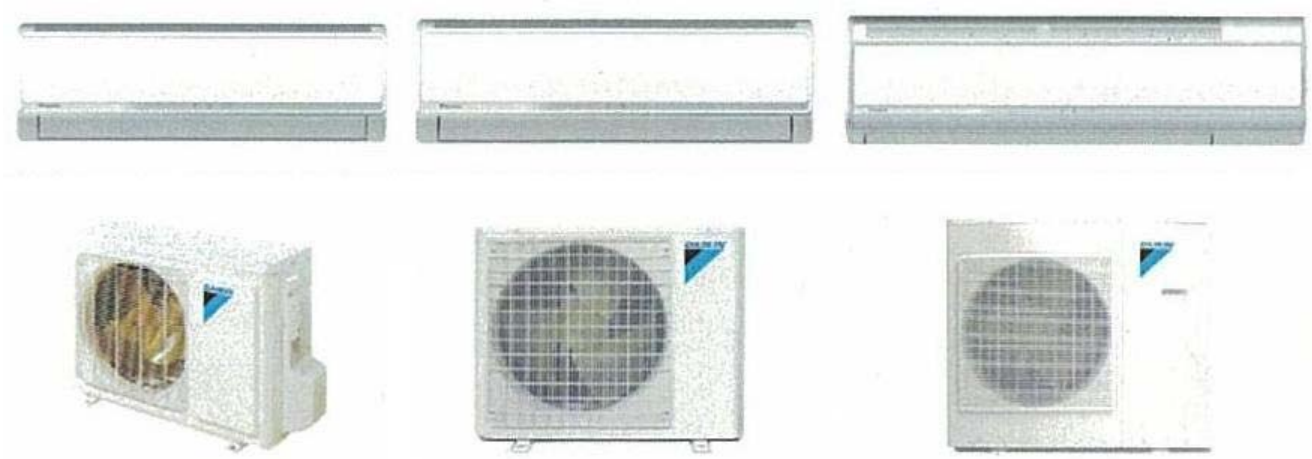
DAIKIN

SiK011007

Service Manual

Non-Inverter Pair
Wall Mounted Type H-Series



● Non-Inverter Pair : Heat Pump

Non-Inverter Pair Wall Mounted Type H-Series

Heat Pump

Indoor Unit
FTY18HEV1K
FTY24HEV1K
FTY28HEV1K

Outdoor Unit
RY18HEV1K
RY24HEV1K
RY28HEV1K

1. Introduction

1.1 Safety Cautions

Cautions and Warnings

- Be sure to read the following safety cautions before conducting repair work.
- The caution items are classified into "⚠**Warning**" and "⚠**Caution**". The "⚠**Warning**" items are especially important since they can lead to death or serious injury if they are not followed closely. The "⚠**Caution**" items can also lead to serious accidents under some conditions if they are not followed. Therefore, be sure to observe all the safety caution items described below.
- About the pictograms

△ This symbol indicates the item for which caution must be exercised.
The pictogram shows the item to which attention must be paid.

◯ This symbol indicates the prohibited action.
The prohibited item or action is shown in the illustration or near the symbol.

● This symbol indicates the action that must be taken, or the instruction.
The instruction is shown in the illustration or near the symbol.

- After the repair work is complete, be sure to conduct a test operation to ensure that the equipment operates normally, and explain the cautions for operating the product to the customer.

1.1.1 Cautions Regarding Safety of Workers

⚠**Warning**	
Be sure to disconnect the power cable plug from the plug socket before disassembling the equipment for repair. Working on the equipment that is connected to the power supply may cause an electrical shook. If it is necessary to supply power to the equipment to conduct the repair or inspecting the circuits, do not touch any electrically charged sections of the equipment.	
If the refrigerant gas is discharged during the repair work, do not touch the discharged refrigerant gas. The refrigerant gas may cause frostbite.	
When disconnecting the suction or discharge pipe of the compressor at the welded section, evacuate the refrigerant gas completely at a well-ventilated place first. If there is a gas remaining inside the compressor, the refrigerant gas or refrigerating machine oil discharges when the pipe is disconnected, and it may cause injury.	
If the refrigerant gas leaks during the repair work, ventilate the area. The refrigerant gas may generate toxic gases when it contacts flames.	
The step-up capacitor supplies high-voltage electricity to the electrical components of the outdoor unit. Be sure to discharge the capacitor completely before conducting repair work. A charged capacitor may cause an electrical shock.	
Do not start or stop the air conditioner operation by plugging or unplugging the power cable plug. Plugging or unplugging the power cable plug to operate the equipment may cause an electrical shock or fire.	

Warning	
Be sure to wear a safety helmet, gloves, and a safety belt when working at a high place (more than 2 m). Insufficient safety measures may cause a fall accident.	
In case of R-410A refrigerant models, be sure to use pipes, flare nuts and tools for the exclusive use of the R-410A refrigerant. The use of materials for R-22 refrigerant models may cause a serious accident such as a damage of refrigerant cycle as well as an equipment failure.	

Caution	
Do not repair the electrical components with wet hands. Working on the equipment with wet hands may cause an electrical shock.	
Do not clean the air conditioner by splashing water. Washing the unit with water may cause an electrical shock.	
Be sure to provide the grounding when repairing the equipment in a humid or wet place, to avoid electrical shocks.	
Be sure to turn off the power switch and unplug the power cable when cleaning the equipment. The internal fan rotates at a high speed, and cause injury.	
Be sure to conduct repair work with appropriate tools. The use of inappropriate tools may cause injury.	
Be sure to check that the refrigerating cycle section has cooled down enough before conducting repair work. Working on the unit when the refrigerating cycle section is hot may cause burns.	
Use the welder in a well-ventilated place. Using the welder in an enclosed room may cause oxygen deficiency.	

1.1.2 Cautions Regarding Safety of Users

Warning	
Be sure to use parts listed in the service parts list of the applicable model and appropriate tools to conduct repair work. Never attempt to modify the equipment. The use of inappropriate parts or tools may cause an electrical shock, excessive heat generation or fire.	
If the power cable and lead wires have scratches or deteriorated, be sure to replace them. Damaged cable and wires may cause an electrical shock, excessive heat generation or fire.	
Do not use a joined power cable or extension cable, or share the same power outlet with other electrical appliances, since it may cause an electrical shock, excessive heat generation or fire.	
Be sure to use an exclusive power circuit for the equipment, and follow the local technical standards related to the electrical equipment, the internal wiring regulations, and the instruction manual for installation when conducting electrical work. Insufficient power circuit capacity and improper electrical work may cause an electrical shock or fire.	
Be sure to use the specified cable for wiring between the indoor and outdoor units. Make the connections securely and route the cable properly so that there is no force pulling the cable at the connection terminals. Improper connections may cause excessive heat generation or fire.	
When wiring between the indoor and outdoor units, make sure that the terminal cover does not lift off or dismount because of the cable. If the cover is not mounted properly, the terminal connection section may cause an electrical shock, excessive heat generation or fire.	
Do not damage or modify the power cable. Damaged or modified power cable may cause an electrical shock or fire. Placing heavy items on the power cable, and heating or pulling the power cable may damage the cable.	
Do not mix air or gas other than the specified refrigerant (R-410A / R-22) in the refrigerant system. If air enters the refrigerating system, an excessively high pressure results, causing equipment damage and injury.	
If the refrigerant gas leaks, be sure to locate the leaking point and repair it before charging the refrigerant. After charging refrigerant, make sure that there is no refrigerant leak. If the leaking point cannot be located and the repair work must be stopped, be sure to perform pump-down and close the service valve, to prevent the refrigerant gas from leaking into the room. The refrigerant gas itself is harmless, but it may generate toxic gases when it contacts flames, such as fan and other heaters, stoves and ranges.	
When relocating the equipment, make sure that the new installation site has sufficient strength to withstand the weight of the equipment. If the installation site does not have sufficient strength and if the installation work is not conducted securely, the equipment may fall and cause injury.	

Warning	
Check to make sure that the power cable plug is not dirty or loose, then insert the plug into a power outlet securely. If the plug has dust or loose connection, it may cause an electrical shock or fire.	
Be sure to install the product correctly by using the provided standard installation frame. Incorrect use of the installation frame and improper installation may cause the equipment to fall, resulting in injury.	For unitary type only 
Be sure to install the product securely in the installation frame mounted on the window frame. If the unit is not securely mounted, it may fall and cause injury.	For unitary type only 
When replacing the coin battery in the remote controller, be sure to disposed of the old battery to prevent children from swallowing it. If a child swallows the coin battery, see a doctor immediately.	

Caution	
Installation of a leakage breaker is necessary in some cases depending on the conditions of the installation site, to prevent electrical shocks.	
Do not install the equipment in a place where there is a possibility of combustible gas leaks. If the combustible gas leaks and remains around the unit, it may cause a fire.	
Check to see if the parts and wires are mounted and connected properly, and if the connections at the soldered or crimped terminals are secure. Improper installation and connections may cause excessive heat generation, fire or an electrical shock.	
If the installation platform or frame has corroded, replace it. Corroded installation platform or frame may cause the unit to fall, resulting in injury.	
Check the grounding, and repair it if the equipment is not properly grounded. Improper grounding may cause an electrical shock.	

Caution	
Be sure to measure the insulation resistance after the repair, and make sure that the resistance is 1 MΩ or higher. Faulty insulation may cause an electrical shock.	
Be sure to check the drainage of the indoor unit after the repair. Faulty drainage may cause the water to enter the room and wet the furniture and floor.	
Do not tilt the unit when removing it. The water inside the unit may spill and wet the furniture and floor.	
Be sure to install the packing and seal on the installation frame properly. If the packing and seal are not installed properly, water may enter the room and wet the furniture and floor.	For unitary type only 

1.2 Used Icons

Icons are used to attract the attention of the reader to specific information. The meaning of each icon is described in the table below:

Icon	Type of Information	Description
Note:	Note	A “note” provides information that is not indispensable, but may nevertheless be valuable to the reader, such as tips and tricks.
Caution	Caution	A “caution” is used when there is danger that the reader, through incorrect manipulation, may damage equipment, loose data, get an unexpected result or has to restart (part of) a procedure.
Warning	Warning	A “warning” is used when there is danger of personal injury.
	Reference	A “reference” guides the reader to other places in this binder or in this manual, where he/she will find additional information on a specific topic.

Part 1
Specifications

1. Specifications

1.1 18 Class

Model			FTY18HEV1K
Power Supply	Rated Voltage	V~	220-240
	Rated Frequency	Hz	50
	Phases		1
Power Supply Mode			Indoor
Cooling Capacity		W	5400
Heating Capacity		W	6000
Power Consumption	Cooling	W	2000
	Heating	W	1950
Current	Cooling	A	9.50
	Heating	A	9.40
Air Flow Volume(SH/H/M/L/SL)		m^3/h	14.2
Dehumidifying Volume		L/h	1.8
COP	Cooling	W/W	2.70
	Heating	W/W	3.08
Indoor unit	Fan Type		Cross-flow
	Diameter Length(DXL)	mm	Φ98X710
	Fan Motor Cooling Speed(SH/H/ML/SL)	rpm	1350/1200/1050/900/-
	Fan Motor Heating Speed(SH/H/ML/SL)	rpm	1420/1250/1150/1050/-
	Output of Fan Motor	W	20
	Fan Motor RLA	A	0.31
	Fan Motor Capacitor	μF	1.5
	Input of Heater	W	-
	Evaporator Form		Aluminium Fin-copper Tube
	Pipe Diameter	mm	Φ7
	Row-fin Gap	mm	2-1.4
	Coil Length (LXDXW)	mm	715X304.8X25.4
	Swing Motor Model		MP28VB
	Output of Swing Motor	W	2
	Fuse	A	PCB 3.15A
	Operation sound (SH/H/M/L/SL)	dB (A)	41/37/32
	Dimension (WXHXD)	mm	940X200X298
	Dimension of Package(L/W/H)	mm	1010X285X380
	Net Weight	kg	13
	Gross Weight	kg	17

Model				RY18HEV1K
Outdoor unit	Compressor Manufacturer/Trademark			Shanghai Hitachi Electrical Appliances Co.,Ltd
	Compressor Model			SH356MV-C7NU
	Compressor Oil			SUNISO-4GSI/FREOL-K56J or equivalent
	Compressor Type			Rotary
	L.R.A.		A	58.00
	Compressor RLA		A	9.65
	Compressor Power Input		W	2025
	Overload Protector			Built in
	Throttling Method			Capillary
	Operation Temp		°C	16~30
	Ambient Temp (Cooling)		°C	18~54
	Ambient Temp (Heating)		°C	-7~24
	Condenser Form			Aluminium Fin-copper Tube
	Pipe Diameter		mm	Φ9.52
	Rows-fin Gap		mm	1-1.6
	Coil Length (LXDXW)		mm	806X660X22
	Fan Motor Speed		rpm	780
	Output of Fan Motor		W	68
	Fan Motor RLA		A	0.75
	Fan Motor Capacitor		μF	3
	Air Flow Volume of Outdoor Unit		m^3/h	2800
	Fan Type			Axial-flow
	Fan Diameter		mm	Φ460
	Defrosting Method			Automatic Defrosting
	Climate Type			T3
	Isolation			I
	Moisture Protection			IP24
	Permissible Excessive Operating Pressure for the Discharge Side		MPa	2.5
	Permissible Excessive Operating Pressure for the Suction Side		MPa	0.6
	Operation Sound (H/M/L)	Cooling	dB (A)	52
		Heating	dB (A)	52
	Dimension (WXHXD)		mm	913X378X680
	Dimension of Package(L/W/H)		mm	997X431X740
	Net Weight		kg	46
	Gross Weight		kg	51
	Refrigerant			R22
	Refrigerant Charge		kg	1.17
Connection Pipe	Length		m	5
	Gas Additional Charge		g/m	15
	Outer Diameter Liquid Pipe		mm	Φ6
	Outer Diameter Gas Pipe		mm	Φ12
	Max Distance Height		m	10
	Max Distance Length		m	25

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

1.2 24 Class

Model			FTY24HEV1K
Power Supply	Rated Voltage	V~	220-240
	Rated Frequency	Hz	50
	Phases		1
Power Supply Mode			Indoor
Cooling Capacity		W	6450
Heating Capacity		W	7200
Power Consumption	Cooling	W	2300
	Heating	W	2350
Current	Cooling	A	10.4
	Heating	A	10.6
Air Flow Volume(SH/H/M/L/SL)		m^3/h	15.8
Dehumidifying Volume		L/h	2
COP	Cooling	W/W	2.80
	Heating	W/W	3.06
Indoor unit	Fan Type		Cross-flow
	Diameter Length(DXL)	mm	Φ98X765
	Fan Motor Cooling Speed(SH/H/ML/SL)	rpm	1250/1100/950/800/-
	Fan Motor Heating Speed(SH/H/ML/SL)	rpm	1300/1150/1000/850/-
	Output of Fan Motor	W	35
	Fan Motor RLA	A	0.31
	Fan Motor Capacitor	μF	2.5
	Input of Heater	W	-
	Evaporator Form		Aluminium Fin-copper Tube
	Pipe Diameter	mm	Φ7
	Row-fin Gap	mm	2-1.5
	Coil Length (LXDXW)	mm	765X342.9X25.4
	Swing Motor Model		MP35XX
	Output of Swing Motor	W	3
	Fuse	A	PCB 3.15A
	Operation Sound (SH/H/M/L/SL)	dB (A)	41/37/32
	Dimension (WXHXD)	mm	1007X315X219
	Dimension of Package(L/W/H)	mm	1073X395X313
	Net Weight	kg	15.5
	Gross Weight	kg	20.5

Model				RY24HEV1K
Outdoor unit	Compressor Manufacturer/Trademark			Shanghai Hitachi Electrical Appliances Co.,Ltd/Hitachi
	Compressor Model			SH417MV-C8LU GL
	Compressor Oil			SUNISO-4GSI/FREOL-K56J or equivalent
	Compressor Type			Rotary
	L.R.A.		A	62
	Compressor RLA		A	10.8
	Compressor Power Input		W	2335
	Overload Protector			Built in
	Throttling Method			Capillary
	Operation Temp		°C	16~30
	Ambient Temp (Cooling)		°C	18~54
	Ambient Temp (Heating)		°C	-7~24
	Condenser Form			Aluminium Fin-copper Tube
	Pipe Diameter		mm	Φ7
	Rows-fin Gap		mm	2-1.4
	Coil Length (LXDXW)		mm	853X660X38.1
	Fan Motor Speed		rpm	690
	Output of Fan Motor		W	60
	Fan Motor RLA		A	0.58
	Fan Motor Capacitor		μF	3.5
	Air Flow Volume of Outdoor Unit		m^3/h	3200
	Fan Type			Aixal-flow
	Fan Diameter		mm	Φ520
	Defrosting Method			Automatic Defrosting
	Climate Type			T3
	Isolation			I
	Moisture Protection			IP24
	Permissible Excessive Operating Pressure for the Discharge Side		MPa	2.5
	Permissible Excessive Operating Pressure for the Suction Side		MPa	0.6
	Operation Sound (H/M/L)	Cooling	dB (A)	53
		Heating	dB (A)	53
	Dimension (WXHXD)		mm	955X700X396
	Dimension of Package(L/W/H)		mm	1026X455X735
	Net Weight		kg	55
	Gross Weight		kg	60
	Refrigerant			R22
	Refrigerant Charge		kg	1.9
Connection Pipe	Length		m	5
	Gas Additional Charge		g/m	50
	Outer Diameter Liquid Pipe		mm	Φ6
	Outer Diameter Gas Pipe		mm	Φ16
	Max Distance Height		m	10
	Max Distance Length		m	25

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

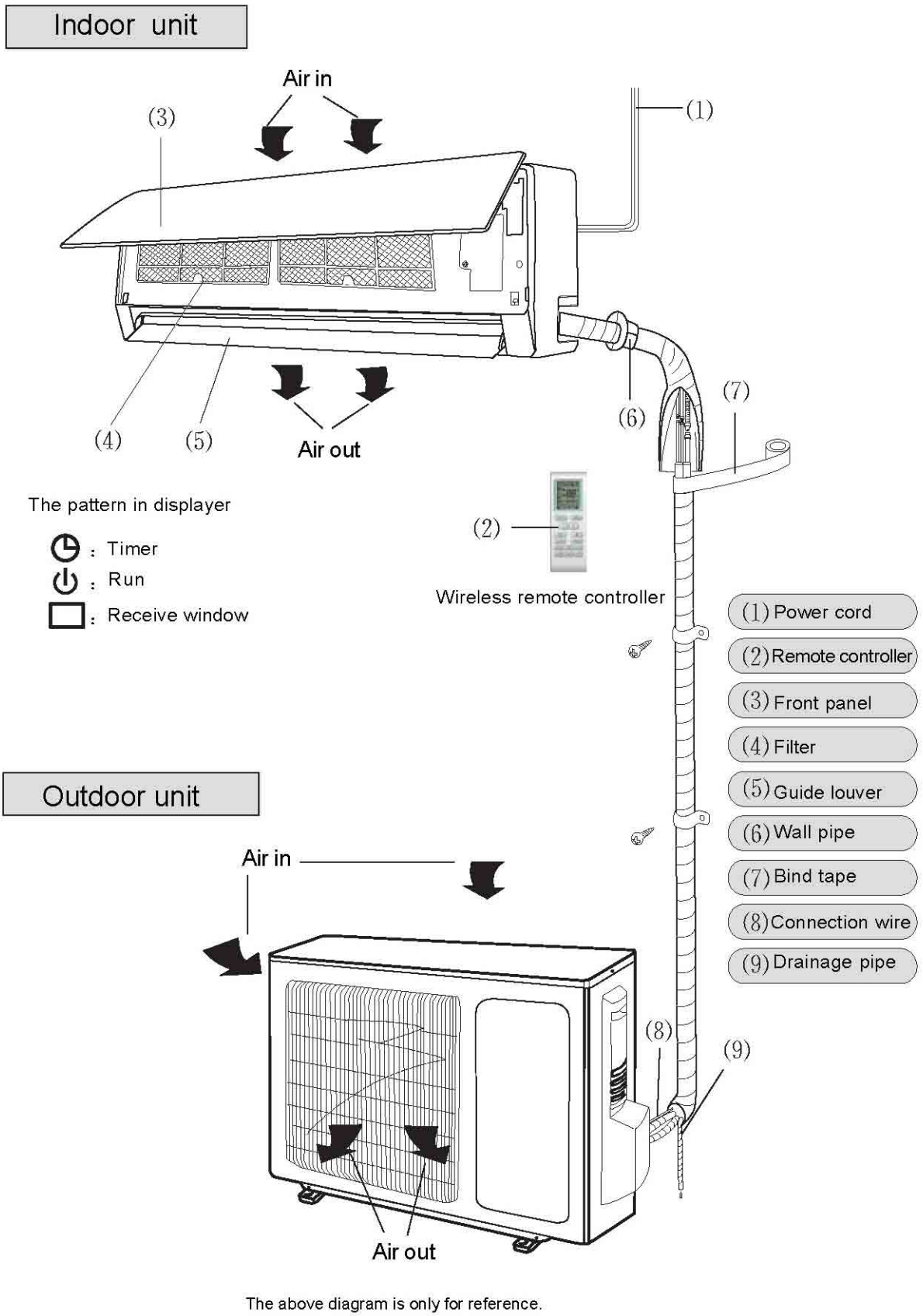
1.3 28 Class

Model			FTY28HEV1K
Power Supply	Rated Voltage	V~	220-240
	Rated Frequency	Hz	50
	Phases		1
Power Supply Mode			Outdoor
Heating Capacity		W	8600
Cooling Capacity		W	9200
Power Consumption	Heating	W	3200
	Cooling	W	3100
Current	Heating	A	14.9
	Cooling	A	15.4
Air Flow Volume(SH/H/M/L/SL)		m^3/h	-/1200/1100/1000/-
Dehumidifying Volume		L/h	2.7
COP	Heating	W/W	2.69
	Cooling	W/W	2.97
Indoor unit	Fan Type		Cross-flow
	Diameter Length(DXL)	mm	Φ106X890
	Fan Motor Cooling Speed(SH/H/ML/SL)	rpm	-/1410/1280/1200/-
	Fan Motor Heating Speed(SH/H/ML/SL)	rpm	-/1410/1280/1200/-
	Output of Fan Motor	W	30
	Fan Motor RLA	A	0.4
	Fan Motor Capacitor	μF	3
	Input of Heater	W	-
	Evaporator Form		Aluminium Fin-copper Tube
	Pipe Diameter	mm	Φ7
	Row-fin Gap	mm	2-1.5
	Coil Length (LXDXW)	mm	903X25.4X381
	Swing Motor Model		MP24BA
	Output of Swing Motor	W	1.5
	Fuse	A	PCB 5A
	Operation Sound (SH/H/M/L/SL)	dB (A)	49/46/44
	Dimension (WXHXD)	mm	1178X326X253
	Dimension of Package(L/W/H)	mm	1265X417X343
	Net Weight	kg	17.5
	Gross Weight	kg	24

Model				RY28HEV1K
Outdoor unit	Compressor Manufacturer/Trademark			MITSUBISHI ELECTRIC(Guangzhou)COMPRESSOR CO.,LTD/MITSUBISHI
	Compressor Model			LHT53VBAC
	Compressor Oil			ATMOS NM56EP
	Compressor Type			Rotary
	L.R.A.		A	76
	Compressor RLA		A	14.8
	Compressor Power Input		W	3050
	Overload Protector			Built in
	Throttling Method			Capillary
	Operation Temp		°C	16~30
	Ambient Temp (Cooling)		°C	18~54
	Ambient Temp (Heating)		°C	-7~24
	Condenser Form			Aluminium Fin-copper Tube
	Pipe Diameter		mm	Φ9.52
	Rows-fin Gap		mm	2-1.4
	Coil Length (LXDXW)		mm	813X743X44
	Fan Motor Speed		rpm	780
	Output of Fan Motor		W	82
	Fan Motor RLA		A	0.75
	Fan Motor Capacitor		μF	3.5
	Air Flow Volume of Outdoor Unit		m^3/h	3600
	Fan Type			Axial-flow
	Fan Diameter		mm	482
	Defrosting Method			Automatic Defrosting
	Climate Type			T3
	Isolation			I
	Moisture Protection			IP24
	Permissible Excessive Operating Pressure for the Discharge Side		MPa	2.5
	Permissible Excessive Operating Pressure for the Suction Side		MPa	0.6
	Operation Sound (H/M/L)	Cooling	dB (A)	61
		Heating	dB (A)	61
	Dimension (WXHXD)		mm	1018X840X412
	Dimension of Package(L/W/H)		mm	1100X450X905
	Net Weight		kg	70
	Gross Weight		kg	78
	Refrigerant			R22
	Refrigerant Charge		kg	2.55
Connection Pipe	Length		m	5
	Gas Additional Charge		g/m	50
	Outer Diameter Liquid Pipe		mm	Φ6
	Outer Diameter Gas Pipe		mm	Φ16
	Max Distance Height		m	10
	Max Distance Length		m	30

Part 2
Part Outline and Installation Dimension

1. Part Name

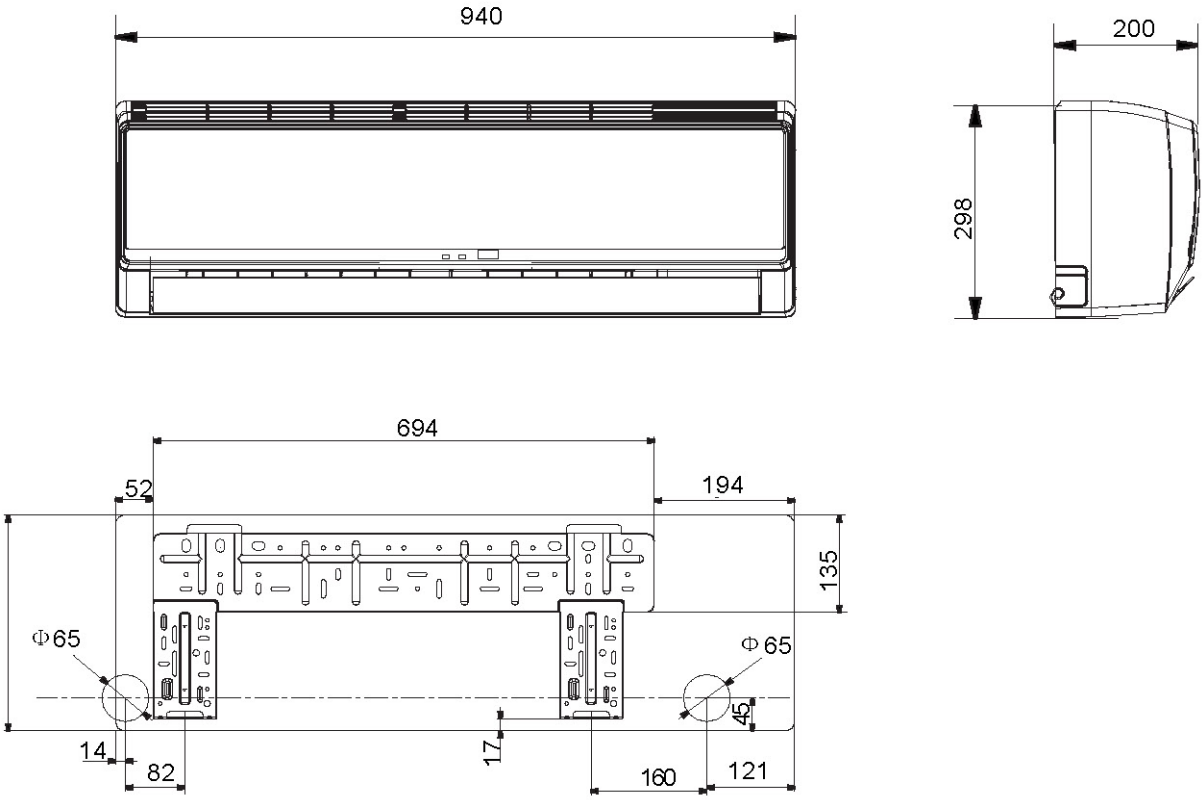


The above diagram is only for reference.

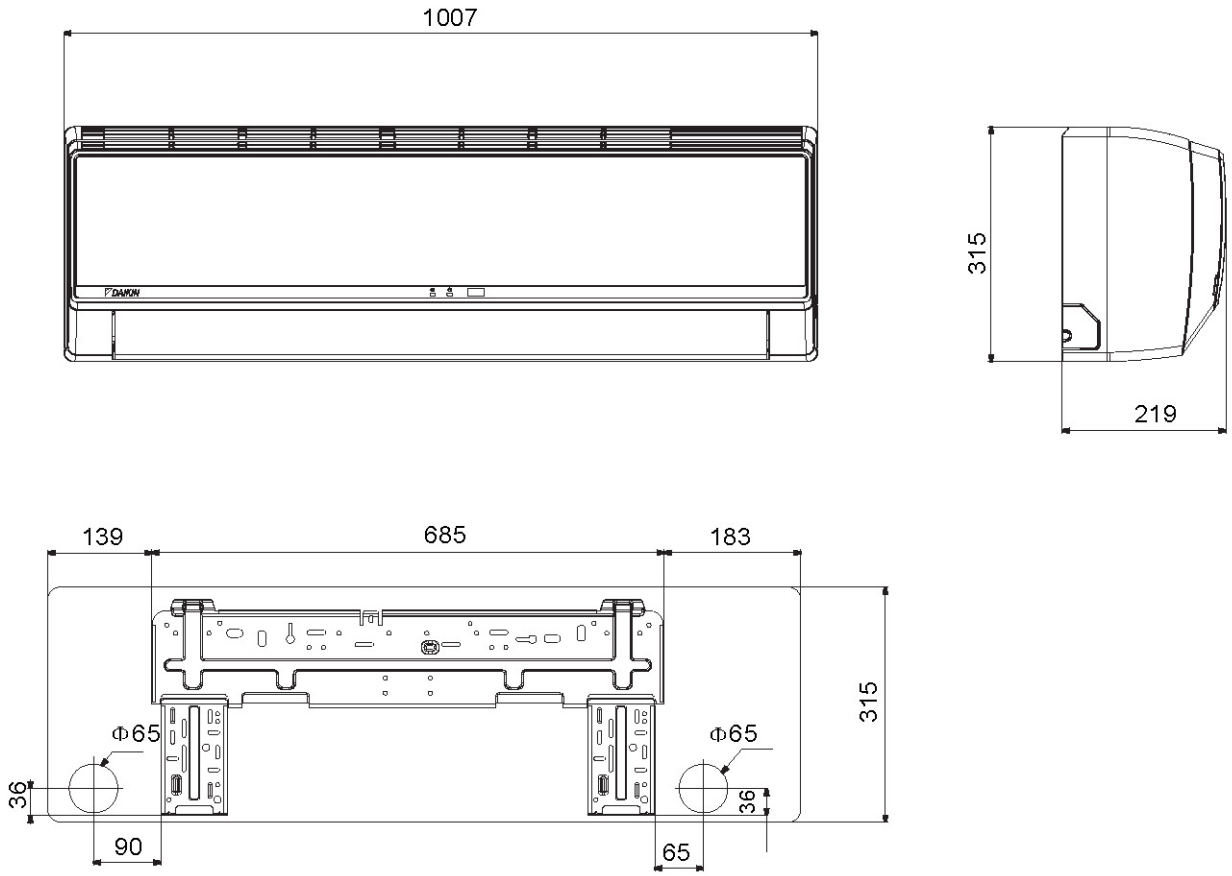
2. Outline and Installation Dimension

2.1 Outline and Installation Dimensions of Indoor Unit

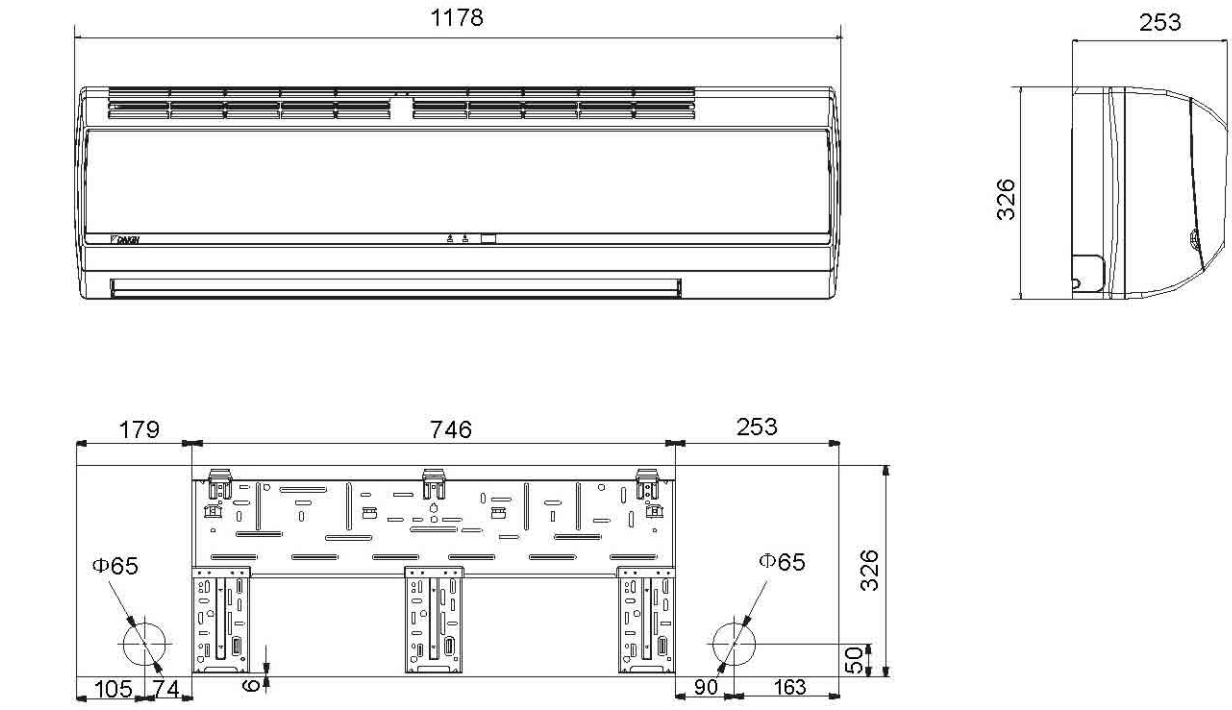
2.1.1 18 Class



2.1.2 24 Class

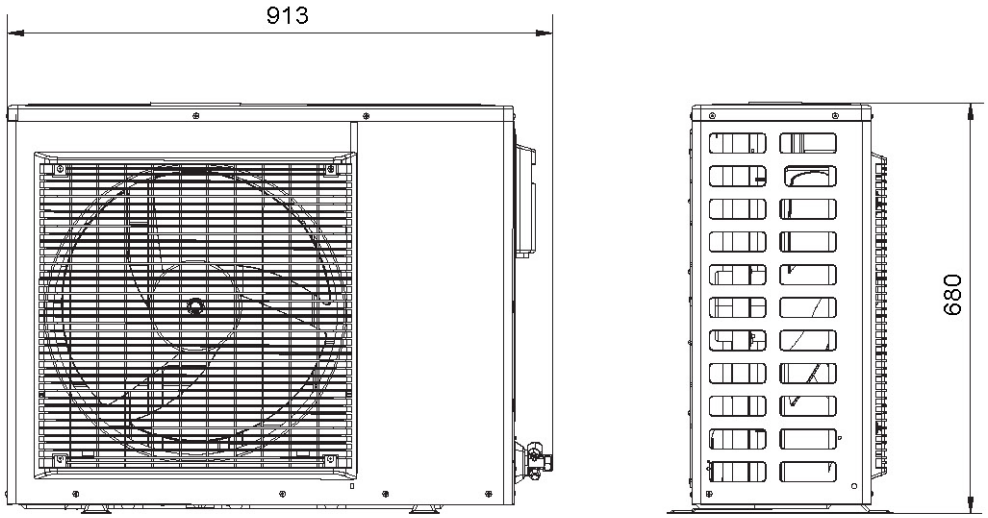


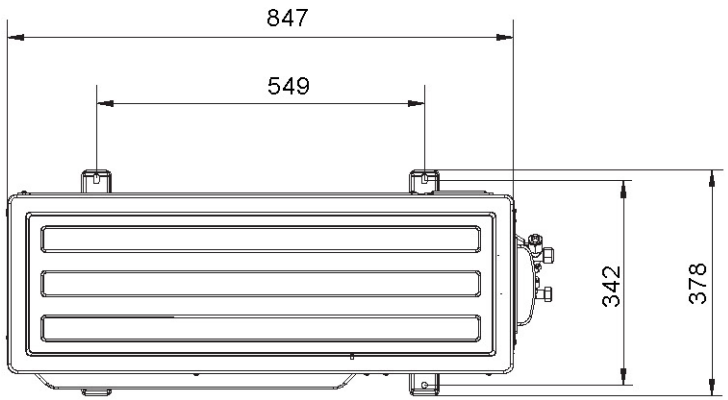
2.1.3 28 Class

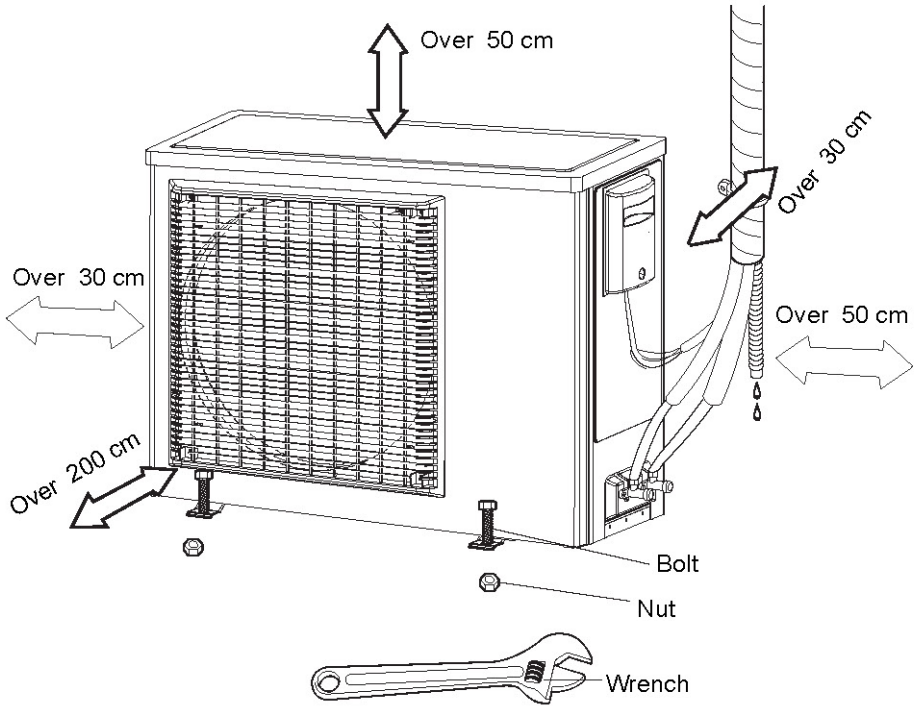


2.2 Outline and Installation Dimensions of Outdoor Unit

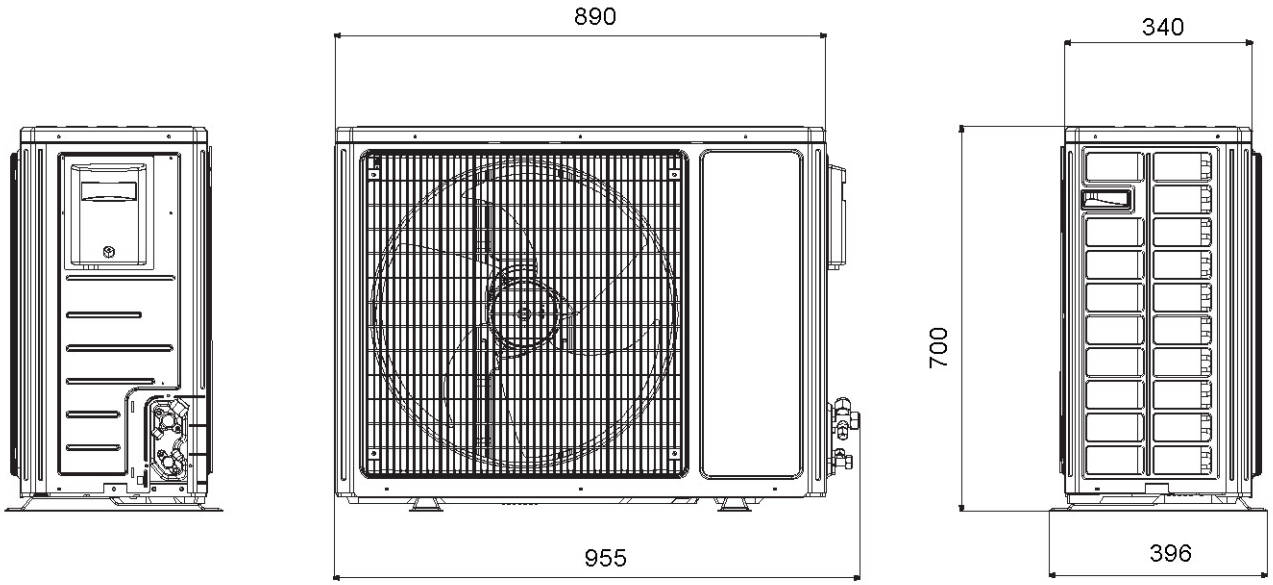
2.2.1 18 Class







2.2.2 24 Class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955
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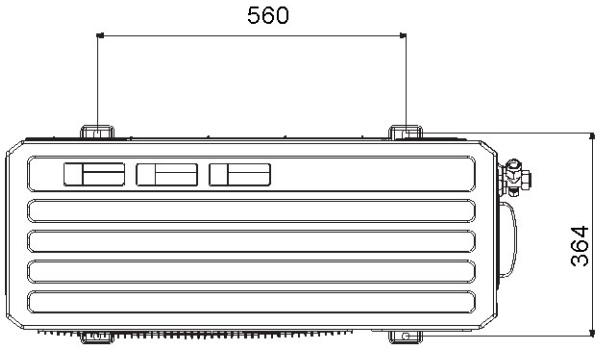
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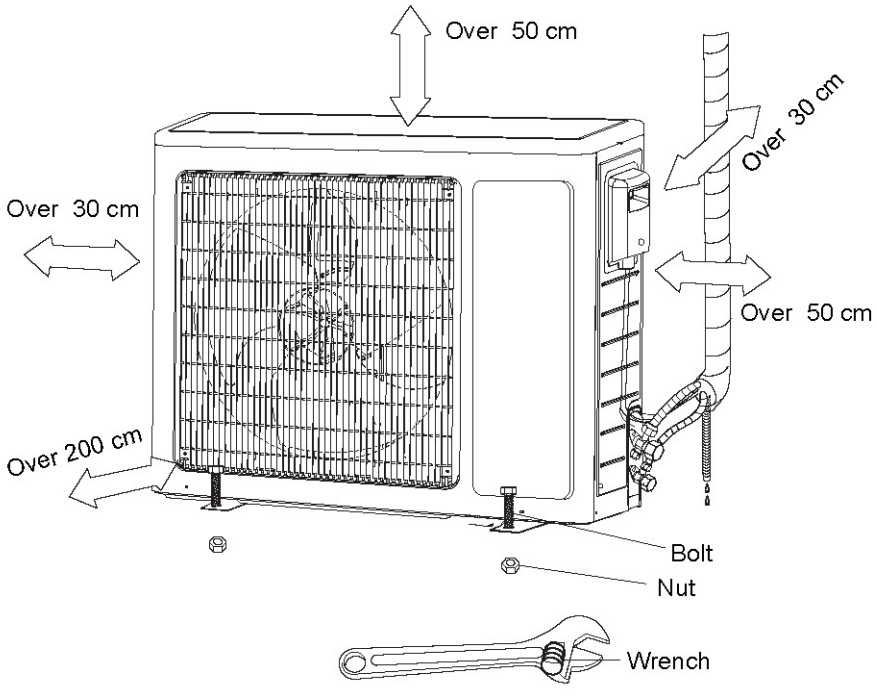
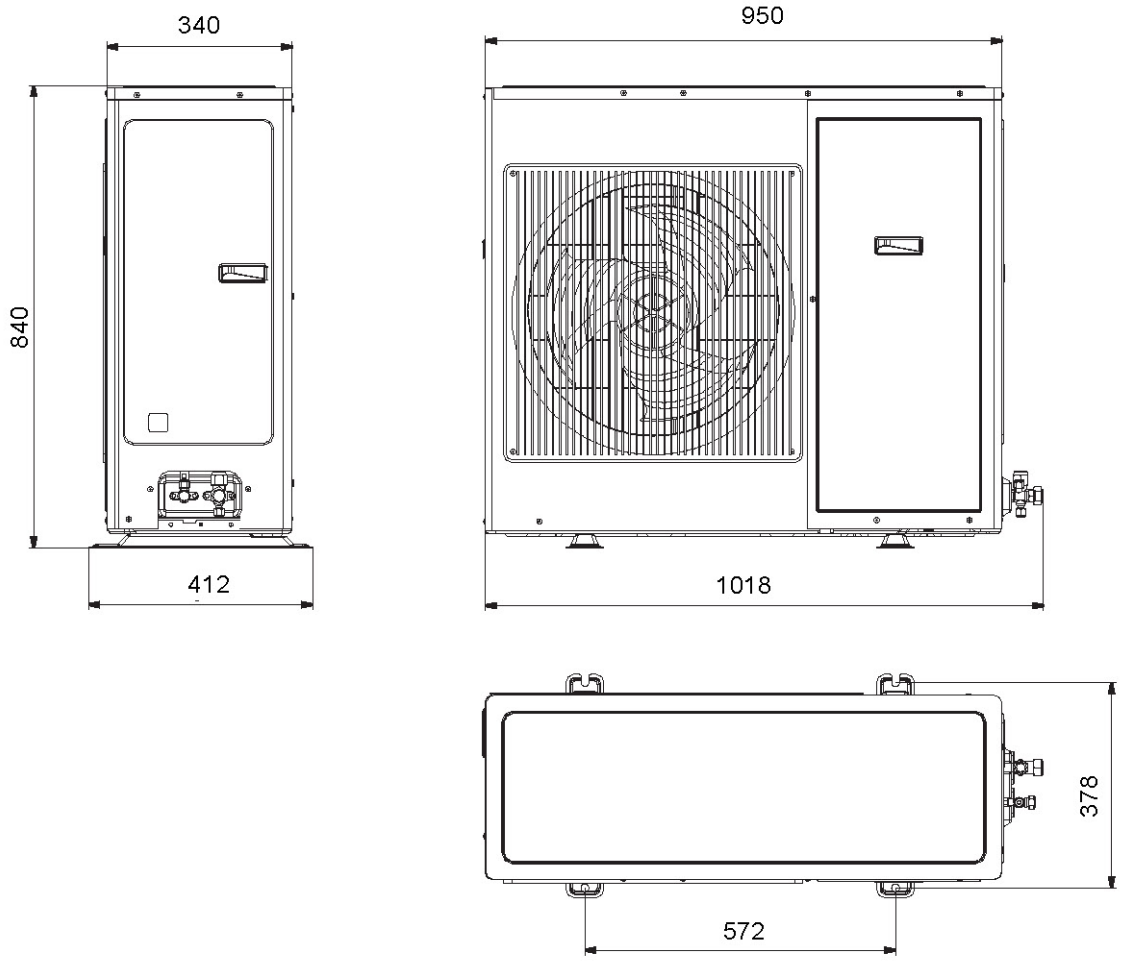
364


Over 50 cm
Over 30 cm
Over 30 cm
Over 50 cm
Over 200 cm
Bolt
Nut
Wrench

2.2.3 28 Class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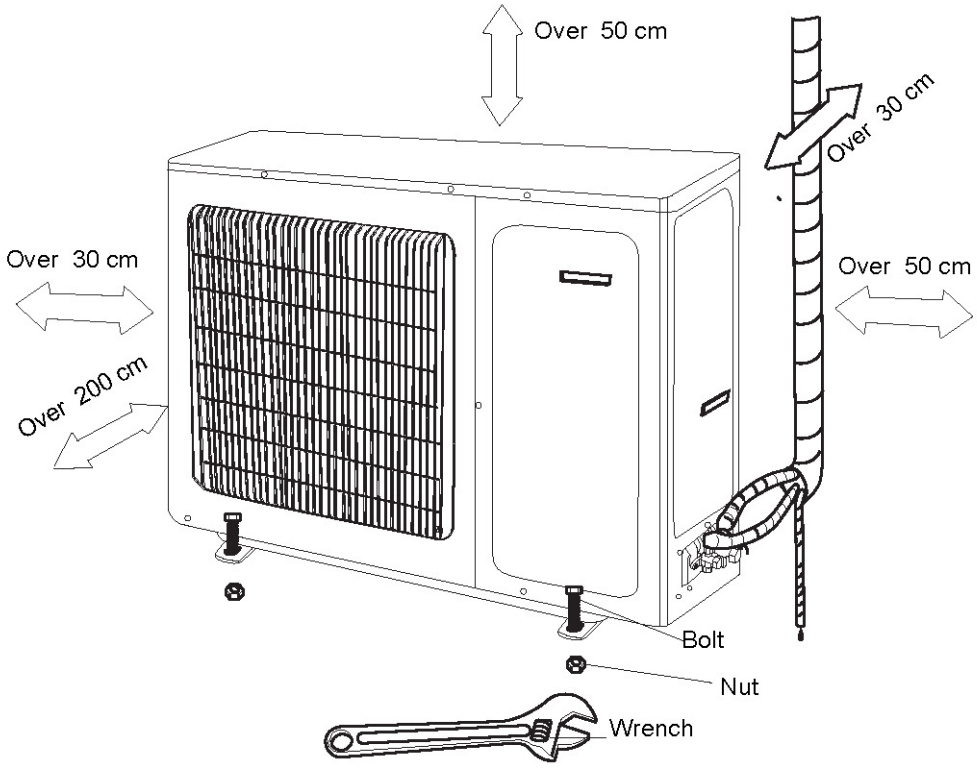

Over 50 cm
Over 30 cm
Over 30 cm
Over 50 cm
Over 200 cm
Bolt
Nut
Wrench

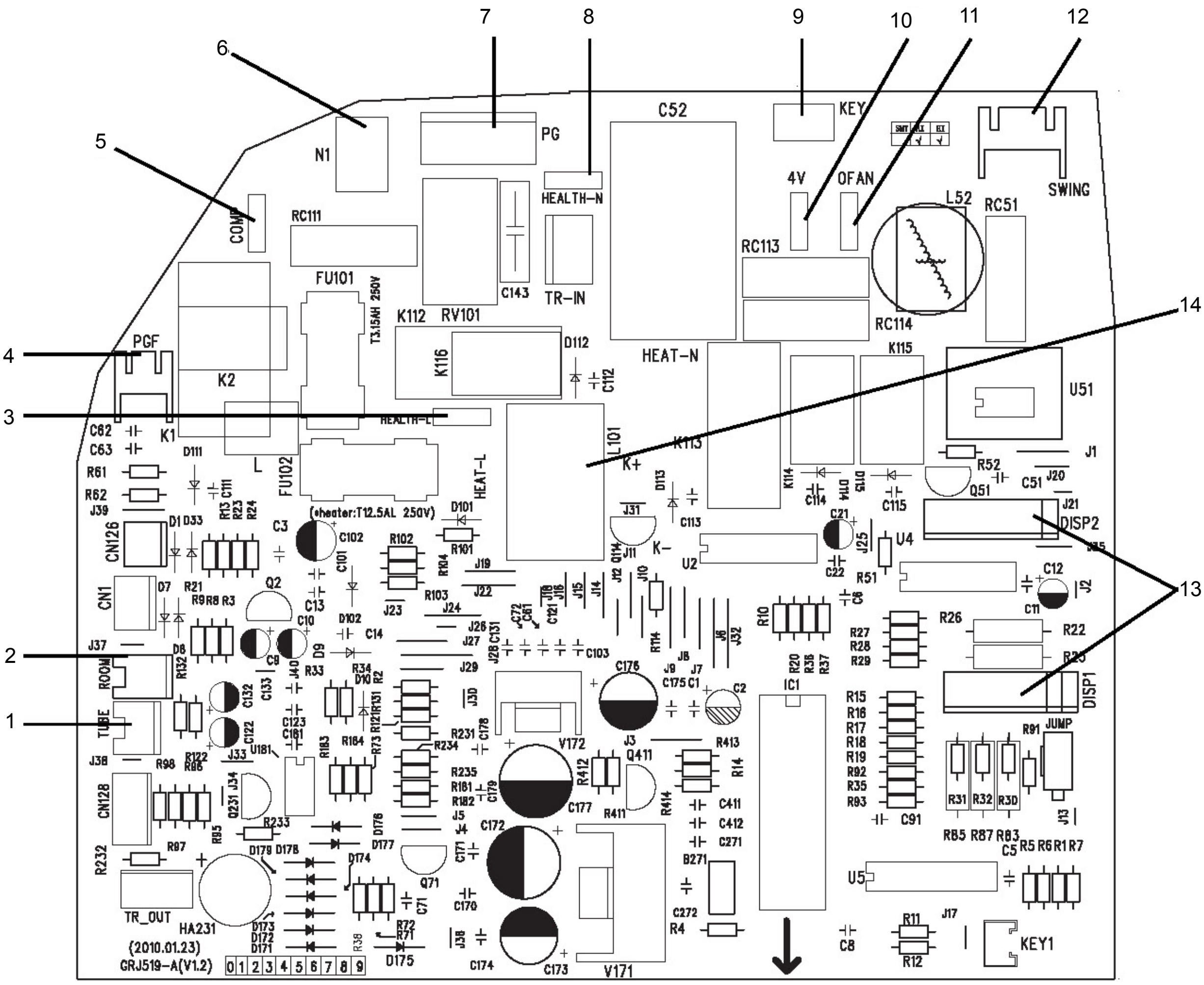
Part 3
Printed Circuit Board Connector Wiring Diagram

1. Printed Circuit Board Connector Wiring Diagram

1.1 FT(Y)18/24HEV1K

1) TUBE	Connector for tube temperature thermistor
2) ROOM	Connector for room temperature thermistor
3) HEALTH-L	Connector for controlling Health function and relay K116
4) PGF	Connector for feedback of indoor fan
5) COMP	Connector for controlling compressor and relay K2
6) N1	Connector for neutral wire
7) PG	Connector for Indoor fan motor
8) HEALTH-N	Connector for neutral wire of Health function
9) KEY	Auto button
10) 4V	Connector for 4-way value
11) OFAN	Connector for outdoor fan motor
12) SWING	Connector for controlling up & down swing
13) DISP1/DISP2	Connector for display
14) HEAT-L	Circuit for current test

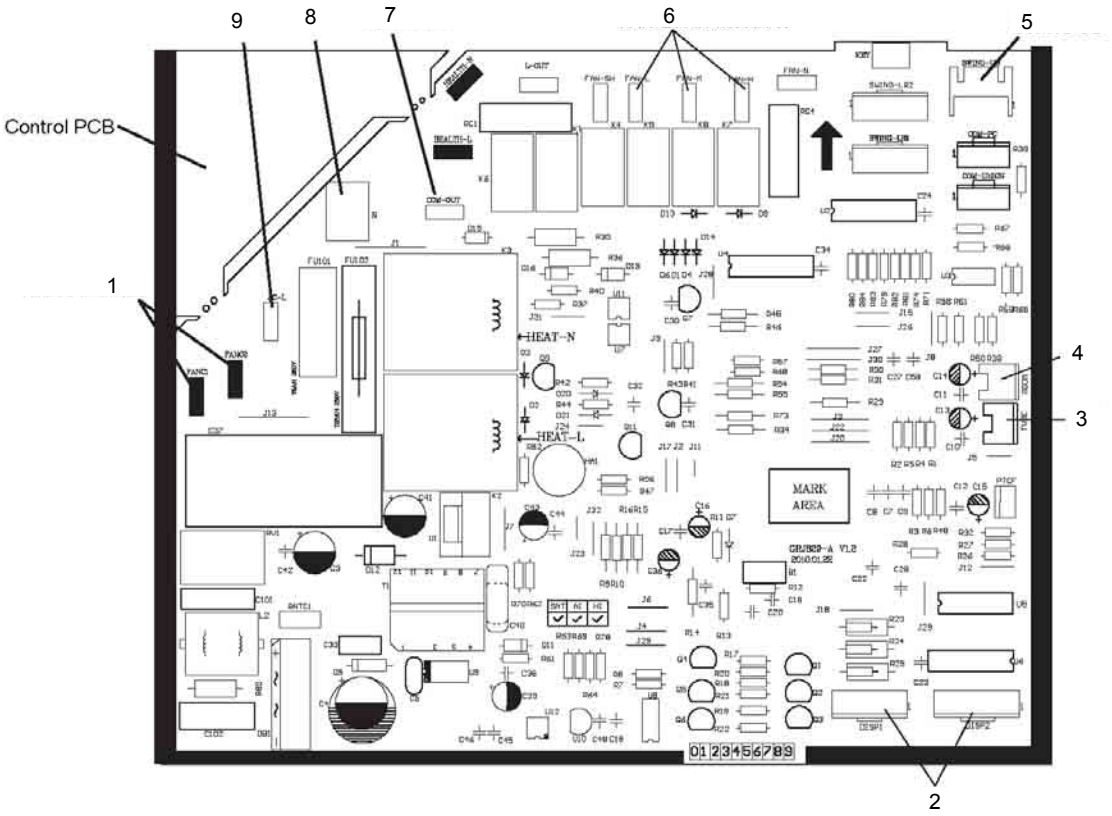
PCB Detail **PCB : Control PCB**



1.2 FT(Y)28HEV1K

1) FANC1/FANC2	Connector for fan motor capacitor
2) DISP1/DISP2	Connector for Signal Receiver PCB
3) TUBE	Connector for Tube temperature thermistor(Indoor unit)
4) ROOM	Connector for Room temperature thermistor
5) SWING-UD	Connector for swing motor(horizontal blades)
6) FAN-L/FAN-M/FAN-H	Connector for fan motor
7) COM-OUT	Connector for communication line between indoor unit and outdoor unit
8) N	Connector for neutral wire
9) AC-L	Connector for live wire

PCB Detail **PCB : Control PCB**



Part 4
Function and Control

1. Function and Control

Note: **Basic functions** (The temperature in this manual is expressed by Centigrade. If Fahrenheit is used, the switchover between them is Tf=TcX1.8+32.)

Temperature Parameters

- Indoor preset temperature (Tpreset)
- Indoor ambient temperature (Tamb.)

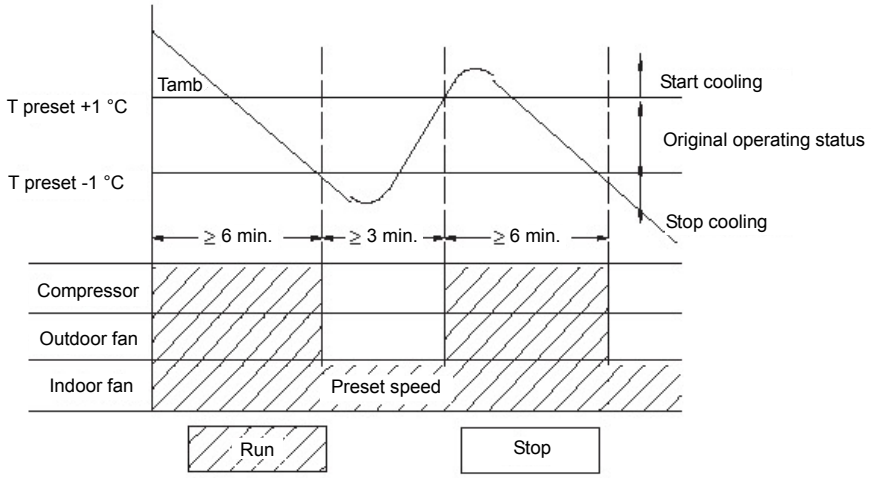
1.1 Basic Functions

Once energized, the compressor shall never be restarted except 3-min interval at least. For the first energization, if the unit with memory function is off before power failure, the compressor can be restarted without 3-min delay. But if the unit is on before power failure, the compressor shall be restarted with 3-min delay. Once started, the compressor won't stop within 6 min with the change of room temp.

1.1.1 Cool Mode

Cooling Conditions and Process

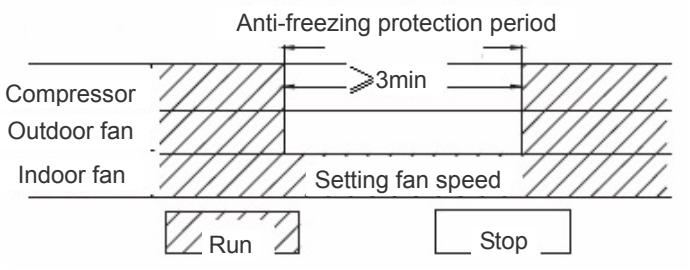
When Tamb. ≥Tpreset+1°C, the unit starts cooling operation. In this case, the compressor and the outdoor fan operate and the indoor fan operates at setting speed. When Tamb. ≤Tpreset-1°C, the compressor and the outdoor fan stop while the indoor fan runs at setting speed. When Tpreset-1°C<Tamb. <Tpreset+1°C, the unit will maintain its previous operation status. In cooling mode, the four-way valve is de-energizing, and the screen displays operation icon, cooling icon and set temperature. The temperature setting range is 16~30°C.



Protection Functions

◆ Anti-freezing protection

If the system is under anti-freezing protection, the compressor and the outdoor fan stops operation, and the indoor fan operates at set speed. If anti-freezing protection is cleared and the compressor has been stopped for 3 minutes, the unit will resume its previous operation status.



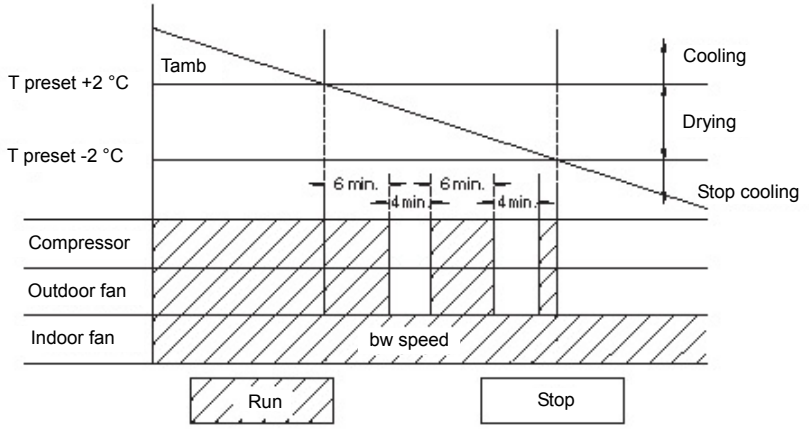
Overcurrent protection (not available for 28K unit)

If the system current exceeds the specified value in 3 successive seconds, except indoor fan the complete unit will stop operation. After 3 minutes, if the overcurrent is cleared, the complete unit will resume previous operation. If overcurrent protection occurs for 6 successive times (if the compressor operates for 6 minutes continuously, the protective times will be cleared.), except indoor fan the complete unit will stop operation. In this case, you should turn off the unit by remote controller and then restart it. During overcurrent protection, and indicator blinks (OFF 3 seconds and blinks 5 times).

1.1.2 Dry Mode

Dry Conditions and Process

When Tamb. >Tpreset+2°C, the unit starts drying and cooling operation. In this case, the compressor and outdoor fan operates and the indoor fan operates at low speed.
When Tpreset-2°C≤Tamb. ≤Tpreset+2°C, the unit will start drying operation. In this case, the indoor fan operates at low speed, and the compressor and the outdoor fan operate 6 minutes and stop 4 minutes in cycle. When Tamb.<Tpreset-2°C, the compressor and the outdoor fan stops operation while the indoor fan operates at low speed.
In drying mode, the four-way valve is de-energizing, and the screen displays operation icon, cooling icon and set temperature. The temperature setting range is 16~30°C.



Protection Functions

◆ Anti-freezing protection

During drying and cooling operation, if the system is under anti-freezing protection, the compressor and outdoor fan stop operation while indoor fan operates at low speed. If anti-freezing protection is cleared and the compressor has been stopped for 3 minutes, the complete unit will resumes its previous operation status.
During the cycle stage of operating 6 minutes and stopping 4 minutes, if anti-freezing protection is detected, the compressor and the outdoor fan will stop operation and the indoor fan will operate at low speed. When the anti-freezing protection is cleared and the compressor has been stopped for 4 minutes, the complete unit will resume its previous operation state.

Other protection

Other protections are the same as those in cooling mode.

1.2 Other Control

1.2.1 Timer function

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

General Timer

Timer ON can be set at unit OFF. If ON time setting is reached, the unit will start to operate according to previous setting status. Time setting range is 0.5-24hr in 30-minute increments.
Timer OFF can be set at unit ON. If OFF time setting is reached, the unit will stop operation. Time setting range is 0.5-24hr in 30-minute increments.

Clock Timer

Timer ON

If timer ON is set during operation of the unit, the unit will continue to operate. If timer ON is se at unit OFF, upon ON time reaches the unit will start to operate according to previous setting status.
Timer OFF If timer OFF is set at unit OFF, the system will keep standby status. If timer OFF is set at unit ON, upon OFF time reaches the unit will shut down.

Timer Change

Although timer has been set, the unit still can be turned on/off by pressing ON/OFF button of remote controller. You can also set the timer once again, and then the unit will operate according to the last setting. If timer ON and timer OFF are set at the same time during operation of the unit, the unit will keep operating at current status till OFF time reaches. If timer ON and timer OFF are set at the same time at unit OFF, the unit will keep stopping till ON time reaches.
The system will operate according to presetting mode till OFF time reaches and stop operation till ON time reaches. If ON time and OFF time are the same, OFF command is on priority.

1.2.2 Auto Button

If this button is pressed, the unit will operate in AUTO mode and indoor fan will operate at auto speed; meanwhile, the swing motor operates. Press this button again to turn off the unit.

1.2.3 Buzzer

At the power-up, or availably operating the unit or remote controller, the buzzer will give out a beep.

1.2.4 Sleep Function

The sleep mode is used for improving comfort ability during sleep. In SLEEP mode, the unit will automatically select appropriate sleep curve to operate according to different temperature setting.

1.2.5 Turbo Function (not available for 28K unit)

Press this button to change the room temperature rapidly.

1.2.6 Blow Function

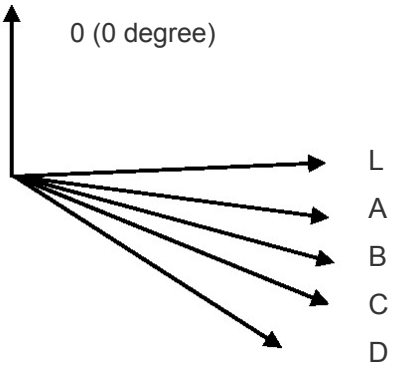
It is only available in Cool and Dry mode. Press this button to dry the moister on evaporator, so as to prevent the indoor unit from mildewing.

1.2.7 Automatic Control of Fan Speed

In this mode, the indoor fan will automatically select high, medium or low speed with the change of ambient temperature.

1.2.8 Up & Down Swing

After energization, up & down swing motor will firstly let the guide louver anticlockwise rotate to position 0 to close air outlet. If swing function has not been set after startup of the unit, up & down guide louver will clockwise turn to position D in HEAT mode, or clockwise turn to level position L in other modes.
If setting swing function while starting up the unit, the guide louver will swing between L and D.
There are 7 kinds of swing status of guide louver: Positions L, A, B, C and D, swing between L and D and stop at any position between L and D (angles between L and D are equiangular).
Upon turning off the unit, the guide louver will close at position 0. Swing function is available only when swing function set and indoor fan is operating.
Note: If the position is set between L and B, A and C or B and D by remote controller, the guide louver will swing between L and D.



1.2.9 Locked Protection to PG Motor

If the indoor fan motor's rotational speed after startup keeps slow for a continuous period of time, the unit will stop operation. If the unit is on, the indicator will blink and PG motor will not operate; if the unit is off, the locked protection information will not be displayed.

1.2.10 Memory Function

Memory content includes mode, up & down swing, light, set temperature and set fan speed. Upon power failure, the unit after power recovery will automatically start operation according to memorized content. The unit, without timer setting before power failure, will operate according to the last setting after power recovery. The unit, with general timer setting which has not been fulfilled before power failure, will memorize the time setting and re-calculate the time after power recovery.

1.3 Special Functions

1.3.1 I Feel Function (optional)

If the controller receives I FEEL command, it will operate according to the ambient temperature sent by the remote controller (except defrosting and anti-cold air operation, during which it will operate according to the ambient temperature sensed by the air conditioner). The remote controller will send the ambient temperature value to the controller every a period of time. If the controller has not received the value for a long time, it will operate according to air conditioner's sensed temperature. If this function is not set, the ambient temperature is sensed by the air conditioner's temperature. Memory function excludes this.

Part 5
Operation Manual

1. System Configuration

After completing the installation and test operation of the room air conditioner, the system should be operated and handled as described below. Every user would like to know the correct method of operating room air conditioner, the way of checking if the cooling (or heating) operation is effective, and to know a clever method of using it.
Giving sufficient instructions can reduce about 80% of the requests for servicing. However good the installation work is and however good the functions are, the customer may blame either the room air conditioner or its installation work because of improper handling. The installation work and handing over of the unit can only be considered completed when it has been explained to the user without using technical terms but giving full knowledge of the equipment.

2. Function and Control

2.1 Remote Control Operations

YB1FA3

Note: X-FAN is the alternative expression of BLOW for the purpose of understanding.

1 ON/OFF

Press it to start or stop operation.

2 MODE

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

3 +

Press it to increase setting temperature.

4 -

Press it to decrease setting temperature.

5 FAN

Press it to set fan speed.

6

Press it to set swing angle.

7 TIMER ON

Press it to set auto-on timer.

8 TIMER OFF

Press it to set auto-off timer

9 CLOCK

Press it to set clock

10 X-FAN

11 TEMP

12 TURBO

13 SLEEP

14 LIGHT

Press it to turn on/off the light.

Remote Controller Description

1 ON/OFF :

Press this button to start the unit operation. Press this button again to stop the unit operation.

2 MODE :

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

*Note: Only for models with heating function.

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

3 + :

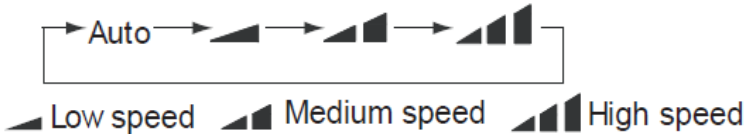
Press this button to increase set temperature. Holding it down above 2 seconds rapidly increases set temperature. In AUTO mode, set temperature is not adjustable.

4 - :

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

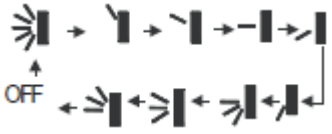
5 FAN :

This button is used for setting fan speed in the sequence that goes from AUTO, , , to , then back to Auto.



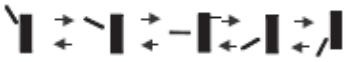
6 :

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



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

indicates the guide louver swings as:



7 TIMER ON :

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

8 TIMER OFF :

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

9 CLOCK :

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

10 X-FAN :

Pressing X-FAN button in COOL or DRY mode, the icon is displayed and the indoor fan will continue operation for 10 minutes in order to dry the indoor unit even though you have turned off the unit.
After energization, X-FAN OFF is defaulted. X-FAN is not available in AUTO,FAN or HEAT mode.

11 TEMP :

Press this button to decide displaying set temperature or ambient temperature on indoor unit. When no icon is displayed on remote controller, the indoor unit will not change the current display. (the set temperature will be displayed upon initial energization of indoor unit). When " " is displayed on the remote controller, the indoor unit will display set temperature. When " " is displayed on the remote controller, the indoor unit will display indoor ambient temperature. When " " is displayed on the remote controller, the indoor unit will not change the display.
Press this button to select displaying set temperature or ambient temperature. When the temperature display is changed from other state to " ", the ambient temperature is changed. When other signal is received, the set temperature will be displayed. If the user does not set temperature display state, it will display set temperature.

12 TURBO :

Press this button to activate / deactivate the Turbo function which enables the unit to reach the preset temperature in shortest time. In COOL mode, the unit will blow strong cooling air at super high fan speed. In HEAT mode, the unit will blow strong heating air at super high fan speed. (This function is not applicable for some models).

14 LIGHT :

Press LIGHT button to turn on the display's light and press this button again to turn off the display's light. If the light is turned on, is displayed. If the light is turned off disappears.

3 and 4 About lock

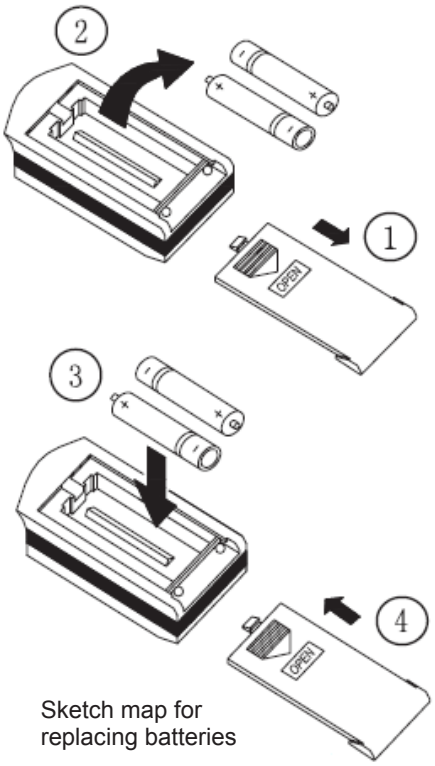
Press "+ " and "-" buttons simultaneously to lock or unlock the keypad. If the remote controller is locked, is displayed. In this case, pressing any button, blinks three times.

2 and 4 About switch between fahrenheit and centigrade

At unit OFF, press "MODE" and " - " buttons simultaneously to switch between °C and °F.

Replacement of Batteries

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



Sketch map for replacing batteries

Notes:

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

Part 6
Troubleshooting

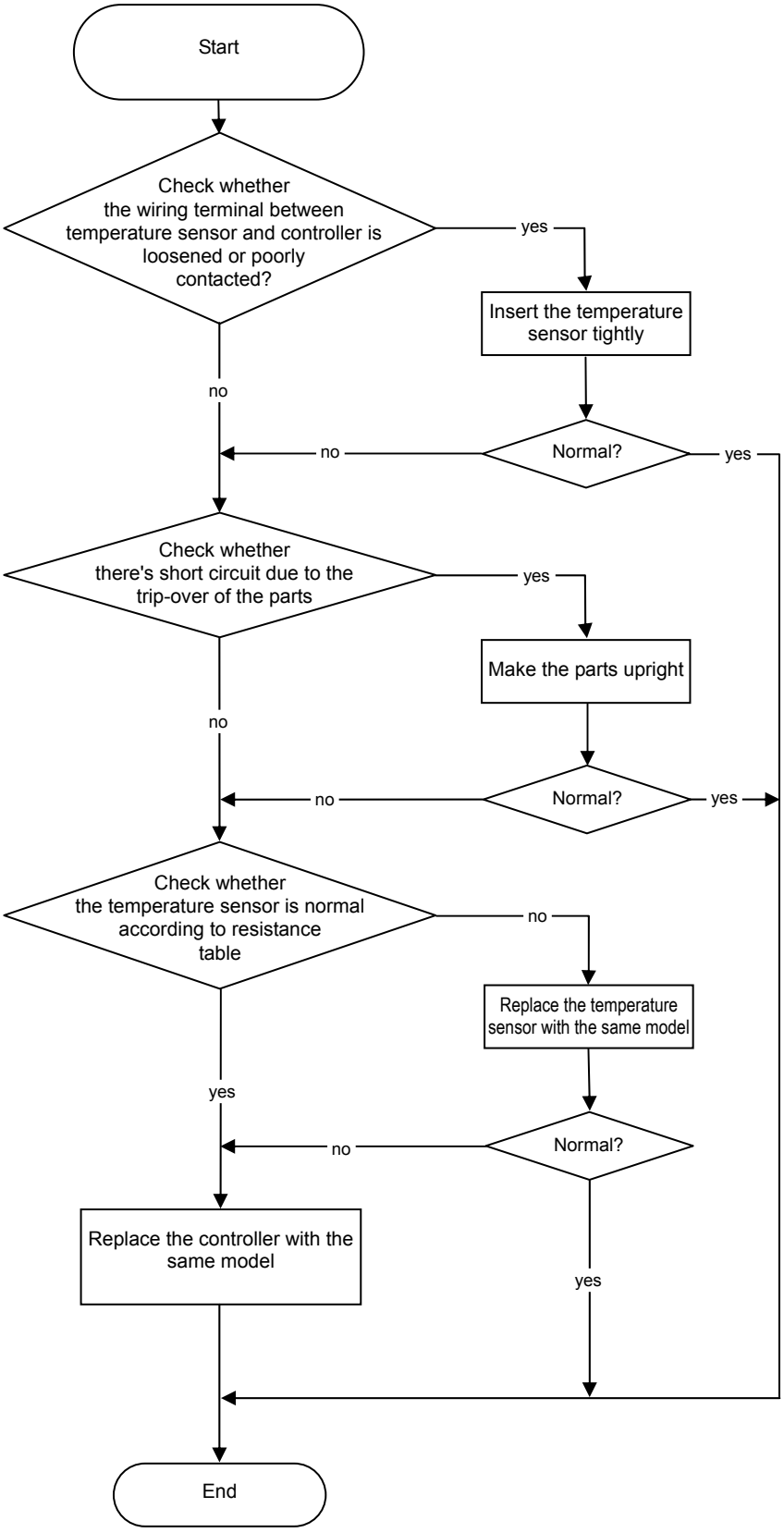
1. Troubleshooting

No.	Malfunction Name	Indicator lamp (During blinking, ON 0.5S and OFF 0.5 S			A/C Status	Possible Reasons
		Operation Lamp	COOL Lamp	HEAT Lamp		
1	Indoor ambient temperature sensor is open/short-circuited		OFF 3S and blink once		When PC board detects the setpoint of this malfunction, the unit shuts down. During cooling & drying operation, PC board shuts down compressor, swing motor, outdoor fan motor, except indoor fan motor. During heating operation, the unit shuts down.	1. The wiring terminal between indoor ambient temperature sensor and controller was loosened or poorly contacted; 2. There's short circuit due to trip-over of the parts on controller; 3.Indoor ambient temperature sensor was damaged (Please check it by referring to the resistance table for temperature sensor) 4. Main board was broken.
2	Indoor evaporator temperature sensor is open/short-circuited		OFF 3S and blink once		When PC board detects the setpoint of this malfunction, the unit shuts down. During cooling & drying operation, PC board shuts down compressor, swing motor, outdoor fan motor, except indoor fan motor. During heating operation, the unit shuts down.	1. The wiring terminal between indoor evaporator temperature sensor and controller was loosened or poorly contacted; 2. There's short circuit due to the trip-over of the parts on controller; 3.Indoor evaporator temperature sensor was damaged (Please check it by referring to the resistance table for temperature sensor) 4. Main board was broken.
3	Outdoor ambient temperature sensor is open/short-circuited		OFF 3S and blink 3 times		When PC board detects the setpoint of this malfunction, the unit shuts down. During cooling & drying operation, PC board shuts down compressor, swing motor, outdoor fan motor, except indoor fan motor. During heating operation, the unit shuts down.	1. The wiring terminal between outdoor ambient temperature sensor and controller was loosened or poorly contacted; 2. There's short circuit due to the trip-over of the parts on controller; 3.Outdoor ambient temperature sensor was damaged (Please check it by referring to the resistance table for temperature sensor) 4. Main board was broken.
4	Outdoor condenser temperature sensor is open/short-circuited		OFF 3S and blink 4 times		When PC board detects the setpoint of this malfunction, the unit shuts down. During cooling & drying operation, PC board shuts down compressor, swing motor, outdoor fan motor, except indoor fan motor. During heating operation, the unit shuts down.	1. The wiring terminal between outdoor condenser temperature sensor and controller was loosened or poorly contacted; 2. There's short circuit due to the trip-over of the parts on controller; 3.Outdoor condenser temperature sensor was damaged (Please check it by referring to the resistance table for temperature sensor) 4. Main board was broken.
5	Outdoor discharge temperature sensor is open/short-circuited		OFF 3S and blink 5 times		When PC board detects the setpoint of this malfunction, the unit shuts down. During cooling & drying operation, PC board shuts down compressor, swing motor, outdoor fan motor, except indoor fan motor. During heating operation, the unit shuts down.	1. The wiring terminal between outdoor discharge temperature sensor and controller was loosened or poorly contacted; 2. There's short circuit due to the trip-over of the parts on controller; 3. Outdoor discharge temperature sensor was damaged. (Please check it by referring to the resistance table for temperature sensor) 4. Main board was broken.
6	PG motor (indoor fan motor) does not operate	OFF 3S and blink 11 times			Indoor fan, outdoor fan, compressor and electric heat tube shuts down. 2 minutes later, 4-way valve stops. Guide louver stops at the current position.	1. The feedback terminal of PG motor was not connected tightly. 2. The control terminal of PG motor was not connected tightly. 3. Fan blade rotates unsmoothly due to improper installation. 4. Motor was not installed properly and tightly. 5. Motor has been damaged. 6. Controller has been damaged.
7	Malfunction protection of jumper cap	OFF 3S and blink 15 times			Operation of remote controller or control panel is available, but the unit won't start.	1. There's not jumper cap on the controller. 2. Jumper cap was not inserted properly and tightly. 3. Jumper cap has been damaged. 4. Controller has been damaged.
8	PG motor (indoor fan) circuit malfunction by zero cross detection	OFF 3S and blink 17 times			Operation of remote controller or control panel is available, but the unit won't start.	1. Controller has been damaged.

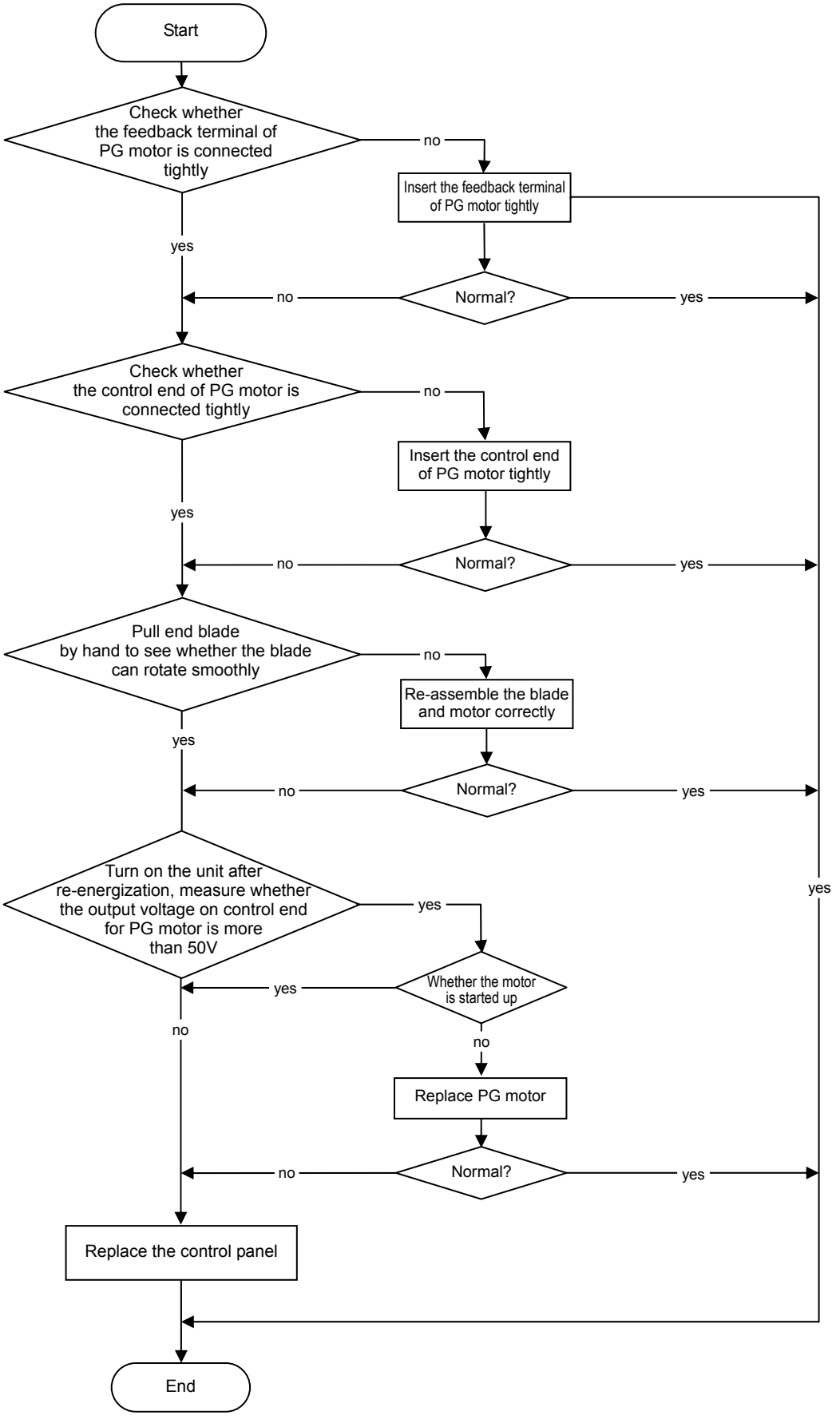
9	High pressure protection	OFF 3S and blink once (inverter unit); blink (non-inverter floor standing unit); As for other types of units, please refer to the detailed function requirement			During cooling and drying operation, except indoor fan operates all loads stop operation. During heating operation, if it is inverter unit, the complete unit stops; if it is floor standing unit, the complete unit stops and operation of remote controller or controller is unavailable.	1. Check whether the main board and the display panel are connected well? 2. Check whether the OVC terminal on main board is connected well with the high pressure switch on the complete unit? 3. Check whether the wiring of high pressure switch was loosened? 4. Refrigerant was superabundant; 5. Poor heat exchange (including filth blockage of heat exchanger and bad radiating environment); 6. Ambient temperature is too high; (if it is 3-phase unit, the high pressure protection may be caused by overcurrent protection due to this reason) 7.Check whether the supply voltage is normal (if it is 3-phase unit, the high pressure protection may be caused by overcurrent protection due to this reason) 8. Check whether the air intake and air discharge at indoor / outdoor heat exchanger is smooth? Whether the air cycle is short circuited? 9. Check whether there's clogging of the filter and heat exchange fin of indoor/outdoor units? 10. The system pipeline is blocked. 11. Check whether the gas valve and liquid valve for outdoor unit are opened completely? 12. Check whether the high-pressure signal is high level?
10	Anti-freezing protection	OFF 3S and blink twice (inverter unit); blink (non-inverter floor standing unit);			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; 4. System is normal, but the indoor tube temperature sensor is abnormal, or the tube temperature sensor was not connected well.
11	Low pressure protection of compressor	OFF 3S and blink 3 times (inverter unit); blink (non-inverter floor standing unit);			The unit shuts down	1. Check the connector between the main board and display panel board. 2. Check whether the LPP terminal on the main board was connected well with the high pressure switch on the complete unit? 3. Whether the wiring of the high pressure switch was loosened? Whether high pressure switch was damaged or poor contact. 4. Refrigerant is insufficient or leaked out. 5. Check whether the LPP input is high level?
12	High discharge temperature protection of compressor	OFF 3S and blink 4 times (inverter unit); blink (non-inverter floor standing unit);			During cooling and drying operation, compressor and outdoor fan stop while indoor fan operates. During heating operation, all loads stop.	1. System is abnormal (e.g.: blockage, etc) 2. Rotation speed of outdoor motor is abnormal (cooling) 3. Air intake is abnormal (cooling) 4. System is normal, but the compressor discharge temperature sensor is abnormal or poorly contacted.
13	Overcurrent protection	OFF 3S and blink 5 times (inverter unit); blink (non-inverter floor standing unit);			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. The normal fluctuation is within 10% of the rated voltage on the nameplate. 2. Supply voltage is too low and load is too high. 3. Measure the current of live wire on main board. If the current isn't higher than the overcurrent protection value, please check the controller. 4. Check whether the indoor and outdoor heat exchanger is too dirty, or the air inlet and air outlet are blocked? 5. Check whether the fan motor is run? Fan speed is abnormal, fan speed is too low or it doesn't run 6. Check whether the compressor runs normally? Whether there's abnormal sound, oil leakage and whether the temperature of the shell is too high, etc. 7. There's blockage in the system （filth blockage, ice plug, greasy blockage, Y-valve hasn't been opened completely)
14	Communication malfunction	OFF 3S and blink 6 times (inverter unit); blink (non-inverter floor standing unit);			During cooling operation, compressor stops while indoor fan motor operates. During heating operation, the unit shuts down.	1. Is the communication line is connected tightly or poorly contacted? Poor contact of any line may cause the communication malfunction. 2. Check whether the match between main board and display panel is correct? Whether the indoor and outdoor unit boards are matched correctly? 3. Check whether there's wrong wire connection? 4. Controller was damaged.

2. Troubleshooting Flow Chart

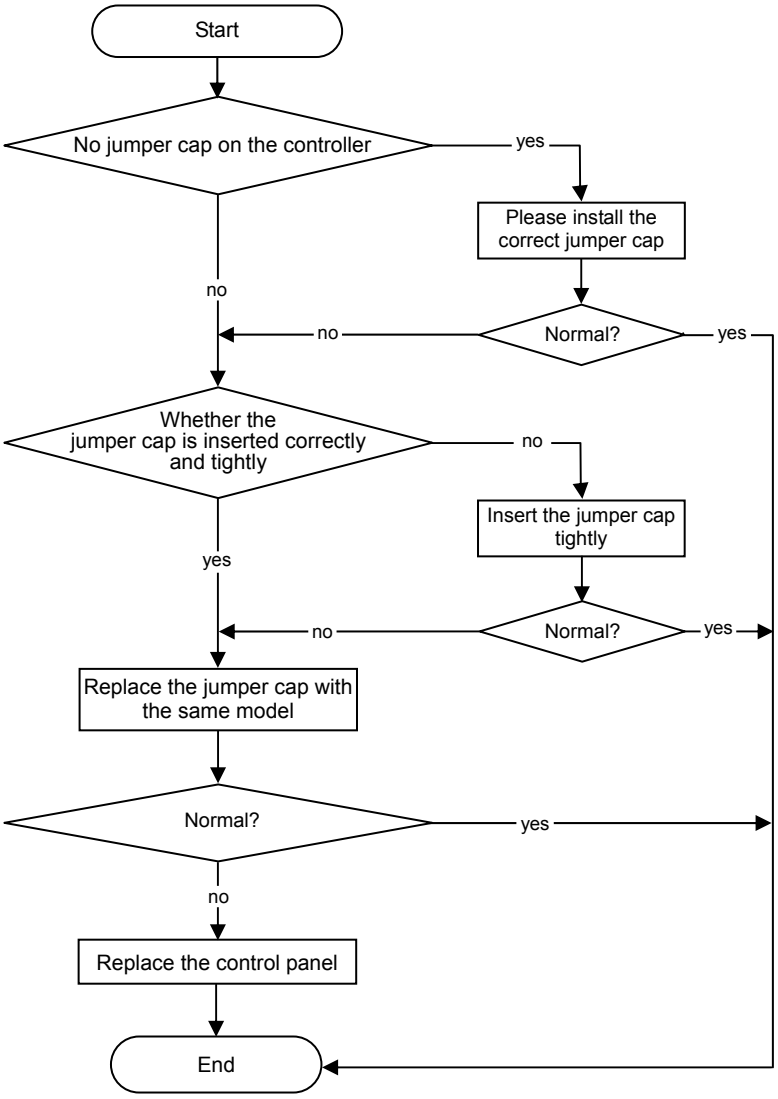
2.1 Temperature sensor malfunction



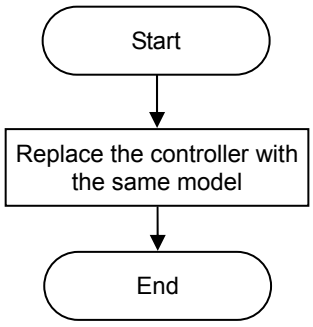
2.2 PG motor (indoor fan) does not operate



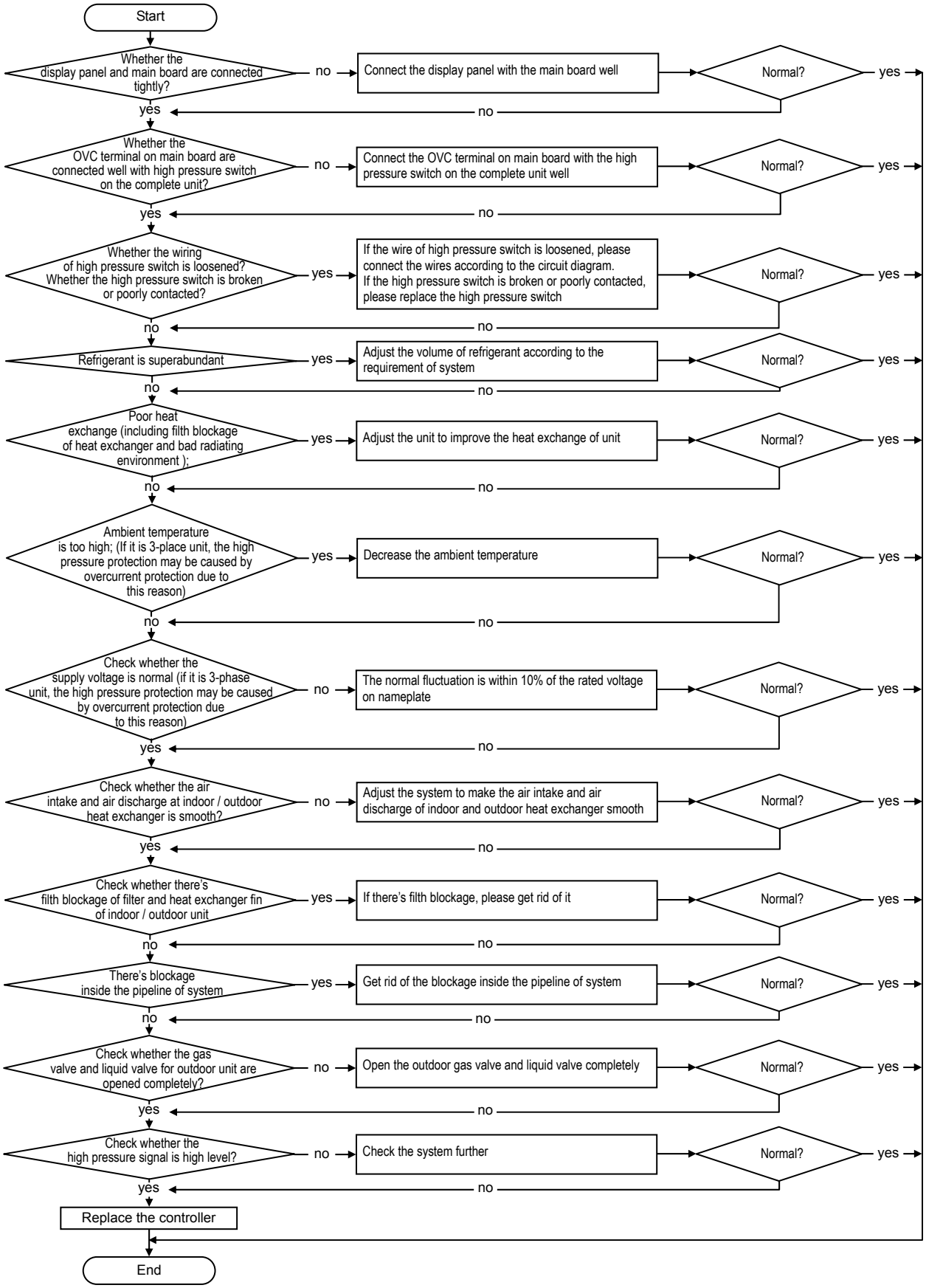
2.3 Jumper cap malfunction



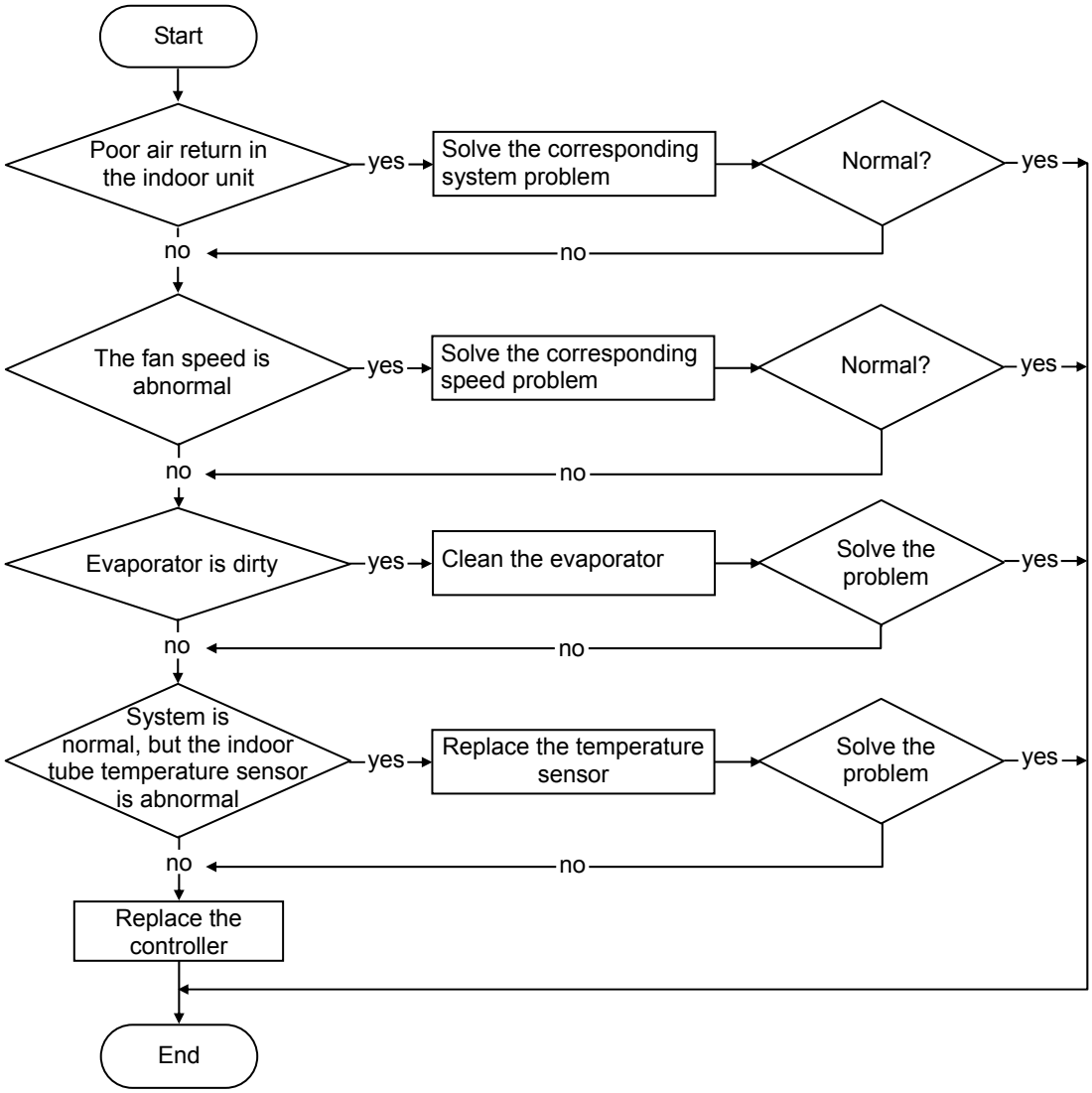
2.4 PG motor (indoor fan) circuit detection by zero crossing detection



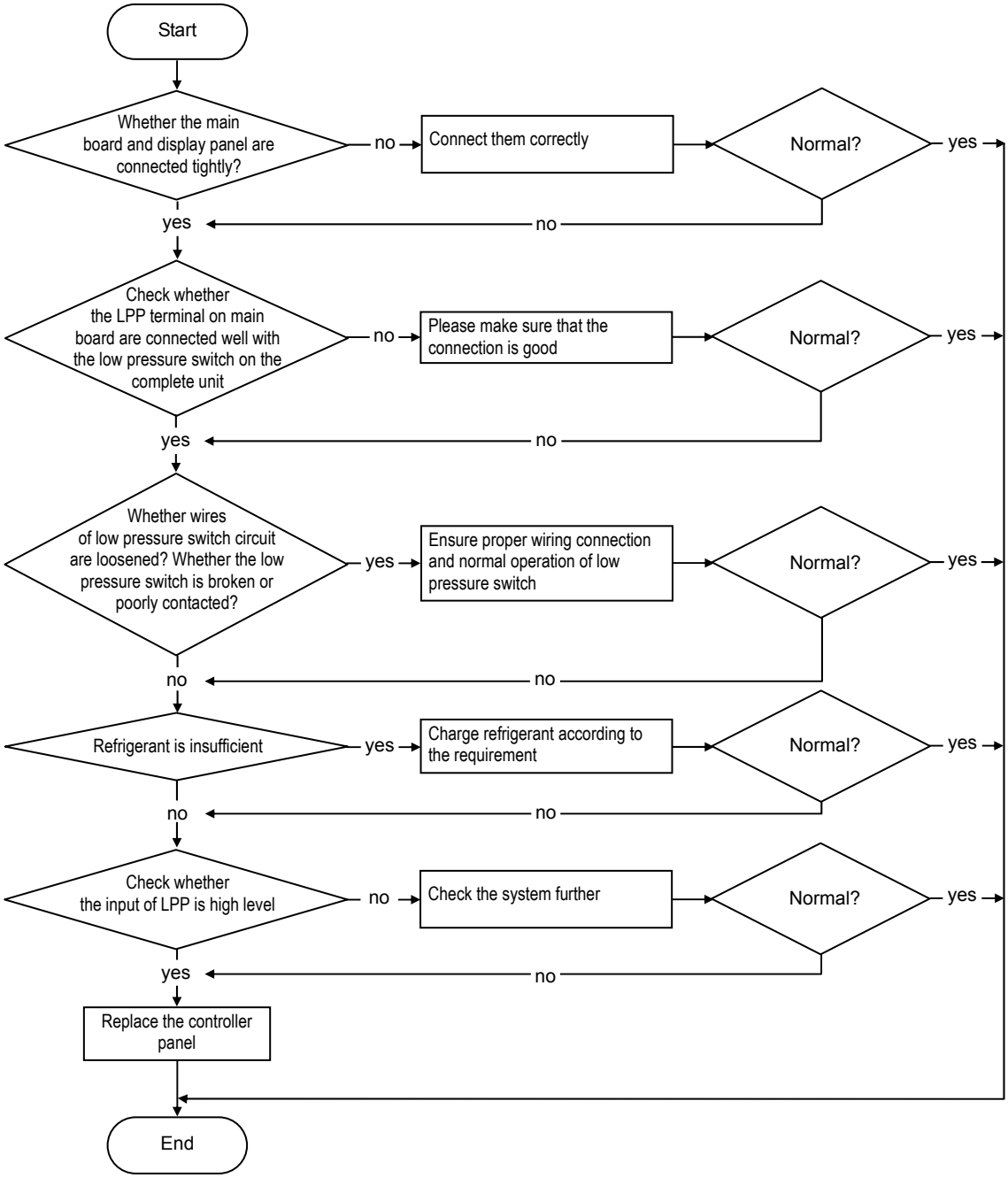
2.5 High pressure protection



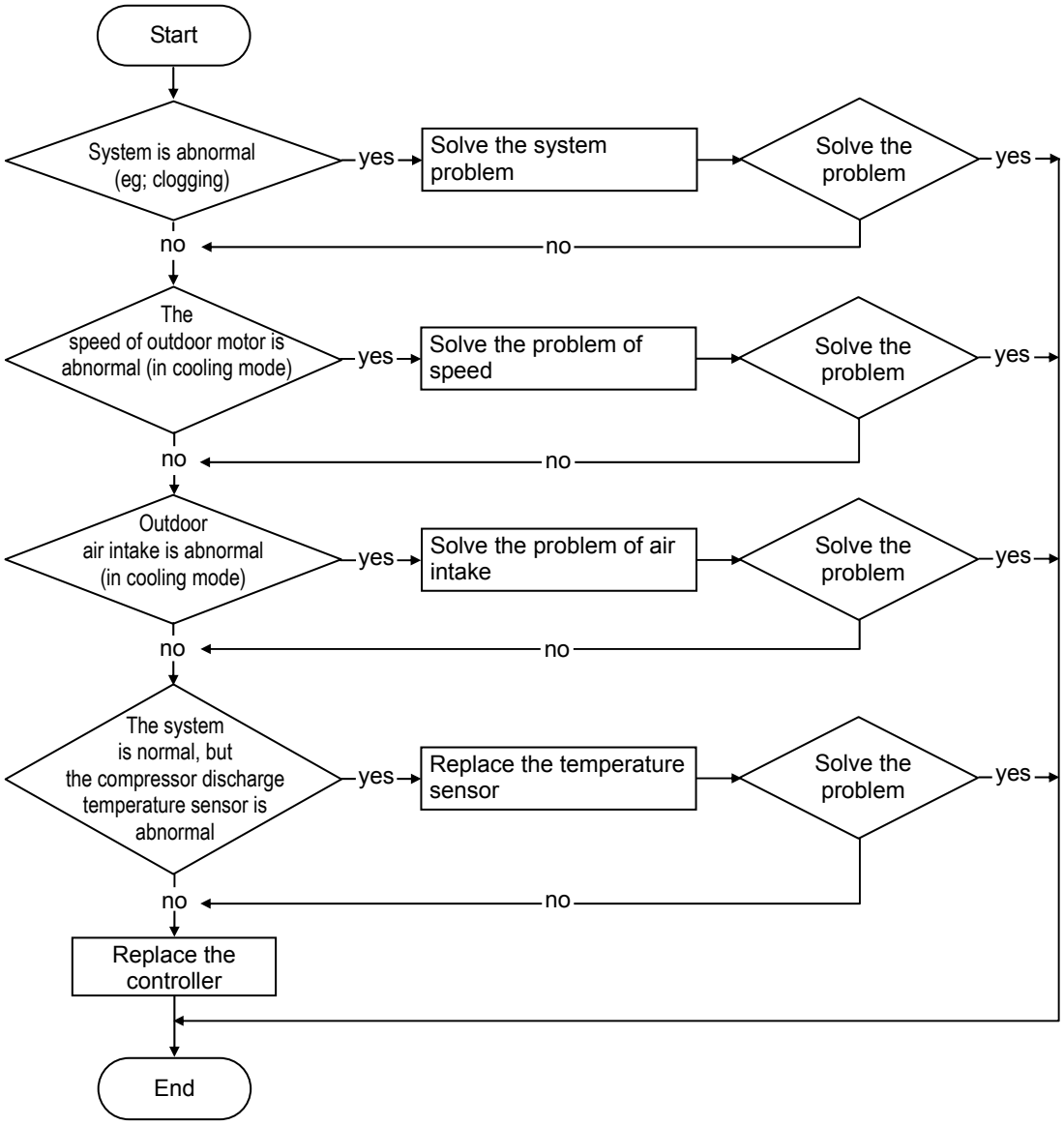
2.6 Anti-freezing protection



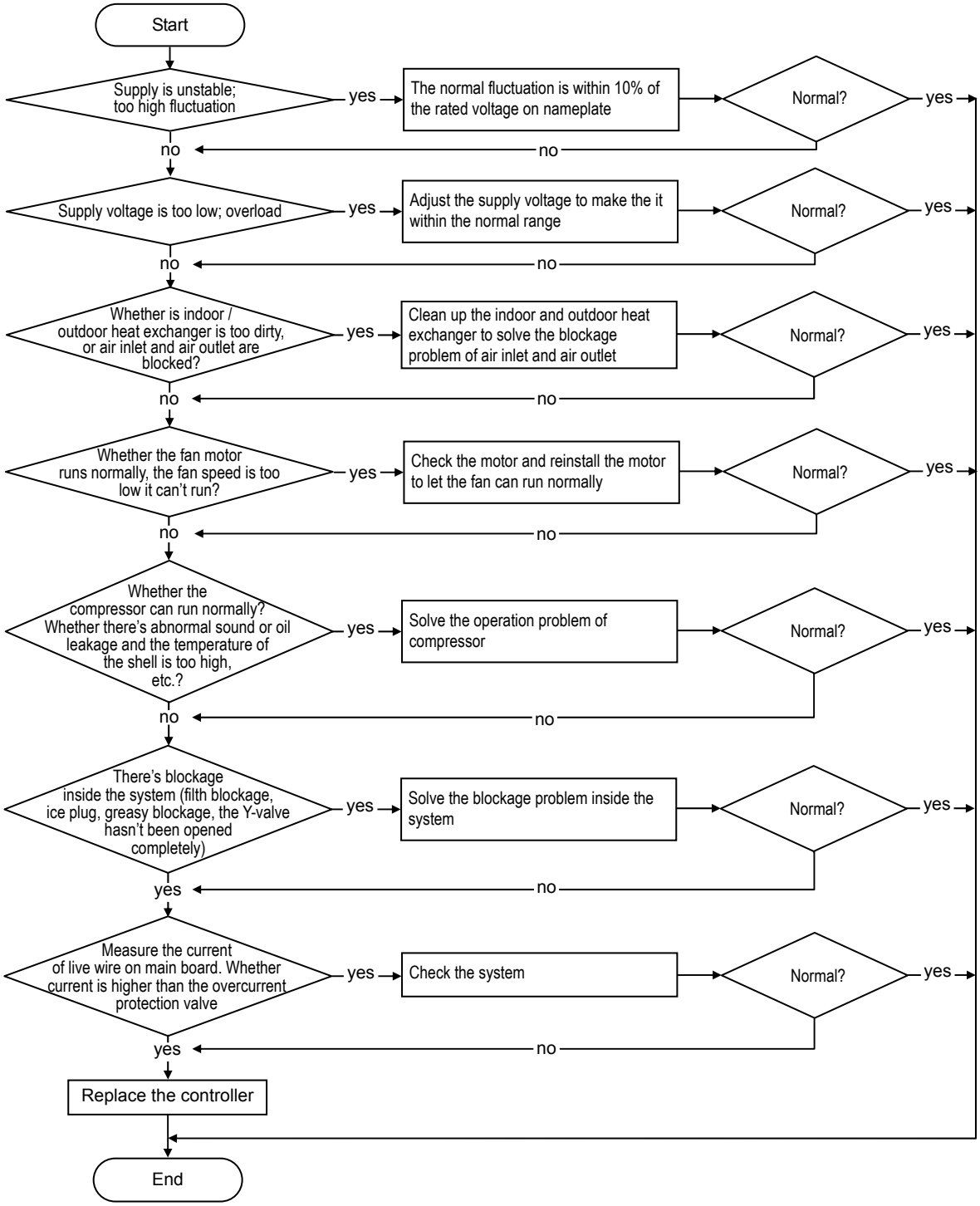
2.7 Compressor low pressure protection



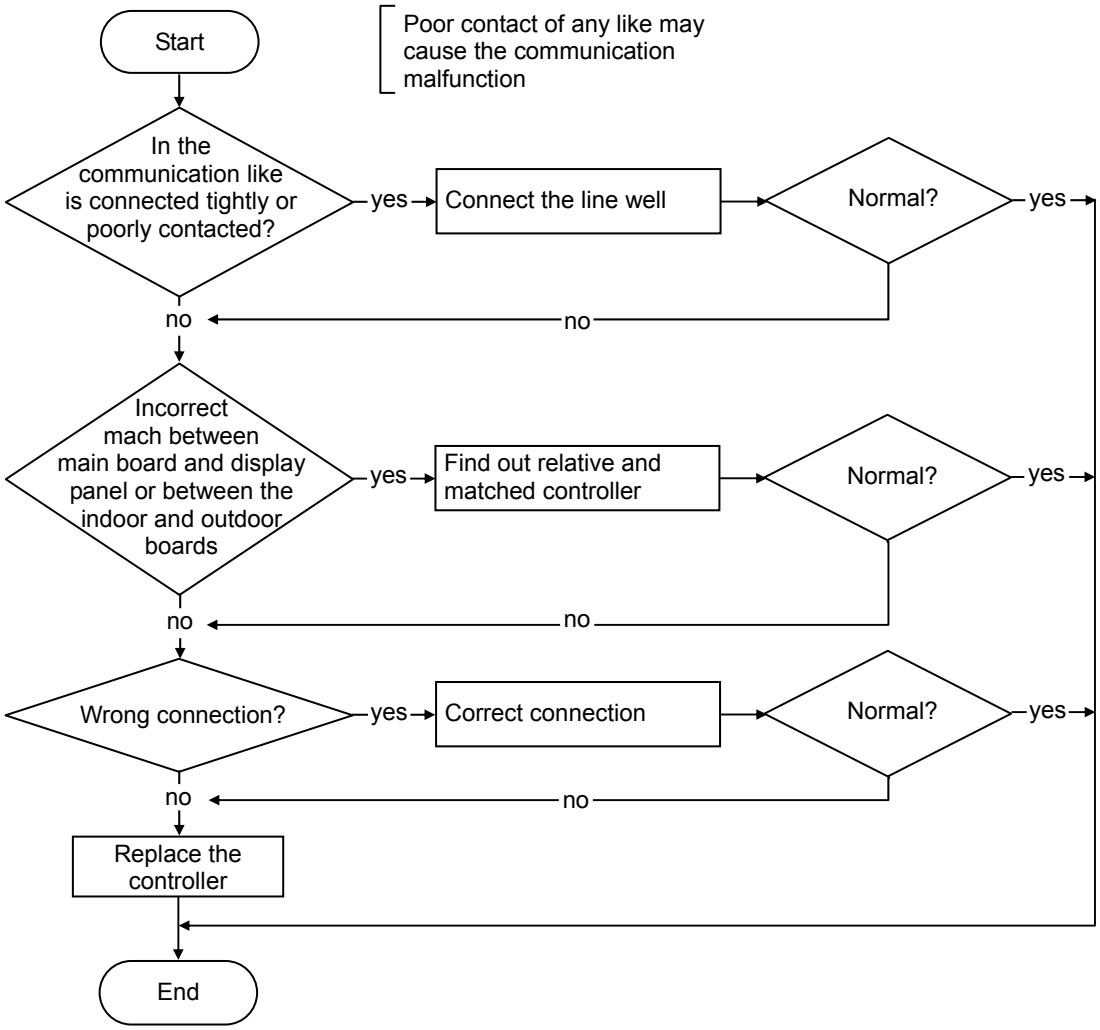
2.8 High discharge temperature protection of compressor



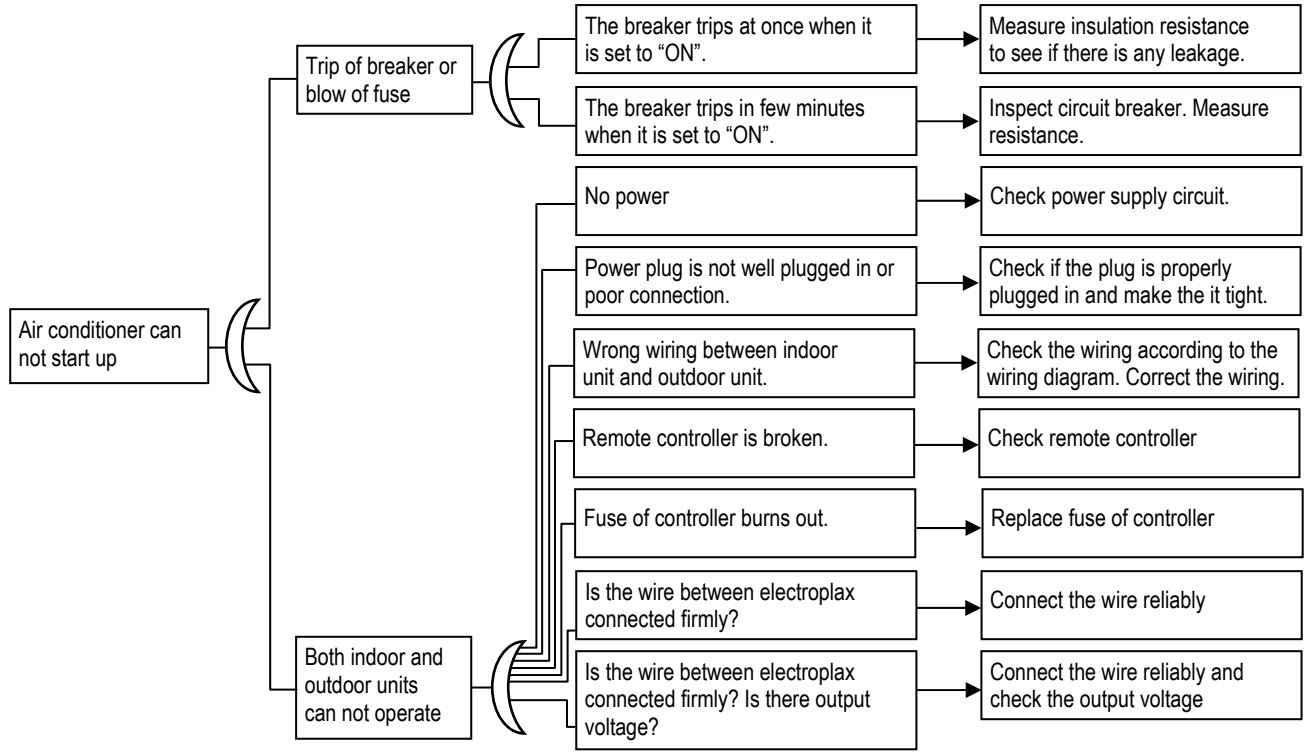
2.9 Overcurrent protection

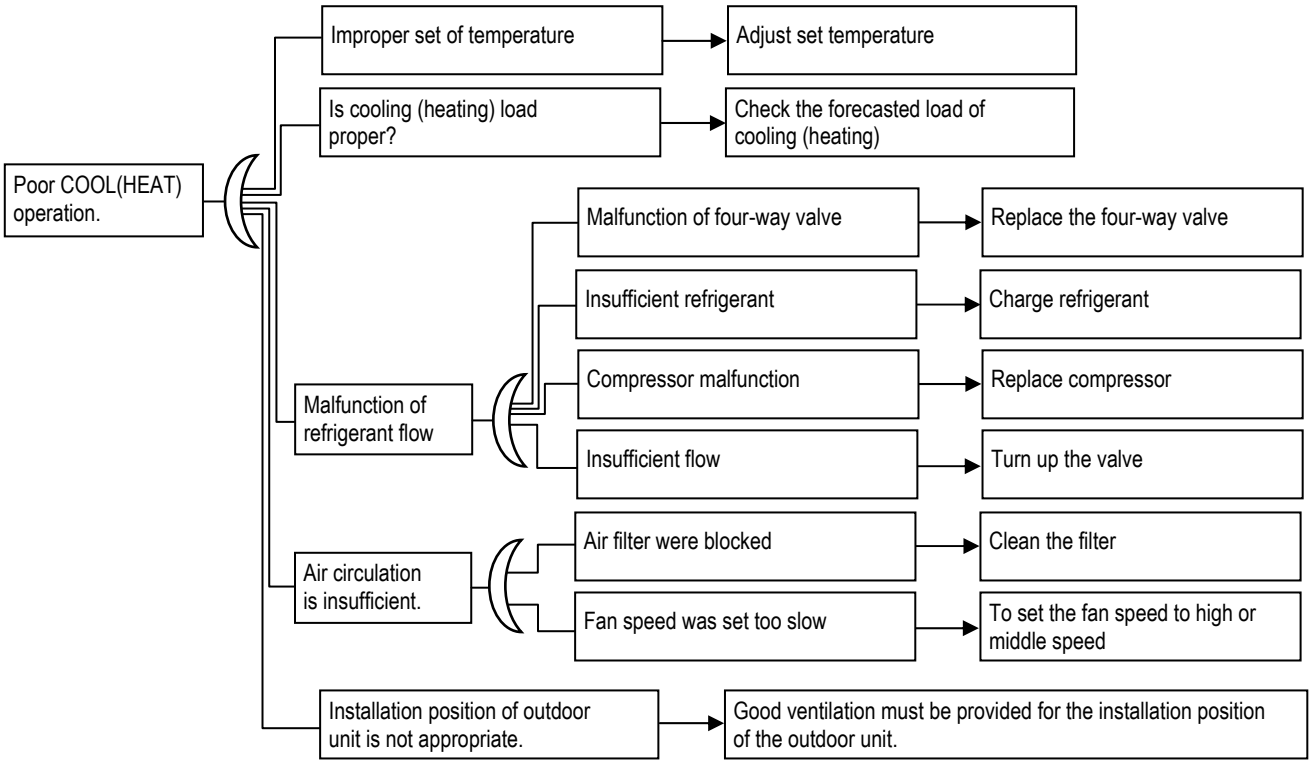


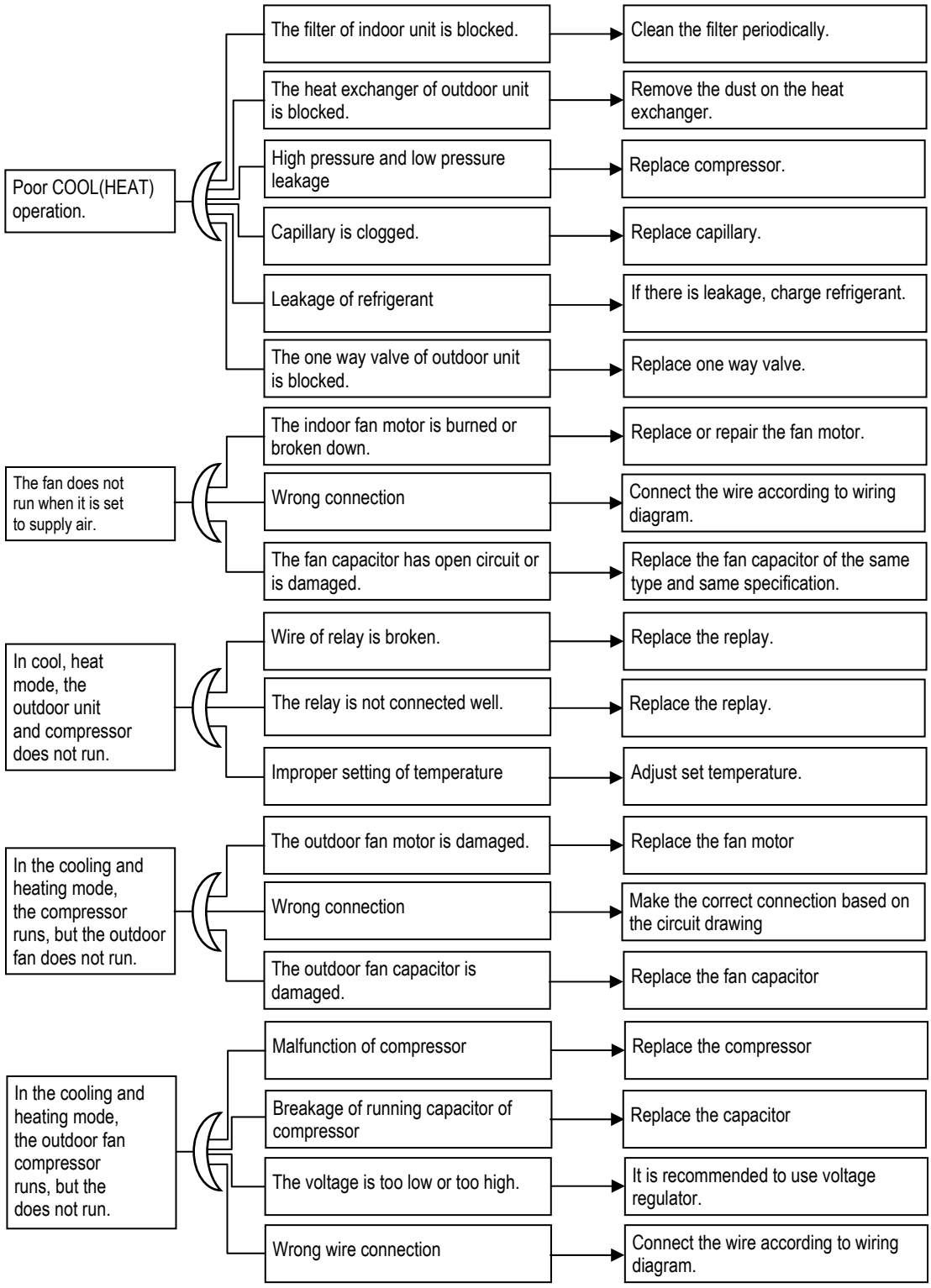
2.10 Communication malfunction

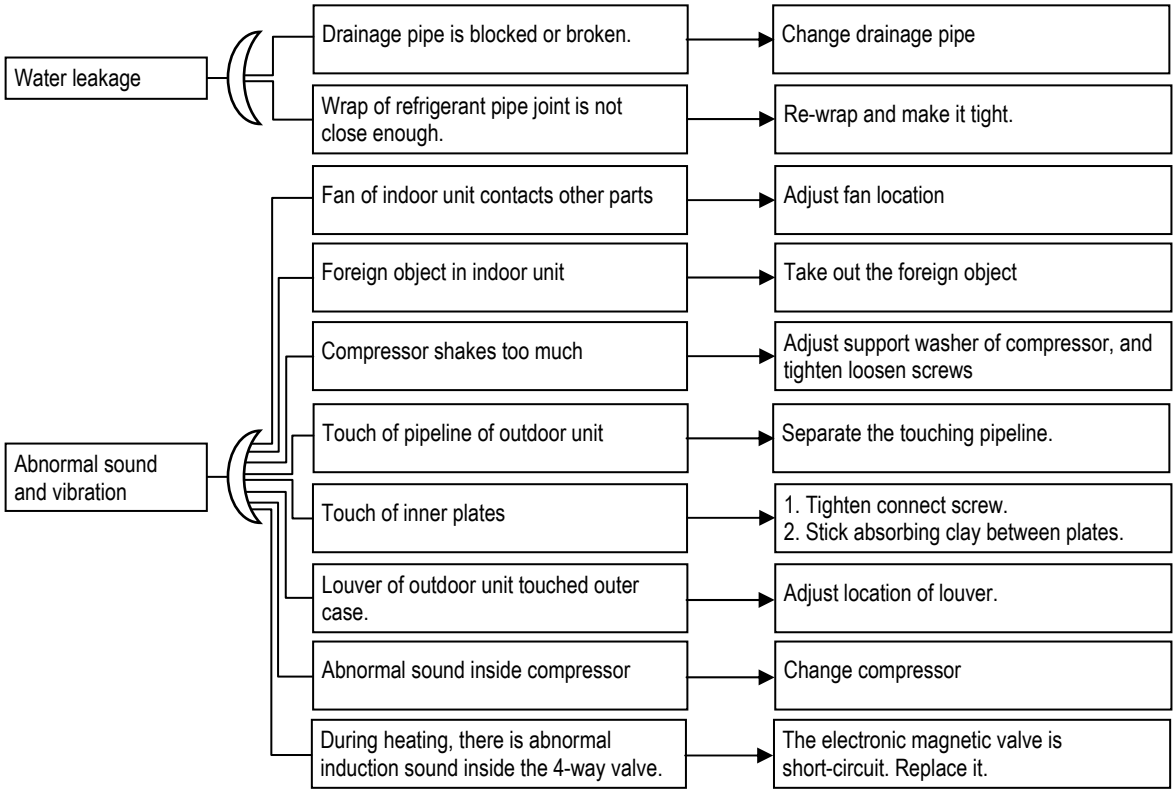


3. Common Section






Poor COOL(HEAT) operation.
The filter of indoor unit is blocked.
Clean the filter periodically.
The heat exchanger of outdoor unit is blocked.
Remove the dust on the heat exchanger.
High pressure and low pressure leakage
Replace compressor.
Capillary is clogged.
Replace capillary.
Leakage of refrigerant
If there is leakage, charge refrigerant.
The one way valve of outdoor unit is blocked.
Replace one way valve.
The fan does not run when it is set to supply air.
The indoor fan motor is burned or broken down.
Replace or repair the fan motor.
Wrong connection
Connect the wire according to wiring diagram.
The fan capacitor has open circuit or is damaged.
Replace the fan capacitor of the same type and same specification.
In cool, heat mode, the outdoor unit and compressor does not run.
Wire of relay is broken.
Replace the replay.
The relay is not connected well.
Replace the replay.
Improper setting of temperature
Adjust set temperature.
In the cooling and heating mode, the compressor runs, but the outdoor fan does not run.
The outdoor fan motor is damaged.
Replace the fan motor
Wrong connection
Make the correct connection based on the circuit drawing
The outdoor fan capacitor is damaged.
Replace the fan capacitor
In the cooling and heating mode, the outdoor fan compressor runs, but the does not run.
Malfunction of compressor
Replace the compressor
Breakage of running capacitor of compressor
Replace the capacitor
The voltage is too low or too high.
It is recommended to use voltage regulator.
Wrong wire connection
Connect the wire according to wiring diagram.

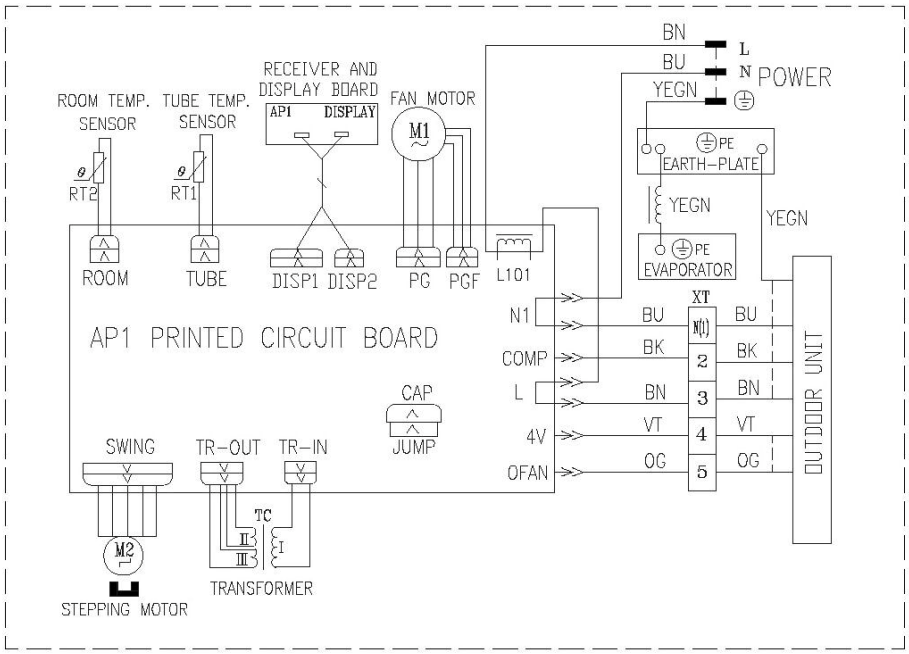

Water leakage
Drainage pipe is blocked or broken.
Change drainage pipe
Wrap of refrigerant pipe joint is not close enough.
Re-wrap and make it tight.
Abnormal sound and vibration
Fan of indoor unit contacts other parts
Adjust fan location
Foreign object in indoor unit
Take out the foreign object
Compressor shakes too much
Adjust support washer of compressor, and tighten loosen screws
Touch of pipeline of outdoor unit
Separate the touching pipeline.
Touch of inner plates
1. Tighten connect screw.
2. Stick absorbing clay between plates.
Louver of outdoor unit touched outer case.
Adjust location of louver.
Abnormal sound inside compressor
Change compressor
During heating, there is abnormal induction sound inside the 4-way valve.
The electronic magnetic valve is short-circuit. Replace it.

Part 7
Appendix

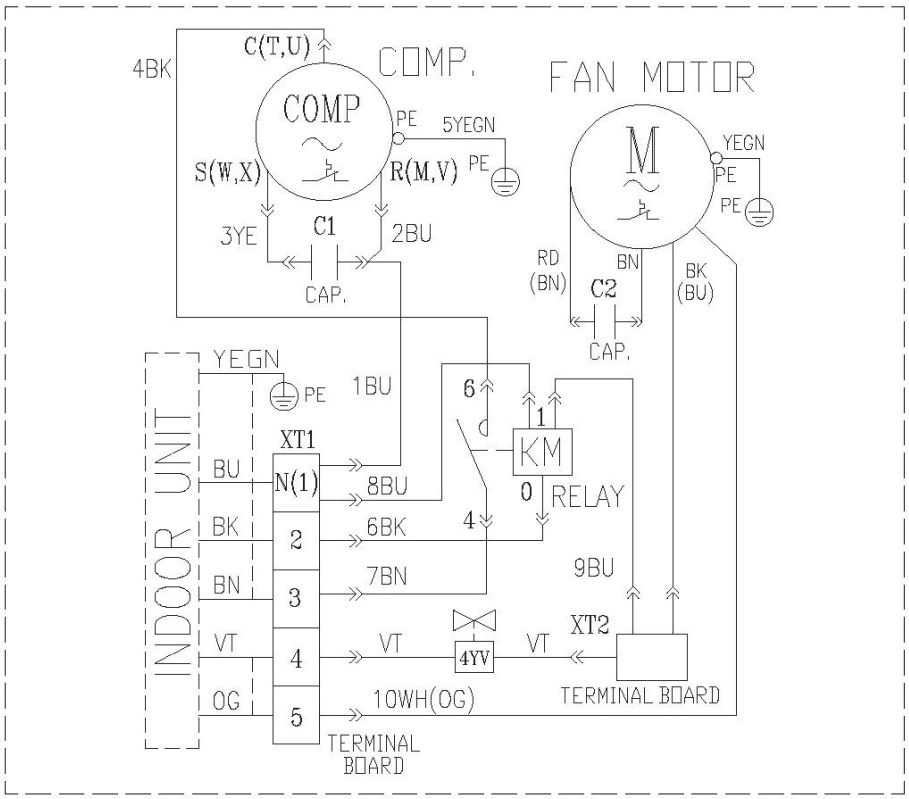
1. Wiring Diagram

1.1 18 Class

FTY18HEV1K

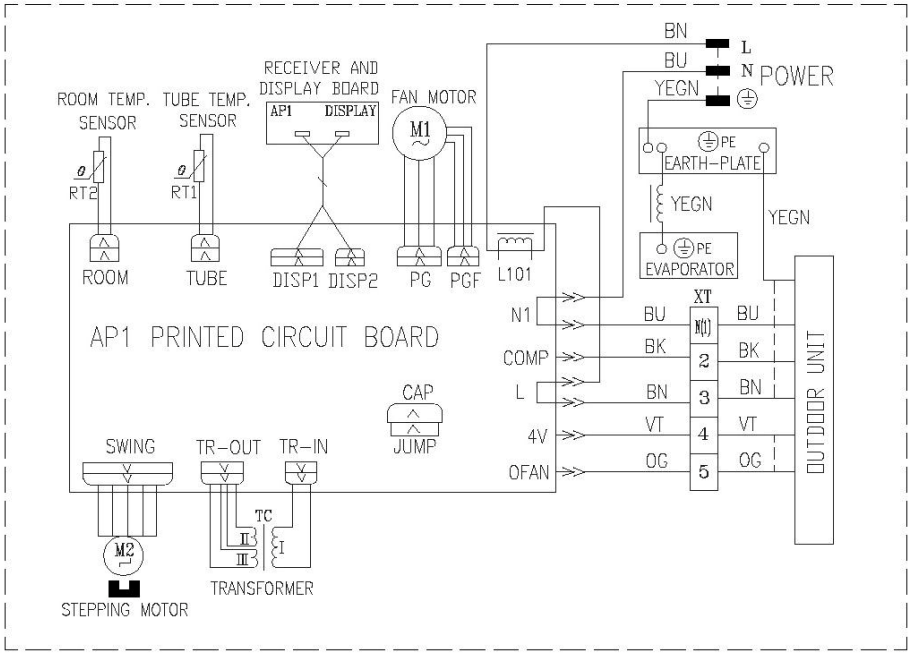


RY18HEV1K

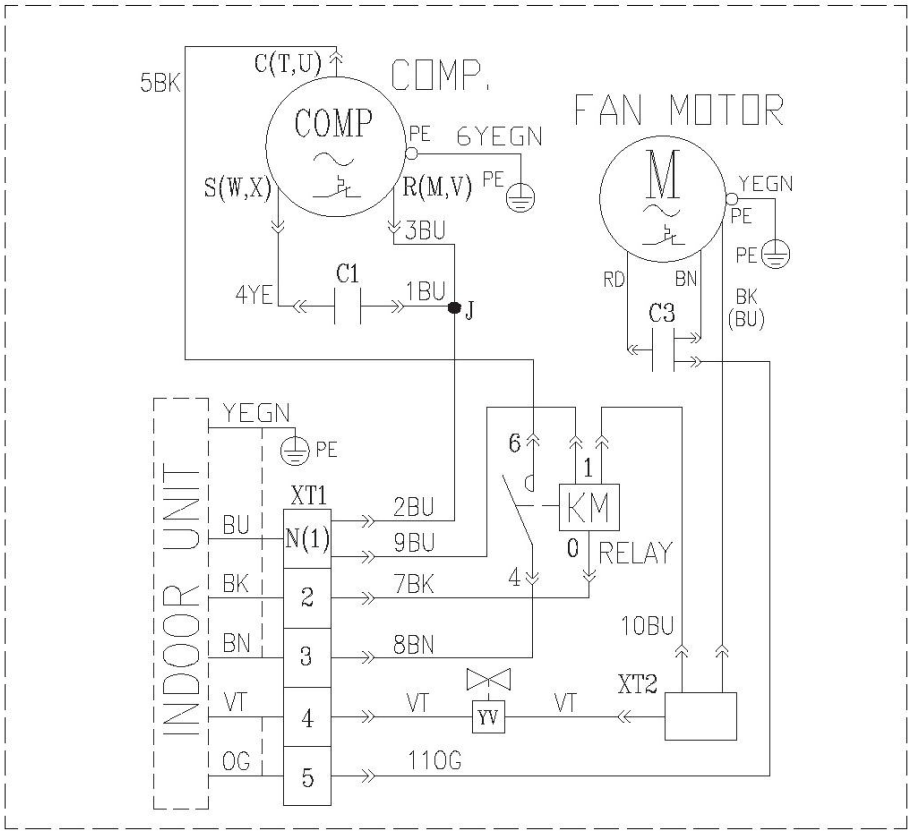


1.2 24 Class

FTY24HEV1K

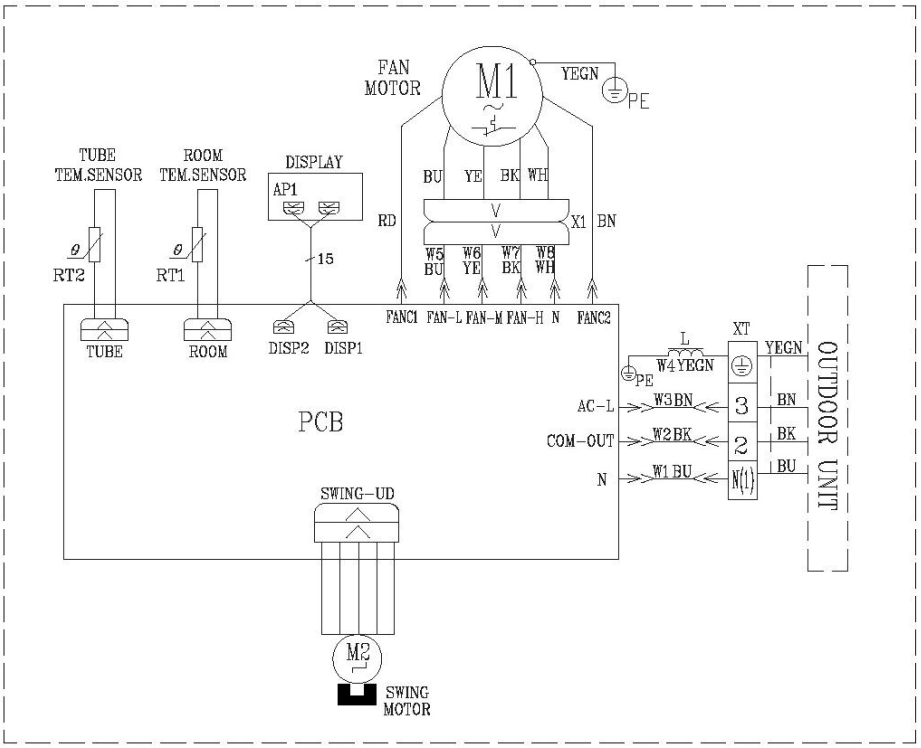


RY24HEV1K



1.3 28 Class

FTY28HEV1K



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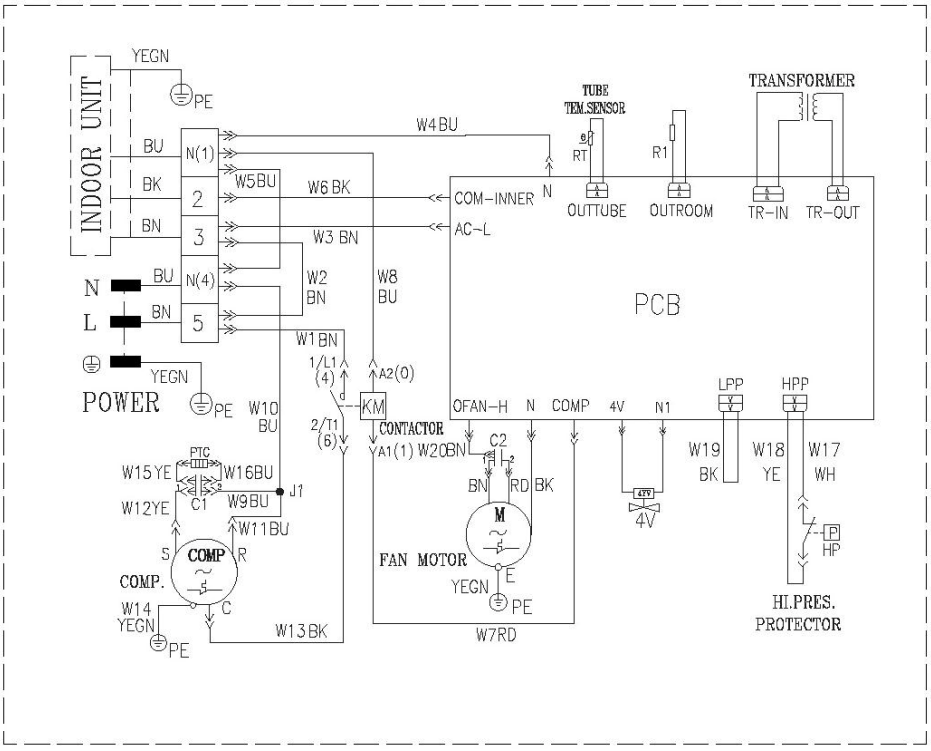

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- Use only those parts and accessories supplied or specified by Daikin. Ask a qualified installer or contractor to install those parts and accessories. Use of unauthorised parts and accessories or improper installation of parts and accessories can result in water or refrigerant leakage, electrical shock, fire or explosion.
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JMI-0107

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AIR CONDITIONING MANUFACTURING DIVISION

Scope of Registration:
THE DESIGN/DEVELOPMENT AND MANUFACTURE OF COMMERCIAL AIR CONDITIONING, HEATING, COOLING, REFRIGERATING EQUIPMENT, COMMERCIAL HEATING EQUIPMENT, RESIDENTIAL AIR CONDITIONING EQUIPMENT, HEAT RECLAIM VENTILATION, AIR CLEANING EQUIPMENT, MARINE TYPE CONTAINER REFRIGERATION UNITS, COMPRESSORS AND VALVES.

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Scope of Registration:
THE DESIGN/DEVELOPMENT AND MANUFACTURE OF AIR CONDITIONERS AND THE COMPONENTS INCLUDING COMPRESSORS USED FOR THEM

EC99J2044

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