loss of synchronism protection and overcurrent protection of phase current for compressor). | |
| 28 | Charging malfunction of capacitor | PU | | | During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop | Refer to the part three—charging malfunction analysis of capacitor | |
| 29 | Malfunction of module temperature sensor circuit | P7 | | | During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop | Replace outdoor control panel AP1 | |
| 30 | Module high temperature protection | P8 | | | During cooling operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop | After the complete unit is de-energized for 20mins, check whether the thermal grease on IPM Module of outdoor control panel AP1 is sufficient and whether the radiator is inserted tightly. If its no use, please replace control panel AP1. | |
| 31 | Decrease frequency due to high temperature resistant during heating operation | H0 | | | All loads operate normally, while operation frequency for compressor is decreased | Refer to the malfunction analysis (overload, high temperature resistant) | |
| 32 | Cold air prevention protection | E9 | | | Not the error code. It's the status code for the operation. | | |
| 33 | Overload protection for compressor | H3 | | | During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation. | 1. Wiring terminal OVC-COMP is loosened. In normal state, the resistance for this terminal should be less than 1ohm. 2.Refer to the malfunction analysis (discharge protection, overload) | |



| NO. | Malfunction Name | Display Method of Indoor Unit | | | A/C status | Possible Causes | |
|-----|--------------------------------------------|-------------------------------|-----------------------------------------------------------|----------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | Dual-8 Code Display | Indicator Display (during blinking, ON 0.5s and OFF 0.5s) | | | | |
| | | | Operation Indicator | Cool Indicator | | | Heating Indicator |
| 34 | System is abnormal | H4 | | | | During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation. | Refer to the malfunction analysis (overload, high temperature resistant) |
| 35 | IPM protection | H5 | | | | During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation. | Refer to the malfunction analysis (IPM protection, loss of synchronism protection and overcurrent protection of phase current for compressor. |
| 36 | Anti-freezing protection for evaporator | E2 | | | | Not the error code. It's the status code for the operation. | |
| 37 | Internal motor (fan motor) do not operate | H6 | | | | Internal fan motor, external fan motor, compressor and electric heater stop operation,guide louver stops at present location. | <ol style="list-style-type: none"> 1. Bad contact of DC motor feedback terminal. 2. Bad contact of DC motor control end. 3. Fan motor is stalling. 4. Motor malfunction. 5. Malfunction of mainboard rev detecting circuit. |
| 38 | Desynchronizing of compressor | H7 | | | | During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation. | Refer to the malfunction analysis (IPM protection, loss of synchronism protection and overcurrent protection of phase current for compressor. |
| 39 | PFC protection | HC | | | | During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation. | Replace outdoor control panel AP1 or Reactor |
| 40 | Outdoor DC fan motor malfunction | L3 | | | | Outdoor DC fan motor malfunction lead to compressor stop operation, | DC fan motor malfunction or system blocked or the connector loosed |
| 41 | power protection | L9 | | | | compressor stop operation and Outdoor fan motor will stop 30s latter , 3 minutes latter fan motor and compressor will restart | To protect the electrical components when detect high power |
| 42 | Indoor unit and outdoor unit doesn't match | LP | | | | compressor and Outdoor fan motor can't work | Indoor unit and outdoor unit doesn't match |
| 43 | Failure start-up | LC | | | | During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop operation. | Refer to the malfunction analysis |

| NO. | Malfunction Name | Display Method of Indoor Unit | | | A/C status | Possible Causes | |
|-----|---------------------------------------------------------------|--------------------------------------------------------------|-----------------------------------------------------------|----------------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| | | Dual-8 Code Display | Indicator Display (during blinking, ON 0.5s and OFF 0.5s) | | | | |
| | | | Operation Indicator | Cool Indicator | | | Heating Indicator |
| 44 | Malfunction of phase current detection circuit for compressor | U1 | | | | During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop | Replace outdoor control panel AP1 |
| 45 | Malfunction of voltage dropping for DC bus-bar | U3 | | | | During cooling and drying operation, compressor will stop while indoor fan will operate; During heating operation, the complete unit will stop | Supply voltage is unstable |
| 46 | Malfunction of complete units current detection | U5 | | | | During cooling and drying operation, the compressor will stop while indoor fan will operate; During heating operating, the complete unit will stop operation. | Theres circuit malfunction on outdoor units control panel AP1, please replace the outdoor units control panel AP1. |
| 47 | The four-way valve is abnormal | U7 | | | | If this malfunction occurs during heating operation, the complete unit will stop operation. | 1.Supply voltage is lower than AC175V; 2.Wiring terminal 4V is loosened or broken; 3.4V is damaged, please replace 4V. |
| 48 | Zero-crossing malfunction of outdoor unit | U9 | | | | During cooling operation, compressor will stop while indoor fan will operate; during heating,the complete unit will stop operation. | Replace outdoor control panel AP1 |
| 49 | Defrosting | OFF 3S and blink once (during blinking, ON 10s and OFF 0.5s) | | | | Not the error code. It's the status code for the operation. | Its the normal state |
| 50 | Malfunction of detecting plate(WIFI) | JF | | | | Loads operate normally, while the unit can't be normally controlled by APP. | 1.Main board of indoor unit is damaged; 2.Detection board is damaged; 3.The connection between indoor unit and detection board is not good; |



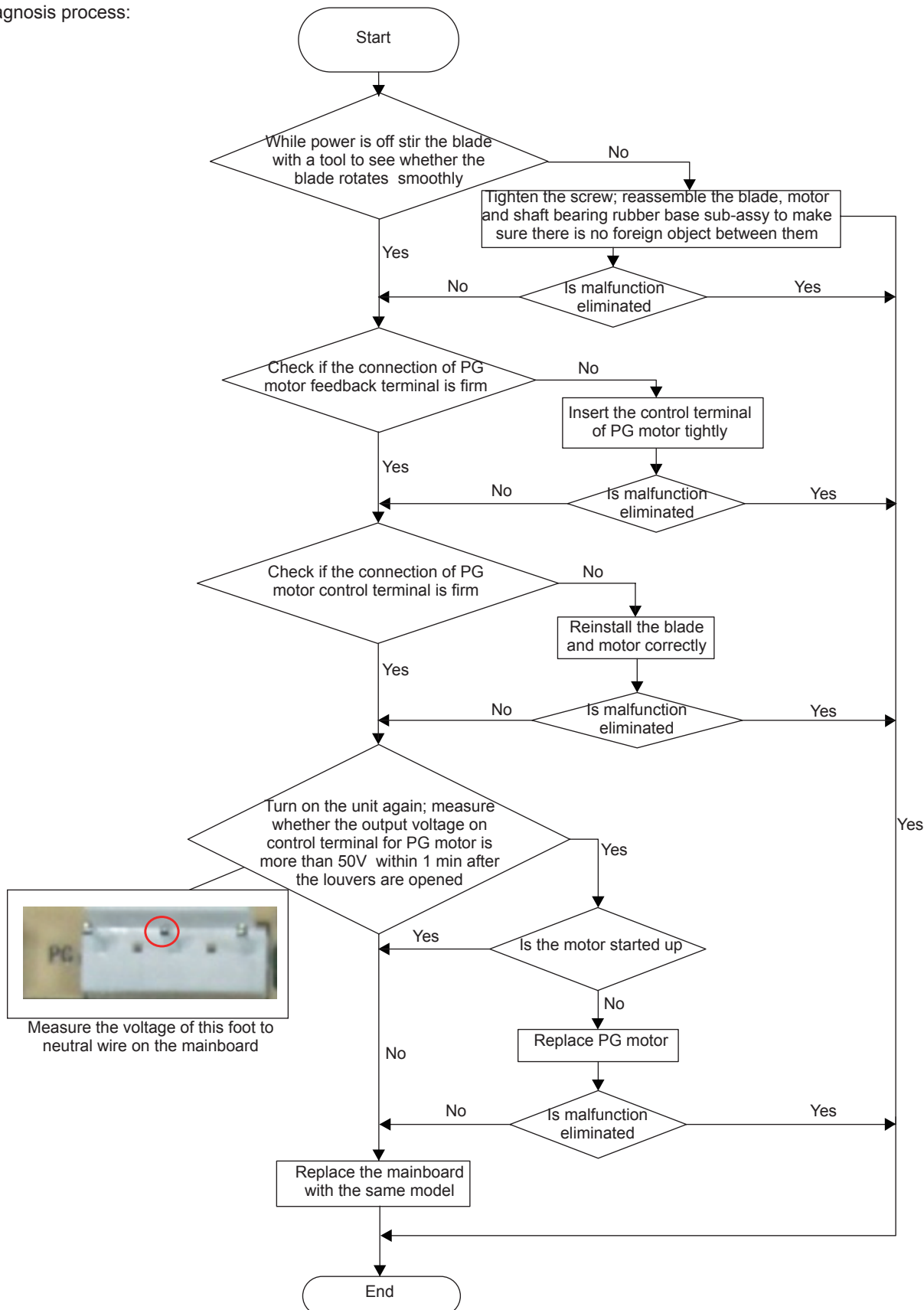
| | | | | | | | |
|----|------------------------------|----|--|--|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 51 | Undefined outdoor unit error | oE | | | | <p>Cool: compressor and outdoor fan stops operation, while indoor fan operates; Heat: compressor, outdoor fan and indoor fan stop operation.</p> | <p>1. Outdoor ambient temperature exceeds the operation range of unit (eg: less than -20°C or more than 60°C for cooling; more than 30°C for heating); 2. Failure startup of compressor? 3. Are wires of compressor not connected tightly? 4. Is compressor damaged? 5. Is main board damaged?</p> |
|----|------------------------------|----|--|--|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

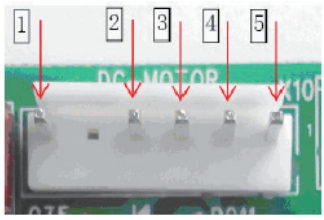
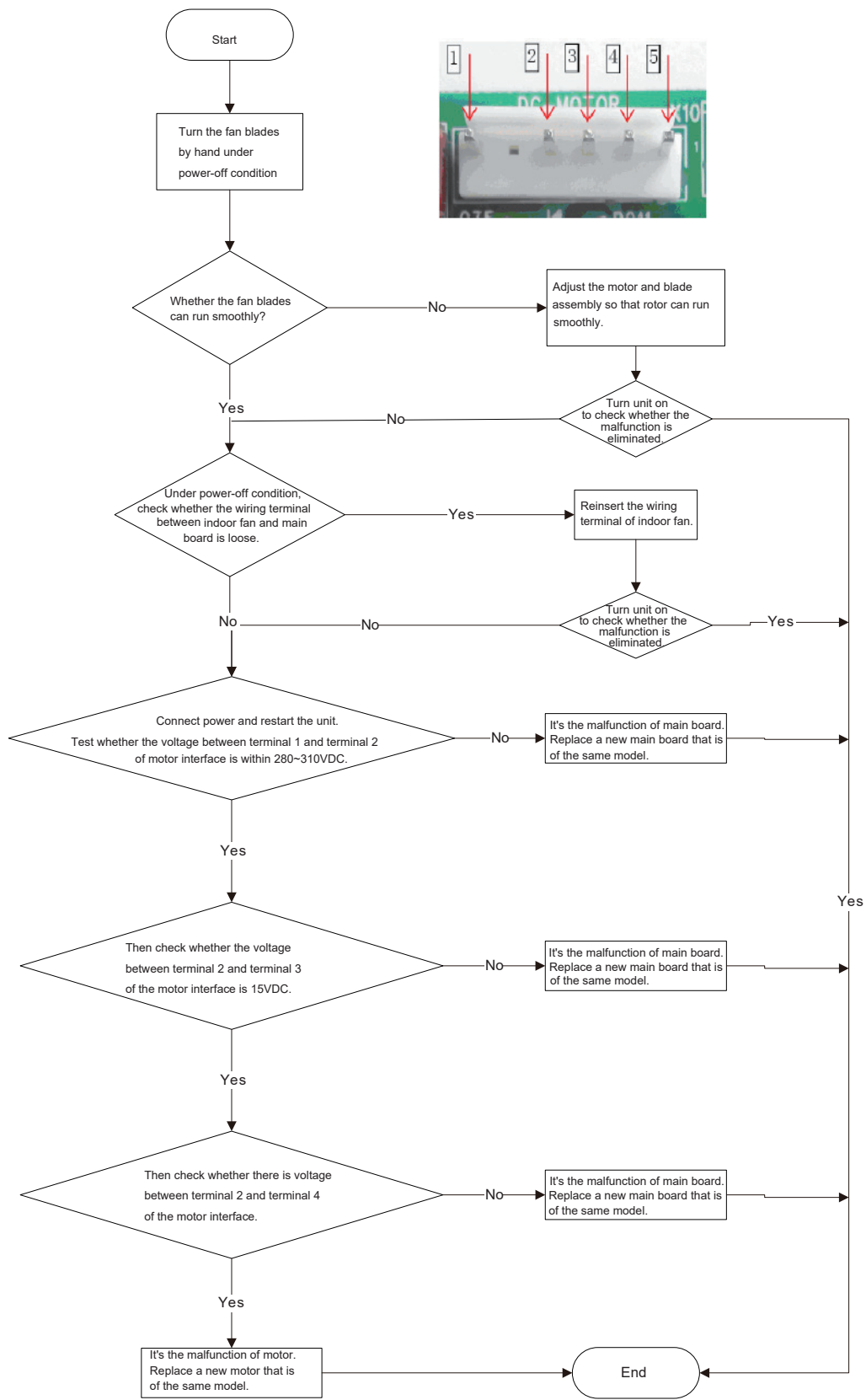
2. Malfunction of Blocked Protection of IDU Fan Motor H6

Main detection points:

- Smoothly Is the control terminal of PG motor connected tightly?
- Smoothly Is the feedback interface of PG motor connected tightly?
- The fan motor cant operate?
- The motor is broken?
- Detection circuit of the mainboard is defined abnormal?

Malfunction diagnosis process:



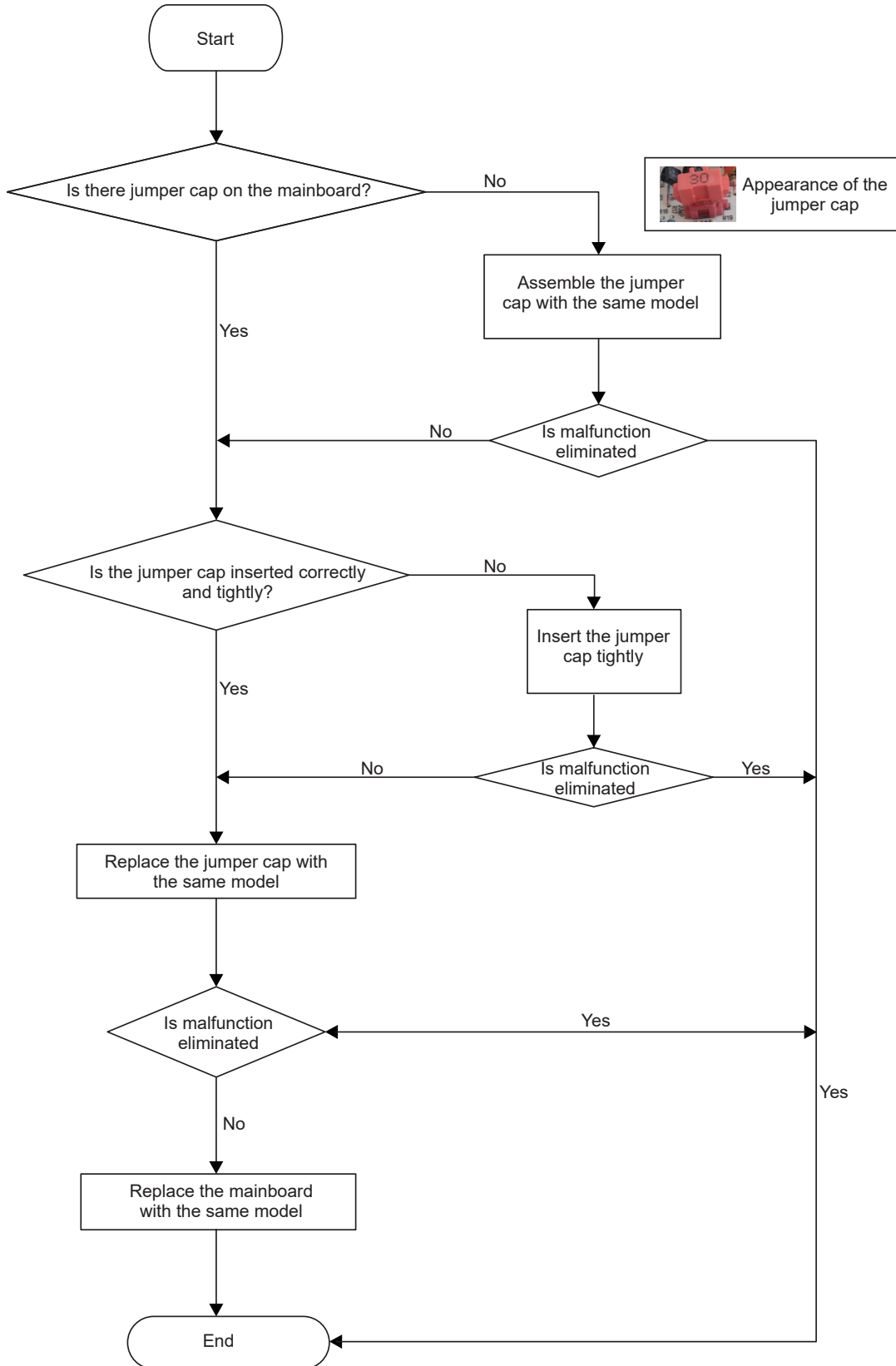


3. Malfunction of Protection of Jumper Cap C5

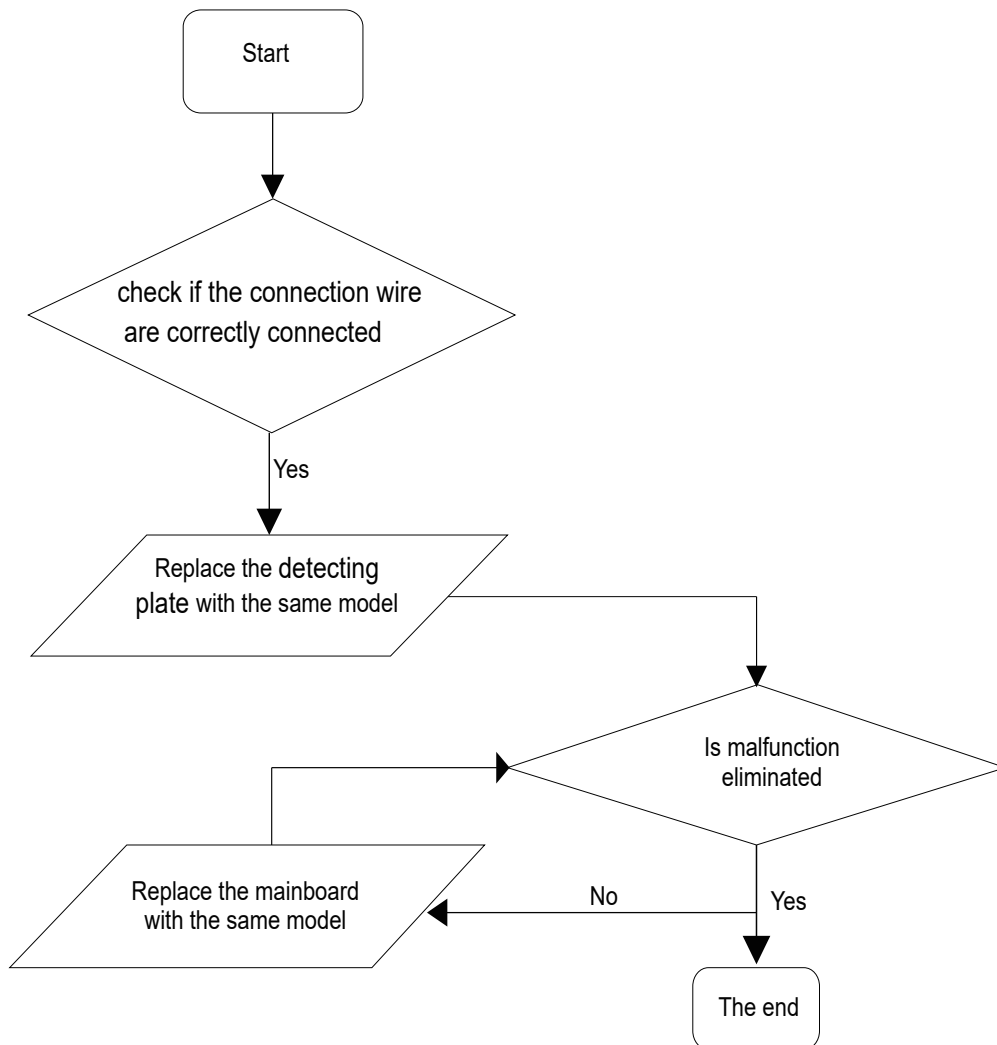
Main detection points:

- Is there jumper cap on the mainboard?
- Is the jumper cap inserted correctly and tightly?
- The jumper is broken?
- The motor is broken?
- Detection circuit of the mainboard is defined abnormal?

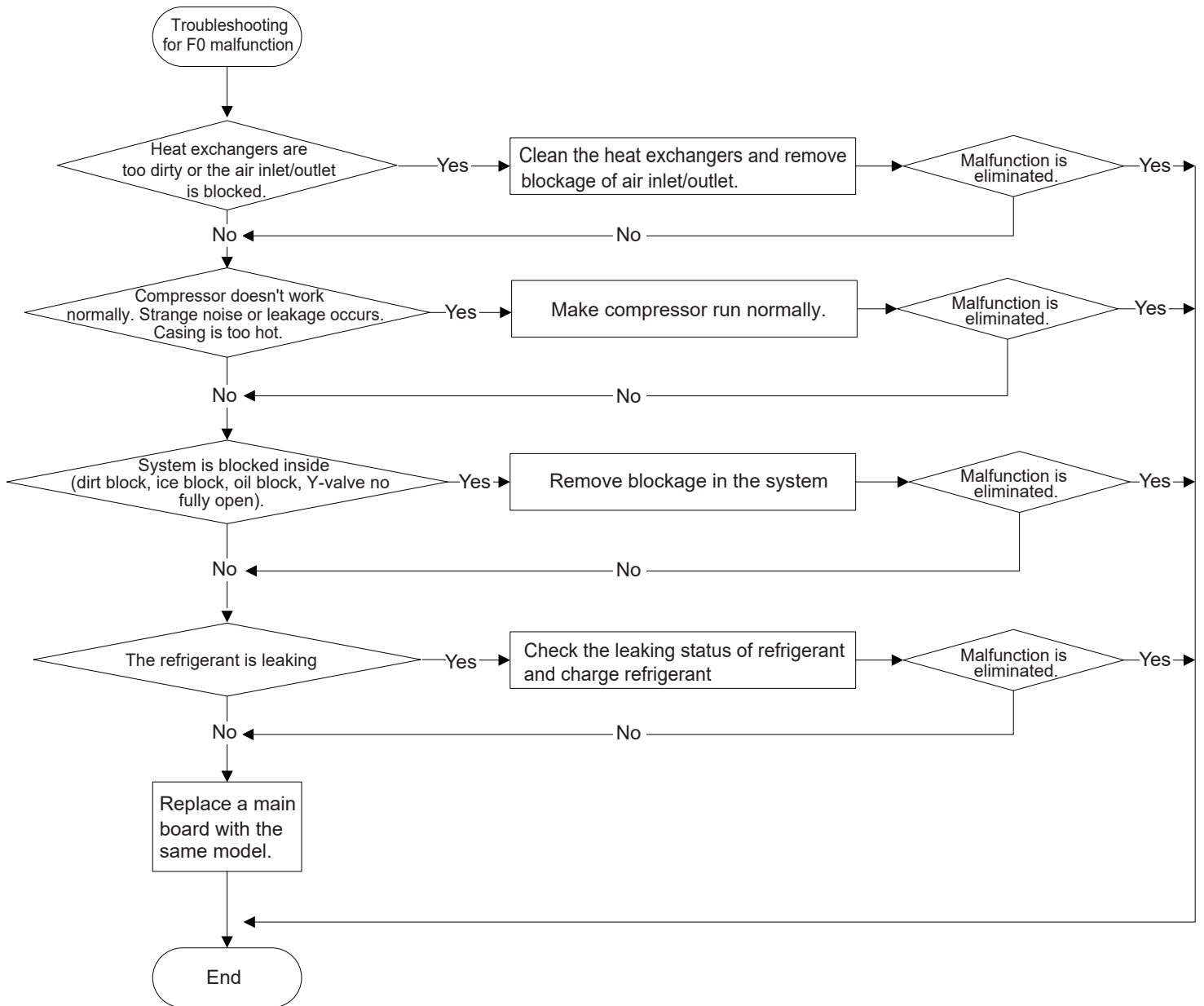
Malfunction diagnosis process:



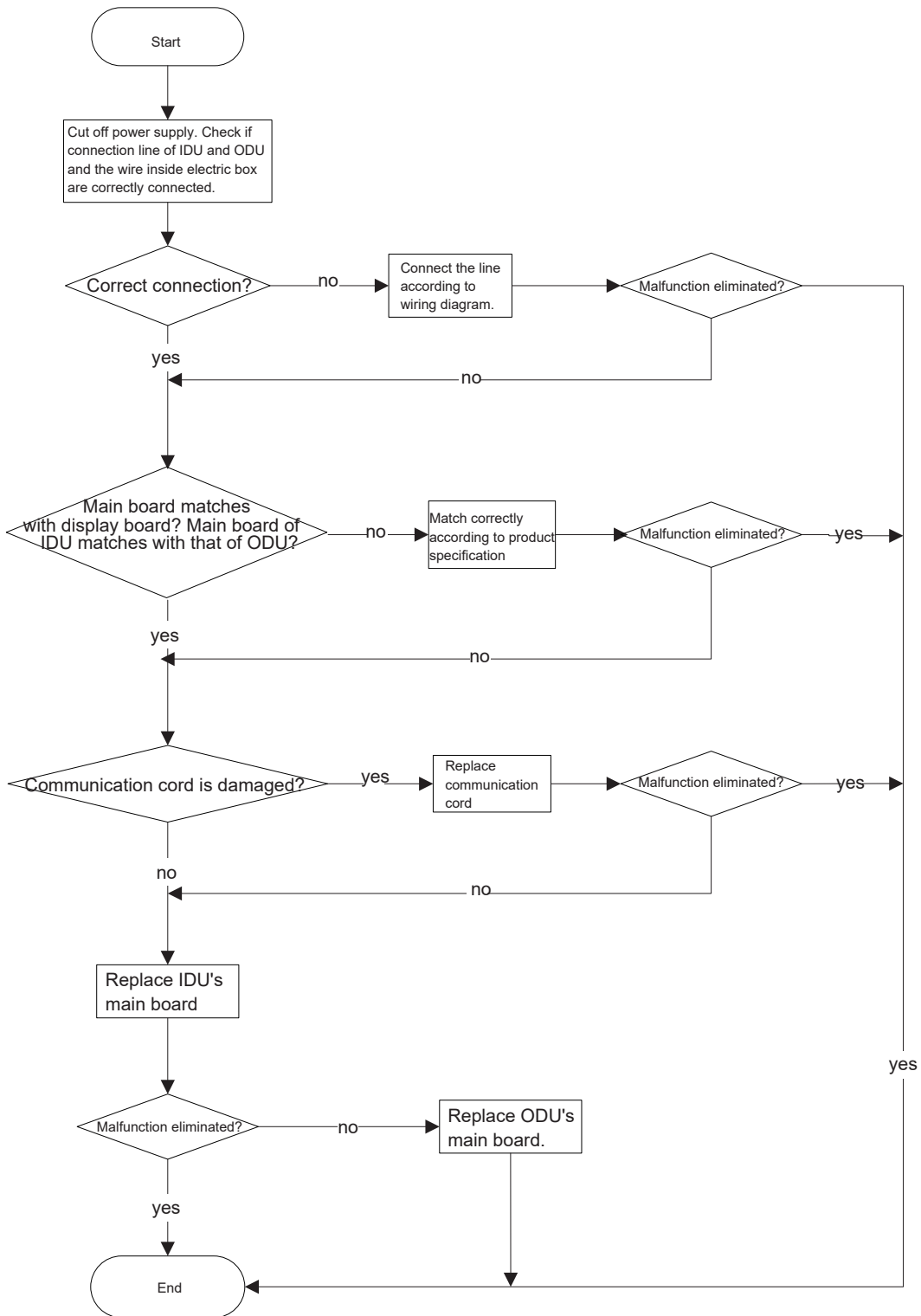
5. Malfunction of detecting plate(WIFI) JF



6. Malfunction of Insufficient fluorine protection F0



7. Communication malfunction E6

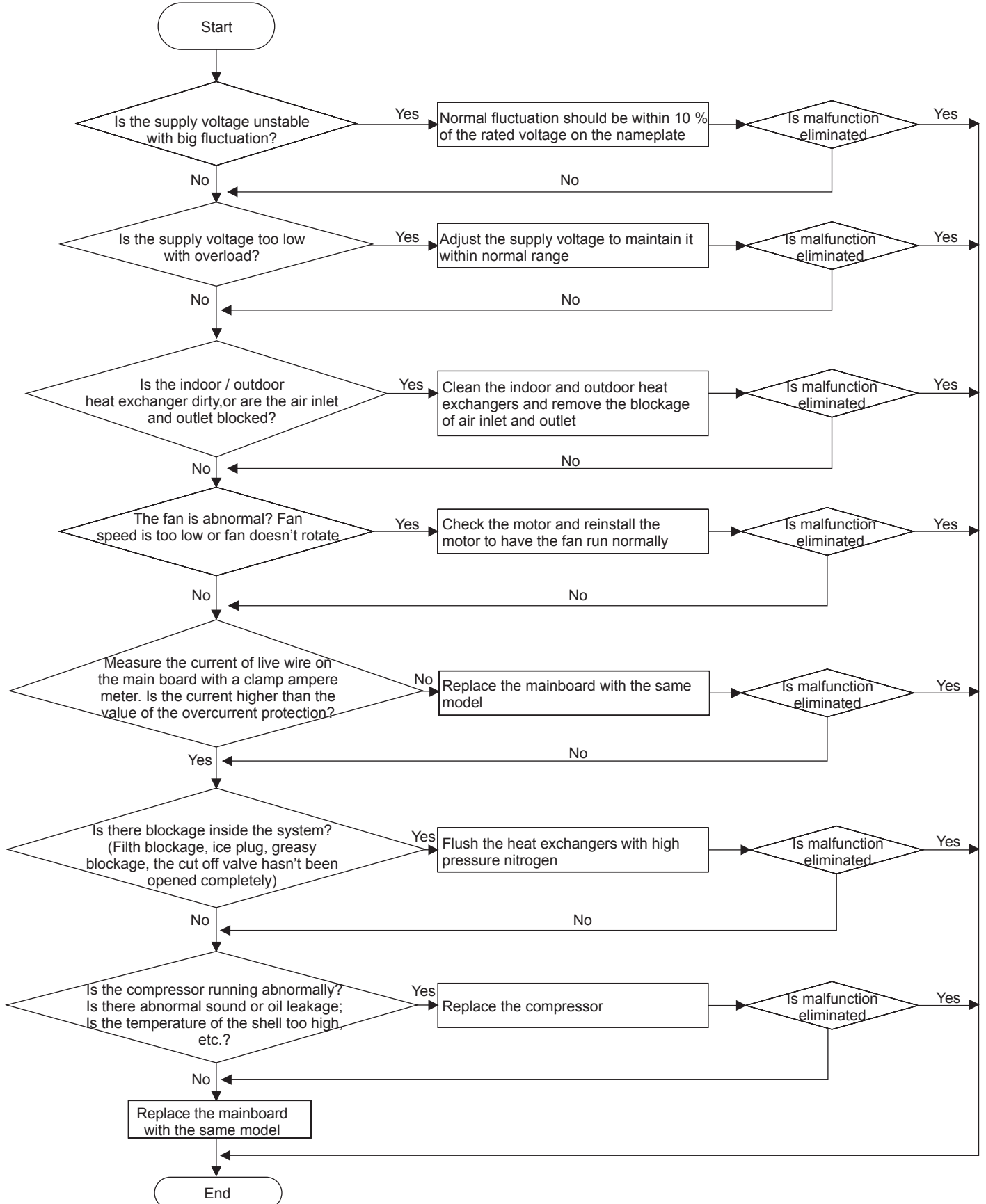


8. Malfunction of Overcurrent Protection E5

Main detection points:

- Is the supply voltage unstable with big fluctuation?
- Is the supply voltage too low with overload?
- Hardware trouble?

Malfunction diagnosis process:



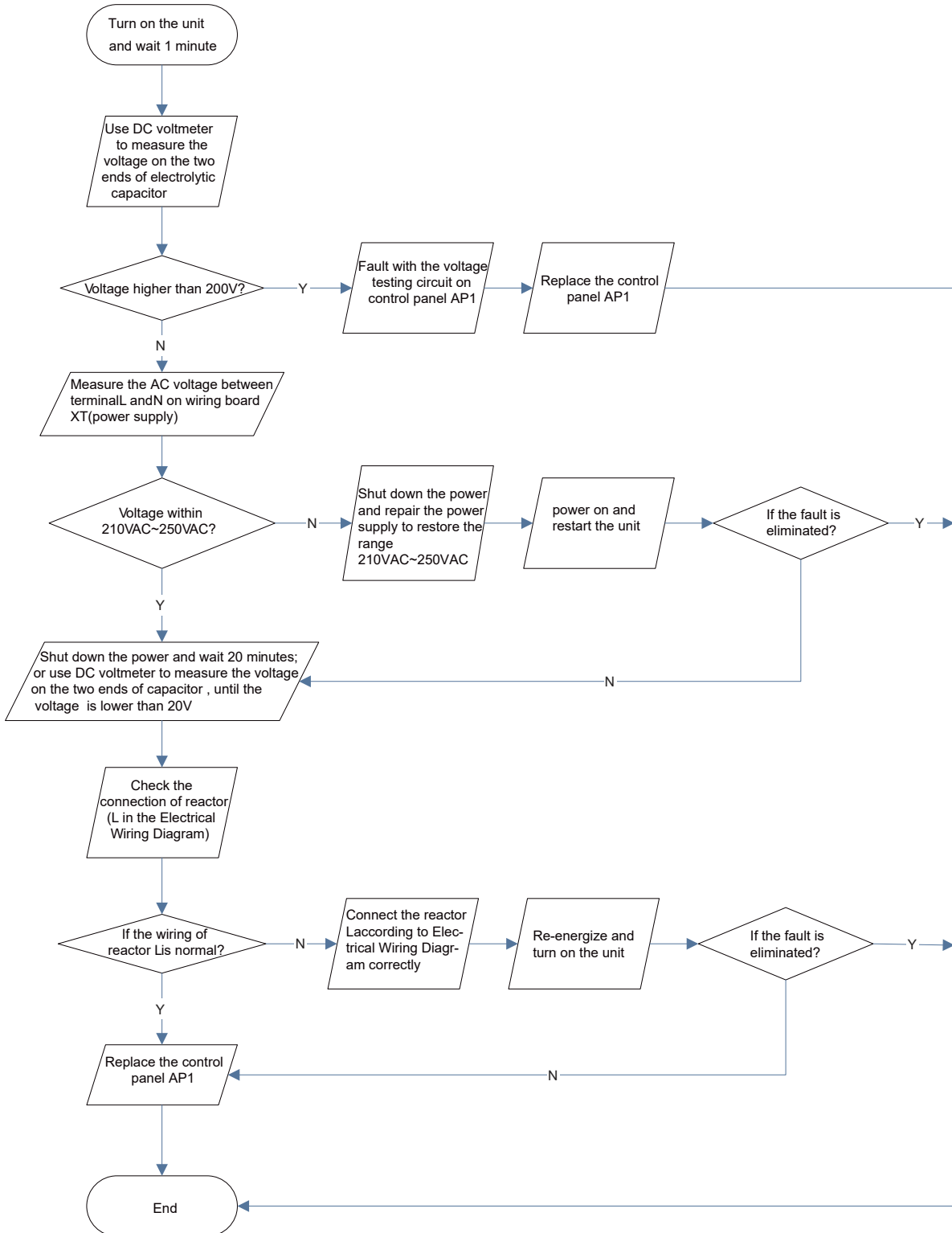
●Outdoor unit:

(1) Capacitor charge fault (Fault with outdoor unit) (AP1 below refers to the outdoor control panel)

Main Check Points:

- Use AC voltmeter to check if the voltage between terminal L and N on the wiring board is within 210VAC~240VAC.
- Is the reactor (L) correctly connected? Is the connection loose or fallen? Is the reactor (L) damaged?

Fault diagnosis process:

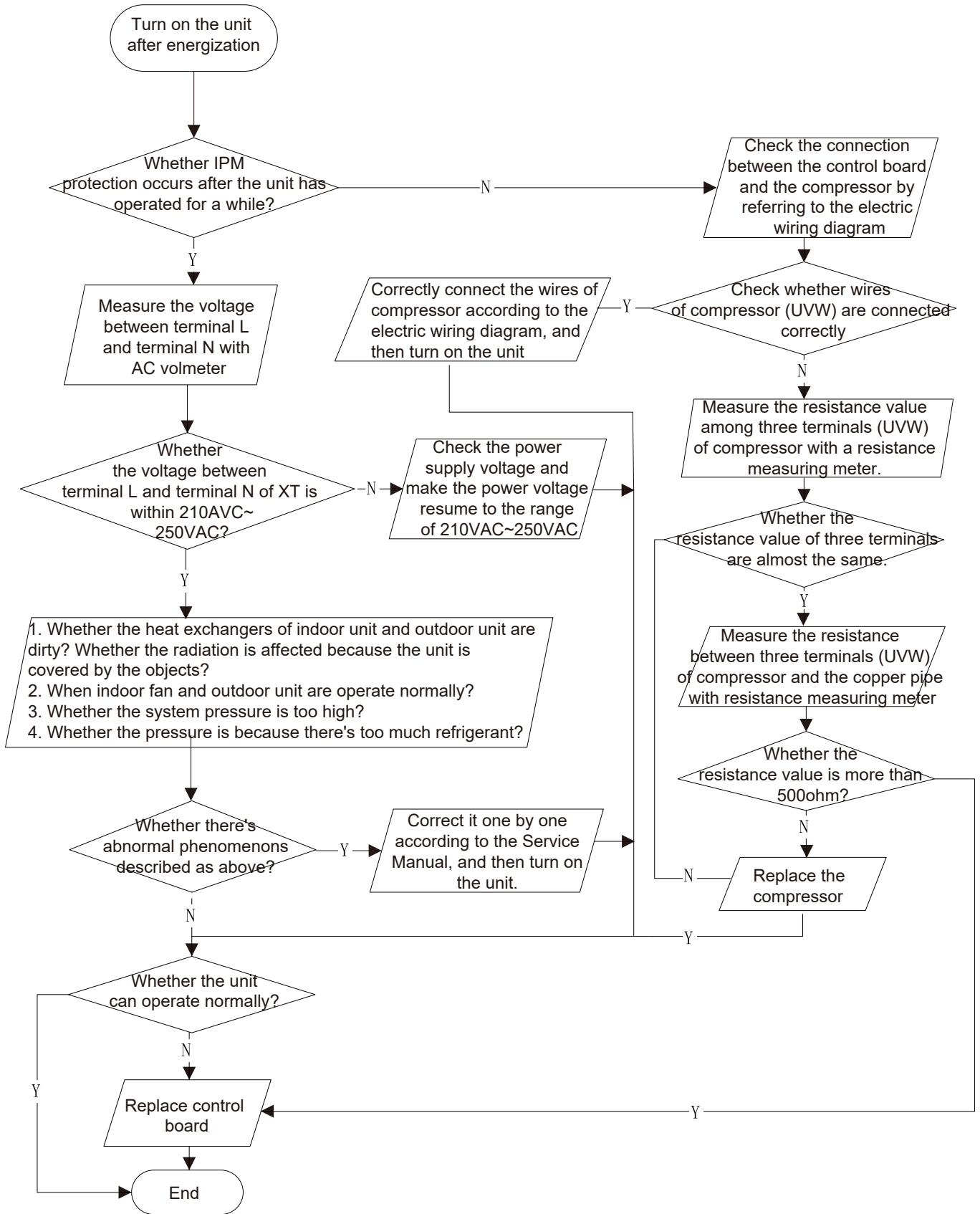


(2) IPM protection, phase current overcurrent (the control board as below indicates the control board of outdoor unit) H5/P5

Mainly detect:

- (1) Compressor COMP terminal
- (2) voltage of power supply
- (3) compressor
- (4) Refrigerant-charging volume
- (5) air outlet and air inlet of outdoor/indoor unit

Troubleshooting:

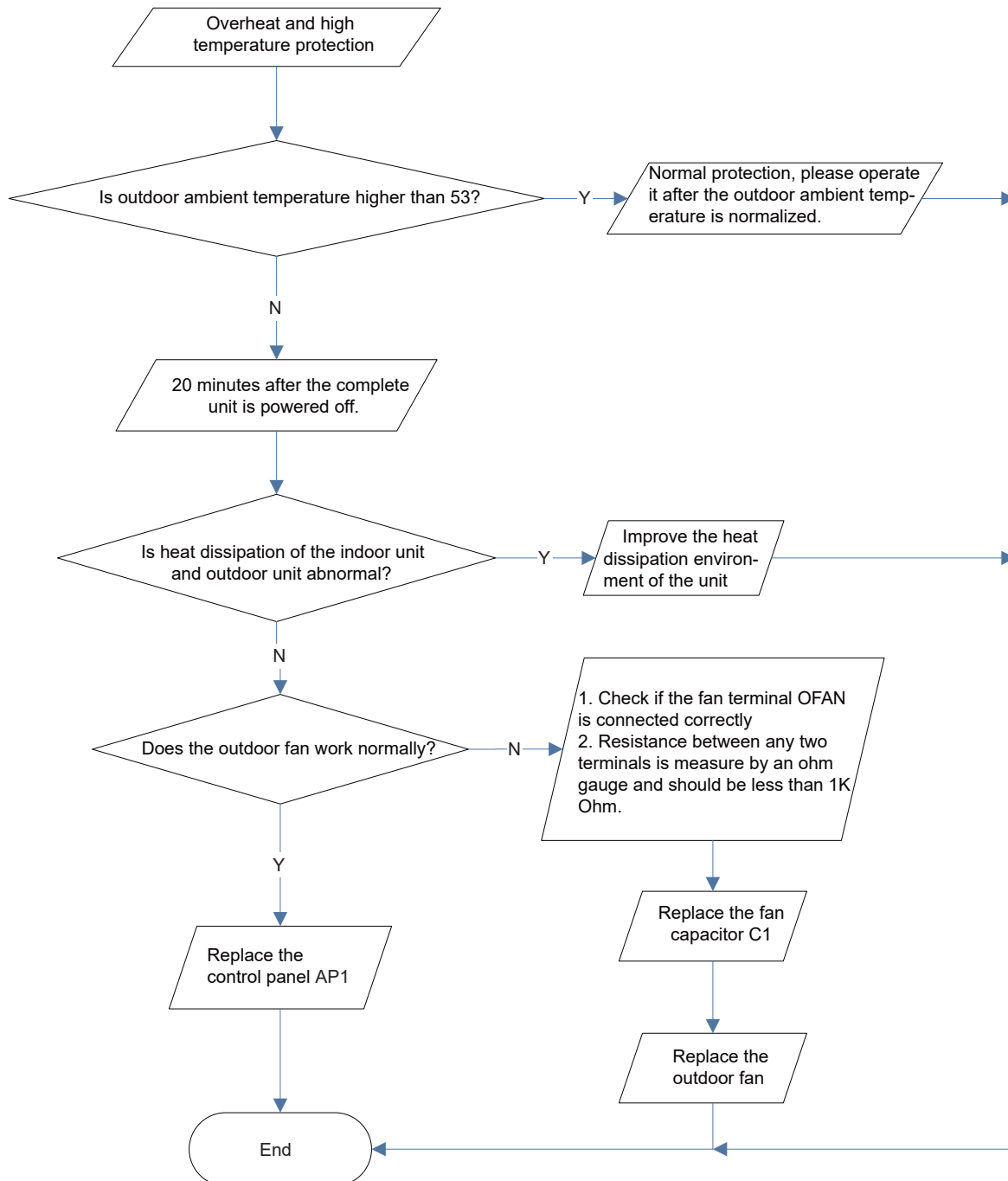


(3) High temperature and overload protection diagnosis (AP1 hereinafter refers to the control board of the outdoor unit)

Mainly detect:

- Is outdoor ambient temperature in normal range?
- Are the outdoor and indoor fans operating normally?
- Is the heat dissipation environment inside and outside the unit good?

Fault diagnosis process:

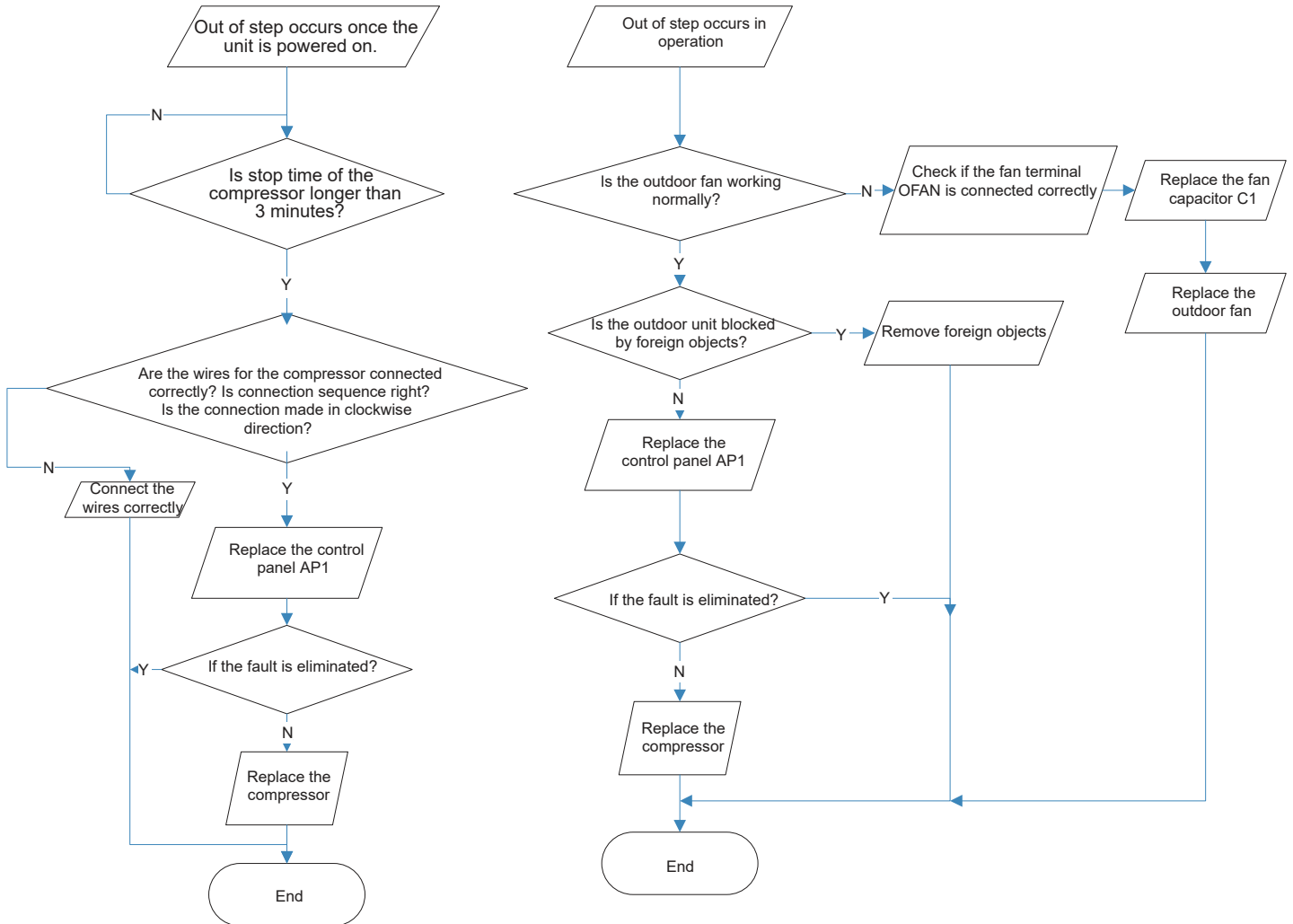


(5) Out of step diagnosis for the compressor (AP1 hereinafter refers to the control board of the outdoor unit)

Mainly detect:

- Is the system pressure too high?
- Is the input voltage too low?

Fault diagnosis process:

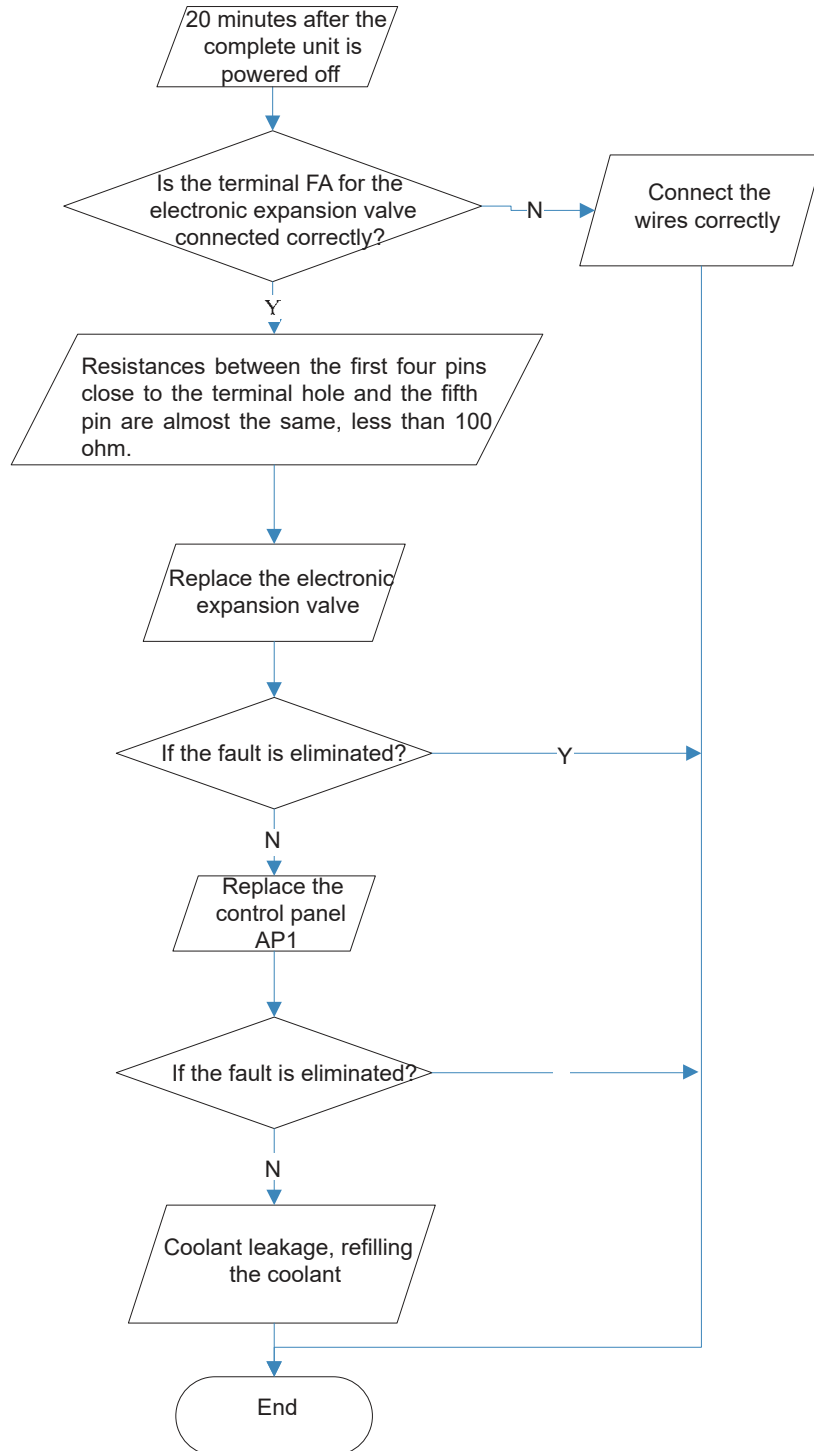


(6) Overload and air exhaust malfunction diagnosis (following AP1 for outdoor unit control board)

Mainly detect:

- Is the PMV connected well or not? Is PMV damaged?
- Is refrigerant leaked?

Fault diagnosis process:

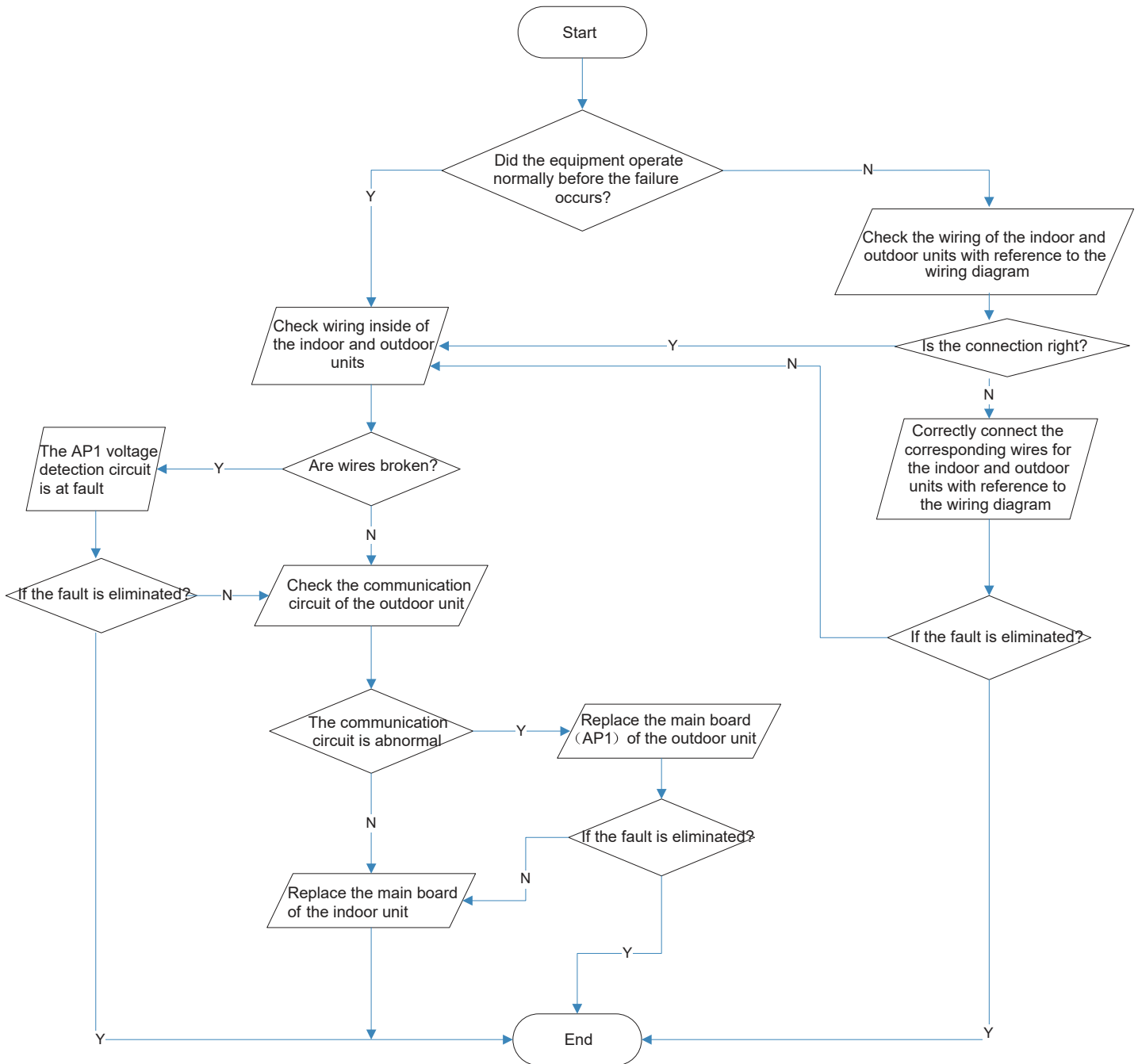


(7) Communication malfunction: (following AP1 for outdoor unit control board)

Mainly detect:

- Is there any damage for the indoor unit mainboard communication circuit? Is communication circuit damaged?
- Detect the indoor and outdoor units connection wire and indoor and outdoor units inside wiring is connect well or not, if is there any damage?

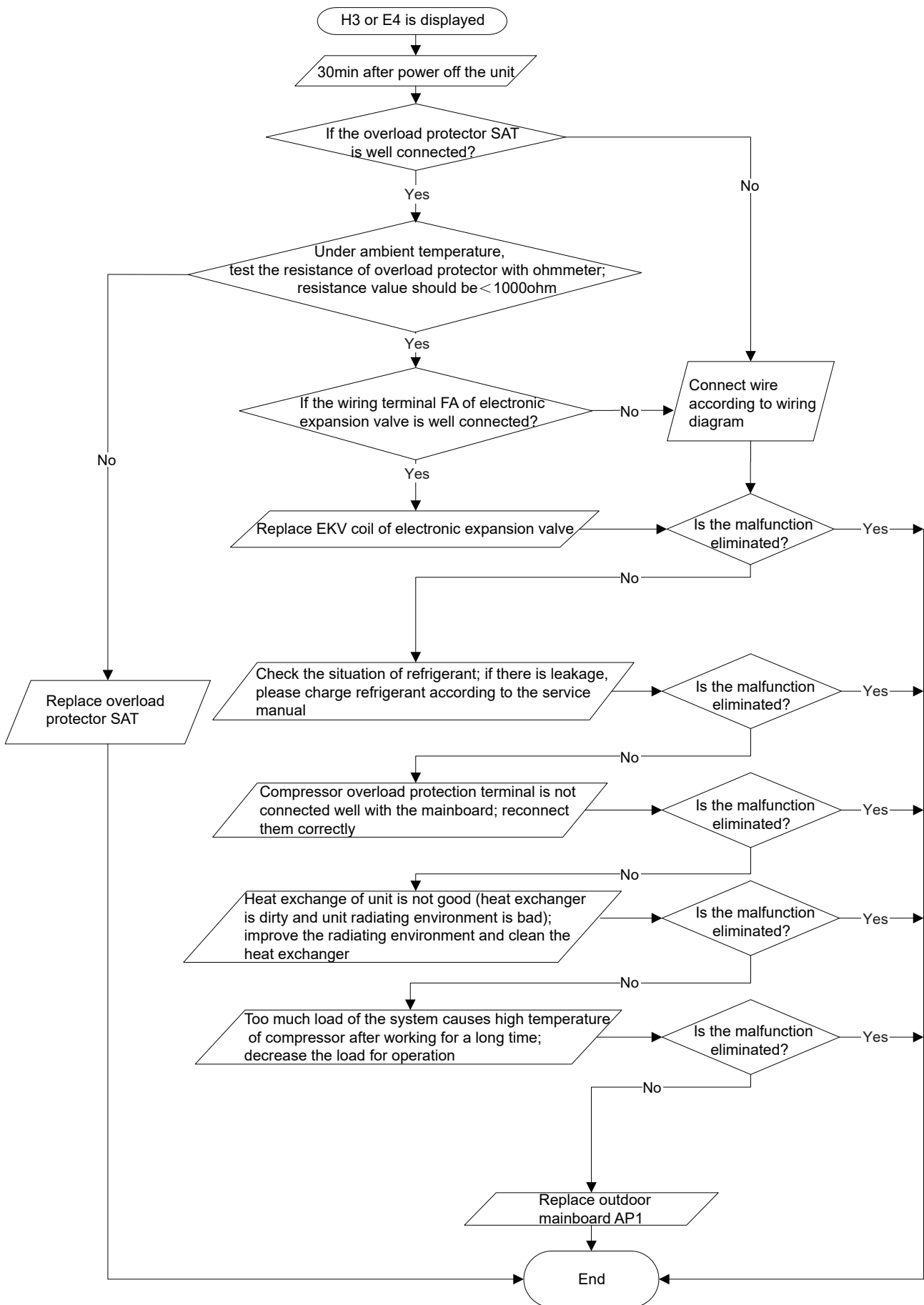
Fault diagnosis process:



(8) Overload and high discharge temperature malfunction

Main detection points:

- If the electronic expansion valve is connected well? Is the electronic expansion valve damaged?
- If the refrigerant is leaked?
- The compressor overload protection terminal is not connected well with the mainboard?
- If the overload protector is damaged?
- Heat exchange of unit is not good? (heat exchanger is dirty and unit radiating environment is bad)
- Too much load of the system causes high temperature of compressor after working for a long time?
- Malfunction of discharge temperature sensor?



9.3 Troubleshooting for Normal Malfunction

1. Air Conditioner Cant be Started Up

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

2. Poor Cooling (Heating) for Air Conditioner

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

3. Horizontal Louver Cant Swing

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

4. ODU Fan Motor Cant Operate

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

5. Compressor Cant Operate

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

6. Air Conditioner is Leaking

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

7. Abnormal Sound and Vibration

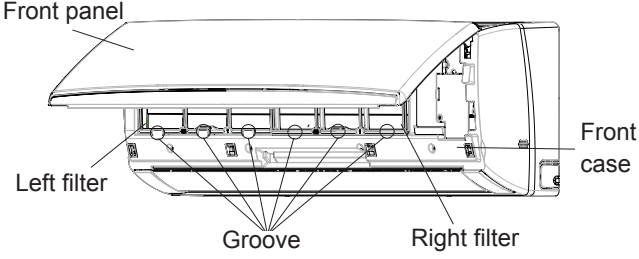
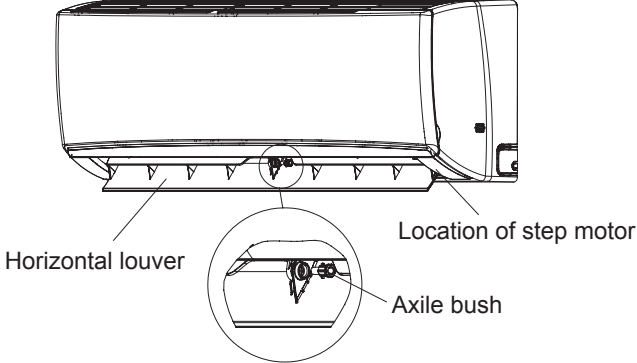
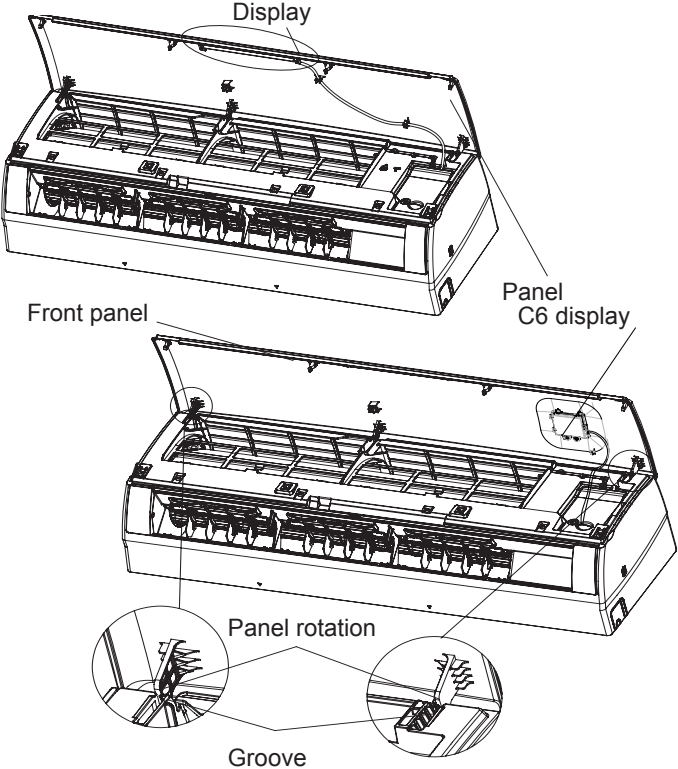
| Possible causes | Discriminating method (air conditioner status) | Troubleshooting |
|------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|----------------------------------------------------------------------------------------------------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

10. Removal Procedure

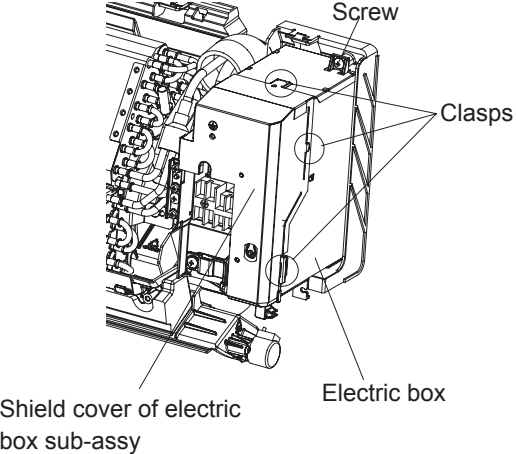
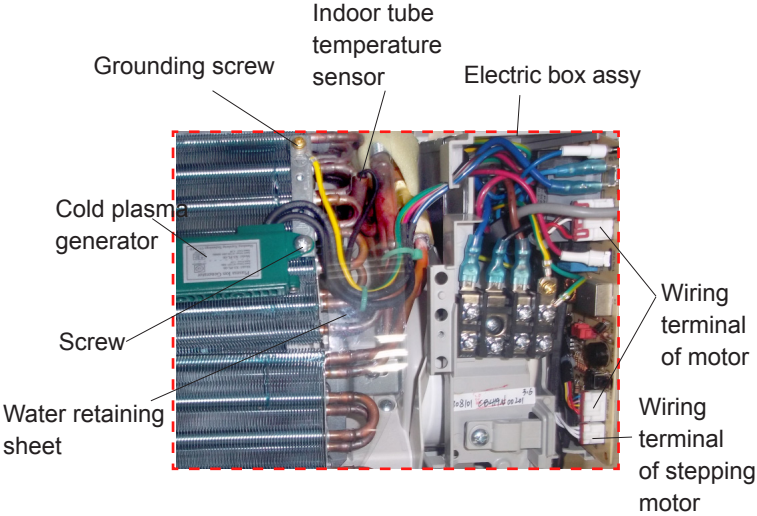
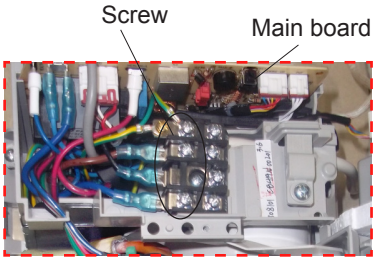
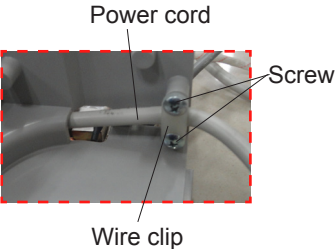
⚠ Warning: Be sure to wait for a minimum of 20 minutes after turning off all power supplies and discharge the refrigerant completely before removal.


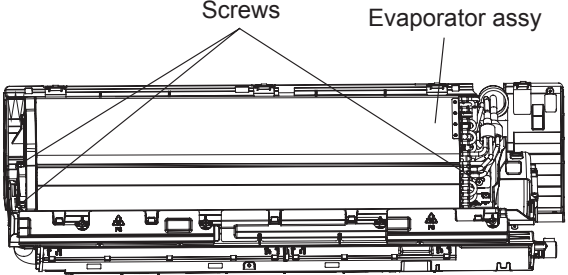
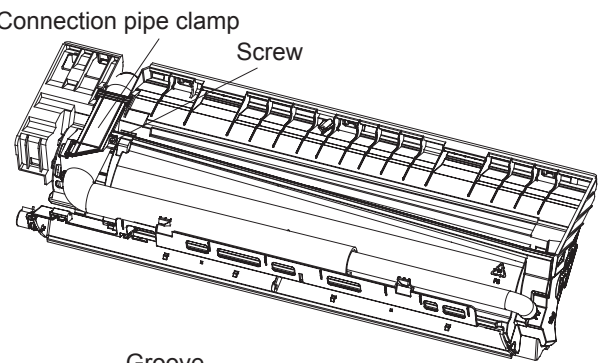
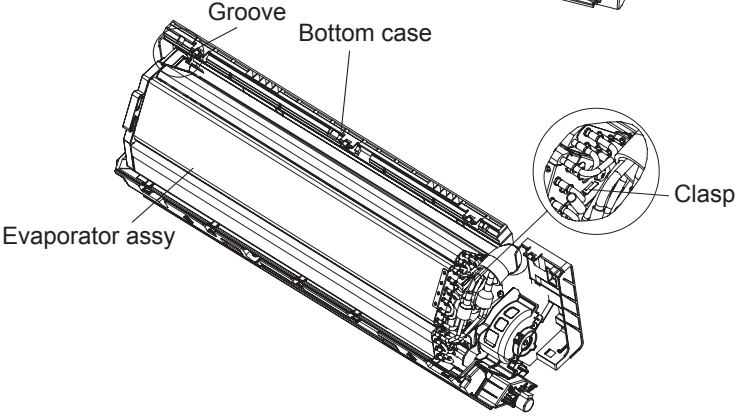
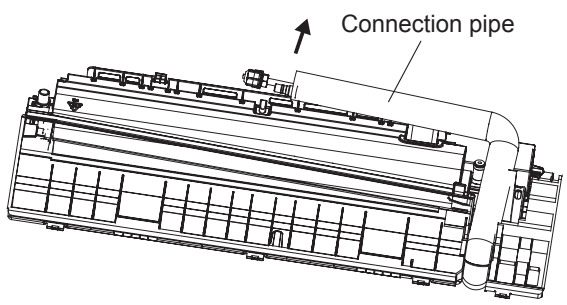
10.1 Removal Procedure of Indoor Unit

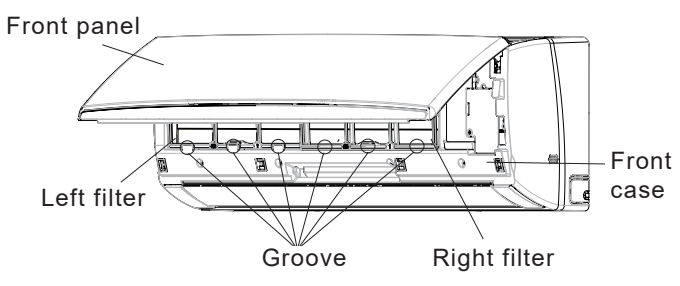
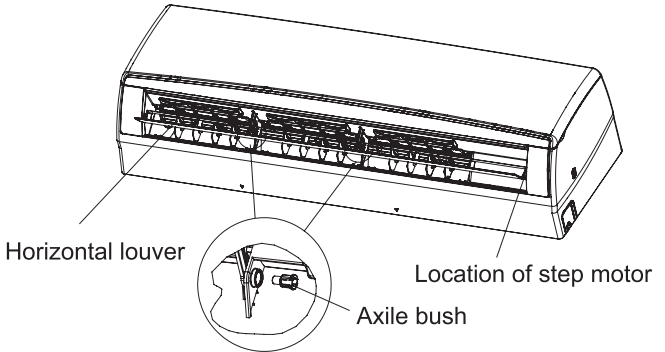
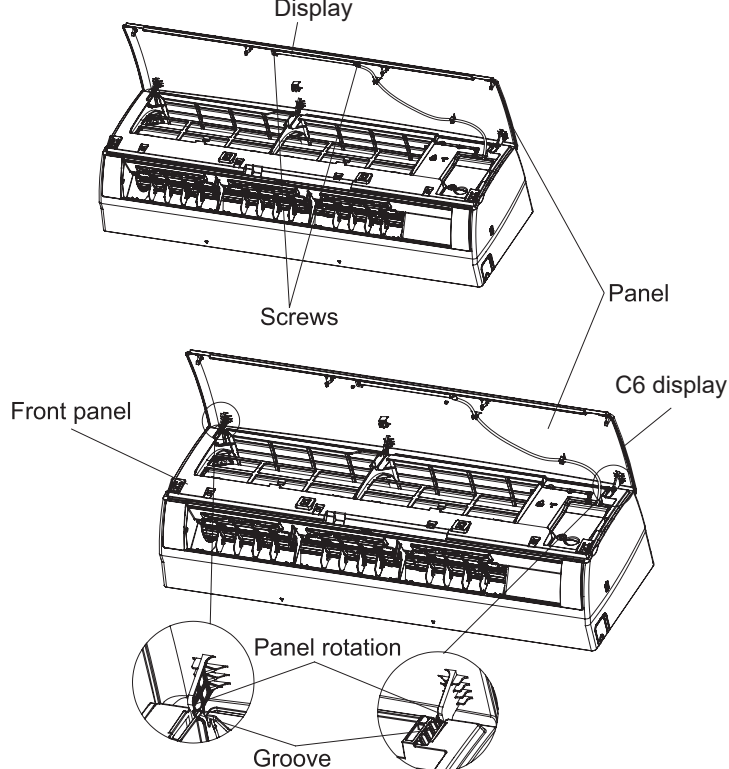
07/09/12K

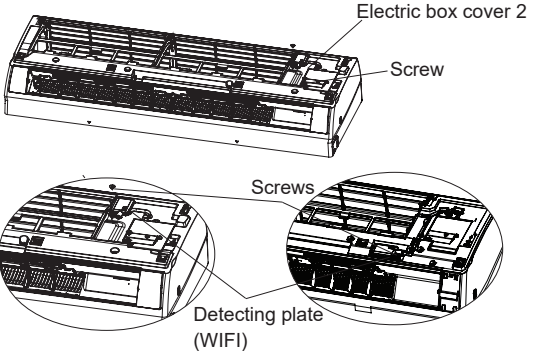
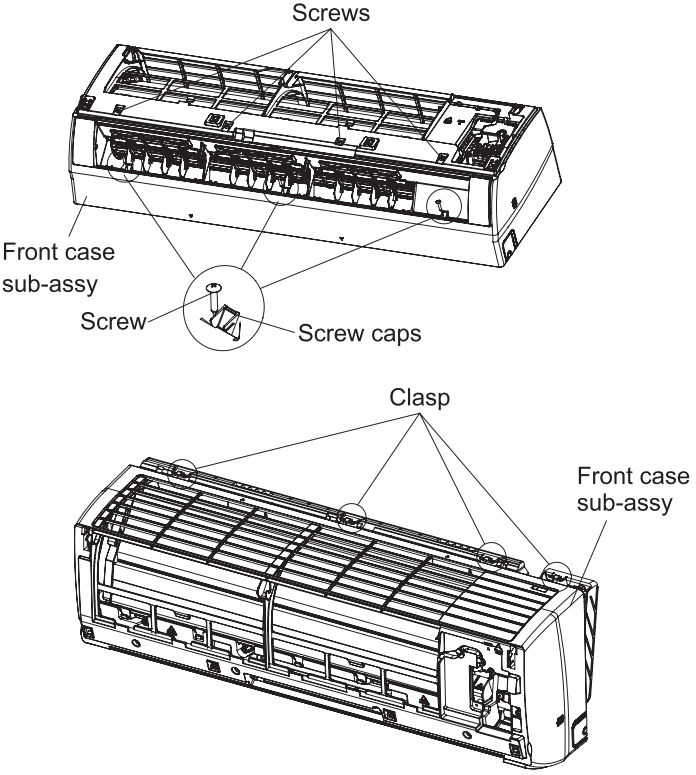
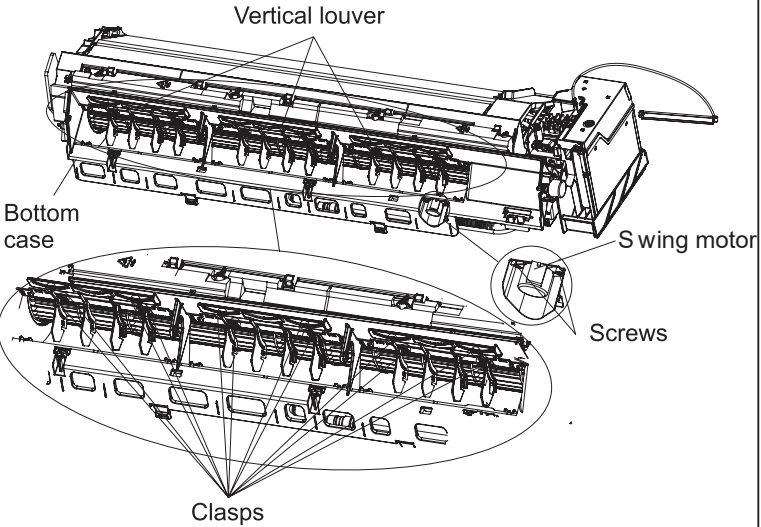
| Step | Procedure | Diagram |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 1. Remove filter assembly | <p>Open the front panel. Push the left filter and right filter until they are separate from the groove on the front panel. Remove the left filter and right filter respectively.</p> |  |
| 2. Remove horizontal louver | <p>Push out the axle 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.</p> |  |
| 3. Remove panel and display | <p>a C6 panel display: Screw off the 2 screws that are locking the display board.</p> <p>b Separate the panel rotation shaft from the groove fixing the front panel and then removes the front panel.</p> |  |

| Step | Procedure | Image |
|----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| 4. Remove detecting plate and electric box cover 2 | <p>Remove the screw fixing detecting plate and then remove the detecting plate.</p> <p>Note: The position of detection board(WIFI) may be different for -different models.</p> <p>Remove the screw fixing electric box cover 2 and then remove the electric box cover 2.</p> | |
| 5. Remove front case sub-assy | <p>a Remove the screws fixing front case.</p> <p>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.</p> <p>b Loosen the connection clasps between front case sub-assy and bottom case. Lift up the front case sub-assy and take it out.</p> | |
| 6. Remove vertical louver | <p>Loosen the connection clasps between vertical louver and bottom case to remove vertical louver.</p> | |

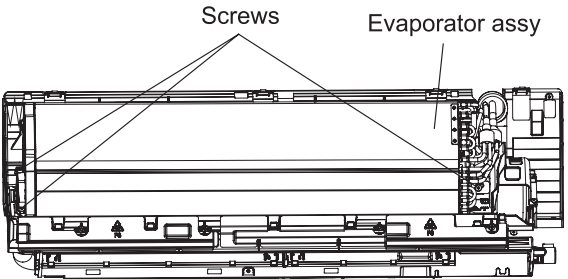
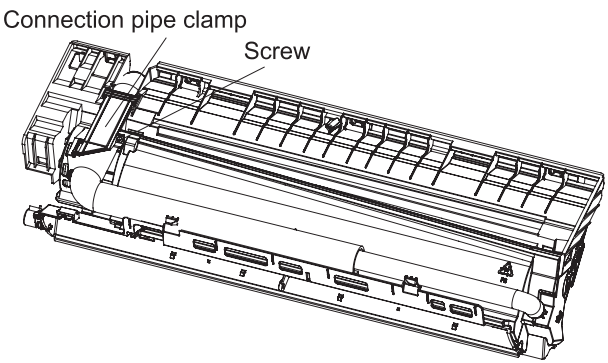
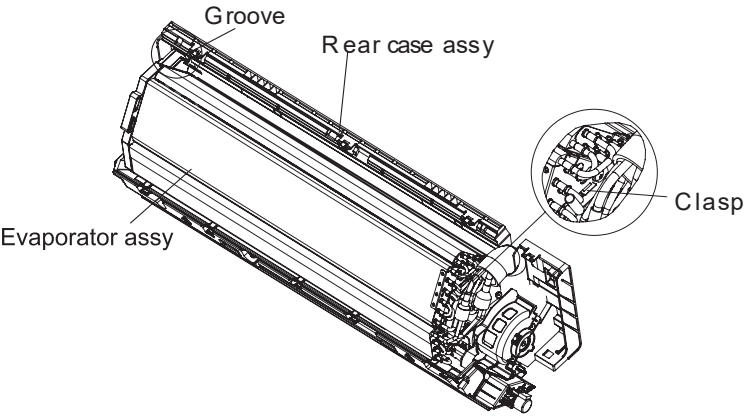
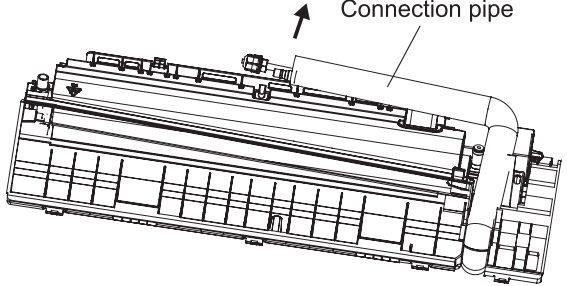
| Step | Procedure |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7. Remove electric box assy | |
| a | <p>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. Remove the screw fixing electric box assy .</p>  |
| b | <p>① Take off the water retaining sheet. Remove the cold plasma generator by screwing off the locking screw on the generator. ② Take off the indoor tube temperature sensor. ③ Screw off 1 grounding screw. ④ Remove the wiring terminals of motor and stepping motor. ⑤ Remove the electric box assy.</p>  |
| c | <p>Twist off the screws that are locking each lead wire and rotate the electric box assy. Twist off the screws that are locking the wire clip. Loosen the power cord and remove its wiring terminal. Lift up the main board and take it off.</p>   |

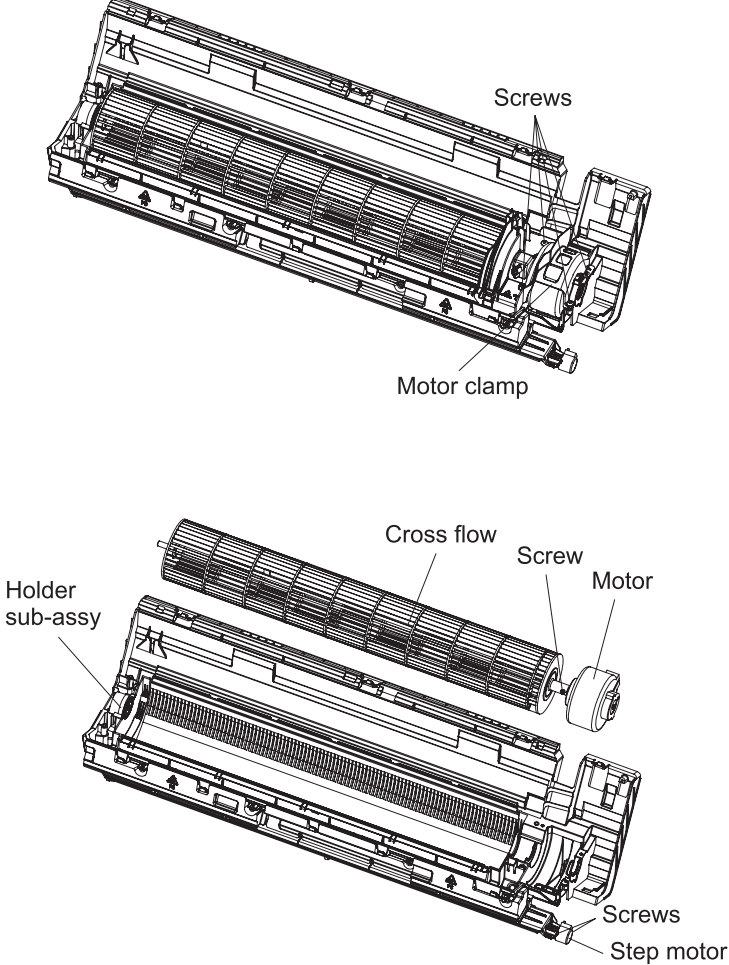
| Step | Procedure | |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| | <p>Instruction: Some wiring terminal of this product is with lock catch and other devices. The pulling method is as below:</p> <p>1.Remove the soft sheath for some terminals at first, hold the circlip and then pull out the terminals.</p> <p>2.Pull out the holder for some terminals at first (holder is not available for some wiring terminal), hold the connector and then pull the terminal.</p> |  <p>Labels: circlip, soft sheath, holder, connector</p> |
| 8. Remove evaporator assy | | |
| a | Remove 3 screws fixing evaporator assy. |  <p>Labels: Screws, Evaporator assy</p> |
| b | At the back of the unit, remove the screw fixing connection pipe clamp and then remove the connection pipe clamp. |  <p>Labels: Connection pipe clamp, Screw</p> |
| c | First remove the left side of the evaporator from the groove of bottom case and then remove the right side from the clasp on the bottom case. |  <p>Labels: Groove, Bottom case, Evaporator assy, Clasp</p> |
| d | Adjust the position of connection pipe on evaporator slightly and then lift the evaporator upwards to remove it. |  <p>Labels: Connection pipe</p> |

| Step | Procedure |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1. Remove filter assy</p> | <p>Open the front panel. Push the left and right filters to make them break away from the groove on the front case. Then remove the left and right filters one by one.</p>  <p>The diagram shows a perspective view of the front panel being lifted away from the front case. Labels include: Front panel, Left filter, Groove, Right filter, and Front case.</p> |
| <p>2. Remove horizontal louver</p> | <p>Push out the axle 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.</p>  <p>The diagram shows the horizontal louver being bent downwards. A circular inset provides a close-up of the axle bush being pushed out from the crankshaft. Labels include: Horizontal louver, Axile bush, and Location of step motor.</p> |
| <p>3. Remove panel</p> | <p>a C6 panel display: Screw off the 2 screws that are locking the display board.</p> <p>b Separate the panel rotation shaft from the groove fixing the front panel and then removes the front panel.</p>  <p>The top diagram shows the display board being unscrewed from the panel. Labels include: Display, Screws, and Panel.</p> <p>The bottom diagram shows the front panel being separated from the main unit. Labels include: Front panel, C6 display, Panel rotation, and Groove. Two circular insets show the panel rotation shaft being removed from the groove.</p> |

| Step | Procedure | |
|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4. Remove electric box cover 2 and detecting plate(WIFI) | <p>Remove the screws on the electric box cover 2 and detecting plate(WIFI), then remove the electric box cover 2 and detecting plate(WIFI).</p> |  <p>Electric box cover 2</p> <p>Screw</p> <p>Screws</p> <p>Detecting plate (WIFI)</p> |
| 5. Remove front case sub-assy | <p>a Remove the screws fixing front case.</p> <p>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.</p> <p>b Loosen the connection clasps between front case sub-assy and bottom case. Lift up the front case sub-assy and take it out.</p> |  <p>Screws</p> <p>Front case sub-assy</p> <p>Screw</p> <p>Screw caps</p> <p>Clasp</p> <p>Front case sub-assy</p> |
| 6. Remove vertical louver | <p>Loosen the connection clasps between vertical louver and bottom case to remove vertical louver.</p> <p>Screw off the screws that are locking the swing motor and take the motor off.</p> |  <p>Vertical louver</p> <p>Bottom case</p> <p>Swing motor</p> <p>Screws</p> <p>Clasps</p> |

| Step | Procedure |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7. Remove electric box assy | <div data-bbox="219 307 738 460"> <p>a 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. Remove the screw fixing electric box assy .</p> </div> <div data-bbox="219 760 738 989"> <p>b</p> <ol style="list-style-type: none"> ① Cut off the wire binder and pull out the indoor tube temperature sensor. ② Screw off one grounding screw. ③ Remove the wiring terminals of motor and stepping motor. ④ Remove the electric box assy. ⑤ Screw off the screws that are locking each lead wire. </div> <div data-bbox="219 1321 738 1437"> <p>c Rotate the electric box assy. Twist off the screws that are locking the wire clip and loosen the power cord. Remove the wiring terminal of power cord. Lift up the main board and take it off.</p> </div> <div data-bbox="219 1605 738 1965"> <p>Instruction: Some wiring terminal of this product is with lock catch and other device. The pulling method is as below:</p> <ol style="list-style-type: none"> 1.Remove the soft sheath for some terminals at first, hold the circlip and then pull out the terminals. 2.Pull out the holder for some terminals at first (holder is not available for some wiring terminal), hold the connector and then pull the terminal. </div> <div data-bbox="868 207 1388 687"> </div> <div data-bbox="755 720 1534 1277"> </div> <div data-bbox="787 1343 1356 1550"> </div> <div data-bbox="812 1638 1502 1911"> </div> |

| Step | Procedure |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8. Remove evaporator assy | |
| a | <p>Remove 3 screws fixing evaporator assy.</p>  |
| b | <p>At the back of the unit, remove the screw fixing connection pipe clamp and then remove the connection pipe clamp.</p>  |
| c | <p>First remove the left side of evaporator from the groove on the rear case assy. Then remove the right side from the clasp on the rear case assy.</p>  |
| d | <p>Adjust the position of connection pipe on evaporator slightly and then lift the evaporator upwards to remove it.</p>  |

| Step | Procedure |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9. Remove motor and cross flow blade | |
| a | <p>Remove the screws fixing motor clamp and then remove the motor clamp.</p> |
| b | <p>Remove the screws at the connection place of cross flow blade and motor; lift the motor and cross flow blade upwards to remove them. Remove the bearing holder sub-assy. Remove the screw fixing step motor and then remove the step motor.</p> |
|  | |

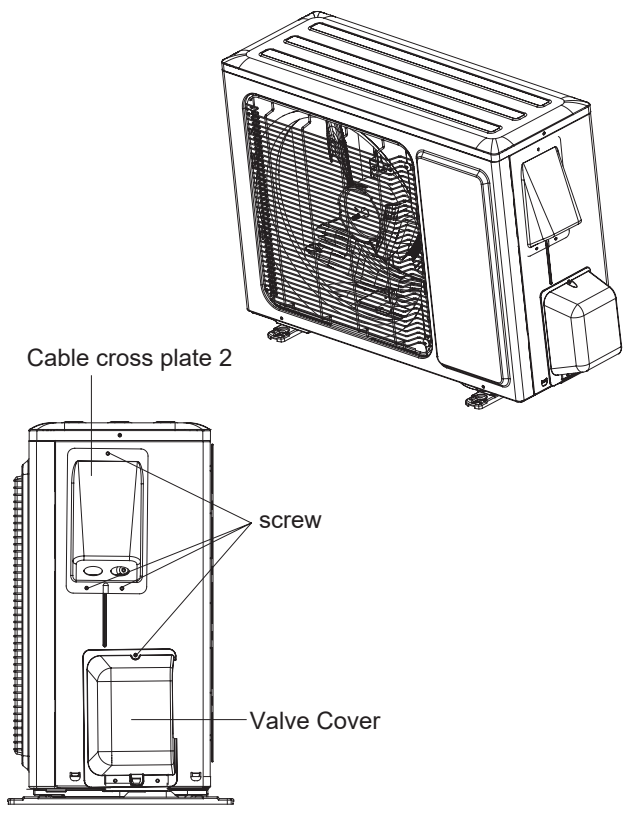
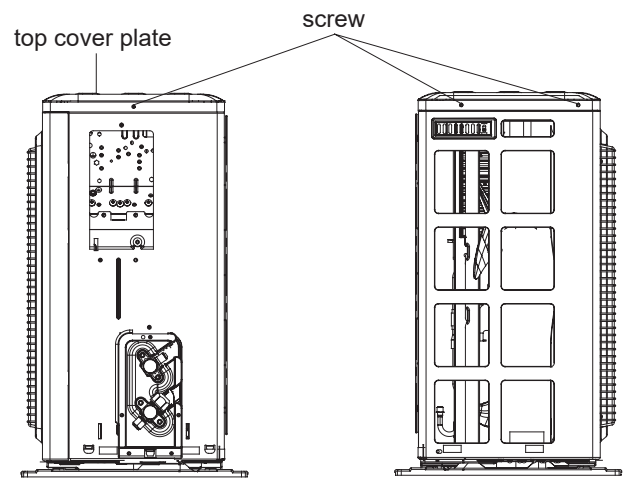
10.2 Removal Procedure of Outdoor Unit

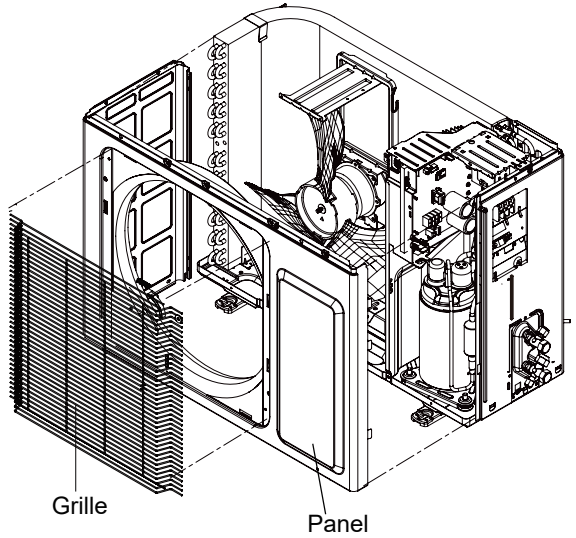
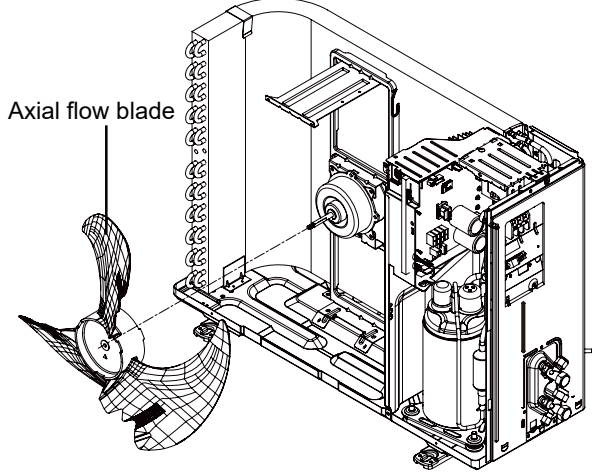
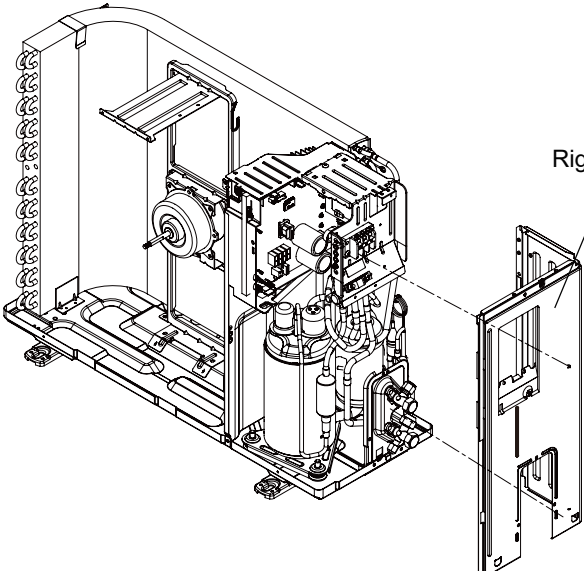
Warning: Be sure to wait for a minimum of 20 minutes after turning off all power supplies and discharge the refrigerant completely before removal.

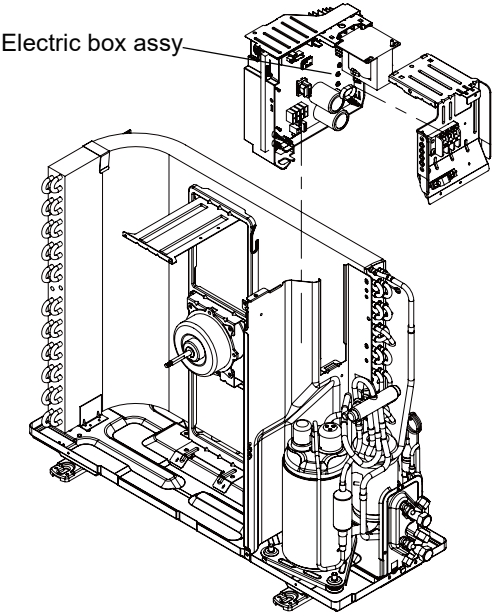
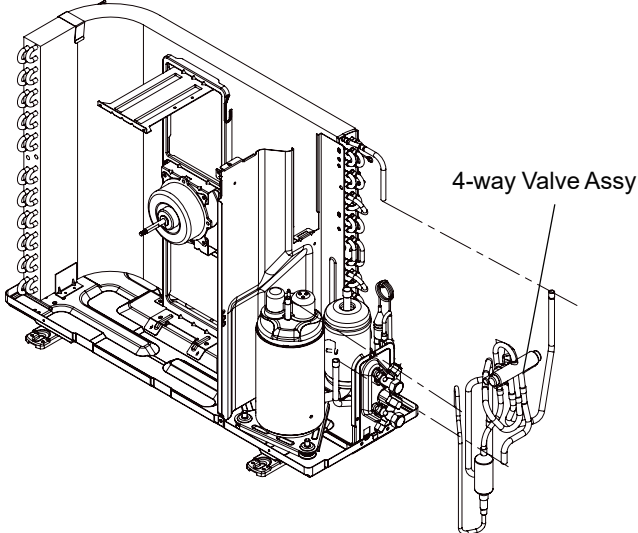
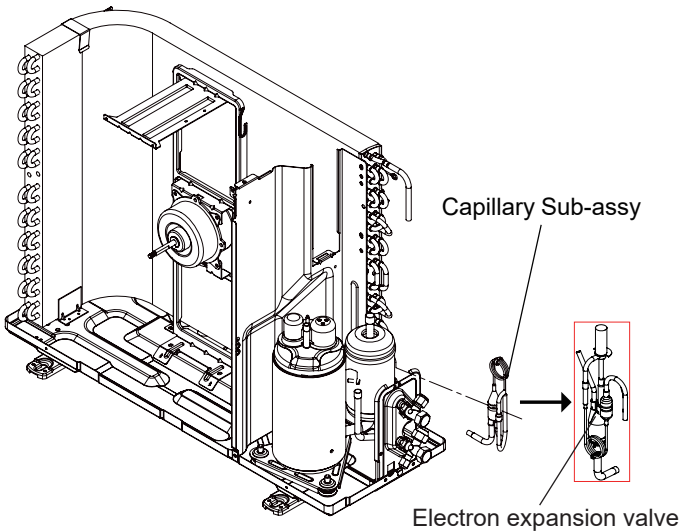
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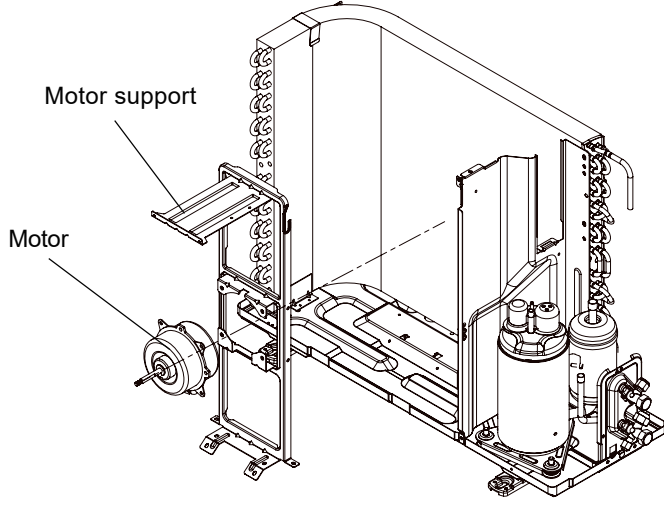
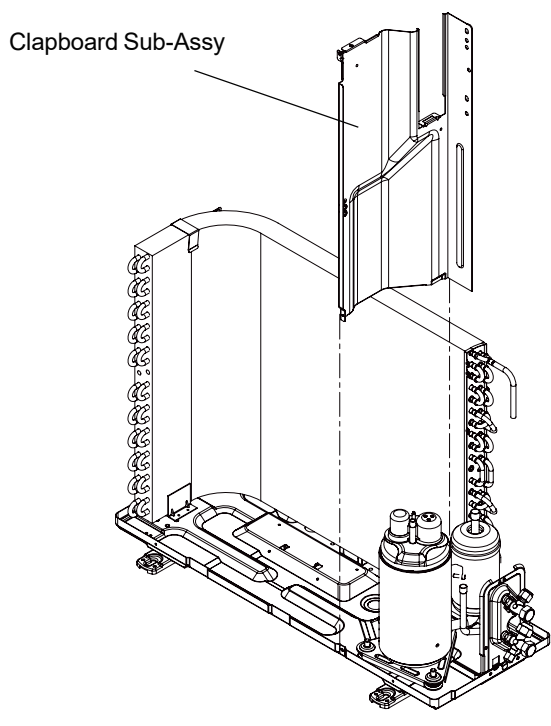
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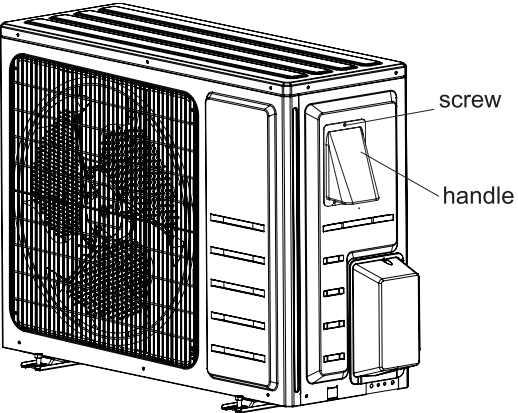
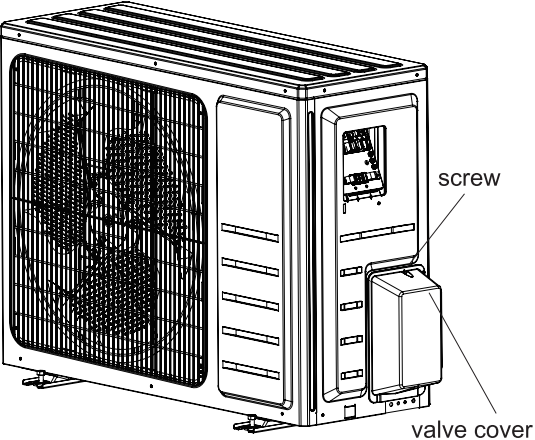
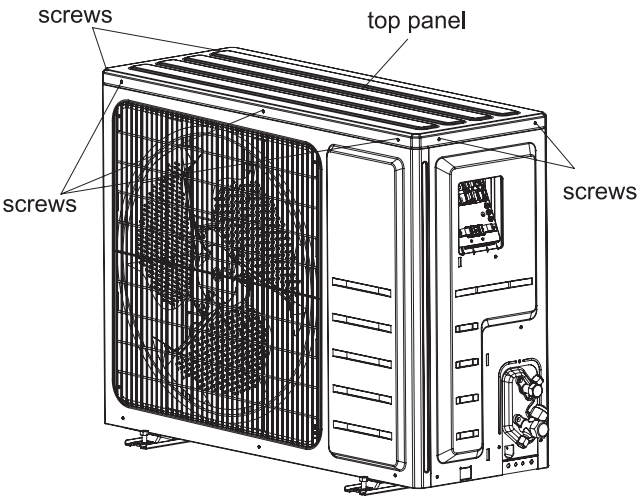
Take heat pump for example.

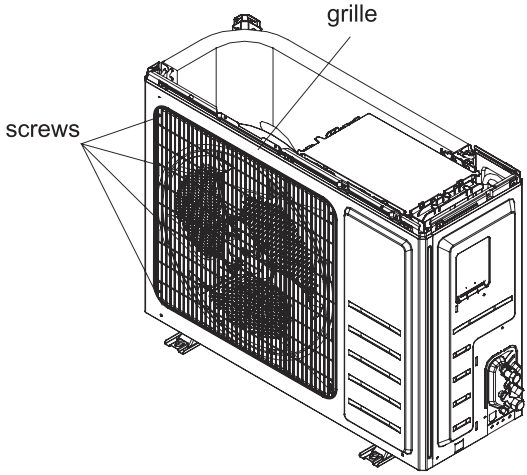
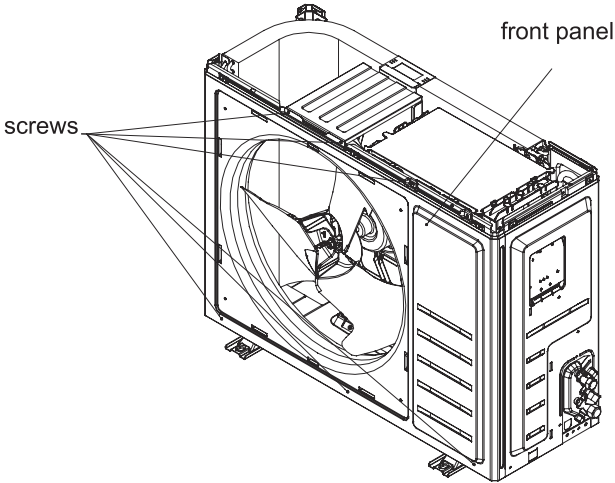
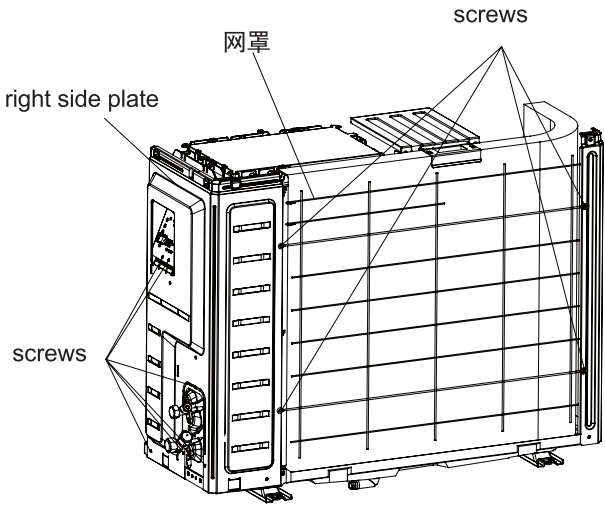
| Steps | Procedure |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <p>1.Remove cable cross plate 2 and valve cover</p> <p>Before disassamble.</p> <p>Remove 3 connection screw fixing cable cross plate 2 and then remove the Cable cross plate 2.</p> <p>Remove 1 connection screw fixing valve cover and then remove the valve cover.</p> |  |
| <p>2.Remove top cover</p> <p>Remove 3 connection screws among top cover plate, front panel and right side plate. Then remove top cover plate.</p> |  |

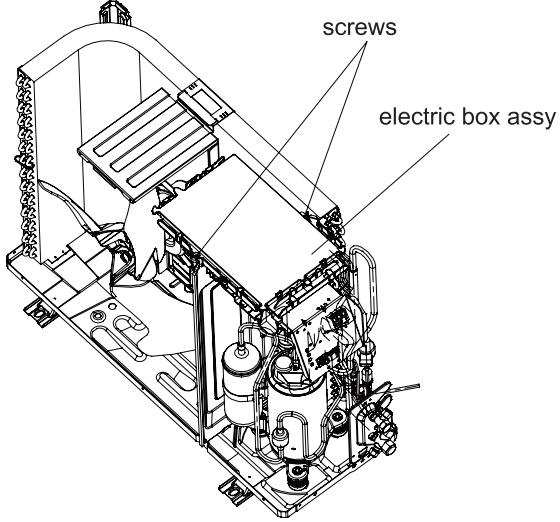
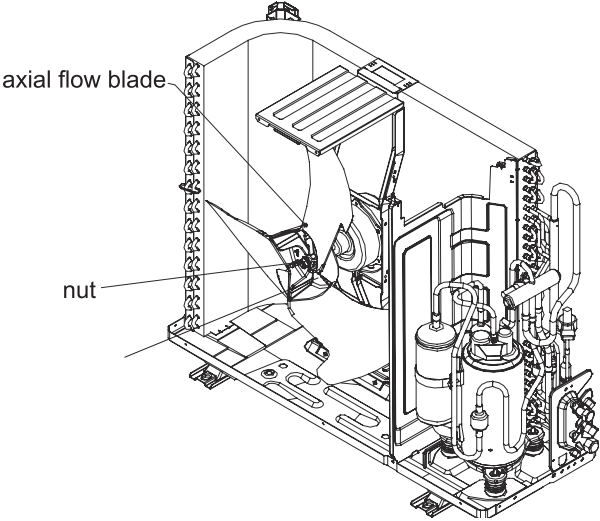
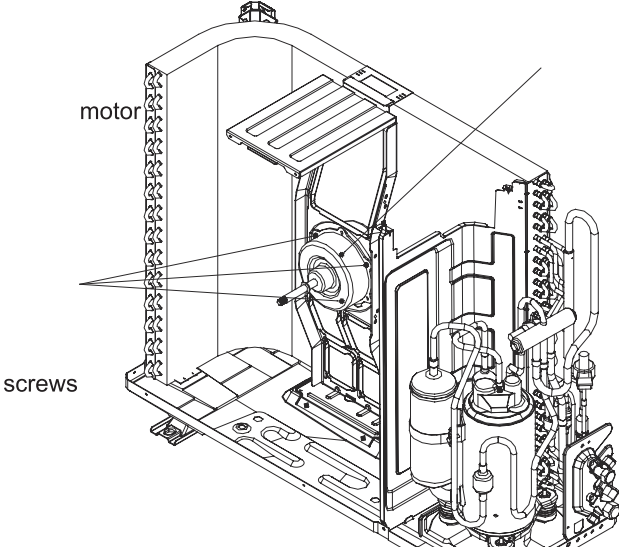
| Steps | Procedure |
|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>3.Remove grille and front panel</p> | <p>Remove connection screws between the front grille and the front panel. Then remove the front grille. Remove connection screws connecting the front panel with the chassis and the motor support, and then remove the front panel.</p>  <p>Grille</p> <p>Panel</p> |
| <p>4.Remove axial flow blade</p> | <p>Remove the nut fixing the blade and then remove the axial flow blade.</p>  <p>Axial flow blade</p> |
| <p>5.Remove right side plate</p> | <p>Remove connection screws connecting the right side plate with the valve support and the electric box. Then remove the right side plate.</p>  <p>Right side plate</p> |

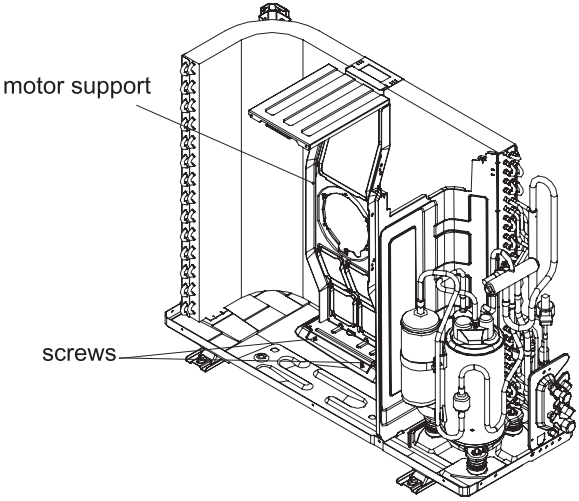
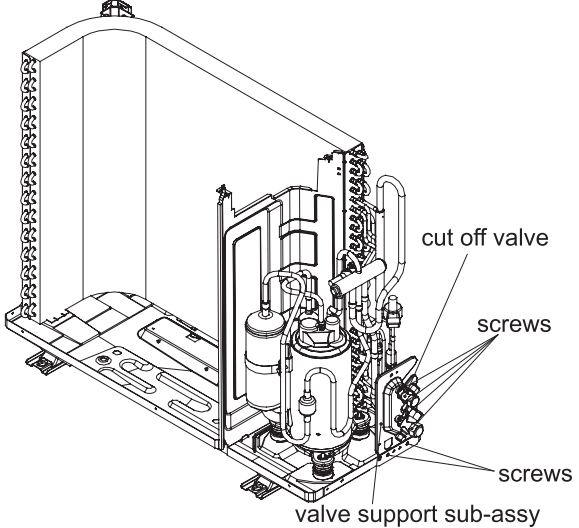
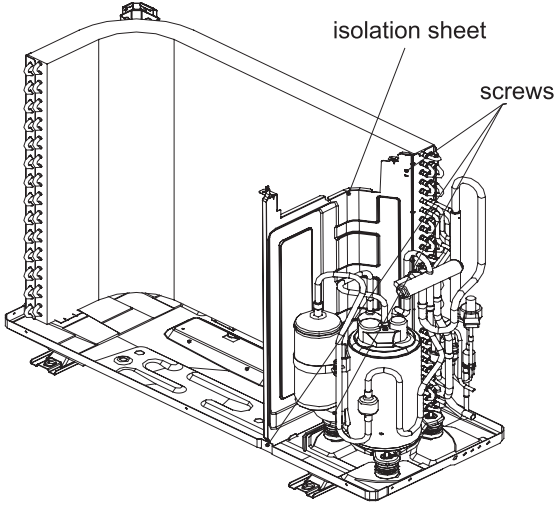
| Steps | Procedure |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>6.Remove electric box assy</p> | <p>Remove the 2 screws fixing the cover of electric box. Lift to remove the cover. Loosen the wire and disconnect the terminal. Lift to remove the electric box assy.</p>  |
| <p>7.Remove 4-way valve assy</p> | <p>Unscrew the fastening nut of the 4-way Valve Assy coil and remove the coil. Wrap the 4-way Valve Assy with wet cotton and unsolder the 4 weld spots connecting the 4-way Valve Assy to take it out.(Note: Refrigerant should be discharged firstly.) Welding process should be as quickly as possible and keep wrapping cotton wet all the time. Be sure not to burn out the lead-out wire of compressor.</p>  |
| <p>8.Remove capillary sub-assy</p> | <p>Unsolder weld point of capillary Sub-assy, valve and outlet pipe of condensator. Then remove the capillary Sub-assy. Do not block the capillary when unsoldering it. (Note: before unsoldering, discharge refrigerants completely)</p>  |

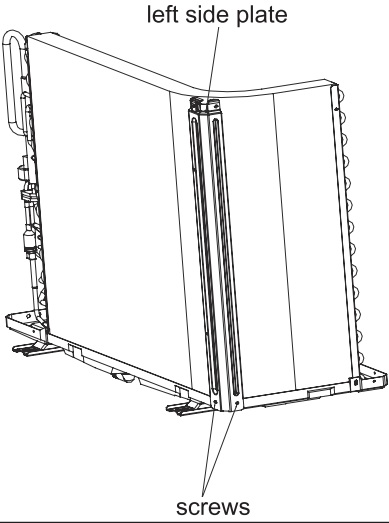
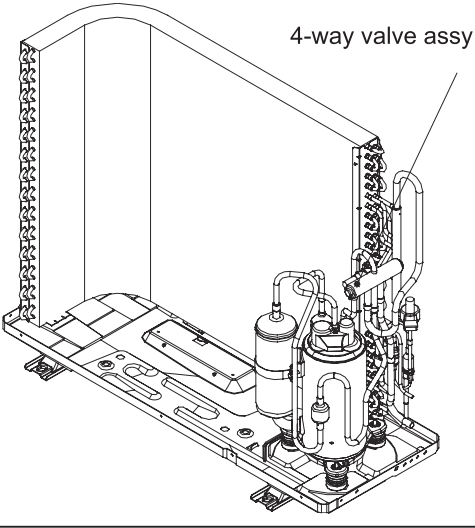
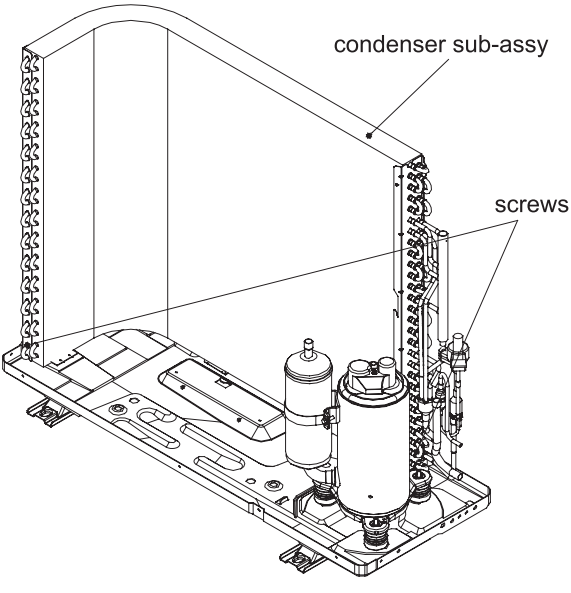
| Steps | Procedure |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>9.Remove motor and motor support</p> | <p>Remove the 4 tapping screws fixing the motor. Pull out the lead-out wire and remove the motor. Remove the 2 tapping screws fixing the motor support. Lift motor support to remove it.</p>  |
| <p>10.Remove clapboard sub-assy</p> | <p>Loosen the screws of the Clapboard Sub-Assy . The Clapboard Sub-Assy has a hook on the lower side. Lift and pull the Clapboard Sub-Assy to remove.</p>  |

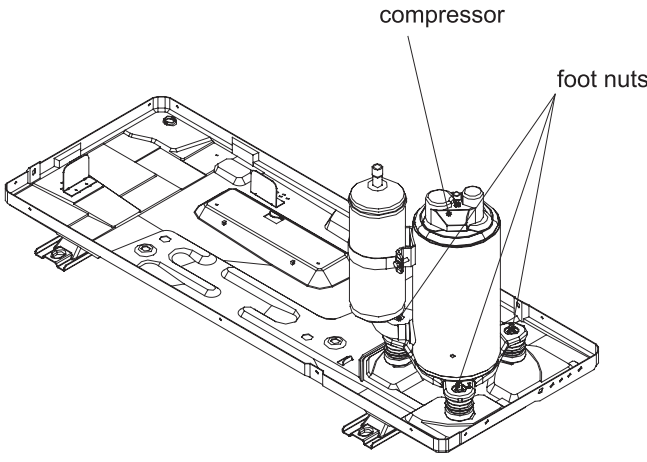
| Steps | Procedure |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1. Remove handle</p> | <p>Remove the screw fixing the handle and then remove the handle.</p>  |
| <p>2. Remove valve cover</p> | <p>Remove the screw fixing the valve cover and then remove the valve cover.</p>  |
| <p>3. Remove top panel</p> | <p>Remove the screws fixing the top panel and then remove the top panel.</p>  |

| Steps | Procedure |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>4. Remove grille</p> | <p>Remove the screws fixing the grille and then remove the panel grille.</p>  |
| <p>5. Remove front panel</p> | <p>Remove screws fixing the front panel and then remove the front panel.</p>  |
| <p>6. Remove right side plate</p> | <p>Remove screws fixing connecting the front panel with the chassis and the motor support, and then remove the right side plate.</p>  |

| Steps | Procedure |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7. Remove electric box assy | <p>Remove the screws fixing the electricbox; loosen the wire bundle; pull out the wiring terminals and then pull electric box upwards to remove it.</p>  |
| 8. Remove axial flow blade | <p>Remove nut fixing the blade and then remove the blade.</p>  |
| 9. Remove motor | <p>Remove screws fixing the motor and then remove the motor.</p>  |

| Steps | Procedure |
|-----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10. Remove motor support | <p data-bbox="245 380 727 443">Remove screws fixing the motor support and then remove the motor support.</p>  |
| 11. Remove cut off valve and valve support sub-assy | <p data-bbox="245 930 727 1087">Remove screws fixing the cut off valve and then remove the cut off valve; Remove screws fixing the valve support sub-assy and then remove the valve support sub-assy.</p> <p data-bbox="245 1122 683 1242">Note: When pulling out the wiring terminal, pay attention to loose the clasp and don't pull it so hard.</p>  |
| 12. Remove isolation sheet | <p data-bbox="245 1480 662 1574">Remove the screws fixing the isolation sheet and then remove the isolation sheet.</p>  |

| Steps | Procedure |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 13. Remove left side plate | <p>Remove the screws fixing the left side plate and the chassis, and then remove the left side plate.</p>  |
| 14. Remove 4-way valve assy | <p>Discharge the refrigerant completely; unsolder the pipelines connecting the compressor and the condenser assy, and then remove the 4-way valve assy. (Recover the refrigerant before unsoldering)</p>  |
| 15. Remove condenser sub-assy | <p>Remove the screws fixing the condenser and chassis, and then lift the condenser upwards to remove it.</p>  |

| Steps | Procedure |
|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 16. Remove compressor |  <p data-bbox="1185 294 1323 327">compressor</p> <p data-bbox="1364 360 1469 393">foot nuts</p> |
| Remove the 3 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: $T_f = T_c \times 1.8 + 32$

Set temperature

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

Ambient temperature

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

Appendix 2: Configuration of Connection Pipe

- Standard length of connection pipe. (More details please refer to the specifications)
- Min. length of connection pipe is 9.84ft.
- Max. length of connection pipe and max. high difference. (More details please refer to the specifications)
- The additional refrigerant oil and refrigerant charging required after prolonging connection pipe
 - After the length of connection pipe is prolonged for 32.81ft at the basis of standard length, you should add 0.0013gal of refrigerant oil for each additional 16.40ft of connection pipe.
 - The calculation method of additional refrigerant charging amount (on the basis of liquid pipe):
 - Basing on the length of standard pipe, add refrigerant according to the requirement as shown in the table. The additional refrigerant charging amount per meter is different according to the diameter of liquid pipe. See the following sheet.
 - Additional refrigerant charging amount = prolonged length of liquid pipe X additional refrigerant charging amount per meter

| Additional refrigerant charging amount for R22, R407C, R410A and R134a | | | |
|------------------------------------------------------------------------|-----------------|-----------------------|------------------------------|
| Diameter of connection pipe | | Outdoor unit throttle | |
| Liquid pipe (inch) | Gas pipe (inch) | Cooling only (oz/ft.) | Cooling and heating (oz/ft.) |
| Φ1/4 | Φ3/8 or Φ1/2 | 0.2 | 0.2 |
| Φ1/4 or Φ3/8 | Φ5/8 or Φ3/4 | 0.2 | 0.6 |
| Φ1/2 | Φ3/4 or Φ7/8 | 0.3 | 1.3 |
| Φ5/8 | Φ1 or Φ1 1/4 | 0.7 | 1.3 |
| Φ3/4 | / | 2.7 | 2.7 |
| Φ7/8 | / | 3.8 | 3.8 |

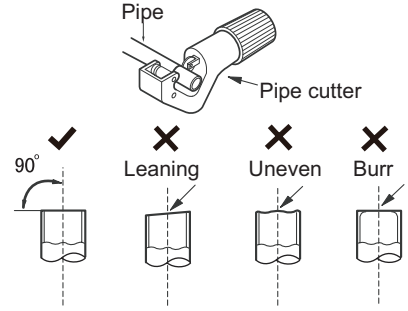
Appendix 3: Pipe Expanding Method

⚠ Note:

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

A:Cut the pip

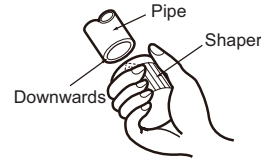
- Confirm the pipe length according to the distance of indoor unit and outdoor unit.
- Cut the required pipe with pipe cutter.



B:Remove the burrs

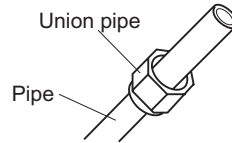
- Remove the burrs with shaper and prevent the burrs from getting into the pipe.

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.



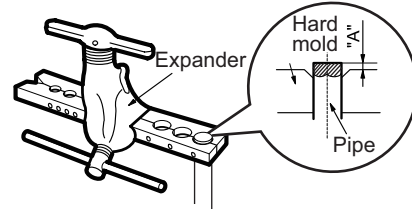
E:Expand the port

- Expand the port with expander.

⚠ Note:

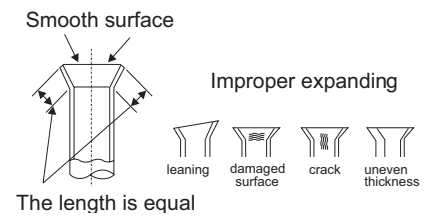
- "A" is different according to the diameter, please refer to the sheet below:

| Outer diameter(inch) | A(inch) | |
|----------------------|---------|------|
| | Max | Min |
| Φ0.24 - 0.25 (1/4") | 0.05 | 0.03 |
| Φ0.37 (3/8") | 0.06 | 0.04 |
| Φ0.47 - 0.50 (1/2") | 0.07 | 0.04 |
| Φ0.63 - 0.625 (5/8") | 0.09 | 0.09 |



F:Inspection

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



Appendix 4: List of Resistance for Temperature Sensor

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

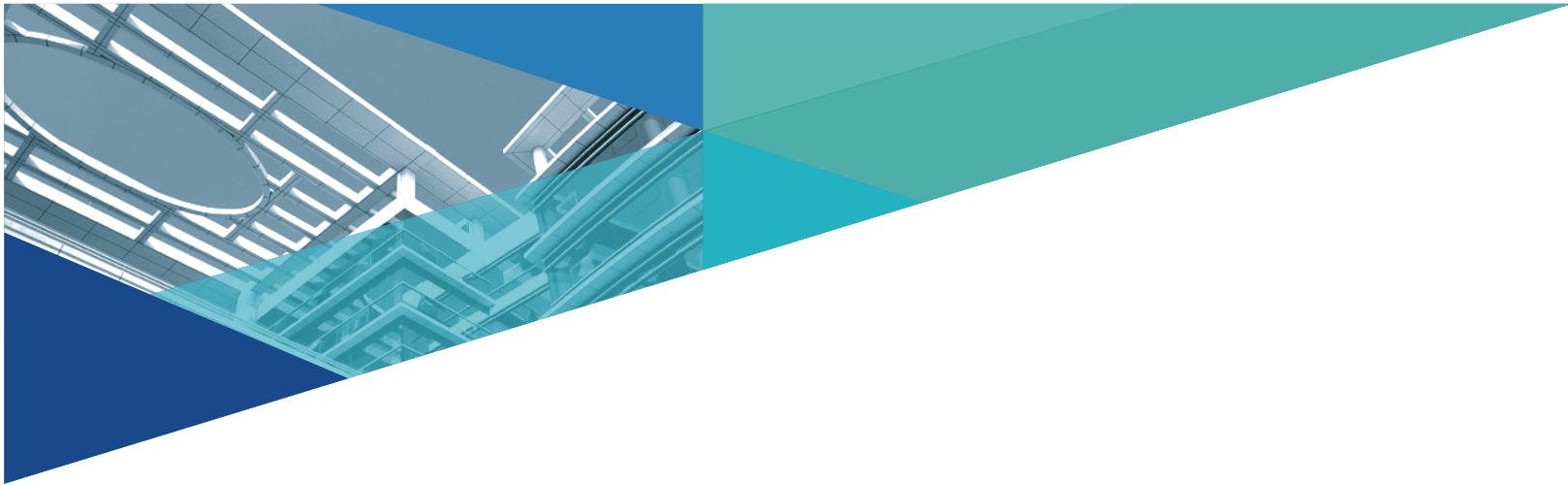
| Temp.(°F) | Resistance(kΩ) | Temp.(°F) | Resistance(kΩ) | Temp.(°F) | Resistance(kΩ) | Temp.(°F) | Resistance(kΩ) |
|-----------|----------------|-----------|----------------|-----------|----------------|-----------|----------------|
| -2.2 | 138.1 | 68 | 18.75 | 138.2 | 3.848 | 208.4 | 1.071 |
| -0.4 | 128.6 | 69.8 | 17.93 | 140 | 3.711 | 210.2 | 1.039 |
| 1.4 | 121.6 | 71.6 | 17.14 | 141.8 | 3.579 | 212 | 1.009 |
| 3.2 | 115 | 73.4 | 16.39 | 143.6 | 3.454 | 213.8 | 0.98 |
| 5 | 108.7 | 75.2 | 15.68 | 145.4 | 3.333 | 215.6 | 0.952 |
| 6.8 | 102.9 | 77 | 15 | 147.2 | 3.217 | 217.4 | 0.925 |
| 8.6 | 97.4 | 78.8 | 14.36 | 149 | 3.105 | 219.2 | 0.898 |
| 10.4 | 92.22 | 80.6 | 13.74 | 150.8 | 2.998 | 221 | 0.873 |
| 12.2 | 87.35 | 82.4 | 13.16 | 152.6 | 2.896 | 222.8 | 0.848 |
| 14 | 82.75 | 84.2 | 12.6 | 154.4 | 2.797 | 224.6 | 0.825 |
| 15.8 | 78.43 | 86 | 12.07 | 156.2 | 2.702 | 226.4 | 0.802 |
| 17.6 | 74.35 | 87.8 | 11.57 | 158 | 2.611 | 228.2 | 0.779 |
| 19.4 | 70.5 | 89.6 | 11.09 | 159.8 | 2.523 | 230 | 0.758 |
| 21.2 | 66.88 | 91.4 | 10.63 | 161.6 | 2.439 | 231.8 | 0.737 |
| 23 | 63.46 | 93.2 | 10.2 | 163.4 | 2.358 | 233.6 | 0.717 |
| 24.8 | 60.23 | 95 | 9.779 | 165.2 | 2.28 | 235.4 | 0.697 |
| 26.6 | 57.18 | 96.8 | 9.382 | 167 | 2.206 | 237.2 | 0.678 |
| 28.4 | 54.31 | 98.6 | 9.003 | 168.8 | 2.133 | 239 | 0.66 |
| 30.2 | 51.59 | 100.4 | 8.642 | 170.6 | 2.064 | 240.8 | 0.642 |
| 32 | 49.02 | 102.2 | 8.297 | 172.4 | 1.997 | 242.6 | 0.625 |
| 33.8 | 46.6 | 104 | 7.967 | 174.2 | 1.933 | 244.4 | 0.608 |
| 35.6 | 44.31 | 105.8 | 7.653 | 176 | 1.871 | 246.2 | 0.592 |
| 37.4 | 42.14 | 107.6 | 7.352 | 177.8 | 1.811 | 248 | 0.577 |
| 39.2 | 40.09 | 109.4 | 7.065 | 179.6 | 1.754 | 249.8 | 0.561 |
| 41 | 38.15 | 111.2 | 6.791 | 181.4 | 1.699 | 251.6 | 0.547 |
| 42.8 | 36.32 | 113 | 6.529 | 183.2 | 1.645 | 253.4 | 0.532 |
| 44.6 | 34.58 | 114.8 | 6.278 | 185 | 1.594 | 255.2 | 0.519 |
| 46.4 | 32.94 | 116.6 | 6.038 | 186.8 | 1.544 | 257 | 0.505 |
| 48.2 | 31.38 | 118.4 | 5.809 | 188.6 | 1.497 | 258.8 | 0.492 |
| 50 | 29.9 | 120.2 | 5.589 | 190.4 | 1.451 | 260.6 | 0.48 |
| 51.8 | 28.51 | 122 | 5.379 | 192.2 | 1.408 | 262.4 | 0.467 |
| 53.6 | 27.18 | 123.8 | 5.197 | 194 | 1.363 | 264.2 | 0.456 |
| 55.4 | 25.92 | 125.6 | 4.986 | 195.8 | 1.322 | 266 | 0.444 |
| 57.2 | 24.73 | 127.4 | 4.802 | 197.6 | 1.282 | 267.8 | 0.433 |
| 59 | 23.6 | 129.2 | 4.625 | 199.4 | 1.244 | 269.6 | 0.422 |
| 60.8 | 22.53 | 131 | 4.456 | 201.2 | 1.207 | 271.4 | 0.412 |
| 62.6 | 21.51 | 132.8 | 4.294 | 203 | 1.171 | 273.2 | 0.401 |
| 64.4 | 20.54 | 134.6 | 4.139 | 204.8 | 1.136 | 275 | 0.391 |
| 66.2 | 19.63 | 136.4 | 3.99 | 206.6 | 1.103 | 276.8 | 0.382 |

Resistance Table of Tube Temperature Sensors for Indoor and Outdoor (20K)

| Temp.(°F) | Resistance(kΩ) | Temp.(°F) | Resistance(kΩ) | Temp.(°F) | Resistance(kΩ) | Temp.(°F) | Resistance(kΩ) |
|-----------|----------------|-----------|----------------|-----------|----------------|-----------|----------------|
| -2.2 | 181.4 | 68 | 25.01 | 138.2 | 5.13 | 208.4 | 1.427 |
| -0.4 | 171.4 | 69.8 | 23.9 | 140 | 4.948 | 210.2 | 1.386 |
| 1.4 | 162.1 | 71.6 | 22.85 | 141.8 | 4.773 | 212 | 1.346 |
| 3.2 | 153.3 | 73.4 | 21.85 | 143.6 | 4.605 | 213.8 | 1.307 |
| 5 | 145 | 75.2 | 20.9 | 145.4 | 4.443 | 215.6 | 1.269 |
| 6.8 | 137.2 | 77 | 20 | 147.2 | 4.289 | 217.4 | 1.233 |
| 8.6 | 129.9 | 78.8 | 19.14 | 149 | 4.14 | 219.2 | 1.198 |
| 10.4 | 123 | 80.6 | 18.13 | 150.8 | 3.998 | 221 | 1.164 |
| 12.2 | 116.5 | 82.4 | 17.55 | 152.6 | 3.861 | 222.8 | 1.131 |
| 14 | 110.3 | 84.2 | 16.8 | 154.4 | 3.729 | 224.6 | 1.099 |
| 15.8 | 104.6 | 86 | 16.1 | 156.2 | 3.603 | 226.4 | 1.069 |
| 17.6 | 99.13 | 87.8 | 15.43 | 158 | 3.481 | 228.2 | 1.039 |
| 19.4 | 94 | 89.6 | 14.79 | 159.8 | 3.364 | 230 | 1.01 |
| 21.2 | 89.17 | 91.4 | 14.18 | 161.6 | 3.252 | 231.8 | 0.983 |
| 23 | 84.61 | 93.2 | 13.59 | 163.4 | 3.144 | 233.6 | 0.956 |
| 24.8 | 80.31 | 95 | 13.04 | 165.2 | 3.04 | 235.4 | 0.93 |
| 26.6 | 76.24 | 96.8 | 12.51 | 167 | 2.94 | 237.2 | 0.904 |
| 28.4 | 72.41 | 98.6 | 12 | 168.8 | 2.844 | 239 | 0.88 |
| 30.2 | 68.79 | 100.4 | 11.52 | 170.6 | 2.752 | 240.8 | 0.856 |
| 32 | 65.37 | 102.2 | 11.06 | 172.4 | 2.663 | 242.6 | 0.833 |
| 33.8 | 62.13 | 104 | 10.62 | 174.2 | 2.577 | 244.4 | 0.811 |
| 35.6 | 59.08 | 105.8 | 10.2 | 176 | 2.495 | 246.2 | 0.77 |
| 37.4 | 56.19 | 107.6 | 9.803 | 177.8 | 2.415 | 248 | 0.769 |
| 39.2 | 53.46 | 109.4 | 9.42 | 179.6 | 2.339 | 249.8 | 0.746 |
| 41 | 50.87 | 111.2 | 9.054 | 181.4 | 2.265 | 251.6 | 0.729 |
| 42.8 | 48.42 | 113 | 8.705 | 183.2 | 2.194 | 253.4 | 0.71 |
| 44.6 | 46.11 | 114.8 | 8.37 | 185 | 2.125 | 255.2 | 0.692 |
| 46.4 | 43.92 | 116.6 | 8.051 | 186.8 | 2.059 | 257 | 0.674 |
| 48.2 | 41.84 | 118.4 | 7.745 | 188.6 | 1.996 | 258.8 | 0.658 |
| 50 | 39.87 | 120.2 | 7.453 | 190.4 | 1.934 | 260.6 | 0.64 |
| 51.8 | 38.01 | 122 | 7.173 | 192.2 | 1.875 | 262.4 | 0.623 |
| 53.6 | 36.24 | 123.8 | 6.905 | 194 | 1.818 | 264.2 | 0.607 |
| 55.4 | 34.57 | 125.6 | 6.648 | 195.8 | 1.736 | 266 | 0.592 |
| 57.2 | 32.98 | 127.4 | 6.403 | 197.6 | 1.71 | 267.8 | 0.577 |
| 59 | 31.47 | 129.2 | 6.167 | 199.4 | 1.658 | 269.6 | 0.563 |
| 60.8 | 30.04 | 131 | 5.942 | 201.2 | 1.609 | 271.4 | 0.549 |
| 62.6 | 28.68 | 132.8 | 5.726 | 203 | 1.561 | 273.2 | 0.535 |
| 64.4 | 27.39 | 134.6 | 5.519 | 204.8 | 1.515 | 275 | 0.521 |
| 66.2 | 26.17 | 136.4 | 5.32 | 206.6 | 1.47 | 276.8 | 0.509 |

Resistance Table of Discharge Temperature Sensor for Outdoor(50K)

| Temp.(°F) | Resistance(kΩ) | Temp.(°F) | Resistance(kΩ) | Temp.(°F) | Resistance(kΩ) | Temp.(°F) | Resistance(kΩ) |
|-----------|----------------|-----------|----------------|-----------|----------------|-----------|----------------|
| -20.2 | 853.5 | 50 | 98 | 120.2 | 18.34 | 190.4 | 4.754 |
| -18.4 | 799.8 | 51.8 | 93.42 | 122 | 17.65 | 192.2 | 4.609 |
| -16.6 | 750 | 53.6 | 89.07 | 123.8 | 16.99 | 194 | 4.469 |
| -14.8 | 703.8 | 55.4 | 84.95 | 125.6 | 16.36 | 195.8 | 4.334 |
| -13 | 660.8 | 57.2 | 81.05 | 127.4 | 15.75 | 197.6 | 4.204 |
| -11.2 | 620.8 | 59 | 77.35 | 129.2 | 15.17 | 199.4 | 4.079 |
| -9.4 | 580.6 | 60.8 | 73.83 | 131 | 14.62 | 201.2 | 3.958 |
| -7.6 | 548.9 | 62.6 | 70.5 | 132.8 | 14.09 | 203 | 3.841 |
| -5.8 | 516.6 | 64.4 | 67.34 | 134.6 | 13.58 | 204.8 | 3.728 |
| -4 | 486.5 | 66.2 | 64.33 | 136.4 | 13.09 | 206.6 | 3.619 |
| -2.2 | 458.3 | 68 | 61.48 | 138.2 | 12.62 | 208.4 | 3.514 |
| -0.4 | 432 | 69.8 | 58.77 | 140 | 12.17 | 210.2 | 3.413 |
| 1.4 | 407.4 | 71.6 | 56.19 | 141.8 | 11.74 | 212 | 3.315 |
| 3.2 | 384.5 | 73.4 | 53.74 | 143.6 | 11.32 | 213.8 | 3.22 |
| 5 | 362.9 | 75.2 | 51.41 | 145.4 | 10.93 | 215.6 | 3.129 |
| 6.8 | 342.8 | 77 | 49.19 | 147.2 | 10.54 | 217.4 | 3.04 |
| 8.6 | 323.9 | 78.8 | 47.08 | 149 | 10.18 | 219.2 | 2.955 |
| 10.4 | 306.2 | 80.6 | 45.07 | 150.8 | 9.827 | 221 | 2.872 |
| 12.2 | 289.6 | 82.4 | 43.16 | 152.6 | 9.489 | 222.8 | 2.792 |
| 14 | 274 | 84.2 | 41.34 | 154.4 | 9.165 | 224.6 | 2.715 |
| 15.8 | 259.3 | 86 | 39.61 | 156.2 | 8.854 | 226.4 | 2.64 |
| 17.6 | 245.6 | 87.8 | 37.96 | 158 | 8.555 | 228.2 | 2.568 |
| 19.4 | 232.6 | 89.6 | 36.38 | 159.8 | 8.268 | 230 | 2.498 |
| 21.2 | 220.5 | 91.4 | 34.88 | 161.6 | 7.991 | 231.8 | 2.431 |
| 23 | 209 | 93.2 | 33.45 | 163.4 | 7.726 | 233.6 | 2.365 |
| 24.8 | 198.3 | 95 | 32.09 | 165.2 | 7.47 | 235.4 | 2.302 |
| 26.6 | 199.1 | 96.8 | 30.79 | 167 | 7.224 | 237.2 | 2.241 |
| 28.4 | 178.5 | 98.6 | 29.54 | 168.8 | 6.998 | 239 | 2.182 |
| 30.2 | 169.5 | 100.4 | 28.36 | 170.6 | 6.761 | 240.8 | 2.124 |
| 32 | 161 | 102.2 | 27.23 | 172.4 | 6.542 | 242.6 | 2.069 |
| 33.8 | 153 | 104 | 26.15 | 174.2 | 6.331 | 244.4 | 2.015 |
| 35.6 | 145.4 | 105.8 | 25.11 | 176 | 6.129 | 246.2 | 1.963 |
| 37.4 | 138.3 | 107.6 | 24.13 | 177.8 | 5.933 | 248 | 1.912 |
| 39.2 | 131.5 | 109.4 | 23.19 | 179.6 | 5.746 | 249.8 | 1.863 |
| 41 | 125.1 | 111.2 | 22.29 | 181.4 | 5.565 | 251.6 | 1.816 |
| 42.8 | 119.1 | 113 | 21.43 | 183.2 | 5.39 | 253.4 | 1.77 |
| 44.6 | 113.4 | 114.8 | 20.6 | 185 | 5.222 | 255.2 | 1.725 |
| 46.4 | 108 | 116.6 | 19.81 | 186.8 | 5.06 | 257 | 1.682 |
| 48.2 | 102.8 | 118.4 | 19.06 | 188.6 | 4.904 | 258.8 | 1.64 |



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