

**WYC SERIES SINGLE ZONE SPLIT
3D DC INVERTER+ HEAT PUMP
SERVICE MANUAL** *Digital 3D*

Revision A: 1502250001, Content updated.

Model Numbers:

WYC009AMFI20

WYC012AMFI20

Table of Contents

1. **Precaution**
2. **Part Names And Functions**
3. **Dimension**
4. **Refrigerant Cycle Diagram**
5. **Printed Circuit Board Connector Wiring Diagram of Outdoor unit**
6. **Installation Details**
7. **Operation Characteristics**
8. **Electronic Function**
9. **Troubleshooting**
10. **Disassembly Instructions**



WARNING

- Installation **MUST** conform with local building codes or, in the absence of local codes, with the National Electrical Code NFPA70/ANSI C1-1993 or current edition and Canadian Electrical Code Part1 CSA C.22.1.
- The information contained in the manual is intended for use by a qualified service technician familiar with safety procedures and equipped with the proper tools and test instruments
- Installation or repairs made by unqualified persons can result in hazards to you and others.
- Failure to carefully read and follow all instructions in this manual can result in equipment malfunction, property damage, personal injury and/or death.
- **This service is only for service engineer to use.**



CONTENTS

| | |
|--|-----------|
| 1. Precaution | 1 |
| 1.1 Safety Precaution | 1 |
| 1.2 Warning | 1 |
| 2. Part Names And Functions | 4 |
| 2.1 Model Names of Indoor/Outdoor units | 4 |
| 2.2 Part names of Indoor/Outdoor units | 5 |
| 3. Dimension | 6 |
| 3.1 Indoor Unit | 6 |
| 3.2 Outdoor Unit | 8 |
| 4. Refrigerant Cycle Diagram | 9 |
| 5. Printed Circuit Board Connector Wiring Diagram of Outdoor unit | 11 |
| 6 Installation Details | 12 |
| 6.1 Wrench torque sheet for installation | 12 |
| 6.2 Connecting the cables | 12 |
| 6.3 Pipe length and the elevation | 12 |
| 6.4 Installation for the first time | 12 |
| 6.5 Adding the refrigerant after running the system for many years | 13 |
| 6.6 Procedure when servicing the indoor unit refrigeration circuit. | 14 |
| 6.7 Evacuation after servicing the outdoor unit refrigeration circuit. | 15 |
| 7. Operation Characteristics | 17 |
| 8. Electronic Function | 18 |
| 8.1 Abbreviation | 18 |
| 8.2 Display function | 18 |
| 8.3 Main Protection | 19 |
| 8.4 Operation Modes and Functions | 20 |
| 9. Troubleshooting | 26 |
| 9.1 Indoor Unit Error Display | 27 |
| 9.2 Outdoor unit error display | 28 |
| 9.3 Diagnosis and Solution | 29 |
| 10 Disassembly Instructions | 53 |
| 10.1 Indoor unit | 53 |
| 10.2 Outdoor unit | 57 |

1. Precaution

1.1 Safety Precaution

- To prevent injury to the user or other people and property damage, the following instructions must be followed.
- Incorrect operation due to ignoring instruction will cause harm or damage.
- Before service the unit, be sure to read this service manual at first.

1.2 Warning

➤ Installation

- Do not use a defective or underrated circuit breaker. Use this appliance on a dedicated circuit.

There is risk of fire or electric shock.

- For electrical work, contact the dealer, seller, a qualified electrician, or an authorized service center.

Do not disassemble or repair the product, there is risk of fire or electric shock.

- Always ground the product.

There is risk of fire or electric shock.

- Install the panel and the cover of control box securely.

There is risk of fire of electric shock.

- Always install a dedicated circuit and breaker.

Improper wiring or installation may cause electric shock.

- Use the correctly rated breaker of fuse.

There is risk of fire or electric shock.

- Do not modify or extend the power cable.

There is risk of fire or electric shock.

- Do not install, remove, or reinstall the unit by yourself (customer).

There is risk of fire, electric shock, explosion, or injury.

- Be caution when unpacking and installing the product.

Sharp edges could cause injury, be especially careful of the case edges and the fins on the condenser and evaporator.

- For installation, always contact the dealer or an authorized service center.

- Do not install the product on a defective installation stand.

- Be sure the installation area does not deteriorate with age.

If the base collapses, the air conditioner could fall with it, causing property damage, product failure, and personal injury.

- Do not let the air conditioner run for a long time when the humidity is very high and a door or a window is left open.

- Take care to ensure that power cable could not be pulled out or damaged during operation.

There is risk of fire or electric shock.

- Do not place anything on the power cable.

There is risk of fire or electric shock.

- Do not plug or unplug the power supply plug during operation.

There is risk of fire or electric shock.

- Do not touch (operation) the product with wet hands.

- Do not place a heater or other appliance near the power cable.

There is risk of fire and electric shock.

- Do not allow water to run into electrical parts.

It may cause fire, failure of the product, or electric shock.

- Do not store or use flammable gas or combustible near the product.

There is risk of fire or failure of product.

- Do not use the product in a tightly closed space for a long time.

Oxygen deficiency could occur.

- When flammable gas leaks, turn off the gas and open a window for ventilation before turn the product on.

- If strange sounds or smoke comes from product, turn the breaker off or disconnect the power supply cable.

There is risk of electric shock or fire.

■ **Stop operation and close the window in storm or hurricane. If possible, remove the product from the window before the hurricane arrives.**

There is risk of property damage, failure of product, or electric shock.

■ **Do not open the inlet grill of the product during operation. (Do not touch the electrostatic filter, if the unit is so equipped.)**

There is risk of physical injury, electric shock, or product failure.

■ **When the product is soaked, contact an authorized service center.**

There is risk of fire or electric shock.

■ **Be caution that water could not enter the product.**

There is risk of fire, electric shock, or product damage.

■ **Ventilate the product from time to time when operating it together with a stove etc.**

There is risk of fire or electric shock.

■ **Turn the main power off when cleaning or maintaining the product.**

There is risk of electric shock.

■ **When the product is not be used for a long time, disconnect the power supply plug or turn off the breaker.**

There is risk of product damage or failure, or unintended operation.

■ **Take care to ensure that nobody could step on or fall onto the outdoor unit.**

This could result in personal injury and product damage.

➤ CAUTION

■ **Always check for gas (refrigerant) leakage after installation or repair of product.**

Low refrigerant levels may cause failure of product.

■ **Install the drain hose to ensure that water is drained away properly.**

A bad connection may cause water leakage.

■ **Keep level even when installing the**

product.

It can avoid vibration of water leakage.

■ **Do not install the product where the noise or hot air from the outdoor unit could damage the neighborhoods.**

It may cause a problem for your neighbors.

■ **Use two or more people to lift and transport the product.**

■ **Do not install the product where it will be exposed to sea wind (salt spray) directly.**

It may cause corrosion on the product.

Corrosion, particularly on the condenser and evaporator fins, could cause product malfunction or inefficient operation.

➤ Operational

■ **Do not expose the skin directly to cool air for long time. (Do not sit in the draft).**

■ **Do not use the product for special purposes, such as preserving foods, works of art etc. It is a consumer air conditioner, not a precision refrigerant system.**

There is risk of damage or loss of property.

■ **Do not block the inlet or outlet of air flow.**

■ **Use a soft cloth to clean. Do not use harsh detergents, solvents, etc.**

There is risk of fire, electric shock, or damage to the plastic parts of the product.

■ **Do not touch the metal parts of the product when removing the air filter. They are very sharp.**

■ **Do not step on or put anything on the product. (outdoor units)**

■ **Always insert the filter securely.**

Clean the filter every two weeks or more often if necessary.

A dirty filter reduces the efficiency of the air conditioner and could cause product malfunction or damage.

■ **Do not insert hands or other objects through air inlet or outlet while the product is operated.**

■ **Do not drink the water drained from the product.**

■ **Use a firm stool or ladder when cleaning or maintaining the product.**

Be careful and avoid personal injury.

■ **Replace the all batteries in the remote control with new ones of the same type. Do not mix old and new batteries or different types of batteries.**

There is risk of fire or explosion.

■ **Do not recharge or disassemble the batteries. Do not dispose of batteries in a fire.**

They may burn or explode.

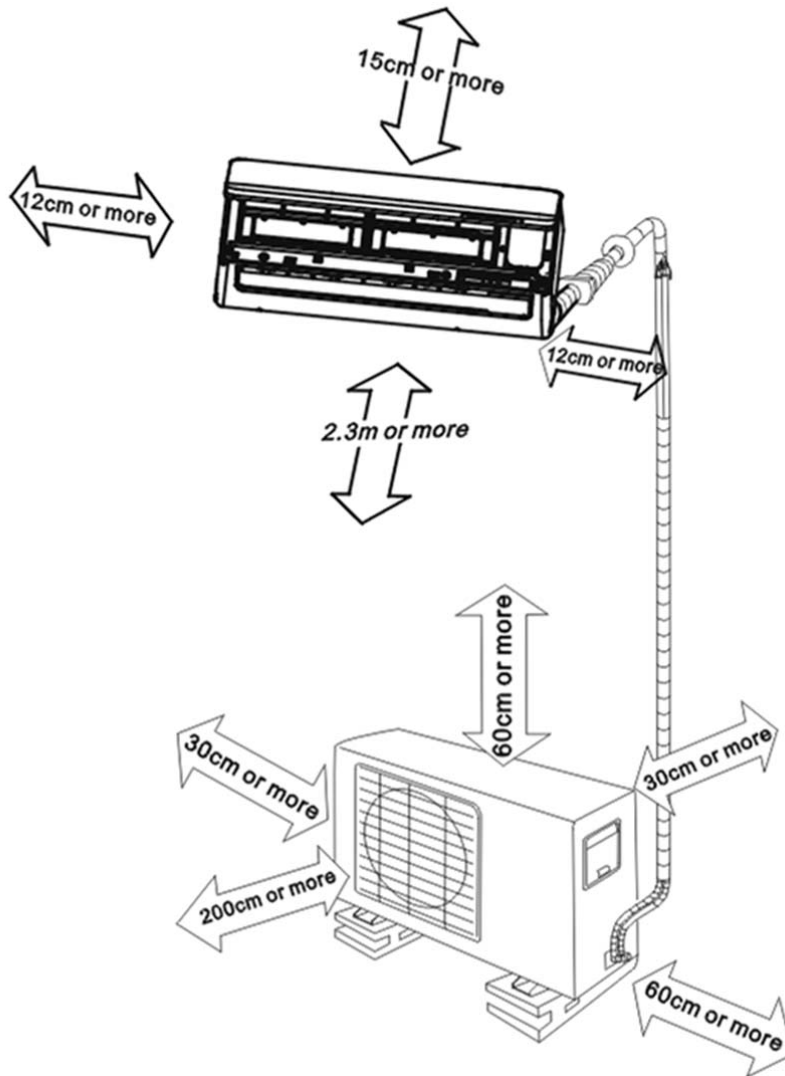
■ **If the liquid from the batteries gets onto your skin or clothes, wash it well with clean water. Do not use the remote if the batteries have leaked.**

2. Part Names And Functions

2.1 Model Names of Indoor/Outdoor units

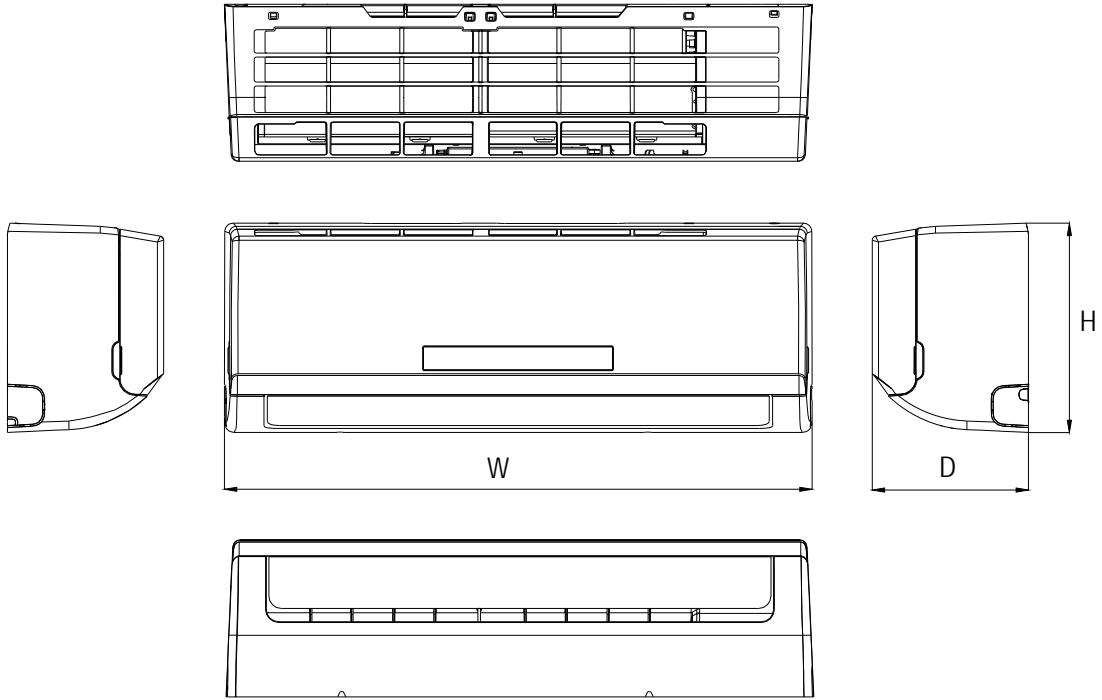
| Series | Capacity | Indoor units | Outdoor units |
|---------------|-----------------|---------------------|----------------------|
| WYC | 9k | WC009AMFI20HLD | YN009AMFI20RPD |
| | 12k | WC012AMFI20HLD | YN012AMFI20RPD |

2.2 Part names of Indoor/Outdoor units

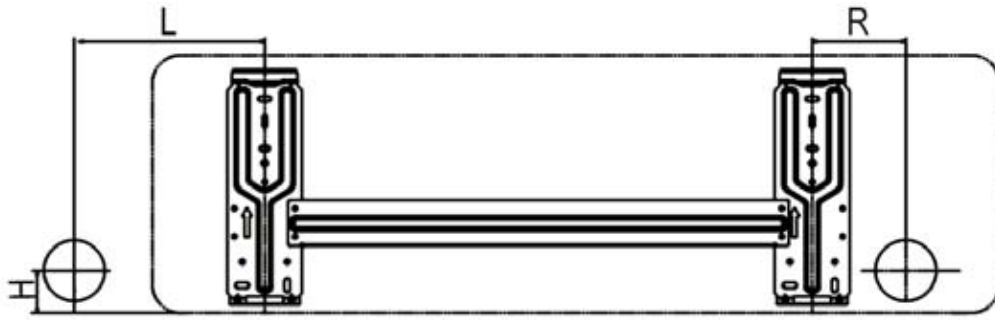


3. Dimension

3.1 Indoor Unit

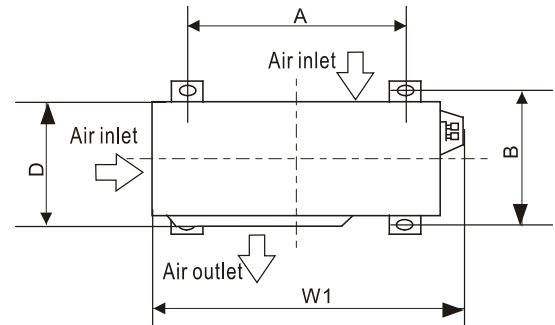
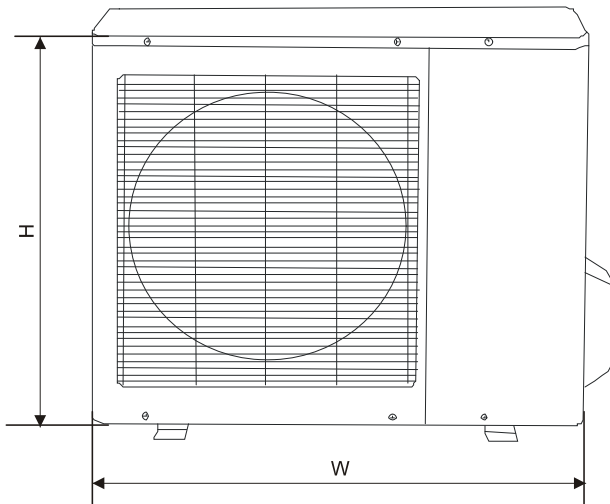
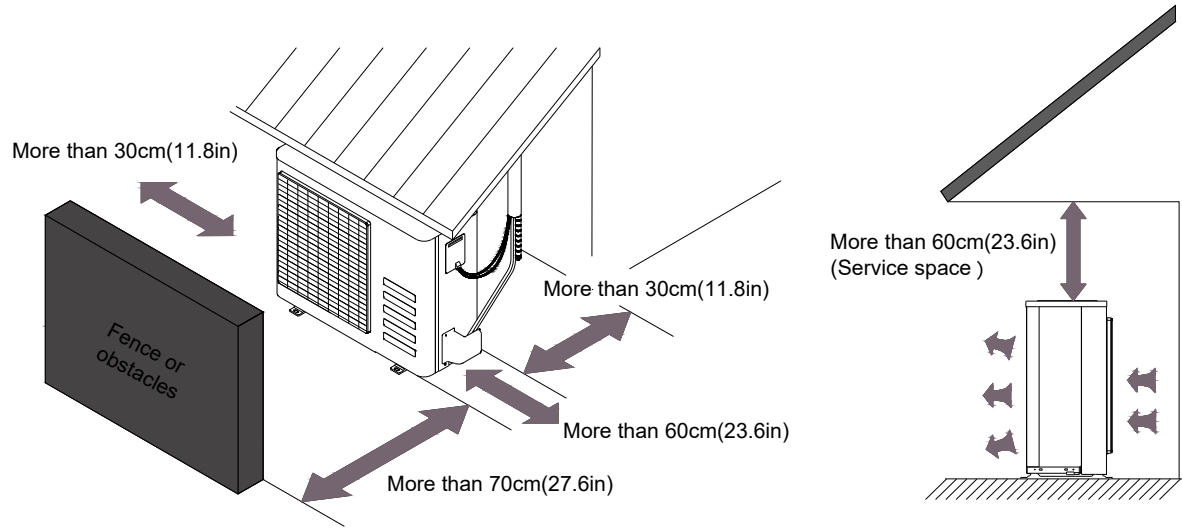


| Model | W | D | H |
|----------------|--------------------|-------------------|--------------------|
| WC009AMFI20HLD | 800 mm (31.5in) | 188 mm (7.4in) | 275 mm (10.8in) |
| WC012AMFI20HLD | 800 mm (31.5in) | 188 mm (7.4in) | 275 mm (10.8in) |



| L(mm) | R(mm) | H(mm) | Dimension of installation hole(mm) |
|-------------------|------------------|------------------|------------------------------------|
| 100 mm (3.9in) | 95 mm (3.7in) | 45 mm (1.8in) | ∅ 65 mm (2.6in) |

3.2 Outdoor Unit

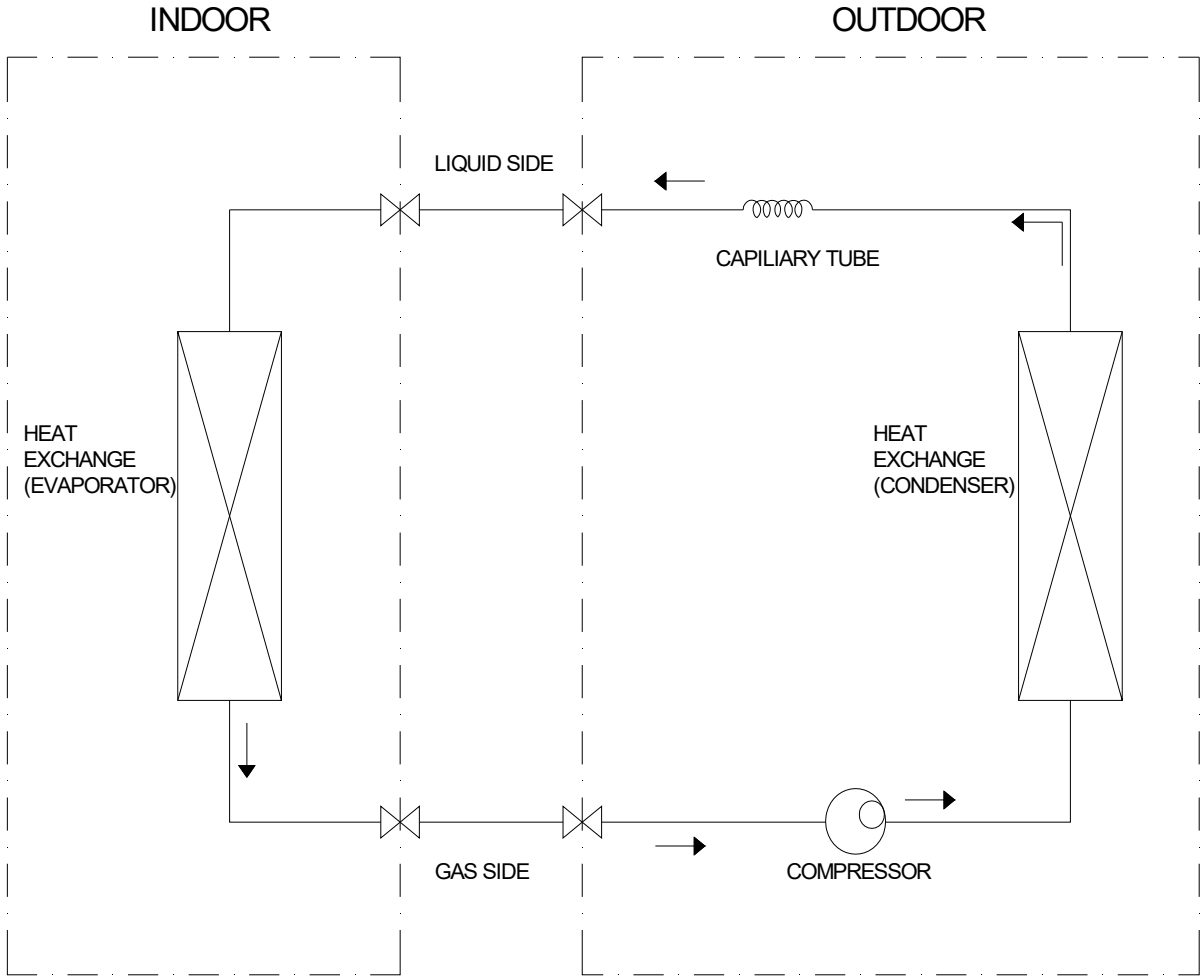


Note: The above drawing is only for reference. The appearance of your units may be different.

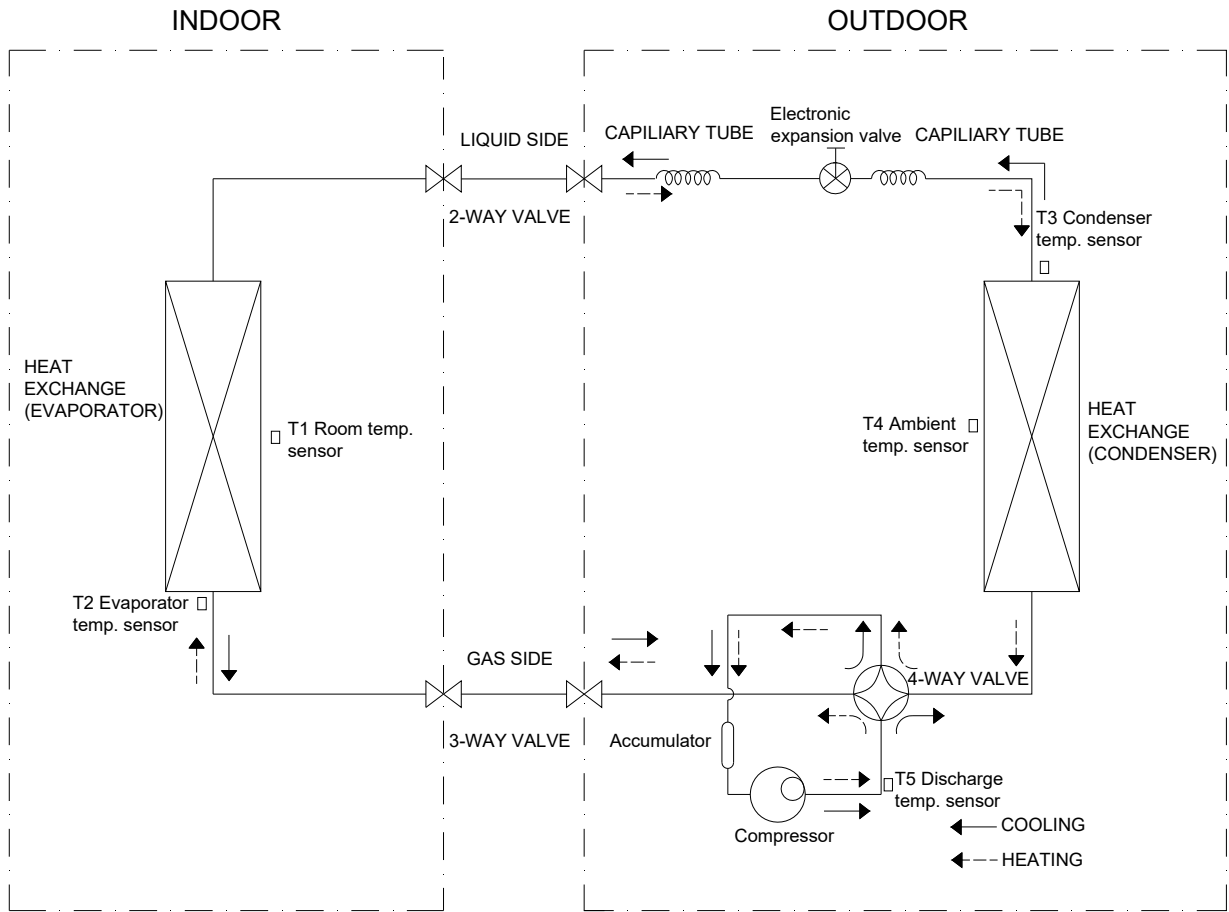
| Model | W | D | H | W1 | A | B |
|----------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| YN009AMFI20RPD | 780mm (30.7in) | 250mm (9.8in) | 540mm (21.3in) | 843mm (33.2in) | 549mm (21.6in) | 276mm (10.9in) |
| YN012AMFI20RPD | 810mm (31.9in) | 310mm (12.2in) | 558mm (22.0in) | 874mm (34.4in) | 549mm (21.6in) | 325mm (12.8in) |

4. Refrigerant Cycle Diagram

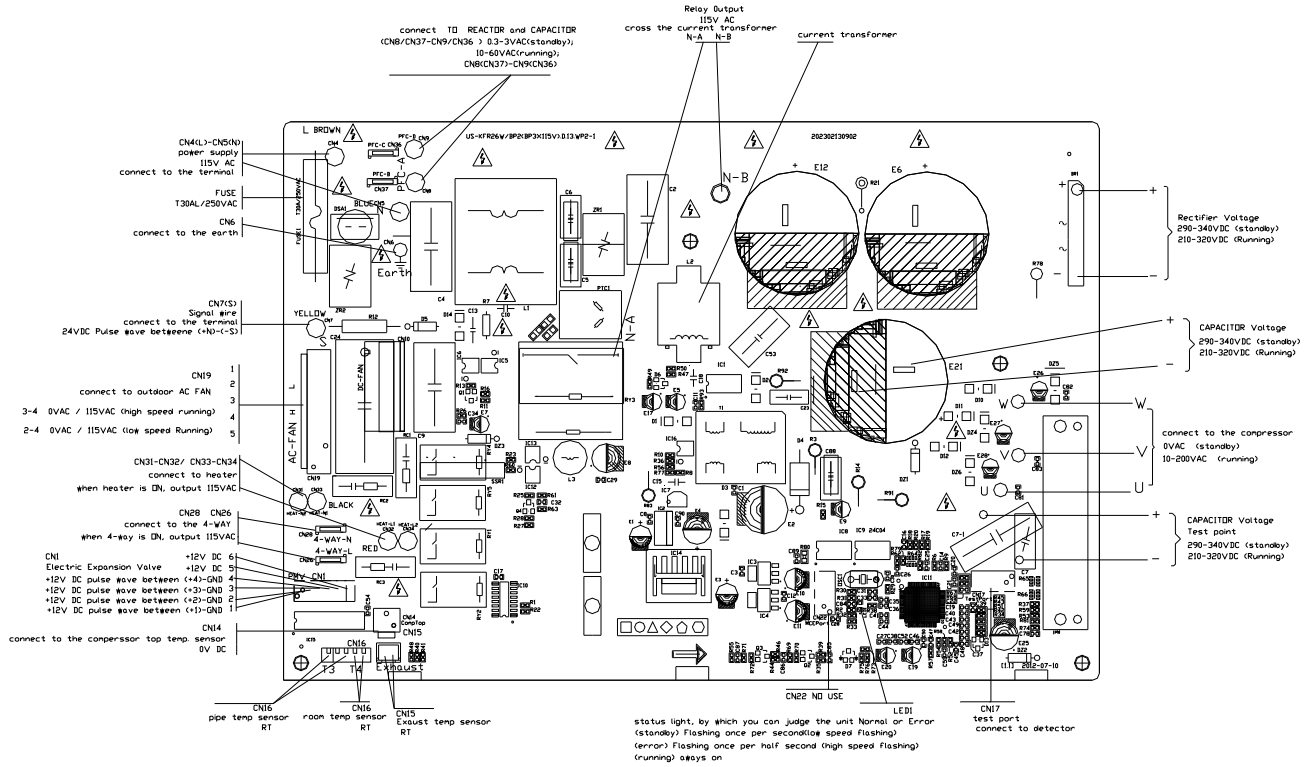
For cooling only models,



For heat pump models:



5. Printed Circuit Board Connector Wiring Diagram of Outdoor unit



6 Installation Details

6.1 Wrench torque sheet for installation

| Outside diameter | | Torque | Additional tightening torque |
|------------------|-------|---------------------|------------------------------|
| Φ6.35mm | 1/4in | 1500N.cm(153kgf.cm) | 1600N.cm(163kgf.cm) |
| Φ9.52mm | 3/8in | 2500N.cm(255kgf.cm) | 2600N.cm(265kgf.cm) |
| Φ12.7mm | 1/2in | 3500N.cm(357kgf.cm) | 3600N.cm(367kgf.cm) |

6.2 Connecting the cables

The power cord should be selected according to the following specifications sheet.

| Appliance Amps | AWG Wire Size |
|----------------|---------------|
| 10 | 18 |
| 13 | 16 |
| 18 | 14 |
| 25 | 12 |
| 30 | 10 |

The cable size and the current of the fuse or switch are determined by the maximum current indicated on the nameplate which located on the side panel of the unit. Please refer to the nameplate before selecting the cable, fuse and switch.

6.3 Pipe length and the elevation

| Models | Pipe size | |
|--------------|--------------------|--------------------|
| | Gas | Liquid |
| WYC009AMFI20 | 3/8in (Φ9.52mm) | 1/4in (Φ6.35mm) |
| WYC012AMFI20 | 1/2in (Φ12.7mm) | 1/4in (Φ6.35mm) |

| Models | Standard length | Max. Elevation | Max. Length A | Additional refrigerant |
|--------------|------------------|-----------------|-----------------|------------------------|
| WYC009AMFI20 | 7.5m (24.6ft) | 10m (32.8ft) | 25m (82.0ft) | 15g/m (0.16oz/ft) |

| | | | | |
|--------------|------------------|-----------------|-----------------|----------------------|
| WYC012AMFI20 | 7.5m (24.6ft) | 10m (32.8ft) | 25m (82.0ft) | 15g/m (0.16oz/ft) |
|--------------|------------------|-----------------|-----------------|----------------------|

6.4 Installation for the first time

Air and moisture in the refrigerant system have undesirable effects as below:

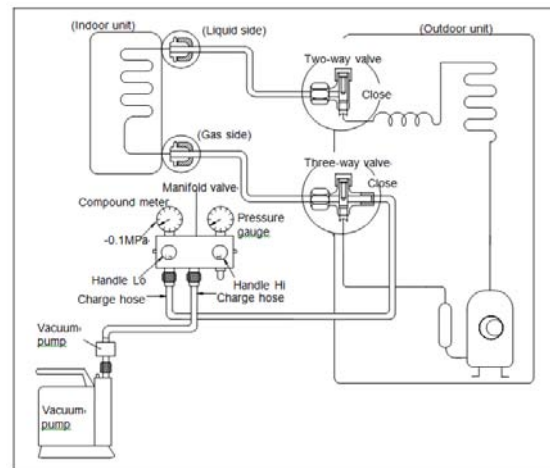
- Pressure in the system rises.
- Operating current rises.
- Cooling or heating efficiency drops.
- Moisture in the refrigerant circuit may freeze and block capillary tubing.
- Water when mixed with the refrigerant and oil will create an acid that will damage the motor windings and components in the refrigerant system.

Therefore, the indoor units and the pipes between indoor and outdoor units must be leak tested and evacuated to remove gas and moisture from the system.

Gas leak check (Soap water method):

Apply soap water or a liquid neutral detergent on the indoor unit connections or outdoor unit Connections with a soft brush to check for leakage of the connecting points of the piping. If bubbles come out, the pipes have leakage.

1. Air purging with vacuum pump

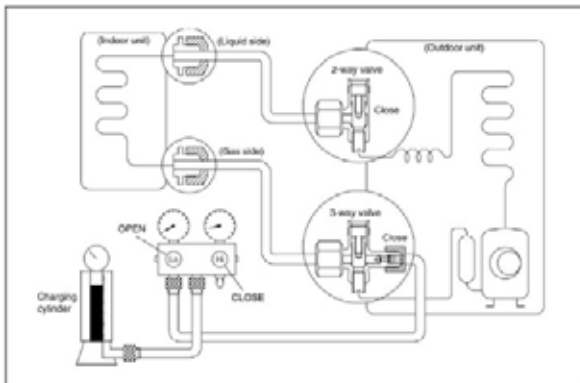


- 1) Completely tighten the flare nuts of the indoor and outdoor units, confirm that both the 2-way and 3-way valves are set to the

Front seated.

- 2) Connect the low pressure gauge to the 3 way service valve access port..
- 3) Connect the middle hose of the gauge manifold (usually yellow) to the vacuum pump.
- 4) Fully open the handle for the low pressure gauge..
- 5) Start the vacuum pump and operate according to manufacture spec's.
- 6) Perform an evacuation for a minimum of 30 minutes and check that the low pressure (compound) gauge indicates a vacuum of 29.9 in/hg (500 microns) A vacuum gauge should be used if available. If the proper vacuum cannot be achieved the vacuum pump should be run for an additional 20 minutes. If after the additional 20 minutes the vacuum still cannot be achieved there is a leak in the system and must be located and repaired. follow the leak checking procedure as mentioned before. If the vacuum is achieved, close the low pressure gauge handle off and shut the vacuum pump off. Recheck the reading after 10 minutes, the vacuum may change slightly, this is normal.
- 7) The system is now dry and free of contaminants, refrigerant pressure should now be added to the system from a source other than the system before opening the 2 way and 3 way valves for system operation.
- 8) The 2 way and 3 way valve can now be opened for the system operation

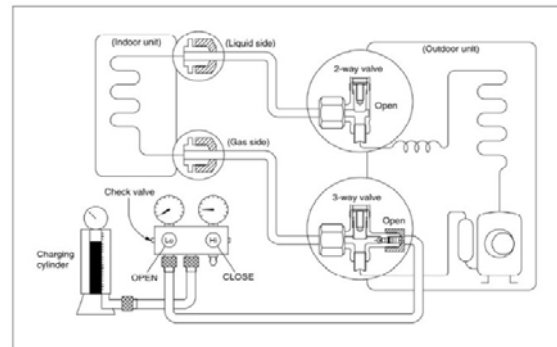
2. Air purging by refrigerant



Procedure:

- 1) Confirm that both the 2-way and 3-way valves are set to the closed position.
- 2) With a container of refrigerant and a gauge manifold set, connect the low pressure gauge hose to the 3 way valve service port and a charging cylinder to the service port of the 3-way valve.
- 3) Open the valve on the refrigerant container and the low pressure gauge to allow the refrigerant to enter the system, next loosen the flare connection on the 2 way valve line to purge the air and contaminants from the system for 30 to 50 seconds, then retighten the connection.
- 4) Next allow the pressure from the refrigerant to reach 100 psi and then close the low pressure gauge and the refrigerant container and check the 2 way and 3 way valve line connections for leaks with liquid soap or electronic leak detector.
- 5) After the system has been check for leaks the pressure should be adjusted to about 25 to 50 psi.
- 6) You can now disconnect the gauge manifold and refrigerant container from the system and open the 2 way and 3 way valves for system operation
- 7) Mount the valve stems nuts and the service port cap. Be sure to use a torque wrench to tighten the service port cap to a torque 18N·m(13.27 ft.lbs). Be sure to check the gas leakage.

6.5 Adding the refrigerant after running the system for many years



Procedure

1). 1st step; Connect the low pressure gauge from the gauge manifold set to the 3 way service valve (this is the blue hose on most sets)
 2nd step; Connect the middle hose from the manifold set to the refrigerant container (this is the yellow line on most sets). with refrigerant 410A the container must be inverted (upside down) when adding the refrigerant. Note that the 2 way and 3 way valves must be in the open position.

3rd step; the air in the gauge hoses needs to be purged out. use the pressure from the system to purge the low side line, loosen the connection on the manifold for a second, next open the to valve on the refrigerant container to pressurize the line, now loosen that hose at the manifold for a second and purge that line.

3) Next step is to set the refrigerant container on an electronic charging scale and record the weight or zero the scale depending on the scale used. Next determine the refrigerant charge to be added.

4) Start the unit in the cooling mode and lower the set point so the unit wont shut off during the charging procedure.

5) Refrigerant can now be added to the system, open the low pressure valve on the gauge manifold set to start charging the unit with liquid refrigerant, keep track of the refrigerant being added to the system (do not overcharge the system)

6). Once the correct charge has been added to the system close the low pressure valve on the gauge manifold set and record the operating pressure. The system is now charged and the unit can be shut off. Close the valve on the refrigerant container and disconnect the hose from the manifold set, also disconnect the hose from the 3 way valve and replace and torque all caps.

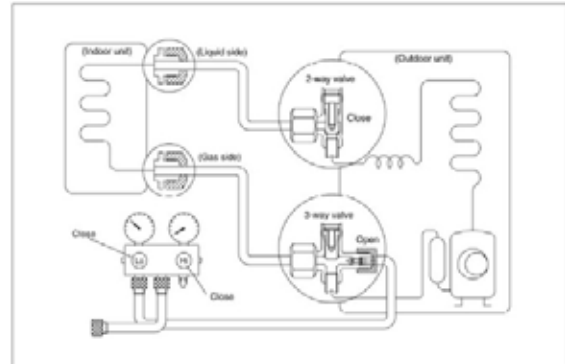
7). Mount the valve stem caps and the service port

Use torque wrench to tighten the service port cap to a torque of 18N.m(13.27 ft,lbs).

Always leak check after servicing the refrigerant system.

6.6 Procedure when servicing the indoor unit refrigeration circuit.

1. Pumping down the system (isolating the refrigerant charge in the condensing unit)



Procedure

1). With the unit in the cooling mode and a low set point remove all caps from the 3 way and 2 way valves, next attach the low pressure gauge to the 3 way service valve port and purge the air from that hose by loosening the hose at the manifold for a second, be sure the low pressure gauge valve is closed. be sure to record the operating pressure, you will need to know this when you complete the service on the indoor unit and restart the system. Now prepare to close both valves on the unit starting with the 2 way valve (this is called front seating the valve) also prepare to shut the power off to the outdoor unit.

2). Connect the charge hose with the push pin of handle lo to the 3-way valves gas service port.

3). Air purging of the charge hose.
 Open the handle Lo valve of the manifold valve slightly to purge air from the charge hose for 5 seconds and then close it quickly.

4). Now close the 2 way valve and monitor the low pressure gauge. the pressure will start to drop.

5). Operate the unit in the cooling mode and disconnect the power to the outdoor unit when the low side gauge reads a slight vacuum, running the compressor in a vacuum could damage the motor windings. Note that units with extended lines and additional refrigerant charge may not be able to achieve a vacuum, this is

because the outdoor unit can only store a certain amount of refrigerant, this is normal (the amperage of the compressor will have to be monitored in this case) Stop compressor when the amperage approaches the name plate FLA rating indicates **0.1Mpa(14.5Psi)**.

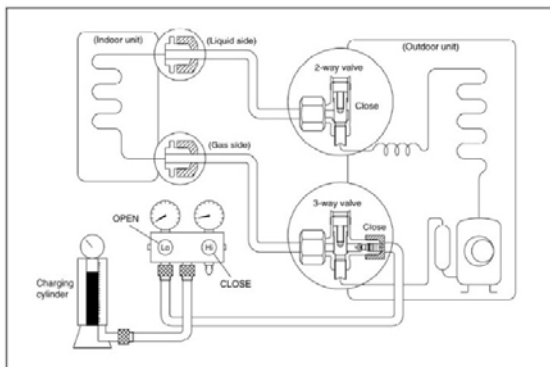
6). Now close the 3 way valve right away. the pressure will rise during this time, this is normal. There will be some pressure left in the system this is normal, The indoor unit is now ready to be serviced.

Disconnect the charge set, and tighten the 2-way and 3-way valve's stem nuts.

Use a torque wrench to tighten the 3-way valves service port cap to a torque of 18N.m(= 13.27 ft.lbs).

Be sure to check for gas leakage.

2. Sweeping (air purging) the system with refrigerant after the service to the refrigerant circuit of the indoor unit is complete.



Procedure:

Sweeping the system can be used when the unit has been pumped down, this eliminates the need to loosen the flare connection on the 2 way valve (loosening and retightening flare connections could cause a refrigerant leak)

- 1). Confirm that both the 2-way and 3-way valves are set to the closed position.
- 2). Connect the charge set and a charging cylinder to the service port of the 3-way valve Leave the valve on the Refrigerant container.
- 3). Do not loosen the flare connection, Start with the hose from the low pressure gauge that has been connected to the 3 way valve service port

and loosen it at the gauge manifold connection, next open the 2 way valve 1/2 half of a turn (this will release the refrigerant that has been isolated in the outdoor unit) The refrigerant will travel thru the small refrigerant line and evaporator coil in the indoor unit and back out the low pressure hose that has been loosened let the refrigerant sweep for about 50 seconds, this will push and remove any air moisture and noncondensables from the refrigeration circuit. After 50 seconds has passed tighten the hose on the low pressure gauge. The sweep is now complete.

Next step, open the 2 way valve all the way then the 3 way valve all the way and check for leaks.

4). Next step, Start the unit in the cooling mode and check the pressure (remember the pressure you recorded?) The unit is going to be low on refrigerant from the sweeping process, add refrigerant as needed from the refrigerant container in the liquid state to achieve the operating pressure that you recorded. The process is now complete.

Check the flare connections for gas leakage.

5). Discharge the refrigerant.

Close the valve on the charging cylinder and discharge the refrigerant by loosening the flare nut on the 2-way valve approximately 45' until the gauge indicates **0.3Mpa(43.5Psi) to 0.5 Mpa(72.5Psi)**.

6). Disconnect the charge set and the charging cylinder, and set the 2-way and 3-way valves to the open position

Be sure to use a hexagonal wrench to operate the valve stems.

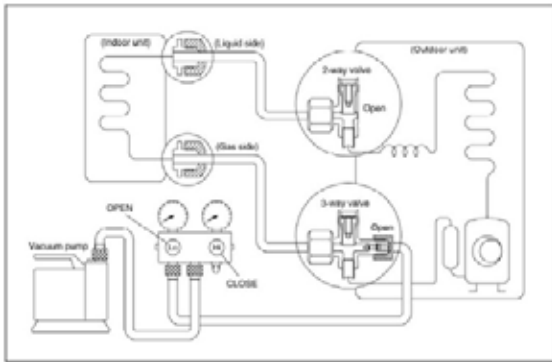
7). Mount the valve stems nuts and the service port cap

Be sure to use a torque wrench to tighten the service port cap to a torque 18N.m.

Be sure to check the gas leakage.

6.7 Evacuation after servicing the outdoor unit refrigeration circuit.

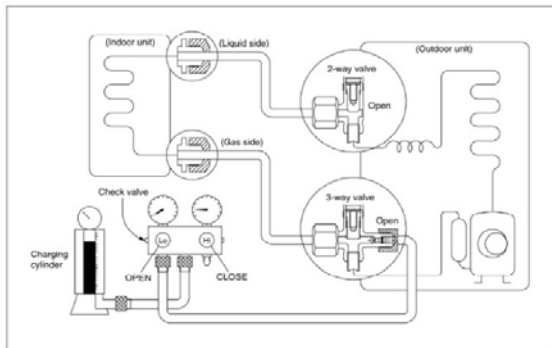
1. Evacuation of the complete refrigeration circuit, Indoor and outdoor unit.



Procedure:

- 1). Confirm that both the 2-way and 3-way valves are set to the opened position.
- 2). Connect the vacuum pump to 3-way valve's service port.
- 3). Evacuation for approximately one hour. Confirm that the compound meter indicates **-0.1Mpa(14.5Psi)**, 500 Microns / 29.9 in,hg.
- 4). Close the valve (Low side) on the charge set, turn off the vacuum pump, and confirm that the gauge needle does not move (approximately 5 minutes after turning off the vacuum pump).
- 5). Disconnect the charge hose from the vacuum pump.

2. Refrigerant charging



Procedure:

- 1). Connect the charge hose to the charging cylinder, open the 2-way valve and the 3-way valve
Connect the charge hose which you disconnected from the vacuum pump to the valve at the bottom of the cylinder. If the refrigerant is R410A, make the cylinder bottom up to ensure liquid charge.
- 2). Purge the air from the charge hose

- Open the valve at the bottom of the cylinder and press the check valve on the charge set to purge the air (be careful of the liquid refrigerant).
- 3) Put the charging cylinder onto the electronic scale and record the weight.
- 4). Open the valves (Low side) on the charge set and charge the system with liquid refrigerant. If the system cannot be charged with the specified amount of refrigerant, or can be charged with a little at a time (approximately 150g each time), operating the air conditioner in the cooling cycle; however, one time is not sufficient, wait approximately 1 minute and then repeat the procedure.
- 5). When the electronic scale displays the proper weight, disconnect the charge hose from the 3-way valve's service port immediately. If the system has been charged with liquid refrigerant while operating the air conditioner, turn off the air conditioner before disconnecting the hose.
- 6). Mounted the valve stem caps and the service port. Use torque wrench to tighten the service port cap to a torque of 18N.m. Be sure to check for gas leakage.

7. Operation Characteristics

| Temperature Mode | Cooling operation | Heating operation | Drying operation |
|---------------------|--|------------------------------|------------------------------|
| Room temperature | 17°C ~ 32°C (62°F ~ 90°F) | 0°C ~ 30°C (32°F ~ 86°F) | 10°C ~ 32°C (50°F ~ 90°F) |
| Outdoor temperature | 0°C ~ 50°C (32°F ~ 122°F) | -15°C ~ 30°C (5°F ~ 86°F) | 0°C ~ 50°C (32°F ~ 122°F) |
| | -15°C ~ 50°C (5°F ~ 122°F) (For the models with low temperature cooling system) | | |

$$\Delta T(^{\circ}\text{F}) = \frac{9\Delta T(^{\circ}\text{C})}{5} + 32$$

CAUTION:

1. If the air conditioner is used beyond the above conditions, certain safety protection features may come into operation and cause the unit to operate abnormally.
2. The room relative humidity should be less than 80%. If the air conditioner operates beyond this figure, the surface of the air conditioner may attract condensation. Please set the vertical air flow louver to its maximum angle (vertically to the floor), and set HIGH fan mode.
3. The optimum performance will be achieved during this operating temperature zone.

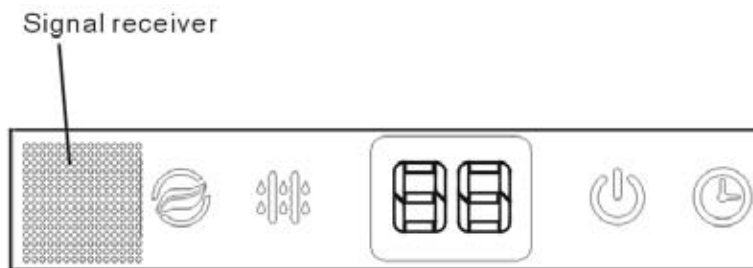
8. Electronic Function






8.1 Abbreviation

- T1: Indoor room temperature
- T2: Coil temperature of evaporator
- T3: Coil temperature of condenser
- T4: Outdoor ambient temperature
- T5: Compressor discharge temperature

8.2 Display function

8.2.1 Icon explanation on indoor display board.



| | |
|---|---|
|  | <p>ION indication lamp(optional function): This lamp illuminates when Clean Air feature is activated.</p> |
|  | <p>DEFROST indication lamp(For cooling & heating models only): Lights up when the air conditioner starts defrosting automatically or when the warm air control feature is activated in heating operation.</p> |
|  | <p>OPERATION indication lamp: This lamp illuminates when the air conditioner is in operation.</p> |
|  | <p>TIMER indication lamp: Lights up during Timer operation.</p> |
|  | <p>Temperature indicator: Displays the temperature settings when the air conditioner is operational. Displays the malfunction code.</p> |

8.3 Main Protection

8.3.1 Three minutes delay at restart for compressor

Less than 1 minute delay for the 1st time stand-up and 3 minutes delay for others.

8.3.2 Temperature protection of compressor top

The unit will stop working when the compressor top temp. protector cut off, and will restart after the compressor top temp. protector restart.

8.3.3 Temperature protection of compressor discharge

Compressor discharge temp. $T_5 > 115^{\circ}\text{C}$ (239°F) for 5s, compressor stops.

8.3.4 Fan speed is out of control

When Indoor fan speed keeps too low (300RPM) for certain time, the unit will stop and the LED will display the failure

8.3.5 Inverter module protection

The Inverter module has a protection function about current, voltage and temperature. If these protections happen, the corresponding code will display on indoor unit and the unit will stop working.

8.3.6 Indoor fan delayed open function

When the unit starts up, the louver will be active immediately and the indoor fan will open 10s later.

If the unit runs in heating mode, the indoor fan will be also controlled by anti-cold wind

function.

8.3.7 Compressor preheating functions

Preheating permitting condition:

When T_4 (outdoor ambient temperature) $< 3^{\circ}\text{C}$ (37.4°F), the preheating function will be activated.

8.3.8 Sensor protection at open circuit and breaking disconnection.

When there's only one temperature sensor in malfunction, the air conditioner will keep working but show the error code, in case of any emergency use.

When there's more than one temperature sensor in malfunction, the air conditioner will stop working

8.3.9 Zero crossing detection error protection

If AC detects time interval is not correct, the unit will stop and the LED will display the failure.

8.3.10 Refrigerant leakage detection

This function is only active in cooling mode. It can better prevent the compressor being damaged by refrigerant leakage or compressor overload.

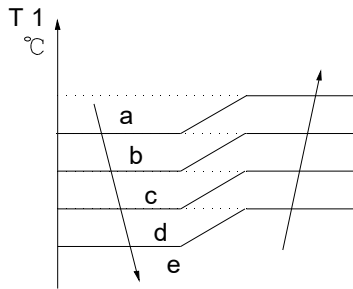
Open condition:

When compressor is active, the value of the Coil temperature of evaporator T_2 has no change or very little change.

8.4 Operation Modes and Functions

8.4.1 Fan mode

- (1) Outdoor fan and compressor stop.
- (2) Temperature setting function is disabled, and no setting temperature is displayed.
- (3) Indoor fan can be set to high/med/low/auto.
- (4) The louver operates same as in cooling mode.
- (5) Auto fan:



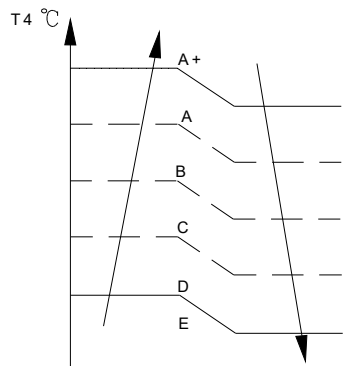
8.4.2 Cooling Mode

8.4.2.1 Compressor running rules

When $T1 - T_s < -2^\circ\text{C}$ (28.4°F), the compressor will stop,
 when $T1 - T_s > -0.5^\circ\text{C}$ (31.1°F), the compressor will be activated.
 When the AC run in mute mode, the compressor will run with low frequency.
 When the current is more than setting value, the current protection function will be activated, and the compressor will stop.

8.4.2.1 Outdoor fan running rules

The outdoor unit will be run at different fan speed according to $T4$.
 For different outdoor units, the fan speeds are different

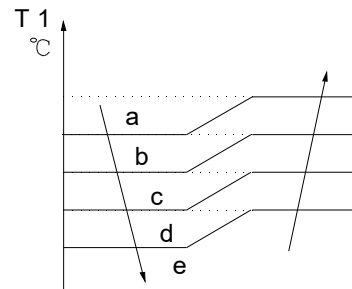


8.4.2.2 Indoor fan running rules

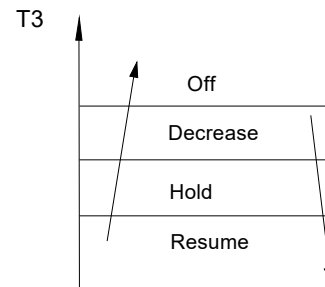
In cooling mode, indoor fan runs all the time and the speed can be selected as high, medium, low and auto.
 When the setting temp. is reached, if the compressor stop running, indoor fan motor will run in Minimum speed or setting speed.
 The indoor fan is controlled as below:

| Setting fan speed | $T1 - T_d$ ($^\circ\text{F}$) | Actual fan speed |
|-------------------|---------------------------------|-------------------|
| H | A | $H + (H - H + G)$ |
| | B | $H (=H)$ |
| | C | $H - (H - H - G)$ |
| M | D | $M + (M - M + Z)$ |
| | E | $M (=M)$ |
| | F | $M - (M - M - Z)$ |
| L | G | $L + (L - L + D)$ |
| | H | $L (=L)$ |
| | I | $L - (L - L - D)$ |

The auto fan acts as below rules:



8.4.2.3 Condenser temperature protection



When condenser temperature temp. is more than setting value, the compressor will stop.

8.4.2.5 Evaporator temperature protection

When Evaporator temperature temp. is less than setting value, the compressor will stop

8.4.3 Heating Mode

8.4.3.1 Compressor running rules

When $T1-Ts > -\Delta T$, the compressor will stop, when $T1-Ts < \Delta T-1.5$ 时, the compressor will be on.

ΔT is the programmed parameter of temperature compensation.

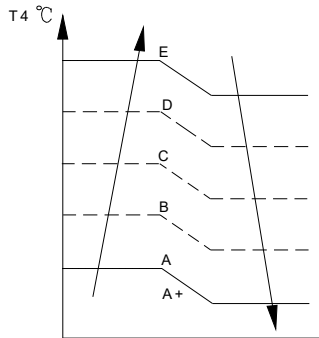
When the AC run in mute mode, the compressor will run with low frequency.

When the current is more than setting value, the current protection function will be activated and the compressor will stop.

8.4.3.1 Outdoor fan running rules

The outdoor unit will be run at different fan speed according to $T4$.

For different outdoor units, the fan speeds are different



8.4.3.2 Indoor fan running rules

When the compressor is on, the indoor fan can be set to high/med/low/auto/mute.

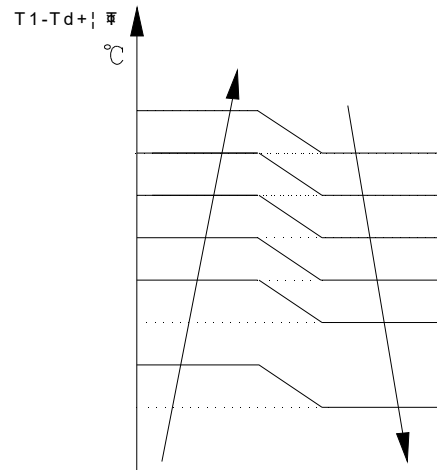
When indoor unit coil temp. is low, the anti-cold air function will start and indoor fan motor will run at low speed, the speed can't be changed, when the temp. is lower than setting value, the indoor fan motor will stop.

When the indoor temp reaches the setting temp., the compressor will stop, the indoor fan motor will run at the minimum speed or setting speed. (The anti-cold air function is valid).

The indoor fan is controlled as below:

| Setting fan speed | $T1-Td$ °C | Actual fan speed |
|-------------------|------------|------------------|
| H | | H- (H=H-G) |
| | | H (=H) |
| | | H+(H+=H+G) |
| M | | M-(M=M-Z) |
| | | M(M=M) |
| | | M+(M+=M+Z) |
| L | | L-(L=L-D) |
| | | L(L=L) |
| | | L+(L+=L+D) |

Auto fan action in heating mode:



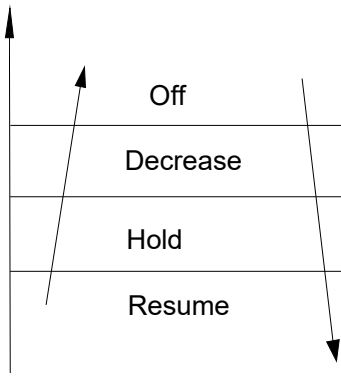
8.4.3.4 Defrosting mode

AC will enter the defrosting mode according to the value of temp. of $T3$ and the value range of temp. change of $T3$ and also the compressor running time.

During the defrosting mode, the compressor keep running, indoor and outdoor motor will stop, defrost lamp of the indoor unit will be lighted

“DF.” Will be displayed.

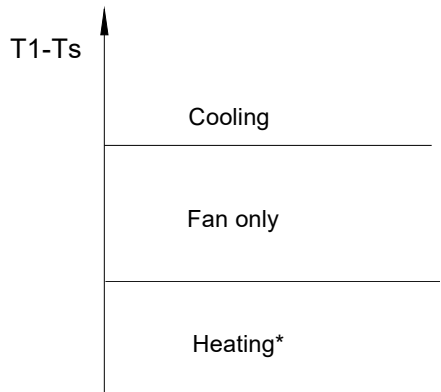
8.4.3.5 Evaporator coil temperature protection



When evaporator temperature is more than the setting protection value, the compressor will stop.

8.4.4 Auto-mode

This mode can be chosen with remote controller and the setting temperature can be changed between 17°C(62.6°F)~30°C(86°F). In auto mode, the machine will choose cooling, heating or fan-only mode according to ΔT ($\Delta T = T1 - Ts$).



Heating*: For cooling only models, they will run at fan speed
Indoor fan will run at auto fan of the relevant mode.

The louver operates same as in relevant mode. If the machine switches mode between heating and cooling, the compressor will keep stopping for certain time and then choose mode according to $T1 - Ts$.
If the setting temperature is modified, the machine will choose running function again.

8.4.5 Drying mode

8.4.5.1 Indoor fan speed is fixed at breeze and

can't be changed. The louver angle is the same as in cooling mode.

8.4.5.3 Low indoor room temperature protection
In drying mode, if room temperature is lower than 10°C(50°F), the compressor will stop and not resume until room temperature exceeds 12°C(53.6°F).

8.4.5.4 Evaporator anti-freezing protection, condenser high temperature protection and outdoor unit frequency limit are active and the same as that in cooling mode.

8.4.5.5 The outdoor fan operates the same as in cooling mode.

8.4.6 Forced operation function

8.4.6.1 Enter forced operation function:
When the machine is off, pressing the touch button will carry the machine to forced auto mode. If pressing the button once again within 5 seconds, the machine will turn into forced cooling mode.

In forced auto, forced cooling or any other operation mode, pressing touch button will turn off the machine.

8.4.6.2 In forced operation mode, all general protections and remote control are available.

8.4.6.3 Operation rules:

Forced cooling mode:

The compressor runs at F2 frequency and indoor fan runs as breeze. After running for 30 minutes. the machine will turn to auto mode as 24°C(75.2°F) setting temperature.

Forced auto mode:

The action of forced auto mode is the same as normal auto mode with 24°C(75.2°F) setting temperature.

8.4.7 Auto-Restart function

The indoor unit is equipped with auto-restart function, which is carried out through an auto-restart module. In case of a sudden power failure, the module memorizes the setting conditions before the power failure. The unit will resume the previous operation setting (not including swing function) automatically after 3 minutes when power returns.

If the memorization condition is forced cooling mode, the unit will run in cooling mode for 30 minutes and turn to auto mode as 24°C(75.2°F) setting temp.

If AC is off before power off and AC is required to start up now, the compressor will have 1 minute delay when power on. Other conditions, the compressor will have 3 minutes delay when

restarts.

8.4.8 8°C Heating(optional)

When the compressor is running, the indoor fan motor will run without anti-cold air function.

When the compressor is off, the indoor fan motor is off .

8.4.9 Point check function

Press the LED DISPLAY or LED or MUTE button of the remote controller three times, and then press the AIR DIRECTION or SWING button three times in ten seconds, the buzzer will keep ring for two seconds. The air conditioner will enter into the information enquiry status. You can press the LED DISPLAY or AIR DIRECTION button to check the next or front item's information.

When the AC enter the "information enquiry" status, it will display the code name in 2 seconds, the details are as follows.

| Enquiry information | Displaying code | Meaning |
|------------------------------------|-----------------|------------------------------------|
| T1 | T1 | T1 temp. |
| T2 | T2 | T2 temp. |
| T3 | T3 | T3 temp. |
| T4 | T4 | T4 temp. |
| T2B | Tb | T2B temp. |
| TP | TP | TP temp. |
| TH | TH | TH temp. |
| Targeted Frequency | FT | Targeted Frequency |
| Actual Frequency | Fr | Actual Frequency |
| Indoor fan speed | IF | Indoor fan speed |
| Outdoor fan speed | OF | Outdoor fan speed |
| EXV opening angle | LA | EXV opening angle |
| Compressor continuous running time | CT | Compressor continuous running time |
| Causes of compressor stop. | ST | Causes of compressor stop. |
| Reserve | A0 | |
| Reserve | A1 | |
| Reserve | b0 | |
| Reserve | b1 | |
| Reserve | b2 | |
| Reserve | b3 | |
| Reserve | b4 | |
| Reserve | b5 | |
| Reserve | b6 | |
| Reserve | dL | |
| Reserve | Ac | |
| Reserve | Uo | |
| Reserve | Td | |

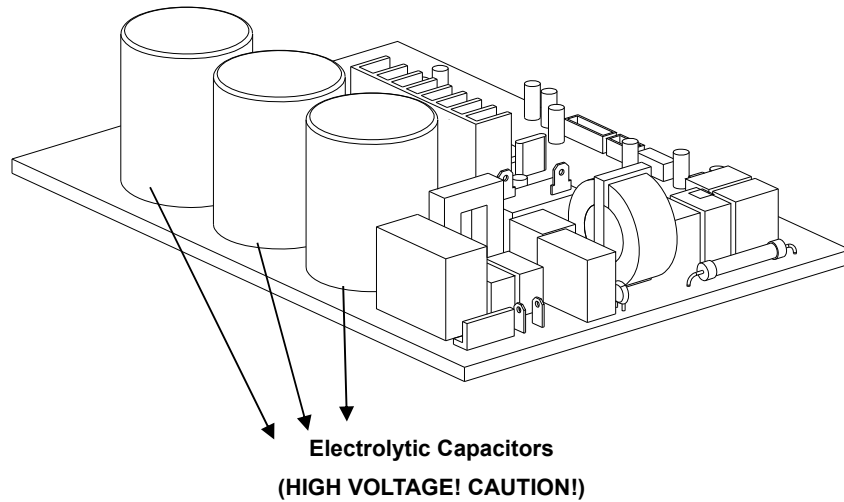
When the AC enter into the information enquiry status, it will display the code value in the next 25s, the details are as follows.

| Enquiry information | Display value | Meaning | Remark |
|---|-------------------------|--|---|
| T1,T2,T3,T4, T2B,TP,TH, Targeted Frequency, Actual Frequency | -1F,-1E,-1d,-1c,-1b,-1A | -25,-24,-23,-22,-21,-20 | 1. All the displaying temperature is actual value. 2. All the temperature is °C no matter what kind of remote controller is used. 3. T1,T2,T3,T4,T2B display range:-25~70, TP display range:-20~130. 4. Frequency display range: 0~159HZ. 5. If the actual value exceeds the range, it will display the maximum value or minimum value. |
| | -19—99 | -19—99 | |
| | A0,A1,...A9 | 100,101,...109 | |
| | b0,b1,...b9 | 110,111,...119 | |
| | c0,c1,...c9 | 120,121,...129 | |
| | d0,d1,...d9 | 130,131,...139 | |
| | E0,E1,...E9 | 140,141,...149 | |
| F0,F1,...F9 | 150,151,...159 | | |
| Indoor fan speed /Outdoor fan speed | 0 | OFF | For some big capacity motors. For some small capacity motors, display value is from 14-FF(hexadecimal), the corresponding fan speed range is from 200-2550RPM. |
| | 1,2,3,4 | Low speed, Medium speed, High speed, Turbo | |
| | 14-FF | Actual fan speed=Display value turns to decimal value and then multiply 10. The unit is RPM. | |
| EXV opening angle | 0-FF | Actual EXV opening value=Display value turns to decimal value and then multiply 2. | |
| Compressor continuous running time | 0-FF | 0-255 minutes | If the actual value exceeds the range, it will display the maximum value or minimum value. |
| Causes of compressor stop. | 0-99 | For the detailed meaning, please consult with engineer | Decimal display |
| Reserve | 0-FF | | |

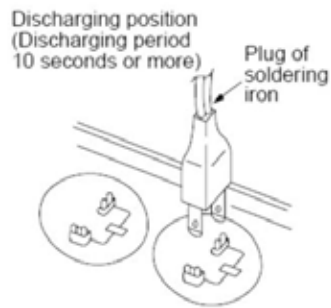
9. Troubleshooting

Safety

Electricity power is still kept in capacitors even the power supply is shut off. Do not forget to discharge the electricity power in capacitor.



For other models, please connect discharge resistance (approx. 100Ω 40W) or soldering iron (plug) between +, - terminals of the electrolytic capacitor on the contrary side of the outdoor PCB.



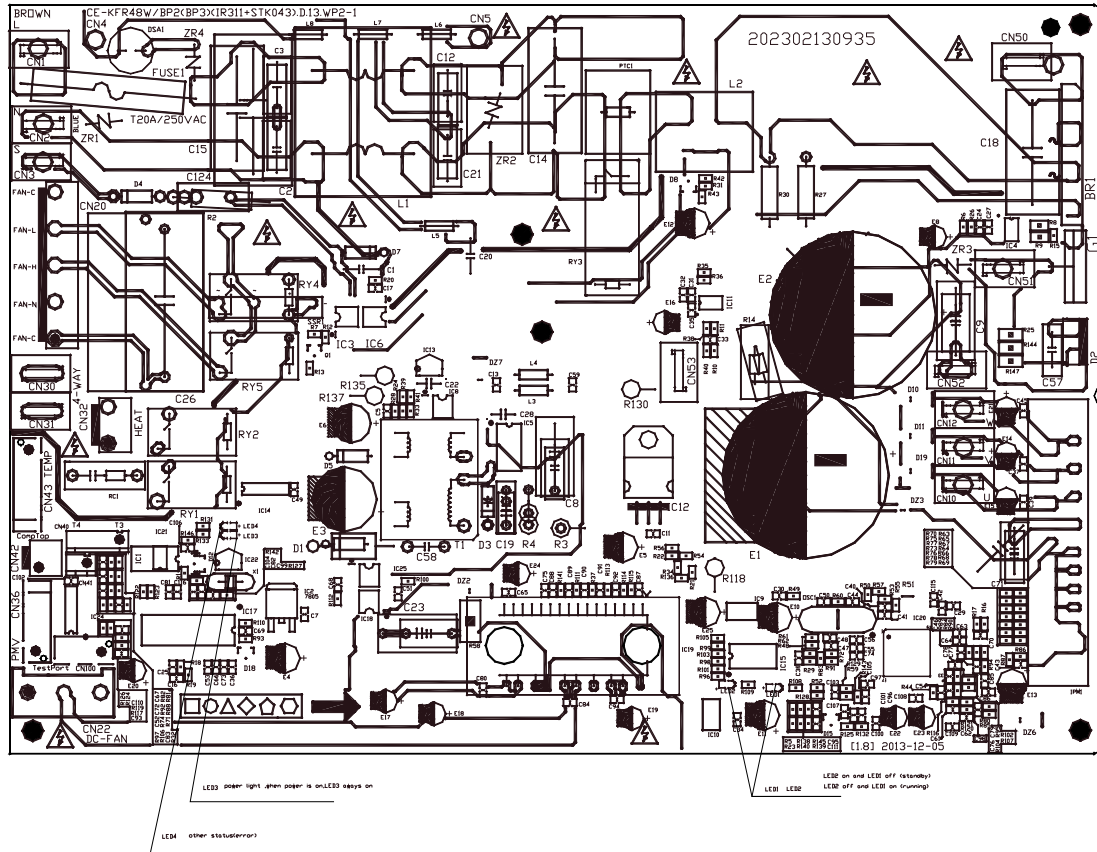
Note: The picture above is only for reference. The plug of your side may be different.

9.1 Indoor Unit Error Display

| Operation lamp | Timer lamp | Display | LED STATUS |
|----------------|------------|---------|---|
| ☆ 1 time | X | E0 | Indoor unit EEPROM parameter error |
| ☆ 2 times | X | E1 | Indoor / outdoor units communication error |
| ☆ 3 times | X | E2 | Zero-crossing signal detection error(only for MS12F-12CRDN1-MP0W, MS12F-18CRDN1-NC2W, MS12F-22CRDN1-MP5W) |
| ☆ 4 times | X | E3 | Indoor fan speed has been out of control |
| ☆ 5 times | X | E4 | Indoor room temperature sensor T1 open circuit or short circuit |
| ☆ 6 times | X | E5 | Evaporator coil temperature sensor T2 open circuit or short circuit |
| ☆ 7 times | X | EC | Refrigerant leakage detection |
| ☆ 1 times | O | F0 | Overload current protection |
| ☆ 2 times | O | F1 | Outdoor ambient temperature sensor T4 open circuit or short circuit |
| ☆ 3 times | O | F2 | Condenser coil temperature sensor T3 open circuit or short circuit |
| ☆ 4 times | O | F3 | Compressor discharge temperature sensor T5 open circuit or short circuit |
| ☆ 5 times | O | F4 | Outdoor unit EEPROM parameter error |
| ☆ 6 times | O | F5 | Outdoor fan speed has been out of control |
| ☆ 1 times | ☆ | P0 | IPM malfunction or IGBT over-strong current protection |
| ☆ 2 times | ☆ | P1 | Over voltage or over low voltage protection |
| ☆ 3 times | ☆ | P2 | High temperature protection of compressor top diagnosis and solution |
| ☆ 5 times | ☆ | P4 | Inverter compressor drive error |

O (light) X (off) ☆ (flash)

9.2 Outdoor unit error display



| No. | Problems | LED2 (Green) | LED1 (Red) | IU display |
|-----|--|-----------------|---------------|------------|
| 1 | standby for normal | O | X | |
| 2 | Operation normally | X | O | |
| 3 | IPM malfunction or IGBT over-strong current protection | ☆ | X | P0 |
| 4 | Over voltage or too low voltage protection | O | O | P1 |
| 5 | Over voltage or too low voltage protection | O | ☆ | P1 |
| 6 | Inverter compressor drive error | X | ☆ | P4 |
| 7 | Inverter compressor drive error | ☆ | O | P4 |
| 8 | Inverter compressor drive error | ☆ | ☆ | P4 |

9.3 Diagnosis and Solution

9.3.1 EEPROM parameter error diagnosis and solution(E0/F4)

| | |
|---------------------------------|---|
| Error Code | E0/F4 |
| Malfunction decision conditions | Indoor or outdoor PCB main chip does not receive feedback from EEPROM chip. |
| Supposed causes | <ul style="list-style-type: none">● Installation mistake● PCB faulty |

Trouble shooting:

Power off, then restart the unit 2 minutes later.

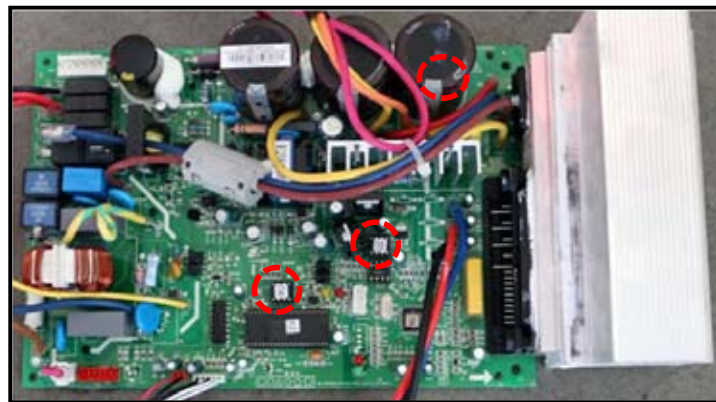
Yes

Replace the indoor /outdoor main PCB.

EEPROM: a read-only memory whose contents can be erased and reprogrammed using a pulsed voltage. For the location of EEPROM chip, please refer to the below photos.



Indoor PCB



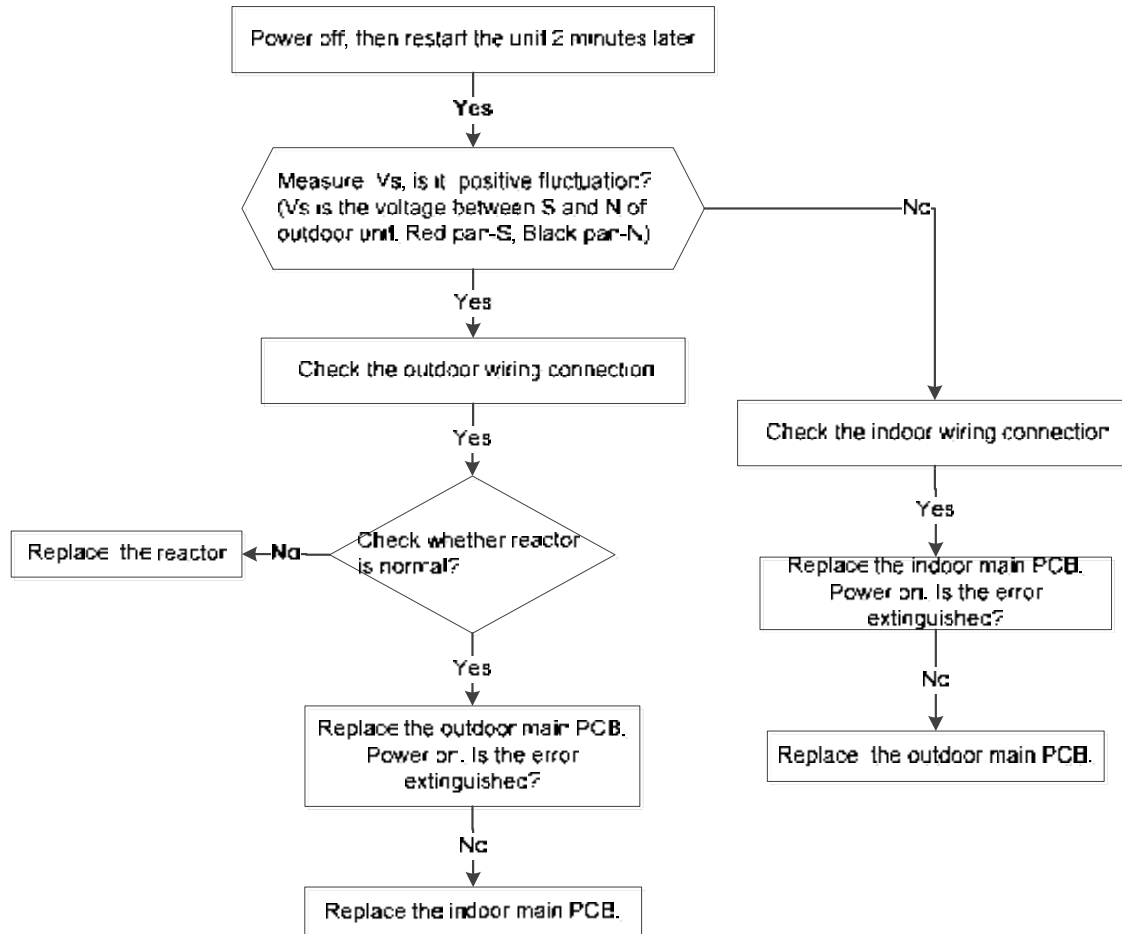
Outdoor PCB(18k model)

Note: The two photos above are only for reference, it's may be not same totally with the ones on your side.

9.3.2 Indoor / outdoor unit's communication diagnosis and solution(E1)

| | |
|---------------------------------|--|
| Error Code | E1 |
| Malfunction decision conditions | Indoor unit does not receive the feedback from outdoor unit during 110 seconds and this condition happens four times continuously. |
| Supposed causes | <ul style="list-style-type: none"> Wiring mistake Indoor or outdoor PCB faulty |

Trouble shooting:





Remark:

Use a multimeter to test the DC voltage between L2 port and S port of outdoor unit. The red pin of multimeter connects with L2 port while the black pin is for S port.

When AC is normal running, the voltage will move alternately between -50V to 50V.

If the outdoor unit has malfunction, the voltage will move alternately with positive value.

While if the indoor unit has malfunction, the voltage will be a certain value.

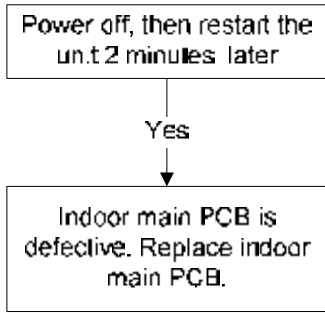


Remark:

Use a multimeter to test the resistance of the reactor which does not connect with capacitor.

The normal value should be around zero ohm. Otherwise, the reactor must have malfunction and need to be replaced.

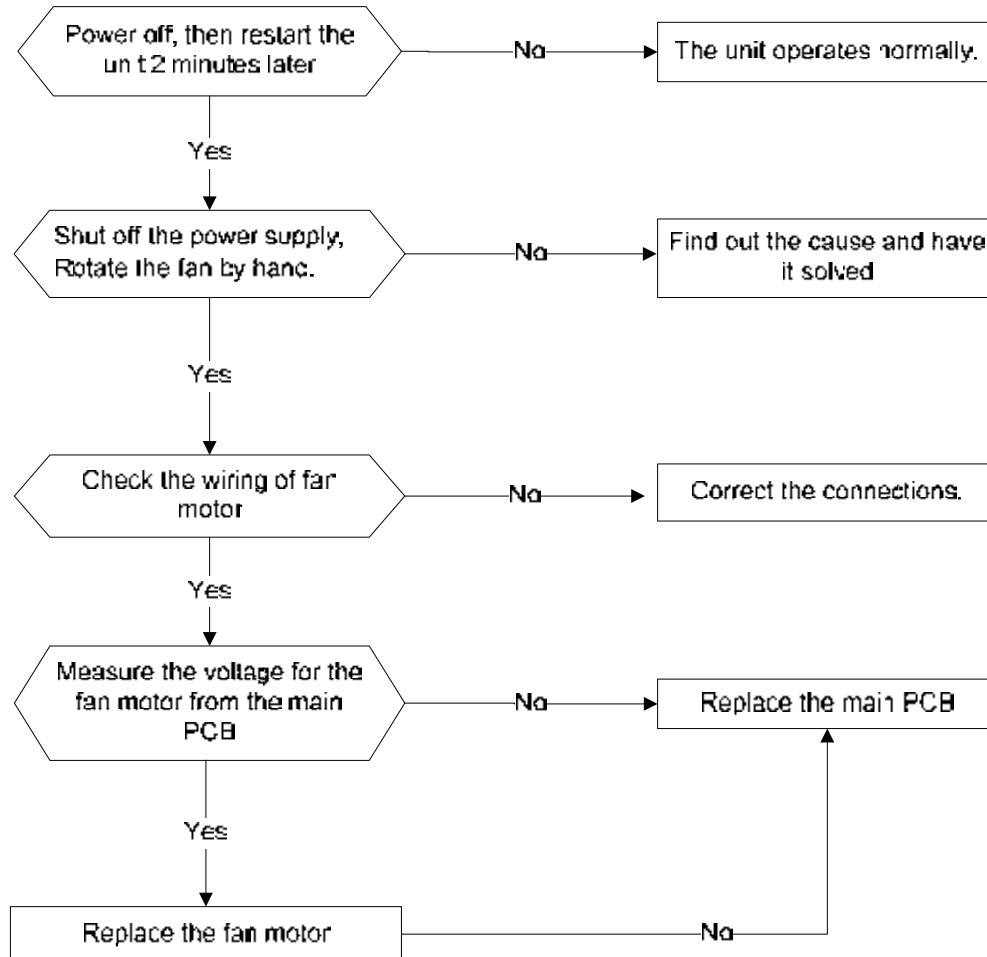
9.3.3 Zero crossing detection error diagnosis and solution (E2)



9.3.4 Fan speed has been out of control diagnosis and solution(E3)

| | |
|--|--|
| Error Code | E3/F5 |
| Malfunction decision conditions | When indoor fan speed keeps too low (300RPM) for certain time, the unit will stop and the LED will display the failure. |
| Supposed causes | <ul style="list-style-type: none"> ● Wiring mistake ● Fan ass'y faulty ● Fan motor faulty ● PCB faulty |

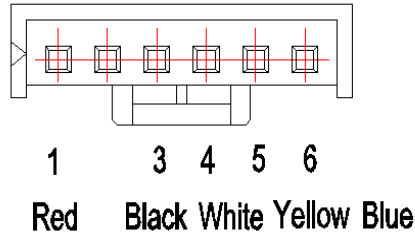
Trouble shooting:



Index 1:

1:Indoor or Outdoor DC Fan Motor(control chip is in fan motor)

Power on and when the unit is in standby, measure the voltage of pin1-pin3, pin4-pin3 in fan motor connector. If the value of the voltage is not in the range showing in below table, the PCB must has problems and need to be replaced.



DC motor voltage input and output(voltage: 220-240V~)

| NO. | Color | Signal | Voltage |
|-----|--------|--------|-----------|
| 1 | Red | Vs/Vm | 280V~380V |
| 2 | --- | --- | --- |
| 3 | Black | GND | 0V |
| 4 | White | Vcc | 14-17.5V |
| 5 | Yellow | Vsp | 0~5.6V |
| 6 | Blue | FG | 14-17.5V |

DC motor voltage input and output(voltage :115V~)

| NO. | Color | Signal | Voltage |
|-----|--------|--------|-----------|
| 1 | Red | Vs/Vm | 140V~190V |
| 2 | --- | --- | --- |
| 3 | Black | GND | 0V |
| 4 | White | Vcc | 14-17.5V |
| 5 | Yellow | Vsp | 0~5.6V |
| 6 | Blue | FG | 14-17.5V |

2. Outdoor DC Fan Motor (control chip is in outdoor PCB)

Power on ,and check if the fan can run normally, if the fan can run normally, the PCB must has problems and need to be replaced, If the fan can't run normally, measure the resistance of each two pins. If the resistance is not equal to each other, the fan motor must have problems and need to be replaced, otherwise the PCB must has problems and need to be replaced.

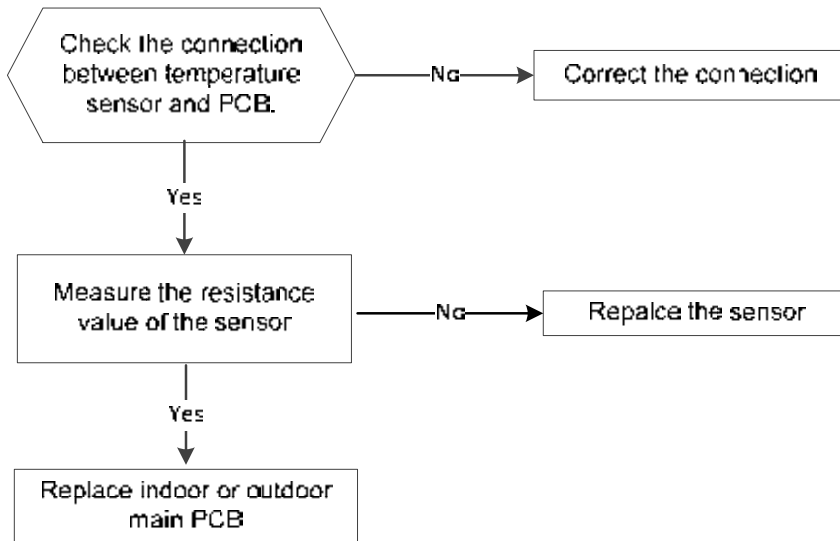
3. Indoor AC Fan Motor

Power on and set the unit running in fan mode at high fan speed. After running for 15 seconds, measure the voltage of pin1 and pin2. If the value of the voltage is less than 100V(208~240V power supply)or 50V(115V power supply), the PCB must has problems and need to be replaced.

9.3.5 Open circuit or short circuit of temperature sensor diagnosis and solution(E5)

| | |
|---------------------------------|---|
| Error Code | E4/E5/F1/F2/F3 |
| Malfunction decision conditions | If the sampling voltage is lower than 0.06V or higher than 4.94V, the LED will display the failure. |
| Supposed causes | <ul style="list-style-type: none">• Wiring mistake• Sensor faulty |

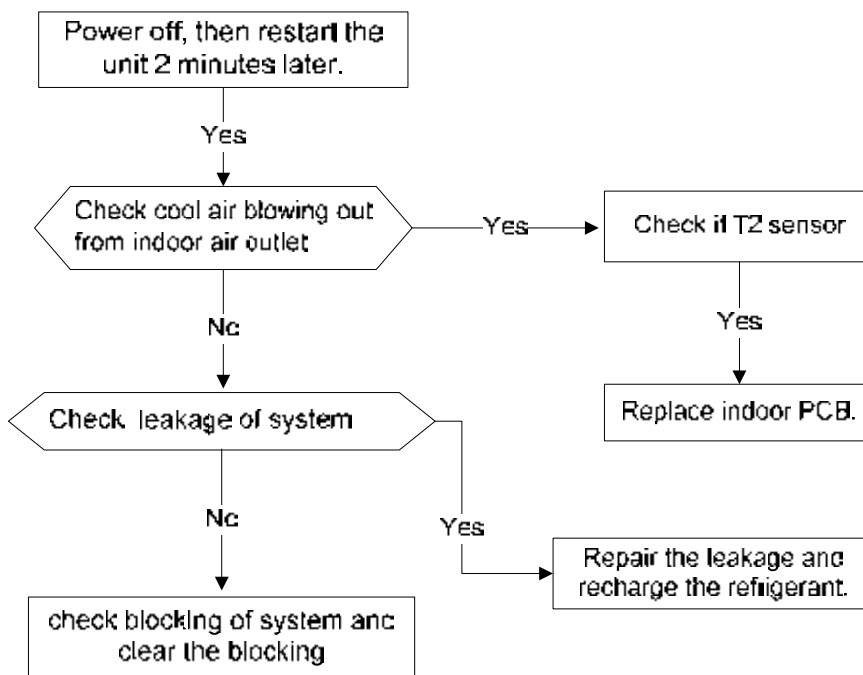
Trouble shooting:



9.3.6 Refrigerant Leakage Detection diagnosis and solution(EC)

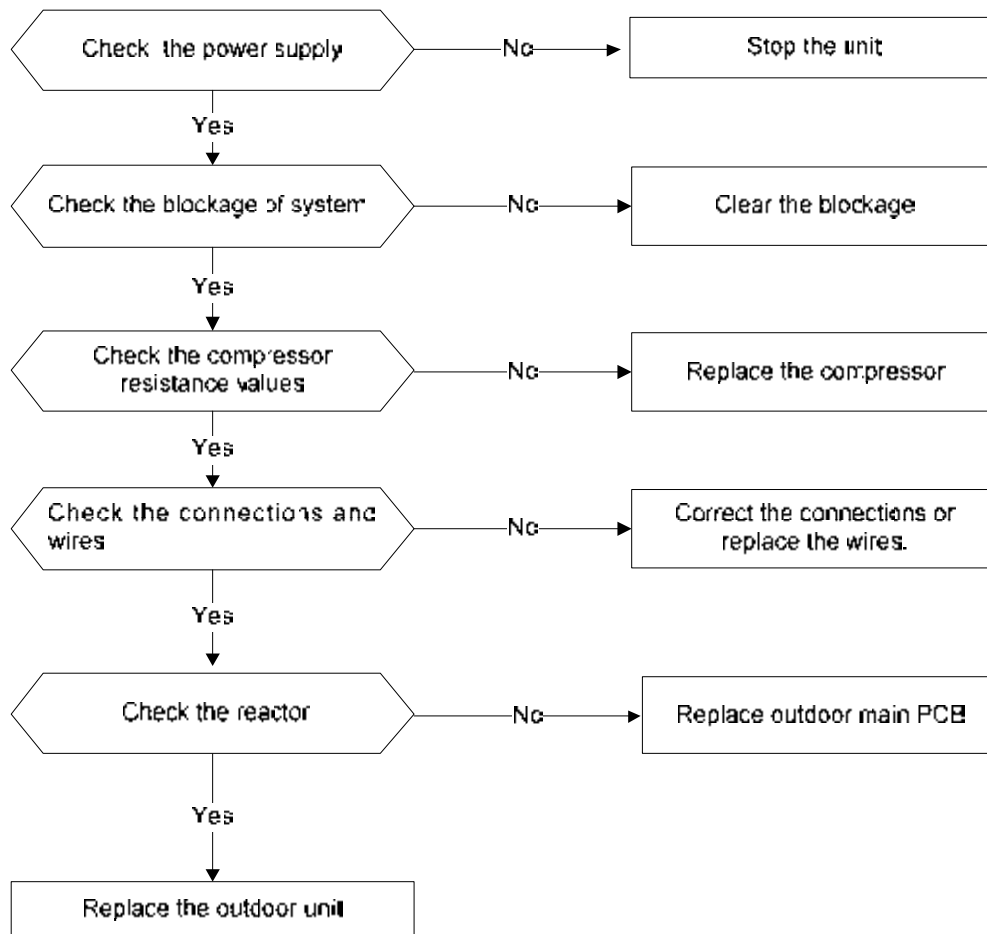
| | |
|--|--|
| Error Code | EC |
| Malfunction decision conditions | <p>Define the evaporator coil temp.T2 of the compressor just starts running as Tcool.</p> <p>In the beginning 5 minutes after the compressor starts up, if $T2 < T_{cool} - 2^{\circ}\text{C}$ ($T_{cool} - 35.6^{\circ}\text{F}$) does not keep continuous 4 seconds and this situation happens 3 times, the display area will show "EC" and AC will turn off.</p> |
| Supposed causes | <ul style="list-style-type: none"> ● T2 sensor faulty ● Indoor PCB faulty ● System problems, such as leakage or blocking. |

Trouble shooting:



9.3.7 Overload current protection diagnosis and solution(F0)

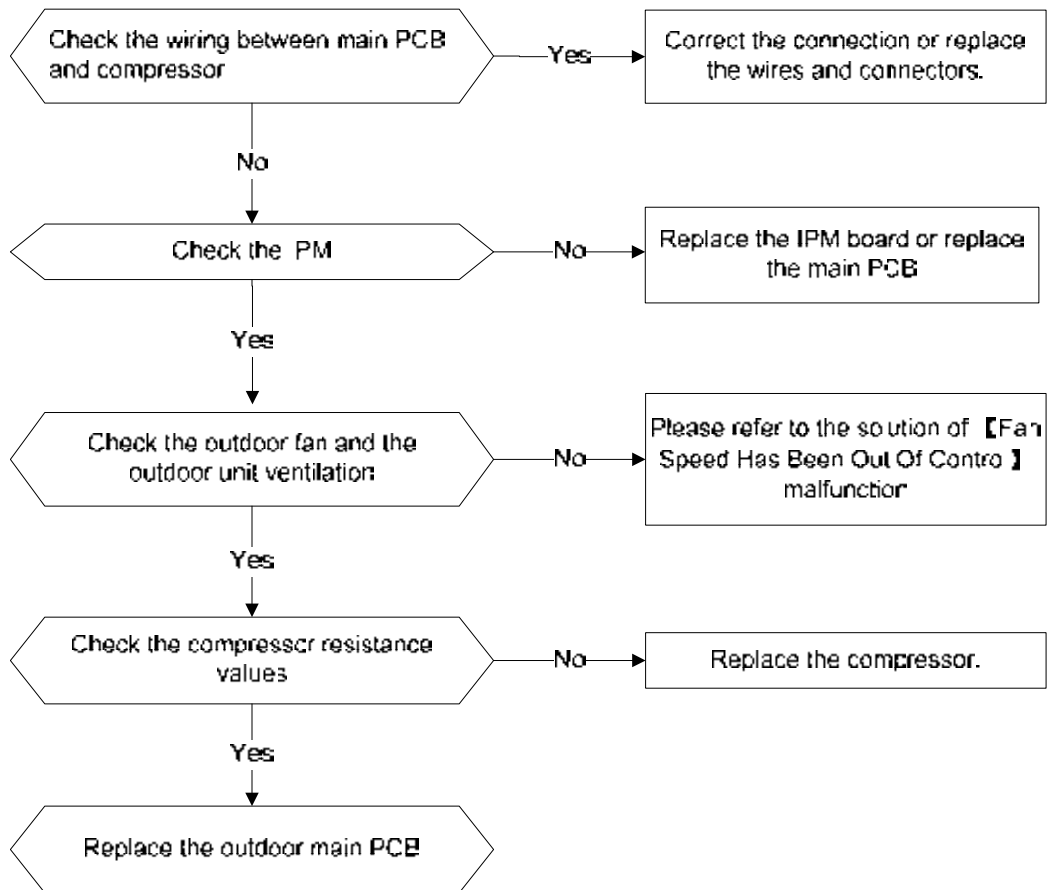
| | |
|--|---|
| Error Code | F0 |
| Malfunction decision conditions | An abnormal current rise is detected by checking the specified current detection circuit. |
| Supposed causes | <ul style="list-style-type: none"> ● Power supply problems. ● System blockage ● PCB faulty ● Wiring mistake ● Compressor malfunction |



9.3.8 IPM malfunction or IGBT over-strong current protection diagnosis and solution(P0)

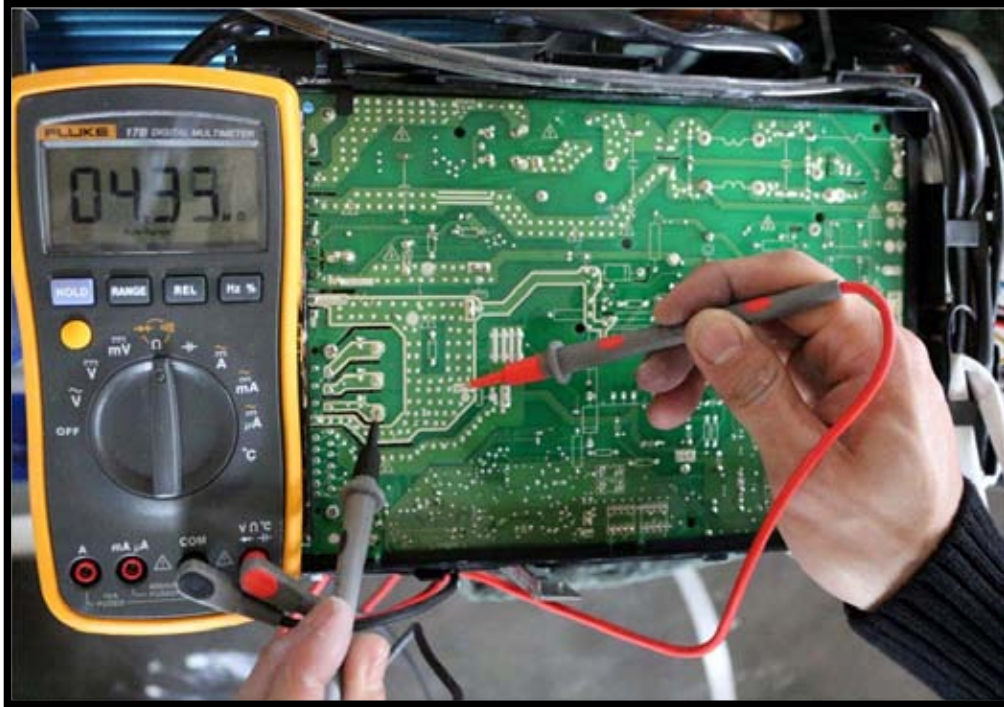
| | |
|--|---|
| Error Code | P0 |
| Malfunction decision conditions | When the voltage signal that IPM send to compressor drive chip is abnormal, the display LED will show “P0” and AC will turn off. |
| Supposed causes | <ul style="list-style-type: none"> ● Wiring mistake ● IPM malfunction ● Outdoor fan ass'y faulty ● Compressor malfunction ● Outdoor PCB faulty |

Trouble shooting:

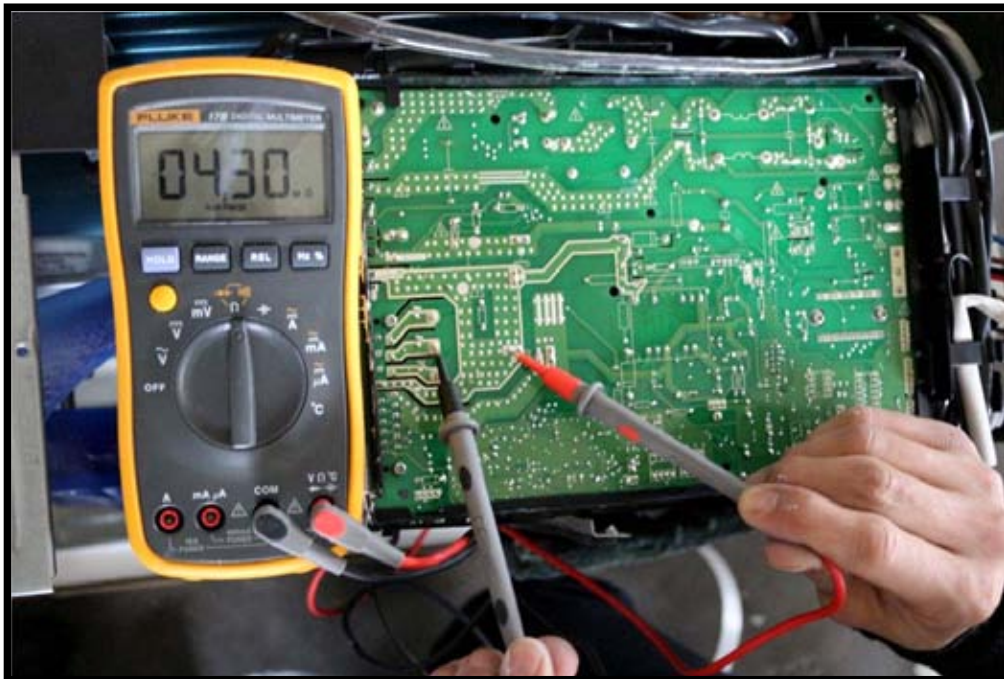


For example:

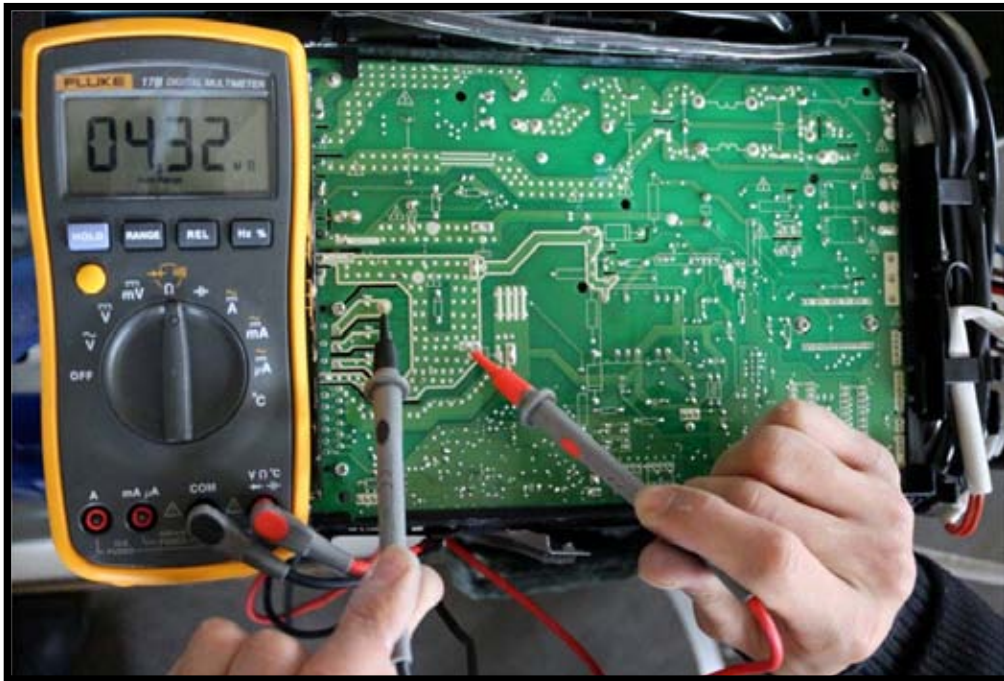
Note: The photos below are only for reference, it's may be not same totally with the ones on your side.



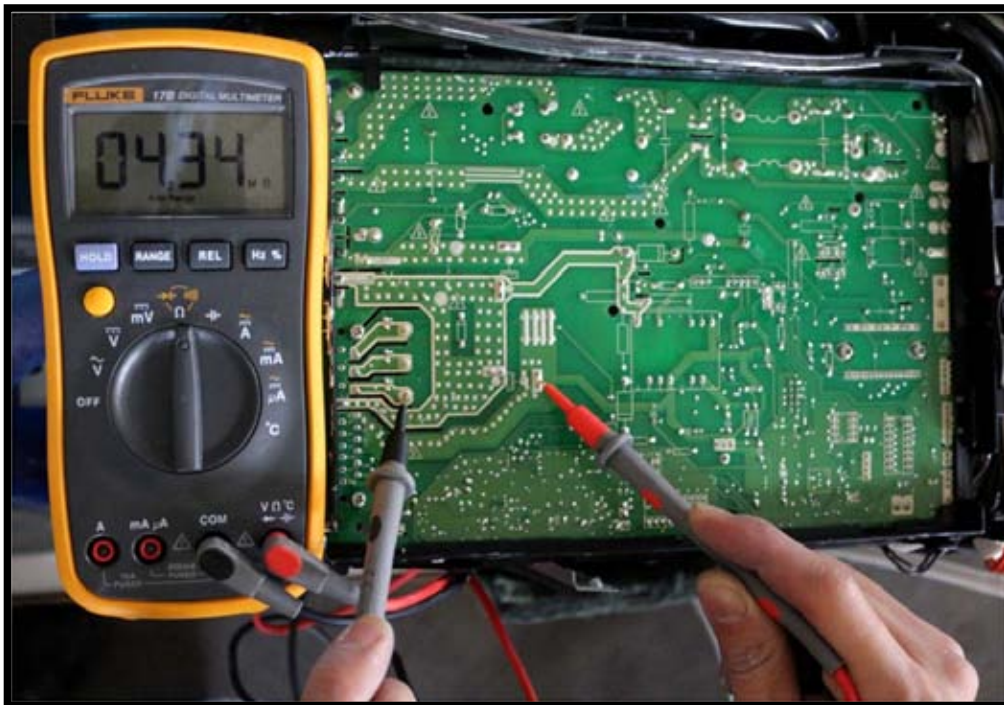
P-U



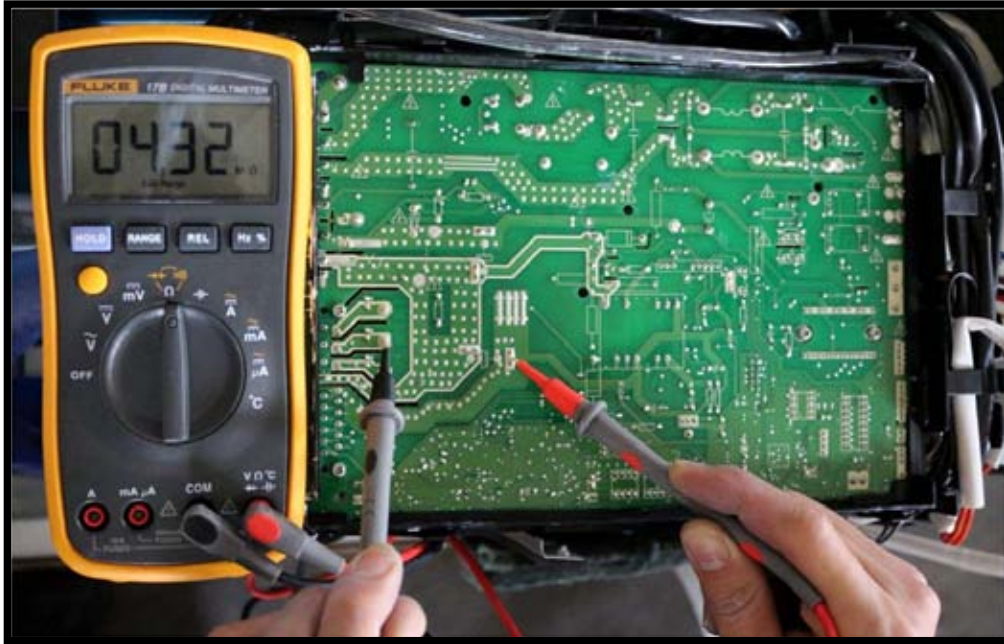
P-V



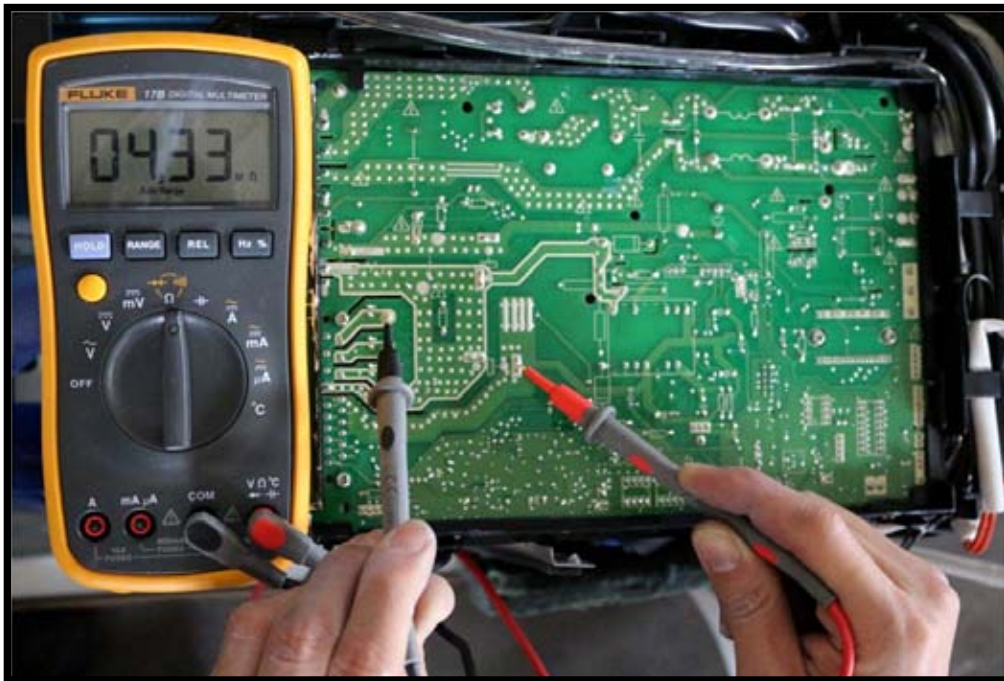
P-W



N-U



N-V

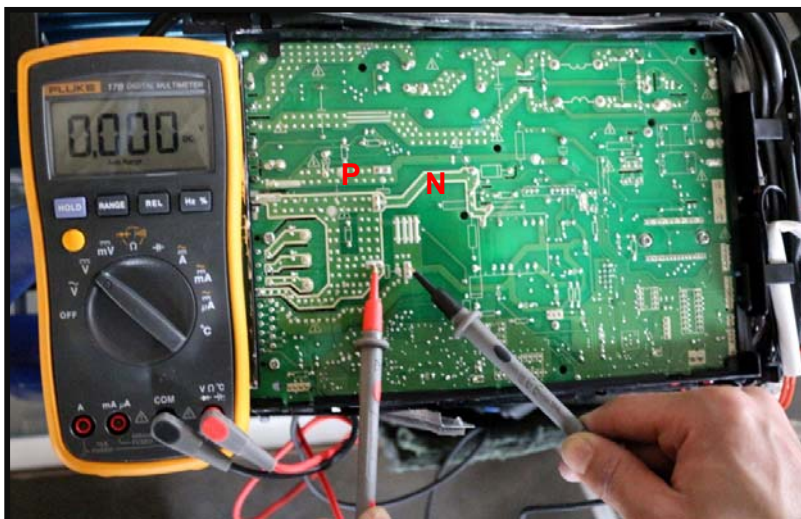
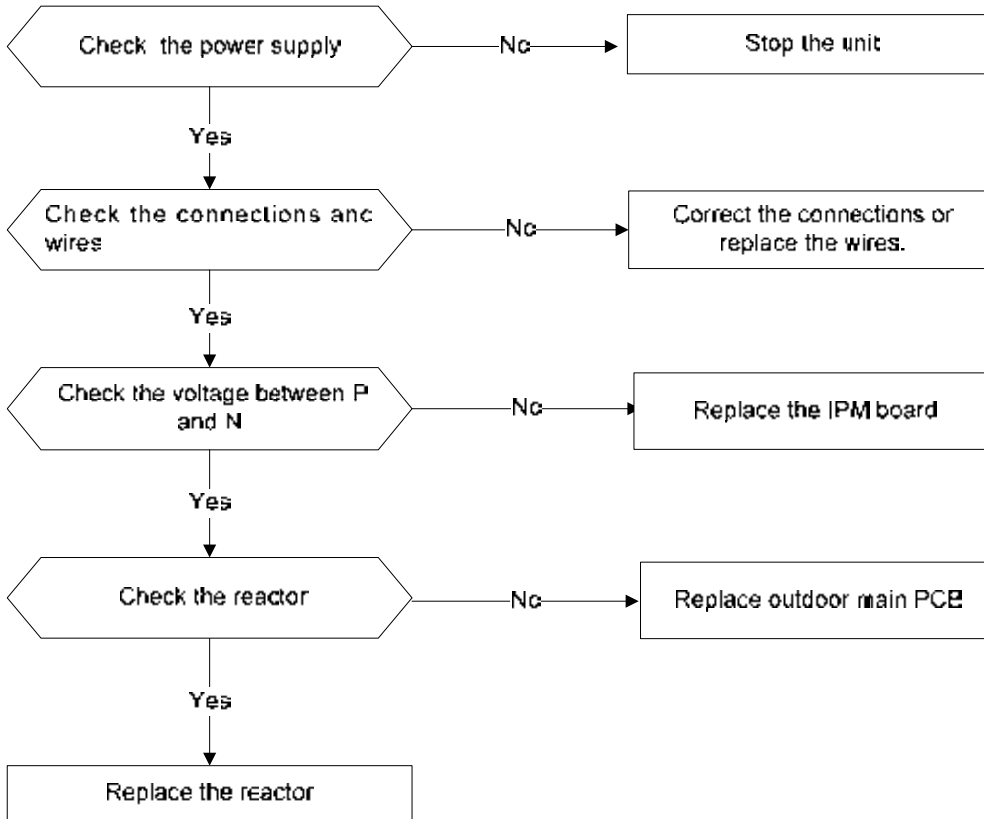


N-W

9.3.9 Over voltage or too low voltage protection diagnosis and solution(P1)

| | |
|--|---|
| Error Code | P1 |
| Malfunction decision conditions | An abnormal voltage rise or drop is detected by checking the specified voltage detection circuit. |
| Supposed causes | <ul style="list-style-type: none"> ● Power supply problems. ● System leakage or block ● PCB faulty |

Trouble shooting:

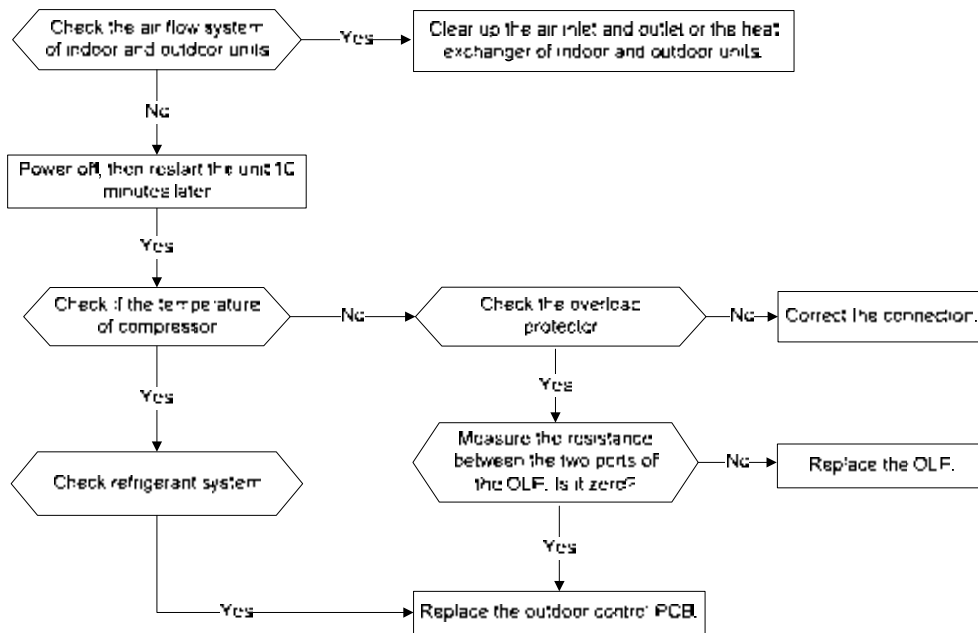


Remark:
 Measure the DC voltage between P and N port. The normal value should be around 310V.

9.3.10 High temperature protection of compressor top diagnosis and solution(P2)

| | |
|--|---|
| Error Code | P2 |
| Malfunction decision conditions | If the sampling voltage is not 5V, the LED will display the failure. |
| Supposed causes | <ul style="list-style-type: none"> ● Power supply problems. ● System leakage or block ● PCB faulty |

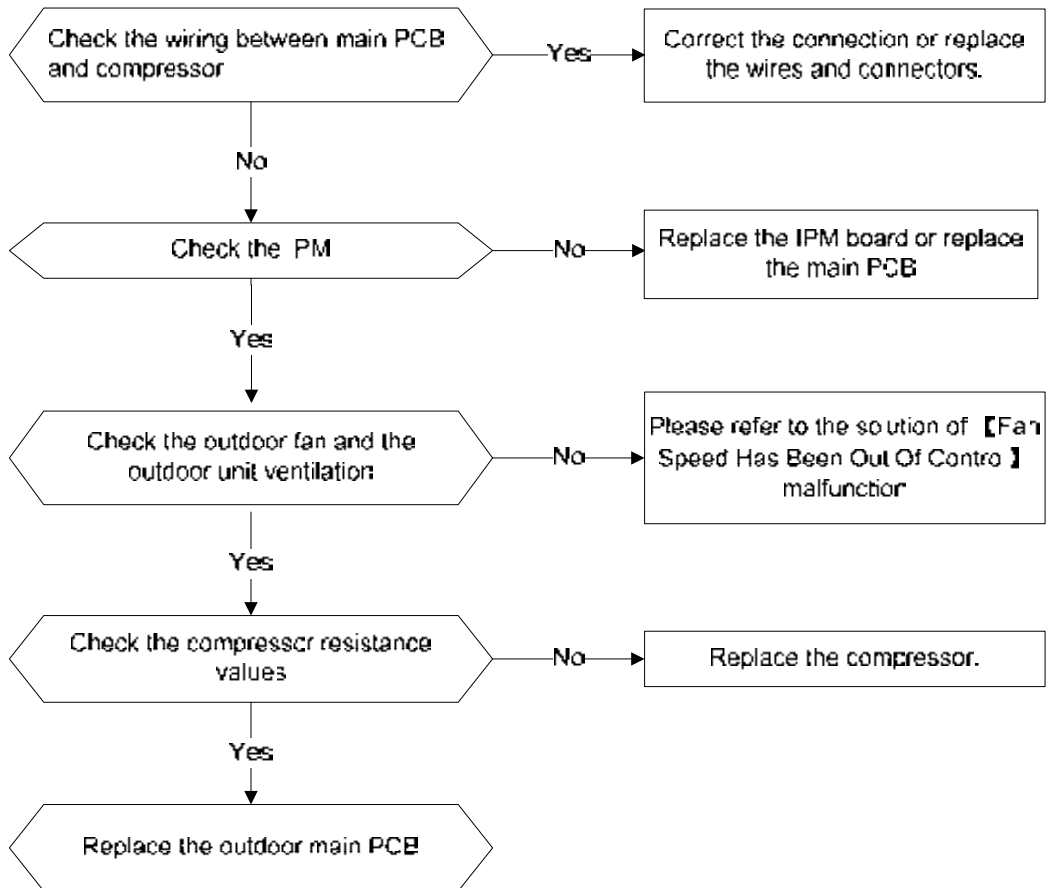
Trouble shooting:



9.3.11 Inverter compressor drive error diagnosis and solution(P4)

| | |
|--|--|
| Error Code | P4 |
| Malfunction decision conditions | An abnormal inverter compressor drive is detected by a special detection circuit, including communication signal detection, voltage detection, compressor rotation speed signal detection and so on. |
| Supposed causes | <ul style="list-style-type: none"> ● Wiring mistake ● IPM malfunction ● Outdoor fan ass'y faulty ● Compressor malfunction ● Outdoor PCB faulty |

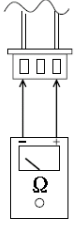
Trouble shooting:



Main parts check

1. Temperature sensor checking

Disconnect the temperature sensor from PCB, measure the resistance value with a tester.



Tester

Temperature sensors.

Room temp.(T1) sensor,

Indoor coil temp.(T2) sensor,

Outdoor coil temp.(T3) sensor,

Outdoor ambient temp.(T4) sensor,

Compressor discharge temp.(T5) sensor.

Measure the resistance value of each winding by using the multi-meter.

Appendix 1 Temperature Sensor Resistance Value Table for T1,T2,T3,T4 (°C--K)

| °C | °F | K Ohm | °C | °F | K Ohm | °C | °F | K Ohm | °C | °F | K Ohm |
|-----|----|---------|----|-----|---------|----|-----|---------|-----|-----|---------|
| -20 | -4 | 115.266 | 20 | 68 | 12.6431 | 60 | 140 | 2.35774 | 100 | 212 | 0.62973 |
| -19 | -2 | 108.146 | 21 | 70 | 12.0561 | 61 | 142 | 2.27249 | 101 | 214 | 0.61148 |
| -18 | 0 | 101.517 | 22 | 72 | 11.5 | 62 | 144 | 2.19073 | 102 | 216 | 0.59386 |
| -17 | 1 | 96.3423 | 23 | 73 | 10.9731 | 63 | 145 | 2.11241 | 103 | 217 | 0.57683 |
| -16 | 3 | 89.5865 | 24 | 75 | 10.4736 | 64 | 147 | 2.03732 | 104 | 219 | 0.56038 |
| -15 | 5 | 84.219 | 25 | 77 | 10 | 65 | 149 | 1.96532 | 105 | 221 | 0.54448 |
| -14 | 7 | 79.311 | 26 | 79 | 9.55074 | 66 | 151 | 1.89627 | 106 | 223 | 0.52912 |
| -13 | 9 | 74.536 | 27 | 81 | 9.12445 | 67 | 153 | 1.83003 | 107 | 225 | 0.51426 |
| -12 | 10 | 70.1698 | 28 | 82 | 8.71983 | 68 | 154 | 1.76647 | 108 | 226 | 0.49989 |
| -11 | 12 | 66.0898 | 29 | 84 | 8.33566 | 69 | 156 | 1.70547 | 109 | 228 | 0.486 |
| -10 | 14 | 62.2756 | 30 | 86 | 7.97078 | 70 | 158 | 1.64691 | 110 | 230 | 0.47256 |
| -9 | 16 | 58.7079 | 31 | 88 | 7.62411 | 71 | 160 | 1.59068 | 111 | 232 | 0.45957 |
| -8 | 18 | 56.3694 | 32 | 90 | 7.29464 | 72 | 162 | 1.53668 | 112 | 234 | 0.44699 |
| -7 | 19 | 52.2438 | 33 | 91 | 6.98142 | 73 | 163 | 1.48481 | 113 | 235 | 0.43482 |
| -6 | 21 | 49.3161 | 34 | 93 | 6.68355 | 74 | 165 | 1.43498 | 114 | 237 | 0.42304 |
| -5 | 23 | 46.5725 | 35 | 95 | 6.40021 | 75 | 167 | 1.38703 | 115 | 239 | 0.41164 |
| -4 | 25 | 44 | 36 | 97 | 6.13059 | 76 | 169 | 1.34105 | 116 | 241 | 0.4006 |
| -3 | 27 | 41.5878 | 37 | 99 | 5.87359 | 77 | 171 | 1.29078 | 117 | 243 | 0.38991 |
| -2 | 28 | 39.8239 | 38 | 100 | 5.62961 | 78 | 172 | 1.25423 | 118 | 244 | 0.37956 |
| -1 | 30 | 37.1988 | 39 | 102 | 5.39689 | 79 | 174 | 1.2133 | 119 | 246 | 0.36954 |
| 0 | 32 | 35.2024 | 40 | 104 | 5.17519 | 80 | 176 | 1.17393 | 120 | 248 | 0.35982 |
| 1 | 34 | 33.3269 | 41 | 106 | 4.96392 | 81 | 178 | 1.13604 | 121 | 250 | 0.35042 |
| 2 | 36 | 31.5635 | 42 | 108 | 4.76253 | 82 | 180 | 1.09958 | 122 | 252 | 0.3413 |
| 3 | 37 | 29.9058 | 43 | 109 | 4.5705 | 83 | 181 | 1.06448 | 123 | 253 | 0.33246 |
| 4 | 39 | 28.3459 | 44 | 111 | 4.38736 | 84 | 183 | 1.03069 | 124 | 255 | 0.3239 |
| 5 | 41 | 26.8778 | 45 | 113 | 4.21263 | 85 | 185 | 0.99815 | 125 | 257 | 0.31559 |
| 6 | 43 | 25.4954 | 46 | 115 | 4.04589 | 86 | 187 | 0.96681 | 126 | 259 | 0.30754 |
| 7 | 45 | 24.1932 | 47 | 117 | 3.88673 | 87 | 189 | 0.93662 | 127 | 261 | 0.29974 |
| 8 | 46 | 22.5662 | 48 | 118 | 3.73476 | 88 | 190 | 0.90753 | 128 | 262 | 0.29216 |
| 9 | 48 | 21.8094 | 49 | 120 | 3.58962 | 89 | 192 | 0.8795 | 129 | 264 | 0.28482 |
| 10 | 50 | 20.7184 | 50 | 122 | 3.45097 | 90 | 194 | 0.85248 | 130 | 266 | 0.2777 |
| 11 | 52 | 19.6891 | 51 | 124 | 3.31847 | 91 | 196 | 0.82643 | 131 | 268 | 0.27078 |
| 12 | 54 | 18.7177 | 52 | 126 | 3.19183 | 92 | 198 | 0.80132 | 132 | 270 | 0.26408 |
| 13 | 55 | 17.8005 | 53 | 127 | 3.07075 | 93 | 199 | 0.77709 | 133 | 271 | 0.25757 |
| 14 | 57 | 16.9341 | 54 | 129 | 2.95896 | 94 | 201 | 0.75373 | 134 | 273 | 0.25125 |
| 15 | 59 | 16.1156 | 55 | 131 | 2.84421 | 95 | 203 | 0.73119 | 135 | 275 | 0.24512 |
| 16 | 61 | 15.3418 | 56 | 133 | 2.73823 | 96 | 205 | 0.70944 | 136 | 277 | 0.23916 |
| 17 | 63 | 14.6181 | 57 | 135 | 2.63682 | 97 | 207 | 0.68844 | 137 | 279 | 0.23338 |
| 18 | 64 | 13.918 | 58 | 136 | 2.53973 | 98 | 208 | 0.66818 | 138 | 280 | 0.22776 |
| 19 | 66 | 13.2631 | 59 | 138 | 2.44677 | 99 | 210 | 0.64862 | 139 | 282 | 0.22231 |

Appendix 2 Temperature Sensor Resistance Value Table for T5 (°C --K)

| °C | °F | K Ohm | °C | °F | K Ohm | °C | °F | K Ohm | °C | °F | K Ohm |
|-----|----|-------|----|-----|-------|----|-----|-------|-----|-----|-------|
| -20 | -4 | 542.7 | 20 | 68 | 68.66 | 60 | 140 | 13.59 | 100 | 212 | 3.702 |
| -19 | -2 | 511.9 | 21 | 70 | 65.62 | 61 | 142 | 13.11 | 101 | 214 | 3.595 |
| -18 | 0 | 483 | 22 | 72 | 62.73 | 62 | 144 | 12.65 | 102 | 216 | 3.492 |
| -17 | 1 | 455.9 | 23 | 73 | 59.98 | 63 | 145 | 12.21 | 103 | 217 | 3.392 |
| -16 | 3 | 430.5 | 24 | 75 | 57.37 | 64 | 147 | 11.79 | 104 | 219 | 3.296 |
| -15 | 5 | 406.7 | 25 | 77 | 54.89 | 65 | 149 | 11.38 | 105 | 221 | 3.203 |
| -14 | 7 | 384.3 | 26 | 79 | 52.53 | 66 | 151 | 10.99 | 106 | 223 | 3.113 |
| -13 | 9 | 363.3 | 27 | 81 | 50.28 | 67 | 153 | 10.61 | 107 | 225 | 3.025 |
| -12 | 10 | 343.6 | 28 | 82 | 48.14 | 68 | 154 | 10.25 | 108 | 226 | 2.941 |
| -11 | 12 | 325.1 | 29 | 84 | 46.11 | 69 | 156 | 9.902 | 109 | 228 | 2.86 |
| -10 | 14 | 307.7 | 30 | 86 | 44.17 | 70 | 158 | 9.569 | 110 | 230 | 2.781 |
| -9 | 16 | 291.3 | 31 | 88 | 42.33 | 71 | 160 | 9.248 | 111 | 232 | 2.704 |
| -8 | 18 | 275.9 | 32 | 90 | 40.57 | 72 | 162 | 8.94 | 112 | 234 | 2.63 |
| -7 | 19 | 261.4 | 33 | 91 | 38.89 | 73 | 163 | 8.643 | 113 | 235 | 2.559 |
| -6 | 21 | 247.8 | 34 | 93 | 37.3 | 74 | 165 | 8.358 | 114 | 237 | 2.489 |
| -5 | 23 | 234.9 | 35 | 95 | 35.78 | 75 | 167 | 8.084 | 115 | 239 | 2.422 |
| -4 | 25 | 222.8 | 36 | 97 | 34.32 | 76 | 169 | 7.82 | 116 | 241 | 2.357 |
| -3 | 27 | 211.4 | 37 | 99 | 32.94 | 77 | 171 | 7.566 | 117 | 243 | 2.294 |
| -2 | 28 | 200.7 | 38 | 100 | 31.62 | 78 | 172 | 7.321 | 118 | 244 | 2.233 |
| -1 | 30 | 190.5 | 39 | 102 | 30.36 | 79 | 174 | 7.086 | 119 | 246 | 2.174 |
| 0 | 32 | 180.9 | 40 | 104 | 29.15 | 80 | 176 | 6.859 | 120 | 248 | 2.117 |
| 1 | 34 | 171.9 | 41 | 106 | 28 | 81 | 178 | 6.641 | 121 | 250 | 2.061 |
| 2 | 36 | 163.3 | 42 | 108 | 26.9 | 82 | 180 | 6.43 | 122 | 252 | 2.007 |
| 3 | 37 | 155.2 | 43 | 109 | 25.86 | 83 | 181 | 6.228 | 123 | 253 | 1.955 |
| 4 | 39 | 147.6 | 44 | 111 | 24.85 | 84 | 183 | 6.033 | 124 | 255 | 1.905 |
| 5 | 41 | 140.4 | 45 | 113 | 23.89 | 85 | 185 | 5.844 | 125 | 257 | 1.856 |
| 6 | 43 | 133.5 | 46 | 115 | 22.89 | 86 | 187 | 5.663 | 126 | 259 | 1.808 |
| 7 | 45 | 127.1 | 47 | 117 | 22.1 | 87 | 189 | 5.488 | 127 | 261 | 1.762 |
| 8 | 46 | 121 | 48 | 118 | 21.26 | 88 | 190 | 5.32 | 128 | 262 | 1.717 |
| 9 | 48 | 115.2 | 49 | 120 | 20.46 | 89 | 192 | 5.157 | 129 | 264 | 1.674 |
| 10 | 50 | 109.8 | 50 | 122 | 19.69 | 90 | 194 | 5 | 130 | 266 | 1.632 |
| 11 | 52 | 104.6 | 51 | 124 | 18.96 | 91 | 196 | 4.849 | | | |
| 12 | 54 | 99.69 | 52 | 126 | 18.26 | 92 | 198 | 4.703 | | | |
| 13 | 55 | 95.05 | 53 | 127 | 17.58 | 93 | 199 | 4.562 | | | |
| 14 | 57 | 90.66 | 54 | 129 | 16.94 | 94 | 201 | 4.426 | | | |
| 15 | 59 | 86.49 | 55 | 131 | 16.32 | 95 | 203 | 4.294 | | | |
| 16 | 61 | 82.54 | 56 | 133 | 15.73 | 96 | 205 | 4.167 | | | |
| 17 | 63 | 78.79 | 57 | 135 | 15.16 | 97 | 207 | 4.045 | | | |
| 18 | 64 | 75.24 | 58 | 136 | 14.62 | 98 | 208 | 3.927 | | | |
| 19 | 66 | 71.86 | 59 | 138 | 14.09 | 99 | 210 | 3.812 | | | |

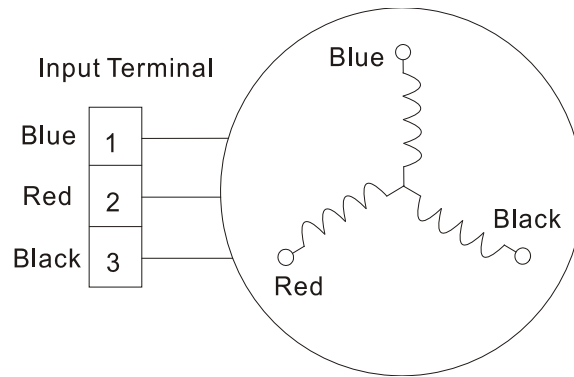
Appendix 3:

$$\Delta T(^{\circ}\text{F}) = \frac{9\Delta T(^{\circ}\text{C})}{5}$$

| $^{\circ}\text{C}$ | $^{\circ}\text{F}$ | $^{\circ}\text{C}$ | $^{\circ}\text{F}$ | $^{\circ}\text{C}$ | $^{\circ}\text{F}$ | $^{\circ}\text{C}$ | $^{\circ}\text{F}$ | $^{\circ}\text{C}$ | $^{\circ}\text{F}$ |
|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| -5 | 23 | 21 | 69.8 | 51 | 123.8 | 82 | 179.6 | 113 | 235.4 |
| -4 | 24.8 | 22 | 71.6 | 52 | 125.6 | 83 | 181.4 | 114 | 237.2 |
| -3 | 26.6 | 23 | 73.4 | 53 | 127.4 | 84 | 183.2 | 115 | 239 |
| -2 | 28.4 | 24 | 75.2 | 54 | 129.2 | 85 | 185 | 116 | 240.8 |
| -1 | 30.2 | 25 | 77 | 55 | 131 | 86 | 186.8 | 117 | 242.6 |
| 0 | 32 | 25.5 | 77.9 | 56 | 132.8 | 87 | 188.6 | 118 | 244.4 |
| 0.5 | 32.9 | 26 | 78.8 | 57 | 134.6 | 88 | 190.4 | 119 | 246.2 |
| 1 | 33.8 | 27 | 80.6 | 58 | 136.4 | 89 | 192.2 | 120 | 248 |
| 1.5 | 34.7 | 28 | 82.4 | 59 | 138.2 | 90 | 194 | 121 | 249.8 |
| 2 | 35.6 | 29 | 84.2 | 60 | 140 | 91 | 195.8 | 122 | 251.6 |
| 2.5 | 36.5 | 30 | 86 | 61 | 141.8 | 92 | 197.6 | 123 | 253.4 |
| 3 | 37.4 | 31 | 87.8 | 62 | 143.6 | 93 | 199.4 | 124 | 255.2 |
| 3.5 | 38.3 | 32 | 89.6 | 63 | 145.4 | 94 | 201.2 | 125 | 257 |
| 4 | 39.2 | 33 | 91.4 | 64 | 147.2 | 95 | 203 | 126 | 258.8 |
| 4.5 | 40.1 | 34 | 93.2 | 65 | 149 | 96 | 204.8 | 127 | 260.6 |
| 5 | 41 | 35 | 95 | 66 | 150.8 | 97 | 206.6 | 128 | 262.4 |
| 6 | 42.8 | 36 | 96.8 | 67 | 152.6 | 98 | 208.4 | 129 | 264.2 |
| 7 | 44.6 | 37 | 98.6 | 68 | 154.4 | 99 | 210.2 | 130 | 266 |
| 8 | 46.4 | 38 | 100.4 | 69 | 156.2 | 100 | 212 | 131 | 267.8 |
| 9 | 48.2 | 39 | 102.2 | 70 | 158 | 101 | 213.8 | 132 | 269.6 |
| 10 | 50 | 40 | 104 | 71 | 159.8 | 102 | 215.6 | 133 | 271.4 |
| 11 | 51.8 | 41 | 105.8 | 72 | 161.6 | 103 | 217.4 | 134 | 273.2 |
| 12 | 53.6 | 42 | 107.6 | 73 | 163.4 | 104 | 219.2 | 135 | 275 |
| 13 | 55.4 | 43 | 109.4 | 74 | 165.2 | 105 | 221 | 136 | 276.8 |
| 14 | 57.2 | 44 | 111.2 | 75 | 167 | 106 | 222.8 | 137 | 278.6 |
| 15 | 59 | 45 | 113 | 76 | 168.8 | 107 | 224.6 | 138 | 280.4 |
| 16 | 60.8 | 46 | 114.8 | 77 | 170.6 | 108 | 226.4 | 139 | 282.2 |
| 17 | 62.6 | 47 | 116.6 | 78 | 172.4 | 109 | 228.2 | 140 | 284 |
| 18 | 64.4 | 48 | 118.4 | 79 | 174.2 | 110 | 230 | 141 | 285.8 |
| 19 | 66.2 | 49 | 120.2 | 80 | 176 | 111 | 231.8 | 142 | 287.6 |
| 20 | 68 | 50 | 122 | 81 | 177.8 | 112 | 233.6 | 143 | 289.4 |

2.Compressor checking

Measure the resistance value of each winding by using the tester.



| Position | Resistance Value | | | | |
|--------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| | ASN98D22UEZ | ASM108D1UFZA | DA130M1C-31FZ | DA150S1C-20FZ | DA250S2C-30MT |
| Blue - Red | | | | | |
| Blue - Black | 1.57Ω (20°C /68°F) | 1.81Ω (20°C /68°F) | 1.77Ω (20°C /68°F) | 0.95Ω (20°C /68°F) | 0.55Ω (20°C /68°F) |
| Red - Blue | | | | | |



3. IPM continuity check

Turn off the power, let the large capacity electrolytic capacitors discharge completely, and dismount the IPM. Use a digital tester to measure the resistance between P and UVWN; UVW and N.

| Digital tester | | Normal resistance value | Digital tester | | Normal resistance value |
|----------------|----------|-------------------------|----------------|----------|-------------------------|
| (+)Red | (-)Black | | (+)Red | (-)Black | |
| P | N | ∞ (Several MΩ) | U | N | ∞ (Several MΩ) |
| | U | | V | | |
| | V | | W | | |
| | W | | (+)Red | | |

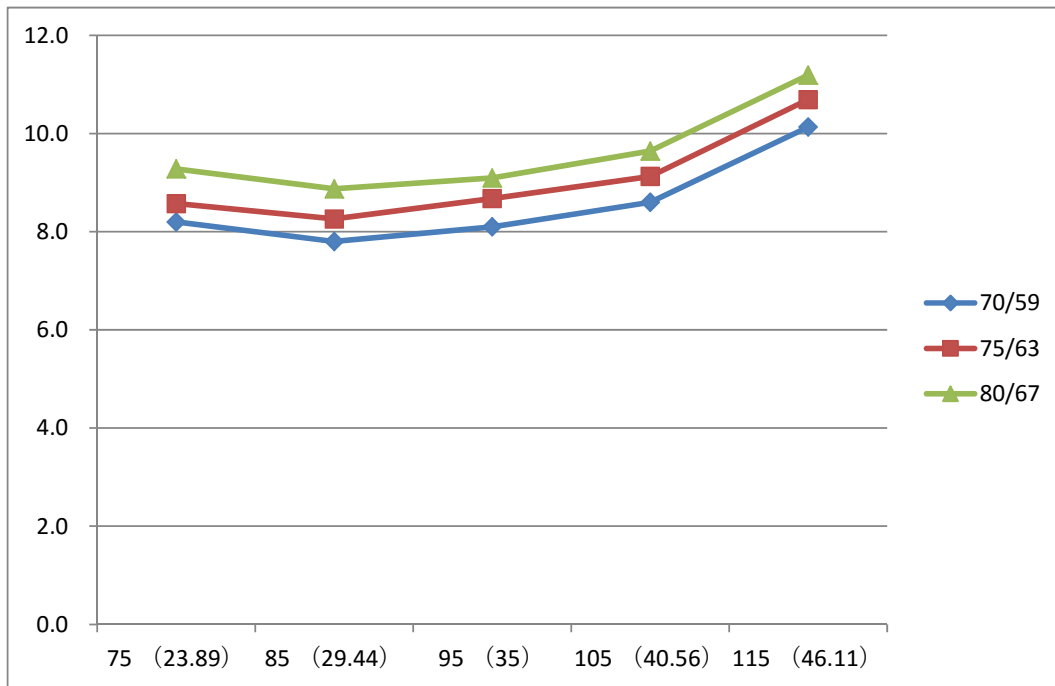
5: Pressure On Service Port

Cooling chart:

| °F(°C) | ODT | 75 | 85 | 95 | 105 | 115 |
|--------|-------|---------|---------|------|---------|---------|
| | IDT | (23.89) | (29.44) | (35) | (40.56) | (46.11) |
| BAR | 70/59 | 8.2 | 7.8 | 8.1 | 8.6 | 10.1 |
| BAR | 75/63 | 8.6 | 8.3 | 8.7 | 9.1 | 10.7 |
| BAR | 80/67 | 9.3 | 8.9 | 9.1 | 9.6 | 11.2 |

| °F(°C) | ODT | 75 | 85 | 95 | 105 | 115 |
|--------|-------|---------|---------|------|---------|---------|
| | IDT | (23.89) | (29.44) | (35) | (40.56) | (46.11) |
| PSI | 70/59 | 119 | 113 | 117 | 125 | 147 |
| PSI | 75/63 | 124 | 120 | 126 | 132 | 155 |
| PSI | 80/67 | 135 | 129 | 132 | 140 | 162 |

| °F(°C) | ODT | 75 | 85 | 95 | 105 | 115 |
|--------|-------|---------|---------|------|---------|---------|
| | IDT | (23.89) | (29.44) | (35) | (40.56) | (46.11) |
| MPA | 70/59 | 0.82 | 0.78 | 0.81 | 0.86 | 1.01 |
| MPA | 75/63 | 0.86 | 0.83 | 0.87 | 0.91 | 1.07 |
| MPA | 80/67 | 0.93 | 0.89 | 0.91 | 0.96 | 1.12 |

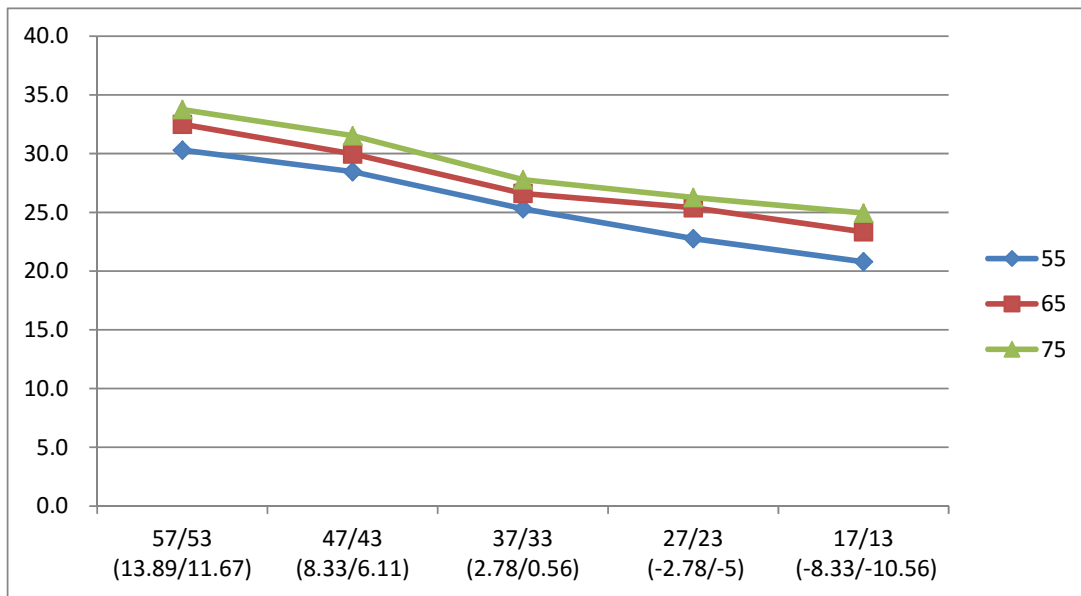


Heating Chart:

| °F (°C) | ODT IDT | 57/53 | 47/43 | 37/33 | 27/23 | 17/13 |
|------------|------------|---------------|-------------|-------------|------------|----------------|
| | | (13.89/11.67) | (8.33/6.11) | (2.78/0.56) | (-2.78/-5) | (-8.33/-10.56) |
| BAR | 55 | 30.3 | 28.5 | 25.3 | 22.8 | 20.8 |
| BAR | 65 | 32.5 | 30.0 | 26.6 | 25.4 | 23.3 |
| BAR | 75 | 33.8 | 31.5 | 27.8 | 26.3 | 24.9 |

| °F (°C) | ODT IDT | 57/53 | 47/43 | 37/33 | 27/23 | 17/13 |
|------------|------------|---------------|-------------|-------------|------------|----------------|
| | | (13.89/11.67) | (8.33/6.11) | (2.78/0.56) | (-2.78/-5) | (-8.33/-10.56) |
| PSI | 55 | 439 | 413 | 367 | 330 | 302 |
| PSI | 65 | 471 | 435 | 386 | 368 | 339 |
| PSI | 75 | 489 | 457 | 403 | 381 | 362 |



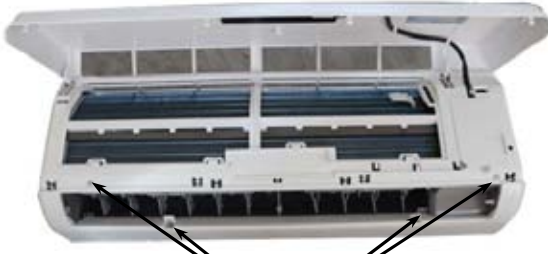

| °F (°C) | ODT IDT | 57/53 | 47/43 | 37/33 | 27/23 | 17/13 |
|------------|------------|---------------|-------------|-------------|------------|----------------|
| | | (13.89/11.67) | (8.33/6.11) | (2.78/0.56) | (-2.78/-5) | (-8.33/-10.56) |
| MPA | 55 | 3.03 | 2.85 | 2.53 | 2.28 | 2.08 |
| MPA | 65 | 3.25 | 3.00 | 2.66 | 2.54 | 2.33 |
| MPA | 75 | 3.38 | 3.15 | 2.78 | 2.63 | 2.49 |



10 Disassembly Instructions

Note: This part is for reference, the photos may have slight difference with your machine.

10.1 Indoor unit

| No. | Parts name | Procedures | Remarks |
|-----|-------------|--|--|
| 1 | Front panel | <p>How to remove the front panel.</p> <p>1) Pull the below side of the panel toward you and remove screw of the cover.</p> <p>2) Release the connector of the display ass'y.</p> <p>3) Release the two clips and then remove the panel.</p> <p>4) Remove the filter and the horizontal louver.</p> <p>5) Remove the four screws and then remove the panel ass'y.</p> | <p>Overview:</p>  <p>Panel</p>  <p>Clip</p> <p>One screw fixing the cover</p> <p>Filter</p>  <p>Four screws</p>  <p>Connector for display ass'y</p> |

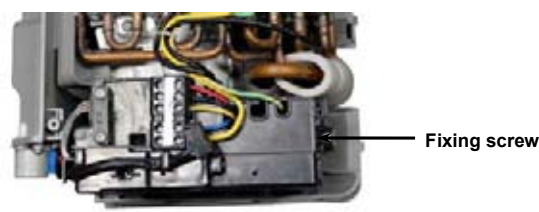
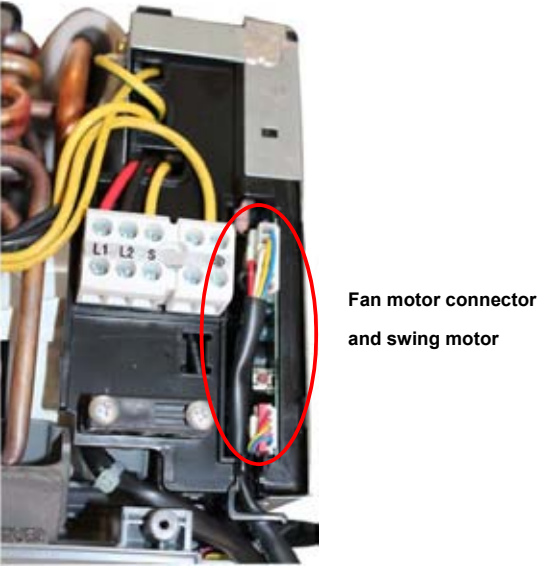
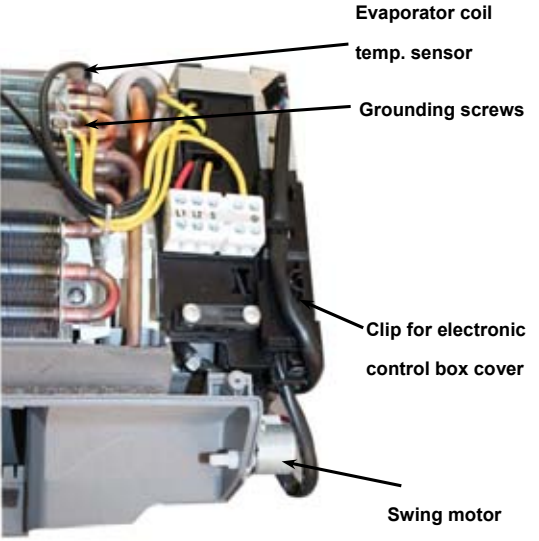
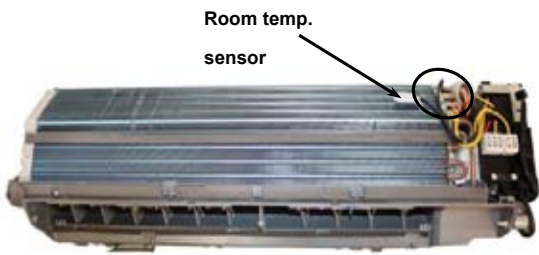
2




Electrical parts

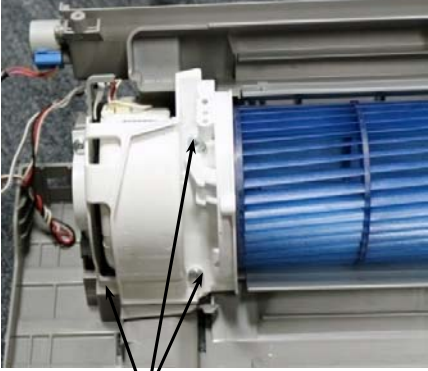

How to remove the electrical parts.

- 1) Remove the front panel from procedure 1.
- 2) Pull out the room temp. sensor (T1). Remove the two screws for the ground connection.
- 3) Remove the fixing screw.
- 4) Pull out the coil temp. sensor.

- 5) From the side direction, open the electronic control box cover fixing by clips. Pull out the fan motor connector and swing motor connector. Then remove the electronic control box.

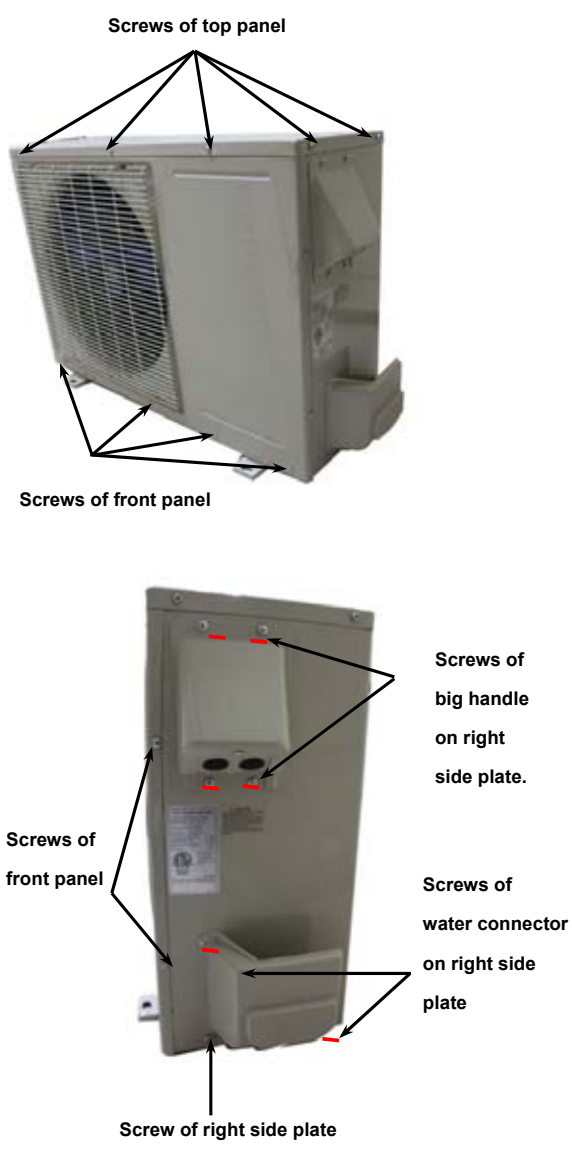


| | | | |
|---|------------|---|--|
| 3 | Evaporator | <p>How to remove the evaporator.</p> <p>1)After remove the electrical parts from procedure 2, disassemble the pipe holder at the rear side of the unit.</p> <p>2)Remove the screw on the evaporator at the fixed plate.</p> <p>3)Remove the two screws on the evaporator at the base bearing side.</p> <p>4)Then pull out the evaporator.</p> |   <p>One screws at the base bearing side</p>  <p>Two screws at the fixed plates</p> |
|---|------------|---|--|

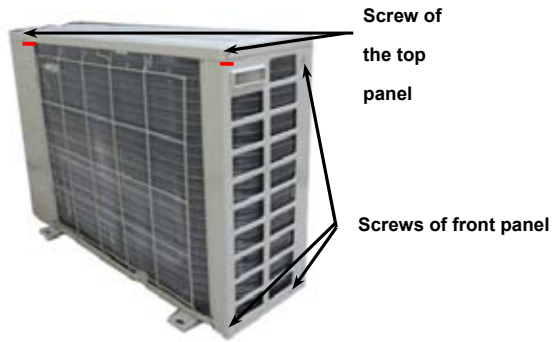
| | | | |
|---|---------------|--|---|
| 4 | Fan and motor | <p>How to remove the fan motor.</p> <p>1)Remove the front panel, electrical parts and evaporator following procedure 1-3.</p> <p>2)Remove the three screws and remove the fixing board of fan motor.</p> <p>3)Remove the fixing screw .</p> <p>Pull out the fan motor and fan ass'y from the side direction.</p> |  <p>Three screws</p>  <p>One screw</p> |
|---|---------------|--|---|

10.2 Outdoor unit

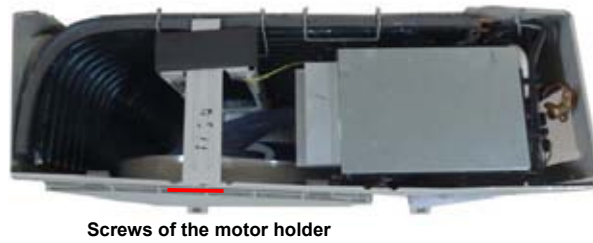
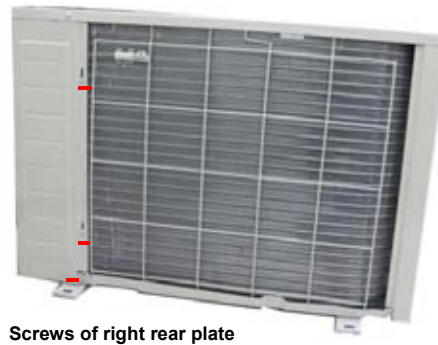
➤ MOB-09HFN1-MT0W, MOB-09HFN1-BT0W

| No. | Part name | Procedures | Remarks |
|-----|-------------|--|---|
| 1 | Panel plate | <p>How to remove the panel plate.</p> <p>1) Stop operation of the air conditioner and turn "OFF" the power breaker.</p> <p>2) Refer to the right side photos, find out the fixing screws of the panels.</p> <p>3) Remove the screws of top panel and remove the top panel.</p> |  <p>Screws of top panel</p> <p>Screws of front panel</p> <p>Screws of front panel</p> <p>Screws of big handle on right side plate.</p> <p>Screws of water connector on right side plate</p> <p>Screw of right side plate</p> |

4) Remove the screws of the front panel, including the fixing screws of motor holder and then remove the front panel.



5) Remove the screws of the right side plate and remove the right side plate.

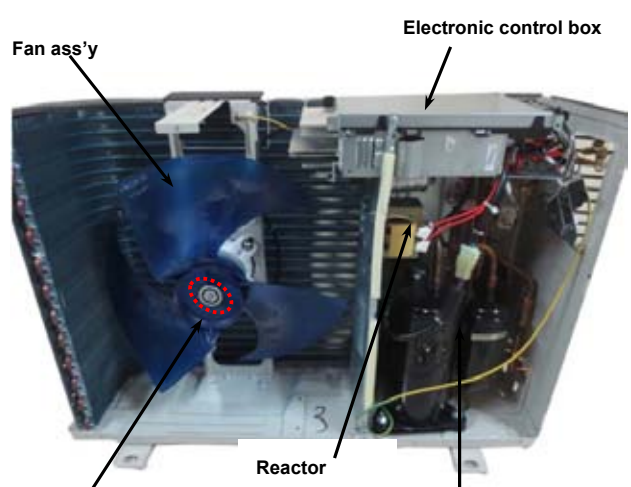


2 Fan ass'y

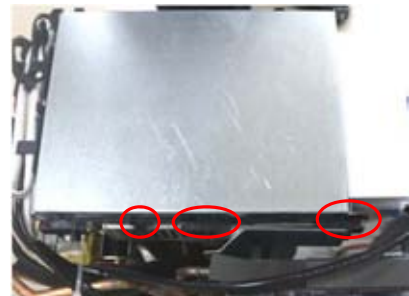
How to remove the fan ass'y.




1) After remove the panel plate following procedure 1, remove the hex nut fixing the fan and then remove the fan.

2) Unfix the hooks and then open the electronic control box cover.



Nut fixing the fan



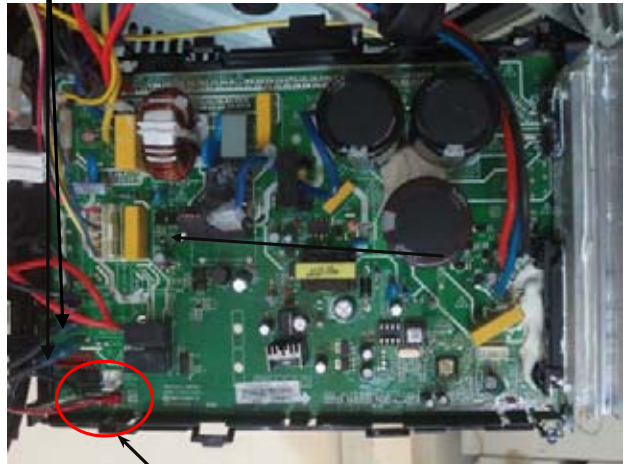
| | | | |
|---|------------------|---|--|
| | | <p>3) Disconnect the connector for fan motor from the electronic control board.</p> <p>4) Remove the four fixing screws of the fan motor.</p> <p>5) Then remove the fan motor.</p> |  <p>Fan motor connector</p>  <p>Four screws</p> |
| 3 | Electrical parts | <p>How to remove the electrical parts.</p> <p>1) After finish work of item 1 and item 2, remove the three connectors for the compressor and electrical heaters.</p> <p>2) Release the connector of the reactor.</p> |  <p>Reactor connector</p> <p>Compressor connector</p> |

3) Pull out the two black wires connected with the four way valve.

4) Pull out connectors of the compressor top temp. sensor, condenser coil temp. sensor(T3), outdoor ambient temp. sensor(T4) and discharge temp. sensor(T5).

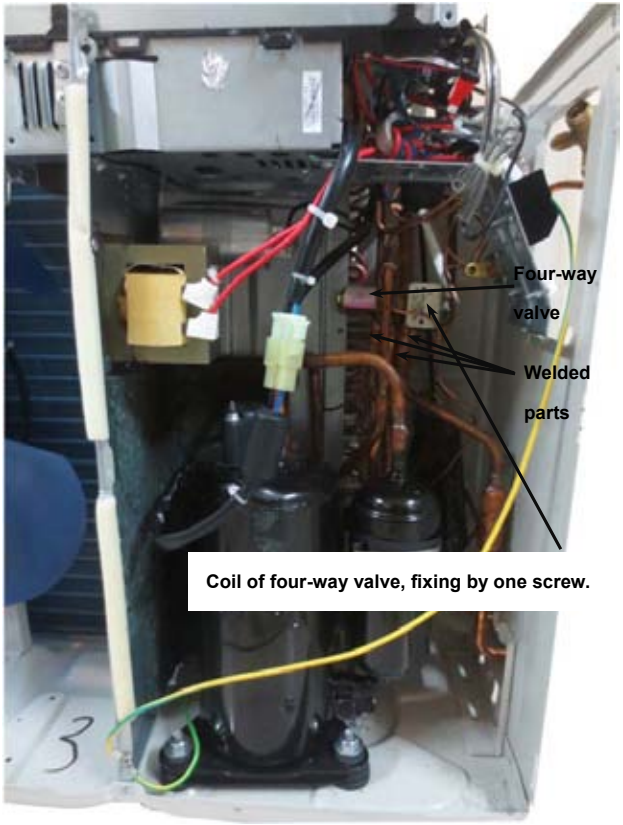
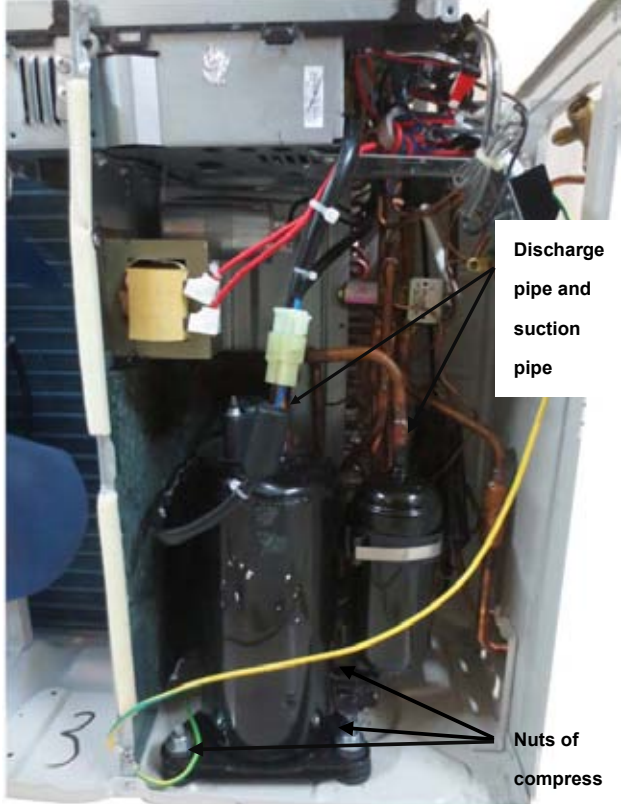
5) Remove the ground wires .
6) Remove the power supply wires(L1,L2,S).
7) Then remove the electronic control box.

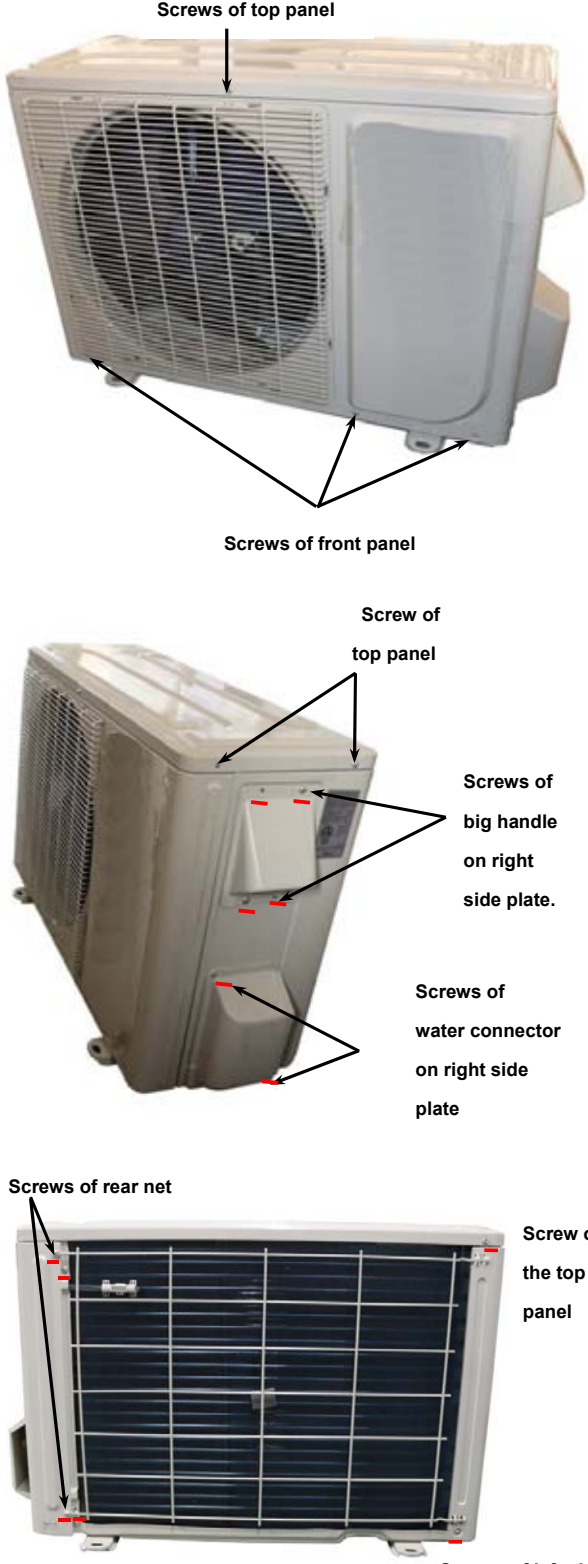
Two black wires of four way valve

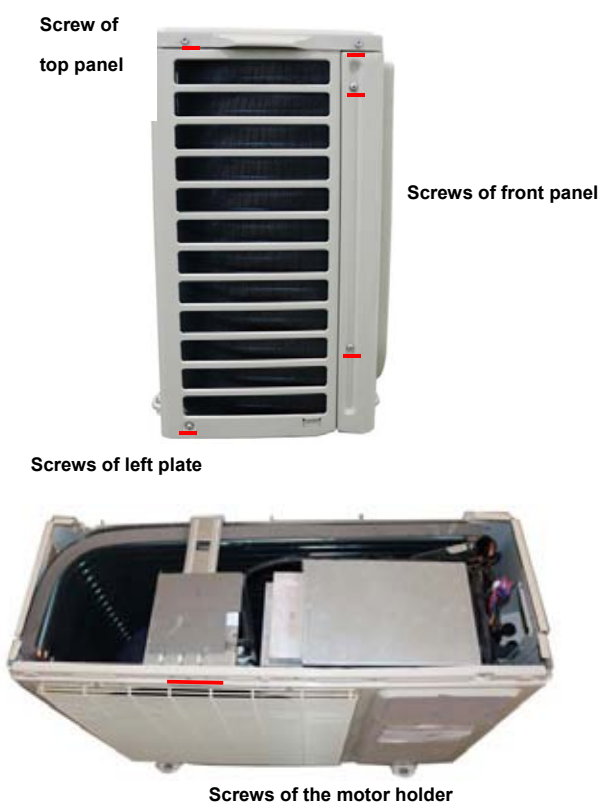
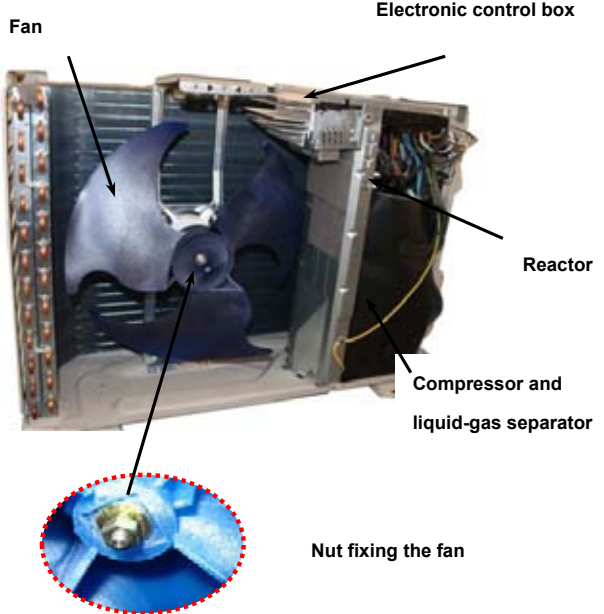


Four connectors of temp. sensors.

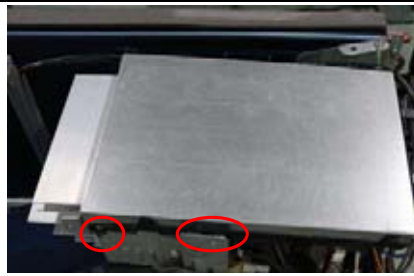


| | | | |
|---|----------------|---|--|
| 4 | Four-way valve | <p>How to remove the four-way valve.</p> <ol style="list-style-type: none"> 1) Perform work of item 1,2,3. 2) Recover refrigerant from the refrigerant circuit. 3) Remove the screw of the coil and then remove the coil. 4) Detach the welded parts of four-way valve and pipe. 5) Then the four-way valve ass'y can be removed | <p>The picture of four-way valve may be different from the one on your side.</p>  |
| 5 | Compressor | <p>How to remove the compressor.</p> <ol style="list-style-type: none"> 1) After perform work of item 1,2,3. 2) Remove the discharge pipe and suction pipe with a burner. 3) Remove the hex nuts and washers fixing the compressor on bottom plate. 4) Lift the compressor from the base pan assembly. |  |

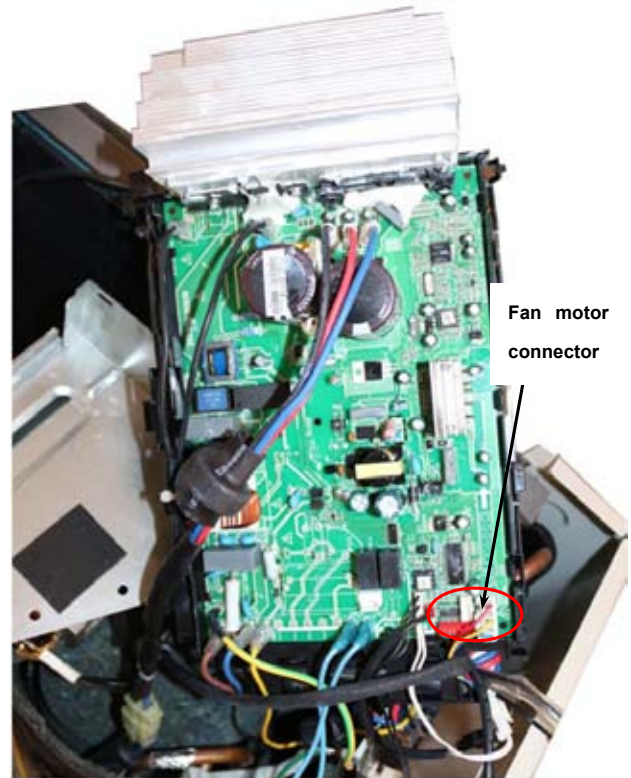
| No. | Part name | Procedures | Remarks |
|-----|-------------|--|---|
| 1 | Panel plate | <p>How to remove the panel plate.</p> <p>1) Stop operation of the air conditioner and turn "OFF" the power breaker.</p> <p>2) Refer to the right side photos, find out the fixing screws of the panels.</p> <p>3) Remove the screws of top panel and remove the top panel.</p> |  <p>The 'Remarks' column contains three photographs of an air conditioner unit with arrows pointing to specific screws. The top photo shows the top panel with an arrow labeled 'Screws of top panel'. The middle photo shows the front panel with arrows labeled 'Screw of top panel', 'Screws of big handle on right side plate', and 'Screws of water connector on right side plate'. The bottom photo shows the rear panel with arrows labeled 'Screws of rear net', 'Screw of the top panel', and 'Screws of left plate'.</p> |

| | | | |
|---|-----------|---|---|
| | | <p>4) Remove the screws of the front panel, including the fixing screws of motor holder and then remove the front panel.</p> <p>5) Remove the screws of the right side plate and remove the right side plate.</p> |  <p>Screw of top panel</p> <p>Screws of front panel</p> <p>Screws of left plate</p> <p>Screws of the motor holder</p> |
| 2 | Fan ass'y | <p>How to remove the fan ass'y.</p> <p>1) After remove the panel plate following procedure 1, remove the hex nut fixing the fan and then remove the fan.</p> |  <p>Fan</p> <p>Electronic control box</p> <p>Reactor</p> <p>Compressor and liquid-gas separator</p> <p>Nut fixing the fan</p> |

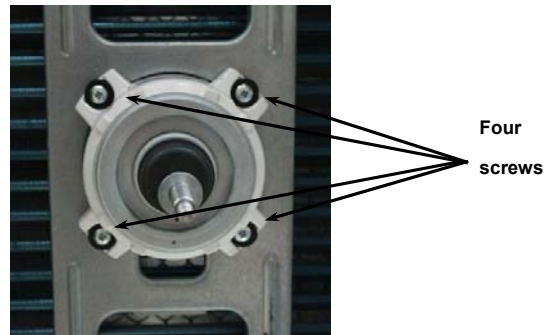
2)Unfix the hooks and then open the electronic control box cover.



3)Disconnect the connector for fan motor from the electronic control board.



4)Remove the four fixing screws of the fan motor.
5)Then remove the fan motor.



3 Electrical parts

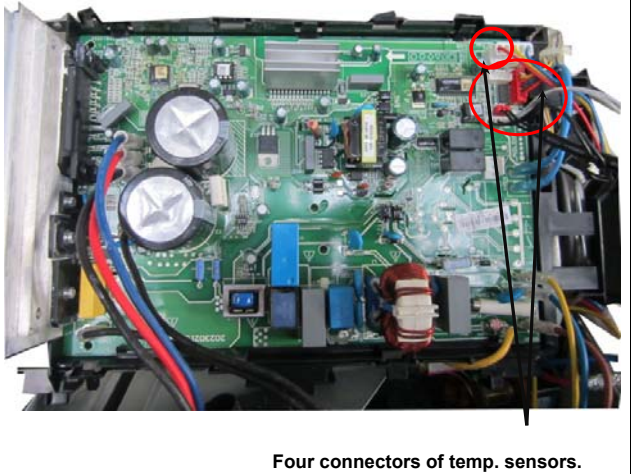
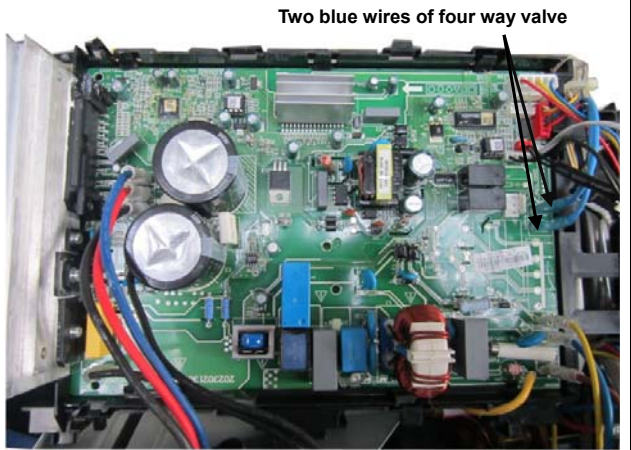
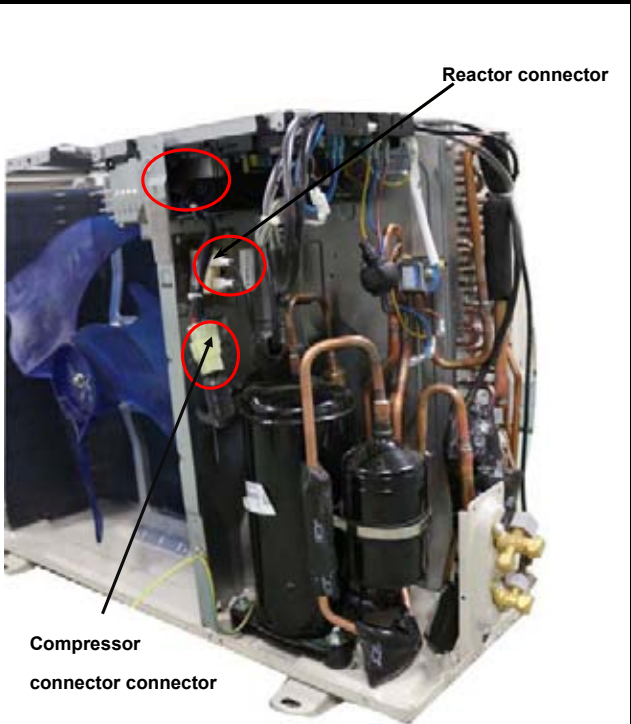
How to remove the electrical parts.



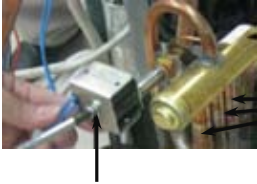
1)After finish work of item 1 and item 2, remove the three connectors for the compressor and electrical heaters.

2)Release the connector of the reactor.

3)Pull out the two blue wires connected with the four way valve.

4)Pull out connectors of the compressor top temp. sensor, condenser coil temp. sensor(T3),outdoor ambient temp. sensor(T4) and discharge temp. sensor(T5).



| | | | |
|---|----------------|---|---|
| | | <p>5)Remove the ground wires .</p> <p>6)Remove the power supply wires(L1,L2,S).</p> <p>7)Then remove the electronic control box.</p> |  |
| 4 | Four-way valve | <p>How to remove the four-way valve.</p> <p>1)Perform work of item 1,2,3.</p> <p>2)Recover refrigerant from the refrigerant circuit.</p> <p>3)Remove the screw of the coil and then remove the coil.</p> <p>4)Detach the welded parts of four-way valve and pipe.</p> <p>5)Then the four-way valve ass'y can be removed</p> | <p>The picture of four-way valve may be different from the one on your side.</p>  <p>Four-way valve</p>  <p>Welded parts</p> <p>Coil of four-way valve, fixing by one screw.</p> |

5 Compressor

How to remove the compressor.

- 1) After perform work of item 1,2,3.
- 2) Remove the discharge pipe and suction pipe with a burner.
- 3) Remove the hex nuts and washers fixing the compressor on bottom plate.
- 4) Lift the compressor from the base pan assembly.

