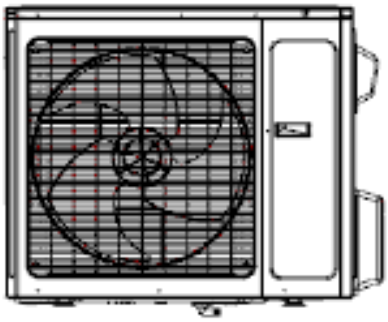
Service Manual

"P" SERIES
30K - 36K 220V
INVERTER-DRIVEN AIR CONDITIONING UNITS

Type	Model
INDOOR UNIT	DHP30NWB21S DCP30NWB21S DHP36NWB21S DCP36NWB21S

Type	Model
OUTDOOR UNIT	DHP30CSB21S DCP30CSB21S DHP36CSB21S DCP36CSB21S



IMPORTANT:

READ AND UNDERSTAND THIS MANUAL BEFORE USING THIS INVERTER-DRIVEN AIR CONDITIONING UNIT. KEEP THIS MANUAL FOR FUTURE REFERENCE.

Important Notice

- Johnson Controls, Inc. pursues a policy of continuing improvement in design and performance in its products. As such, Johnson Controls, Inc. reserves the right to make changes at any time without prior notice.
- Johnson Controls, Inc. cannot anticipate every possible circumstance that might involve a potential hazard.
- This inverter air conditioning unit is designed for standard air conditioning applications only. Do not use this unit for anything other than the purposes for which it was intended for.
- The installer and system specialist shall safeguard against leakage in accordance with local pipefitter and electrical codes. The following standards may be applicable, if local regulations are not available. International Organization for Standardization: (ISO 5149 or European Standard, EN 378). No part of this manual may be reproduced in any way without the expressed written consent of Johnson Controls, Inc.
- This inverter-driven (cooling or heat pump) air conditioning unit will be operated and serviced in the United States of America and comes with all required Safety, Danger, and Caution, warnings.
- If you have questions, please contact your distributor or dealer.
- This manual provides common descriptions, basic and advanced information to maintain and service this inverter-driven (cooling or heat pump) air conditioning unit which you operate, as well for other models.
- This inverter-driven (cooling or heat pump) air conditioning unit has been designed for a specific temperature range. For optimum performance and long life, operate this unit within range limits.
- This manual should be considered as a permanent part of the air conditioning equipment and should remain with the air conditioning equipment.

Product Inspection upon Arrival

1. Upon receiving this product, inspect it for any damages incurred in transit. Claims for damage, either apparent or concealed, should be filed immediately with the shipping company.
2. Check the model number, electrical characteristics (power supply, voltage, and frequency rating), and any accessories to determine if they agree with the purchase order.
3. The standard utilization for this unit is explained in these instructions. Use of this equipment for purposes other than what it designed for is not recommended.
4. Please contact your local agent or contractor as any issues involving installation, performance, or maintenance arise. Liability does not cover defects originating from unauthorized modifications performed by a customer without the written consent of Johnson Controls, Inc. Performing any mechanical alterations on this product without the consent of the manufacturer will render your warranty null and void.

Table of Contents

1. Introduction

This manual concentrates on inverter-driven cooling or heat pump air conditioning units. Read this manual carefully before installation.

This manual should be considered as a permanent part of the air conditioning equipment and should remain with the air conditioning equipment.

2. Important Safety Instructions

Safety Messages

⚠WARNING	Indicates a hazardous situation that, if not avoided, could result in death or serious injury.
⚠CAUTION	Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.
NOTICE	Indicates information considered important, but not hazard-related (for example, messages relating to property damage).

General Precautions

⚠WARNING	To reduce the risk of serious injury or death, read these instructions thoroughly and follow all warnings or cautions included in all manuals that accompanied the product and are attached to the unit. *Refer back to these safety instructions as needed.*

- This system should be installed by personnel certified by Johnson Controls, Inc. Personnel must be qualified according to local, state and national building and safety codes and regulations. Incorrect installation could cause leaks, electric shock, fire or explosion. In areas where Seismic ‘’Performance requirements are specified, the appropriate measures should be taken during installation to guard against possible damage or injury that might occur in an earthquake if the unit is not installed correctly, injuries may occur due to a falling unit.
- Use appropriate Personal Protective Equipment (PPE), such as gloves and protective goggles and, where appropriate, have a gas mask nearby. Also use electrical protection equipment and tools suited for electrical operation purposes. Keep a quenching cloth and a fire extinguisher nearby during brazing. Use care in handling, rigging, and setting of bulky equipment.
- When transporting, be careful when picking up, moving and mounting these units. Although the unit may be packed using plastic straps, do not use them for transporting the unit from one location to another. Do not stand on or put any material on the unit. Get a partner to help, and bend with your knees when lifting to reduce strain on your back. Sharp edges or thin aluminum fins on the air conditioner can cut fingers, so wear protective gloves.
- Do not touch or adjust any safety devices inside the indoor or outdoor units. All safety features, disengagement, and interlocks must be in place and functioning correctly before the equipment is put into operation. If these devices are improperly adjusted or tampered with in any way, a serious accident can occur. Never bypass or jump-out any safety device or switch.
- Johnson Controls, Inc. will not assume any liability for injuries or damage caused by not following steps outlined or described in this manual. Unauthorized modifications to Johnson Controls products are prohibited as they…
  - May create hazards which could result in death, serious injury or equipment damage.
  - Will void product warranties.
  - May invalidate product regulatory certifications.
  - May violate OSHA standards.

NOTICE	Take the following precautions to reduce the risk of property damage.

- Be careful that moisture, dust, or variant refrigerant compounds not enter the refrigerant cycle during installation work. Foreign matter could damage internal components or cause blockages.
- If air filters are required on this unit, do not operate the unit without the air filter set in place. If the air filter is not installed, dust may accumulate and breakdown may result.
- Do not install this unit in any place where silicon gases can coalesce. If the silicon gas molecules attach themselves to the surface of the heat exchanger, the finned surfaces will repel water. As a result, any amount of condensate can overflow from the condensate pan and could run inside of the electrical box, possibly causing electrical failures.
- When installing the unit in a hospital or other facility where electromagnetic waves are generated from nearby medical and/or electronic devices, be prepared for noise and electronic interference Electromagnetic Interference (EMI). Do not install where the waves can directly radiate into the electrical box, controller cable, or controller. Inverters, appliances, high-frequency medical equipment, and radio communications equipment may cause the unit to malfunction. The operation of the unit may also adversely affect these same devices. Install the unit at least 10 ft. (approximately 3m) away from such devices.
- When a wireless zone controller is used, locate at a distance of at least 3.3 ft. (approximately 1 meter) between the indoor unit and electric lighting. If not, the receiver part of the unit may have difficulty receiving operation commands.
- Do not install the unit in any location where animals and plants can come into direct contact with the outlet air stream. Exposure could adversely affect the animals and plants.
- Do not install the unit with any downward slope to the side of the drain boss. If you do, you may have water flowing back which may cause leaks.
- Be sure the condensate hose discharges water properly. If connected incorrectly, it may cause leaks.
- Do not install the unit in any place where oil can seep onto the units, such as table or seating areas in restaurants, and so forth. For these locations or social venues, use specialized units with oil-resistant features built into them. In addition, use a specialized ceiling fan designed for restaurant use. These specialized oil-resistant units can be ordered for such applications. However, in places where large quantities of oil can splash onto the unit, such as a factory, even the specialized units cannot be used. These products should not be installed in such locations.

Installation Precautions

⚠WARNING	To reduce the risk of serious injury or death, the following installation precautions must be followed.

- When installing the unit into…
  - A wall: Make sure the wall is strong enough to hold the unit's weight. It may be necessary to construct a strong wood or metal frame to provide added support.
  - A room: Properly insulate any refrigerant tubing run inside a room to prevent "sweating" that can cause dripping and water damage to wall and floors.
  - Damp or uneven areas: Use a raised concrete pad or concrete blocks to provide a solid, level foundation for the unit to prevent water damage and abnormal vibration.
  - An area with high winds: Securely anchor the outdoor unit down with bolts and a metal frame. Provide a suitable air baffle.
  - A snowy area (only for heat pump model): Install the outdoor unit on a raised platform that is higher than drifting snow. Provide snow vents.
- Do not install the unit in the following places. Doing so can result in an explosion, fire, deformation, corrosion, or product failure.
  - Explosive or flammable atmosphere
  - Where fire, oil, steam, or powder can directly enter the unit, such as in close proximity or directly above a kitchen stove.
  - Where oil (including machinery oil) may be present.
  - Where corrosive gases such as chlorine, bromine, or sulfide can accumulate, such as near a hot tub or hot spring.
  - Where dense, salt-laden airflow is heavy, such as in coastal regions.
  - Where the air quality is of high acidity.
  - Where harmful gases can be generated from decomposition.

- Do not position the condensate pipe for the indoor unit near any sanitary sewers where corrosive gases may be present. If you do, toxic gases can seep into breathable air spaces and can cause respiratory injuries. If the condensate pipe is installed incorrectly, water leakage and damage to the ceiling, floor, furniture, or other possessions may result. If condensate piping becomes clogged, moisture can back up and can drip from the indoor unit. Do not install the indoor unit where such dripping can cause moisture damage or uneven locations: Use a raised concrete pad or concrete blocks to provide a solid, level foundation for the unit to prevent water damage and abnormal vibration.
- Before performing any brazing work, be sure that there are no flammable materials or open flames nearby.
- Perform a run test to ensure normal operation. Safety guards, shields, barriers, covers, and protective devices must be in place while the compressor/unit is operating. During the test run, keep fingers and clothing away from any moving parts.
- Clean up the site when finished, remembering to check that no metal scraps or bits of wiring have been left inside the unit being installed.
- During transportation, do not allow the backrest of the forklift to make contact with the unit, otherwise, it may cause damage to the heat exchanger and also may cause injury when stopped or started suddenly.
- Remove gas inside the closing pipe when the brazing work is performed. If the brazing filler metal is melted with remaining gas inside, the pipes will be blown off and it may cause injury.
- Be sure to use nitrogen gas for an airtight test. If other gases such as oxygen gas, acetylene gas or fluorocarbon gas are accidentally used, it may cause explosion or gas intoxication.

After installation work for the system has been completed, explain the “Safety Precautions,” the proper use and maintenance of the unit to the customer according to the information in all manuals that came with the system. All manuals and warranty information must be given to the user or left near the Indoor Unit.

Refrigerant Precautions

⚠WARNING	To reduce the risk of serious injury or death, the following refrigerant precautions must be followed.

- As originally manufactured, this unit contains refrigerant installed by Johnson Controls. Johnson Controls uses only refrigerants that have been approved for use in the unit’s intended home country or market. Johnson Controls distributors similarly are only authorized to provide refrigerants that have been approved for use in the countries or markets they serve. The refrigerant used in this unit is identified on the unit’s faceplate and/or in the associated manuals. Any additions of refrigerant into this unit must comply with the country’s requirements with regard to refrigerant use and should be obtained from Johnson Controls distributors. Use of any non-approved refrigerant substitutes will void the warranty and will increase the potential risk of injury or death.
- If installed in a small room, take measures to prevent the refrigerant from exceeding the maximum allowable concentration in the event that refrigerant gases should escape. Refrigerant gases can cause asphyxiation (0.42 kg/m3 based on ISO 5149 for R410A). Consult with your distributor for countermeasures (ventilation system and so on). If refrigerant gas has leaked during the installation work, ventilate the room immediately.
- The design pressure for this product is 601 psi (4.15MPa). The pressure of R410A refrigerant is 1.4 times higher than that of the refrigerant R22. Therefore, the refrigerant piping for R410A shall be thicker than that for R22. Make sure to use the specified refrigerant piping. If not, the refrigerant piping may rupture due to an excessive refrigerant pressure. Besides, pay attention to the piping thickness when using copper refrigerant piping. The thickness of copper refrigerant piping differs depending on its material.
- The refrigerant R410A is adopted. The refrigerant oil tends to be affected by foreign matters such as moisture, oxide film, (or fat). Perform the installation work with care to prevent moisture, dust, or different refrigerant from entering the refrigerant cycle. Foreign matter can be introduced into the cycle from such parts as expansion valve and the operation may be unavailable.
- To avoid the possibility of different refrigerant or refrigerant oil being introduced into the cycle, the sizes of the charging connections have been changed from R407C type and R22 type. It is necessary to prepare the appropriate tools before performing the installation work.
- Use refrigerant pipes and joints which are approved for use with R410A.
- A compressor/unit comprises a pressurized system. Never loosen threaded joints while the system is

under pressure and never open pressurized system parts.

- Before installation is complete, make sure that the refrigerant leak test has been performed. If refrigerant gases escape into the air, turn OFF the main switch, extinguish any open flames and contact your service contractor. Refrigerant (Fluorocarbon) for this unit is odorless. If the refrigerant should leak and come into contact with open flames, toxic gas could be generated. Also, because the fluorocarbons are heavier than air, they settle to the floor, which could cause asphyxiation.
- When installing the unit, and connecting refrigerant piping, keep all piping runs as short as possible, and make sure to securely connect the refrigerant piping before the compressor starts operating. If the refrigerant piping is not connected and the compressor activates with the stop valve opened, the refrigerant cycle will become subjected to extremely high pressure, which can cause an explosion or fire.
- Tighten the flare nut with a torque wrench in the specified manner. Do not apply excessive force to the flare nut when tightening. If you do, the flare nut can crack and refrigerant leakage may occur.
- When maintaining, relocating, and disposing of the unit, dismantle the refrigerant piping after the compressor stops.
- When pipes are removed out from under the piping cover, after the insulation work is completed, cover the gap between the piping cover and pipes by a packing (field-supplied). If the gap is not covered, the unit may be damaged if snow, rain water or small animals enter the unit.
- Do not apply an excessive force to the spindle valve at the end of opening. Otherwise, the spindle valve flies out due to refrigerant pressure. At the run test, fully open the gas and liquid valves, otherwise, these devices will be damaged. (It is closed before shipment.)
- If the arrangement for outdoor units is incorrect, it may cause flowback of the refrigerant and result in failure of the outdoor unit.
- The refrigerant system may be damaged if the slope of the piping connection kit exceeds $\pm 15^{o}$.

Electrical Precautions

⚠WARNING	Take the following precautions to reduce the risk of electric shock, fire or explosion resulting in serious injury or death.

- Highly dangerous electrical voltages are used in this system. Carefully refer to the wiring diagram and these instructions when wiring. Improper connections and inadequate grounding can cause serious injury or death.
- Perform all electrical work in strict accordance with this installation and maintenance manual and all the relevant regulatory standards.
- Before servicing, open and tag all disconnect switches. Never assume electrical power is disconnected. Check with meter and equipment.
- Only use electrical protection equipment and tools suited for this installation.
- Use specified cables between units.
- The new air conditioner may not function normally in the following instances:
  - If electrical power for the new air conditioner is supplied from the same transformer as the device* referred to below.
  - If the power source cables for this device* and the new air conditioner unit are located in close proximity to each other.

    Device*: (Example): A lift, container crane, rectifier for electric railway, inverter power device, arc furnace, electric furnace, large-sized induction motor and large-sized switch.

    Regarding the cases mentioned above, surge voltage may be inducted into the power supply cables for the packaged air conditioner due to a rapid change in power consumption of the device and an activation of a switch.

    Check field regulations and standards before performing electrical work in order to protect the power supply for the new air conditioner unit.

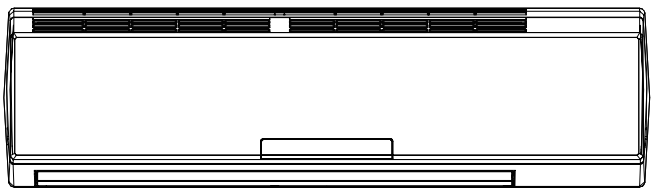
- Communication cabling shall be a minimum of 18-Gauge, 2-Conductor, Stranded Copper. Shielded cable must be considered for applications and routing in areas of high EMI and other sources of potentially excessive electrical noise to reduce the potential for communication errors. When shielded cabling is applied, proper bonding and termination of the cable shield is required as per Johnson Controls guidelines. Plenum and riser ratings for communication cables must be considered per application and local code requirments.
- Use an exclusive power supply for the air conditioner at the unit's rated voltage.
- Be sure to install circuit breakers (ground fault interrupter, isolating switch, molded case circuit breaker and so on), with the specified capacity. Ensure that the wiring terminals are tightened securely to recommended torque specifications.
- Clamp electrical wires securely with a cable clamp after all wiring is connected to the terminal block. In addition, run wires securely through the wiring access channel.
- When installing the power lines, do not apply tension to the cables. Secure the suspended cables at regular intervals, but not too tightly.
- Make sure that the terminals do not come into contact with the surface of the electrical box. If the terminals are too close to the surface, it may lead to failures at the terminal connection.
- Turn OFF and disconnect the unit from the power source when handling the service connector. Do not open the service cover or access panel to the indoor or outdoor units without turning OFF the main power supply.
- After ceasing operation, be sure to wait at least five minutes before turning off the main power switch. Otherwise, water leakage or electrical breakdown may result. Disconnect the power source completely before attempting any maintenance for electrical parts. Check to ensure that no residual voltage is present after disconnecting the power source.
- Do not clean with, or pour water into, the controller as it could cause electric shock and/or damage the unit. Do not use strong detergent such as a solvent. Clean with a soft cloth.
- Check that the ground wire is securely connected. Do not connect ground wiring to gas piping, water piping, lighting conductor, or telephone ground wiring.
- If a circuit breaker or fuse is frequently activated, shut down the system and contact your service contractor.
- Perform all electrical work in accordance with this manual and in compliance with all regulations and safety standards.
- Do not open a service access cover or panel of an indoor or outdoor unit without first turning OFF the power at the main power supply.
- Residual voltage can cause electric shock. At all times, check for residual voltage after disconnecting from the power source before starting work on the unit.
- This equipment can be installed with a Ground Fault Circuit Breaker (GFCI), which is a recognized measure for added protection to a properly grounded unit. Install appropriate sized breakers/fuses/ overcurrent protection switches, and wiring in accordance with local, state and NEC codes and requirements. The equipment installer is responsible for understanding and abiding by applicable codes and requirements.

1. Models

Summary

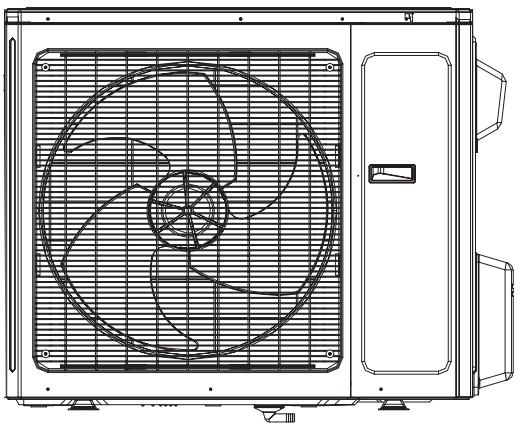
Indoor Unit:

DHP30NWB21S
DCP30NWB21S
DHP36NWB21S
DCP36NWB21S



Outdoor Unit:

DHP30CSB21S
DCP30CSB21S
DHP36CSB21S
DCP36CSB21S



Remote Controller:

DRCPX

2. Specifications

2.1 Specification Sheet

Model			DCP30NWB21S DCP30CSB21S	DHP30NWB21S DHP30CSB21S
Power Supply	Rated Voltage	V~	208/230	208/230
	Rated Frequency	Hz	60	60
	Phases		1	1
Power Supply Mode			Outdoor	Outdoor
Cooling Capacity(Min~Max)		Btu/h	28000(9485~30026)	28000(9485~30026)
Heating Capacity(Min~Max)		Btu/h	/	28400(9997~32994)
Cooling Power Input(Min~Max)		W	2700(350~3900)	2700(350~3900)
Heating Power Input(Min~Max)		W	/	2800(450~4000)
Cooling Power Current		A	11.5	11.5
Heating Power Current		A	/	12
Rated Input		W	3900	4000
Rated Current		A	17	17.5
Air Flow Volume(SH/H/M/L)		CFM	706/618/530/412	706/618/530/412
Dehumidifying Volume		Pint/h	6.34	6.34
EER		(Btu/h)/W	10.37	10.36
COP		(Btu/h)/W	/	10.14
SEER			18	18
SCOP			/	9
Application Area		yd^2	41.86-62.19	41.86-62.19
Indoor Unit	Model of indoor unit		DCP30NWB21S	DHP30NWB21S
	Fan Type		Cross-flow	Cross-flow
	Diameter Length(DXL)	inch	Φ4 1/4X20 9/16X2	Φ4 1/4X20 9/16X2
	Fan Motor Cooling Speed (SH/H/M/L)	r/min	1350/1150/950/850	1350/1150/950/850
	Fan Motor Heating Speed (SH/H/M/L)	r/min	/	1350/1200/1000/800
	Output of Fan Motor	W	70	70
	Fan Motor RLA	A	0.4	0.4
	Fan Motor Capacitor	μF	/	/
	Evaporator Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Pipe Diameter	inch	Φ9/32	Φ9/32
	Row-fin Gap	inch	2-1/16	2-1/16
	Coil Length (LXDXW)	inch	42 9/32X1X15X2	42 9/32X1X15X2
	Swing Motor Model		MP24BA	MP24BA
	Output of Swing Motor	W	2	2
	Fuse	A	3.15	3.15
	Sound Pressure Level (SH/H/M/L)	dB (A)	51/45/41/37	51/45/41/37
	Sound Power Level (SH/H/M/L)	dB (A)	61/55/51/47	61/55/51/47
	Dimension (WXHXD)	inch	53 9/64X12 53/64X10	53 9/64X12 53/64X10
	Dimension of Carton Box (LXWXH)	inch	56 19/32X16 1/2X13 1/2	56 19/32X16 1/2X13 1/2
	Dimension of Package (LXWXH)	inch	56 3/4X16 9/16X14	56 3/4X16 9/16X14
	Net Weight	lb	41.9	41.9
	Gross Weight	lb	51.8	51.8

Outdoor Unit	Model of Outdoor Unit		DCP30CSB21S	DHP30CSB21S
	Compressor Manufacturer/Trademark		ZHUHAI LANDA COMPERSSOR CO.LTD.	ZHUHAI LANDA COMPERSSOR CO.LTD.
	Compressor Model		QXAS-D23zX090	QXAS-D23zX090
	Compressor Oil		RB68EP	RB68EP
	Compressor Type		Rotary	Rotary
	Compressor Locked Rotor Amp (L.R.A)		40	40
	Compressor RLA	A	13.45	13.45
	Compressor Power Input	W	2450	2450
	Overload Protector		1NT11L-6233	1NT11L-6233
	Metering Method		Electron expansion valve+Capillary	Electron expansion valve+Capillary
	Operation temp	ºF	61~86	61~86
	Ambient temp (cooling)	ºF	5~115	5~115
	Ambient temp (heating)	ºF	/	-4~75
	Condenser Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Pipe Diameter	inch	Φ5/16	Φ5/16
	Rows-fin Gap	inch	2-1/16	2-1/16
	Coil Length (LXDXW)	inch	37 1/2X1 1/2X29 7/16	37 1/2X1 1/2X29 7/16
	Fan Motor Speed	rpm	795	795
	Output of Fan Motor	W	120	120
	Fan Motor RLA	A	0.45	0.45
	Fan Motor Capacitor	μF	/	/
	Air Flow Volume of Outdoor Unit	CFM	2354	2354
	Fan Type		Axial-flow	Axial-flow
	Fan Diameter	inch	Φ21 21/32	Φ21 21/32
	Defrosting Method		/	Automatic Defrosting
	Climate Type		T1	T1
	Isolation		I	I
	Moisture Protection		IP24	IP24
	Design Pressure(High)	PSIG	550	550
	Design Pressure(Low)	PSIG	240	240
	Sound Pressure Level (H/M/L)	dB (A)	62/-/-	62/-/-
	Sound Power Level (H/M/L)	dB (A)	72/-/-	72/-/-
	Dimension (WXHXD)	inch	39 1/2X31 7/64X16 13/16	39 1/2X31 7/64X16 13/16
	Dimension of Carton Box (LXWXH)	inch	42 1/2X19X33	42 1/2X19X33
	Dimension of Package (LXWXH)	inch	42 21/32X19 13/64X33 21/32	42 21/32X19 13/64X33 21/32
	Net Weight	lb	152.1	154.4
	Gross Weight	lb	163.2	165.4
	Refrigerant		R410A	R410A
	Refrigerant Charge	oz	84.66	84.66
Connection Pipe	Length	ft	24 39/64	24 39/64
	Gas Additional Charge	oz/ft	0.2	0.5
	Outer Diameter Liquid Pipe	inch	Φ1/4	Φ1/4
	Outer Diameter Gas Pipe	inch	Φ5/8	Φ5/8
	Max Distance Height	ft	32 3/16	32 3/16
	Max Distance Length	ft	98 27/64	98 27/64
	Note:The connection pipe applies metric diameter.			

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

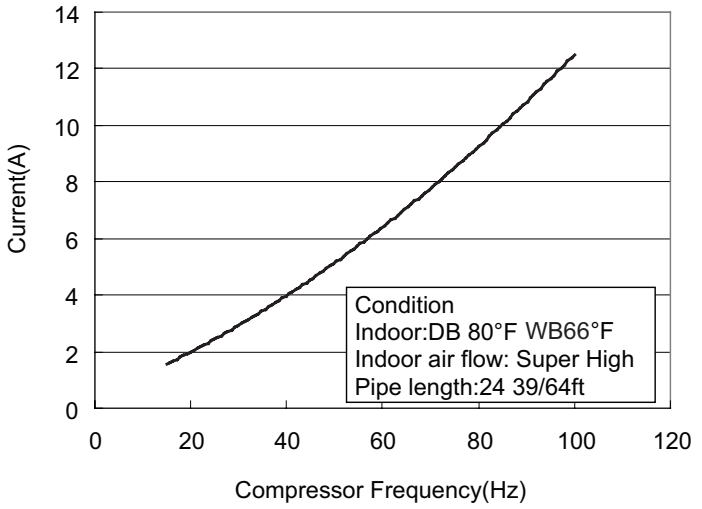
Model			DCP36NWB21S DCP36CSB21S	DHP36NWB21S DHP36CSB21S
Power Supply	Rated Voltage	V~	208/230	208/230
	Rated Frequency	Hz	60	60
	Phases		1	1
Power Supply Mode			Outdoor	Outdoor
Cooling Capacity(Min~Max)		Btu/h	33600(7404~35997)	33600(7404~35997)
Heating Capacity(Min~Max)		Btu/h	/	34600(14979~35997)
Cooling Power Input(Min~Max)		W	4100	4100(450~4300)
Heating Power Input(Min~Max)		W	/	3800(460~4300)
Cooling Power Current		A	17	17
Heating Power Current		A	/	16.5
Rated Input		W	4300	4300
Rated Current		A	20	20
Air Flow Volume(SH/H/M/L)		CFM	736/647/530/412	736/647/530/412
Dehumidifying Volume		Pint/h	7.4	7.4
EER		(Btu/h)/W	8.20	8.20
COP		(Btu/h)/W	/	9.11
SEER			18.00	18.00
SCOP			/	9.00
Application Area		yd^2	55.01-83.72	55.01-83.72
Indoor Unit	Model of indoor unit		DCP36NWB21S	DHP36NWB21S
	Fan Type		Cross-flow	Cross-flow
	Diameter Length(DXL)	inch	Φ4 1/4X20 9/16X2	Φ4 1/4X20 9/16X2
	Fan Motor Cooling Speed (SH/H/M/L)	r/min	1400/1250/1000/800	1400/1250/1000/800
	Fan Motor Heating Speed (SH/H/M/L)	r/min	/	1400/1250/1050/850
	Output of Fan Motor	W	70	70
	Fan Motor RLA	A	0.4	0.4
	Fan Motor Capacitor	μF	/	/
	Evaporator Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Pipe Diameter	inch	Φ9/32	Φ9/32
	Row-fin Gap	inch	2-1/16	2-1/16
	Coil Length (LXDXW)	inch	42 9/32X1X15X2	42 9/32X1X15X2
	Swing Motor Model		MP24BA	MP24BA
	Output of Swing Motor	W	1.5	1.5
	Fuse	A	3.15	3.15
	Sound Pressure Level (SH/H/MH/M/ML/L/SL)	dB (A)	54/49/44/37	54/49/44/37
	Sound Power Level (SH/H/MH/M/ML/L/SL)	dB (A)	64/59/54/47	64/59/54/47
	Dimension (WXHXD)	inch	53 9/64X12 53/64X10	53 9/64X12 53/64X10
	Dimension of Carton Box (LXWXH)	inch	56 19/32X16 1/2X13 1/2	56 19/32X16 1/2X13 1/2
	Dimension of Package (LXWXH)	inch	56 3/4X16 9/16X14	56 3/4X16 9/16X14
	Net Weight	lb	41.9	41.9
	Gross Weight	lb	51.8	51.8

Outdoor Unit	Model of Outdoor Unit		DCP36CSB21S	DHP36CSB21S
	Compressor Manufacturer/Trademark		MITSUBISHI ELECTRIC (GUANGZHOU)COMPRESSOR CO. LTD	MITSUBISHI ELECTRIC (GUANGZHOU)COMPRESSOR CO. LTD
	Compressor Model		TNB306FPGMC	TNB306FPGMC
	Compressor Oil		FV50S	FV50S
	Compressor Type		Rotary	Rotary
	Compressor Locked Rotor Amp (L.R.A)		67.00	67.00
	Compressor RLA	A	13.50	13.50
	Compressor Power Input	W	3010	3010
	Overload Protector		CS01F272H01	CS01F272H01
	Metering Device Method		Electron expansion valve	Electron expansion valve
	Operation temp	ºF	61~86	61~86
	Ambient temp (cooling)	ºF	0~109	0~109
	Ambient temp (heating)	ºF	/	-4~75
	Condenser Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Pipe Diameter	inch	Φ5/16	Φ5/16
	Rows-fin Gap	inch	2-1/16	2-1/16
	Coil Length (LXDXW)	inch	37X1 3/4X30	37X1 3/4X30
	Fan Motor Speed	rpm	890	890
	Output of Fan Motor	W	170	170
	Fan Motor RLA	A	0.89	0.89
	Fan Motor Capacitor	μF	/	/
	Air Flow Volume of Outdoor Unit	CFM	2589	2589
	Fan Type		Axial-flow	Axial-flow
	Fan Diameter	inch	Φ21 21/32	Φ21 21/32
	Defrosting Method		/	Automatic Defrosting
	Climate Type		T1	T1
	Isolation		I	I
	Moisture Protection		IP24	IP24
	Design Pressure(High)	PSIG	550	550
	Design Pressure(Low)	PSIG	240	240
	Sound Pressure Level (H/M/L)	dB (A)	65/-/-	65/-/-
	Sound Power Level (H/M/L)	dB (A)	75/-/-	75/-/-
	Dimension (WXHXD)	inch	39 1/2X31 7/64X16 13/16	39 1/2X31 7/64X16 13/16
	Dimension of Carton Box (LXWXH)	inch	42 1/2X19X33	42 1/2X19X33
	Dimension of Package (LXWXH)	inch	42 21/32X19 13/64X33 21/32	42 21/32X19 13/64X33 21/32
	Net Weight	lb	154.4	161.0
	Gross Weight	lb	165.4	172.0
	Refrigerant		R410A	R410A
	Refrigerant Charge	oz	84.66	91.71
Connection Pipe	Length	ft	24 39/64	24 39/64
	Gas Additional Charge	oz/ft	0.5	0.2
	Outer Diameter Liquid Pipe	inch	Φ1/4	Φ1/4
	Outer Diameter Gas Pipe	inch	Φ5/8	Φ5/8
	Max Distance Height	ft	32 3/16	32 3/16
	Max Distance Length	ft	98 27/64	98 27/64
	Note:The connection pipe applies metric diameter.			

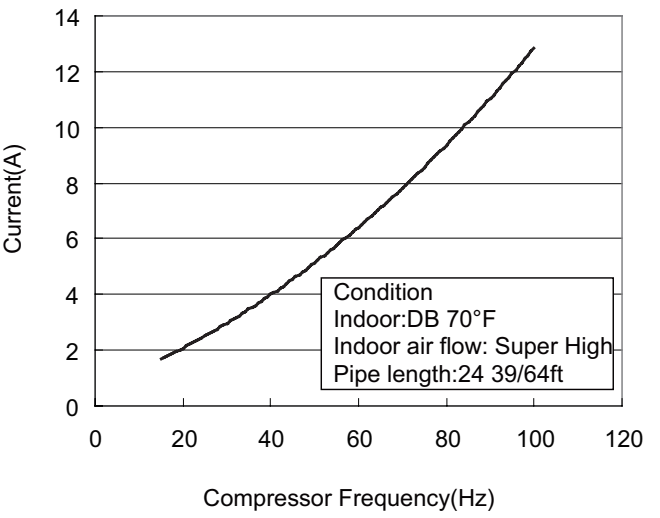
The above data is subject to change without notice; please refer to the nameplate of the unit.

2.2 Operation Characteristic Curve

Cooling

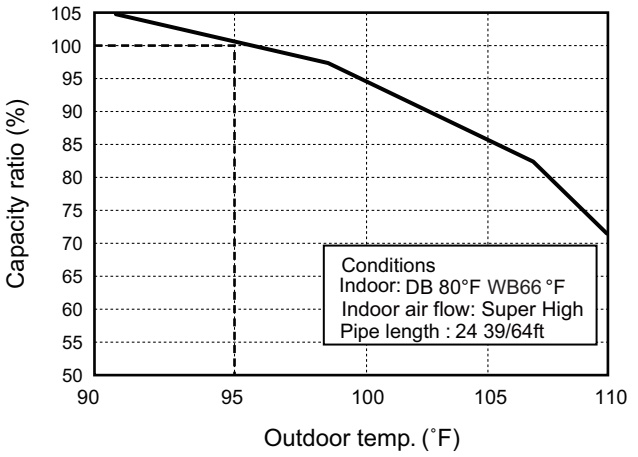


Heating

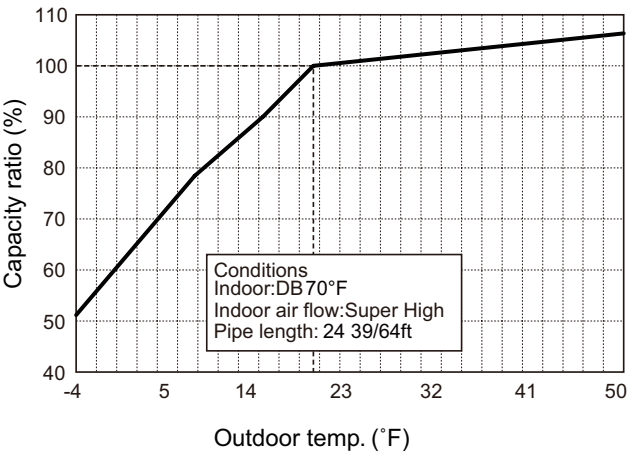


2.3 Capacity Variation Ratio According to Temperature

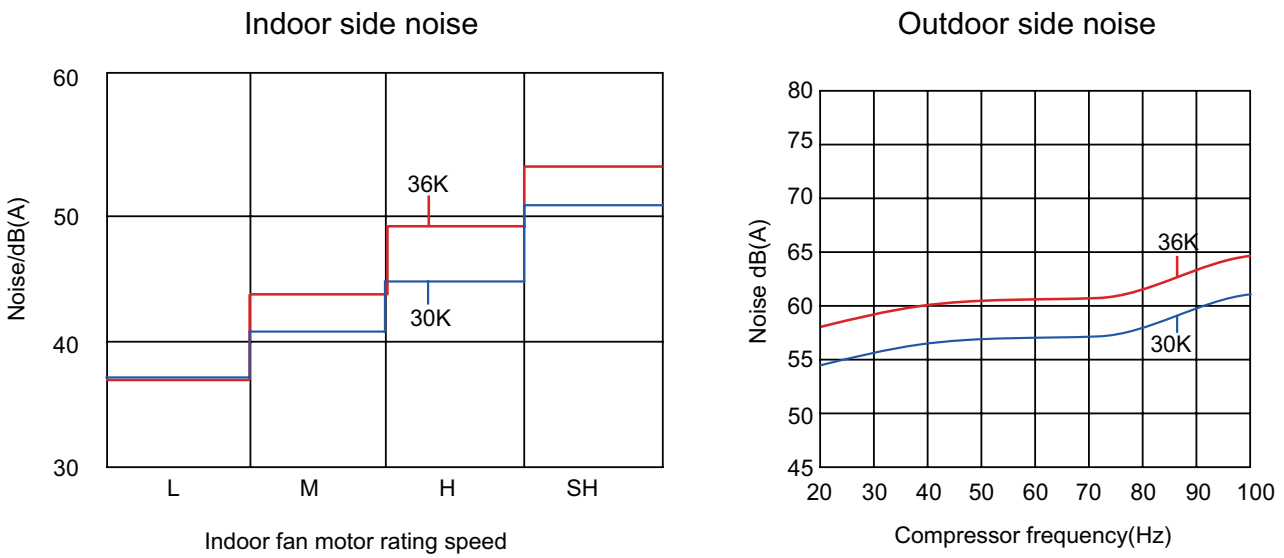
Cooling



Heating



2.4 Noise Curve



2.5 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)	T2 (°F)			
80/66	95/-	30K	130~145	46.8 to 52.8	127 to 96.8	Super High	High	67
80/66	95/-	36K	130~145	46.8 to 52.8	127 to 96.8	Super High	High	60

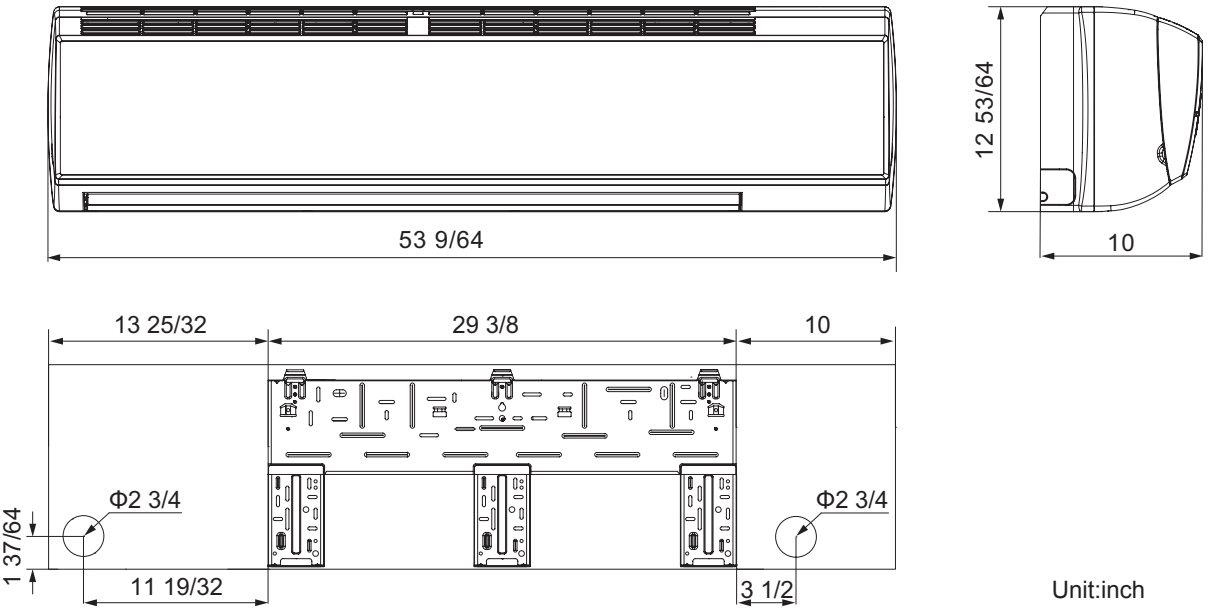
Heating:

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)	T2 (°F)			
70/-	20/19	30K	507~550	134.4 to 102	36 to 39	Super High	High	61
70/-	20/19	36K	507~550	134.4 to 102	36 to 39	Super High	High	58

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.

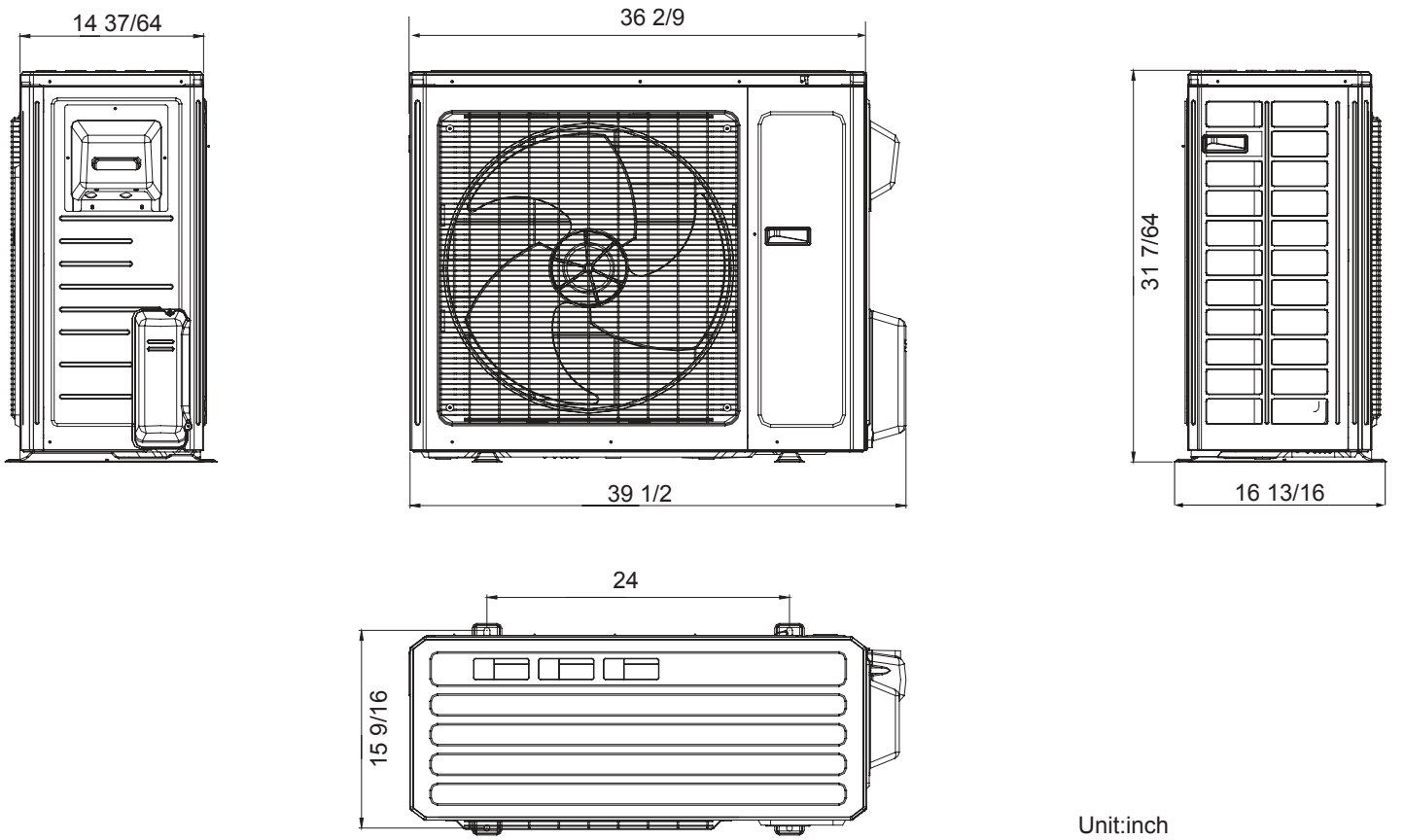
3. Outline Dimension Diagram

3.1 Indoor Unit



Unit:inch

3.2 Outdoor Unit

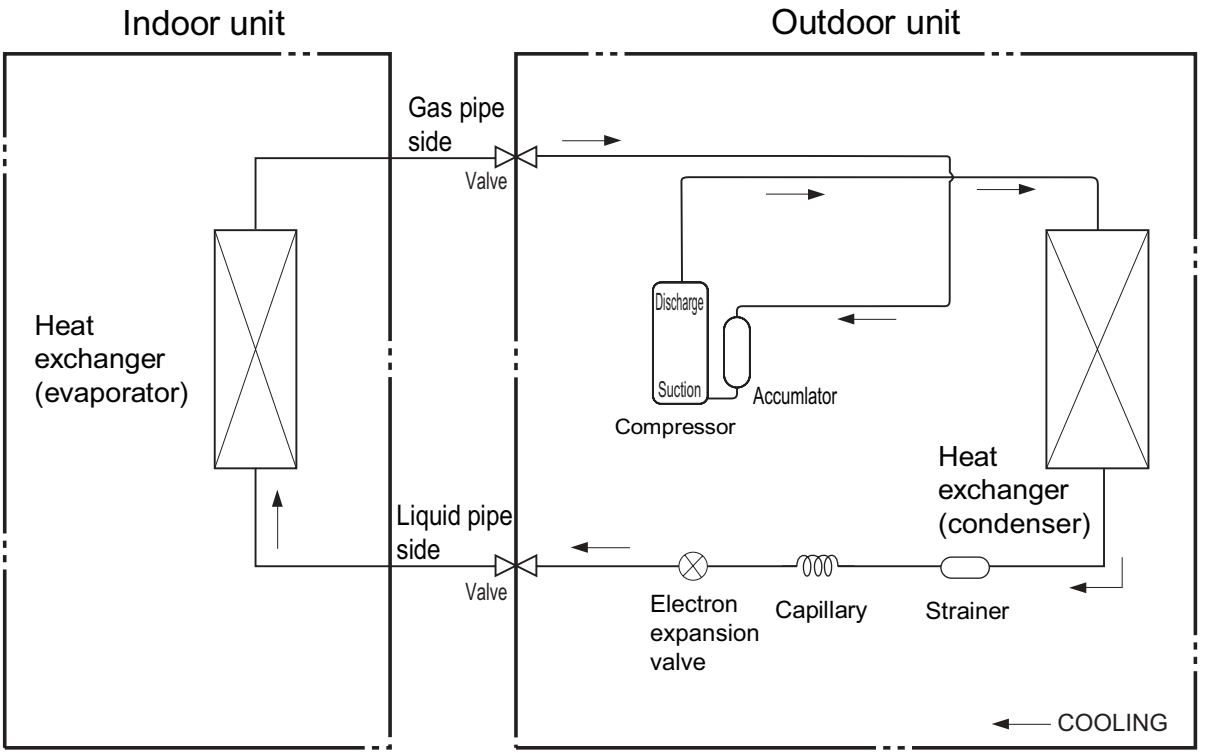


Unit:inch

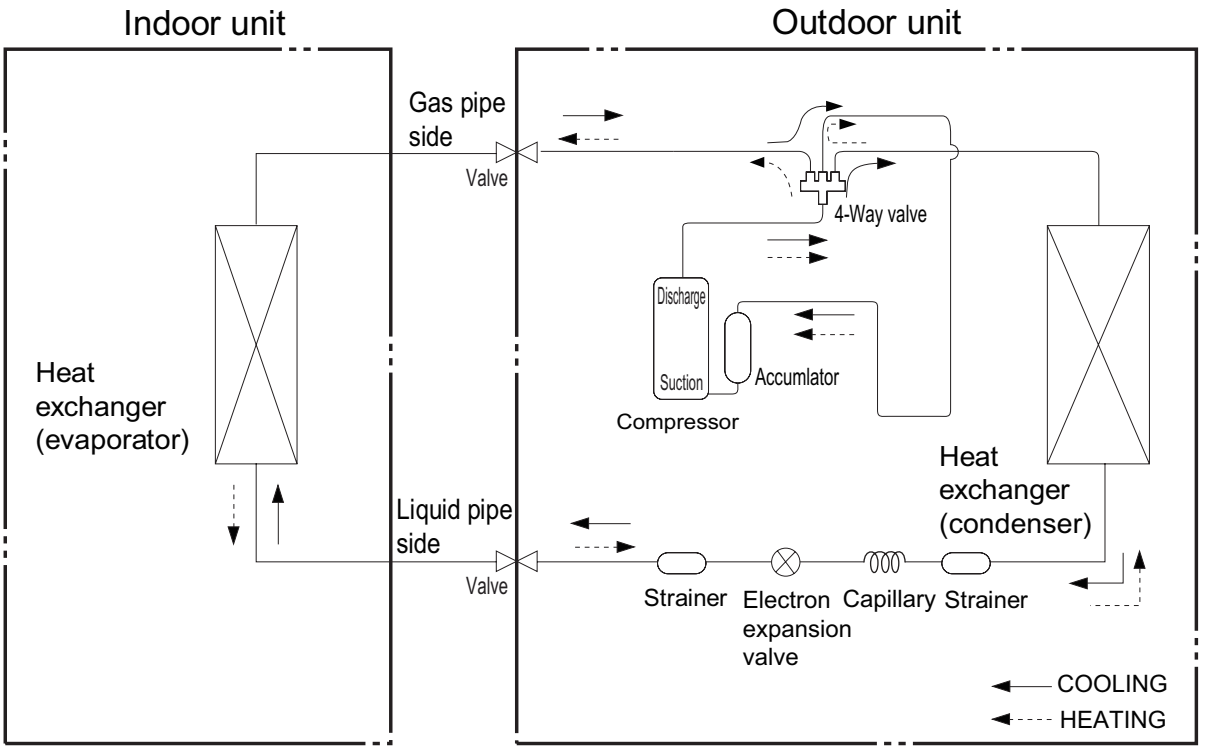
4. Refrigerant System Diagram

30K:

Cooling only model

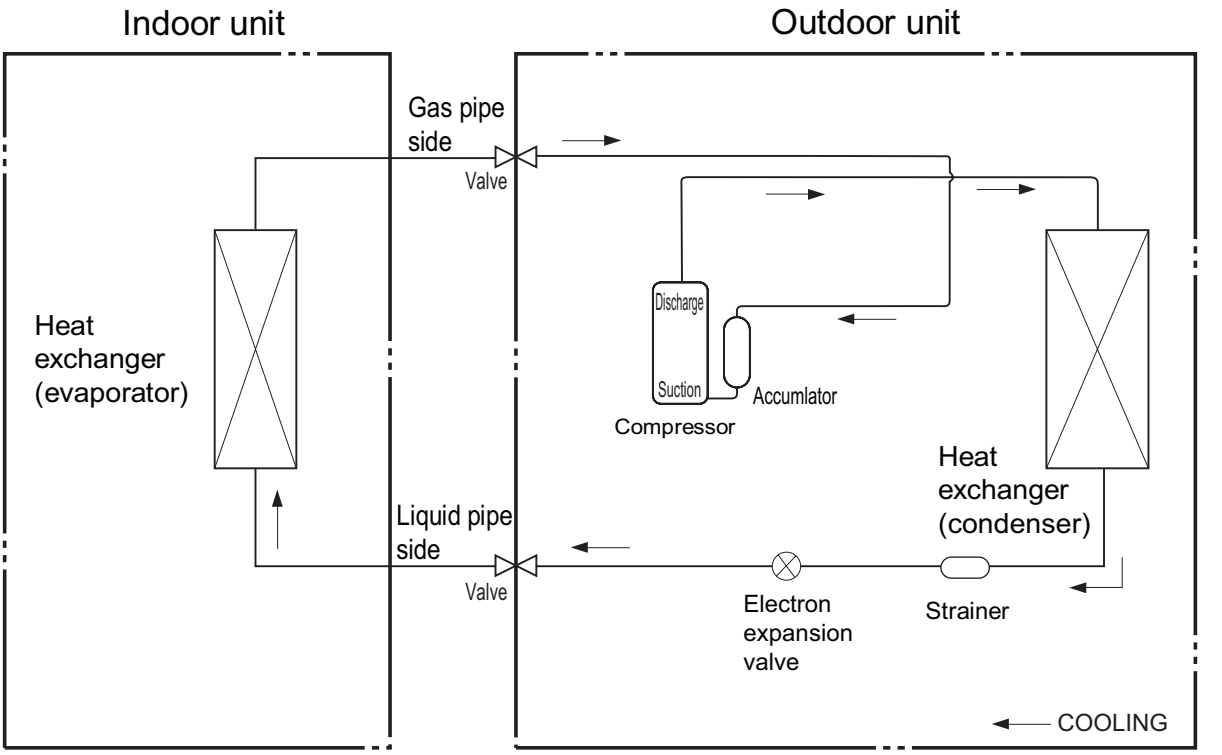


Cooling and heating model

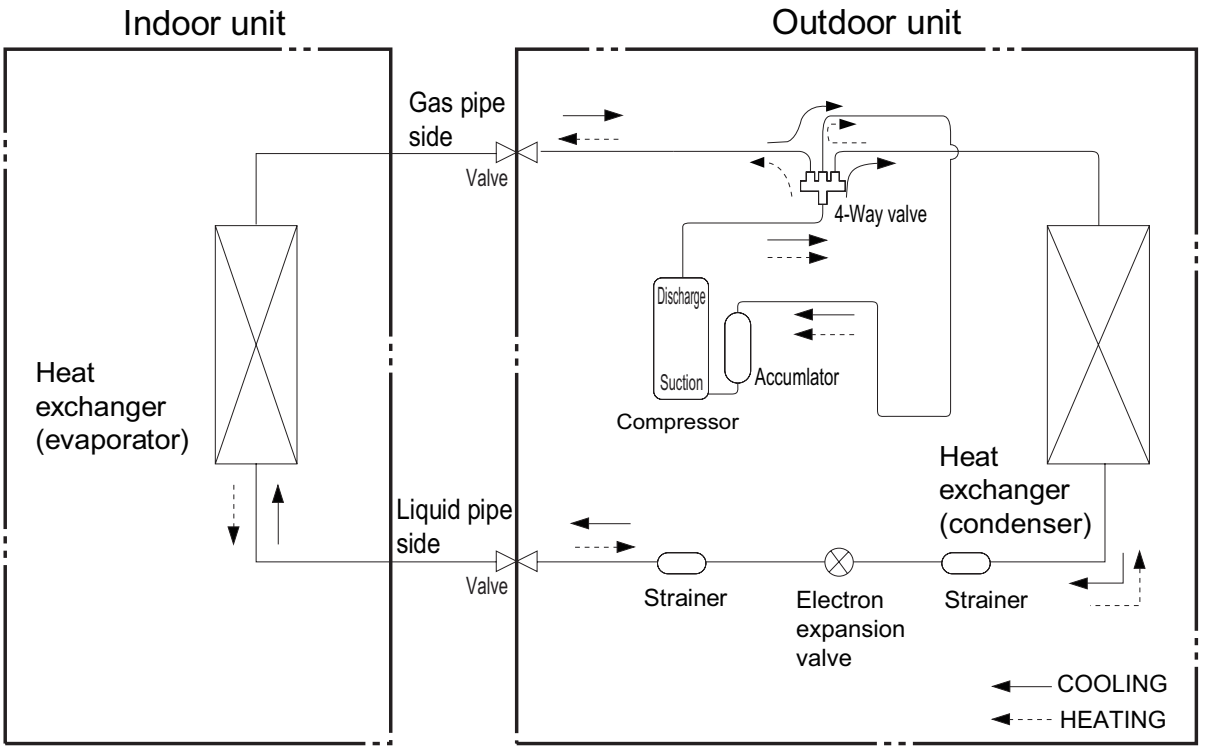


36K:

Cooling only model



Cooling and heating model



Connection pipe specification:

Liquid pipe:1/4 inch

Gas pipe:5/8 inch

5. Electrical Parts

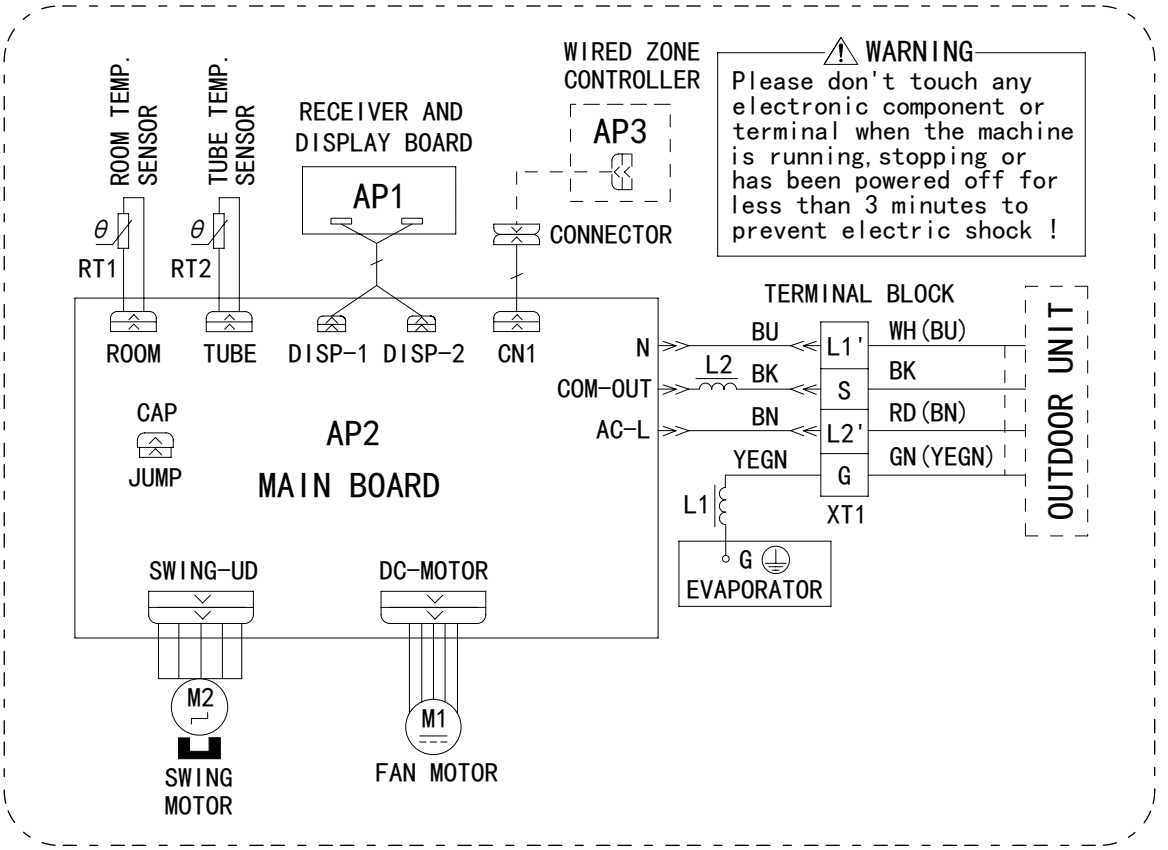
5.1 Wiring Diagram

● 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	/	/

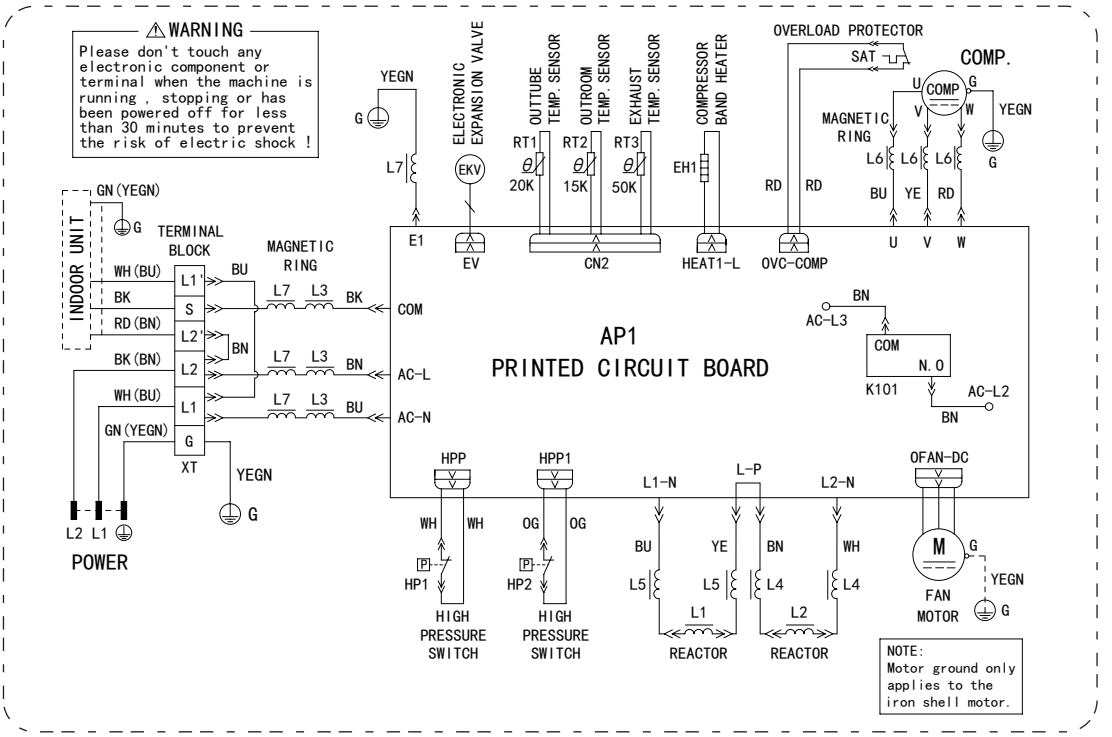
Note: Jumper cap is used to determine fan speed and the swing angle of horizontal lover for this model.

● Indoor Unit

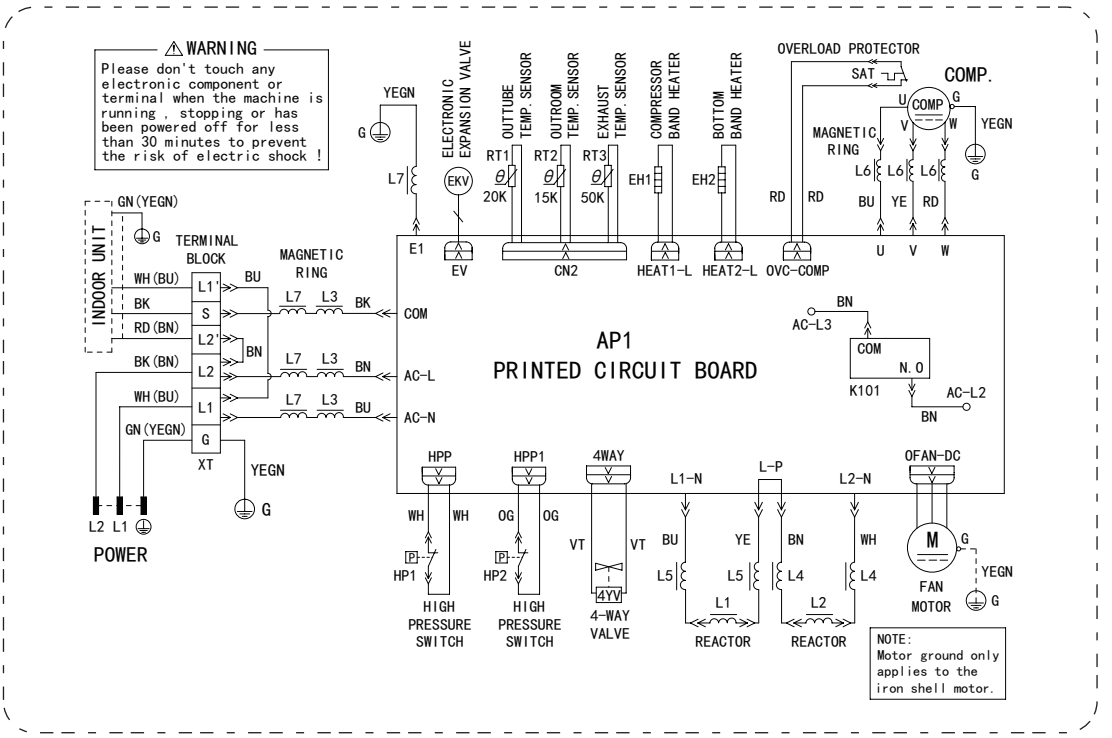


● Outdoor Unit

DCP30CSB21S DCP36CSB21S



DHP30CSB21S DHP36CSB21S

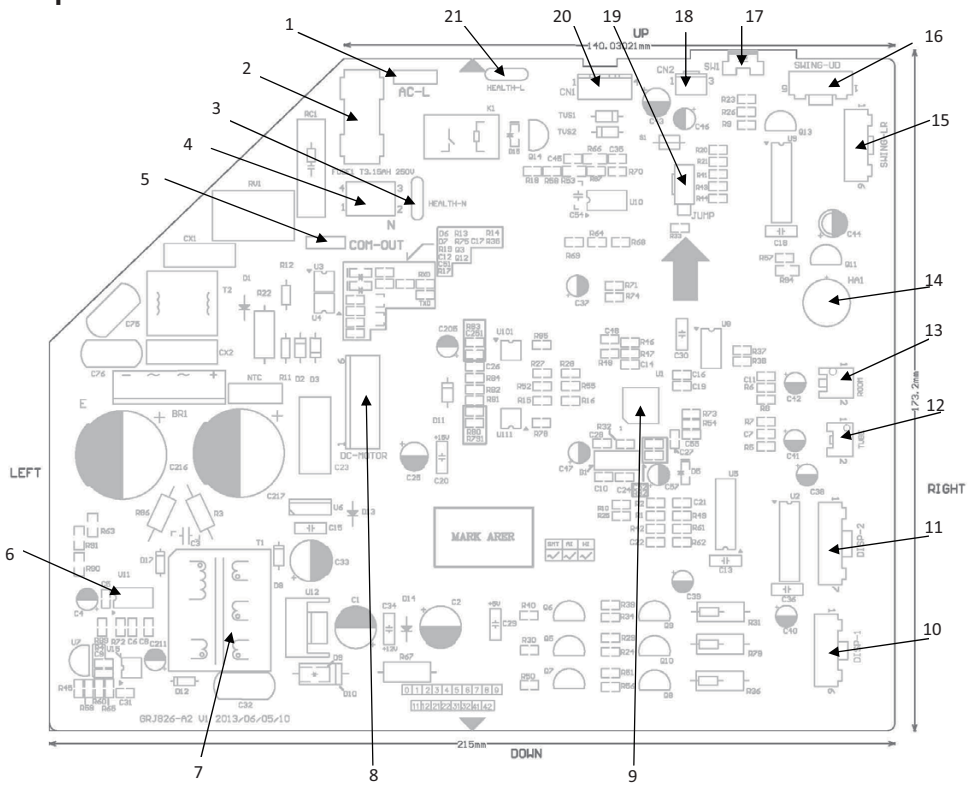


The above data is subject to change without notice. Please refer to the nameplate of the unit.

5.2 PCB Printed Diagram

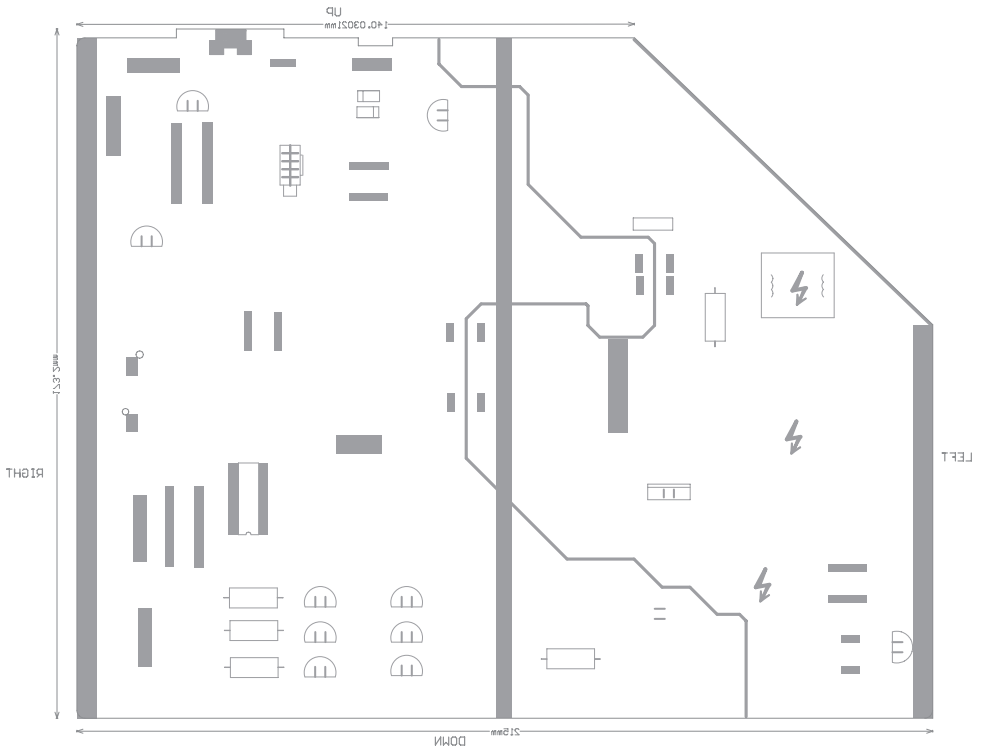
Indoor Unit

● **Top view**



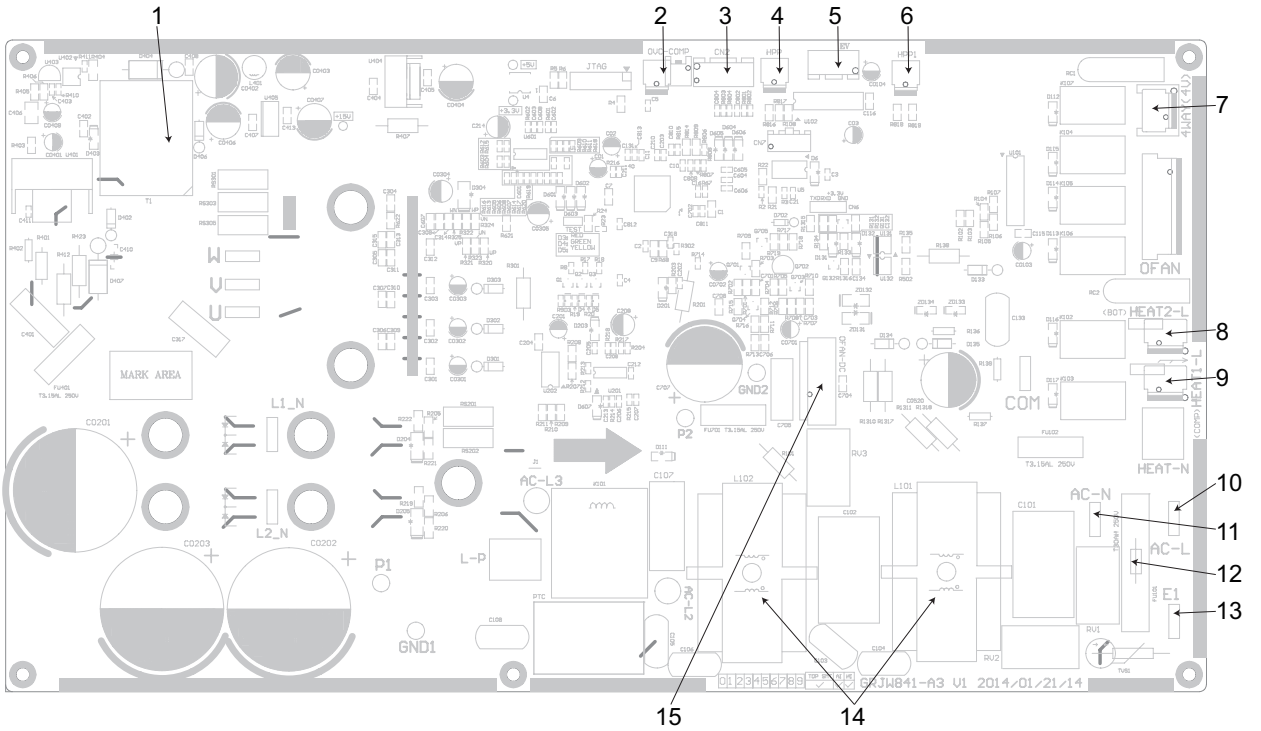
No.	Name
1	Power supply live wire
2	Fuse
3	Interface of neutral wire for health function
4	Power supply neutral wire
5	Interface of communication
6	Power switch
7	High-frequency transformer
8	Interface of fan motor
9	Buzzer
10	Interface of display
11	Interface of display
12	Indoor tube temperature sensor interface
13	Ambient temperature sensor interface
14	Interface of wired controller
15	Interface of left and right swing terminal
16	Interface of up and down swing terminal
17	Auto button
18	Interface of BMS
19	Jumper cap
20	Interface of wired zone controller
21	Interface of live wire for health function

● **Bottom view**



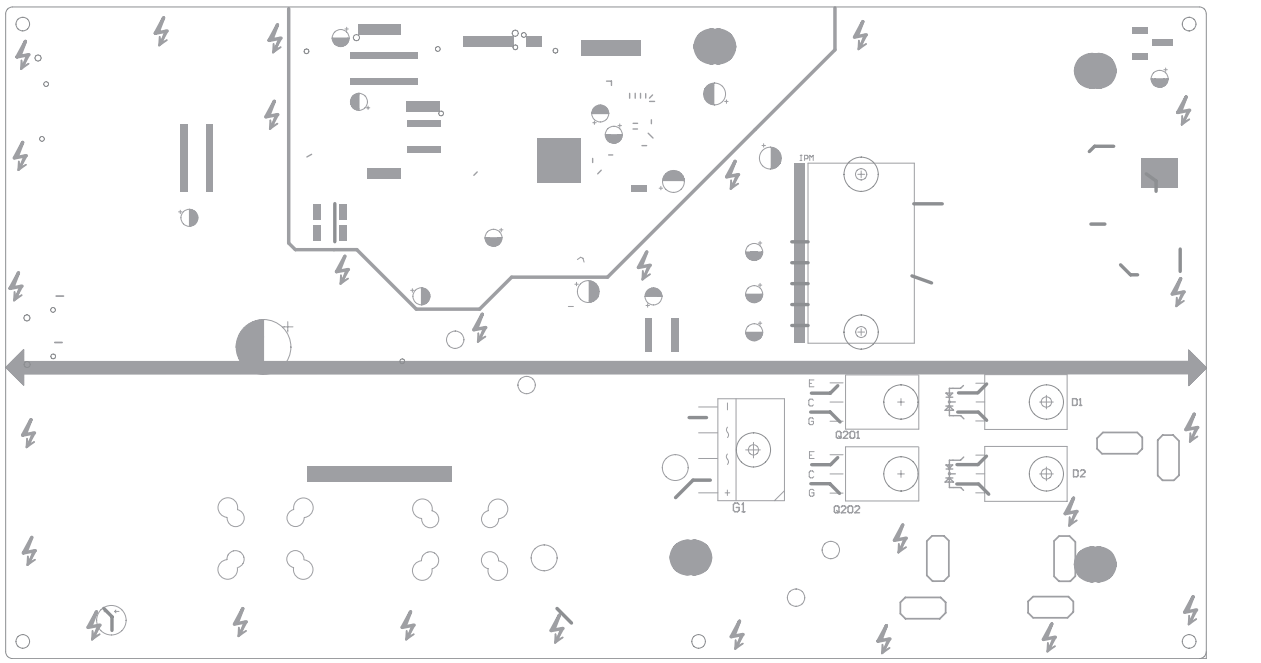
Outdoor Unit

● Top view



No.	Name	No.	Name	No.	Name
1	High-frequency transformer T1	6	High pressure protection terminal HPP1	11	Terminal of neutral wire
2	Overload protection terminal of compressor OVC-COMP	7	Terminal of 4-way valve	12	Protective tube FU101
3	Terminal of temp sensor CN2	8	Electric heater band of chassis HEAT2-L	13	Terminal of ground wire
4	High pressure protection terminal HPP	9	Electric heater band of compressor HEAT1-L	14	Choke L 101 and L102
5	Electronic expansion valve terminal EV	10	Terminal of live wire	15	Terminal of outdoor fan OFAN-DC

● Bottom view



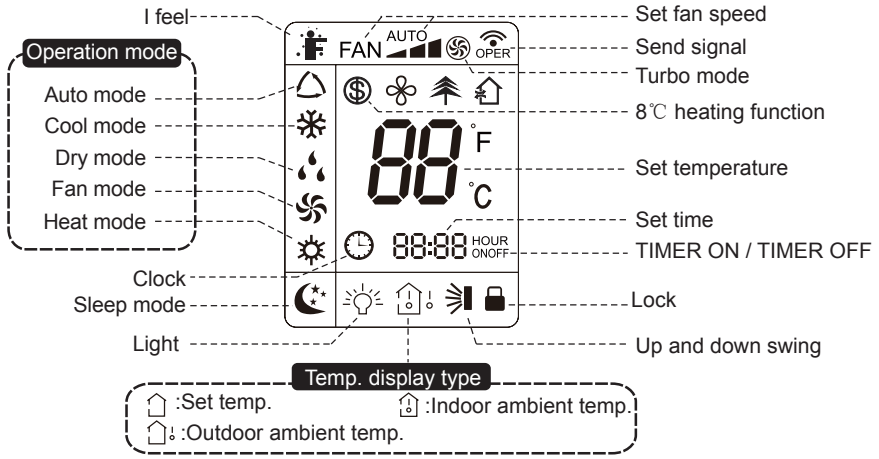
6. Function and Control

6.1 Remote Controller Introduction

Buttons on Remote Controller

1. ON/OFF button
2. MODE button
3. FAN button
4. SWING button
5. TURBO button
6. ▲/ ▼button
7. SLEEP button
8. TEMP button
9. I FEEL button
10. LIGHT button
11. CLOCK button
12. TIMER ON / TIMER OFF button

Description of icons on display screen



Introduction for buttons on remote controller

Note:

● After putting through the power, the air conditioner will give out a sound. Operation indictor " ⏻ " is ON (red indicator). After that, you can operate the air conditioner by using the remote controller.

● Under On status, pressing the button on the remote controller, the signal icon " " on the display of remote controller will blink once and the air conditioner will give out a “beep” sound, which means the signal has been sent to the air conditioner.

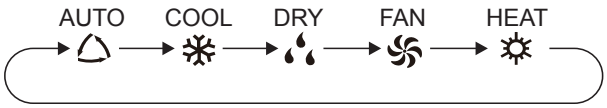
● Under Off status, set temperature and clock icon will be displayed on the display of remote controller (If timer on, timer off and light functions are set, the corresponding icons will be displayed on the display of the remote controller at the same time). Under On status, the display will show the corresponding set function icons.

1. ON/OFF button

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

2. MODE button

Press this button to select your required operation mode.



- When selecting auto mode, air conditioner will operate automatically according to the factory setting. Set temperature can't be adjusted and will not be displayed. Press "FAN" button can adjust fan speed. Press "SWING" button can adjust fan blowing angle.
- After selecting cool mode, air conditioner will operate under cool mode. Cool indicator " ❄ "on indoor unit is ON. Press "▲" or " ▼ " button to adjust set temperature. Press "FAN" button to adjust fan speed. Press "SWING" button to adjust fan blowing angle.
- When selecting dry mode, the air conditioner operates at low speed under dry mode. Dry indicator " 💧 " on indoor unit is ON. Under dry mode, fan speed can't be adjusted. Press "SWING" button to adjust fan blowing angle.
- When selecting fan mode, only the indoor fan will be on to circulate indoor air, no cooling and no heating. All indicators are OFF. Press "FAN" button to adjust fan speed. Press "SWING" button to adjust fan blowing angle.
- When selecting heating mode, the air conditioner operates under heat mode. Heat indicator " ☼ " on indoor unit is ON. Press "▲" or " ▼ " button to adjust set temperature. Press "FAN" button to adjust fan speed. Press "SWING" button to adjust fan blowing angle. (Cooling only unit won't receive heating mode signal. If setting heat mode with remote controller, pressing ON/OFF button can't start up the unit.)

Note:

- For preventing cold air, after starting up heating mode, indoor fan will delay until the indoor coil reaches preset factory temperature that is controlled by the inlet pipe sensor. Normal for the preset temp is 92 degrees F.
- Set temperature range from remote controller: 16~30℃ ; fan speed: auto, low speed, medium speed, high speed.

3. FAN button

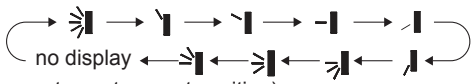
Pressing this button can set fan speed sequentially as: auto (AUTO), low ( ), medium ( ), high( ).

Caution:

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

4. SWING button

Pressing this button can select up and down swing angle. Fan blow angle can be selected sequentially as below:



(horizontal louvers stops at current position)

- When selecting " ", air conditioner is blowing fan automatically. Horizontal louver will automatically swing up and down at maximum angle.
- When selecting " 、 、 、 、 ", air conditioner is blowing fan at fixed position. Horizontal louver will stop at the fixed position.
- When selecting " 、 、 " , air conditioner is blowing fan at fixed angle. Horizontal louver will send air at the fixed angle.
- Hold " "button more than 2s to set your required swing angle. When reaching your required angle, release the button.

Note:

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

5. TURBO button

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

6. ▲/▼ button

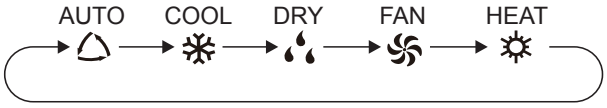
- Press this button once to increase or decrease set temperature 1℃. Holding either" button for 2s, the set temperature on remote controller will change quickly. On releasing button after setting is finished, temperature indicator on indoor unit will change accordingly. (Temperature can't be adjusted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

1. ON/OFF button

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

2. MODE button

Press this button to select your required operation mode.



- When selecting auto mode, air conditioner will operate automatically according to factory setting. Set temperature can't be adjusted and will not be displayed. Pressing "FAN" button can adjust fan speed. Pressing "SWING" button can adjust fan blowing angle.
- After selecting cool mode, air conditioner will operate under cool mode. Cool indicator " ❄ "on indoor unit is ON. Press "▲" or " ▼ " button to adjust set temperature. Press "FAN" button to adjust fan speed. Press "SWING" button to adjust fan blowing angle.
- When selecting dry mode, the air conditioner operates at low speed under dry mode. Dry indicator " 💧 " on indoor unit is ON. Under dry mode, fan speed can't be adjusted. Press "SWING" button to adjust fan blowing angle.
- When selecting fan mode, only the indoor fan will be on to circulate the indoor air. No cooling and no heating. All indicators are OFF. Press the "FAN" button to adjust fan speed. Press the "SWING" button to adjust the fan blowing angle.
- When selecting heating mode, the air conditioner operates under heat mode. Heat indicator " ☼ " on indoor unit is ON. Press "▲" or " ▼ " button to adjust set temperature. Press "FAN" button to adjust fan speed. Press "SWING" button to adjust fan blowing angle. (Cooling only unit won't receive heating mode signal. If setting heat mode with remote controller, pressing the ON/OFF button can't start up the unit).

Note:

- For preventing cold air, after starting up heating mode, indoor fan will delay until the indoor coil reaches preset factory temperature that is controlled by the inlet pipe sensor. Normal preset temperature is 92°F.
- Set temperature range from remote controller: 16~30℃. Fan speed: auto, low speed, medium speed, high speed.

3. FAN button

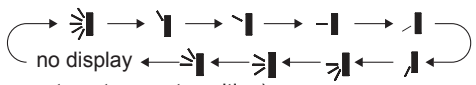
Pressing this button can set fan speed sequentially as: auto (AUTO), low ( ), medium ( ), high ( ).

Caution:

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

4. SWING button

Press this button to select up and down swing angle. Fan blowing angle can be selected sequentially as below:



(horizontal louvers stop at current position)

- When selecting " ", air conditioner blows fan automatically. Horizontal louver will automatically swing up and down at maximum angle.
- When selecting " 、 、 、 、 ", air conditioner is blowing fan at fixed position. Horizontal louver will stop at the fixed position.
- When selecting " 、 、 " , air conditioner is blowing fan at fixed angle. Horizontal louver will send air at the fixed angle.
- Hold " "button more than 2s to set your required swing angle. When reaching your required angle, release the button.

Note:

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

5. TURBO button

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

6. ▲/▼ button

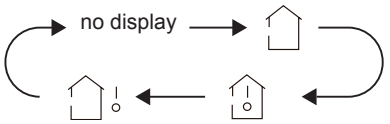
- Press this button once to increase or decrease set temperature 1℃. Holding this button, 2s later, set temperature on remote controller will change quickly. On releasing button after setting is finished, temperature indicator on indoor unit will change accordingly. (Temperature can't be adjusted under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

7. SLEEP button

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

8. TEMP button

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



- When selecting " " or no display, with remote controller, temperature indicator on indoor unit displays set temperature.
- When selecting " " with remote controller, temperature indicator on indoor unit displays indoor ambient temperature.
- When selecting " " with remote controller, temperature indicator on indoor unit displays outdoor ambient temperature.

Note:

- Outdoor temperature display is not available for some models. At that time, indoor unit receives " "signal, while it displays indoor set temperature.
- It's defaulted to display set temperature when turning on the unit.There is no display in the remote controller.
- **Only for the models whose indoor unit has dual-8 display.**
- When selecting displaying of indoor or outdoor ambient temperature, indoor temperature indicator displays corresponding temperature and automatically turns to display set temperature after 3s or 5s.

9. I FEEL button

Press this button to start I FEEL function and " " will be displayed on the remote controller. After this function is set, the remote controller will send the detected ambient temperature to the controller and the unit will automatically adjust the indoor temperature according to the detected temperature. Press this button again to close I FEEL function and " " will disappear.

- Do not put the remote controller near an object of high temperature or low temperature in order to avoid detecting inaccurate ambient temperature.

10. LIGHT button

Press this button to turn off display light on indoor unit. " " icon on remote controller disappears. Press this button again to turn on display light. " " icon is displayed.

11. CLOCK button

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

Note:

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

12. TIMER ON / TIMER OFF button

- TIMER ON button

  "TIMER ON" button can set the time for timer on. After pressing this button, " " icon disappears and the word "ON" on remote controller blinks. Press "▲" or "▼"button to adjust TIMER ON setting. After each pressing "▲" or "▼" button, TIMER ON setting will increase or decrease 1min. Hold "▲" or "▼" button, 2s later, the time will change quickly until reaching your required time. Press "TIMER ON" to confirm it. The word "ON" will stop blinking. " " icon resumes displaying. Cancel TIMER ON: Under the condition that TIMER ON is started up, press "TIMER ON" button to cancel it.
- TIMER OFF button

  "TIMER OFF" button can set the time for timer off. After pressing this button," " icon disappears and the word "OFF" on remote controller blinks. Press "▲" or "▼" button to adjust TIMER OFF setting. After each pressing "▲" or "▼" button,
  TIMER OFF setting will increase or decrease 1min. Hold "▲" or "▼" button, 2s later, the time will change quickly until reaching your required time. Press "TIMER OFF" word "OFF" will stop blinking. " " icon resumes displaying. Cancel TIMER OFF. Under the condition that TIMER OFF is started up, press "TIMER OFF" button to cancel it.

Note:

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

Function introduction for combination buttons

1. Energy-saving function

Under cooling mode, press "TEMP" and " CLOCK" buttons simultaneously to start up or turn off energy-saving function. When energy-saving function is started up, "SE" will be shown on remote controller, and air conditioner will adjust the set temperature automatically according to factory setting to reach the best energy-saving effect. Press "TEMP" and "CLOCK" buttons simultaneously again to exit energy-saving function.

Note:

- Under energy-saving function, fan speed is defaulted at auto speed and it can't be adjusted.
- Under energy-saving function, set temperature can't be adjusted. Press "TURBO" button and the remote controller won't send signal.
- Sleep function and energy-saving function can't operate at the same time. If energy-saving function has been set under cooling mode, pressing sleep button will cancel energy-saving function. If sleep function has been set under cooling mode, starting up the energy-saving function will cancel sleep function.

2. 8 ℃ heating function

Under heating mode, press "TEMP" and "CLOCK" buttons simultaneously to start up or turn off 8℃ heating function. When this function is started up, "$" and "8℃ " will be shown on remote controller, and the air conditioner keeps the heating status at 8℃. Press "TEMP" and "CLOCK" buttons simultaneously again to exit 8℃ heating function.

Note:

- Under 8℃ heating function, fan speed is defaulted at auto speed and it can't be adjusted.
- Under 8℃ heating function, set temperature can't be adjusted. Press "TURBO" button and the remote controller won't send signal.
- Sleep function and 8℃ heating function can't operate at the same time. If 8℃ heating function has been set under cooling mode, press sleep button will cancel 8℃ heating function. If sleep function has been set under cooling mode, start up the 8℃ heating function will cancel sleep function.
- Under ℉ temperature display, the remote controller will display 46 ℉ heating.

3. Lock function

Press "▲" and " " simultaneously to turn on or turn off lock function. When child lock function is on, "🔒" icon is displayed on remote controller. If you operate the remote controller, the "🔒" icon will blink three times without sending signal to the unit.

4. Temperature display switchover function

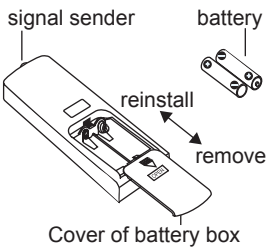
Under OFF status, press "▼" and "MODE" buttons simultaneously to switch temperature display between ℃ and ℉ .

Operation guide

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

Replacement of batteries in remote controller

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



Note:

- During operation, point the remote control signal sender at the receiving window on indoor unit.
- **Distance between signal sender and receiving window must be no more than 26.4ft (8m), with no obstacles between them.**
- Signal interference is possible in a room where there is fluorescent lamp or wireless telephone; remote controller should be close to indoor unit during operation.
- Replace new batteries of the same model when replacement is required.
- When the remote controller is not in use for a long time, please take out the batteries.
- If the display on remote controller is fuzzy or there's no display, please replace batteries.

6.2 Brief Description of Modes and Functions

1. Temperature Parameters

Indoor preset temperature(Tpreset)

Indoor ambient temperature (Tamb.)

2. Basic Functions

After the initial start up of the compressor,there will be a 3 minute delay before the compressor can start back running. If the compressor is in operation before de-energization, the compressor will be started with a 3-minute delay. If the compressor has an abrupt stoppage due to switch from heat to cool mode, the compressor will not be stopped within 6 minutes regardless of changes in room temperature.

(1) Cooling Mode

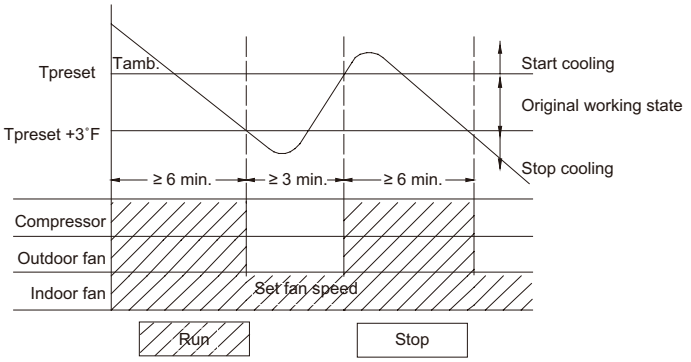
① Working conditions and process of cooling

When Tamb. ≥ Tpreset, the unit will enter cooling operation, in which case the indoor fan, the outdoor fan and the compressor will work and the indoor fan will run at preset speed.

When Tamb. ≤ Tpreset -3.6°F, the compressor will stop, the outdoor fan will stop with a time delay of 60s, and the indoor fan will run at preset speed.

When Tpreset-3.6°F < Tamb.< Tpreset+1.8°F, the unit will remain at its previous state.

Under this mode, the four-way valve will be de-energized and temperature can be set within a range from 61°F~86°F. If the compressor is shut down due to setpoint being reached, the indoor fan and the swing device will operate at original state.



② Protection

Anti-indoor coil freeze protection

Under cooling and dehumidifying mode, 6 minutes after the compressor is started:

If Tevap ≤ 35.6°F, the compressor will operate at reduced frequency.

If Tevap ≤ 30.2°F is detected for durative 3 minutes, the compressor will stop, and after 60 seconds, the outdoor fan will stop;and under cooling mode, the indoor fan and the swing motor will remain at the original state.

If Tevap. ≥ 42.8°F and the compressor has remained at OFF for at least 3 minutes, the compressor will resume its original operation state.

Total current up and frequency down protection

If I_{total} ≤ 16A, frequency rise will be allowed; if I_{total} ≥ 17A, frequency rise will not be allowed; if I_{total} ≥ 18A, the compressor will run at reduced frequency; and if I_{total} ≥ 20A, the compressor will stop and the outdoor fan will stop with a time delay of 60s.

(2) Dehumidifying Mode

① Working conditions and process of dehumidifying

If Tamb. > Tpreset+1.8°F, the unit will enter cooling and dehumidifying mode, in which case the compressor and the outdoor fan will operate and the indoor fan will run at low speed.

If Tpreset -3.6°F ≤ Tamb. ≤ Tpreset+1.8°F, the compressor remains at its original operation state.

If Tamb.< Tpreset-3.6°F , the compressor will stop, the outdoor fan will stop with a time delay of 60s, and the indoor fan will operate at low speed.

② Protection

Protection is the same as that under the cooling mode.

(3) Heating Mode

① Working conditions and process of heating

If Tamb. ≤ Tpreset+3.6°F, the unit enters heating mode, in which case the four-way valve, the compressor and the outdoor fan will operate simultaneously, and the indoor fan will be stopped until the indoor coil is 104 degrees. After the 104 degrees has been reached the indoor fan will operate to preset speed speed to prevent cold air in heat mode start up. If Tamb. ≥ Tpreset+9°F, the compressor will stop, the outdoor fan will stop with a time delay of 60s, and the indoor fan will stop when the indoor coil is below 104 degrees.

If Tpreset+3.6°F < Tamb. < Tpreset+9°F, the unit will maintain its original operating status.

Under this mode, the four-way valve is energized and temperature can be set within a range of 61°F~86°F. The operatingsymbol, the heating symbol and preset temperature are revealed on the display.

② Condition and process of defrost

When duration of successive heating operation is more than 45 minutes, or accumulated heating time more than 90 minutes, and one of the following conditions is reached, the unit will enter the defrost mode after 3 minutes.

a. Toutdoor amb. ≥ 41°F, Toutdoor pipe ≤ 28.4°F; b. 28.4°F ≤ Toutdoor amb.

c. 23.4°F < Toutdoor amb. ≤ 28.4°F, Toutdoor pipe ≤ 17.6°F;

d. 14°F < Toutdoor amb. < 23°F, Toutdoor pipe- Tcompensation ≤ Toutdoor amb.-5.4°F;

e. Toutdoor amb. < 14°F, Toutdoor pipe- Tcompensation ≤ Toutdoor amb.-5.4°F;

After energization, when defrosting for the first time Tcompensation=0°F. If it is not the first time for defrosting, the Tcompensation is determined by the Toutdoor pipe of last time quitting defrosting.

a. Toutdoor pipe > 35.6°F, Tcompensation=0°F; b. Toutdoor pipe ≤ 35.6°F, Tcompensation=5.4°F.

At that time, the indoor fan stops and the compressor stops, and after 60 seconds the outer fan will stop, and then after 30 seconds, the four-way valve will stop. After 30 seconds, the compressor is initiated for raising the frequency to defrost frequency.

When the compressor has operated under defrost mode for 10 minutes, or Touter tube ≥ 50°F, the compressor will be converted to 46Hz operation. After 30 seconds, the compressor will stop. And after another 30 seconds, the four-way valve will be opened, and after 60 seconds, the compressor and the outer fan will be started, the indoor fan will run under preset cold air prevention conditions, and H1 will be displayed at temperature display area on the display panel. Defrost frequency is 70 Hz.

3.Protection

Cold air prevention

The unit is started under heating mode (the compressor is ON):

① In the case of Tindoor amb. < 75°F: if T tube ≤ 104°F and the indoor fan is at stop state, the indoor fan will begin to run at low speed with a time delay of 2 minutes. Within 2 minutes, if T tube > 104°F, the indoor fan also will run at low speed; and after 1 minute operation at low speed, the indoor fan will be converted to operation at preset speed. Within 1 minute low speed operation or 2 minute non-operation, if T tube > 108°F, the fan will run at present speed.

② In the case of Tindoor amb. < 75°F: if Ttube ≤ 108°F, the indoor fan will run at low speed, and after one minute, the indoor fan will be converted to preset speed. Within 1 minute low speed operation, if Ttube > 104°F, the indoor fan will be converted to preset speed. Note: Tindoor amb. indicated in ① and ② refers to, under initial heating mode, the indoor ambient temperature before the command to start the compressor is performed according to the program, or after the unit is withdrawn from defrost, the indoor ambient temperature before the defrost symbol is cleared.

Total current up and frequency down protection

If the total current I_{total} ≤ 16A, frequency rise will be allowed; if I_{total} ≥ 17A,frequency rise will not be allowed; if Itotal18A, the compressor will run at reduced frequency; and if Itotal20A, the compressor will stop and the outdoor fan will stop with a time delay of 60s.

(4) Fan Mode

Under the mode, the indoor fan will run at preset speed and the compressor, the outdoor fan, and the four-way valve will de-energize. Under the mode, temperature can be set within a range of 61°F~86°F.

(5) AUTO Mode

① Working conditions and process of AUTO mode

Under AUTO mode, standard cooling temperature Tpreset is 77°F and standard heating temperature Tpreset is 68°F.

a. Once energized, if Tamb. ≤ 71.6°F, the unit will be started under heating mode; if 71.6°F < Tamb.< 78.8°F, the unit will run under fan mode and the run indicator will be bright; and if Tamb. ≥ 78.8°F, the unit will be started under cooling mode.

b.Under AUTO mode,if Tamb. ≥ Tpreset +1.8ºF is detected,the unit will select to run under cooling mode,in which case implicit presettemperature is 77°F; if Tamb. ≤ Tpreset-1.8°F, the compressor will stop, the outdoor fan will stop with a time delay of 1 minute, and the indoor fan will run at preset speed; and if Tpreset-1.8°F < Tamb. < Tpreset+1.8ºF, the unit will remain at its original state.

c.Under AUTO mode, if Tamb. ≤ Tpreset+3.6°F is detected, the unit will select to run under heating mode, in which case implicit preset temperature is 64°F; if Tamb. ≥ Tpreset+9°F, the compressor will stop, the outdoor fan will stop with a time delay of 1 minute,and the indoor fan will run under the mode of residue heat blowing; and if Tpreset+3.6°F < Tamb.< Tpreset+41°F, the unit will remain at its original state. The cooling-only unit will run under fan mode.

d.Under AUTO mode, if 71.6°F < Tamb.< 78.8°F, the unit will remain at its original state.

② Protection

a. In cooling operation, protection is the same as that under the cooling mode.

b. In heating operation, protection is the same as that under the heating mode.

(6) Common Protection Functions and Fault Display under COOL, HEAT, DRY and AUTO Modes

① Overload protection

Ttube: Measured temperature of outdoor heat exchanger under cooling mode; and measured temperature of indoor heat ex-changer under heating mode.

1) Cooling overloada.

a. If Ttube ≤ 126°F, the unit will return to its original operation state.

b. If Ttube ≥ 131°F, frequency rise is not allowed.

c. If Ttube ≥ 136°F, the compressor will run at reduced frequency.

d. If Ttube ≥ 144°F, the compressor will stop and the indoor fan will run at preset speed.

2) Heating overload

a. If Ttube ≤ 126°F, the unit will return to its original operation state.

b. If Ttube ≥ 131°F, frequency rise is not allowed.

c. If Ttube ≥ 136°F, the compressor will run at reduced frequency.

d. If Ttube ≥ 144°F,the compressor will stop and the indoor fan will blow residual heat and then stop. Also the outdoor fan will be running to cool off the coil.

② Exhaust temperature protection of compressor

If exhaust temperature ≥ 208°F, frequency is not allowed to rise.

If exhaust temperature ≥ 217°F, the compressor will run at reduced frequency.

If exhaust temperature ≥ 230°F, the compressor will stop.

If exhaust temperature ≤ 194°F, the compressor has stayed at stop for at least 3 minutes, the compressor will resume itsoperation.

③ Communication fault

If the unit fails to receive correct signals for a duration of 3 minutes, communication fault can be justified and the whole system will stop.

④ Module protection

Under module protection mode, the compressor will stop. When the compressor remains at stop for at least 3 minutes, the compressor will resume its operation. If module protection occurs six times in succession, the compressor will not be be locked out and error code will be given.

⑤ Overload protection

If temperature sensed by the overload sensor is over 239°F, the compressor will stop and the outdoor fan will stop with a time delay of 30 seconds. If temperature is below 203°F, the overload protection will be relieved.

If voltage on the DC bus is below 150V or over 420V, the compressor will stop and the outdoor fan will stop with a time delay of 30 seconds. When voltage on the DC bus returns to its normal value and the compressor has stayed at stop for at least 3 minutes, the compressor will resume its operation.

⑥ Faults of temperature sensors

Designation of sensors	Faults
Indoor ambient temperature	The sensor is detected to be open-circuited or short-circuited for successive 5 seconds
Indoor tube temperature	The sensor is detected to be open-circuited or short-circuited for successive 5 seconds
Outdoor ambient temperature	The sensor is detected to be open-circuited or short-circuited for successive 30 seconds
Outdoor tube temperature	The sensor is detected to be open-circuited or short-circuited forsuccessive 30 seconds, and no detection is performed within 10 minutesafter defrost begins.
Exhaust	After the compressor has operated for 3 minutes, the sensor is detected to be open-circuited or short-circuited for successive 30 seconds.
Overload	After the compressor has operated for 3 minutes, the sensor is detected to be open-circuited or short-circuited for successive 30 seconds.

7. Wired Zone Controller

If the product is equipped with a wired zone controller, please refer to the following descriptions of wired zone controller.

1.Displaying Part

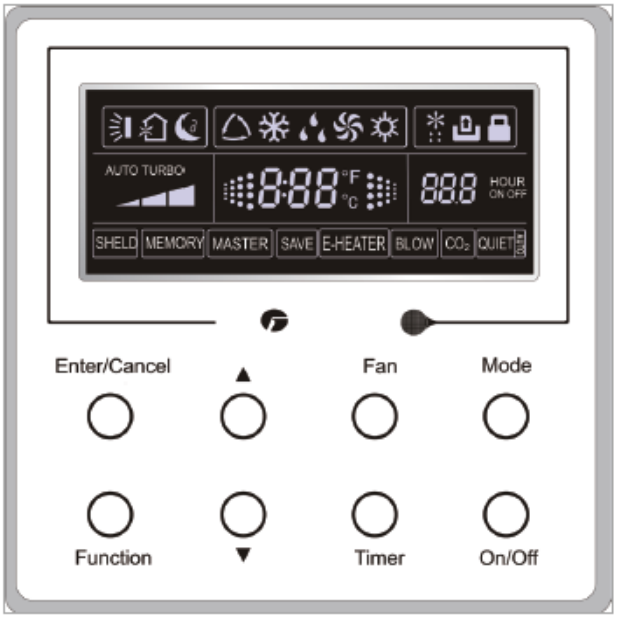


Fig1.1.1 Outline of wired zone controller

1.1 LCD Display of Wired Zone Controller

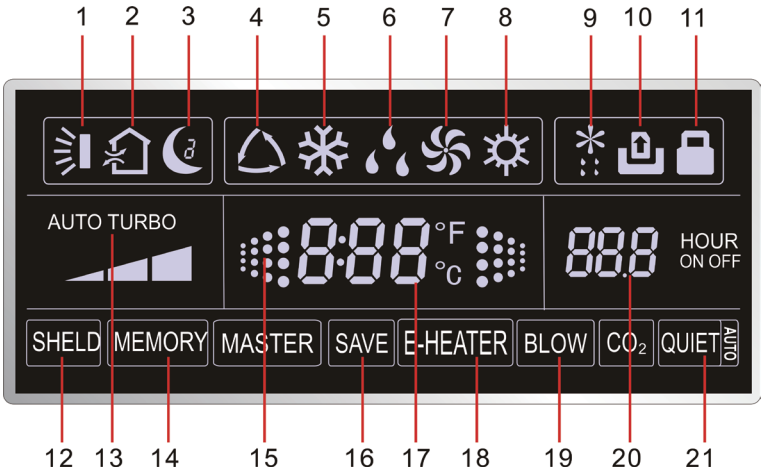


Fig.1.1.2 LCD display

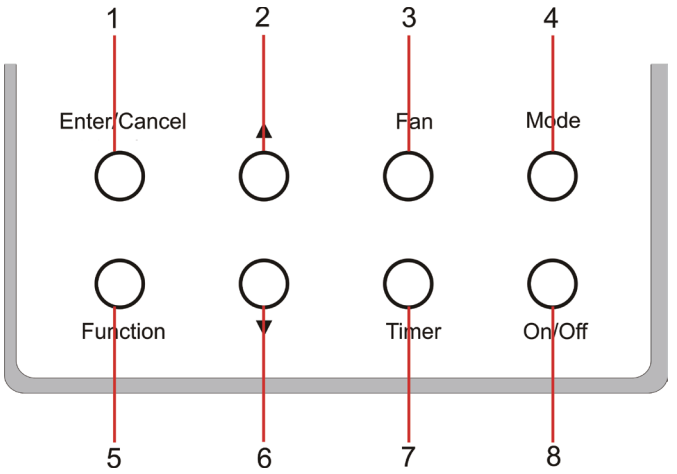
1.2 Description of LCD Display

No.	Symbols	Description
1		Swing function
2		Air exchange function (this function is currently unavailable for this unit)
3		Sleep function (Only sleep 1)
4		Each kind of running mode of indoor unit (auto mode)
5		Cooling mode
6		Dry mode
7		Fan mode
8		Heating mode
9		Defrosting function for the outdoor unit
10		Gate-control function (this function is currently unavailable for this unit)

11		Lock function
12	SHIELD	Shield functions (Button operation, temperature setting, On/Off operation,Mode setting are disabled by the remote monitoring system.)
13	TURBO	Turbo function state
14	MEMORY	Memory function (The indoor unit resumes the original setting state after power failure and then power recovery)
15		It blinks under on state of the unit without operation of any button
16	SAVE	Energy-saving function
17		Ambient/setting temperature value
18	E-HEATER	Electric auxiliary heating function(this function is not available for this unit)
19	BLOW	Blow function
20		Timing value
21	QUIET	Quiet function (two types: quiet and auto quiet)(this function is yet unavailable for this unit).

2 Buttons

2.1 Layout of Buttons



2.2 Functions of Buttons

No.	Name	Function
1	Enter/Cancel	Function selection and cancellation.
2	▲	① Running temperature setting of the indoor unit, range:16~30°C.
6	▼	② Timer setting, range:0.5-24 hr.
3	Fan	Setting of the high/middle/low/auto fan speed.
4	Mode	Setting of the Cooling/Heating/Fan/Dry/Auto mode of the indoor unit.
6	Function	Switchover among the functions of Turbo/Save/E-heater/Blow etc.
7	Timer	Timer setting.
8	On/Off	Turn on/off the indoor unit.
4+2	▲+Mode	Press mode button and Up arrow for 5s under off state of the unit to enter/cancel the Memory function. (If memory is set, indoor unit after power failure and then power recovery will resume the original setting state. If not, the indoor unit is defaulted to be off after power recovery. Memory off is default before delivery.)
3+6	Fan+▼	By pressing them at the same time under off state of the unit,  will be displayed on the wired controller for the cooling only unit, while  will be displayed on the wired controller for the cooling and heating unit.
2+6	▲+▼	Upon startup of the unit without malfunction or under off state of the unit, press up and down arrow at the same time for 5s to enter the lock state, in which case, no other buttons will respond to being pressed. Repress up and down arrow for 5s to quit this state.

3 Operation Instructions

3.1 On/Off

Press On/Off to turn on the unit and turn it off by pressing again.

Note: The state shown in Fig.3.1.1 indicates the “Off” state of the unit after power on. The state shown in Fig.3.1.2 indicates the “On” state of the unit after powered on.

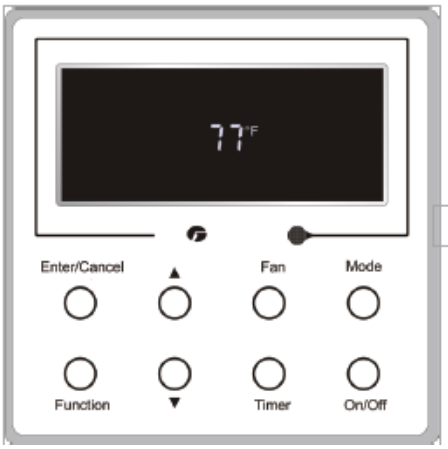


Fig.3.1.1 “Off” State

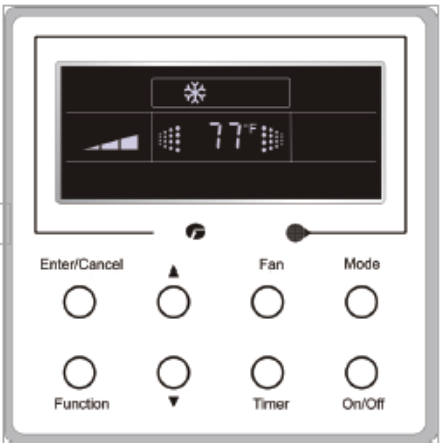
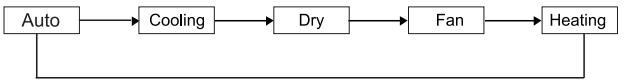


Fig.3.1.2 “On” State

3.2 Mode Setting

Under ON state of the unit, press the Mode to switch the operation modes as the following sequence: Auto–Cooling–Dry–Fan–Heating.



3.3 Temperature Setting

Press ▲or ▼ to increase/decrease the preset temperature. If pressing either of them continuously, the temperature will be increased or decreased by 1°C every 0.5s, as shown in Fig.3.3.1.

In the Cooling, Dry, Fan or Heating mode, the temperature setting range is 61°F~86°F (16°C~30°C).

In the Auto mode, the setting temperature is unadjustable.

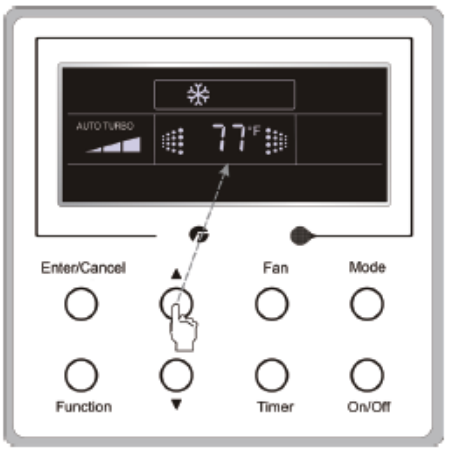


Fig.3.3.1

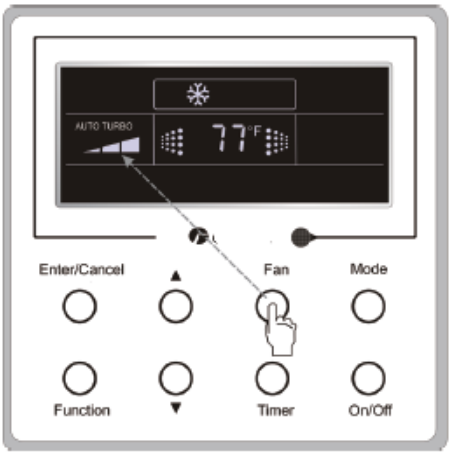
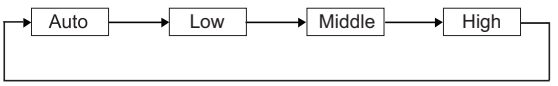


Fig.3.4.1

3.4 Fan Setting

Under the “On” state of the unit, press Fan and then fan speed of the indoor unit will change circularly as shown in Fig.3.4.1.



3.5 Timer Setting

Under on-state of the unit, Press Timer button to set timer off of the unit. Under off-state of the unit, press Timer button to set timer on of the unit in the same way.

• Timer on setting:

Under off-state of the unit without timer setting, if Timer button is pressed, LCD will display xx.Hour, with ON blinking. In this case, press▲ or ▼ button to adjust timer on and then press Timer to confirm.

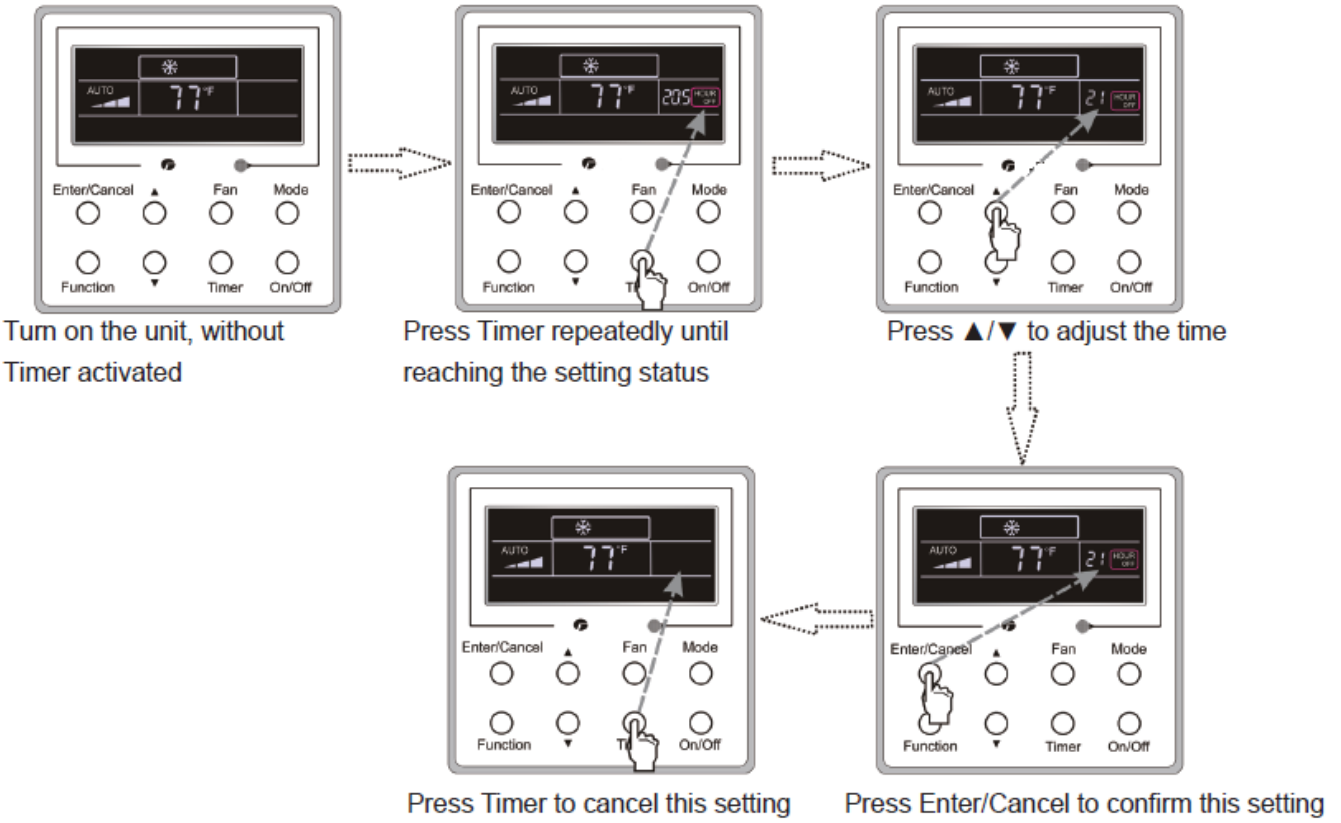
• Timer off setting:

Under on-state of the unit without timer setting, if Timer button is pressed, LCD will display xx. Hour, with OFF blinking. In this case, press▲ or ▼ button to adjust timer on and then press Timer to confirm.

• Cancel timer:

After setting of timer, if Timer button is pressed, LCD won't display xx. Hour so that timer setting is canceled.

Timer off setting under the "On" state of the unit is shown here in Fig.3.5.1.



Timer on setting under the "Off" state of the unit is shown in Fig.3.5.2.

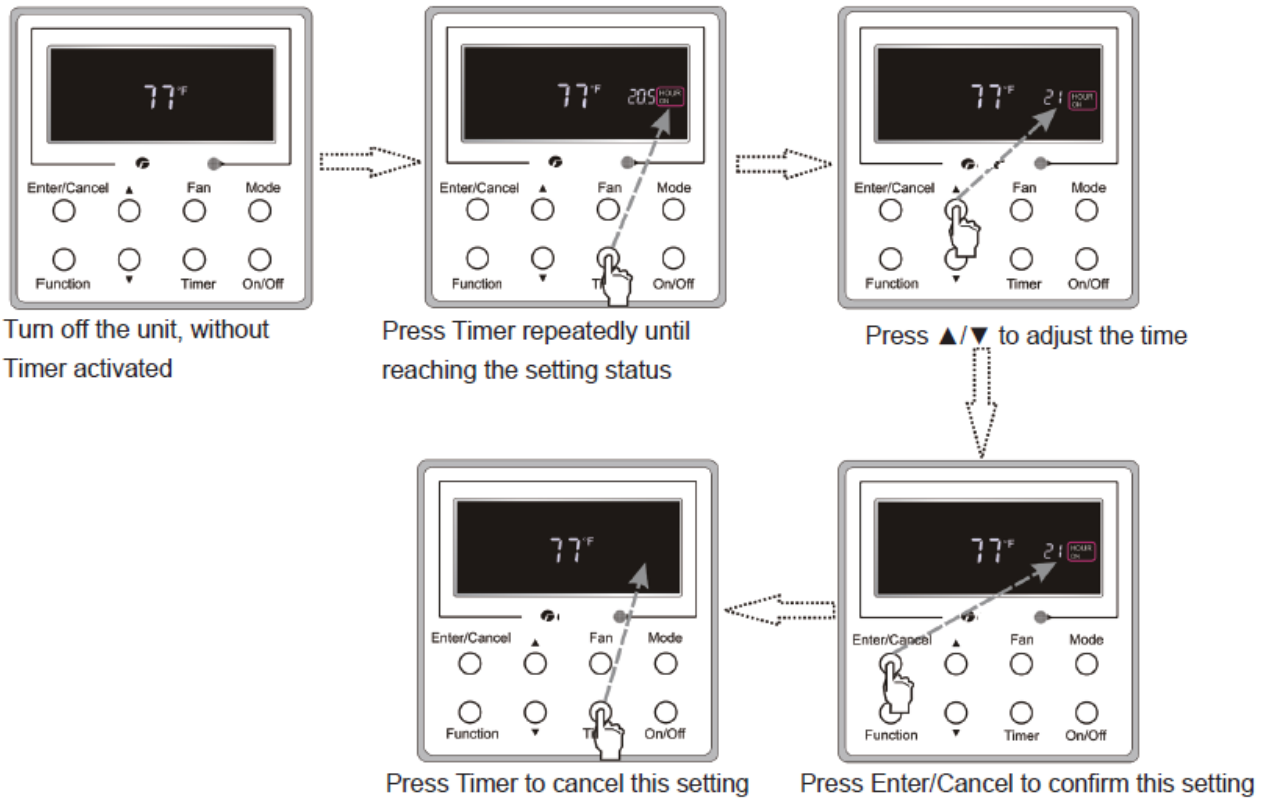


Fig.3.5.2 Timer on Setting under the "Off" State of the Unit

Timer range: 0.5-24hr. Every press of ▲or ▼ will make the set time increased or decreased by 0.5hr. If either of them is pressed continuously, the set time will increase/ decrease by 0.5hr every 0.5s.

3.6 Swing Setting

Swing On: Press Function under on state of the unit to activate the swing function. In this case, will blink,After that,press Enter/Cancel to make a confirmation.

Swing Off: When the Swing function is on, press Function to enter the Swing setting interface,with blinking. After that, press Enter/Cancel to cancel this function. Swing setting is shown below in Fig.3.6.1.

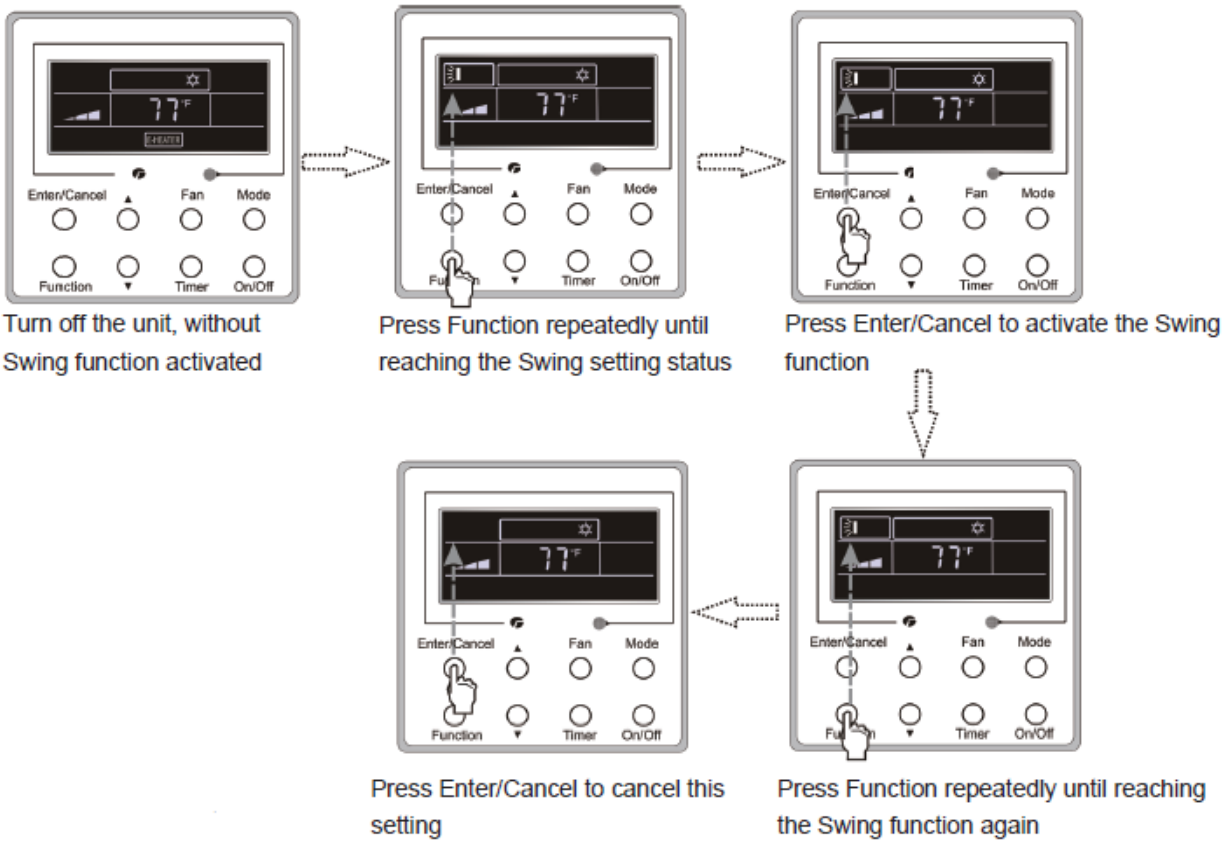


Fig. 3.6.1 Swing Setting

Notes:

(1)Sleep, Turbo or Blow setting is the same as the Swing setting.

(2)After the setting has been done, press the key “Enter/Cancel” to go back to the setting status or quit automatically five seconds later.

3.7 Sleep Setting

Sleep on: Press Function under the On state of the unit until the unit enters the Sleep setting state. After that, press Enter/Cancel to confirm this setting.

Sleep off: When the Sleep function is activated, press Function to enter the Sleep setting status. After that, press Enter/Cancel to cancel this function.

In the Cooling or Dry mode, the temperature will increase by 1°F~2°F (1°C) after the unit runs under Sleep1 for 1hr and 1°F~2°F (1°C) after another 1hr. After that, the unit will run at this temperature.

In the Heating mode, the temperature will decrease by 1°F~2°F (1°C) after the unit runs under Sleep 1 for 1hr and 1°F~2°F (1°C) after another 1hr. After that, the unit will run at this temperature.

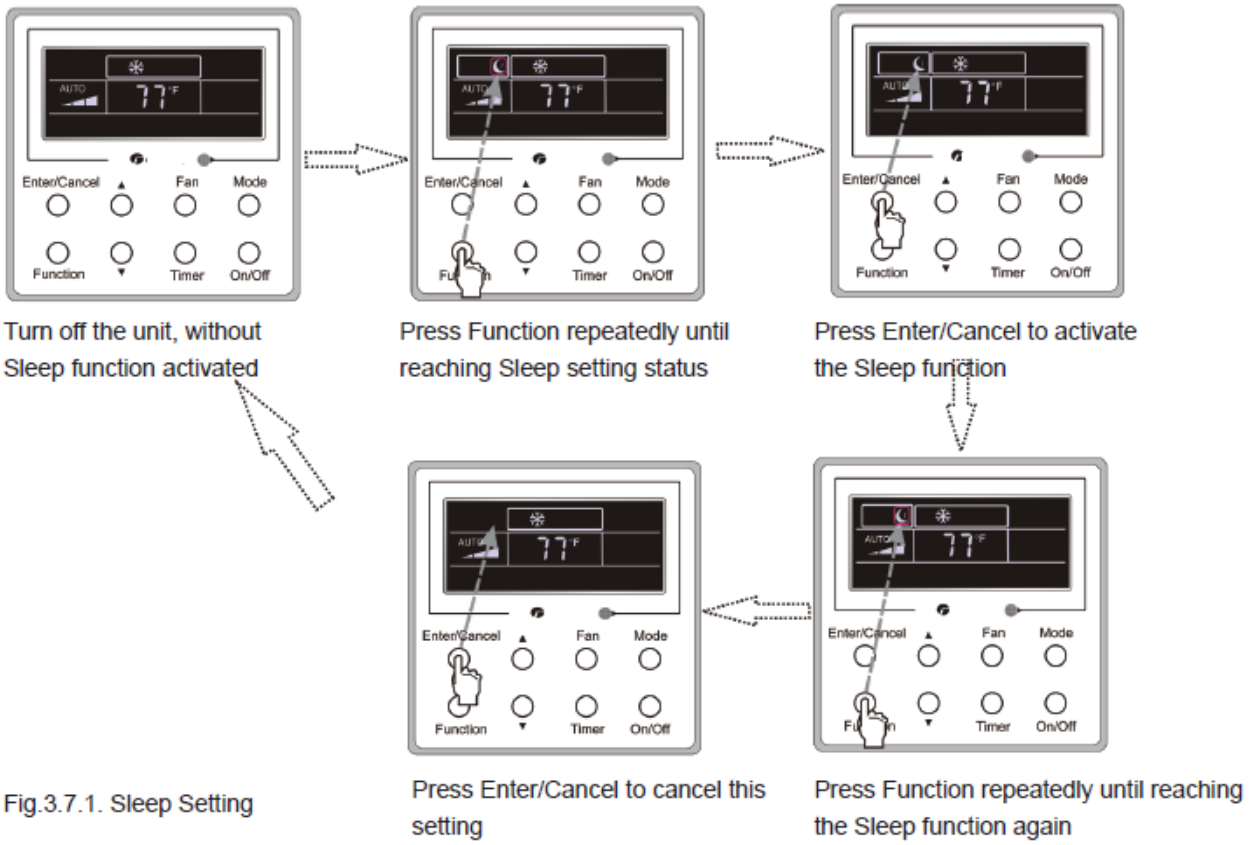


Fig.3.7.1. Sleep Setting

3.8 Turbo Setting

Turbo function: The unit at the high fan speed can realize quick cooling or heating so that the room temperature can quickly approach the setting value.

In the Cooling or Heating mode, press Function until the unit enters the Turbo setting status and then press Enter/Cancel to confirm the setting. When the Turbo function is activated, press Function to enter the Turbo setting status and then press Enter/Cancel to cancel this function. Turbo function setting is as shown below in Fig.3.8.1.

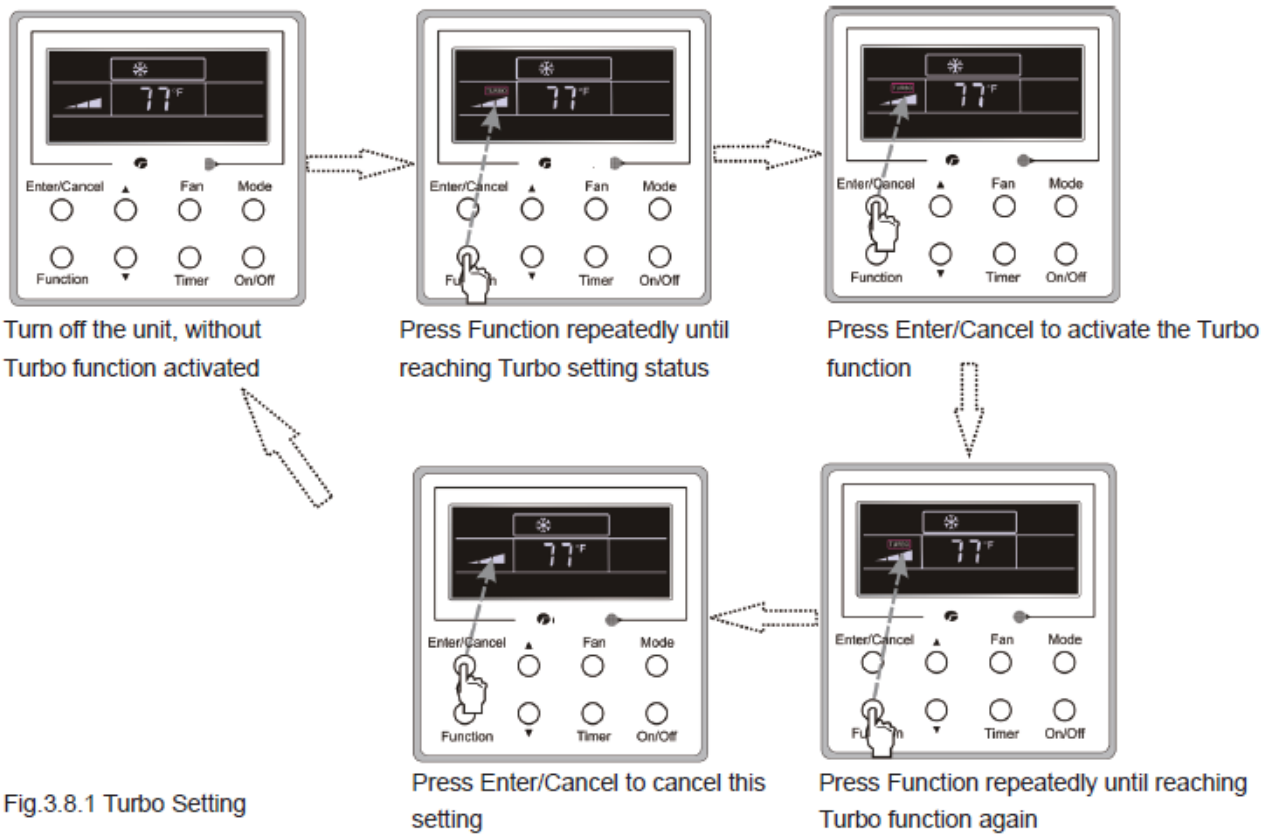


Fig.3.8.1 Turbo Setting

3.9 Blow Setting

Blow function: After the unit is turned off, the water in evaporator of indoor unit will be automatically evaporated to avoid mildew.
In the Cooling or Dry mode, press Function till the unit enters the Blow setting status and then press Enter/Cancel to active this function.
When the Blow function is activated, press Function to the Blow setting status and then press Enter/Cancel to cancel this function. Blow function setting is as shown below in Fig.3.9.1

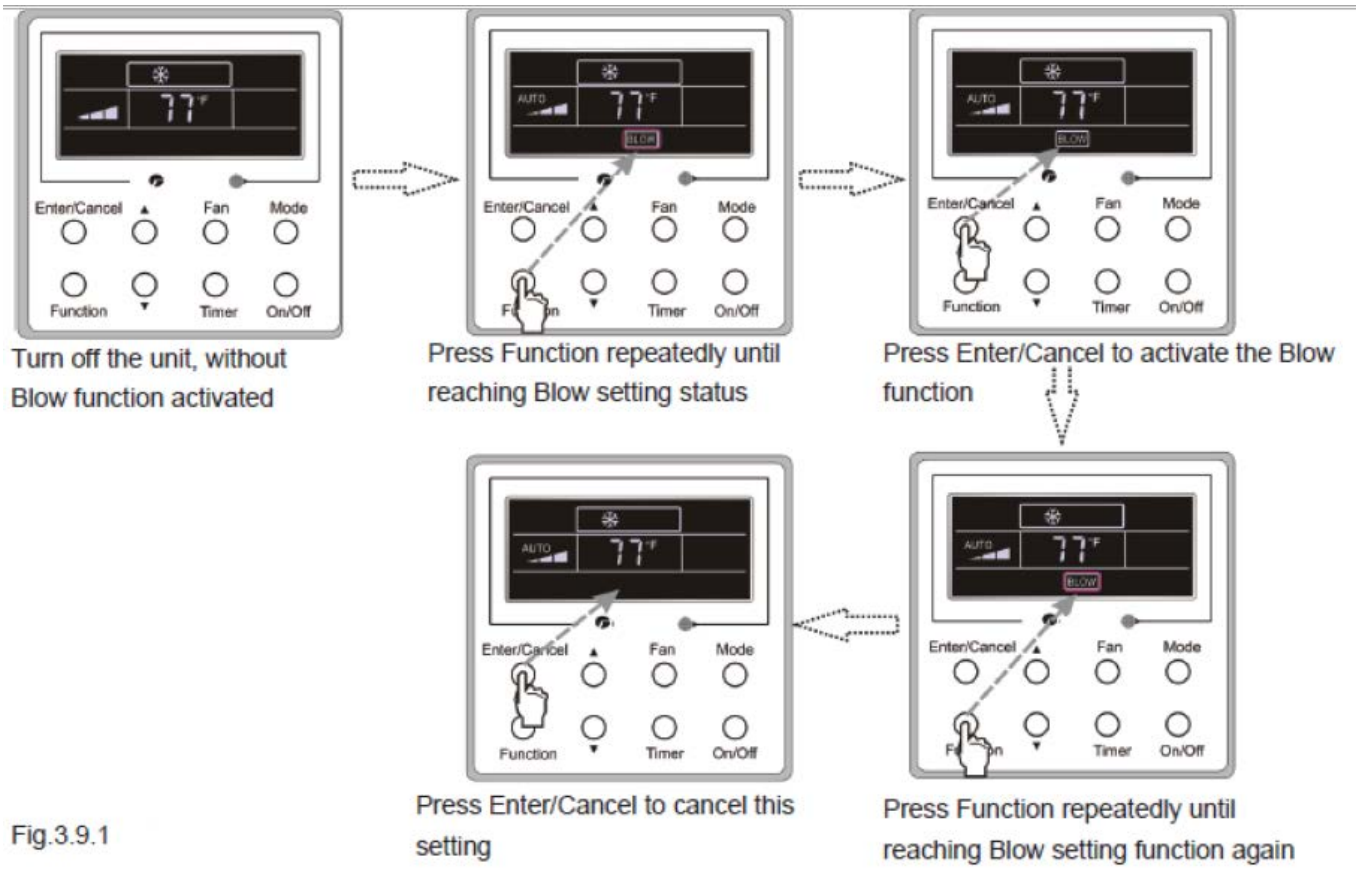


Fig.3.9.1

Notes:

(1) When the Blow function is activated, if turning off the unit by pressing On/Off or by the remote controller, the indoor fan will run at the low fan speed for 2 min, with “BLOW” displayed on the LCD. While, if the Blow function is deactivated, the indoor fan will be turned off immediately.

(2) Blow function is unavailable in the Fan or Heating mode.

3.11 Other Functions

a. Lock

Upon startup of the unit without malfunction or under the “Off” state of the unit, press ▲ and ▼ at the same time for 5s until the wired controller enters the Lock function. In this case, LCD displays .

After that, repress these two buttons at the same time for 5s to quit this function.

Under the Lock state, any other button pressed won’t get a response.

b. Memory

Memory switchover: Under the “Off” state of the unit, press Mode and ▲ at the same time for 5s to switch memory states between memory on and memory off. When this function is activated, Memory will be displayed. If this function is not set, the unit will be under the “Off” state after power failure and then power recovery.

Memory recovery: If this function has been set for the wired zone controller, the wired zone controller after power failure will resume its original running state upon power recovery. Memory contents: On/Off, Mode, set temperature, set fan speed and lock function.

4. Installation and Dismantlement

4.1 Connection of the Signal Line of the Wired Zone Controller

- Open the cover of the electric control box of the indoor unit.
- Let the single line of the wired zone controller through the rubber ring.
- Connect the signal line of the wired zone controller to the 4-pin socket of the indoor unit PCB.
- Tighten the signal wire with ties.
- The communication distance between the mainboard and the wired zone controller can be up to 20 meters (the standard distance is 8 meters).

4.2 Installation of the Wired Zone Controller

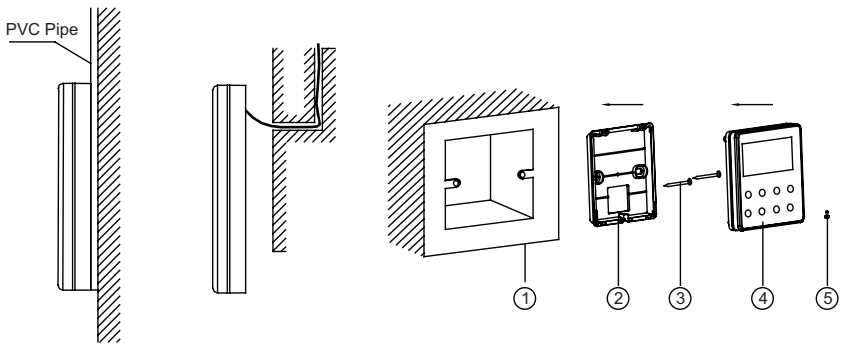


Fig.4.1 Accessories for the Installation of the Wired Zone Controller

No.	1	2	3	4	5
Name	Socket box embedded in the wall	Soleplate of the Wired Zone Controller	Screw M4X25	Front Panel of the Wired Zone Controller	Screw ST 2.9X6

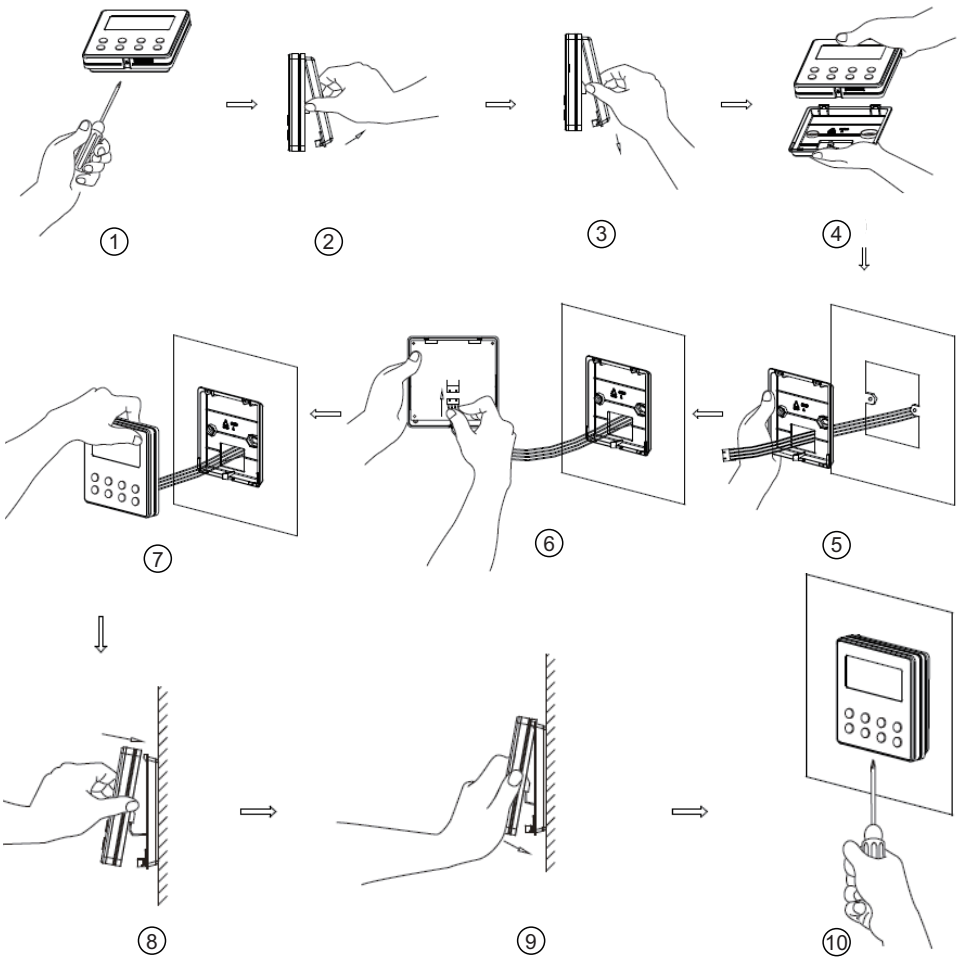


Fig.4.2

Fig.4.2 shows the installation steps of the wired controller Fig.4.2, but there are some issues that need your attention.

(1) Prior to the installation, please first cut off the power supply of the wire buried in the installation hole, that is, no operation is allowed with electricity during the whole installation.

(2) Pull out the four-conductor communication line from the installation holes and then let it go through the rectangular hole behind the soleplate of the wired zone controller.

(3) Stick the soleplate of the wired zone controller to the wall over the installation hole and then secure it with screws M4X25.

(4) Insert the four-conductor communication line into the slot of the wired zone controller and then buckle the front panel and the soleplate of the wired zone controller together.

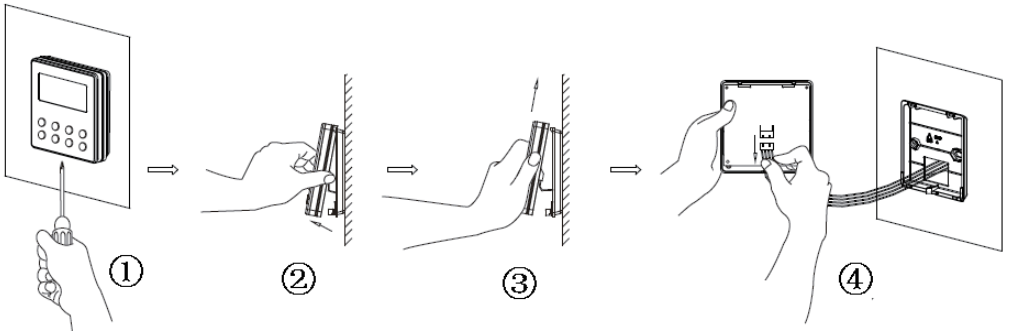
(5) Finally, secure the front panel and the soleplate of the wired zone controller tightly with screws ST2.9X6.

⚠CAUTION!

Please pay special attention to the following during the connection to avoid malfunction of the air conditioning unit due to electromagnetic interference.

(1) Separate the signal and communication lines of the wired zone controller from the power cord and connection lines between the indoor and outdoor unit, with a minimum interval of 8in (20cm), otherwise the communication of the unit will probably work abnormally.

(2) If the air conditioning unit is installed where vulnerable to electromagnetic interference, then the signal and communication lines of the wired zone controller must be shielded stranded 4-conductor.



5 Errors Display

If there is an error occurring during the operation of the system, the error code will be displayed on the LCD, as show in Fig.5.1. If multiple errors occur at the same time, their codes will be displayed sequentially.

Note: In event of any error, please turn off the unit and contact a certified technician.

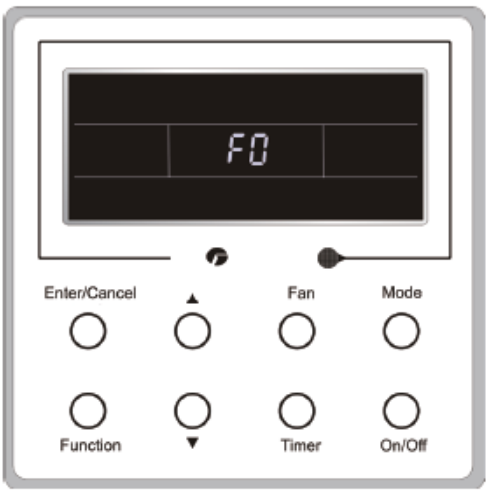


Fig.5.1

8. Troubleshooting

8.1 Flashing LED of Indoor/Outdoor Unit and Primary Judgment

NO.	Malfunction Name	Display Method of Indoor Unit				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Operation Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
1	High pressure protection of system	E1	OFF 3s and blink once						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	OFF 3S and blink twice			OFF 1S and blink 3 times			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	In defect of refrigerant	F0					OFF 1S and blink 9 times		The Dual-8 Code Display will show F0 and the complete unit stops.	1.In defect of refrigerant; 2.Indoor evaporator temperature sensor works abnormally; 3.The unit has been plugged up somewhere.
4	High discharge temperature protection of compressor	E4	OFF 3S and blink 4 times			OFF 1S and blink 7 times			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	OFF 3S and blink 5 times			OFF 1S and blink 5 times			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	Communi-cation Malfunction	E6	OFF 3S and blink 6 times			Always ON			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	OFF 3S and blink 8 times			OFF 1S and blink 6 times			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			OFF 3S and blink 15 times	OFF 1S and blink 11 times			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		OFF 3S and blink 6 times	OFF 3S and blink 6 times				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	OFF 3S and blink 15 times						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				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Operation Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
11	Gathering refrigerant	Fo	OFF 3S and blink 1 times	OFF 3S and blink 1 times		OFF 1S and blink 17 times			When the outdoor unit receive signal of Gathering refrigerant ,the system will be forced to run under cooling mode for gathering refrigerant	Nominal cooling mode
12	Indoor ambient temperature sensor is open/short circuited	F1		OFF 3S and blink once					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		OFF 3S and blink twice					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		OFF 3S and blink 3 times			OFF 1S and blink 6 times		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		OFF 3S and blink 4 times			OFF 1S and blink 5 times		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		OFF 3S and blink 5 times			OFF 1S and blink 7 times		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		OFF 3S and blink for 6 times			OFF 1S and blink 3 times		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		OFF 3S and blink 8 times			OFF 1S and blink once		All loads operate normally, while operation frequency for compressor is decreased	The input supply voltage is too low; System pressure is too high and overloaded

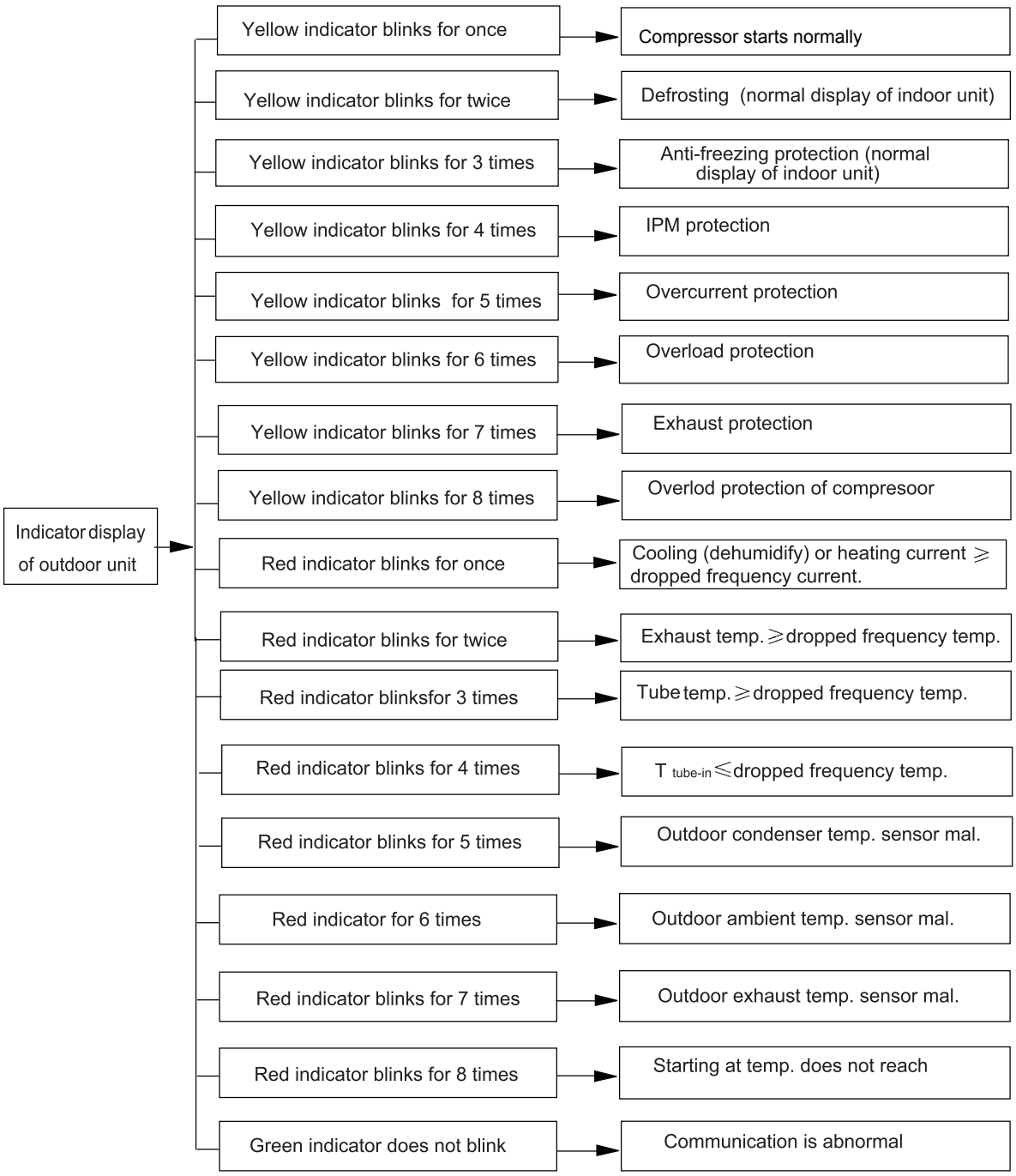
NO.	Malfunction Name	Display Method of Indoor Unit				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Operation Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
19	Decrease frequency due to high air discharge	F9		OFF 3S and blink 9 times			OFF 1S and blink twice		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		OFF 3S and blink 2 times	OFF 3S and blink 2 times		OFF 1S and blink 4 times		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		OFF 3S and blink 11 times		OFF 1S and blink 13 times			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			OFF 3S and blink 21 times	OFF 1S and blink 12 times			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 frequence in test state	P0		(during blinking, ON 0.25s and OFF 0.25s)	(during blinking, ON 0.25s and OFF 0.25s)					Showing during min. cooling or min. heating test
24	Compressor rated frequence in test state	P1		(during blinking, ON 0.25s and OFF 0.25s)	(during blinking, ON 0.25s and OFF 0.25s)					Showing during nominal cooling or nominal heating test
25	Compressor maximum frequence in test state	P2		(during blinking, ON 0.25s and OFF 0.25s)	(during blinking, ON 0.25s and OFF 0.25s)					Showing during max. cooling or max. heating test

NO.	Malfunction Name	Display Method of Indoor Unit				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Operation Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
26	Compressor intermediate frequence in test state	P3		(during blinking, ON 0.25s and OFF 0.25s)	(during blinking, ON 0.25s and OFF 0.25s)					Showing during middle cooling or middle heating test
27	Overcurrent protection of phase current for compressor	P5		OFF 3S and blink 15 times					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			OFF 3S and blink 17 times				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			OFF 3S and blink 18 times				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			OFF 3S and blink 19 times				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			OFF 3S and blink 10 times				All loads operate normally, while operation frequency for compressor is decreased	Refer to the malfunction analysis (overload, high temperature resistant)
32	Static dedusting protection	H2			OFF 3S and blink twice					
33	Overload protection for compressor	H3			OFF 3S and blink 3 times	OFF 1S and blink 8 times			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				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Operation Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
34	System is abnormal	H4			OFF 3S and blink 4 times	OFF 1S and blink 6 times			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			OFF 3S and blink 5 times	OFF 1S and blink 4 times			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	Module temperature is too high	H5			OFF 3S and blink 5 times	OFF 1S and blink 10 times				
37	Internal motor (fan motor) do not operate	H6	OFF 3S and blink 11 times						Internal fan motor, external fan motor, compressor and electric heater stop operation,guide louver stops at present location.	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	Desynchro-nizing of compressor	H7			OFF 3S and blink 7 times				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			OFF 3S and blink 6 times	OFF 1S and blink 14 times			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
40	Outdoor DC fan motor malfunction	L3	OFF 3S and blink 23 times				OFF 1S and blink 14 times		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	OFF 3S and blink 20 times			OFF 1S and blink 9 times			Compressor stop operation and Outdoor fan motor will stop 30s later, 3 minutes later fan motor and compressor will restart	To protect the electronical components when detect high power
42	Indoor unit and outdoor unit doesn't match	LP	OFF 3S and blink 19 times			OFF 1S and blink 16 times			Compressor and Outdoor fan motor don't work	Indoor unit and outdoor unit doesn't match
43	Failure start-up	LC			OFF 3S and blink 11 times				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				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Operation Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
44	Malfunction of phase current detection circuit for compressor	U1			OFF 3S and blink 13 times				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			OFF 3S and blink 20 times				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		OFF 3S and blink 13 times					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		OFF 3S and blink 20 times					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	OFF 3S and blink 18 times						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	Frequency limiting (power)						OFF 1S and blink 13 times			
50	Compressor running					OFF 1S and blink once				
51	The temperature for turning on the unit is reached						OFF 1S and blink 8 times			
52	Frequency limiting (module temperature)						OFF 1S and blink 11 times			

NO.	Malfunction Name	Display Method of Indoor Unit				Display Method of Outdoor Unit			A/C status	Possible Causes
		Dual-8 Code Display	Indicator Display (during blinking, ON 0.5s and OFF 0.5s)			Indicator has 3 kinds of display status and during blinking, ON 0.5s and OFF 0.5s				
			Operation Indicator	Cool Indicator	Heating Indicator	Yellow Indicator	Red Indicator	Green Indicator		
53	Normal communica-tion							OFF 0.5S and blink once		
54	Defrosting				OFF 3S and blink once (during blinking, ON 10s and OFF 0.5s)	OFF 1S and blink twice			Defrosting will occur in heating mode. Compressor will operate while indoor fan will stop operation.	It's the normal state
55	Malfunction of zero-cross detection circuit	U8							The complete unit stops	1.Power supply is abnormal; 2.Detection circuit of indoor control mainboard is abnormal.


Indicator display of outdoor unit
Yellow indicator blinks for once
Compressor starts normally
Yellow indicator blinks for twice
Defrosting (normal display of indoor unit)
Yellow indicator blinks for 3 times
Anti-freezing protection (normal display of indoor unit)
Yellow indicator blinks for 4 times
IPM protection
Yellow indicator blinks for 5 times
Overcurrent protection
Yellow indicator blinks for 6 times
Overload protection
Yellow indicator blinks for 7 times
Exhaust protection
Yellow indicator blinks for 8 times
Overlod protection of compresoor
Red indicator blinks for once
Cooling (dehumidify) or heating current ⩾ dropped frequency current.
Red indicator blinks for twice
Exhaust temp. ⩾ dropped frequency temp.
Red indicator blinksfor 3 times
Tube temp. ⩾ dropped frequency temp.
Red indicator blinks for 4 times
T tube-in ⩽ dropped frequency temp.
Red indicator blinks for 5 times
Outdoor condenser temp. sensor mal.
Red indicator for 6 times
Outdoor ambient temp. sensor mal.
Red indicator blinks for 7 times
Outdoor exhaust temp. sensor mal.
Red indicator blinks for 8 times
Starting at temp. does not reach
Green indicator does not blink
Communication is abnormal

Analysis or processing of some of the malfunction displays:

1. Compressor discharge protection

Possible reasons: shortage of refrigerant; blockage of air filter; poor ventilation or air flow short pass for condenser;the system has noncondensing gas (such as air, water etc.); blockage of capillary assy (including filter); leakage inside four-way valve causes incorrect operation; malfunction of compressor; malfunction of protection relay; malfunction of discharge sensor; outdoor temperature too high.

Processing method: Refer to the malfunction analysis in the above section.

2. Low voltage overcurrent protection

Possible reason: Sudden drop of supply voltage.

3. Communication malfunction

Processing method: Check if communic ation signal cable is connected reliably.

4. Sensor open or short circuit

Processing method: Check whether sensor is normal, connected with the corresponding position on the controller and if damage of lead wire is found.

5. Compressor overload protection

Possible reasons: insufficient or too much refrigrant; blockage of capillary an dincrease of suction temp.; improper running of compressor, burning in or stuck of bearing, damage of discharge valve; malfunction of protector.

Processing method: adjust refrigerant amount; replace the capillary; replace the compressor; use universal meter to check if the contactor of compress or is fine when it is not over heated, if not replace the protector.

6. System malfunction

Overload protection.When tube temperature(Check the temperature of outdoor heat exchanger when cooling and check the temperature of indoor heat exchanger when heating) is too high, protection will be activated.

Possible reasons: Outdoor temperature is too high when cooling; insufficient outdoor air circulation; refrigerant flow malfunction.

Please refer to the malfunction analysis in the previous section for handling method .

7. IPM module protection

Processing method:Once the module malfunction happens,if it persists for a long time and can not be self-canceled, cut off the power and turn off the unit. Then re-energize the unit again after about 10 min. After repeating the procedure several times, if the malfunction still exists,replace the module.

8.2 How to Check the Main Parts

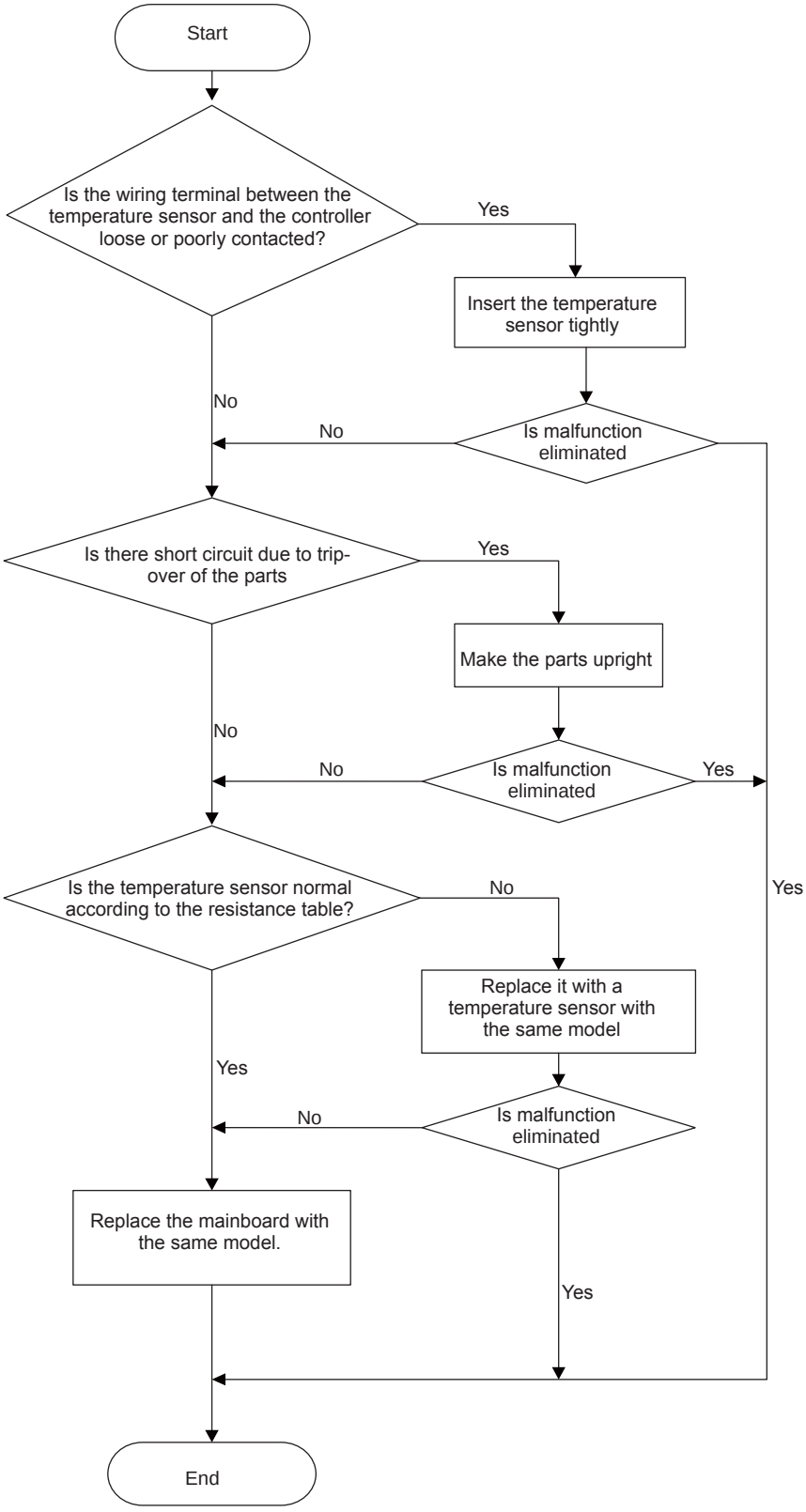
Indoor unit

1. Malfunction of Temperature Sensor F1, F2

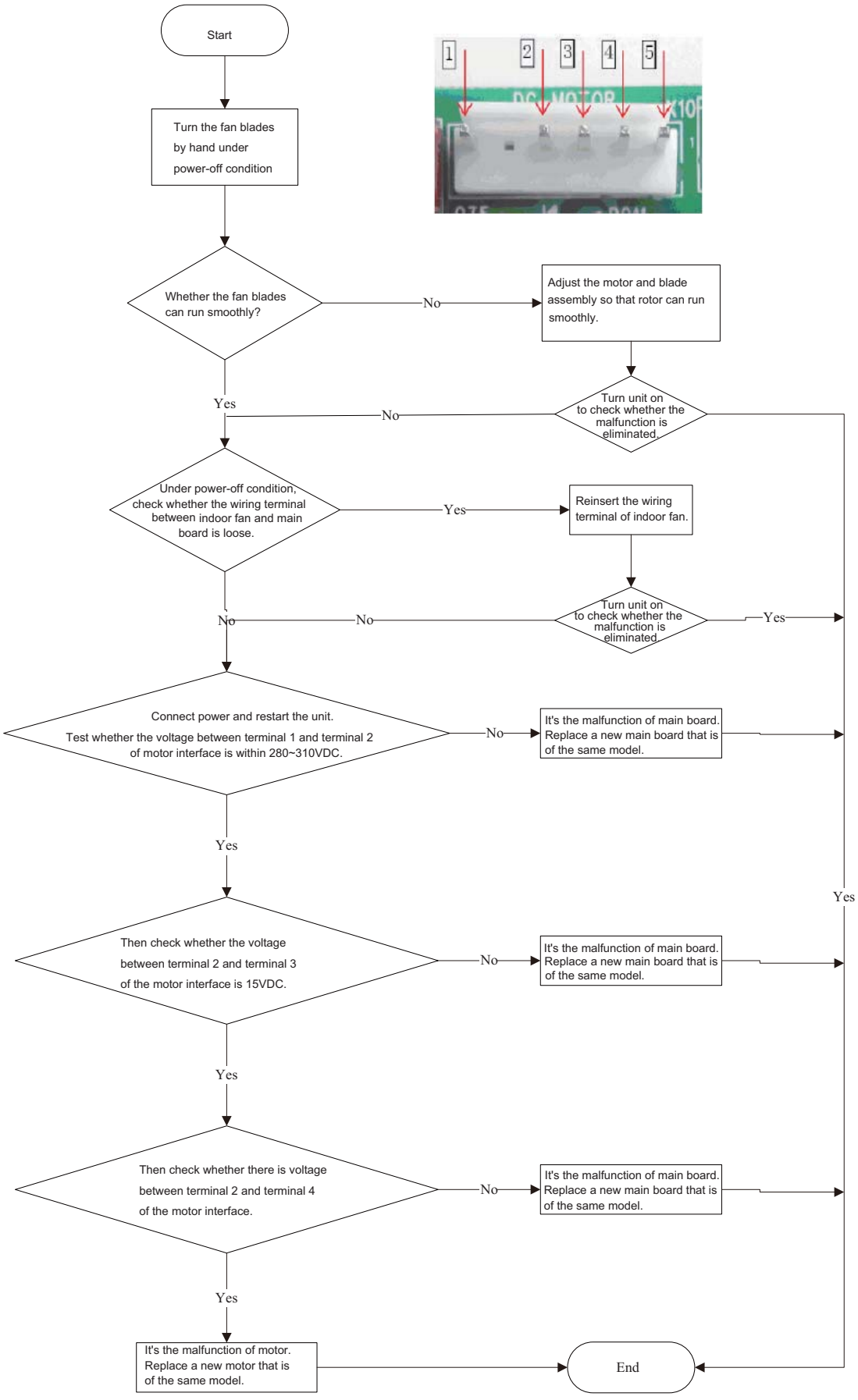
Main detection points:

- Is the wiring terminal between the temperature sensor and the controller loose or poorly contacted?
- Is there short circuit due to trip-over of the parts?
- Is the temperature sensor broken?
- Is mainboard broken?

Malfunction diagnosis process:



2.Malfunction of Blocked Protection of IDU Fan Motor H6

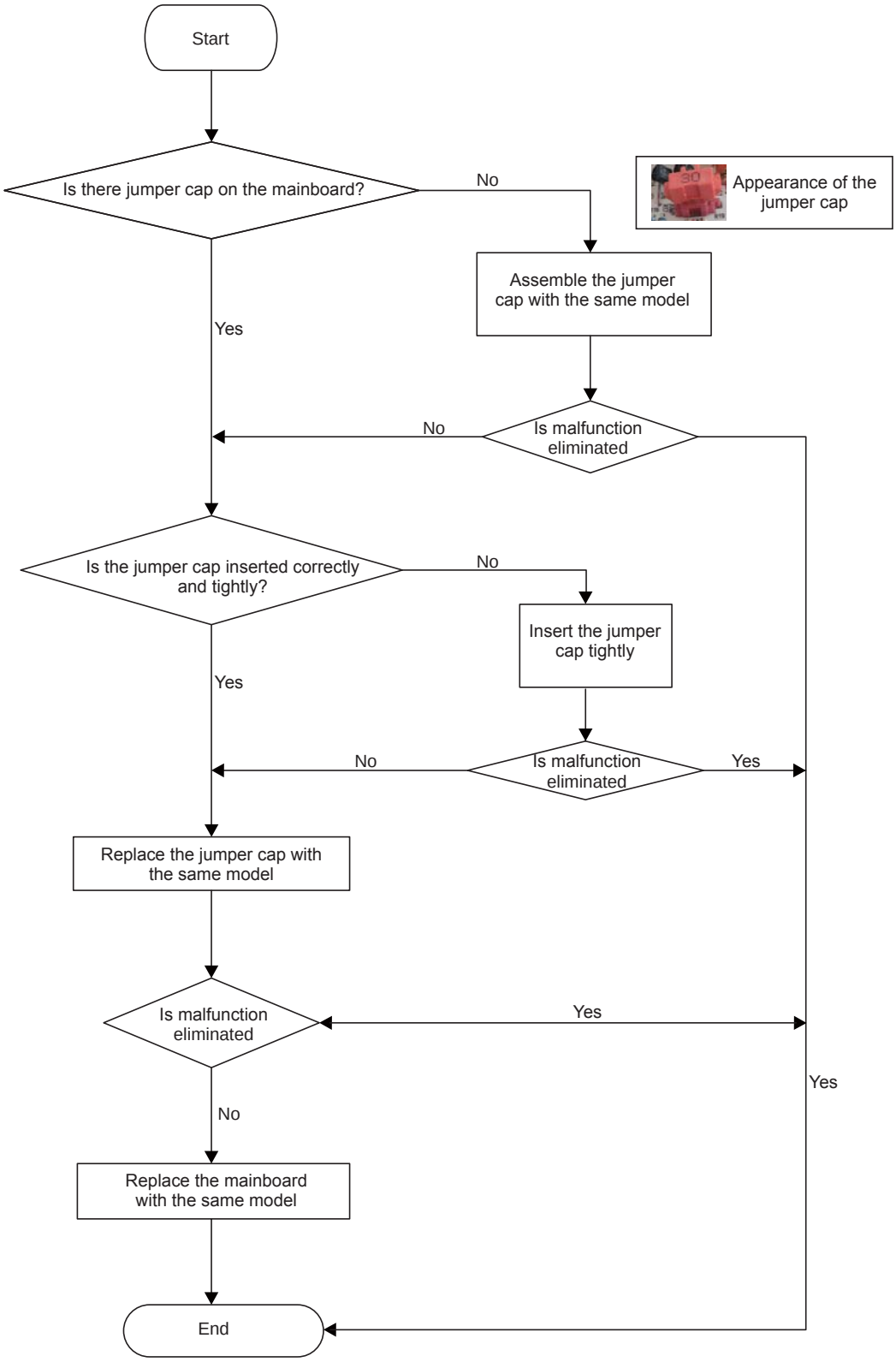


3. Malfunction of Protection of Jumper Cap C5

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:

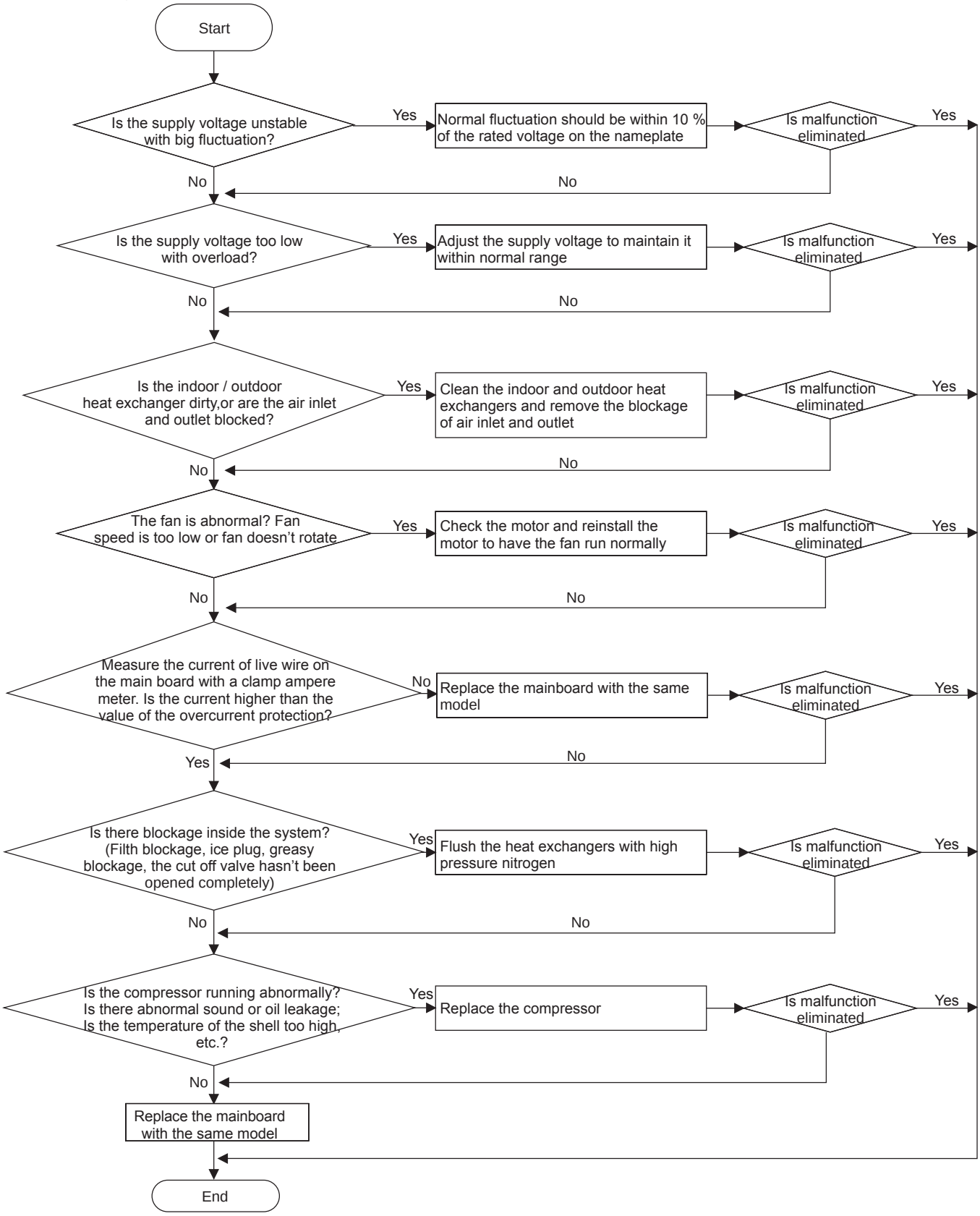


4. Malfunction of Overcurrent Protection E5

Main detection points:

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

Malfunction diagnosis process:

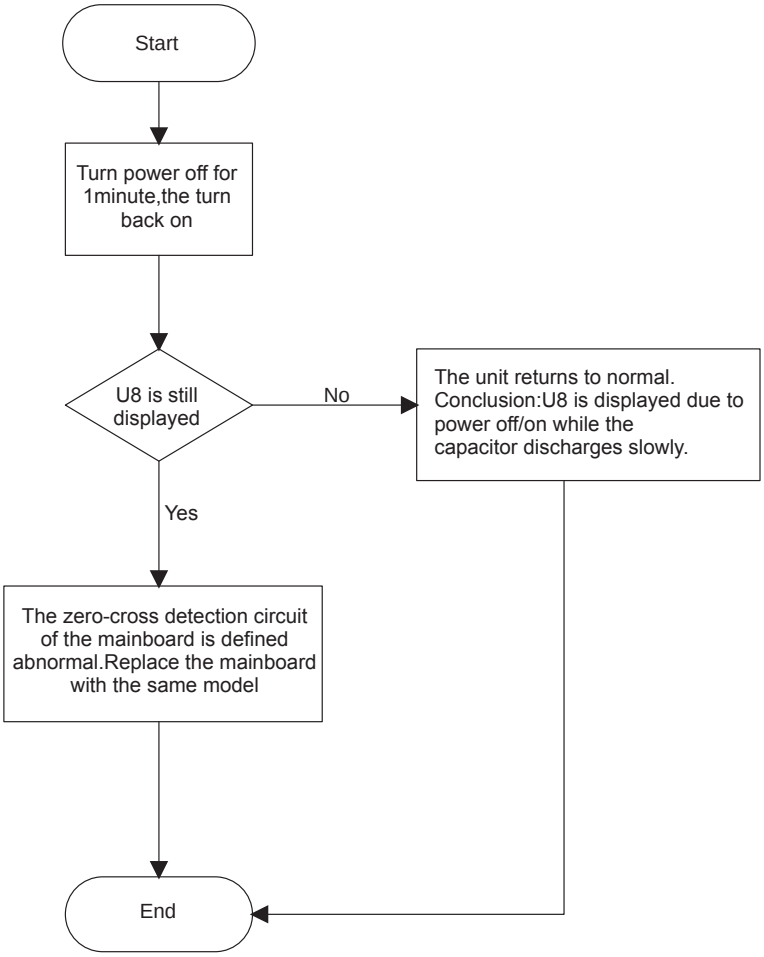


5. Malfunction of Zero-crossing Inspection Circuit Malfunction of the IDU Fan Motor U8

Main detection points: ● Instant energization after de-energization while the capacitor discharges slowly?

● The zero-cross detection circuit of the mainboard is defined as abnormal?

Malfunction diagnosis process:



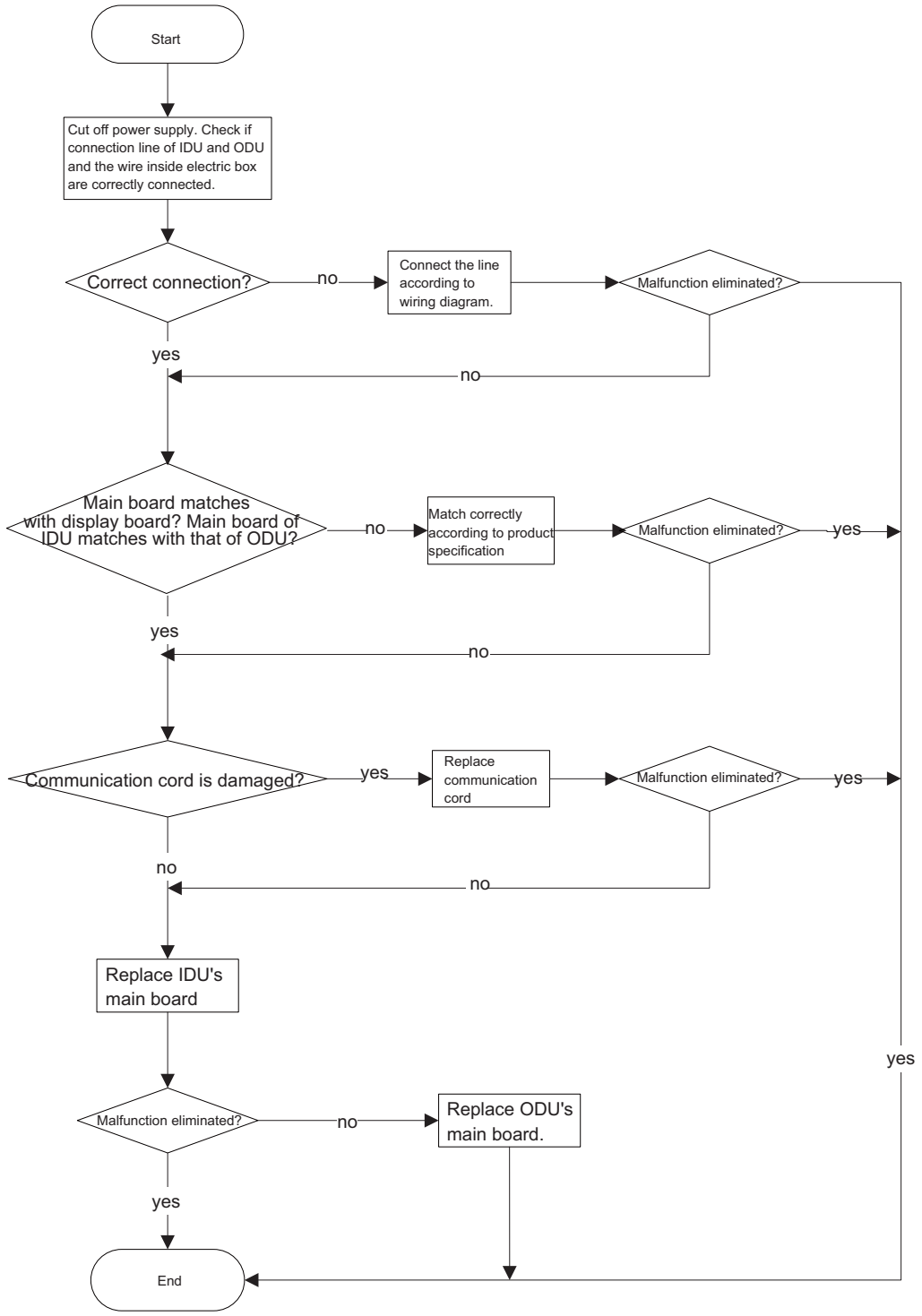
6.Malfunction of Communication E6

Main detection points:

● Check if the connection wire and the built-in wiring of indoor and outdoor unit are connected well and without damage.

● If the communication circuit of indoor mainboard is damaged? If the communication circuit of outdoor mainboard (AP1) is damaged?

Malfunction diagnosis process:



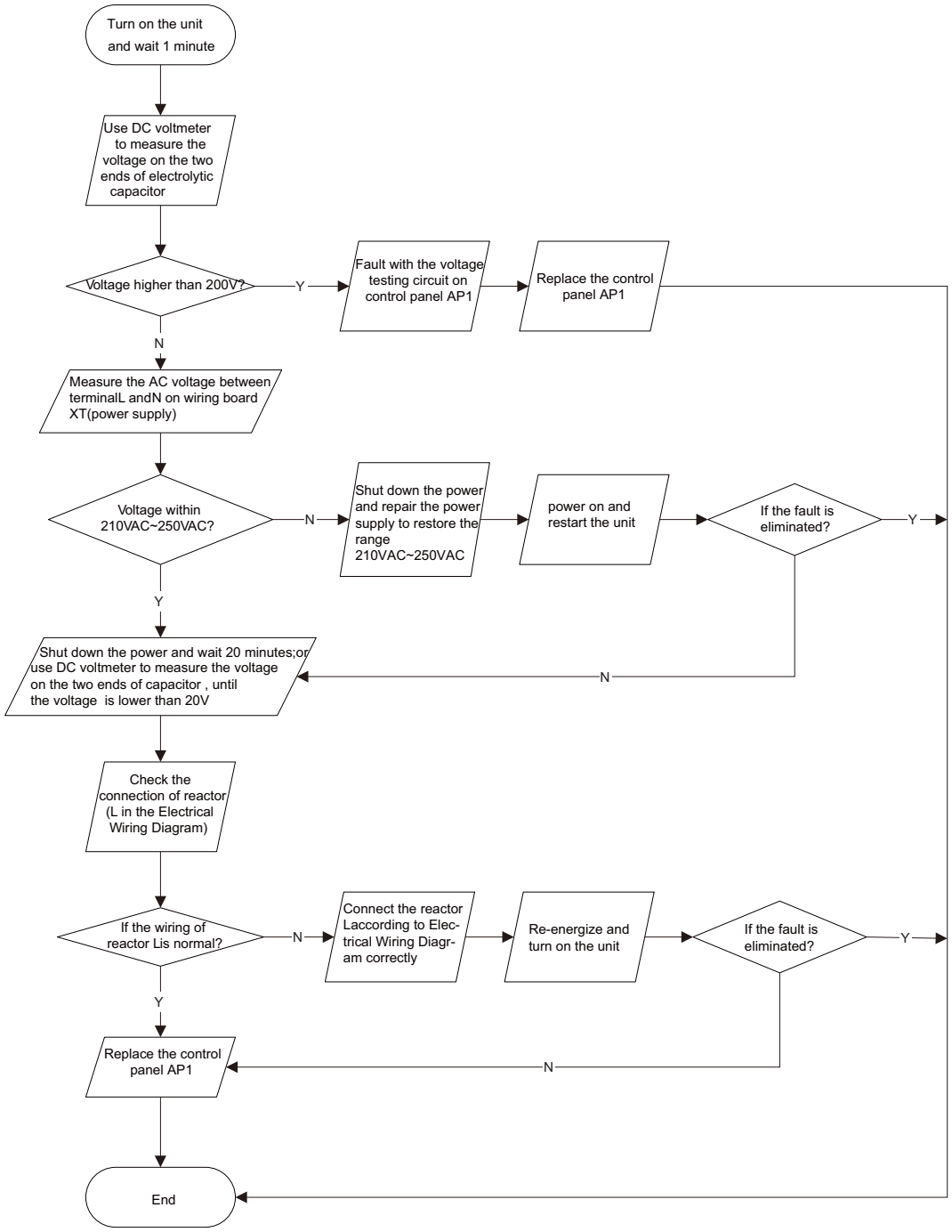
Outdoor unit

(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.
- If the reactor (L) is correctly connected? If the connection is loose or fell? If the reactor (L) is damaged?

Fault diagnosis process:



(2) IPM Protection, Out-of-step Fault, Compressor Phase Overcurrent (AP1 below refers to the outdoor control panel)

Main check points:

● If the connection between control panel AP1 and compressor COMP is secure? If loose? If the connection is in correct order?

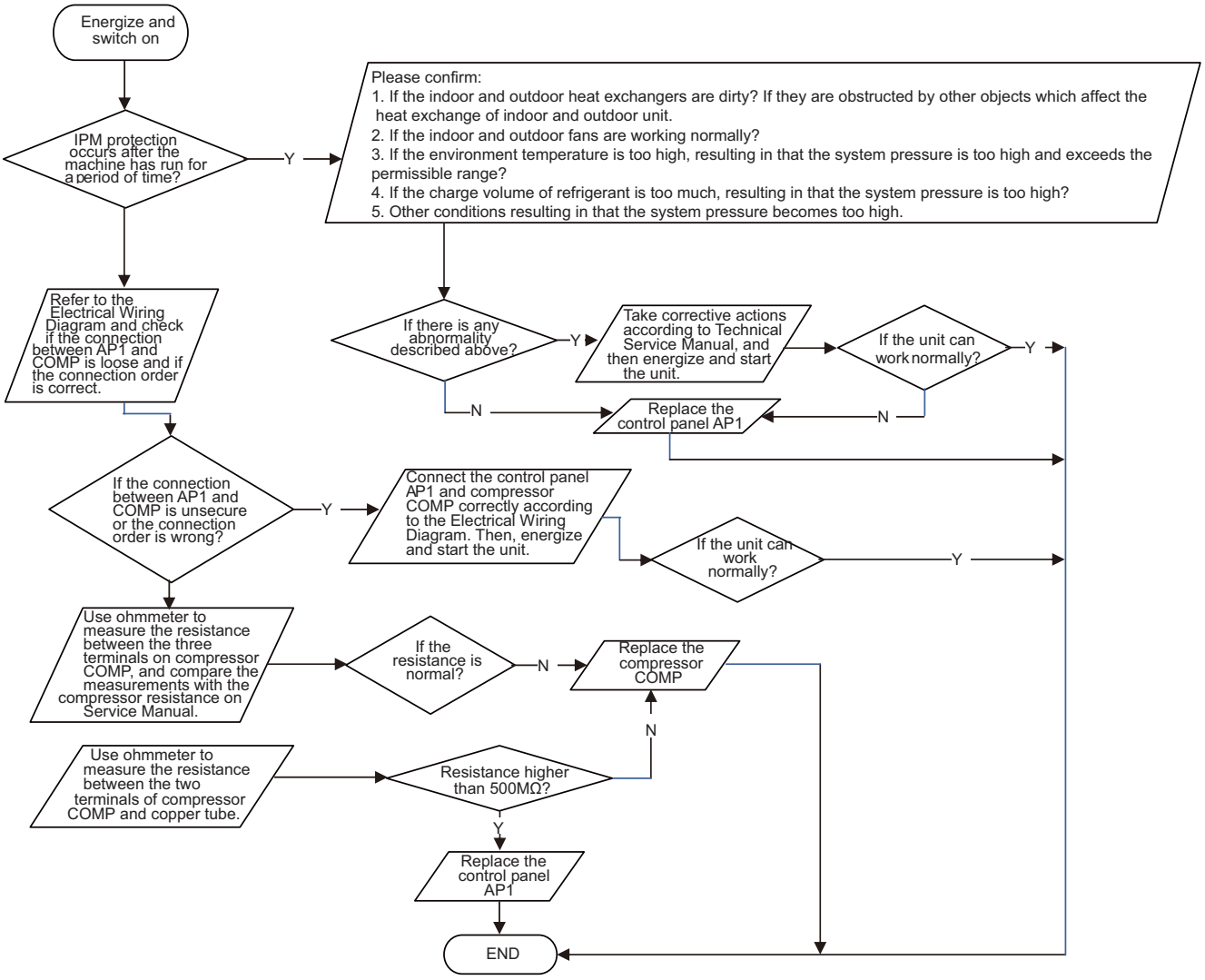
● If the voltage input of the machine is within normal range? (Use AC voltmeter to measure the voltage between terminal L and N on the wiring board XT)

● If the compressor coil resistance is normal? If the insulation of compressor coil against the copper tube is in good condition?

● If the working load of the machine are too high? If the radiation is good?

● If the charge volume of refrigerant is correct?

Fault diagnosis process:

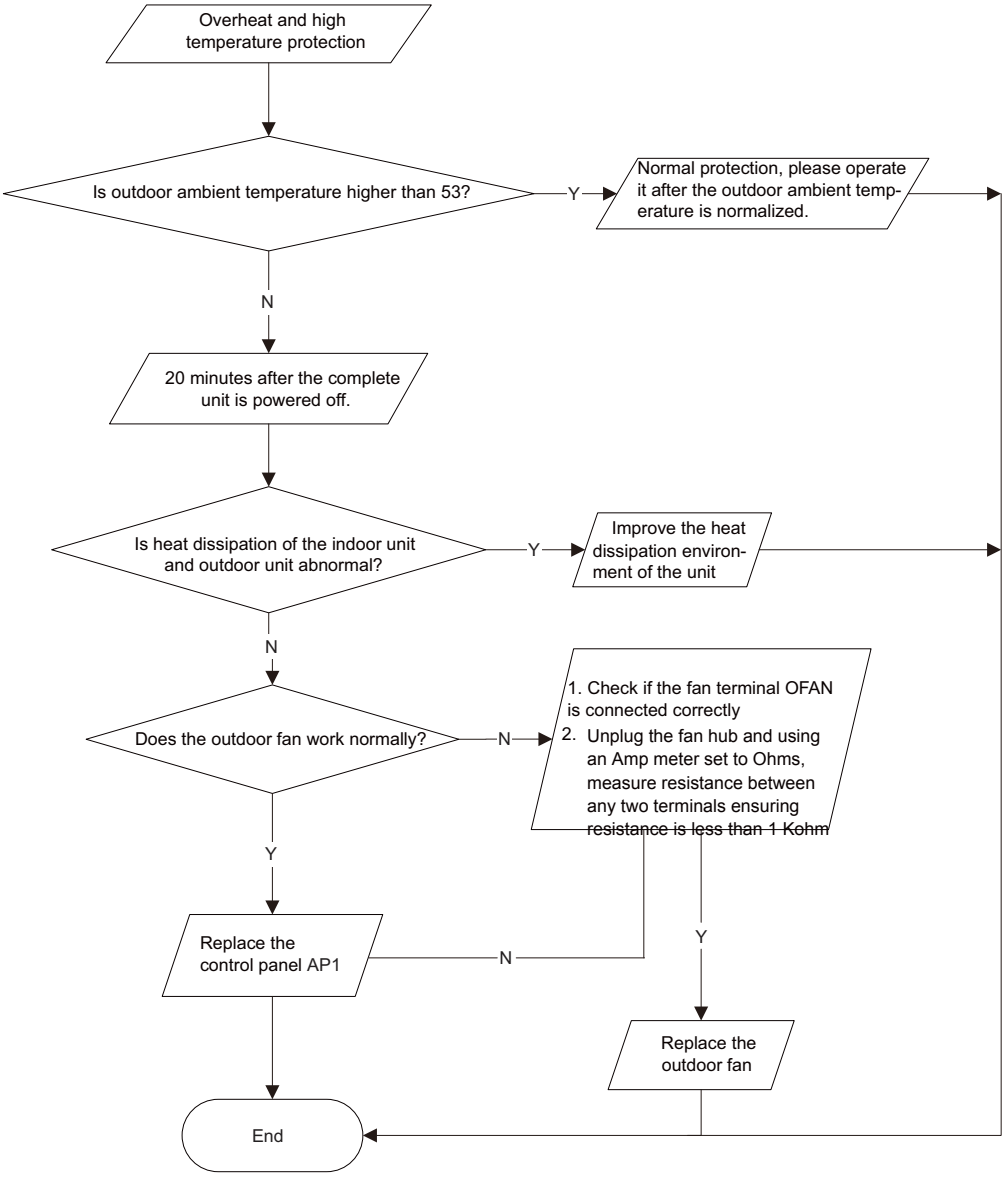


(3)High temperature and overload protection diagnosis (AP1 hereinafter refers to the control board of the outdoor unit)

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:

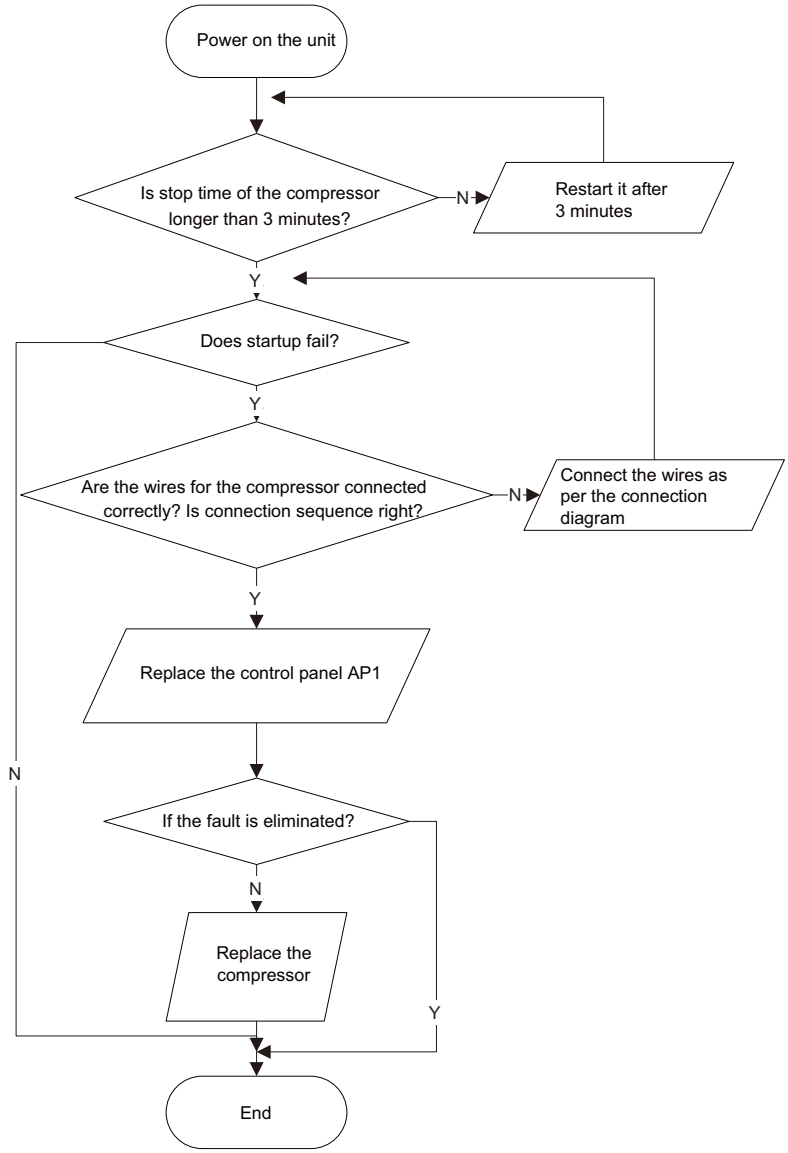


(4) Start-up failure (following AP1 for outdoor unit control board)

Mainly detect:

- Whether the compressor wiring is connected correctly?
- Is compressor broken?
- Is time for compressor stopping enough time?

Fault diagnosis process:

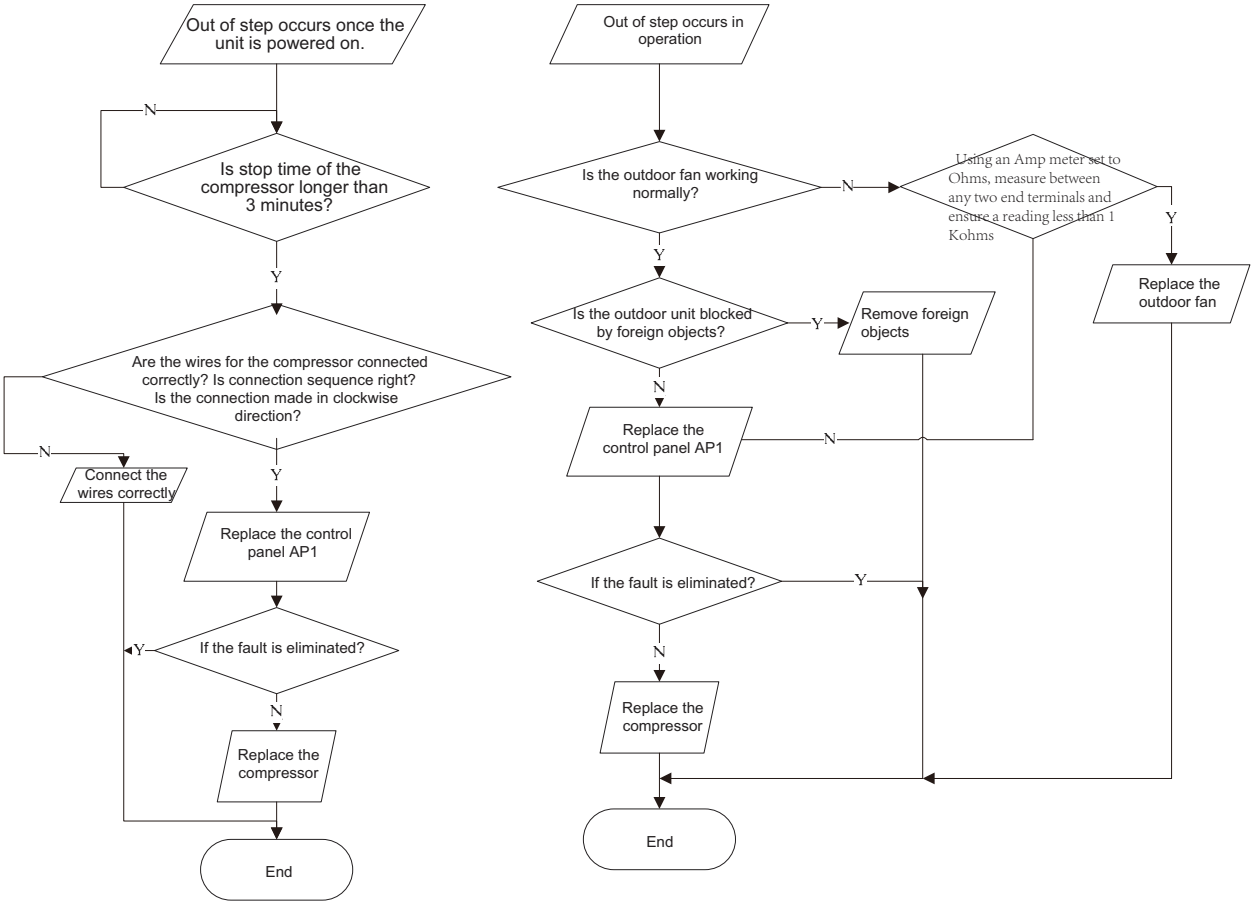


(5) Out of step diagnosis for the compressor (AP1 hereinafter refers to the control board of the outdoor unit)

Mainly detect:

- Whether the system pressure is too high?
- Whether the input voltage is too low?

Fault diagnosis process:

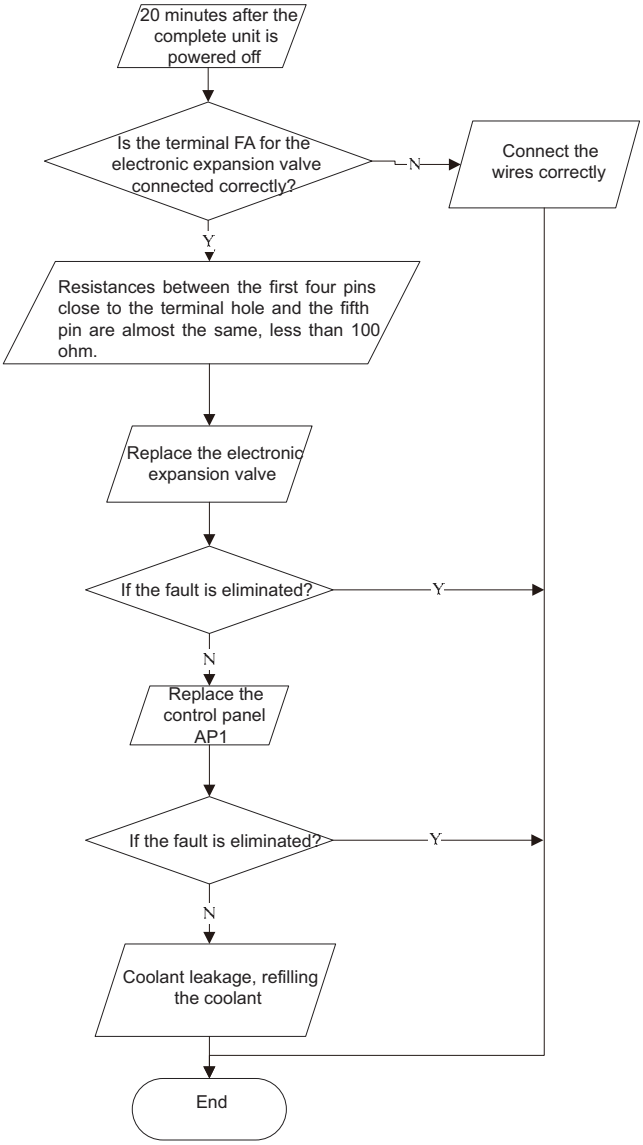


(6)Overload and air exhaust malfunction diagnosis (following AP1 for outdoor unit control board)

Mainly detect:

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

Fault diagnosis process:

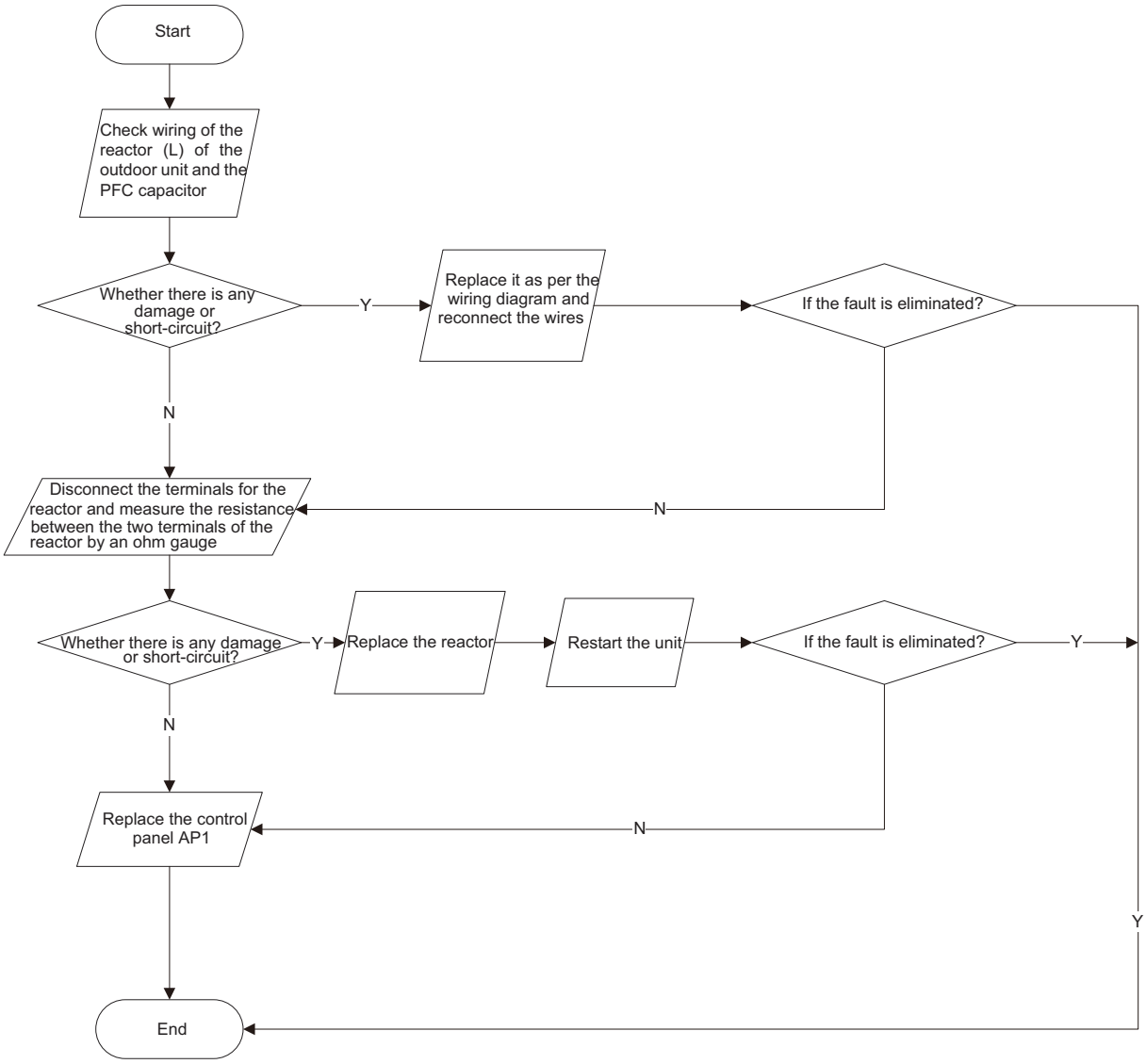


(7)Power factor correct or (PFC) fault (a fault of outdoor unit) (AP1 hereinafter refers to the control board of the outdoor unit)

Mainly detect:

● Check if the reactor (L) of the outdoor unit and the PFC capacitor are broken

Fault diagnosis process:



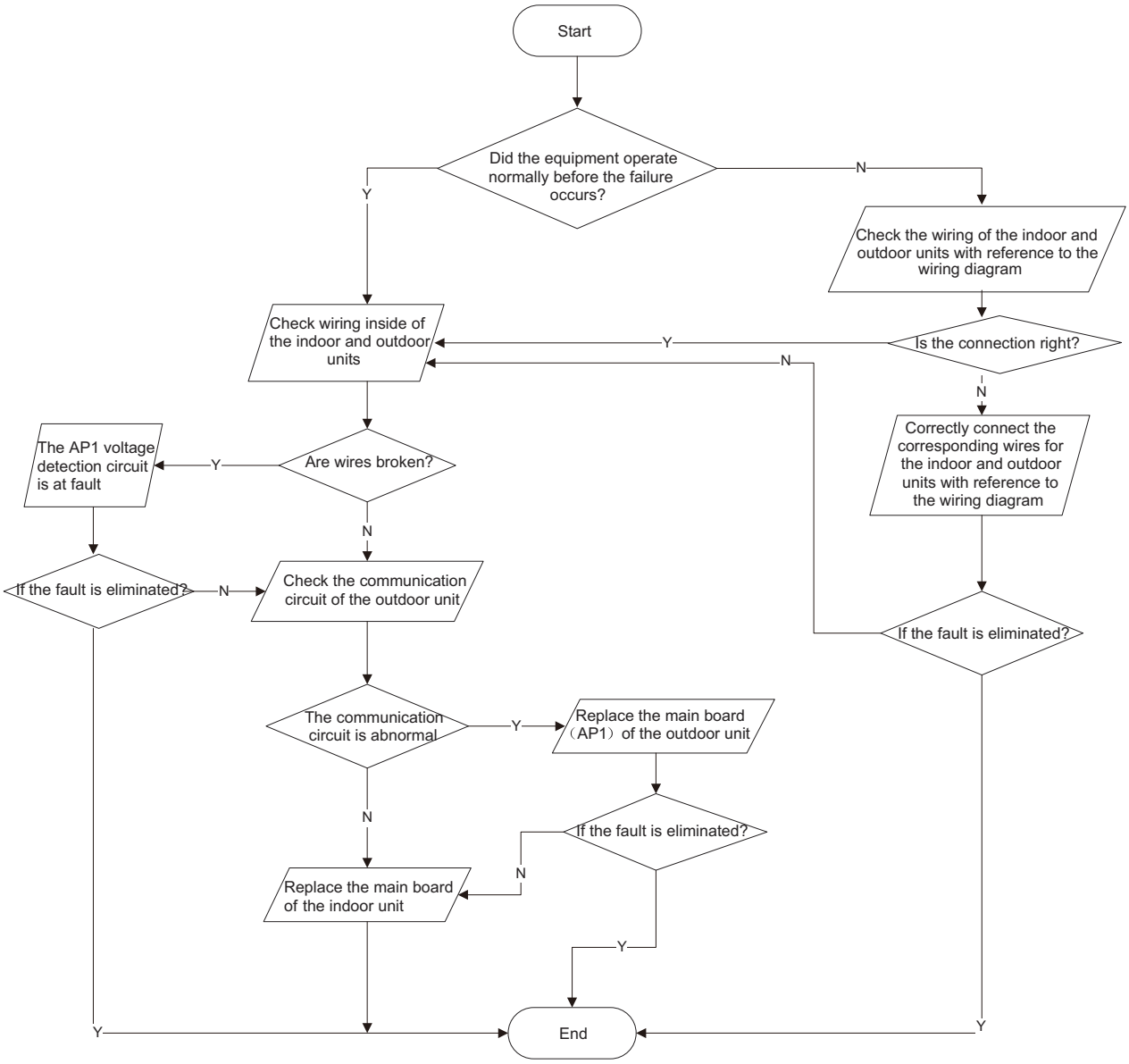
(8) Communication malfunction: (following AP1 for outdoor unit control board)

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:



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

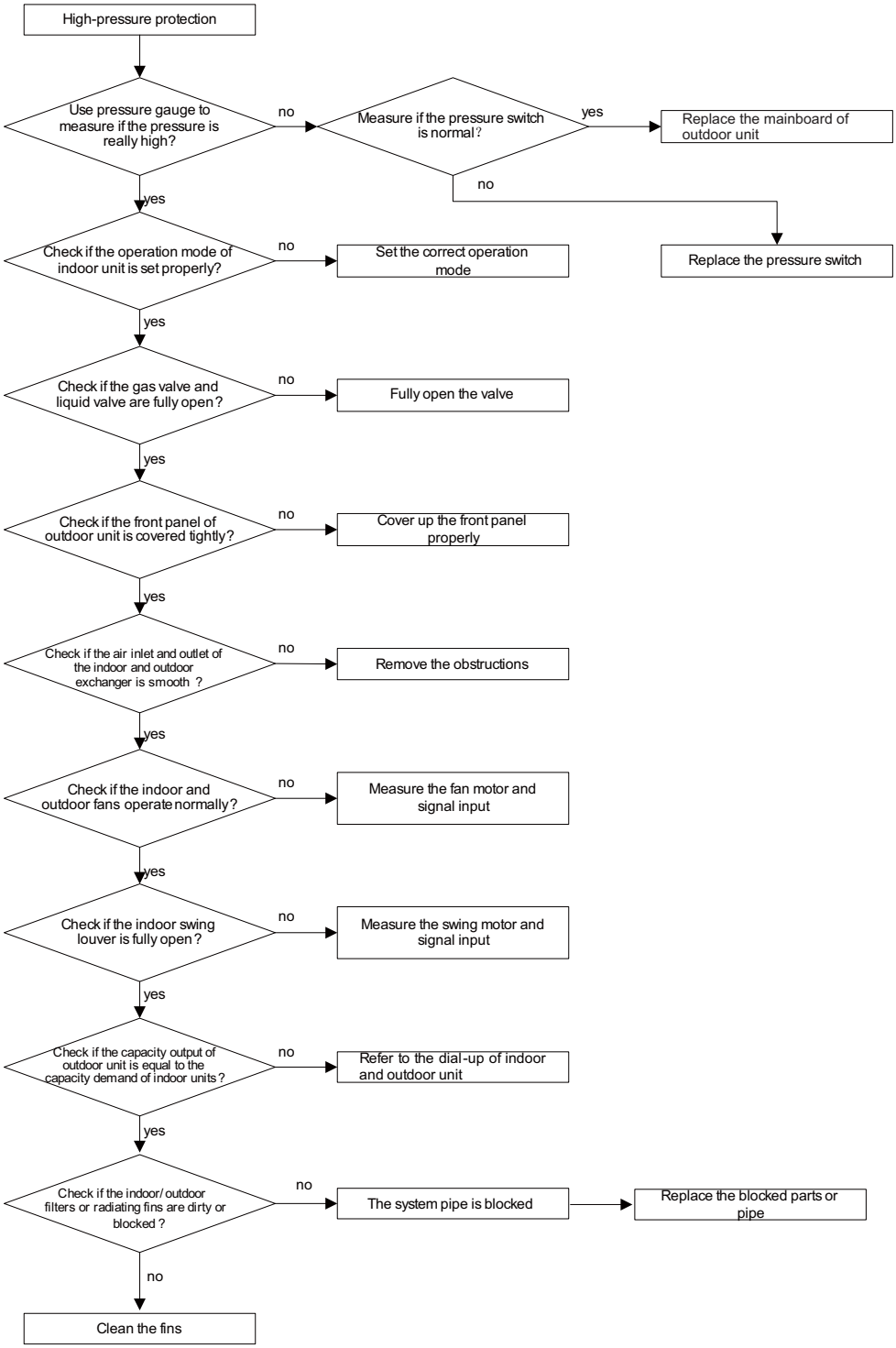
Mainly detect:

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?

Is there any damage for the indoor unit mainboard communication circuit? Is communication circuit damaged?

The flow chart malfunction detect:

(10) High-pressure Protection



8.3 Troubleshooting for Normal Malfunction

1. Air Conditioner Doesn't Start

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

2. Poor Cooling (Heating) for Air Conditioning Unit

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

3. Horizontal Louver Doesn't Swing

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

4. ODU Fan Motor Doesn't Operate

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

5. Compressor Doesn't Operate

Possible causes	Discriminating Method (Air Conditioner Status)	Troubleshooting
Wrong wire connection, or poor connection	Check the wiring status according to circuit diagram	Connect wires according to wiring diagram to make sure all wiring terminals are connected firmly
Capacity of compressor is damaged	Measure the capacity of fan capacitor with an universal meter and find that the capacity is out of the deviation range indicated on the nameplate of fan capacitor.	Replace the compressor capacitor
Power voltage is a little low or high	Use universal meter to measure the power supply voltage. The voltage is a little high or low	Suggest to equip with voltage regulator
Coil of compressor is burnt out	Use universal meter to measure the resistance between compressor terminals and it's 0	Repair or replace compressor
Cylinder of compressor is blocked	Compressor can't operate	Repair or replace compressor

6. Air Conditioning Unit is Leaking

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

7. Abnormal Sound and Vibration

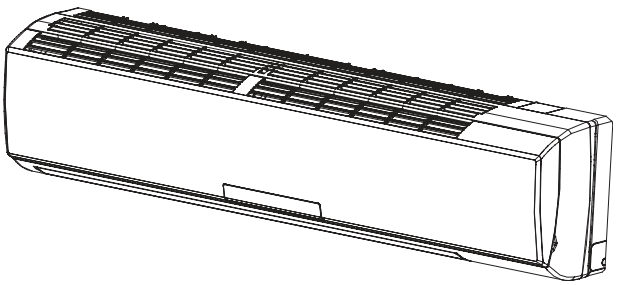
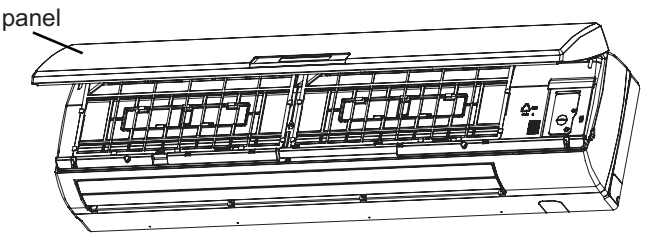
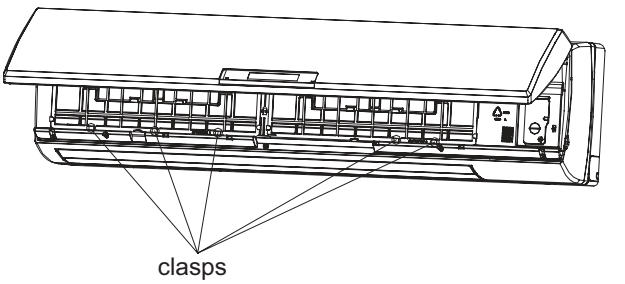
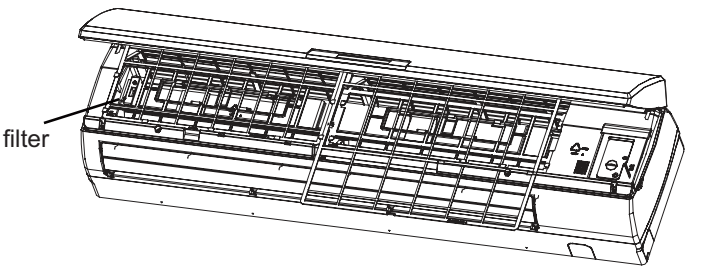
Possible causes	Discriminating Method (Air Conditioner Status)	Troubleshooting
When turn on or turn off the unit, the panel and other parts will expand and there's abnormal sound	There's the sound of "PAPA"	Normal phenomenon. Abnormal sound will disappear after a few minutes.
When turn on or turn off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

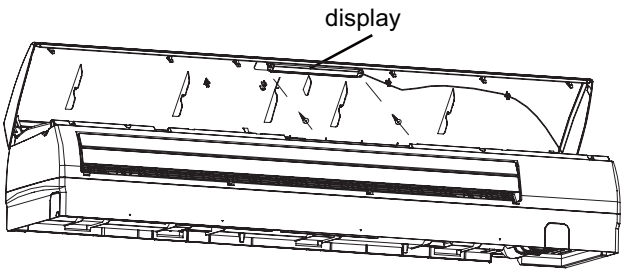
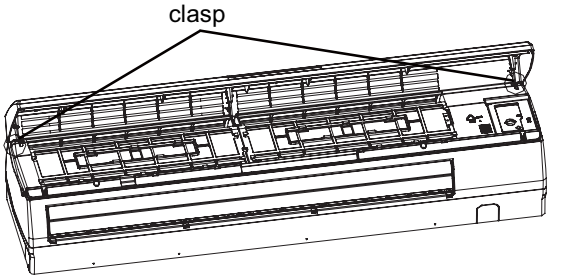
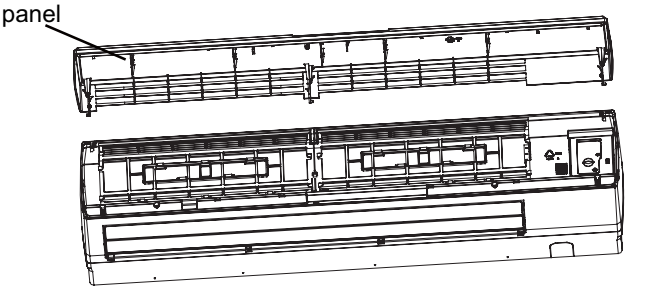
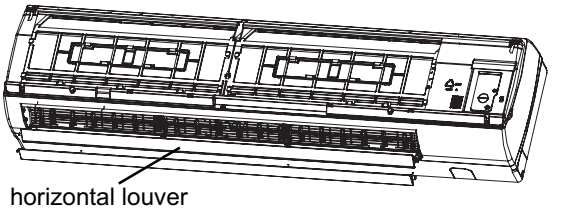
9. Removal Procedures

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

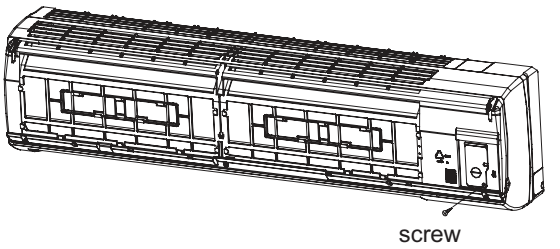
9.1 Removal Procedures of Indoor Unit

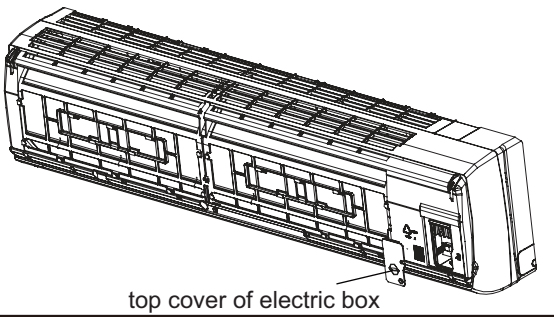
A3 panel as an example:

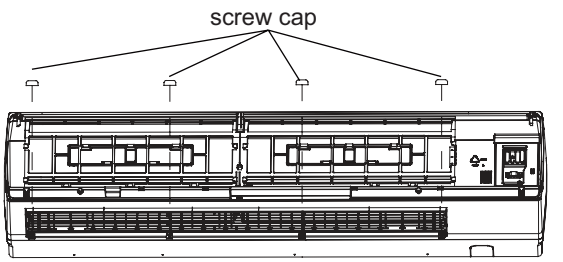
Steps	Procedure	
1.Before disassembly of the unit		
	Axonometric drawing for the complete unit.	
2.Remove filter		
a	Open the panel.	
b	Loosen the clasps on the filter.	
c	Draw out two pieces of filter.	

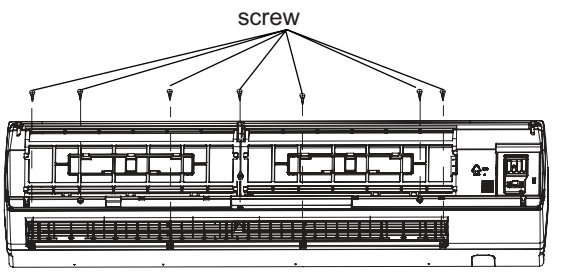
Steps	Procedure	
3.Remove display		
	Remove 2 screws securing display, and then remove the filter.	
4.Remove panel		 
	Pull the clasps at both sides slightly, and then remove the panel.	
5.Remove horizontal louver		
	Remove the axial bush on the horizontal louver, and then remove the horizontal louver.	

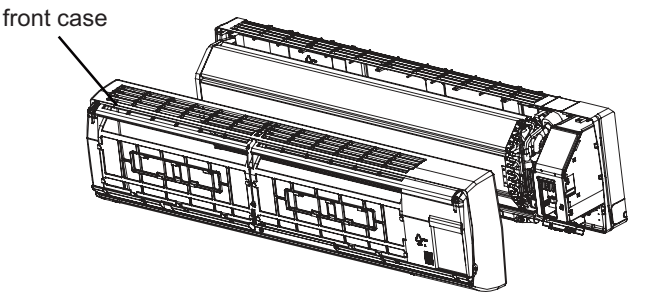
Steps	Procedure
6.Remove top cover of electric box	
a	Remove screws fixing the top cover of electric box.
b	Remove the top cover of electric box.
7.Remove front case	
a	Remove the screw caps on front case.
b	Remove screws connecting the front case.
c	Remove the front case.

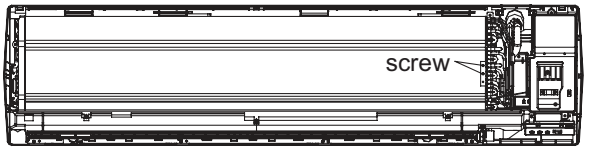
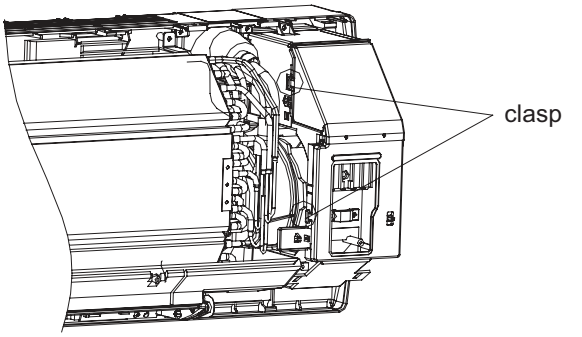
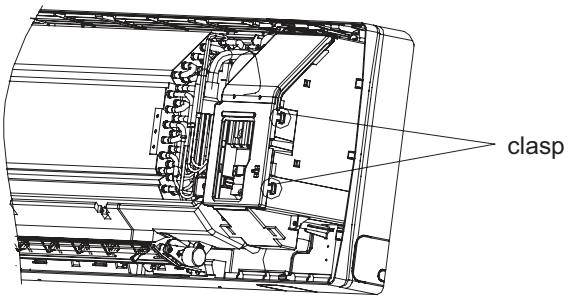
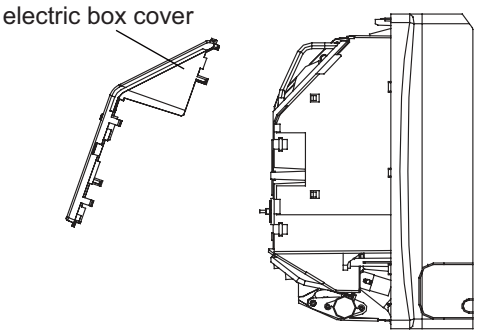


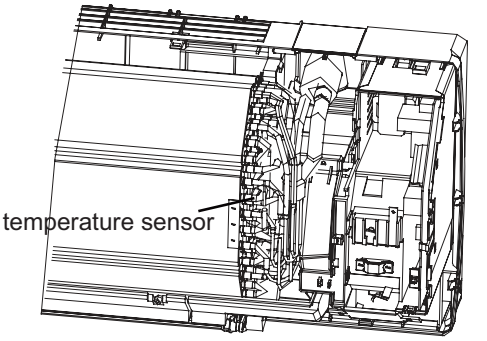
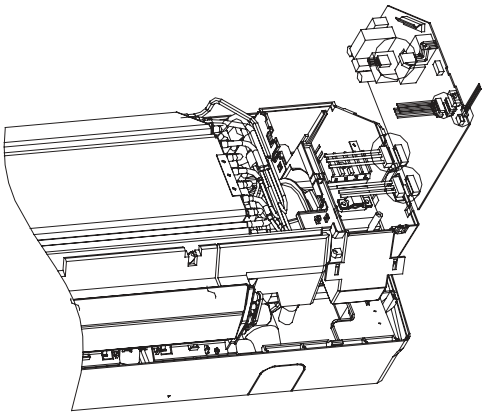
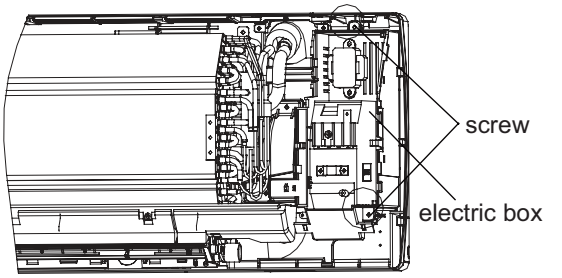
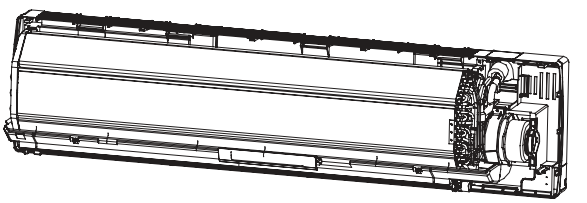


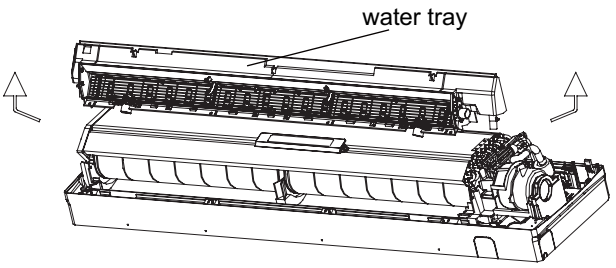
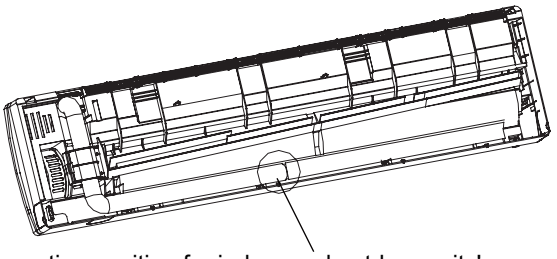
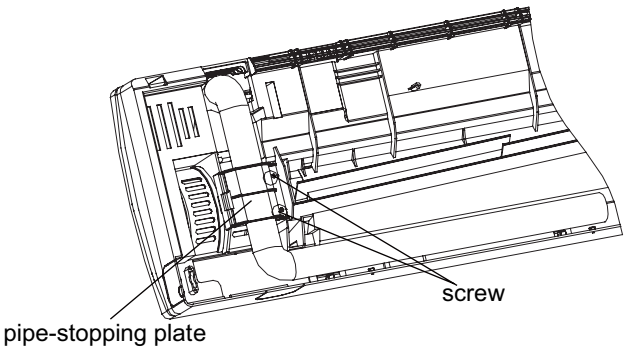
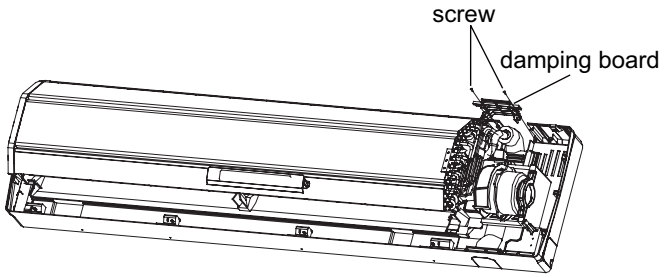


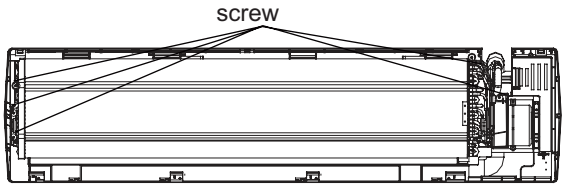
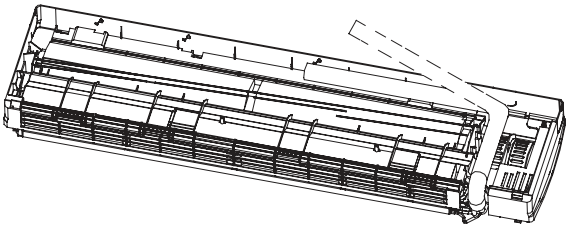
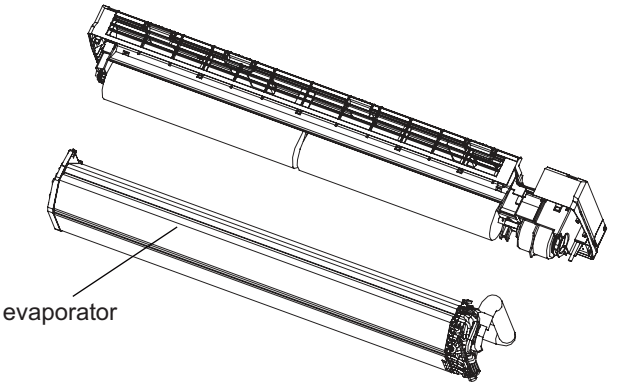
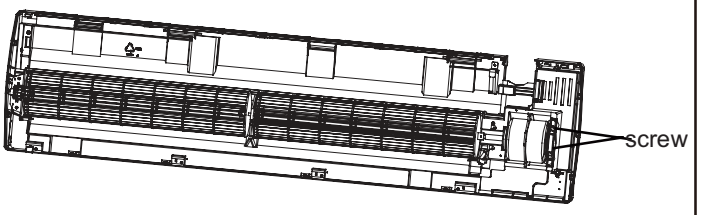


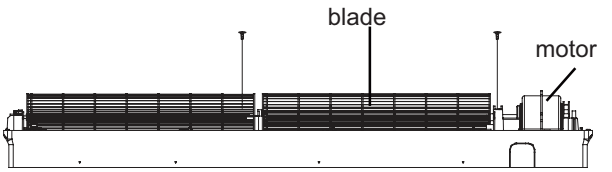
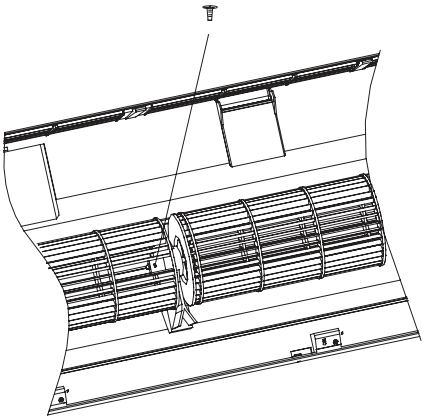
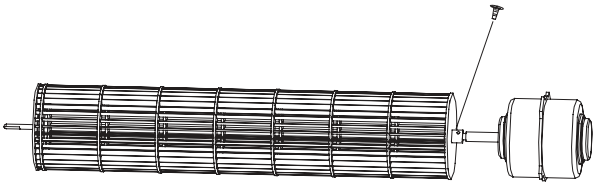
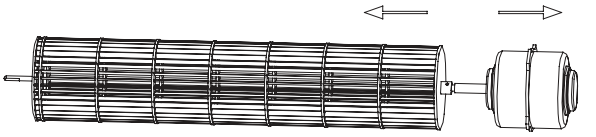
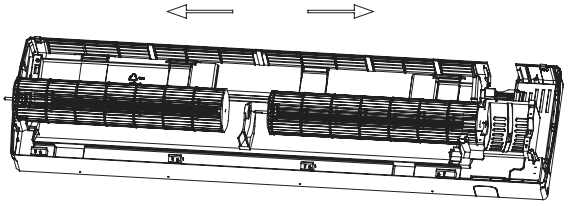


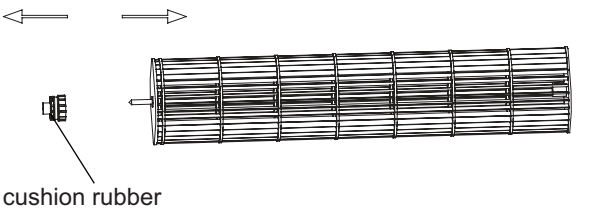
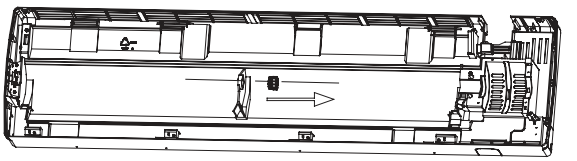
Steps	Procedure	
8.Remove grounding wire		
	Remove grounding screws, and then remove the grounding wire.	
9.Remove electric box cover		
a	Loosen clasps at the left side of electric box.	
b	Loosen clasps on the right side of electric box.	
b	Remove electric box cover.	

Steps	Procedure	
10.Remove temperature sensor		
	Pull out the indoor temperature sensor.	
11.Remove electric box		
a	Pull out 6 sockets on PCB board.	
b	Pull out 2 screws on electric box.	
c	Remove the electric box.	

Steps	Procedure
12.Remove water tray	
	Pull the water tray upwards, and then remove the water tray.
	
13.Remove connection pipe between indoor and outdoor units	
	Separate the connection pipe between indoor and outdoor units.
	
14.Remove pipe-stopping plate	
	Remove two screws on pipe-stopping plate for indoor unit, and then remove the pipe-stopping plate.
	
15.Remove damping board	
	Remove 2 screws on damping board, and then remove the damping board.
	

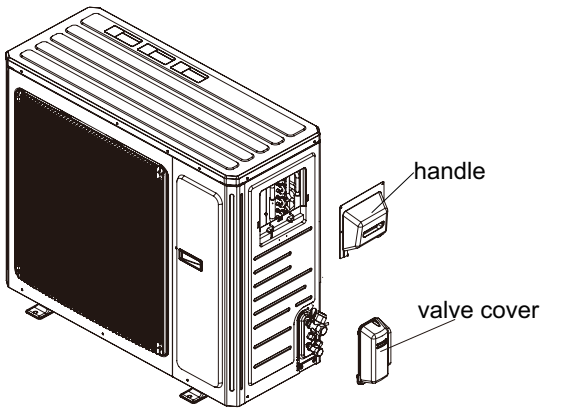
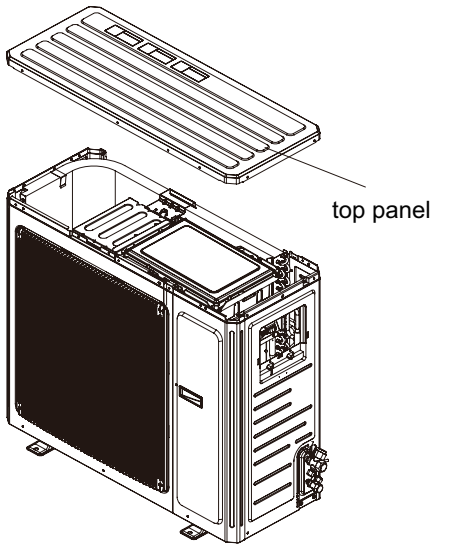
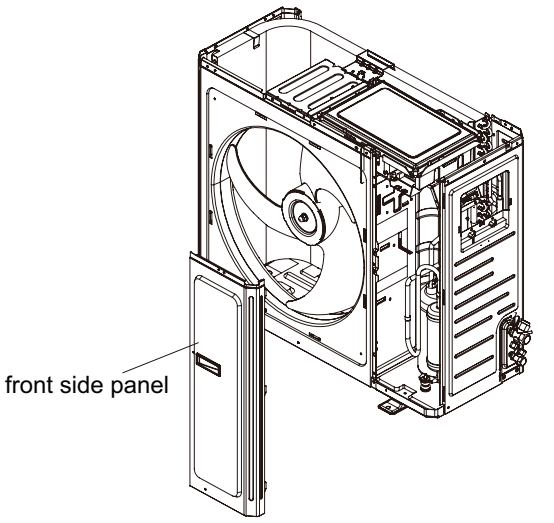
Steps	Procedure	
16.Remove evaporator		
a	Remove screws between evaporator and bottom case.	
b	Turn over the indoor unit and adjust the pipe line to the position as shown by the broken line.	
c	Lift up the evaporator, and then remove the evaporator.	
17.Remove the securing plate of motor		
	Remove 2 screws on securing plate of motor, and then remove the securing pate of motor.	

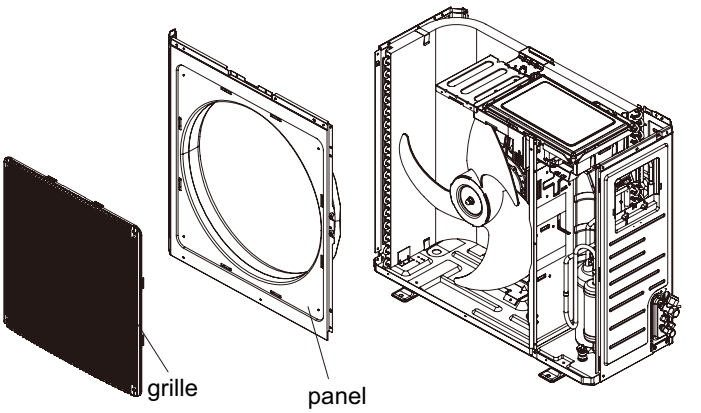
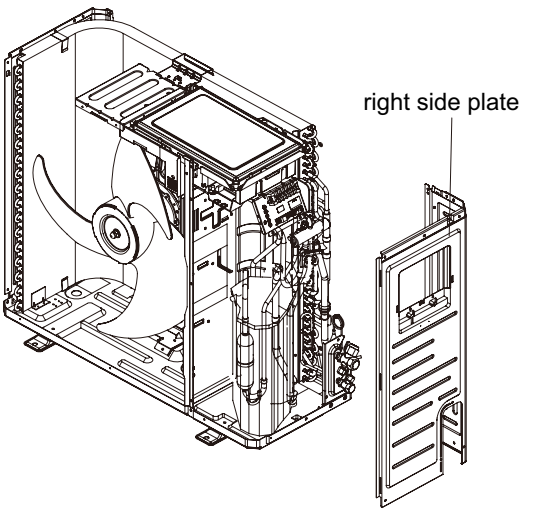
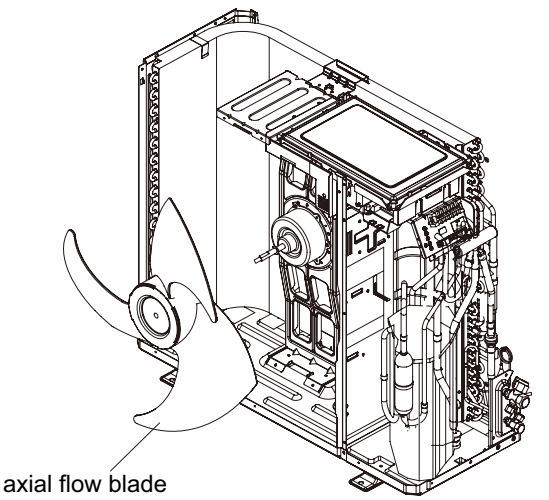
Steps	Procedure	
18.Remove cross flow blade and motor		
a	Remove screws fixing cross flow blade and motor.	
		
		
b	Remove the motor sub-assy.	
c	Separate two cross flow blades.	

Steps	Procedure	
19.Remove cushion rubber		
a	Remove the cushion rubber on cross flow blade.	
b	Remove the cushion rubber from the base.	

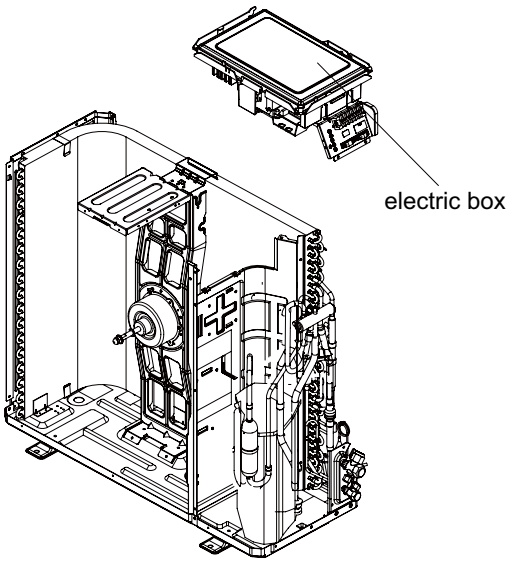
9.2 Removal Procedures of Outdoor Unit

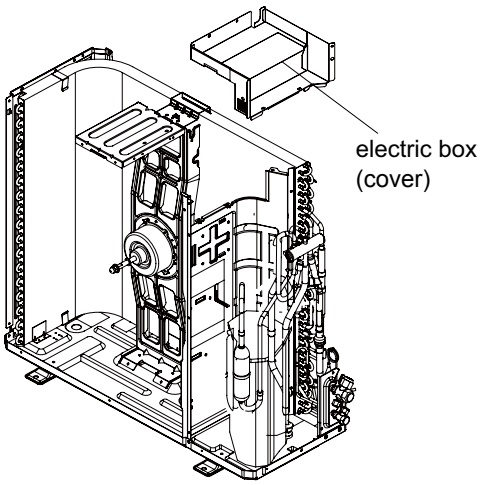
Note: Heat pump unit as an example:

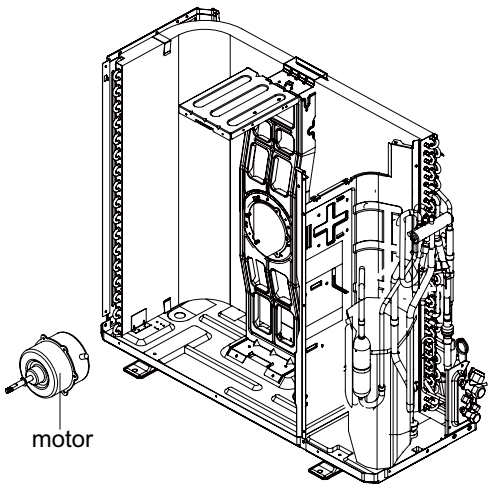
Steps	Procedure
1. Remove big handle, valve cover and top cover	
Remove the screw connecting the big handle and right side plate, and then remove the big handle. Remove the screw connecting the valve cover and right side plate, and then remove the valve cover.	
2.Remove top panel	
Remove the screws connecting the top panel with the front panel and left and right side plate, and then remove the top panel.	
3.Remove front side panel	
Loosen the screws connecting the front side panel and chassis. Remove the front side panel.	

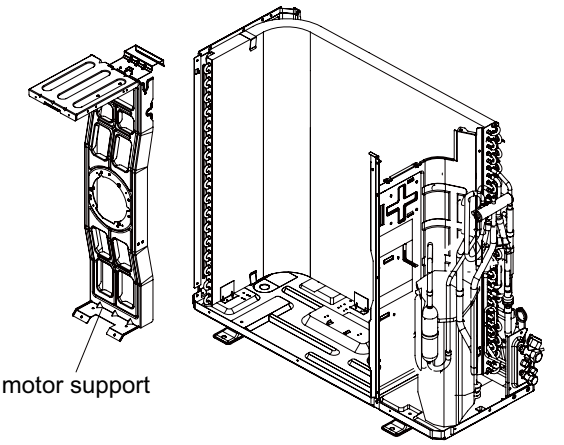
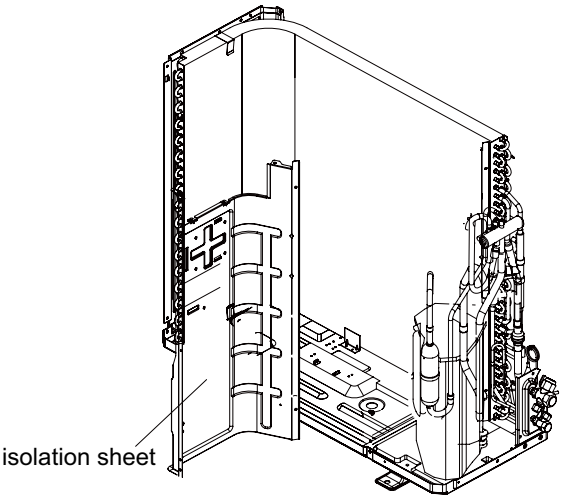
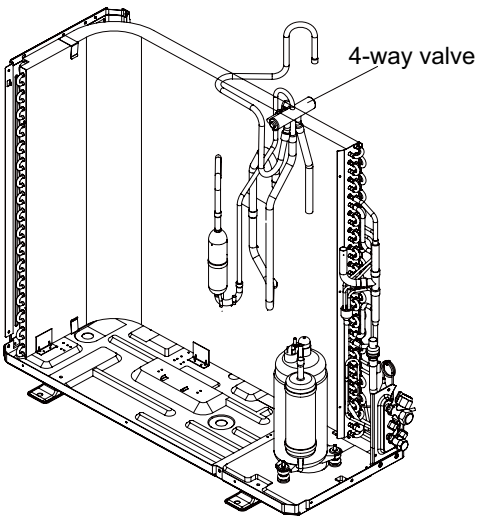
Steps	Procedure
4.Remove grille and panel	
Twist off the screws connecting the grille and panel, and then remove the grille. Twist off the screws connecting the panel, chassis and motor support and then remove the panel.	
5.Remove right side plate	
Twist off the screws connecting the right side plate and chassis, valve support and condenser, and then remove the right side plate.	
6.Remove axial flow blade	
Twist off the nuts on blade and then remove the axial flow blade.	

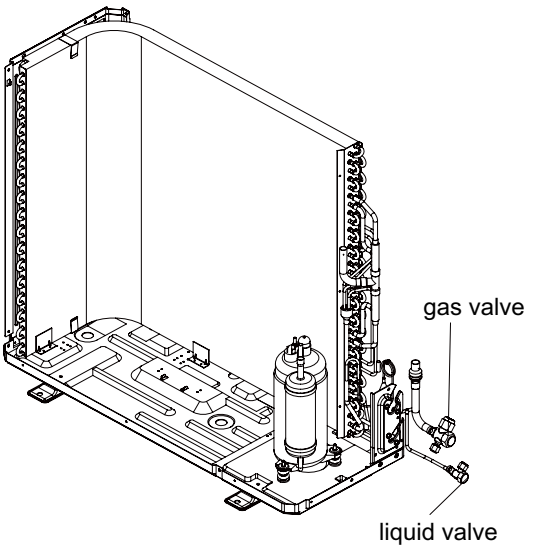
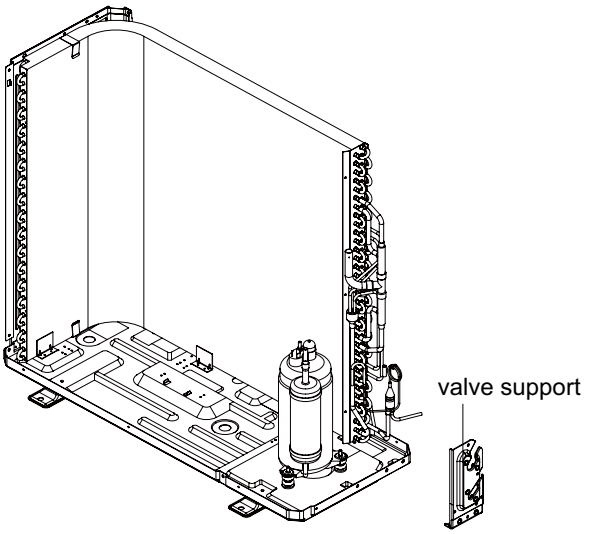
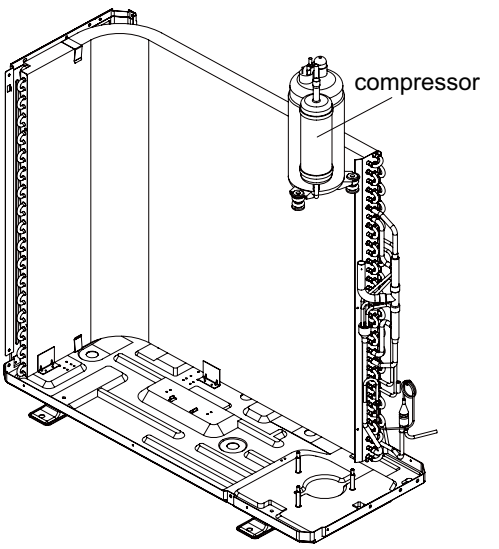
Steps	Procedure
7.Remove electric box	
	Twist off the screws on electric box, cut off the tieline with scissors or pliers, pull out the wiring terminal, pull it upwards to remove the electric box.
	Twist off the screws on electric box cover and then remove the electric box cover.
8.Remove motor	
	Twist off the tapping screws fixing the motor, pull out the pin of leading wire for motor and then remove the motor.

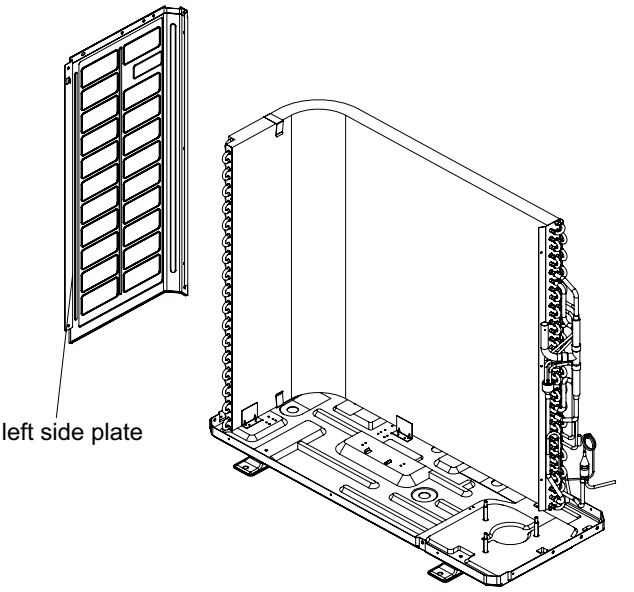
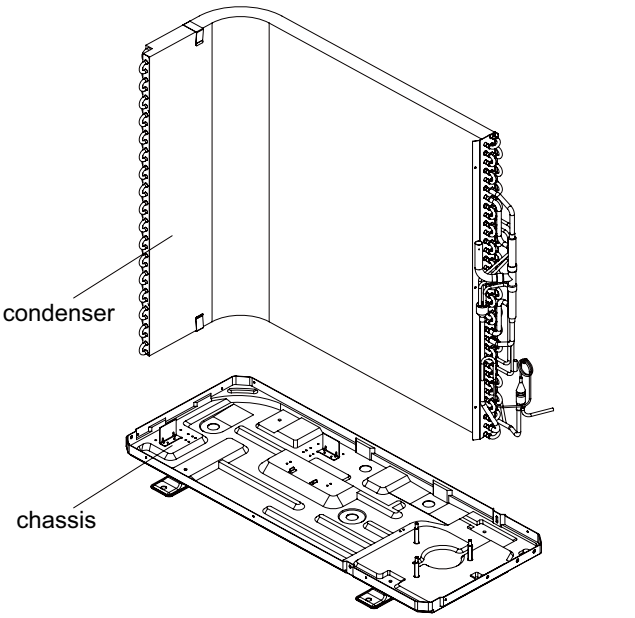






Steps	Procedure
9.Remove motor support	
	Twist off the tapping screws securing the motor support, pull it upward and then remove the motor support.
	
10.Remove isolation sheet	
	Twist off the screws connecting isolation sheet and end plate of condenser and chassis, and then remove the isolation sheet.
	
11.Remove 4-way valve	
	Unsolder the pipeline between compressor, condenser, gas and liquid valve, and then remove the 4-way valve. **(Note: Release all refrigerant before unsoldering.)**
	

Steps	Procedure
12.Remove gas valve and liquid valve	
Twist off the 2 bolts fixing the valve sub-assy. Unsolder the joint between gas valve and air-return pipe and then remove the gas valve. **(Note: When unsoldering the joint, wrap the gas valve with wet cloth completely to avoid damage to valve, and release all refrigerant completely first.)** Unsolder the joint between liquid valve and connection pipe of liquid valve, and then remove the liquid valve.	
13.Remove valve support	
Twist off the screws connecting valve support and chassis, and then remove the valve support.	
14.Remove compressor	
Twist off the 3 foot nuts on compressor and then remove the compressor.	

Steps	Procedure
15.Remove left side plate	
Twist off the screws connecting the left side plate and chassis with screwdriver, and then remove the left side plate.	
16.Remove chassis and condenser	
Pull it upward to separate the chassis and condenser.	

Appendix:

Appendix 1: Reference Sheet of Celsius and Fahrenheit

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

Set temperature

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

Ambient temperature

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

Appendix 2: Configuration of Connection Pipe

1.Standard length of connection pipe

● 16.40ft, 24.61ft, 26.25ft.

2.Min. length of connection pipe is 9.84ft.

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

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

● After the length of connection pipe is prolonged for 32.81ft at the basis of standard length, you should add 5ml 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):

Cooling capacity	Max length of connection pipe	Max height difference
5000 Btu/h(1465 W)	49.21ft	16.40ft
7000 Btu/h(2051 W)	49.21ft	16.40ft
9000 Btu/h(2637 W)	49.21ft	32.81ft
12000 Btu/h(3516 W)	65.62ft	32.81ft
18000 Btu/h(5274 W)	80.02ft	32.81ft
24000 Btu/h(7032 W)	80.02ft	32.81ft
28000 Btu/h(8204 W)	98.43ft	32.81ft
36000 Btu/h(10548 W)	98.43ft	65.62ft
42000 Btu/h(12306 W)	98.43ft	65.62ft
48000 Btu/h(14064 W)	98.43ft	65.62ft

● When the length of connection pipe is above 16.40ft, add refrigerant according to the prolonged length of liquid pipe. The additional refrigerant charging amount per meter is different according to the diameter of liquid pipe. See the following sheet.

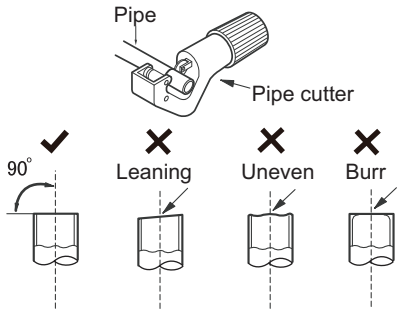
● Additional refrigerant charging amount = prolonged length of liquid pipe X additional refrigerant charging amount per meter

Additional refrigerant charging amount for R410A			
Diameter of connection pipe		Outdoor unit throttle	
Liquid pipe(inch)	Gas pipe(inch)	Cooling only(oz/ft.)	Cooling and heating(oz/ft.)
Φ1/4	Φ3/8or Φ1/2	0.2	0.2
Φ1/4 or Φ3/8	Φ5/8 or Φ3/4	0.2	0.2
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 Flaring Method

⚠ **Note:**

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

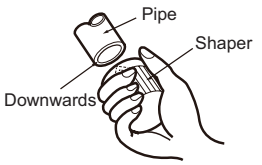


A:Cut the pipe

- 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

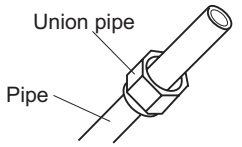
- Remove the burrs with shaper and prevent the burrs from getting into the pipe.



C:Put on suitable insulating pipe

D:Put on the flare nut

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



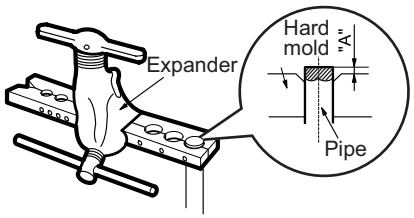
E:Flare the pipe

- Flare with 45° flaring tool

⚠ **Note:**

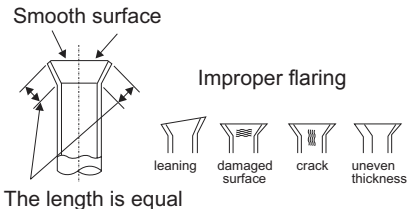
- "A" is different according to the diameter, please refer to the sheet below:

Outer diameter(inch)	A(inch)	
	Max	Min
Φ1/4	2/39	1/36
Φ3/8	1/16	1/51
Φ1/2	1/14	1/51
Φ5/8	5/53	2/23



F:Inspection

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



Appendix 4: List of Resistance for Temperature Sensor

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

Temp.(°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

Support Contact Information:

	Phone	Email
Technical Support Support during installation, commissioning, service and troubleshooting	1(844) 873-4443	BE-VRFTechSupport@jci.com
Applications and Design Presale assistance with equip applications and design support, as well as use of selection tool	1(844) 873-6755	BE-VRFApplicationDesign@jci.com
Customer Service Assistance ordering equipment, parts and accessories	1(844) 873-4445	BE-VRFCustomerService@jci.com
Warranty Assistance with warranty registration, warranty claims, etc.	1(844) 873-9768	BE-VRFWarranty@jci.com
Parts Equipment and parts pre- and post-sale support	1(844) 873-4445	BE-VRFParts@jci.com

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

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